



# Angeles Link – Phase 1 Quarterly Report (Q3 2024)

For the period of July 1, 2024 through September 30, 2024

## **Appendices 4 to 10**

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## **Appendix 4 - Attendee Lists for PAG and CBOSG Workshop Meetings (including those invited)**

### CBOSG July Invitee List

Organization	First Name	Last Name
Protect Playa Now	Faith	Myhra
Protect Playa Now	Kevin	Weir
Ballona Wetland Institute	Marcia	Hanscom
Ballona Wetland Institute	Marcia	Hanscom
California Greenworks	Mike	Meador
California Greenworks	Jessy	Shelton
California Greenworks	Michael	Berns
Communities for a Better Environment	Theo	Caretto
Communities for a Better Environment	Roberto	Cabrales
Communities for a Better Environment	Ambar	Rivera
Communities for a Better Environment	Roselyn	Tovar
Communities for a Better Environment	Jay	Parepally
Communities for a Better Environment	Lauren	Gallagher
Breathe Southern California	Marc	Carrel
Breathe Southern California	Tigran	Agdaian
Nature for All	Belen	Bernal
Nature for All	Steven	Ochoa
Climate Action Campaign	Ayn	Craciun
Climate Action Campaign	Lexi	Hernandez
Vote Solar	Andrea	Leon-Grossmann
Food and Water Watch	Andrea	Vega
Food and Water Watch	Chirag	Bhakta
Defend Ballona Wetlands	Robert Roy	van de Hoek
Defend Ballona Wetlands	Jackson	Garland
Physicians for Social Responsibility - Los Angeles	Alex	Jasset
Go Green Initiative	Jill	Buck
Chinatown Service Center	Daisy	Ma
Chinatown Service Center	Kerry	Situ
Soledad Enrichment Action	Enrique	Aranda
Soledad Enrichment Action	Nathan	Aranda
Communities for Responsible Community Development	Ricardo	Mendoza
Communities for Responsible Community Development	Kenta	Estrada-Darley
Watts/Century Latino Organization	Autumn	Ybarra
Little Tokyo Community Council	Kristin	Fukushima
Little Tokyo Community Council	Chris	Fukushima
Reimagine LA Foundation	Rashad	Trapp
Reimagine LA Foundation	Shawna	Andrews
Reimagine LA Foundation	Raul	Claros
Mexican American Opportunity Foundation	Ciriaco "Cid"	Pinedo
Watts Labor Community Action Committee	Timothy	Watkins
Watts Labor Community Action Committee	Thelmy	Alvarez
LA Black Workers Center/Care at Work, UCLA Labor Center	Andrea	Slater
LA Black Workers Center/Care at Work, UCLA Labor Center	Deja	Thomas
LA Black Workers Center/Care at Work, UCLA Labor Center	Andrea	Slater
Alma Family Services	Lourdes	Caracoza
Alma Family Services	Aida	Vega
Alma Family Services	Diego	Rodriguez
Southside Coalition of Community Health Centers	Andrea	Williams
Southside Coalition of Community Health Centers	Lucy	Castro
Greater Zion Church Family	Michael	Fisher
Greater Zion Church Family	Danny	Harrison
Greater Zion Church Family	Aquyla	Walker
Faith and Community Empowerment (FACE)	Hypin	Im
YMCA of Greater Los Angeles	Gerry	Salcedo
Parents, Educators/Teachers, and Students in Action (PESA)	Seymour	Amster
Parents, Educators/Teachers, and Students in Action (PESA)	Ella	Cavlan
Parents, Educators/Teachers, and Students in Action (PESA)	Olivia	Fike
Parents, Educators/Teachers, and Students in Action (PESA)	Araksya	Nordikyan
Los Angeles Indigenous People's Alliance	Luis R.	Pena

**CBOSSG July Invitee List**

<b>Organization</b>	<b>First Name</b>	<b>Last Name</b>
Los Angeles Indigenous People's Alliance	Jamie	Patino
California Native Vote Project	Rene	Williams
Comunidades Indigenas en Liderazgo (CIELO)	Odilia	Romero

## CBOSG July Workshop Attendees

CBOSG					
Organization	First Name	Last Name	In Person	Zoom	
Little Tokyo LA	Kisa	Ito		X	
Southside Coalition	Andrea	Williams		X	
California Greenworks	Michael	Berns	X		
Ballona Wetlands Institute	Marcia	Hanscom	X		
Reimagine LA	Rashad	Rucker-Trapp		X	
MY Workforce Solutions LLC	Michelle	Yanez	X		
Defend Ballona Wetlands	Robert	Roy van de Hoek	X		
Coalition for Responsible Community Development	Kenta	Estrada-Darley	X		
Soledad Enrichment Action	Enrique	Aranda	X		
Go Green Initiative	Jill	Buck		X	
Coalition for Responsible Community Development	Ricardo	Mendoza	X		
Communities for a Better Environment	Jay	Parepally		X	
Physians for Social Responsibility	Alex	Jasset		X	
Mexican American Opportunity Foundation	Ciriaco "Cid"	Pinedo		X	
Faith and Community Empowerment	Hypein	Im		X	
Food and Water Watch	Andrea	Vega		X	
Reimagine LA	Raul	Claros	X		
Non CBOSG					
California Public Utilities Commission	Christopher	Arroyo		X	
Insignia Environmental	Armen	Keochekian		X	
Insignia Environmental	Julie	Roshala		X	
Insignia Environmental	Anniken	Lydon		X	
<b>TOTAL CBOs</b>				<b>15</b>	

## PAG July Invitee List

Organization	First name	Last name
Agricultural Energy Consumers Association	Michael	Boccardo
Air Products	JP	Gunn
Air Products	Lorraine	Paskett
Air Products	Seth	Hilton
Air Products	Miles	Heller
Air Products	Vince	Wiraatmadja
ARCHES	Angelina	Galiteva
ARCHES	Tyson	Eckerle
Bizfed	Sarah	Wiltfong
Bloom Energy	Christina	Tan
California Air Resources Board	Steve	Cliff
California Energy Commission	Rizaldo	Aldas
California Hydrogen Business Council	Katrina	Fritz
California Manufacturers and Technology Association	Lance	Hastings
California Manufacturers and Technology Association	Robert	Spiegel
California Public Utilities Commission	Arthur (Iain)	Fisher
California Public Utilities Commission	Christopher	Arroyo
California Public Utilities Commission	Christopher	Myers
California Public Utilities Commission	Matthew	Taul
California Public Utilities Commission	Jack	Chang
California Public Utilities Commission	Sasha	Cole
California Public Utilities Commission	Nick	Zanjani
California Public Utilities Commission	Nathaniel	Skinner
California Public Utilities Commission	Kaj	Peterson
California Public Utilities Commission	Benjamin	Tang
California Water Data Consortium	Deven	Upadhay
City of Burbank	Anthony	D'aquila
City of Long Beach - Long Beach Water	Diana	Tang
City of Long Beach - Utilities	Tony	Foster
City of Long Beach - Utilities	Dennis	Burke
City of Long Beach - Utilities	Heather	Hamilton
City of Long Beach*	Mario	Cordero
Clean Energy	Nora	Sheriff
Clean Energy Strategies representing the Utility Consumers' Acti	Tyson	Siegele
Communities for a Better Environment	Theo	Caretto
Communities for a Better Environment	Shara	Burwell
Communities for a Better Environment	Roberto	Cabrales
Communities for a Better Environment	Jay	Parepally
Communities for a Better Environment	Lauren	Gallagher
Earth Justice	Sara	Gersen
Energy Independence Now	Brian	Goldstein
Environmental Defense Fund	Joon Hun	Seong
Environmental Defense Fund	Michael	Colvin
Environmental Justice League	Russell	Lowery

Fernandeno Tataviam Band of Mission Indians	Ray	Salas
GoBiz	Deedee	Myers
Green Hydrogen Coalition	Hope	Fasching
Green Hygroden Coalition	Sergio	Dueñas
Green Hydrogen Coalition	Janice	Lin
Harbor Trucking Association	Karla	Sanchez
Harbor Trucking Association	Matthew	Schrap
Independent Energy Producers Association*	Jan	Smutny Jones
Independent Energy Producers Association*	Sara	Fitzsimon
International Longshore and Warehouse Union Local 13	Sal	DiConstanzo
International Longshore and Warehouse Union Local 13	Mark	Jurisc
International Longshore and Warehouse Union Local 13	Sophia	Dubrovich
LAWDP	Joseph	Ortiz
Local Union 250	Nathaniel	Williams
Local Union 250	Hector	Carbajal
Los Angeles Department of Water and Power	Aaron	Guthrey
Los Angeles Department of Water and Power	Marty	Adams
Los Angeles Department of Water and Power	Paul	Habib
Los Angeles Department of Water and Power	Nermina	Rucic
Los Angeles Department of Water and Power	Jesse	Vismonte
Los Angeles Department of Water and Power	Xinhe	Le
Los Angeles Department of Water and Power	Eric	Hill
Metropolitan Water District	Deven	Upadhyay
Natural Resources Defense Council	Pete	Budden
Pasadena Water & Power	Erik	Johnson
Port of Los Angeles	Mike	Galvin
Port of Los Angeles	Tim	DeMoss
Protect our Communities Foundation	Malinda	Dickenson
Reimagine LA	Rashad	Rucker-Trapp
Reimagine LA	Raul	Claros
Sierra Club	Monica	Embrey
Sierra Club	Julia	Dowell
Sierra Club	Teresa	Cheng
South Coast AQMD	Maryam	Hajbabaei
South Coast AQMD	Sam	Cao
South Coast AQMD	Aaron	Katzenstein
South Coast AQMD	Vasileios	Papapostolou
Southern CA Water Coalition	Charley	Wilson
Southern California Association of Governments	Kome	Ajise
Southern California Generation Coalition	Norman	Pedersen
Southern California Leadership Council	Richard	Lambros
Southern California Pipe Trades	Rodney	Cobos
Southern California Public Power Authority	Charles	Guss
The United Association	Aaron	Stockwell
UC Davis Insitute of Transportation Studies	Lukas	Wernert
UC Davis Sustainable Transportation Energy Pathways	Lew	Fulton
UCI Advanced Power and Energy Program	Jack	Brouwer



University of CA Riverside	Arun	Raju
UC Davis Sustainable Transportation Energy Pathways	Stefania	Mitova
Utility Reform Network (TURN)	Marcel	Hawiger
Utility Reform Network (TURN)	Marna	Paintsil Anning
Utility Workers Union of America 483	Ernest	Shaw
Utility Workers Union of America 483	Robin	Downs
Utility Workers Union of America 483	Anthony	Flores
Utility Workers Union of America Local 132	Joe	Moreno

## PAG Q3 Meeting - July 24, 2024

### PAG

Organization	First name	Last name
Agricultural Energy Consumers Association	Michael	Boccardo
Air Products	Miles	Heller
Bizfed	Sarah	Wiltfong
California Energy Commission	Rizaldo	Aldas
California Hydrogen Business Council	Katrina	Fritz
California Public Utilities Commission	Sasha	Cole
California Public Utilities Commission	Arthur (Iain)	Fisher
California Public Utilities Commission	Christopher	Arroyo
California Public Utilities Commission	Matthew	Taul
California Public Utilities Commission	Benjamin	Tang
Clean Energy Strategies representing the Utility Consumers' Action Network	Tyson	Siegele
Energy Independence Now	Brian	Goldstein
Environmental Defense Fund	Joon Hun	Seong
Environmental Defense Fund	Michael	Colvin
Green Hydrogen Coalition	Janice	Lin
Harbor Trucking Association	Matthew	Schrap
Independent Energy Producers Association	Sara	Fitzsimon
International Longshore and Warehouse Union Local 13	Sal	DiConstanzo
Los Angeles Department of Water and Power	Aaron	Guthrey
Los Angeles Department of Water and Power	Jesse	Vismonte
Pasadena Water and Power	Erik	Johnson
Sierra Club	Julia	Dowell
South Coast AQMD	Aaron	Katzenstein
South Coast AQMD	Sam	Cao
Southern California Generation Coalition	Norman	Pedersen
Utility Workers Union of America 483	Ernest	Shaw
Utility Workers Union of America 483	Robin	Downs
UA Local 250	Brandon	Mortoff
UA Southern California District Council	Wyatt	Stiles
United Association Local 250	Ben	Clayton
United Association Local 250	Matthew	Williams
United Association Local 364	Tracy	Gibson
United Association Local 364	John	Sisley

### Non PAG

Arellano Associates*	Chester	Britt
Arellano Associates*	Nancy	Verduzco
Arellano Associates*	Suzanna	Tran
Insignia Environmental	Armen	Keochekian
Insignia Environmental	Anniken	Lydon
Insignia Environmental	Julie	Roshala
Lee Andrews Group*	Alma	Marquez
Lee Andrews Group*	Keshanna	Wiley

SoCalGas\*  
SoCalGas  
SoCalGas\*  
SoCalGas\*  
SoCalGas\*  
SoCalGas\*  
SoCalGas\*  
SoCalGas\*  
SoCalGas\*

Emily	Grant
Andy	Carrasco
Frank	Lopez
Amy	Kitson
Jessica	Foley
Shirley	Arazi
Yuri	Freedman
Neil	Navin
Chanice	Allen



## **Appendix 5 - Workshop Meetings Transcripts**

HEARD BEFORE SO CAL GAS

ANGELES LINK TEAM

In the Matter of the Meeting re: )  
 )  
 ANGELES LINK COMMUNITY BASED )  
 ORGANIZATION STAKEHOLDER GROUP )  
 \_\_\_\_\_ )

CERTIFIED COPY

TRANSCRIPT OF PROCEEDINGS

Hybrid Meeting

Tuesday, July 23, 2024

Reported by:

SHELBY K. MAASKE  
HEARING REPORTER

Job No.  
49637 LEE

1 HEARD BEFORE SO CAL GAS

2 ANGELES LINK TEAM

3  
4  
5  
6 In the Matter of the Meeting re: )  
7 ANGELES LINK COMMUNITY BASED )  
8 ORGANIZATION STAKEHOLDER GROUP )  
9

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10  
11  
12  
13  
14  
15 Transcript of Proceedings, held via  
16 Zoom Videoconference, commencing at 10:00 a.m.  
17 and ending at 2:05 p.m. on Tuesday, July 23, 2024,  
18 reported by Shelby K. Maaske, Hearing Reporter.  
19  
20  
21  
22  
23  
24  
25

1 APPEARANCES :

2	SoCalGas :	Fred Lopez
3		Amy Kitson
4		Emily Grant
5		Chanice Allen
6		Katrina Regan
7		Yuri Freedman
8		Dustin Jeffords
9		Sarah James
10		Keshanna
11		
12		
13	Arellano Associates :	Chester Britt
14	Lee Andrews Group :	Alma Marquez
15	Soledad Enrichment Action :	Enrique Aranda
16	PSR-LA :	Alex Jasset
17		
18	Mexican American Opportunity Commission :	Ciriaco Pineda
19	California Greenworks :	Michael Burns
20	Little Tokyo Community Council :	Kiso Ito
21	Ballona Wetlands Institute :	Marcia Hanscom
22	Reimagine LA Foundation :	Raul Claros
23		Rashad Rucker-Trapp
24	Defend Ballona Wetlands :	Robert van de Hoek
25	California Greenworks :	Michael Burns
26	Coalition for Responsible Community Development :	Kenta
27		Estrada-Darley
28		Ricardo Mendoza

1 APPEARANCES:

2  
3 South Side Coalition  
4 for Responsible Community  
Development: Andrea Williams

5  
6 Go Green Initiative  
Association: Jill Buck

7  
8 Food and Water Watch: Andrea Vega

9 Physicians for Social  
Responsibility Los Angeles: Dr. Michelle Yanez

10  
11 Faith and Community  
Empowerment: Hyepin Im

12  
13 Communities for Better  
Environment: Jay Parepally



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1 Remote Proceedings, California; Tuesday, July 23, 2024

2 10:00 a.m.

3  
4  
5 MS. MARQUEZ: Thank you, everyone, for being here  
6 in person. Welcome to the July workshop, CBOSG. I want  
7 to thank the folks here in person. I know that we are in  
8 the middle of a scorching heat wave and you all made the  
9 attempt to be here. A special shout out to Ricardo for  
10 wearing a suit.

11 That's pretty heavy for this weather outside, so  
12 thank you for dressing up for us, Ricardo. We appreciate  
13 it.

14 My name is Alma Marquez, and I'm a VP of  
15 Government Relations for the Lee Andrews Group and also  
16 your CBO lead facility. Again, welcome, and let's go  
17 ahead and get started with today's meeting.

18 First, let's go over the agenda. You all have a  
19 folder that was given to you at the registration table,  
20 and for the folks online, we will drop it in the chat, the  
21 three worksheets that the CBOs were handed to help with  
22 the presentation today.

23 So first, we will be starting off with your  
24 safety moment and our Land Acknowledgement, and then our  
25 roll call, and then our welcome from our director,

1 Fred Lopez, and then we will go into our Production  
2 Planning and Assessment, and that will be given through  
3 one of our SoCalGas subject matter experts. And then our  
4 next report will be the Preliminary Routing/Configuration  
5 Analysis with Piping, Sizing and Permitting, and then we  
6 will break into lunch.

7 Then we will follow with the Environment Social  
8 Justice Plan and Screening, and then we will have you all  
9 break out into small groups to further this -- have a  
10 conversation about the ESJ plan, and then we will close  
11 with our next steps.

12 So with that being said, let's go ahead and get  
13 started with our safety moment given by Emily.

14 MS. GRANT: Good morning, everybody. Quick  
15 safety moment. I wanted to share something with you from  
16 my personal life that I do every summer. Some of you know  
17 I have a special needs kiddo and he is going to be 11 in  
18 the fall and he is not water safe, so I have this. It is  
19 my Water Watcher badge.

20 It says, "While wearing this tag, I agree to  
21 supervise the children in the open water or pool, keeping  
22 them in sight at all times. I will not leave the water  
23 area without finding an adult to replace me."

24 This has been a very effective tool when we are  
25 in crowded pools and community pools and the ocean and

1 there are many people around. This really, really helps  
2 the adults to serve as a reminder that it's our  
3 responsibility to make sure that our kids stay safe. It's  
4 kind of like the saying if everyone is watching the baby,  
5 no one is watching the baby, so this really helps somebody  
6 to stay in charge of that.

7 And I have found even though I get teased a  
8 little bit when I show up with my Water Watcher badge, if  
9 I go to grab a bite to eat or use the restroom and give it  
10 to somebody else, they really do feel that sense of  
11 responsibility when they have it on. So you can Google it  
12 and make your own, or fire departments have them as well.  
13 I got the idea from Anaheim Fire and Rescue. And that's  
14 it. Thank you.

15 MS. MARQUEZ: Thank you, Emily.

16 And with that, I'm going to go ahead and lead us  
17 into our Land Acknowledgment.

18 We respectfully acknowledge the indigenous  
19 peoples whose ancestral land we gather, who, for  
20 generations, have cared for these lands and making their  
21 home here today. We honor and pay our deepest respect to  
22 their elders and descendants -- past, present, and  
23 emerging -- as they continue their stewardship on these  
24 lands and waters for generations to come.

25 We are grateful for the opportunity to live and

1 work on these ancestral lands. We celebrate the  
2 resilience, strength, and unwavering spirit of Indigenous  
3 peoples and are dedicated to creating collaborative,  
4 accountable, and respectful relationships with indigenous  
5 nations and local tribal governments.

6 Now I'd like to lead us into introducing  
7 Fred Lopez, who is our regional public affairs director,  
8 who will give us our official welcome -- let's back up a  
9 little and let's go into roll call. We will go ahead and  
10 get started with the folks that are here. And a reminder  
11 to please state your name and organization you are here  
12 representing for our transcriber that's here who is via  
13 Zoom, and do so throughout today's meeting so that we know  
14 who you are and get proper documentation of that. So  
15 let's go ahead and get started with our meeting.

16 Marcia Hanscom, if you could please state your  
17 name and your organization.

18 MS. HANSCOM: Good morning. Marcia Hanscom with  
19 the Ballona Wetlands Institute on the coast of Los  
20 Angeles.

21 MR. ARANDA: Thank you, Marcia.

22 Good morning. Buenos dias. Enrique Arada,  
23 Soledad Enrichment Act.

24 MR. MENDOZA: Hi. Good morning, everyone.  
25 Ricardo Mendoza with Coalition for Responsible Community

1 Development, otherwise known as CRCDC.

2 MR. VAN DE HOEK: My name is Roy Robert Young van  
3 de Hoek from Sylmar, and the organization is Defend  
4 Ballona Wetlands. And I'd like to introduce my friend  
5 here, the American Coot, a native bird of the wetlands  
6 that used to be the most abundant bird of Los Angeles  
7 County, but no longer is. It's not extinct, there's just,  
8 like, one percent of what there used to be in Los Angeles  
9 County.

10 Could I just say something about the safety  
11 moment, Emily? I'm going to take you up on doing that  
12 with the fire department, because just a few weeks ago, my  
13 sister and her grandchildren -- 7, 3 and 1 -- were there  
14 and it was just amazing how focused the family was on  
15 making sure that everybody was safe.

16 And then Land Acknowledgment, which is really  
17 good that you do, but I would like to suggest that our  
18 next meeting, in addition to what Alma -- what you read,  
19 that you also maybe show the Los Angeles County Board of  
20 Supervisors. It's a five-minute video with beautiful  
21 photography, and really well thought of wording that came  
22 from their Los Angeles County Native American Indian  
23 Commission. It's really a good thing.

24 MS. MARQUEZ: Thank you for that.

25 MR. BURNS: Good morning. Michael Burns with

1 California Greenworks.

2 MS. MARQUEZ: Fun fact, Michael is always the  
3 first one to get here.

4 Thank you, Michael. We appreciate you.

5 MR. ESTRADA-DARLEY: If you are not early, you're  
6 late.

7 Kenta Estrada-Darley with the Coalition for  
8 Responsible Community Development. Good to see everyone.

9 MS. MARQUEZ: Good to have you, Kenta.

10 And with that, we are going to go ahead and get  
11 to our Zoom participants, and we will start off with  
12 Andrea Williams.

13 Would you please unmute yourself and state your  
14 name.

15 MS. WILLIAMS: Good morning, everyone. Andrea  
16 Williams, South Side Coalition of Community Health  
17 Centers.

18 MS. MARQUEZ: Welcome, Andrea.

19 We will go ahead and move with Jill Buck.

20 MS. BUCK: Good morning, Jill Buck with the Go  
21 Green Initiative Association.

22 MS. MARQUEZ: Welcome, Jill.

23 And I believe that is all of our CBOs online.

24 Oh, I'm sorry. I think I saw Andrea Vega.

25 If you could please unmute yourself and state



1 your name and organization.

2 MS. VEGA: Hi. Yes. Good morning. Andrea Vega  
3 with Food and Water Watch.

4 MS. MARQUEZ: And we have Kiso Ito.

5 If you could please unmute yourself and state  
6 your name and organization. Kisa Ito?

7 We have Kiso Ito with Little Tokyo LA.

8 Alex Jasset?

9 MR. JASSET: Good morning. Hi, everyone. Alex  
10 Jasset, Physicians for Social Responsibility Los Angeles.

11 MS. MARQUEZ: Welcome back.

12 Cid, if you could please unmute yourself.

13 MR. PINEDA: Good morning. Ciriaco Pineda with  
14 Mexican American Opportunity Foundation.

15 MS. MARQUEZ: Welcome.

16 And then we have Hyepin.

17 MS. IM: Good morning. Hyepin Im with Faith and  
18 Community Empowerment.

19 MS. MARQUEZ: And we have Jay.

20 Can you please state your name and organization.

21 MR. PAREPALLY: Jay Parepally, Communities for a  
22 Better Environment.

23 MS. MARQUEZ: I believe that's everyone we have  
24 online joining us. Again, thank you for joining us via  
25 Zoom for today's meeting.

1           And let's go ahead and forward to Frank Lopez who  
2 will be giving us our welcome this morning, who is our  
3 regional public affairs director.

4           MR. LOPEZ: Thank you, Alma.

5           Good morning, everyone. It's great seeing you.  
6 I want to thank everyone who attended our June quarterly  
7 meeting. It's been just a little bit over a month since  
8 we last met. It's been very busy, and a lot has happened  
9 since then, and I want to catch you up on those  
10 activities.

11           A couple of housekeeping things. We did make a  
12 couple of changes in response to the June meeting that  
13 took place. One, we received a request to get information  
14 for those who participated in our CBOSG, so we did update  
15 our roster and our living library to include member  
16 e-mails. If you don't want your e-mail address  
17 socialized, just please let me or Emily know and we will  
18 update that information.

19           We also made a small correction to our first  
20 quarterly report to include a one-on-one meeting with a  
21 CBOSG member that was inadvertently missed.

22           Thank you, Jay, for bringing that to our  
23 attention.

24           A couple of other updates that have happened  
25 since June, two feedback periods closed, the comment

1 period closed on our preliminary findings for environment  
2 analysis and our draft report for hydrogen leakage. All  
3 of the comment letters that we received on those are  
4 posted in the living library.

5 I want to thank those who took time to review  
6 that material and submitted comments. We are in the  
7 process of reviewing those comments and we will respond in  
8 our Q2 report which we are working on and hope to have out  
9 soon.

10 In terms of the status of the draft studies -- if  
11 you can go to the next slide please -- we are currently on  
12 Step 4 of our four-step feedback process. You can see up  
13 here, the first one was on scope of work, and then we  
14 presented technical approach. And the last couple of  
15 months, we spent time going through some preliminary  
16 findings, and now we are issuing draft reports.

17 All studies are now in draft report phase, there  
18 are no more preliminary findings being presented in  
19 PowerPoint. Just a reminder, this means that you are  
20 receiving full study information and have four weeks to  
21 comment on the preliminary findings that we are providing  
22 in two weeks, so you have more time and more information  
23 to digest.

24 We currently have nine draft reports out for  
25 comment. If you could go to the next slide, please. You

1 can see here, those in green at the top are those that we  
2 have already issued and the comment period has been  
3 completed. The blue ones are all of the draft studies  
4 that have been issued and are open for comments, and we  
5 have three remaining drafts that we have yet to issue but  
6 hope to issue soon.

7 We hope everyone gets an opportunity to read and  
8 comment on every study. We understood that some of you  
9 may be unable to do so and that's fine. It's not  
10 necessary for you to provide written comments on every  
11 study. It's fine to prioritize and comment on those that  
12 you most care about.

13 One of the things I do want to mention is we are  
14 nearing the end of Phase 1. As you can see here in the  
15 slide, we are close to issuing almost every single study,  
16 and when meet again, it's likely that all of the studies  
17 will have been issued by then. We have yet to schedule  
18 our next meeting. I know you've asked for information so  
19 you can plan ahead. We are still trying to identify the  
20 best time for us to meet again.

21 Our preference is to meet once we issued our  
22 second quarterly report when all of the studies have been  
23 issued and comments have been received and we have more  
24 information about the conclusion of Phase 1. As soon as  
25 we solidify a date, we will be sure to send out the

1 save-the-date as soon as possible so you can hold that  
2 date and plan ahead. And, as always, we will send out the  
3 topics and agenda at least one week prior to the meeting.

4 Another big point that I want to bring to your  
5 attention, there was some really big news. For those of  
6 you who didn't hear, the U.S. Department of Energy and  
7 ARCHES announced on July 16th the official signing of  
8 their landmark \$12.6 billion agreement to build a clean,  
9 renewable hydrogen hub in California, this includes up to  
10 \$1.2 billion in federal funding. The agreement also  
11 includes \$30 million for the first tranche of funding to  
12 begin Phase 1.

13 According to ARCHES, this is the largest  
14 cooperative agreement DOE has ever signed and the first of  
15 the hydrogen hubs to complete their agreement. So as you  
16 know, we stated in previous meetings, we have segments of  
17 ARCHES -- of interest including in the ARCHES foundational  
18 hydrogen hub. I just want to say that as a member of  
19 ARCHES, we are very proud of this historic moment.

20 This investment demonstrates the essential role  
21 that clean, renewable hydrogen will play in accelerating  
22 California's clean energy goals, and this is really,  
23 really big news. Personally, I am very proud of  
24 California to be the first in the nation to sign this  
25 agreement, and I think this really means a lot for the

1 State.

2 Now that ARCHES has signed its agreement with  
3 DOE, it's working with its members like us to provide  
4 subrecipient agreements with terms and conditions for  
5 review and potential acceptance. So we are in the process  
6 right now of negotiating with ARCHES on that. We can't  
7 disclose more details of our other projects other than  
8 what we've shared with you already, but we are happy to  
9 provide an update to this group at a future meeting once  
10 we finalize that subrecipient agreement with them.

11 For those of you who want more information about  
12 ARCHES, I encourage you to please visit their website, and  
13 also the DOE's website on their announcement. Actually,  
14 the ARCHES website will link you to that announcement.  
15 There is a really good project fact sheet that summarizes  
16 all of the projects and potential benefits that can come  
17 from that award.

18 They also have a fact sheet on their community  
19 benefits plan agreement. They did a really nice job in,  
20 sort of, packaging that up and making it easy to  
21 understand, so I really encourage you to visit those  
22 websites to get more information. I will stop there.

23 Marcia, you look like you are about to ask me a  
24 question so I'll let you go first.

25 MS. HANSCOM: I'm sorry. I do.

1 MR. LOPEZ: Why don't you hold on while we get  
2 you a microphone. Thank you.

3 MS. HANSCOM: Two quick questions. One, I knew  
4 about the \$1.2 billion approved by the federal government,  
5 I am just wondering where the \$10.4 billion is coming from  
6 given our state budget issues.

7 MR. LOPEZ: It's a cost share, so it's a portion  
8 that the ARCHES members will be contributing to match and  
9 provide their share of the funding --

10 MS. HANSCOM: ARCHES members like the  
11 universities? The CSU? Who?

12 MR. LOPEZ: All of the members. There are dozens  
13 of projects that are part of ARCHES. So some of them  
14 receive federal grants, and then there is going to be a  
15 matching component where they are going to be contributing  
16 to that hub, so it's collectively all of the cost share  
17 associated with the entire agreement.

18 MS. HANSCOM: And is that agreement available for  
19 the public to see?

20 MR. LOPEZ: Not yet.

21 MS. HANSCOM: And when you said, "We are  
22 negotiating with them," is that Angeles Link or SoCalGas?

23 MR. LOPEZ: SoCalGas.

24 MS. HANSCOM: Thank you.

25 MR. LOPEZ: Any other questions? If not, I'll

1 turn it back over to our facilitator.

2 Back to you.

3 MS. MARQUEZ: Thank you for that question,  
4 Marcia.

5 And I got so excited with our CBOs that I forgot  
6 to introduce our other folks that are making this meeting  
7 happen. So let's go ahead and get started with Edith.

8 MS. MORENO: Hi. Edith Moreno with Public  
9 Affairs Strategy and Policy manager with Southern  
10 California Gas Company. It's really good to be back in  
11 the room and see so many familiar faces.

12 MR. FREEDMAN: Good morning, Yuri Freedman,  
13 senior director at SoCalGas.

14 MS. MARQUEZ: We'll continue with Chester.

15 MS. GRANT: Emily Grant, SoCalGas.

16 MR. BRITT: I'm Chester Britt. I help Alma  
17 facilitate the CBOSG.

18 MS. ARAZI: Good morning, everyone. This is  
19 Shirley Arazi, director of Regulatory Policy for Angeles  
20 Link for SoCalGas.

21 MS. KITSON: Good morning, Amy Kitson. I am the  
22 director of Angeles Link Engineering and Technology and  
23 Environmental. Happy to be here.

24 MS. REGAN: Hi. Good morning. This is Katrina  
25 Regan, I am the Engineering and Technology Development



1 manager for Angeles Link.

2 MS. NG: Hi. Good morning. This is Annie Ng,  
3 and I'm one of the project managers on Angeles Link on the  
4 Engineering and Design team. Thank you.

5 MS. FOLEY: Good morning. Jessica Foley, manager  
6 with the Angeles Link team with the Environmental Studies.

7 MR. WALKER: Good morning, Brian Walker, director  
8 of Project Management.

9 MS. MARQUEZ: We also have other SoCalGas staff  
10 joining us via Zoom and in the room helping us to make  
11 this meeting successful and productive as possible. With  
12 that, I will turn it over to Chester to introduce our  
13 first speaker. Thank you.

14 MR. BRITT: Thank you, Alma.

15 So as you guys heard, we have a full agenda  
16 today. We have three specific topics that we are going to  
17 cover and the first one is going to be Production Planning  
18 and Assessment. And you should be familiar with Yuri, he  
19 just introduced himself. He is the senior director of  
20 Business Development. He is going to be making the  
21 presentation.

22 As you have heard, we are now in the draft study  
23 phase where these are being released, and we are also  
24 making presentations on them to hopefully garner your  
25 input. So give your attention to Yuri and we should have

1 a good discussion and follow up with member discussion.

2 MR. FREEDMAN: Thank you, Chester.

3 Again, good morning. I'm going to provide the  
4 overview of key elements of the Production Planning and  
5 Assessment study that you have under you now. Before I  
6 started, I wanted to go back to what Frank had mentioned.  
7 I do really think this is a very exciting time, where, if  
8 you think about the totality of the infrastructure package  
9 at the federal level, California is on the very clear path  
10 to secure a real large portion of that.

11 \$1.2 billion is a major portion of the \$7 billion  
12 package that targets production, and that gives all of us  
13 reasons for optimism that the production at scale of  
14 clean, renewable hydrogen is actually going to take off  
15 which is going to be very important, as we have discussed,  
16 for transition to affordable, resilient, and reliable  
17 future.

18 So it's a really exciting time, and events are  
19 happening, as Frank mentioned, in realtime. I think this  
20 is something that they're going to look back years from  
21 now and reflect that this was the point in time when the  
22 trajectory of the transition of California has changed  
23 noticeably.

24 With that, the Production Plan and Assessment  
25 study has been conducted to realize the potential for

1 production of clean, renewable hydrogen in SoCalGas  
2 service territories through 2045. And the definition of  
3 clean, renewable hydrogen is consistent with the  
4 definition in the Commission's decision, which is to say  
5 that it has the carbon dioxide footprint of less than 4  
6 kilograms of CO2 per kilogram of hydrogen, and is not  
7 going to reduce from fossil fuels.

8           The study relayed the potential sources, input  
9 requirements, and cost of production. And, again, for the  
10 avoidance of doubt, let me just reiterate -- and I know I  
11 brought it up previously, but it's always worth  
12 repeating -- SoCalGas is not looking -- does not intend to  
13 be a producer of hydrogen.

14           We are an infrastructure company, and we plan to  
15 play an infrastructural role transmitting third-party  
16 production from locations where it is going to be produced  
17 for the demands. I just wanted to make it very clear,  
18 because even though I mentioned it many times, this  
19 question sometimes keeps coming up.

20           The next slide entails the review of the  
21 production technologies -- not to get too technical, but  
22 there are multiple ways in which we can produce  
23 zero-emissions hydrogen. You can produce it through  
24 electrolysis using a range of technologies, you can  
25 produce it with a pyrolysis of biomass and range of

1 topics. So we examined many of them, and we share our  
2 conclusions in the report.

3 We further quantified and assessed production  
4 volumes, quite simply, how much production volume needs to  
5 happen in order to address all the demand that we have  
6 identified and realized in the demand studies. From that,  
7 we proceeded to assess the amount of land, because to the  
8 extent hydrogen is being produced with solar energy, it  
9 obviously has a significant land footprint, and we wanted  
10 to be sure that we understand these requirements, and they  
11 are passing the first stage of our analysis.

12 And last but not the least, we analyzed our  
13 production costs. These are the capital costs of  
14 installing this equipment, the operating costs that  
15 ultimately translate into levelized cost of hydrogen that  
16 you have seen in some detail, and you will see more detail  
17 in the cost effective study. But this study laid the  
18 foundation for that by assessing the cost of procuring  
19 electrolyzers, cost of building this technology, and  
20 ultimately, the cost of putting all of this equipment in  
21 place.

22 Let's go to the next slide. Some of the really  
23 important assumptions and methodology that is worth  
24 recapping is I mentioned the production of clean,  
25 renewable hydrogen is third party, not by SoCalGas.

1 Another important assumption is the way we modeled the  
2 combination of solar power and electrolysis.

3 This is the model that is what we call behind the  
4 meter, which is to say it's a project-level combination of  
5 solar facilities, which produce, obviously, zero-emissions  
6 power, and the electrolyzers which are making clean,  
7 renewable hydrogen. So it is reconnected, but it's not  
8 taking electricity from the grid. We conducted the  
9 preliminary desktop evaluation to understand how much  
10 usable land is out there for hydrogen production and  
11 compare our needs to the amount of available land.

12 Then there are some assumptions on the right  
13 where we specifically focused on proton, OH is for  
14 abbreviation. It's broad and exchange membrane in certain  
15 type of electrolyzers, which is actually well-suited to  
16 follow the variable law of renewables. We all reassessed  
17 the acreage for the solar and the electrolysis as  
18 approximately 6 acres per megawatt. That is more or less  
19 industry standard.

20 Importantly in our land analysis, we excluded  
21 national and state parks, government refugees, reserves,  
22 and military ranges. And last but not the least, we also  
23 excluded the topography which is not conducive to solar,  
24 which is more than 15 percent grade.

25 Let's go to the next slide.

1           Some of the numbers to recap -- and I'm sure that  
2 you remember the numbers -- is that we are envisioning the  
3 support throughput in the range between .5 and 1 half  
4 million metric tons per year, which is a fraction of the  
5 demand that we estimated that ranges between approximately  
6 2, from approximately 6 million tons per year, in our  
7 service territory. That's what was identified in the  
8 draft demand report.

9           We also assessed the role of and options for  
10 hydrogen storage. Storage is going to be the fourth  
11 element of providing the reliable service, so we  
12 considered underground and aboveground storage, and we  
13 also considered storage in the pipeline. To a certain  
14 degree, the pipeline itself stores hydrogen, and delivery  
15 service as well, and fundamental storage is needed for any  
16 other commodity as a mechanism to balance supply and  
17 demand.

18           Let's go to next slide.

19           The draft findings sound the headline, findings,  
20 which again, don't come as a total surprise to many of us,  
21 but nonetheless, are established in this for the hard and  
22 soil data, is that solar irradiance in a lot of our  
23 SoCalGas territory, in fact, most of it, is some of the  
24 most efficient in the country, and that's excellent  
25 because this efficiency translates to a lower cost.

1           As I think we all know, solar generation has  
2 technology that have been gigawatts of solar installed  
3 over the last several decades in California, and it's  
4 about the lowest cost renewable energy source. And it can  
5 be, of course, colocated with hydrogen production.

6           The coupling of solar power with electrolysis is  
7 ultimately expected to be the dominant source and the  
8 dominant pathway of production of clean, renewable  
9 hydrogen. Other sources may support production, but  
10 probably on a smaller scale. And this specific thing  
11 involves, for example, is biomass and pyrolysis, they have  
12 a role, but they probably are not going to be as large as  
13 solar plus electrolysis, and they want to locate it in  
14 Central Southern California, but there are source  
15 limitations in those areas.

16           And then the one point of technology that I did  
17 not mention before, AEM, which is proton exchange membrane  
18 electrolyzers, they are designed and their principle  
19 operation is a good feat for renewables and being  
20 intermittent, so that combination of AEM and solar is  
21 quite effective.

22           Next slide please.

23           You see these numbers in the report, but just to  
24 recap. There is just above 2 million acres of suitable  
25 land that has been identified in three primary production

1 locations -- and you see the locations as shown as this  
2 light red color on the map on the right. So Kern Valley  
3 appears to have about 836 square miles, Lancaster area has  
4 more than 1,756 square miles, and the area of Blythe has  
5 about 427 square miles.

6 So when you add all this and you look at the  
7 amount of land that's required to support production of  
8 one-half million tons per year, this math suggests that we  
9 need about 12 percent of the land that is potentially  
10 available to produce that one-half million tons per year.  
11 So that is a simple way of saying that this seems to be  
12 within the confines of this analysis, sufficient amount of  
13 land for production of the amounts which were contemplated  
14 for Angeles Link.

15 There are also some numbers that, as I mentioned,  
16 we derived and that served as a foundation for a cost  
17 effectiveness analysis at the bottom of the slide, the  
18 third-party production cost could be assessed as solar  
19 power at about \$1,100.00 per kilowatt capital cost and  
20 \$20.00 per kilowatt operating cost; and for the  
21 electrolyzer, the assessment is about \$2,600.00 per  
22 kilowatt capital cost and about \$18.00 per kilowatt  
23 operating cost.

24 The next slide summarizes the feedback and the  
25 summary of our response and action plan. And there were



1 concerns expressed that Angeles Link support the electric  
2 grid, not distinguished from energy used for hydrogen  
3 production, and to recap, what we assume is that the  
4 energy for production of hydrogen is produced in solar  
5 facilities which are working together with the  
6 electrolyzers. They really are what we call "behind the  
7 meter," and we make no assumption with regards to  
8 electrolyzers and green energy beyond that.

9           The next column that we have is the need to be  
10 realistic about the availability of other clean, renewable  
11 hydrogen sources and focus on electrolysis hydrogen. I  
12 think that that's what's actually being borne out by the  
13 data, as we mentioned the electric hydrogen, specifically  
14 derived from solar energy and electrolysis, is going to be  
15 the dominant pathway of third-party production.

16           Although we did relate other production pathways  
17 as well, in compliance with the decision, again, under  
18 4 kilograms of CO2 per gallon of hydrogen and not made  
19 from fossil fuels are criteria which were laid out by the  
20 Commission, and their decision to follow that.

21           We had a comment about the need to consider  
22 storage, and we have definitely done that. And as I  
23 mentioned, that ranges from using the pipeline itself to  
24 provide a service to understand the magnitude and need for  
25 storage and what potential solution can be to address that

1 need.

2 And last but not the least, there was a comment  
3 on the need for costs, and the costs where indicated to --  
4 they were asked -- they requested to include renewable  
5 energy and facilities, and that's exactly what we have  
6 done. We effectively derived numbers which ultimately  
7 allowed to calculate the cost of hydrogen for the cost  
8 effectiveness study, which is one of the elements of cost  
9 to the customer. I am here for questions and comments.

10 MR. BRITT: Thank you, Yuri.

11 So as you guys have gotten used to, we are going  
12 to have a member discussion now. If you would like,  
13 online, to speak, you would just need to raise your hand  
14 so we can see that and call on you. If you're here in  
15 person, just take your name placards and turn it on its  
16 end so I can know that you would like to speak and we will  
17 make our way around the room and go online and make our  
18 way through those calls as well.

19 If you could please make sure to announce your  
20 name and organization, because we do have a court  
21 reporter, and it helps in the transcription and  
22 understanding on who made the comment. And also be  
23 precise and focus on the discussion topics, if you will.  
24 We are going to have other focused discussions on  
25 different topics, so if you could stay on this topic, that

1 would help make sure we get through all the comments.

2 Verbal comments are not the only way that you can  
3 provide input. If you would like to chat something, we  
4 are also tracking that as well and keeping record of that.  
5 We are also taking written input after the meeting, and  
6 you will also have access to draft reports and the comment  
7 periods are going on through out all of these studies as  
8 well.

9 So there's many ways to make your comment, and  
10 obviously, we are here today to talk about the three  
11 subjects that are on the agenda. And so with that, I'm  
12 going to go ahead and go to Marcia.

13 If you can go ahead and turn your plaque up and  
14 if you can state your name and organization and make your  
15 comment and question.

16 MS. HANSCOM: Sure. Marcia Hanscom, Ballona  
17 Wetlands Institute. I have two questions. One is you  
18 continue to say that SoCalGas will not produce the  
19 hydrogen, but yet you're talking about how it's going to  
20 be produced. So I'm just wondering does that mean you are  
21 going to be contracting with someone, or this is simply  
22 how you would be advocating for it to be -- or how will  
23 SoCalGas participate in determining what the planning is  
24 for this.

25 MR. FREEDMAN: Would you like to ask both

1 questions?

2 MS. HANSCOM: That's one question. I have one  
3 other one.

4 MR. FREEDMAN: Let me address the first one. You  
5 are correct as we said we are not going to be a producer  
6 of hydrogen. What we are doing within the Phase 1 of the  
7 study is to understand the potential scope of third-party  
8 production and then understand the locations where it  
9 would be ultimately produced, because we now develop our  
10 efforts aligning our technical work with what we expect is  
11 going to happen in the State, especially now after ARCHES  
12 and DOE -- very important step -- there clearly is going  
13 to be a lot of large scale production.

14 We are tailoring our efforts to these unexpected  
15 outcomes, but again, that is not something we are going to  
16 build, that is something that we are developing to satisfy  
17 demand for transportation of hydrogen, which is going to  
18 emerge, because that production is going to go to demand  
19 sources, that's why people in production areas already are  
20 being active, include many ARCHES members.

21 And ARCHES, maybe that's something to mention,  
22 has some information, the production geography, that they  
23 released publicly and that's something that's available to  
24 them.

25 MS. HANSCOM: So it would be coming through the

1 ARCHES program and you would be advocating that solar is  
2 one of the best ways?

3 MR. FREEDMAN: I don't think we are advocating  
4 for production of any type. Our mission here is to serve  
5 demands for transporting hydrogen, which is going to  
6 emerge due to large scale production in those areas, and  
7 large scale demand on the coast.

8 MS. HANSCOM: Do you anticipate that this is how  
9 it's going to be?

10 MR. FREEDMAN: We expect the production to emerge  
11 in areas, that expectation seems to be very much aligned  
12 with what ARCHES asked from their members, and that's what  
13 they're developing to satisfy to need.

14 MS. HANSCOM: So my second question is -- I  
15 really like that solar is what you're emphasizing here,  
16 and I'm just wondering what SoCalGas thinks about rooftop  
17 solar? We have so many commercial buildings and so many  
18 apartment complexes. And so much potential for solar  
19 rooftop, and there is a lot of interest in rooftop solar.

20 Do you support that, and could you consider  
21 supporting it?

22 MR. FREEDMAN: We really, as an infrastructure  
23 company, are not in the business, if you will, of  
24 supporting wildland production, ultimately, it's the  
25 economics and the policy incentives that these producers

1 choose to produce it on a utility scale versus rooftop,  
2 and that probably is not mutually exclusive. They may be  
3 added to each other.

4 For the large scale amounts, it is likely, based  
5 on what we have seen, that the large-scale productions  
6 when there is significant lower costs. So the issue with  
7 that -- now, we are going to look at disclosure within the  
8 analysis of what the scope of localized hub, and while we  
9 have not looked at rooftop specifically, but we have  
10 analyzed the production in the lower, if you will,  
11 areas -- in the smaller areas, and we have some numbers  
12 and I believe we will share more within the full report.

13 MS. HANSCOM: Just to say, we would advocate  
14 lowering the cost to the environment because, you know,  
15 there's lots of birds and other species that are being  
16 impacted by a lot of solar in the desert for instance.

17 MR. BRITT: Thank you, Marcia.

18 We are going to switch to online. I think I saw  
19 Jay raise his hand pretty early. So we will go to Jay.

20 Unmute yourself.

21 MR. PAREPALLY: Thanks, Jay Parepally,  
22 Communities for Better Environment. I did just read  
23 Emily's feedback in Zoom. But I do have to raise -- I  
24 appreciate your presentation of production planning. This  
25 draft report was released on Friday, 7/19, so two business

1 days ago. The Directing Planning and Assessment Draft  
2 Study was released at CBOSG yesterday, Monday, 7/22, and  
3 we are having this workshop on 7/23.

4 It's not clear to me how much meaningful  
5 engagement the compliance with the CPUC Commission  
6 decision around this one process, this is really -- making  
7 available for us, when they just -- I mean, you are  
8 drowning us in discovery -- and I want that phrase to be  
9 included in the court reporter's comments -- that this was  
10 just an information dump.

11 And while there was some heads up about length --  
12 I mean, no, the names of different studies, we were not  
13 given any idea of how long any of these would be, and to  
14 have four dropped at once at 5:00 p.m. on Friday, I mean,  
15 this has become typical, and I just have to object to  
16 that. Thank you.

17 MR. LOPEZ: Thanks, Jay. This is Frank. I  
18 appreciate your -- I appreciate and understand your  
19 concerns and your comments. You know, one of the reasons  
20 that we wanted to provide multiple feedback windows is  
21 that we knew we would be releasing a lot of voluminous  
22 material and we didn't want to wait until that material  
23 came out to get feedback, and that's why we try to break  
24 it up into segments so that folks can provide comments  
25 along the way on our methodology, on our technical

1 approach.

2 We are releasing preliminary findings to see  
3 directionally where these studies are headed. We  
4 understand it is a lot of material. It was not our  
5 intention to release it with, you know, three or four  
6 business days' notice. We are working as quickly as we  
7 can to get the material out as possible.

8 We have been hearing from our stakeholders and  
9 our members that they want more information, so we are  
10 working as quickly as we can to get those materials out.  
11 We are trying to stagger it as much as possible so not all  
12 comments are due at the same time. And because these are  
13 voluminous materials, we are providing more time to  
14 comment on the draft studies than we have on preliminary  
15 findings or other materials that we released previously.

16 We are providing up to a month. If you feel that  
17 that is not enough time and there is a particular study  
18 that you want to discuss, we are happy to make ourselves  
19 available and talk to you about that information and find  
20 ways for you to provide us feedback, whether it's verbally  
21 or in written form, so we will make ourselves available.

22 MR. BRITT: Thank you, Frank.

23 Roy, I think you're in person here wanting to  
24 make a comment, so if you can state your name and  
25 organization. Do you have a microphone?



1 MR. VAN DE HOEK: Thanks, Chester.

2 My name is Roy Robert Young van de Hoek with  
3 Defend Ballona Wetlands, and I'm an environmental  
4 scientist and conservation biologist. So thank you --  
5 Yuri Freedman, with SoCalGas; correct?

6 MR. FREEDMAN: Yes.

7 MR. VAN DE HOEK: So one thing that came up in  
8 your really good explanation was that you excluded  
9 national parks and state parks, and I presume that was  
10 because they're about not doing multiple use-type of  
11 activities and so you really couldn't even consider  
12 national parks and state parks as opposed to national  
13 forests and BLM, which welcomes multiple use.

14 MR. FREEDMAN: I'll just say I think you are  
15 right. We were trying to be conservative in our  
16 assessment, making sure that we look at land availability  
17 deal and we approach this with a conservative eye given  
18 the large scale of the project.

19 MR. VAN DE HOEK: Thank you. I have another  
20 question for you, Yuri. Storage -- you mentioned being in  
21 the pipeline, below ground, and above ground. And forgive  
22 me, but in -- I have asked a question in the past about --  
23 that being an advocate, we are creatively thinking about  
24 having gas transported and stored above ground because of  
25 making it -- three reasons, making it visible to the

1 public so we are aware of where there might be danger  
2 zones because we can see something -- when we see it, we  
3 know. One is safety.

4           And secondly, cost effectiveness, because it's  
5 cheaper. You don't have to dig anywhere if you have  
6 everything aboveground, so you are not destroying the  
7 soil, and it's cheaper. And my third reason -- and I  
8 can't recall at the moment. Oh, jobs for the public.  
9 Because if you do above ground, you would need a large  
10 workforce of people monitoring and making sure it's secure  
11 and not vandalized.

12           And what I didn't think about is the use of  
13 technology with computers and cameras and drones that  
14 could really make it safer, and involve local law  
15 enforcement to be on watch for where the pipeline is. But  
16 I hadn't thought about when you store below ground or  
17 transport pipelines below ground, I think you have the  
18 temperature more controlled because the atmosphere isn't  
19 going up and down and fluctuating in the summer and  
20 winter, night and day, but below ground, it stays pretty  
21 much the same temperature. Is that scientifically kind of  
22 a way that would be a factor on being below ground?

23           MR. FREEDMAN: I think you're absolutely correct,  
24 and that's one of the parameters that matters a lot.  
25 Everything you mentioned, other parameters that have to be

1 taken into consideration. So I would just mention a  
2 parameter that has to be kept in mind is scaleability, and  
3 that's something that we would have to look at in terms of  
4 what solutions fit for the magnitude of the challenge if  
5 you will.

6           Because, again, the issue with the renewables, as  
7 we all know, they are intermittent, which is to say they  
8 change not just in the course of 24 hours -- that, we all  
9 understand -- but they also change quite dramatically in  
10 the course of production over a year. There is actually a  
11 really large difference that, you know, most people  
12 appreciate -- you probably do better because of being an  
13 environmental scientist -- but the difference in the  
14 levels of production in the course of a year is quite  
15 significant, which then creates the need to store large  
16 amounts of this energy for inter-seasonal needs. And  
17 that's, frankly, where molecules work in a sense better  
18 than batteries with long periods of time with large  
19 amounts of energy. So that scaleability has to be part of  
20 that assessment in terms of what solution is the best, as  
21 well as the temperature control area and everything else  
22 that you mentioned.

23           MR. VAN DE HOEK: Thank you, Yuri. One final  
24 quick question, I hope, is connected through a brief  
25 little statement that the Great Salt Lake in Utah has been

1 declining in its water level for the last 10 to 20 years  
2 or so. But in the last year, there's been major changes  
3 and the ecosystem is dying. And last night on a public  
4 broadcast radio program, On Point, an ecologist and  
5 environmentalist and naturalist, Harry Tempest Williams,  
6 talked about the spirit connections and the love of the  
7 land -- and almost everybody in America has heard of the  
8 Great Salt Lake, and it might be a salt lake, but it's  
9 fresh water that goes into the lake and then becomes  
10 salty.

11 Utah is using all of this fresh water so that not  
12 as many of the rivers are going into the Great Salt Lake  
13 anymore. And 80 percent -- when you use 100 percent  
14 scale, 80 percent is for agriculture, 10 percent is urban,  
15 and 10 percent is the mining industry, and would probably  
16 include SoCalGas. So am I correct that a lot of water for  
17 the electrolysis or for making H2 connected to solar  
18 power, that there's a significant amount of water? And  
19 what would you fit that percentage into? Like, how I  
20 broke it down to 80/10/10 for -- agriculture is the  
21 biggest use of water in California for example.

22 MR. FREEDMAN: I think you are right. This is  
23 slightly outside the scope of today's conversation because  
24 we have a separate water study. But on a high level, you  
25 are absolutely correct that agriculture really accounts

1 for the lion's share of the demands. Actually, our  
2 assessment is that the water for Angeles Link is going to  
3 be a really small percent, we are talking about low  
4 single-digit percent, if that.

5 It's a relatively small number just because we  
6 actually use a lot of water as a state and a large amount  
7 goes to the agriculture sector as well as other sectors as  
8 well.

9 MR. VAN DE HOEK: Last, really quickly, your map  
10 showed three areas -- San Joaquin Valley,  
11 Lancaster/Palmdale, and Blythe, near the Arizona border.  
12 Is the idea leaning towards having all three places to be  
13 where H2 is done, or picking one and putting everything  
14 and they have different acreages? If you could expand on  
15 that.

16 MR. FREEDMAN: Excellent question. I will say  
17 that my colleagues are teed up to take you all through the  
18 thoughts about their outing that I think is going to be a  
19 good to answer questions. And I'll document the answer.  
20 I think they are going to have more granular information  
21 about what we think about the alternative pipeline  
22 options.

23 MR. BRITT: Thank you, Roy.

24 Yuri, we actually have someone who chatted a  
25 question. It's Alex Jassett with Physicians for Social

1 Responsibility, and his chat says -- I believe the  
2 questions from the CBOSG about storage were not intended  
3 to have SoCalGas explore hydrogen as storage options.  
4 They were to explore non-hydrogen storage options as an  
5 alternative to using hydrogen and building the pipeline.  
6 I'd like to know more about whether that was looked into.

7 I just want to make sure that question makes  
8 sense to you, Yuri, and if you have the ability to respond  
9 to that.

10 MR. FREEDMAN: I think it does. I think those  
11 are two, I will call them related, separate issues.  
12 There's one question that we have analyzed within the  
13 analysis of options and alternatives, and we started some  
14 very fundamental questions, do we need hydrogen? Is  
15 hydrogen the best solution for the problems we are trying  
16 to solve, or are there other solutions that we can bring  
17 to bear?

18 Then you go from if it's hydrogen appears to be  
19 the best solution, what is the best way to transport the  
20 hydrogen? Should we transport as methanol? Should we  
21 transport it by trucks? Should we use the pipelines? And  
22 once you answer those questions in the affirmative, then  
23 you say, okay, the pipeline appears to be the most  
24 feasible, the lowest cost, the most reliable option, and  
25 that pipeline needs a storage solution that will need to

1 be developed over time.

2 That's how we approach that. So storage has two  
3 connotations. One is the energy storage needed that you  
4 have to answer at a very high level, can we store this  
5 amount of energy due to the fluctuations in intermittent  
6 renewables with batteries or with hydrogen? These are the  
7 options and alternatives that we've answered in a separate  
8 study.

9 What we are answering here is a narrower  
10 question. Once you've answered those foundational  
11 questions and include that the pipeline is, in this case,  
12 your preferred solution, what kind of storage of hydrogen  
13 is going to be required to make this pipeline deliver its  
14 service to customers. And I'm hoping that that answers  
15 the question, but I just wanted to draw the distinction,  
16 which is very important.

17 MR. BRITT: Thank you, Yuri, for that.

18 Frank, we have a question from Andrea Vega. She  
19 writes, a few weeks is not enough time to respond when  
20 multiple lengthy reports are being sent out with  
21 overlapping feedback windows on top of that. For a  
22 project such as this, of course, we need detailed  
23 materials, but more time needs to be allotted to allow --  
24 my screen just changed. Give me one second.

25 MR. LOPEZ: I see the question. I do want to

1 just respond by saying we are not rushing the process.  
2 We've been meeting since March of 2023, and we do have a  
3 commitment to the Commission to wrap this Phase 1 process  
4 up by this year.

5 I acknowledge it's a lot of material. Five  
6 studies went out on Friday. And like I mentioned to Jay.  
7 If, Andrea, you feel you need additional time once you  
8 review the materials, please reach out to us. We are  
9 happy to work with you to incorporate your feedback and  
10 make that feedback available to all of the members.

11 So we are not going to turn away comments. So if  
12 you need time, please reach out to us. We are happy to  
13 work with you. But I do want to acknowledge we are not  
14 rushing this process, but we do have a commitment to wrap  
15 it up by the end of the year.

16 We are also dealing with a lot a material too.  
17 We release material, material comes back to us in the form  
18 of comment, we have quarterly reports and we process those  
19 comments, and we try to respond in a timely fashion. So I  
20 think we just have to work together to make sure we get  
21 through all of the material.

22 MR. BRITT: Yes.

23 Do you have a question? Could you turn your  
24 placard a little bit so I could see it better? Thank you  
25 very much. If you could just state your name for the



1 record.

2 DR. YANEZ: Dr. Michelle Yanez. I am with My  
3 Workforce Solutions, and I'm the PM for an Electric  
4 Vehicle and Hydrogen Job Training Program in San Gabriel  
5 Valley for the Miguel Contreras Foundation.

6 My question would be, is the workforce going to  
7 be in those three identified regions or will there be  
8 local workforce in every community?

9 MR. BRITT: If you don't mind, I'm going to phone  
10 a friend on this one. We're not covering workforce.  
11 Chanice is here and she can quickly respond.

12 Could you introduce yourself for the court  
13 reporter?

14 MS. ALLEN: Thank you. I'm Chanice Allen. I am  
15 the Engineering Technology project manager for Angeles  
16 Link for SoCalGas, and specifically, I lead the workforce  
17 study.

18 In regards to your question, for the specific  
19 regions for the routes that are preliminary routes, the  
20 routing study, they assess all of the counties that are --  
21 where there would be employment impact analysis, and so  
22 that does cover all of the regions and counties within  
23 Southern California.

24 DR. YANEZ: Thank you.

25 MR. BRITT: Thank you.

1 All right. I see Andrea Vega raised her hand.

2 If you could unmute yourself and introduce  
3 yourself.

4 MS. VEGA: Hi. Andrea Vega with Food and Water  
5 Watch. Thank you for reading part of my feedback, but  
6 unfortunately, you skipped over the actual question part  
7 of my comment where I asked for clarification.

8 What is the current timeline that SoCalGas has  
9 for Phase 1? I think, you know, not just Food and Water  
10 Watch, but other organizations in this stakeholder group  
11 feel the same way about there being a rush in the process,  
12 so we just want to really make sure where exactly are we  
13 at and what deadline is SoCalGas currently looking at for  
14 Phase 1?

15 MR. LOPEZ: So in my response, I did mention that  
16 our commitment is to wrap this Phase 1 process by the end  
17 of this year. I showed the feedback window earlier. We  
18 are in the fourth feedback period at this point. We  
19 released the studies and we are taking comments on those  
20 studies and we are releasing the final study with the goal  
21 of completing Phase 1 by the end of this year.

22 MR. BRITT: All right. I do not see anyone else  
23 with their hands raised or any placards raised in the  
24 room, so if that is the end of our discussion here, let's  
25 move on to the next part of our presentation, which, if we

1 could switch to the presentation. I think there is a  
2 technical issue going on here.

3 MR. LOPEZ: Chester, can I just follow up with  
4 Andrea's -- I just want to clarify to make sure I  
5 responded to her question.

6 Andrea, were you asking when Phase 1 will  
7 conclude or when comments on the draft studies will be  
8 completed? I thought it was the former, but I just want  
9 to make sure that I was responsive to the actual question.  
10 Was it Phase 1 you were requiring about?

11 MS. VEGA: Yes. So specifically, it was when  
12 would Phase 1 officially conclude? So would this be  
13 December of this year? And, also -- I guess at that  
14 point, when would Phase 2 of this process officially  
15 begin?

16 MR. LOPEZ: Just to clarify -- thank you for  
17 that. Our goal is to complete the studies, like Q3 of  
18 this year, with the goal of wrapping up Phase 1 by the end  
19 of this year. We still have not made a decision on when  
20 we are going to be filing for Phase 2. When we have that  
21 information, we will regroup and make sure to provide this  
22 group with an update.

23 MR. BRITT: Frank, I was going to bring up the  
24 timeline slide. Maybe that would help you.

25 MR. LOPEZ: Sure.

1 MR. BRITT: If I could get to it.

2 MR. FREEDMAN: You just went through the whole  
3 slide deck.

4 MR. BRITT: I didn't see it. How about this,  
5 let's go to next slide and we will find it and address it  
6 before the meeting is over.

7 There it is, Frank.

8 MR. LOPEZ: Okay. There it is. Yes. So there's  
9 lots information on this slide, but we tried to illustrate  
10 our timeline and our process here and how it relates to  
11 ARCHES and DOE process on the top. So the top portion of  
12 this is ARCHES DOE and the actual timeline itself. In  
13 this middle arrow here, this is our timeline, so you can  
14 see when Phase 1 started.

15 Let's try to pull up -- my eyesight isn't so  
16 great anymore. You can see Q4 2023, we are in Phase 1  
17 right now, which is feasibility, and our goal, as I  
18 mentioned, was to complete this before 2025, which would  
19 kick off, ideally, Phase 2. And as I mentioned, we don't  
20 have a date yet on when that will be.

21 MS. ARAZI: I think I should just add a quick  
22 reminder about Phase 2 because I think that was another  
23 question. As we wrap up Phase 1, we will be seeking  
24 approval to proceed with Phase 2, and that will need to go  
25 through a regulatory approval process with the CPUC, and

1 we currently expect to submit that later this year.

2 As we finalize Phase 1 then we will go to Phase 2  
3 which will look at further identification of routing, and  
4 will look at 30 percent design. So there is more to come  
5 as far as process as we move forward into the next phase.

6 MR. LOPEZ: Shirley, after you submit the  
7 application, there's a review process to approve that  
8 application.

9 MS. ARAZI: Absolutely. So there's generally a  
10 regulatory process that allows any participant who would  
11 like to submit comments or participate formally in the  
12 proceeding, so that absolutely will happen within the next  
13 year so as we go through the next approval phase.

14 MR. BRITT: Roy?  
15 Name and organization.

16 MR. VAN DE HOEK: Roy again with Defend Ballona  
17 Wetlands. As you were speaking, Frank and Shirley, I  
18 began to think -- and thanks to Yuri's great  
19 presentation -- I began to think about the transportation  
20 parts of it, the pipelines, and that I know that cost  
21 effectiveness in lowering the cost of doing that  
22 transportation is important, I get that, with financial  
23 parts.

24 One of the ways to do that is to use the federal  
25 agencies' lands like the Bureau of Land Management and the

1 Department of Interior and the National Forest Lands, and  
2 when you cross over from the San Joaquin Valley to urban  
3 Los Angeles, as a corporation -- not just SoCalGas but  
4 other corporations that are involved in this, like even  
5 the solar industry, the private corporations -- if there  
6 could be a voluntary decision to say, we think our  
7 national forests are precious resources and the Bureau of  
8 Land Management lands are precious public open spaces, and  
9 that even though federal agencies facilitate and allow, at  
10 low cost, transportation routes for the gas pipelines,  
11 that the corporations would say, we don't want to take  
12 advantage of that.

13           Those two federal agencies that I worked for  
14 before also, I learned that as multiple-use agencies, they  
15 compromise, and I think of -- they would say balance, you  
16 know, of protecting land, but using land. And I'd like to  
17 see the corporations reach a point where they say, we are  
18 not going to use the national forest lands to cross with  
19 the pipelines, we are going to find corridors, like  
20 existing highways, and just kind of take a high ground.

21           And, you know, the national parks and the state  
22 parks are the high ground -- like Yosemite, Yellowstone  
23 and Grand Canyon, they just say no, you are not putting  
24 pipelines through because they have this really high  
25 mission. I'm seeing Katrina acknowledging me too. So

1 anybody from SoCalGas who wants to chime in, or even if  
2 it's just a comment for the record that there is a  
3 viewpoint from a public group.

4 MR. BRITT: We will get to that when we get to  
5 routing. We acknowledge your comment.

6 MR. LOPEZ: And we do acknowledge your comments,  
7 Roy. You always have good information to provide.

8 We are going to now transition to our second  
9 presentation, which is a draft report presentation on  
10 Preliminary Routing, Configuration Analysis with Pipeline,  
11 Sizing and Permitting. I know that's a mouthful, but  
12 Katrina is going to do a good job of making that  
13 understandable, and we will go to that presentation and  
14 then we will follow that up with member discussion as  
15 well.

16 MS. REGAN: Thank you, everyone.

17 So good morning. Today we will be discussing the  
18 routing and the sizing study which connect quite a few of  
19 our Angeles Link Phase 1 studies together, and they also  
20 help us create the foundation for the pipeline project.

21 I'm Katrina Regan, and I know that we have met at  
22 some of our last stakeholder group meetings. So I'll go  
23 ahead and I'll turn it over to my colleague, Annie, so she  
24 can tell you a little bit about herself before we get  
25 started.

1 MS. NG: Thank you, Katrina.

2 Good morning. As Katrina mentioned, I'm Annie  
3 Ng, and I am the lead project manager for our pipeline,  
4 sizing, and routing studies. I am a licensed mechanical  
5 engineer, and I have a degree in chemical engineering, and  
6 I have a background in construction engineering and  
7 project development. I'll be presenting with Katrina  
8 today on the routing and sizing.

9 MS. REGAN: Thank you.

10 So the objective of the routing analysis was to  
11 evaluate and determine several possible preferred routes  
12 during this feasibility phase of Angeles Link. In Phase  
13 1, we successfully selected possible routes. This  
14 required conference of integration information across many  
15 of the other Phase 1 studies, including production and  
16 demand, but also environmental social justice and pipeline  
17 sizing.

18 Today we are discussing routing and sizing  
19 together because the two studies are intrinsically linked.  
20 The integrated planning approach is appropriate because  
21 these two concepts are interdependent. Routing looks at  
22 where a route is, while the design study looked at  
23 considerations that are specific to pipeline size and  
24 pressure.

25 So a chosen route affects things likes like



1 length, terrain, and elevation, and these things, in turn,  
2 influence the size of the pipeline to meet capacity and  
3 flow.

4 In Phase 2, pre-fee and fee activities or  
5 different in engineering design, more detailed engineering  
6 will be specific to the preferred routes and variations  
7 that were identified in Phase 1. These activities will  
8 develop information that leads to selection of a preferred  
9 route and further refinement for the chosen route.

10 This multiphase approach gives us the opportunity  
11 to incorporate feedback of and refinement of the  
12 associated proposed system. So in Phase 2, stakeholder  
13 community input would continue to be asked for and would  
14 be considered when making these alignment decisions.

15 Once a preferred system route is identified, then  
16 we would advance the development of that route, including  
17 technical design, planning, and engineering to develop  
18 information needed to complete a fee-level study.

19 The diagram here really illustrates the  
20 evaluation that was completed within the routing analysis.  
21 Methodology was based in two parts, system evaluation and  
22 route evaluation. This process was inherently iterative  
23 as it required integration of a continuous influx of  
24 information received from various sources over the  
25 duration of the study, and using a method like this

1 allowed for that information to be continuously  
2 incorporated.

3           The system evaluation assessed the overall layout  
4 and the pathways to safely transport clean, renewable  
5 hydrogen by examining the role of the system, zone  
6 development, and then identifying initial corridors for  
7 consideration. And this systematic approach was critical  
8 for identifying and developing these preliminary routing  
9 options because this pipeline would be a new system.

10           In contrast to a traditional pipeline project  
11 where a pipeline is routed between two identified points  
12 and usually within an established system, Angeles Link  
13 would be a new gas transportation system.

14           Route evaluation, the second portion, included  
15 identification of a variety of different routes and  
16 analysis of throughput scenarios for hydraulic modeling as  
17 well as the development of characteristics of the  
18 different potential routes. And a framework with these  
19 two parts allowed for a creation of several preferred  
20 routes at the end of Phase 1.

21           So as we discussed earlier this year in March  
22 when we presented on our preliminary findings, a wide  
23 range of initial corridors were identified as the basis  
24 for analysis in Phase 1 to be further refined into  
25 preferred routes over the course of the phase. These

1 corridors leveraged potential opportunities for routing  
2 that include energy corridors on federal lands, federal  
3 interstate corridors, alternative fueling corridors, and  
4 those industrial areas of high demands and minimize  
5 impacts to community and environment.

6           Of the approximately 1,300 miles of initial  
7 corridors that were evaluated, 500 miles were estimated to  
8 be within Section 368, federal energy corridors, 200 miles  
9 were estimated to be aligned with alternative fuel  
10 corridors, and approximately 74 percent of these initial  
11 corridors were found to be within 50 feet of existing  
12 SoCalGas high-pressure pipeline facilities.

13           These initial corridors were shared with other  
14 Phase 1 feasibility studies. These initial corridors that  
15 we identified here were evaluated in the context, first,  
16 of Angeles Link to support our transport of clean,  
17 renewable hydrogen, likely from multiple local and  
18 longer-term regional clean hydrogen production sources, to  
19 those various delivery points in Central and Southern  
20 California, and that includes the concentrated demand in  
21 the LA Basin and Port area.

22           Access to LA Basin, as you all are probably  
23 aware, is constrained by geology, including several  
24 mountain ranges -- Sierra Madre Mountains, San Gabriel  
25 Mountains, and the Santa Rosa Mountains. Additionally,

1 there are multiple national forests that also surround  
2 LA Basin, and given these features, there is a limitation  
3 for potential pathways that enter LA Basin from the lands  
4 that surround it.

5 This slide here that we are looking at  
6 illustrates a lot of things, but it does illustrate those  
7 potential pathways that were identified for evaluation and  
8 those corridors -- and those access corridors that were  
9 used to get into LA Basin.

10 Based on the preliminary public data, these  
11 corridors were selected, and they really aim to connect  
12 areas of highest potential of production with the areas of  
13 concentrated demand. In order to further refine this, and  
14 you can even see illustrated here, the natural gas power  
15 generation facilities that are over one megawatt are in  
16 the blue bubbles, and this supports that evolution of  
17 efficient routes. We were really looking for routes that  
18 were closest to these facilities to avoid future potential  
19 for routing of long laterals.

20 So this became one of the ways in which we  
21 describe a preferred route. The preferred route connects  
22 areas of production, typically outside of LA Basin, with  
23 areas of demand. We also developed these three functional  
24 zones -- the connection, collection, and central zone.

25 These zones were developed during system

1 evaluation to allow for a really systematic approach to  
2 the creation of potential routes that considers both  
3 short-term and long-term operational needs and  
4 reliability. The three colors shown here help  
5 differentiate between the different zones.

6           These zones each reflect different aspects of  
7 hydrogen delivery. Each has a primary, but not an  
8 exclusive function, so this allows for system versatility.  
9 The central zone, which we will start with, in the green  
10 there, is primarily the area known as LA Basin, and the  
11 collection zone is located just outside LA Basin where  
12 regional hydrogen production and demand centers are likely  
13 to be located, and then the connection zone is the region  
14 furthest out where pipelines are needed to connect  
15 producers and the end users furthest away from the LA load  
16 center.

17           So while each zone serves a specific purpose --  
18 deliver, supply, and a combination of both -- a pipeline  
19 system that interconnects these different zones allows the  
20 gas to be efficiently transferred from the likely points  
21 of supply in the connection zone through areas of  
22 collection where gas may also be used, sourced, or stored,  
23 to the areas of highest demand in LA Basin.

24           This integration helps in managing the flow of  
25 gas according to needs and capacities of each zone, and it

1 enhances the overall system functionality. So this led to  
2 another way we describe a preferred route in this  
3 analysis, in that is that preferred routes are routes  
4 which have pipelines passing through all three zones.

5 Next, we sought to incorporate more information  
6 from some of the other studies and conduct a route  
7 analysis to compare various routes.

8 MS. NG: As Katrina described, a preferred route  
9 must connect areas of production with areas of demand and  
10 must also pass through all three zones. Incorporating  
11 these findings and with the production findings that Yuri  
12 shared earlier, eight scenarios were identified and  
13 evaluated that depict different combinations of achieving  
14 the envisioned Angeles Link throughput of .51 and 1.5  
15 million metric tons per year that also pass through the  
16 connection, collection, and central zones.

17 Two routes of system hydraulics were conducted,  
18 one for the regional production area scenarios and another  
19 round for the preferred routes. System hydraulics  
20 involves using computer modeling to simulate and analyze  
21 the flow of fluids or gas in the network of pipes, valves,  
22 compressors, and other components.

23 By doing this, engineers can predict how the gas  
24 will behave under operating conditions to determine the  
25 preliminary design criteria and evaluate overall system

1 feasibility. The model that we performed assumed an  
2 operating pressure range of approximately 200 to 1,200  
3 pounds per square inch, or PSI, and modeled the potential  
4 SoCalGas compressor stations at the terminal ends of the  
5 pipeline system near each third-party production area.

6 The diagram on the right illustrates the modeled  
7 hydrogen flow path from regional third-party producers  
8 located in the connection zone to proposed compressor  
9 stations in the connection and/or collection zone, and,  
10 finally, to the LA Basin and the central zone where the  
11 most concentrated demand is expected. This area includes  
12 the destination of the Ports of Los Angeles and Long  
13 Beach.

14 These hydraulic models used initial corridor  
15 information from the routing analysis and calculated the  
16 range of preliminary pipe diameters and pressure  
17 requirements, which were then used to identify potential  
18 pipeline materials for consideration. The results from  
19 these scenarios were used to develop estimates for the  
20 cost effectiveness study to determine the potential  
21 levelized cost of hydrogen and to the alternative study  
22 for options comparison.

23 These costs were also provided the workforce  
24 study for potential employment impact analysis as we  
25 discussed earlier.

1 Next slide, please. Thank you.

2 Here, we have the eight scenarios that represent  
3 different combinations of system components such as  
4 varying production and demand locations, target  
5 throughputs, and pipeline routing configurations. This  
6 initial round of system hydraulics found that pipe  
7 diameters could range from 12 inches up to 36 inches and  
8 one to three compressor stations may be required to  
9 transport the varying system capacities assessed in these  
10 eight scenarios.

11 These scenarios demonstrate the breadth of  
12 evaluation conducted to provide potential delivery  
13 pathways for clean, renewable hydrogen at scale from  
14 regional third-party producers located in San Joaquin  
15 Valley, Lancaster, and Blythe, to demand centers in  
16 Central and Southern California including the LA Basin.

17 Upon comparing those eight scenarios, it was  
18 found that, on average, the distance to connect to  
19 production areas is approximately 500 miles.  
20 Additionally, the average mileage for scenarios is 7 and  
21 8, which depict different configurations to reach the  
22 maximum throughput of 1.5 million metric tons per year is  
23 also approximately 500 miles.

24 So based on these initial hydraulic analyses of  
25 these eight scenarios, it was concluded that a preferred



1 route would ideally include at least two regional  
2 production areas with an upper limit of 500 miles or less  
3 to sufficiently transport the desired maximum throughput  
4 of 1.5 million metric tons per year.

5 MS. REGAN: So as we've discussed the routing  
6 analysis integrated information across multiple Phase 1  
7 studies and through our system evaluation, preferred  
8 routes were defined as those that connect the areas of  
9 production to areas of demand and pass through all three  
10 zones, while through route analysis, preferred routes were  
11 defined as those which are less than 500 miles and connect  
12 both SoCalGas pipeline segments within ARCHES.

13 As we discussed in March, SoCalGas was excited to  
14 have two projects included in the ARCHES application for  
15 DOE funding, as we move forward with route selection,  
16 connection of these two segments in the broader Angeles  
17 Link is important, as Angeles Link presents an opportunity  
18 to move hydrogen at scale between geographical territories  
19 where it will be produced to the areas of most  
20 concentrated demand.

21 It's important that the ARCHES segments are  
22 developed in conjunction with the broader Angeles Link  
23 from both a design and operational perspective and to  
24 truly realize the delivery of large quantities of clean,  
25 renewable hydrogen to places in Central and Southern

1 California.

2           Additionally, as an open access pipeline system,  
3 Angeles Link presents potential benefits to many of the  
4 other ARCHES-identified production and off-date projects  
5 which were considered within the routing study.

6           This information was integrated to identify those  
7 routes of highest possible potential to achieve the  
8 objectives of Angeles Link, and four routes were  
9 ultimately identified. The final four preferred routes  
10 traverse route mileage that is, on average, approximately  
11 450 miles.

12           And throughout Phase 1 -- this Phase 1 process,  
13 we have sought to intentionally incorporate stakeholder  
14 feedback, which is why, in addition to the four  
15 preferred routes, we have identified Route Variation 1  
16 that is part of several of those preferred routes for  
17 further consideration in Phase 2.

18           Preliminary pipeline segments were assembled  
19 into various configurations to meet the established  
20 criteria for preferred route, following the previously  
21 described configuration efforts, four preferred route  
22 configurations emerged, and those are shown here. They  
23 are titled Route A, Route B, Route C, and Route D.

24           Route Variation 1, which we will talk about in a  
25 little bit more detail in the next slide, was also added

1 after evaluating our ESJ screening information, and in  
2 response to stakeholder feedback as a variation for  
3 further evaluation in Phase 2. This route variation has  
4 the potential to minimize route mileage traversing  
5 disadvantaged communities in the LA Basin.

6 These routes represent the highest potential with  
7 regard to achieving the objective of Angeles Link to  
8 transport clean, renewable hydrogen from production  
9 sources to various delivery points. These are preliminary  
10 routes in nature, and they are subject to change, and  
11 subsequent analysis will be needed to determine alignment  
12 at the street level.

13 Phase 2, the route optimization would occur, and  
14 that would aim to determine the most efficient path for  
15 the pipeline. This process considers a variety of factors  
16 that would seek to avoid, minimize, and mitigate potential  
17 environmental and social impacts, cost and risk, while  
18 maximizing operational efficiency and safety.

19 These routes, furthermore, support the State of  
20 California's decarbonization goals, and they do present a  
21 system plan that is designed for reliable and resilient  
22 transmission of clean, renewable hydrogen throughout  
23 Central and Southern California.

24 Let's talk a little bit more of our route  
25 variation. So as described in our study, large areas in

1 our service territory where potential hydrogen production  
2 and offtake are concentrated, are considered disadvantaged  
3 communities based on state and federal screening tools.  
4 It may not be feasible to completely avoid these  
5 disadvantaged communities, or DACs, in these areas, as the  
6 purpose of Angeles Link is to connect production with  
7 offtake.

8 Geological terrain such as mountain ranges also  
9 limits our ability to avoid DACs when identifying routes  
10 that connect production with offtake. But one region  
11 where we could minimize traversing DACs is in the LA  
12 Basin. Route A, B, and C follow the I-5 in goods and  
13 movements corridor in Central and South LA to get to the  
14 ports of LA and Long Beach.

15 Recently available data from our screening tool  
16 indicates most census tracts along these routes are DACs,  
17 and based on feedback shared with those at our June  
18 meeting that stakeholders wanted us to consider a route  
19 that minimized impact. To be responsive to this feedback,  
20 we added this variation, Route Variation 1, which utilizes  
21 the Sepulveda Pass and involves a pathway that is parallel  
22 to that of the footprint of existing SoCalGas  
23 high-pressure pipelines and an AFDCA identified corridor.

24 Route Variation 1 results in an average decrease  
25 of approximately 8 percent of route-traversing DAC

1 communities for Routes A, B, and C, and an overall  
2 decrease at the percentage of pipeline routed traversing  
3 DACs in the LA Basin 20 percent.

4 This is a feasibility-level study so alignment at  
5 a street level is something that would be pursued in  
6 subsequent phases to seek new opportunities to engage with  
7 the community and carefully evaluate the impact of these  
8 plans, aiming to maximize benefits and execute community  
9 benefits while minimizing adverse consequences.

10 This is a breakdown of some of the data that's  
11 been evaluated for these routes, and there is more content  
12 within the report themselves. This slide covers Routes A  
13 and B, while the next will illustrate the same information  
14 for Routes C and D. It does provide the full route in all  
15 of the illustrations. The routes shown here range in  
16 length from approximately 390 miles to 480 miles, and the  
17 average length of these preferred routes is approximately  
18 450 miles and they are inclusive of the two SoCalGas  
19 segments within ARCHES California hydrogen hub.

20 Angeles Link presents an opportunity, again, to  
21 move hydrogen at scale between the geographical  
22 territories where it will be produced to the areas of most  
23 concentrated demand, so developing these projects in  
24 conjunction with the broader Angeles Link supports both  
25 the design and operation.

1 Another characteristic of the routes shown here  
2 is the demand access. As we've discussed the reports for  
3 Phase 1 were really integrated, and based on the 2024  
4 ambitious case within the demand study, demand is  
5 anticipated to spread throughout Central and Southern  
6 California.

7 Based on this distribution of demand and the  
8 locations of the different routes shown, it's possible to  
9 see how the routes vary in terms of their access to that  
10 demand across the hard-to-electrify sectors from a  
11 geographical standpoint.

12 As Annie mentioned, all four routes were modeled  
13 via hydraulic modeling to create high-level system sizing  
14 which was then used to develop cost estimates. The  
15 Angeles Link feasibility studied these cost estimates for  
16 what is considered Class 5 estimates.

17 This estimate is a high-level budgetary cost  
18 estimate for construction and operation developed based on  
19 feasibility-level information and has five accuracy ranges  
20 appropriate for initial project purposes at an early stage  
21 like Phase 1.

22 The range as illustrated for cost as select  
23 pipelines within the routes were modeled as two parallel  
24 lines or dual run to provide operational flexibility. The  
25 dual run configuration acts as a backup if one pipeline is

1 temporarily removed from service, such as during  
2 maintenance, inspection, or an emergency situation, and  
3 pipeline configurations like this can improve resiliency  
4 during potential disruption, minimize downtime, and allow  
5 for continuous operation.

6 The cost range illustrated here shows the  
7 estimated cost difference between single and mixed-run  
8 configurations ranges from approximately 20 to 30 percent.  
9 These routes present a pathway toward a future with clean,  
10 reliable energy and meeting the State's 2045 carbonization  
11 goals.

12 Our collaboration with you is happening at the  
13 earliest stages of this process, and this allows us to  
14 intentionally prioritize how we consider communities that  
15 have been historically impacted the most by infrastructure  
16 projects. We are really excited to include your feedback  
17 and collaborate closely with you to develop this new  
18 resilient energy system that's tailored to serve the  
19 communities that need it most.

20 In our routing analysis, we received a lot of  
21 valuable feedback and it focused on several key areas.  
22 One major theme was a consideration of engineering,  
23 environmental, and social attributes. Stakeholders  
24 highlighted the various attributes including the  
25 importance of identifying sensitive site locations,

1 potential areas of the impact on the flora and fauna, and  
2 potential site areas for endangered species.

3 In response, we incorporated a variety of  
4 attributes in our report. Our analysis considered and  
5 identified attributes such as disadvantaged communities,  
6 cultural sites, land use, endangered species, rights of  
7 way, and does have detailed mileage for these areas  
8 included in the appendix.

9 Another significant feedback theme was concern  
10 for disadvantaged communities and stakeholders urged us to  
11 avoid routing through these already impacted areas. As a  
12 result, we did propose Route Variation 1, which modifies  
13 preferred Routes A, B, and C, and reduces the routes'  
14 passage through disadvantaged communities.

15 A feedback also emphasized the need to focus on  
16 intrastate pipeline corridors and provide a list of  
17 potential routes. This feedback was incorporated by  
18 prioritizing intrastate route options, as you can see from  
19 our analysis, and providing both the initially considered  
20 corridors as well as those final four preferred routes and  
21 variations.

22 Lastly, as stakeholders asked us to examine  
23 multiple routing scenarios considering different  
24 production, disaggregation methods, and distinguishing  
25 between interstate and intrastate options, and we did



1 incorporate this feedback through the various different  
2 scenarios and routes that were modeled with the interstate  
3 components distinctly marked.

4 MS. NG: For the design study, we also received  
5 several key comments that also integrated and shaped our  
6 approach for this report. Stakeholders expressed concerns  
7 around hydrogen embrittlement and integrity, emphasizing  
8 the importance of safety and leak prevention. Safety is a  
9 core value at SoCalGas and is foundational for Angeles  
10 Link.

11 In response, we evaluated material leakage,  
12 considered potential embrittlement, and overall pipeline  
13 integrity and maintenance programs. Our material  
14 selections will be further refined in subsequent phases  
15 and incorporate safety into the foundation of this design.

16 Feedback we received also highlighted the need to  
17 address seismic risks. Within this report, we discuss  
18 future design measures focused on geohazard locations,  
19 including earthquake faults. These measures aim to  
20 mitigate risk and manage the safety and reliability of  
21 pipelines in these seismic areas.

22 Multiple scenarios were also assessed within this  
23 evaluation through integration between eight scenarios  
24 modeled in the hydraulic analysis which assessed different  
25 annual throughputs. We also received feedback on

1 evaluating the repurposing of existing gas pipelines.

2           Although Angeles Link is anticipated to be new  
3 infrastructure, we conducted a high-level evaluation  
4 around the conversion of existing natural gas pipeline for  
5 hydrogen service and discussed the potential advantages  
6 and disadvantages of both approaches.

7           Lastly, we received comments around electric  
8 reliability. Stakeholders are interested in an assessment  
9 of the proposed infrastructure's impact on the power  
10 system resilience and reliability. In Phase 1, we  
11 conducted a high-level literature review of electric  
12 reliability, identifying challenges, planning process, and  
13 the integration between the electric and gas grids.

14           Through this feedback-driven approach, we have  
15 been able to collaborate with stakeholders such as  
16 yourself to incorporate information about the areas they  
17 believe are of the most importance within this  
18 comprehensive evaluation of the Phase 1 project. Thank  
19 you.

20           MR. BRITT: That's it. All right. Thank you,  
21 Katrina and Annie. I think you guys did an amazing job in  
22 taking a lot of complicated information and presenting  
23 that. Thank you for your graphics and charts.

24           If you have any questions -- Roy, you got a jump  
25 on it already, but I'm going to go ahead and start with

1 someone online that already chatted something and beat you  
2 and then I'll come back to you.

3 Jill Buck wanted to clarify -- she mentioned in a  
4 previous meeting she asked for school sites to be  
5 considered locations to try to avoid.

6 And I think, Jessica, you mentioned that you  
7 might be able to provide an answer to that.

8 MS. REGAN: We do identify high-consequence areas  
9 within the pipeline study, but also I'll turn it over to  
10 Jessica.

11 MS. FOLEY: Thanks, Katrina.

12 This is Jessica Foley with SoCalGas. The  
13 environmental analysis does look at the schools among the  
14 conceptual 1,300 miles of the pipelines evaluated. So I  
15 can't give you the exact numbers off the top of my head of  
16 the schools that are identified, but that will be released  
17 as part of the environmental analysis, and that would be  
18 used to help us inform the future analysis in Phase 2.

19 MR. BRITT: Thanks, Jessica.

20 Roy, I'm going to go to you now and work my way  
21 right to left.

22 MR. VAN DE HOEK: Thank you, Chester. Roy Robert  
23 Van de Hoek, Defend Ballona Wetlands, environmental  
24 scientist.

25 Thanks, Annie. Thanks, Katrina. And thanks,

1 Jessica, for your last comment too.

2 Two things. One is the pipeline route, the  
3 preferred route that I saw in the urban Los Angeles area  
4 traveled along what I think is the Imperial Freeway, 105  
5 freeway going from east to west coming out of the ocean at  
6 what looked to me about where the Chevron oil refinery is  
7 located at the shore line, but I think there's a private  
8 corporation that does gas there too.

9 The LAGDWP Scattergood Program, so what is the  
10 reason for -- okay. Maybe I think I'm getting it. The  
11 gas -- the H2 pipeline corridor is coming from the inland  
12 regions, why does it need to reach the coast? Or is there  
13 also thinking that ships are going to come in? Chevron  
14 has tankers every day that drop off petroleum from  
15 different parts of the world that are refined just off of  
16 the LAX airport, so what's going on about that preferred  
17 route?

18 MS. REGAN: Thank you for your question, Roy. So  
19 we are at the feasibility level, so it is a very  
20 high-level analysis still, and in Phase 2, that's when we  
21 are really starting to getting into street-level  
22 refinement of the actual route that is selected. At this  
23 point, we are looking at the broad goals and the  
24 objectives of Angeles Link which is to connect that clean,  
25 renewable hydrogen production with potential offtake in

1 those hard-to-electrify sectors. That does include  
2 power generations so there are quite a few power  
3 generations in the areas, as you can see with this  
4 illustration. Ultimately, as the exact connection points  
5 have still yet to be determined with specific offtakers,  
6 so this is subject to change.

7 MR. BRITT: Katrina, just to clarify, even though  
8 you are showing multiple alternatives and lots of green  
9 lines on these maps, there eventually will only be one  
10 line that's selected; right?

11 MS. REGAN: Yes. Thank you, Chester.

12 At the end of Phase 2, there will be a single  
13 route selected.

14 MR. BRITT: All right.

15 Raul?

16 MR. CLAROS: Good morning. Raul Claros,  
17 Reimagine LA Foundation.

18 Thank you for your diligent work. I feel that  
19 our black and brown community from the inner city part of  
20 LA, a lot of the vulnerable communities that you are  
21 seeing on these maps are central and south Los Angeles  
22 have been taken into account -- and I know we've been at  
23 this for a while and it hasn't been easy, but we feel  
24 heard and we appreciate that.

25 I'm happy that somehow, somehow, you found how

1 to, for lack of a better word, diversify these routes.  
2 And although the west side does not have that  
3 hard-to-electrify sector, we at least appreciate that it's  
4 not all falling on the burden of our most vulnerable  
5 communities. With that, we do understand where these  
6 hard-to-electrify sectors are in these same vulnerable  
7 communities, so I just want to amplify and lift up the  
8 fact that these communities still will need to truly  
9 benefit from the community benefit packages that you all  
10 put together and we all put together. Thank you.

11 MR. BRITT: Thank you.

12 Did you have anything to say about that?

13 MS. REGAN: Thank you very much.

14 MR. BRITT: We will come back to you, Roy.

15 Let's move on to Enrique.

16 MR. ARADA: Thank you, Chester.

17 I just want to echo a lot of what Raul actually  
18 emphasized, and we definitely feel heard. Gracias. I  
19 finally feel like there's real work and due diligence has  
20 been done in terms of culturally conflict considerations.  
21 We've had this discussion for almost a year now, I finally  
22 feel, like, space is very important. Before, it was just  
23 kind of conceptual math with no real coordinates or  
24 anything.

25 From the very beginning we talked about

1 consideration given to historically adversely impacted  
2 communities, and what I mean by that is we talked about  
3 the geographic world that's been done around environmental  
4 justice, really giving us three-dimensional GIS maps on  
5 hot spots along south LA and southeast LA, and the  
6 communities most diversely impacted from stationary  
7 sources of pollution like along the 710, where many of us  
8 live and grew up, all the way to south LA to east LA.

9           When we look at these configurations, we  
10 definitely want to look at -- and I don't know how -- we  
11 want to make this a more participatory process we are  
12 looking at final selection of routes, but also with that,  
13 to really factor for existing pipelines.

14           I grew up in Lynwood and not far from there, I  
15 know there are other pipelines from another fuel company,  
16 I think it's BP Fuel, but there is just so much to factor.  
17 We talk about doing this once and doing it right. I feel  
18 very, very positive, and it's just amazing how much a  
19 group can do in one year. So just, again, gracias, and  
20 let's keep working and keep on keeping on. Thank you.

21           MR. BRITT: Thank you to you, Enrique. You come  
22 meeting after meeting and that's why you guys are here, is  
23 to provide input and to be a sounding board to these 16  
24 work studies that are going on simultaneously. There is a  
25 lot of information coming at you guys. We don't discount

1 how much work it is for you to just absorb all that and to  
2 translate that into positive -- and not just positive, but  
3 information that we need to know as we are working through  
4 those work studies, so thank you for that.

5 Marcia?

6 MS. HANSCOM: Let me go back to that other slide  
7 at the beginning where it shows -- the one with the blue  
8 dots that are there. Thanks. Marcia Hanscom with Ballona  
9 Wetlands Institute.

10 So those blue dots on the coast -- I do see where  
11 it says "natural," I think that means natural gas power  
12 plant; is that right? What are those two? -- that  
13 Scattergood and something else.

14 MS. REGAN: I would have to look at exactly what  
15 it is, but they do represent those generation facilities  
16 that do generate over one megawatt and are fired on  
17 natural gas currently.

18 MS. HANSCOM: Currently. So Eric Garcetti's  
19 comment that we are going to have an end to these natural  
20 gas with these power plants is meaningless now? I thought  
21 we were moving away from that to other renewables. So  
22 that's a big question.

23 I also have a question -- especially -- I'm not  
24 sure if -- you know, Scattergood is very close to the  
25 Playa del Rey gas storage facility which we have very big



1 concern about because it is an antiquated way of storing  
2 gas, and it is at the only state ecological reserve in all  
3 of LA Count, the Ballona Wetlands, and there are seven  
4 endangered species that rely on the habitat there. So  
5 when we talk about avoiding the endangered species on the  
6 route, we would hope and we would ask that SoCalGas really  
7 consider figuring out and to phase out that storage  
8 facility.

9 Less than one percent of all the gas used in the  
10 state is stored there, and it was called out in a report  
11 to the legislature that it is the most dangerous one in  
12 the state because of so many homes and schools nearby.  
13 It's very close. Some of them right on top of it. And  
14 the cities of LA, Santa Monica, Culver City, and the  
15 County of LA have all asked the governor to do what he can  
16 to urge you all to close that down.

17 So given that you are trying to do these other  
18 parts of this project in a truly environmentally  
19 sustainable way, we just ask that you look at that,  
20 especially given that it looks like that one blue dot  
21 might relate to Scattergood, which I think is one of the  
22 main reasons you have that. I understand Chevron is  
23 facilitated by that gas also, but they have their own gas  
24 storage. Maybe, you know, that's being looked at as  
25 phasing out too.

1 I'd also like to address the environmental  
2 justice issues because I have been working for 30 years in  
3 that part of the coast and have worked to try to minimize  
4 expansion of LAX Airport and all of the emissions there as  
5 well as Playa Vista, a big development there, and one of  
6 the things we looked at with all of the emissions coming  
7 from those projects is that the prevailing winds come off  
8 the coast and send all of those emissions inwards.

9 So while it may look like the coast is a better  
10 place to put it, it's really not because those prevailing  
11 winds end up sending all those emissions to the historical  
12 disadvantaged areas. So that's a really important point  
13 that I think needs to be remembered. We have worked a lot  
14 with environmental justice groups because of that.

15 MR. LOPEZ: And we are going to cover ESJ in our  
16 afternoon session as well.

17 Michelle?

18 DR. YANEZ: Will we get copies of those slides or  
19 have access to them?

20 MR. LOPEZ: Yes.

21 DR. YANEZ: Michelle Yanez, My Workforce  
22 Solutions.

23 So not only do we need to keep our disadvantaged  
24 communities safe, we also need to make these investments  
25 work for our communities in terms of workforce. But my

1 question is, are the trucks going to be hydrogen  
2 themselves, or electric?

3 MS. REGAN: As part of Angeles Link, we do seek  
4 to serve those hard-to-electrify sectors, and mobility is  
5 one of them, so we anticipate that that mobility sector  
6 will see hydrogen as a valid alternative for their fueling  
7 source, so that would then indirectly decrease emissions  
8 as well.

9 DR. YANEZ: That would help.

10 MR. LOPEZ: I think that's why you see also the  
11 routes going towards the ports of Los Angeles featured  
12 goods, movements, logistics hubs, so you can see the  
13 routes go down into the south area and wrap around that  
14 hub of uptake.

15 MR. BRITT: All right. We will go back around to  
16 Kenta and work our way back around.

17 MR. ESTRADA-DARLEY: All right. Kenta with  
18 Coalition for Responsibility Community Development. Thank  
19 you for sharing this info. The workforce development  
20 report actually makes a lot more sense now based on this  
21 route. But I had two part questions. So the ARCHES  
22 segment, is that considered part of Angeles Link or is it  
23 a separate project? I mean, we heard that the ARCHES  
24 funding was awarded; right? So is that pretty much a  
25 given in these areas? So that's part one.

1 MS. REGAN: I'm going to let Frank handle that,  
2 but I just want to point out -- I know it's a little  
3 difficult to see in the illustration. You can see the two  
4 ARCHES segments on the routes in black. On Routes A, B,  
5 C, D, they're just a little difficult, the contrast, but  
6 they are in there.

7 MR. LOPEZ: If you have it open, you can see it  
8 better there. We have two segments that are part of  
9 ARCHES that are part of Angeles Link up in Central Valley  
10 and one in Lancaster, but we are proposing Angeles Link as  
11 one system that would connect them.

12 MR. ESTRADA-DARLEY: Okay. Great.

13 And then the second question was -- so the Route  
14 1 variation is not considered a preferred route; right?  
15 So what or -- it's not listed as a preferred route, it's  
16 listed as a variation. So from here, I understand this  
17 is, like, Phase 1 -- this is looking at all of the  
18 options, but what is the process from here that would  
19 ultimately determine whether the variation route, which  
20 avoids the disadvantages communities, right, which is a  
21 big concern of a lot of the groups here, what ultimately  
22 would determine whether that route is chosen?

23 MS. REGAN: That's a great question, Kenta.

24 So in Phase 2, we are going to be exploring the  
25 preferred routes and that Route Variation 1 at the same

1 level to really make sure that we are making the correct  
2 decisions and we are keeping a really wide and  
3 comprehensive evaluation to move forward from. We will be  
4 moving forward with further detail as information  
5 continues to develop and to help us determine the singular  
6 preferred route.

7 MR. LOPEZ: I just want to clarify, the variation  
8 is a variation of a preferred route; right? It can be a  
9 little bit confusing. I think we spent a lot of time  
10 discussing it internally, but essentially eight routes,  
11 preferred route -- A, B and C -- could be constructed in a  
12 way to have that variation. Does that make sense? So you  
13 could have it with or without the variation.

14 MR. ESTRADA-DARLEY: Okay. So it is still  
15 considered a preferred route? It's a variation of a  
16 preferred route. Okay. But it will be evaluated?

17 MR. LOPEZ: Yes.

18 MR. ESTRADA-DARLEY: At the same level.

19 MR. BRITT: Michael, you have been very patient.  
20 I finally made my way back to you.

21 MR. BURNS: Hello. Michael Burns with California  
22 Greenworks. 2.5 questions depending on the answer to the  
23 first one.

24 The first one is a methodological question. In  
25 your disadvantaged community map, I want to know which map

1 source you used. Was it the SB 535 map or was it the  
2 pollution burden map?

3 MR. LOPEZ: If you want to take this one.

4 MS. ARAZI: It's SB 535. And I'll go into more  
5 detail on that data set that we did for the environmental  
6 social justice screening and we've been working together  
7 to make sure we are using the same data sets across our  
8 studies.

9 MR. BURNS: Which drops off the .5. Just  
10 furthering what Kenta asked. This is Phase 1. I'm just  
11 wondering if you have pinpointed ideally your go-to route?  
12 Not at all. What information is missing for you to  
13 establish the go-to route?

14 MS. REGAN: That's a really good question. So  
15 that's partly what we are going to ask of you all too  
16 because in Phase 2 we will be looking at that further  
17 criteria to narrow it down amongst we have what we have  
18 for Phase 1, and then we will need additional data to  
19 narrow that down for Phase 2.

20 MS. REGAN: Part of this stakeholder feedback  
21 process too is if there is data that you believe we should  
22 be considering that we have not already considered, we  
23 would absolutely welcome for you to share that with us.

24 MR. BURNS: Katrina, could you also verify, we  
25 haven't done any field work either; right? This is just

1 at the feasibility stage. So at some point when we need  
2 to advance to the following stage, you would want to go  
3 out and do some field work to do more refined engineering  
4 and design to confirm the feasibility of the route.

5 MR. BRITT: All right. Michael, are you done?

6 Roy, we will come back to you. We are going to  
7 go online to a couple people who chatted some questions.

8 Alex Jassett, I think this is a question for  
9 Annie, but he asked a two-part question.

10 How does pipeline size, route, distance impact  
11 leakage? Is it essentially the same leakage rate per mile  
12 or are there additional challenges to managing preventing  
13 leaks for a larger pipeline or a specific terrain?

14 That's the first part, and after you answer that,  
15 I'll come back.

16 MS. NG: Thank you, Chester. Thank you, Alex,  
17 for submitting that online.

18 So the design studies sought to estimate a range  
19 of potential pipe sizes and compressor sizes, and that is  
20 factored into the determination of the materials later on.  
21 Currently, for detailed materials to be selected, we will  
22 need the detailed design, operating conditions, and the  
23 appropriate final preferred route to be selected in order  
24 to appropriately select compatible materials.

25 So all of those factors will be considered in

1 Phase 2 when the final preferred route is determined and  
2 additional engineering and design is conducted. We also  
3 have a leakage study and report that goes into detail of  
4 the assessment of Phase 1 leakage, and that's available  
5 for everyone to review. And I believe there was a second  
6 part of your question?

7 MR. BRITT: The additional question is what are  
8 the current thinking on odorance used for safety given  
9 DOE's own research says there are no viable options at the  
10 moment?

11 MS. NG: Odorance. That is a great question. We  
12 actually go into quite a bit of detail in the odorance in  
13 the safety report, so I definitely would direct interested  
14 parties to review the safety report seeing that there is  
15 extensive knowledge in the safety report regarding  
16 odorance. It is a little bit outside of the scope of  
17 topics today.

18 MR. BRITT: Thank you. All right. Thank you for  
19 that.

20 And then Andrea Vega has a question, which I  
21 believe will go to Frank. She writes as far as I know  
22 LADWP has been considering hydrogen transport via trucking  
23 rather than through pipelines. How will Angeles Link and  
24 SoCalGas incorporate into the proposed LA hydrogen hub if  
25 that is the case?



1 MR. LOPEZ: Thank you, Andrea.

2 I might answer these as two separate questions.  
3 So on the first one, I have not heard about LADWP trucking  
4 in hydrogen to provide a source of energy for its  
5 Scattergood Power Plant. If you want to share information  
6 with us, we are happy to take a look at that. We do know  
7 from our own analysis and our feasibility studies  
8 including project options and alternatives that pipelines  
9 are the safest and most cost-effective method of  
10 delivering hydrogen at scale.

11 In terms of your second question related to  
12 ARCHES, I think I mentioned we have two segments that are  
13 part of ARCHES successful application to DOE up in the  
14 Central Valley and in Lancaster. I don't know what DWP's  
15 project is, that is part of ARCHES that hasn't been  
16 disclosed to us, so I can't speak to that.

17 MR. BRITT: Thank you, Frank.

18 Jay, I think you've raised your hand. If you can  
19 unmute yourself online, we should be able to hear you.

20 MR. PAREPALLY: Jay Parepally, Communities for a  
21 Better Environment. We are not on the safety report, but  
22 because of the questions raised about odorance and the  
23 answer given, I would like to point out -- and it's in our  
24 feedback that we submitted last Friday -- the safety  
25 report does not identify any specific odorant.

1           It says that for hydrogen, it's important to find  
2 one because potential end users may have to scrub the  
3 odorant out of the pipeline of hydrogen for their uses for  
4 pure hydrogen. It says something about more captives and  
5 natural gas.

6           I looked at that report up and down and there is  
7 no mention of specific odor. It says it's yet to be  
8 defined or found, but is important for SoCalGas and  
9 Angeles Link to identify it.

10           So it's one of the many pieces of missing  
11 information in the Phase 1 reports that may come at Phase  
12 2, and may come at a later phase, but these are the things  
13 that we are catching that we are seeing oftentimes the  
14 team is either not adding that information available yet  
15 or is not presenting it in a transparent manner yet.

16 Thanks.

17           MR. BRITT: Thank you, Jay.

18           Roy, we are finally back to you. And after you,  
19 is lunch. So with all these pictures in the room, I don't  
20 know about you, but I'm getting hungry too. No pressure.

21           MR. VAN DE HOEK: I don't want to be the bad guy  
22 here. So that variation route coming down the San Diego  
23 freeway, which has, like EJ -- that is -- people have more  
24 income along the San Diego freeway route, especially over  
25 the Sepulveda Pass. Was going over the Santa Monica

1 mountains with a pipeline, making it wanting to go more  
2 economically along Interstate 5 because then you're  
3 staying level as you go through urban Los Angeles or not?

4 And then, my understanding was those preferred  
5 and variation with the green lines was for the pipeline  
6 only, but I'm thinking I was hearing hints that that's for  
7 the thinking if it was going to be transported by trucks.  
8 If that's also going to be the route, how does that  
9 overlap?

10 MS. REGAN: Thank you, Roy. Let me see if I  
11 remember the second one, but I am going to do the first  
12 one first.

13 So when we initially considered the routes that  
14 we were going to evaluate, we did look at those routes  
15 that were closest to potential offtake based on our  
16 objective to help support those hard-to-electrify sectors,  
17 which is why that initial route was evaluated. But in the  
18 variation that we have identified does continue that route  
19 and allow for further connection and evaluating how  
20 elevation change could affect operation is something that  
21 would be considered in further detail in Phase 2 during  
22 modeling.

23 And your second question. So this would still be  
24 a pipeline route. Angeles Link is a pipeline aiming to  
25 connect those production sources with offtake.

1 MR. VAN DE HOEK: You get confused -- not  
2 confused, but wondering when Michelle asked about trucks  
3 that transport and LADWP.

4 So now my question is, if you have an existing  
5 methane pipeline and you are thinking about putting a  
6 hydrogen pipeline alongside it and then you have  
7 electrical lines carrying solar power, are we -- is  
8 technology going to a place where electricity is going to  
9 be transported underground instead of utility poles or is  
10 the standard still -- okay.

11 But that's just a part of it. Really, I'm  
12 curious about the safety of -- are you guys thinking about  
13 you can't put -- would you put a hydrogen pipeline right  
14 next to a methane pipeline? Because if one of them  
15 breaks, it could have a secondary unintended breakdown of  
16 the parallel methane pipeline next to it, so you've got  
17 the distance thinking going on with the reach of  
18 explosibility.

19 And so when you think about that, then you need  
20 more of a list of a breadth of the route if you are going  
21 to have methane, hydrogen, and electric all running  
22 together. Because if an electrical thing comes down, that  
23 could explode the methane and the hydrogen line, so you  
24 can't really put them on the same --

25 MR. LOPEZ: I think we got it.

1 MR. REGAN: Thank you, Roy. The safety is  
2 foundational to all of the work we do here. And it's not  
3 only built into those operation practice procedures once  
4 an asset is in operation, but it's also built into the  
5 design.

6 One of those ways is as exactly as you mentioned,  
7 the installation of assets like a pipeline, looking at how  
8 other facilities in the area are also currently installed  
9 and evaluating what those risks are and looking to use the  
10 correct safety design standards to make those decisions.  
11 That's what we will continue to do with Angeles Link, and  
12 continue following codes and standards as they are laid  
13 out in things like ASME, B3112, and CFR and to make sure  
14 that these pipelines are installed and designed safely.

15 MR. VAN DE HOEK: And I'm sure you thought about  
16 the scenario when there is a truck driving down a freeway  
17 that's carrying some chemical -- or a train -- a custom of  
18 our highway are trains, so Southern Pacific rail routes  
19 and -- if it left the rail and exploded, how is pipeline  
20 secure? Somebody has got to be thinking about that  
21 scenario, I presume.

22 MS. REGAN: Yeah. During the alignment, we will  
23 consider a variety of different potential situations that  
24 can occur. And also that's one of the advantages to  
25 installing underground is to help protect from some of

1 those above-ground situations that can happen.

2 MR. BRITT: Thank you, Roy. You always ask great  
3 questions.

4 So to close out this session and get us into the  
5 lunch session, I just want to make a couple things clear  
6 again as we go through all these discussions.

7 SoCalGas is tasked with looking at 16 work  
8 studies, and some of them include things like production  
9 and trucking and other options that we are actually not  
10 doing. SoCalGas is not producing hydrogen and not  
11 trucking hydrogen, but we are being asked to evaluate  
12 those things as part of the feasibility study. So I want  
13 to make that very clear. The goal here is for Angeles  
14 Link to carry hydrogen to the port areas because that's  
15 where the demand is, and obviously avoid disadvantaged  
16 communities along the way, and that's the goal.

17 And, obviously, considering all these other  
18 factors is part of the analysis and part of the  
19 feasibility study we are in. So I just want to make sure  
20 that that is very clear. There are a lot of questions  
21 with things that are related to that, like trucking and  
22 electricity and where would they put their lines.  
23 Obviously, SoCalGas has no control over that, but it's a  
24 good question and something to be evaluated in this part  
25 of the evaluation that's happening.

1           So with that, I'm going to turn it over to Alma  
2 to introduce us to lunch and then how we will break out of  
3 lunch and come back.

4           MS. MARQUEZ: Yes. Thank you, Chester.

5           Since we are five minutes over into our  
6 lunchtime, if you want to take a 15-minute break and check  
7 your e-mails and stretch your legs, then we can start  
8 15 minutes after to have a working lunch to get us back on  
9 track, or if you want your full 30 minutes.

10           Not everyone at the same time. We will take a  
11 15-minute break and resume at 12:20. Does that work for  
12 everybody? Let's go ahead and do that. Folks on Zoom, we  
13 will check back in at 12:20. Thank you.

14           (A recess was taken.)

15           MS. MARQUEZ: Welcome back, everybody. Thank you  
16 for bearing with us. We will move on with our third  
17 presentation and final presentation. It is our  
18 Environmental Social Justice Plan and Screening  
19 Presentation. We have Edith Moreno, who is our Public  
20 Affairs with SoCalGas to give us that presentation. I'll  
21 hand it over to Edith.

22           MS. MORENO: Thank you so much. It's great to be  
23 back in the room and see so many familiar faces and have  
24 an opportunity to reconnect, I think -- I am really  
25 excited to delve into a topic that is really close to my

1 heart.

2 I grew up in southeast LA, so the 710 corridor  
3 was my backyard. As a friendly reminder before we get  
4 into the deck, you should have received links to both the  
5 Environmental Social Justice Screening and the  
6 Environmental Social Justice Community Engagement Plan  
7 last Friday.

8 If you had any problems accessing the links,  
9 please feel free to reach out to any of us today. I am  
10 going to be spending some time and walking you through  
11 these two critical work streams.

12 Next slide, please. Give me a second. I know we  
13 are still eating lunch. Okay.

14 So I'm going to start with our Environmental  
15 Social Justice Screening. So this work stream was  
16 originally part of our environmental analysis that Jessica  
17 is now spearheading for us, but we made the decision to  
18 separate it from that report and make it a standalone  
19 document. It's an important document that really merits  
20 its own spotlight.

21 I also want to note the CPUC rights specifically  
22 did require us to address some of the impacts to  
23 disadvantaged communities and other environmental justice  
24 concerns, but during this presentation I will be using the  
25 umbrella term of "environmental justice communities"



1 through my remarks this afternoon.

2 So our initial approach involved using desktop  
3 screening tools that were developed by federal and state  
4 agencies. And I know, Michael, you asked about this  
5 earlier. It's CalEnviroScreen, which is established from  
6 Senate Bill 535 -- and so this was a mapping tool that was  
7 developed by the Office of Health Hazard Assessment, and  
8 essentially just helps to identify some of the communities  
9 in our state that are the most affected by sources of  
10 pollution.

11 The second is a new tool on the block that was  
12 developed by the Biden Administration's Council and  
13 Environmental Quality, and that's the California  
14 and Economic Justice Screening Tool, or CJST just for  
15 short. Again, this is just another mapping tool that  
16 identifies the communities that are experiencing certain  
17 broader categorical burdens which is energy burden.

18 And if folks are interested in learning a little  
19 bit more about specific data from either one of these  
20 tools that we are leveraging, feel free to reach out to me  
21 and I'm happy to have more one-on-one discussions with  
22 you.

23 And then I also really want to emphasize that  
24 these are just tools that we're leveraging to help  
25 SoCalGas have a deeper understanding of where

1 environmental justice communities are located. And I  
2 really want to acknowledge that this is just screening  
3 information and it really does not represent the full  
4 spectrum of our EJ communities, and these tools are -- on  
5 a high level, they provide information by the census tract  
6 and don't provide that granular detail about any specific  
7 environmental burdens that many of our low income and  
8 communities of color face.

9 One thing I also want to emphasize is if any of  
10 our CBO members have any additional screening mechanisms  
11 or any other environmental justice information that you  
12 want us to incorporate at part of the screening of this  
13 report, please share that with us today or provide us some  
14 suggestions via written comments.

15 We are really here today to learn from our  
16 stakeholders and we really want to foster a collaborative  
17 and transparent approach to make an impact in our  
18 environmental justice communities.

19 Next slide, please thank you.

20 So in this slide I'm going to break down the  
21 screening work in a little bit of more detail so I  
22 apologize for the text. Bear with me for a moment. So  
23 what we did is we took the preliminary or first draft  
24 conceptual routes that were identified early on in the  
25 project that were developed for the routing study that

1 Katrina covered earlier.

2           So we broke down the approximately 1,300 miles of  
3 conceptual routes that were identified into 13 tranches,  
4 or 13 study areas, and we then pulled that data right from  
5 CalEnviroScreen and CJST for each of the study areas, and  
6 we also pulled additional demographic information like  
7 population and income levels.

8           Some of you might not have had the opportunity  
9 yet to take a peek at the draft screening report, but when  
10 you do, you will notice there is a lot of tabular  
11 information that summarizes a lot of this information that  
12 was pulled for each study area.

13           I want to clarify that we didn't pull the same --  
14 for this draft we didn't pull the same tabular information  
15 for the route variation that Katrina talked about earlier  
16 today, but we are planning to do more of a detailed  
17 assessment in Phase 2 of the project once we get formal  
18 authorization from the Commission to proceed with the  
19 second phase.

20           But I will note that the maps that were included  
21 in the screening report, there's 13 maps that were  
22 provided, and that screening does include the route  
23 variations of based on the information that you see that  
24 is mapped or included in those maps with the disadvantaged  
25 communities' information, and you will be able to see the

1 route variation.

2 And then we are planning to update the final  
3 report of the screening to reflect the most up-to-date  
4 routes analyzed in the routing study just to make sure we  
5 cover any sort of discrepancies that have occurred from  
6 the initial routes that were selected to the final routes.

7 Again, I really do want to emphasize that this is  
8 just one tool SoCalGas is going to be leveraging. It is  
9 really going to help us tailor our engagement approach in  
10 Phase 2, and in no way will replace or supercede any of  
11 the input that we receive from our CBOs or trusted  
12 community leader.

13 Next slide.

14 This is just a really big overview map that you  
15 might have recognized from our last meeting. And so this  
16 is that large overview map that maps the conceptual routes  
17 and the ESJ communities near those conceptual routes.

18 So as part of the screen report we shared last  
19 Friday, you will have a little bit more of a detailed  
20 breakdown of the different areas and see and dive into the  
21 data a little bit. We didn't include 13 of those images  
22 here just for the sake of simplifying our presentation  
23 today, but you will have access to all of that information  
24 in the living library. This map isn't an attachment to  
25 ESJ screening report, but it is something that we did

1 include in the Knox study report.

2 Next slide.

3 So now I'm going to talk about the screening,  
4 which is kind of a part one of our EJ work stream, and now  
5 we are getting into the second work stream which is the  
6 Environmental Social Justice Community Engagement Plan.

7 So we developed this plan in response to some  
8 feedback that we received during a workshop we hosted a  
9 year ago now -- which is crazy to believe the progress  
10 that we have made on this project with you all.

11 So we, you know, received some feedback when we  
12 were discussing the scope of our environmental justice  
13 assessment, and so we went back to the drawing board and  
14 we put together a very preliminary outline of an  
15 engagement plan to, you know, meaningfully engage with  
16 environmental justice communities and other stakeholders  
17 that have been historically excluded from project  
18 development processes.

19 So since September, we had a really great,  
20 insightful breakout session to gather input on the  
21 planning components and the engagement strategies, and so  
22 all of that information you will see photos here of the  
23 sticky notes -- if folks in the room remember going  
24 through this exercise -- but we did incorporate this  
25 feedback, and many of the strategies that were mentioned

1 during those breakout sessions have been incorporated into  
2 that draft plan.

3 And for those in the room, you will have a  
4 worksheet here. And so if you all just want to jot some  
5 notes, we will be having an opportunity to kind of  
6 workshop through the engagement plan and get your thoughts  
7 on whether we are hitting the mark on this or if we need  
8 to make any refinements based on your input.

9 And then another thing I want to highlight with  
10 you, the Commission did limit the type of stakeholder  
11 engagement that we could do, so our activity was largely  
12 limited to these meeting -- the planning advisory group  
13 and the community based organization group.

14 So many of the activities that we have outlined  
15 in this plan that we want to execute in Phase 2 are just  
16 not currently allowed in the first phase of the project,  
17 but this is something that we intend to execute in Phase 2  
18 once we receive authorization from the CPUC.

19 Next slide.

20 So this is just an overview of the contents of  
21 the plan. I won't go through them in detail. I won't  
22 walk through each one of them in too much detail. It's  
23 essentially just a snapshot so you can see on a high level  
24 what categories or components are included in the plan,  
25 but if there's anything you think we are missing, please

1 provide us that feedback via writing or during our  
2 breakout sessions today.

3 We really want this plan to be stakeholder-driven  
4 and are looking to all of you to learn how to meaningfully  
5 engage with environmental social justice communities.

6 Next slide.

7 This slide summarizes some of the goals that we  
8 have outlined in the ESJ plan. You see here in the  
9 headers that we really do want to actively involve  
10 ESJ communities and we want to collaborate with them and  
11 gather input and provide ESJ communities with information  
12 they need to empower them to be active contributors to the  
13 project.

14 Like I said, we will be having a breakout session  
15 after my presentation. So if there are any goals that  
16 need to be modified, removed, emphasized, et cetera,  
17 et cetera, we will be able to workshop through any of your  
18 suggested edits during that time. We really do want to  
19 know what is most important to you and we really want to  
20 take that feedback as we proceed into building an  
21 engagement plan for Phase 2.

22 Next slide.

23 So we have here just kind of some of the proposed  
24 engagement strategies, again, to emphasize we want to  
25 implement Phase 2. So some of those engagement activities

1 include mirroring or leveraging the health model where we  
2 can educate trusted members of our community that can be a  
3 resource for the communities at large. We also want to do  
4 more direct community engagement or more  
5 boots-on-the-ground touch points as well as partner with  
6 local governments, which includes tribes, to help educate  
7 the community and inform them about this project.

8           SoCalGas today already does do some level of  
9 engagement in our communities, but some of these  
10 strategies we are proposing, you know, is a new frontier  
11 for our company, so we are really looking to be an active  
12 partner and learn from our ESJ communities to how best we  
13 can meaningfully engage with them.

14           Again, I know I keep saying it, right, but if you  
15 are missing the mark on any of these proposed strategies  
16 that we have drafted so far, we really want to receive  
17 your input either written comments or during our breakout  
18 sessions today.

19           Next slide. Okay.

20           So we wanted to give the equity principles for  
21 hydrogen that were developed by several prominent  
22 environmental justice organizations in California a little  
23 air time during our meeting today, so our response to this  
24 document was included in our last quarterly report, but  
25 unfortunately, it was a little bit buried as an attachment



1 and I apologize for that.

2 But I did want to communicate with you all that  
3 we did thoroughly review this plan, and for the most part,  
4 do see a lot of alignment in terms of meaningfully  
5 including and engaging communities of color or communities  
6 that have been historically overlooked in projects.

7 So this plan, the equity principles and our  
8 response is a component of the ESJ engagement plan, so it  
9 will be a front-and-center component of that engagement  
10 strategy. So if there are any additional questions with  
11 the contents or our response, we're happy to have an  
12 additional discussion with you all as well.

13 Next slide. Okay.

14 So I'm going to pivot a little bit from the  
15 Environmental Social Justice Community Engagement Plan and  
16 I wanted to share with you some of the expanded engagement  
17 that we have conducted in the last couple of months. I  
18 really want to thank CBE for their suggestion to expand  
19 their engagement in areas like the San Joaquin Valley,  
20 which is an area that we have identified some potential  
21 possible corridors in our routing study.

22 I think initially we didn't really know where  
23 Angeles Link would go, so a lot of our engagement to date  
24 was limited within the LA Basin, and we hit the road, as I  
25 did, and had many meetings with additional CBOs and tribes

1 that you see here. And so actually as a result of this  
2 engagement, we were able to add an additional member to  
3 the planning advisory group, Ray Salas, who is a member of  
4 Fernandeno Tataviam Band of Mission Indians to the PAG.

5 If there are any organizations here that we have  
6 listed, or if you have any suggestions of who else we  
7 should be engaging, please let us know, and even better,  
8 if you can facilitate an introduction, that would be  
9 greatly appreciated.

10 Next slide.

11 And I think this is my final slide. I really do  
12 want to spend a lot of time combing through some of your  
13 questions and then having enough time to do our breakout  
14 session. But I just kind of want to summarize some of the  
15 valuable feedback that we have received on this topic so  
16 far and what we have done in response.

17 We were asked -- we have done some additional  
18 engagement, we provided some additional detailed mapping  
19 that is included in the screening report, and then we are  
20 really taking the marketing claim seriously and trying to  
21 produce materials that are a little bit more factual in  
22 content. Keep the comments coming, and thank you so much  
23 for the opportunity to be here with you all today. With  
24 that, I will pass it over to Chester and Alma to facilitate  
25 Q and A.

1 MS. MARQUEZ: All right. So now I want to open  
2 it up to everyone here and online if there are any  
3 questions regarding Edith's presentation.

4 I see Raul has his card up.

5 Raul, you can state your name and your  
6 organization.

7 MR. CLAROS: Raul Claros, cofounder of Reimagine  
8 LA Foundation. I also want to acknowledge my colleague,  
9 our executive director, co-founder, Rashad Rucker-Trapp,  
10 who has been attending these meetings both in person as  
11 well as online. He's online.

12 First of all, Edith, thank you. You gave me a  
13 quick flashback to our first meeting, and it is humbling  
14 to be a part of the process that has gotten us to this  
15 point. I'm very happy to see that the indigenous  
16 community has been tapped, and to see that, I think I'm  
17 going to land my comment on a question on that slide. But  
18 again, I definitely want to acknowledge the group for  
19 having black and brown entities at the table.

20 When it comes to environmental social justice, it  
21 is a table that black and brown organizations and black  
22 and brown people to talk about black and brown communities  
23 usually does not happen. So the fact that this group has  
24 made it intentional in doing so, I think is reflective in  
25 not only the work, but the room that you see here, which

1 look s a lot more diverse than it did the first time I  
2 attended a meeting in this room.

3 With that, I think we've done a good job with  
4 CBOs. It's important to get connected to black, brown,  
5 and indigenous CBOs from these neighborhoods, but I think  
6 we have gotten to a point where it's got to be more than  
7 the three of us. Right. We need to do more. I  
8 appreciate that olive branch and that offer to bring more  
9 time.

10 I was just talking right now to Enrique from CET  
11 to make sure my analysis of CRCB, CEA, and Reimagine LA  
12 Foundation, at least right now, are the groups, more time  
13 of black, brown, and indigenous that I see in this room  
14 that are covering those vulnerable communities that are  
15 going to be mostly impacted in the previous presentation.

16 And so as we need to grow in those CBOs, we need  
17 to be intentional in that it's not just the big macro  
18 CBOs, the traditional CBOs, the corporate CBOs, the  
19 commercial CBOs, but that it's going to be CBOs that  
20 eventually will connect us to real people that are  
21 everyday folks in those communities.

22 The reason it's hard to organize to get out to  
23 vote, to do anything in these communities is because of  
24 the lack of trust, language barriers, trauma in working  
25 with any kind of entity that eventually either comes for

1 you at the end of the month with a bill or with taxes or  
2 with any kind of enforcement. Right?

3 And so to have organizations like the three that  
4 I just mentioned here, I think we are off to a great  
5 start, but to level up and get us to the next level, we  
6 are going to need more, but it will have to be these types  
7 of organizations that really do have that reach so that,  
8 ultimately, we can get to the people.

9 Because I think -- you know, most of my  
10 colleagues that I just mentioned, will tell you that it's  
11 very hard to also navigate through a lot of the politics,  
12 you know, within CBOs into these communities and they will  
13 come and they will hoodwink you in telling you that they  
14 got it and they got that reach, but it is very important  
15 that this body does that due diligence to make sure that  
16 you are really connecting to grass root and grass top  
17 organizations that can get to everyday people.

18 I guess when I seen that list of the tribes and  
19 the indigenous groups, where are they today as far as  
20 you've identified them, how has the engagement been to  
21 retain them? And how can -- what can we do from the CBO  
22 side to be that influencer for you to maybe even convene  
23 meetings so that we can have these discussions outside of  
24 this quarterly meeting or agenda that's been set by you  
25 all?

1           How can we be empowered, right, to do that so  
2 that we are not just coming over here giving you advice or  
3 complaining but that we are actually taking positive  
4 action?

5           MS. MORENO: Thank you, Raul. I'm actually glad  
6 that you brought that up. One of the engagement  
7 strategies that we have identified in Phase 2 is to  
8 partner with grass roots organization where we want to  
9 cohost meetings with you all. We want to come into your  
10 spaces to learn from all of you and you can bring along  
11 the communities that you serve.

12           So it is part of our engagement strategy, but I  
13 will ask you, Raul, to give us some additional feedback on  
14 how best it is that we can partner with you to make that  
15 happen.

16           MR. BRITT: So just to clarify too, we have three  
17 members of the CBOSG who represent tribal communities.  
18 They don't always attend, unfortunately, but they are  
19 members and we send them all of the materiels for review  
20 and welcome their feedback and participation at any time.  
21 As Edith previously mentioned, we also added a new member,  
22 Ray, to our planning advisory group, who wanted to be a  
23 part of more technical, that was his request.

24           But, Edith, you also have been meeting with a lot  
25 of tribal organizations too; right? I think you spoke at

1 a conference for the American Indian Chamber of Conference  
2 too. What is some of the initial feedback you received  
3 from them in terms of this project and their engagement?

4 MS. MORENO: Thank you for that.

5 I think the tribes made a comment just in general  
6 how just historically they have been left behind in the  
7 clean energy revolution and cited the example of just  
8 battery storage or solar, and right now they are trying to  
9 catch up, so they were making comments about how hydrogen  
10 really is an opportunity to stay ahead of the game.

11 So they made a comment to us, or just in the  
12 forum in general, that they want to be part of the process  
13 and don't want to be left behind as it relates to the next  
14 phase of the clean energy transition where hydrogen is one  
15 of those opportunities.

16 I will say that it has been perceived as a really  
17 exciting opportunity for tribal organizations to get  
18 involved in this space and we are doing a lot more  
19 meaningful engagement and trying to be more present in  
20 these spaces. I was at the California Native Chamber  
21 meeting that they had in Rancho Mirage last week.

22 MR. CLAROS: So to piggyback on both of those  
23 comments and to answer your question directly, Reimagine  
24 LA Foundation will volunteer to work with CRCD and CEA,  
25 and get connected to the tribal leaders who shared that

1 sentiment. We would like to be able to convene small  
2 meetings amongst us so that we can -- you know, iron  
3 sharpens iron; right?

4 So if we can do that in the vulnerable areas that  
5 we talked about, then hopefully eventually we can expand,  
6 but our focus at Reimagine LA Foundation are those  
7 communities of interest that are most impacted, so that is  
8 our offer.

9 MS. MORENO: Thank you, Raul. I appreciate it.  
10 I will definitely take you up on that.

11 MS. MARQUEZ: We will go with Kenta, and then  
12 Michael, Marcia, and then I see you, Jay, via Zoom. We'll  
13 get to you last. Thank you.

14 Pass the microphone, please.

15 MR. ESTRADA-DARLEY: All right. Thank you very  
16 much for your presentation. Really glad to hear that we  
17 are expanding the groups that we're engaging collectively  
18 because that was going to be one of my questions. And  
19 kind of just trying to get a sense of the timeline of the  
20 engagement. So for the engagement to happen around the  
21 communities that are going to be along the pipeline route,  
22 it has to be kind of along the pipeline route; right?

23 We have heard many pieces around what goes into  
24 that. So just kind of in the order of things for the  
25 engagement piece to happen, what do you anticipate needs



1 to happen in order for us to know which communities we're  
2 focusing on? So that's part one, and I'll hold the other  
3 question.

4 MS. MORENO: So I think what you are trying to  
5 get at is how is it we will be prioritizing engagements  
6 and investment, et cetera, et cetera. So it's actually  
7 one of the main reasons or kind of what we will be using,  
8 that environmental social justice screening information,  
9 to see which are those communities that have been,  
10 unfortunately, most disproportionately impacted by  
11 pollution. So that's step one.

12 And then Katrina and I will be tied to the hip  
13 through this project, routing and environmental justice go  
14 hand and hand. So when they start doing more of that  
15 refined engineering in Phase 2 and we have a better sense  
16 of more of potentially kind of street level information of  
17 where the route would go, that's essentially going to be  
18 following that line -- the team will be following that  
19 line and be doing more of the direct engagement once we  
20 have more of that granular information.

21 Again, to date, it's kind of in corridors, so we  
22 went through those regions and did a swath. In Phase 2,  
23 as we identify more specific communities, then we will be  
24 refining the list of the CBOs to be engaging.

25 I don't know, Frank, if you want to add anything

1 else?

2 MR. ESTRADA-DARLEY: I guess as we are thinking  
3 about timeline, what would you expect that to be?

4 MR. LOPEZ: Well, we are still in Phase 1. We  
5 haven't wrapped up this process. I imagine we'd have to  
6 file for Phase 2, get authorization, including what we  
7 would propose to do for community engagement, and get  
8 authorization and then conduct that work.

9 So I think we have a ways to go. What we are  
10 focusing on right now is trying to make sure we don't wait  
11 until that happens to put together a plan. We are trying  
12 do an outline of the strategies and the approach that we  
13 would take to make sure that it's the right approach, that  
14 what we would use to propose during stakeholder engagement  
15 so that when we do get approval, we can hit the ground  
16 running and making sure we are not losing time.

17 Does that answer your question?

18 MR. ESTRADA-DARLEY: Yes. That's helpful. Thank  
19 you.

20 MR. LOPEZ: Can I add something? I think it's  
21 also just important now that -- as Edith mentioned, we  
22 weren't exactly sure where these routes were going to be.  
23 Given that we are not at a street level yet, I think we  
24 know geographically where these could go so we have a  
25 pretty good sense based on the screening that we have and

1 the preferred routes where we need to target.

2 And, remember, we operate a system throughout  
3 this service territory so we have relationships. We knew  
4 who these organizations are. I think we would want to do  
5 some more granular outreach and do something similar like  
6 this that it more route-specific in the actual communities  
7 where these routes would potentially go.

8 MR. ESTRADA-DARLEY: That's definitely helpful.  
9 And then it seems like no matter what part of the route is  
10 going to be kind of, like, Lancaster/Palmdale area, so is  
11 there a list of the CBO groups -- I know there is, I just  
12 don't know where it is. Where can we see the list so that  
13 we can add potential partners?

14 MS. MORENO: We have listed most of them here,  
15 but I will follow up and give you the list in writing, and  
16 I know you will also be receiving a copy of it today.

17 MR. ESTRADA-DARLEY: Perfect. Because definitely  
18 some groups to connect with in that area as well,  
19 especially given, like -- within LA County, of all of the  
20 spots, that's the most disadvantaged spot besides south  
21 LA, so it would be important to have some of those groups  
22 here.

23 And then, lastly, I was going to say the  
24 community -- one piece, right, is the education around the  
25 project, and clean energy, and potential benefits like

1 that, but the community benefits agreement, economic  
2 opportunity for small businesses, workforce opportunity,  
3 you know, that is at the heart and center of these  
4 conversations. And so I'm hoping -- I mean, you know,  
5 there's so many factors with the timing, but hoping that  
6 could be a big piece of this community engagement plan.

7 MS. MORENO: Thank you for bringing that up. I  
8 apologize for failing to mention, but that is a component  
9 of the Environmental Social Justice Community Engagement  
10 Plan, and we have a whole section that discusses the  
11 community benefits plans and how this plan or how the  
12 engagement that we would execute in Phase 2 and then the  
13 screening information is going to help us figure out where  
14 we need to be prioritizing our investments and  
15 prioritizing the community.

16 So it is kind of tied in the plan, so thank you  
17 for bringing that up. I appreciate it.

18 MS. MARQUEZ: Okay. We will go to Michael.

19 MR. BURNS: Thank you. Michael Burns with  
20 California Greenworks.

21 Just for the sake of clarity and efficiency for  
22 the conversation, if you guys could just express your  
23 working definition of environmental justice.

24 MS. MORENO: It can get really complicated and  
25 not everyone loves the different definitions. So in the

1 plan, we outline the CPUC definition of environmental  
2 justice, but then we started with the disadvantaged  
3 communities of environmental justice, and then we also  
4 cited the federal definition that is used as part of that  
5 CJST screening tool.

6 But if the group have suggestions on the  
7 definition that they would like SoCalGas to use as it  
8 relates to Angeles Link, please share your thoughts. I  
9 know it can be a sensitive topic in how the words are --  
10 can be misconstrued on paper, and so I do acknowledge  
11 that. So thank you for bringing that comment to our  
12 attention. But if folks have any feedback that they would  
13 like to provide on how we want to define those  
14 communities, please let us know.

15 MS. MARQUEZ: Thank you. And we will go to Roy.  
16 I just want to do a time check. We do have a breakout  
17 session after this, so if you could please focus on the  
18 presentation and be more direct in your questions, that  
19 would be very helpful. Thank you.

20 Roy?

21 MR. VAN DE HOEK: Thank you, Alma.

22 For Edith, the map that you had at the very  
23 beginning that was multicolored, could you explain the  
24 magenta color out in the desert? It's small.

25 MS. MORENO: Yes. I got you. So the different

1 colors that you see are the different data sets, and I'm  
2 going to stand up because I can barely see them myself.  
3 So what you see in the blue is the federal data set, that  
4 is the CJST tool, and then lighter maroon is the  
5 CalEnviroScreen, which is the state data. Then where you  
6 see the dark purple is where the data sets overlap.

7 MR. VAN DE HOEK: State and federal?

8 MS. MORENO: Correct.

9 MR. VAN DE HOEK: Okay. The other question is  
10 the Tatavian indigenous person named Ray, what is his last  
11 name?

12 MS. MORENO: Salas.

13 MR. VAN DE HOEK: Yes. Lastly, I want to make  
14 sure that ageism is brought into this. There are two  
15 types of senior citizens, those that are in retirement  
16 homes and those that are still in their personal homes,  
17 and SoCalGas has been really good with its CARE program to  
18 recognize the sensitivity of seniors.

19 But I think there's sort of a special group  
20 outside of differences -- the different nationalities and  
21 races of peoples and, of course, it actually embraces all  
22 of the different ethnic groups too, and social groups, but  
23 I think they're getting -- we are even seeing it with our  
24 current president who had to step down because -- we could  
25 call it ageism -- both of them actually.

1           So we have a lot -- they have trouble  
2 communicating and they have trouble understanding issues,  
3 but they clearly do think about the environment. But  
4 there's a special way that -- just as you tried to  
5 communicate with indigenous peoples and low-income peoples  
6 and languages barriers, they have kind of a language  
7 barrier of understanding, and really -- it's going to  
8 really need some contact. I just want them to be pulled  
9 out as a special group to.

10           MS. MORENO: Thanks, Roy.

11           The last thing I want to clarify on the map, I  
12 know there is large swaths of color, and I want to  
13 highlight that the data set both the state and federal  
14 they -- the information that is displayed is by census  
15 tracts, so obviously some census tracts are a lot bigger  
16 than others.

17           Again, this does not represent the granularity of  
18 where disadvantaged communities actually reside which is  
19 why you see that large swath of blue to the east and even  
20 into the Mohave Desert where they overlap. I wanted to  
21 also clarify it for you, Roy.

22           Again, thank you for the comment on the ageism  
23 and making sure that our engagement strategies also take  
24 into account our seniors and how we communicate with them  
25 as well. Thank you.

1 MS. MARQUEZ: Okay. We're going to switch it up  
2 a little and move to Jay who is via Zoom and then come  
3 back to the two folks here.

4 Jay, unmute yourself, please.

5 MR. PAREPALLY: Thanks, Alma.

6 Just a respectful request. I don't want to be  
7 seen as the complaining voice in the room. But since  
8 environmental justice is such an important topic and these  
9 draft reports just recently came out, CBOSG did just send  
10 it out yesterday, though it went out in the living library  
11 as of Friday, we would ask for more than four weeks of  
12 this report specifically since this is the core one for  
13 our membership and it would take some time for us, as  
14 staff, to digest the report, meet with our members, and  
15 constructively engage in Q and A and addressing language  
16 issues of trying to work with an English document and  
17 translating things for our Spanish-speaking folks, among  
18 others.

19 So when we provided the meaningful feedback that  
20 has been discussed, that is actually, hopefully, more  
21 meaningful, but I know that that potentially pushes back a  
22 little bit of your timeline. But these are the summer  
23 months, July and August, and some places -- maybe not the  
24 United States -- this is a time of rest -- but with  
25 respect to having honest, meaningful community engagement,



1 which I hope that this process, we'll continue to stick to  
2 it.

3 I appreciate that it's being brought up, and  
4 raises the standalone topic that we actually have the time  
5 to communicate with our members and make sure that they  
6 understand and are able to communicate any needs or wants  
7 to us on how we draft our feedback back to SoCalGas.  
8 Thank you.

9 MR. LOPEZ: Thank you, Jay. If you don't mind, I  
10 will follow up with you after this and we can have a  
11 meeting, like we typically do, in how much time you feel  
12 you need to provide us with comment on the report.

13 And then you mentioned that we sent this out  
14 yesterday. I think this went out on Friday. I believe we  
15 sent out e-mail communication on Friday, and I understand  
16 it's still only a few days.

17 MR. PAREPALLY: I was on both and double checked  
18 the time stamps. I don't want to put anyone on blast.  
19 The PAG was notified at 6:50 p.m. on Friday, of all of the  
20 report and CBOSG after 5:00 p.m. yesterday. Unless my  
21 e-mail client did that, they were released on two separate  
22 days, a Friday and a Monday, to the best of my knowledge.

23 MR. LOPEZ: Nonetheless, I will follow up with  
24 you and we will make sure you have adequate time to submit  
25 your comments.

1 MS. MARQUEZ: Jay, you are one of the lucky folks  
2 of PAG and CBO, and they both did go out on Friday just to  
3 clarify. Then we also sent them out yesterday. But your  
4 point is well taken that you need more time review, so we  
5 have taken that into account. And Frank will be following  
6 up with you. So thank you.

7 And with that, let's move on with Rashad who has  
8 been very patiently waiting as well, and come back to two  
9 folks here.

10 You can unmute yourself, Rashad.

11 MR. TUCKER-TRAPP: Good afternoon, everyone. I  
12 just wanted to make a comment thanking SoCalGas for this  
13 very helpful study information and, again, the opportunity  
14 to be engaged. As my partner, Raul, I am grateful he was  
15 able to attend in person. I do apologize for the last  
16 minute not being able to attend.

17 My partner mentioned in terms of engaging the  
18 CBOs in smaller roundtable to discuss this project how to  
19 better communicate and engage, but really grateful as  
20 always for the opportunity to be at the scene, as  
21 mentioned. And, you know, it's not a lot of -- usually  
22 these discussions don't happen, until they're already in  
23 the process, so the fact that our communities are engaged  
24 and have the opportunity to be engaged is very, very good  
25 information and very helpful. And I'm looking forward to

1 going forward and the next stages.

2 MS. MARQUEZ: Rashad, thank you for your comment.  
3 One clarification.

4 MR. LOPEZ: Yes. I just want to make sure that  
5 folks know where to access this map you are seeing here.  
6 This is a very large map. This map is located in the Knox  
7 Emissions folder. There is an attachment there that has a  
8 bunch of maps of the Knox Emissions reductions. At the  
9 very end of that document, this map is located.

10 However, in the EJ screening that Edith was  
11 talking about, there's a series of maps that are more  
12 granular. If you are looking to drill down a little bit  
13 more, she mentioned it is broken up into 13 study areas  
14 and each of those study areas has a map. I just want to  
15 make sure you can navigate these documents to get to the  
16 maps that you need.

17 MS. MARQUEZ: Thank you for that, Frank.

18 And with that, we will move on with Enrique.

19 MR. ARANDA: Hello. Thank you, Alma.

20 I want to express my gratitude and kudos to  
21 SoCalGas for really bringin in the importance of cultural  
22 competence in their sectionality.

23 An often example, several of us, CBOs present  
24 here today, we do mental health services. And something I  
25 can say about is age, and the importance I see with young

1 people we work with when we have a clinician of color work  
2 with that particular youth, and that's how I feel in  
3 having Edith Moreno at the helm of this community  
4 engagement process.

5           It really does justice to the process, we feel we  
6 are part of it, and we are participatory. And when you  
7 mentioned the community health workers, the whole model is  
8 something that philanthropy has embraced and it's  
9 something so powerful for communities that have health  
10 disparities and a lack of access to health care and a lack  
11 of access to so many other things such as justice.

12           And there's a way we can work with you and work  
13 with SoCalGas and then helping with any data collection  
14 going forward. And when we discussed the definition of  
15 environmental justice, I say engage us in helping coming  
16 up with a proper definition of EJ, because those groups  
17 that have dementia --

18           We are here, and we share a bedrock of importance  
19 for equality of air, importance of economic development,  
20 equity, local hiring, and a benefit agreement that is  
21 robust and just. And also doing justice to our  
22 opportunity youth who have been forgotten for too long by  
23 a pipeline that no one talks about when we talk about a  
24 regulatory agency such as SoCalGas. So just thank you for  
25 this process and we look forward to the next year and

1 Phase 2.

2 MS. MORENO: Thank you, Enrique, I appreciate it.

3 MR. LOPEZ: I just also want to reciprocate the  
4 gratitude to you, Enrique, specifically because I recall  
5 the meeting where we presented the approach on this and  
6 we heard you loud and clear that people are just more than  
7 data and maps. We are taking that very serious, and I  
8 think it was an eye-opening experience for us. Thank you  
9 for sharing that information and hopefully we did right by  
10 you.

11 MS. MORENO: Thank you, too, and Enrique for  
12 that.

13 I do have a really kind of very curious, genuine  
14 question on my end for you all. It seems like this  
15 process and this project has really clicked for you. What  
16 have we done to kind of help bring that along? Because  
17 obviously, we are going to have to continue this type of  
18 engagement and expand on it and grow. What have we done  
19 right? When did it click for you? Because we want to  
20 keep doing that.

21 MR. CLAROS: I would say that the sentiments that  
22 Enrique shared about Ms. Moreno, I shared it even before  
23 this process with Frank, with Andy Cirazco, who, even  
24 pre-COVID, made an effort to make sure that SoCalGas's  
25 reach was more than just pamphlets or more than just door

1 hanger and more than just commercials. That it was actual  
2 real people, back to Enrique, and to see another Latino  
3 men and women right from our communities that they're  
4 known for more than just employees of SoCalGas, they're  
5 known as sons and daughters of our communities, so that  
6 makes them brothers and sisters of our tribes. Right.

7 So Rashad Rucker-Trapp, who is on the line as  
8 well representing the African-American community,  
9 Afro-Central Americans, right, Elysian communication,  
10 right -- we are talking about Central American communities  
11 that have different dialects and different languages, all  
12 of that is so important.

13 So there's a trust factor going back to what I  
14 talked about earlier, right, when we just -- our community  
15 has a lot of trauma. But when we know the people, then  
16 it's the individuals first -- relationships matter.  
17 Right? And so we see these individuals for who they are  
18 and what they are first, and then we talk about their blue  
19 shirt. Right?

20 And then we talk about, hey, I remember when I  
21 was a kid and you guys came and fixed my windows, and you  
22 put ceiling fans on, right, and you gave me a -- it was  
23 when I was a kid, so I was with my mom -- but I think it  
24 was a new washer or refrigerator, but we got hooked up by  
25 SoCalGas. Right? And the fact that SoCalGas is still the

1 cheapest bill every month, right, all that just kind of  
2 means a whole lot when you start now being able to tell  
3 testimonial. Right?

4 They are not talking points, they're real life,  
5 again, real people, that have now grown up, right, we are  
6 no longer the youngest people in the room, but we are now  
7 in these positions that we are making sure that the young  
8 people are still engaged and educated.

9 Because in our communities, it is usually the  
10 young people who go home and tell mom and dad about what  
11 they learned. Right? So the work Enrique does on the  
12 ground, amazing work that CRCD does in south central LA  
13 and across the city, and us, we are trying to fund  
14 everybody. We are trying to connect resources to  
15 everybody.

16 So game recognizes game in a sense that we want  
17 to be able to move this thing forward. So that's been the  
18 biggest experience that we have taken with us now for  
19 close to five or six years of being able to truly partner,  
20 right. And being able to have you all at our community  
21 events as well has really helped with -- (Spanish  
22 language) -- we remember the presentation, and we remember  
23 the visit at the chamber meeting, those things -- showing  
24 up really does matter.

25 MS. MARQUEZ: Thank you for that, Raul.

1 Enrique, and then Marcia, and then we will wrap  
2 up and go to our breakout groups.

3 MR. ARANDA: First of all, Emily, thank you for  
4 that thoughtful question.

5 There is an old adage that somehow community  
6 organizations fill the void of government. And you've  
7 listen to us and you've trusted us, and as you've listened  
8 attentively to us, and you respond the way we see it --  
9 and not just here, but in a living, breathing document,  
10 that this community engagement plan represents.

11 I think we are building a rapport and building  
12 trust. It's important beyond us sitting here at this  
13 table because so many of our people can't be here today  
14 because they work. But believing that advocacy of a  
15 regulatory agency like SoCalGas is so important because  
16 there's a historic distrust in the communities of color,  
17 and not just in the regulatory agencies, but in government  
18 altogether, and that's why I think this process is  
19 important.

20 We talked about doing it once, doing it right,  
21 and learning from other mechanisms of community engagement  
22 models, and I'm just pleased. You know, given the data  
23 sets and looking at the way the team has worked together  
24 from a policy perspective, to a science perspective, to a  
25 culturally-competent fabric that is being woven, is just a



1 great process that we are building together as one.

2 MS. MARQUEZ: Thank you, Enrique.

3 Last but not least, Marcia.

4 MS. HANSCOM: Thank you. Marcia Hanscom, Ballona  
5 Wetlands Institute.

6 This has all been really great conversation. I  
7 especially want to back up what you said, Raul, in the  
8 beginning, you had some really good comments. And I just  
9 want to say that my experience working with tribal  
10 leaders, listening is one of the most important things.  
11 And so while I do acknowledge you all have had some great  
12 experience with SoCalGas people coming out to you, I'd  
13 like to hear more from some of those tribal leaders too,  
14 and not just have it be SoCalGas going to talk to them,  
15 but having more of them here in the room.

16 Because I do feel like we need to be doing more  
17 listening of their incredible wisdom of the history, of  
18 the landscape that many of us don't have and can learn  
19 from. And I also want to harken back to something I heard  
20 in one of the very first meetings that we had -- Lydia  
21 Ponce and Andrea Leon Grossman -- they both said very  
22 strongly that consultation isn't enough for the tribal  
23 leaders.

24 I don't know if this is part of the law or  
25 guidance that some of the agencies have had, but they

1 constantly stress consultation and consent -- not just  
2 consultation, but consultation and consent. They want to  
3 feel like they have a say in this. This is their land  
4 that we are occupying, unseated in most cases. So I feel  
5 like we need to engage them in that, and sometimes that  
6 takes a while.

7 I don't know if you've talked at all to the  
8 Sacred Places Institute -- I think they're in Venice, that  
9 is their headquarters -- but they have a lot of history in  
10 trying to reach out to the various tribal leaders.

11 And I noticed you said in one of the things about  
12 expanding tribal engagement outside of the LA Basin, but I  
13 did not see that on the list, and I haven't heard some of  
14 the groups that are in the LA Basin. There are five or  
15 six tribal interests that are always saying we want to  
16 have a say. And Tongva -- San Gabriel Band of Mission  
17 Indians Tongva, Shoshone Gabrielino Nation -- they all  
18 need to feel like they're at the table, and I want to hear  
19 from them as well because we learn from each other, and  
20 that may impact some of the comments that we make.

21 And so in the room -- and Chumash goes up the  
22 state quite a bit, but they're also in LA County, so they  
23 also should be included. And so, finally, I think those  
24 are the things that I wanted to stress, that we listen  
25 more to the tribal leaders. I know it's very challenging

1 because, like you say, people work and it's hard to get  
2 some of the representatives here sometimes.

3 It sounds like you, Edith, are really being well  
4 received in various places, so maybe just expanding that  
5 relationship so that we can identify someone in each of  
6 those tribal interests to be engaged.

7 MS. MARQUEZ: Thank you for that feedback,  
8 Marcia. We would be happy to get a list from you so we  
9 can engage those tribes that you're mentioning today. And  
10 also I just want to share that we are running out of time,  
11 so is it okay if we just circle back with Robert and  
12 Enrique after we do the breakout, and then you can include  
13 it in your reporting out in your room?

14 And so with that, we are going to conclude our  
15 questions for Edith here, and she'll still be here, but we  
16 want to break out in small groups. We are going to have  
17 Roy, Michael, and Kenta be in one group. And then we will  
18 break Raul, Enrique, and Marcia in another group. I have  
19 Roshala will be taking the first group, and then we will  
20 have Sarah take the other group.

21 And then we have two breakout groups via Zoom.  
22 This is going to be in random order. We are going to  
23 have -- Kevin and Dustin will be taking the Zoom rooms.  
24 We have four questions prepared for you to answer. We are  
25 going to have 30 minutes, as I mentioned, and then we will

1 have the last 15 minutes for you all to report out.

2 So if you guys could please get together in your  
3 small groups and our scribes will be taking down all of  
4 your notes and then if you can select someone from your  
5 group to report out, that would be great. We have the  
6 next 45 minutes to engage in this breakout session.

7 (Breakout session.)

8 MS. MARQUEZ: Welcome back, everyone, from your  
9 small group. Let's move on with reporting out from our  
10 small breakout groups. Let's go ahead and start with  
11 Keshanna's group. If someone can give us themes that came  
12 up from the four questions.

13 Shall I call on anyone? Okay. Michael, it's on  
14 you. Come on.

15 MR. BURNS: Once again, Michael Burns with  
16 Greenworks, with Kenta and Roy. I will give the overview  
17 about what we like and any additions we want to make.

18 Some of the things we liked was the community  
19 engagement aspects of it -- on paper they look good;  
20 seeing them in practice will be something different.  
21 Engaging with local educational institutions, specifically  
22 with, maybe, environmental green sector job trucks.

23 Transparency, we would like to emphasize, is very  
24 important, especially with trust-building in communities.  
25 Adding more cultural competency, just to make sure if it's

1 language. Custom -- if that's the context of the local  
2 group.

3 The one major thing we wanted to add was an  
4 anti-displacement study, even within the environmental  
5 justice sector, especially concepts of the environment in  
6 disadvantaged communities who have historically been seen  
7 as a threat to displacement. So part of the outline --  
8 which goals were most important to you? The collaboration  
9 is most important. How else do you know what you are  
10 doing? How else do you know if you are impacting people  
11 unless you actually collaborate and listen?

12 The environmental educational aspect just needs  
13 to be couched in terms of something beyond just the  
14 environment, again, because of the seeming threats to any  
15 green force coming to the neighborhood. So pretty much  
16 the community benefits plan is going to be the most  
17 crucial aspect of it because that is going to be on paper,  
18 and that is going to be what the benefits are, not just  
19 the cost.

20 I guess we can move on without doing it justice.  
21 Just the additional engagement strategies. Again,  
22 displacement concerns, being upfront even if SoCalGas is  
23 not responsible for it. Part of that trust and  
24 transparency will be saying here is what may happen, here  
25 are ways to mitigate that, and here are some resources to

1 help with that.

2 Small businesses. Pretty much -- I'm not sure if  
3 this can be relevant. Making sure the smaller businesses  
4 are heard and collaborated with. Sort of going on  
5 renters, not just homeowners, and then including the  
6 economic aspect, the bottom line of the end result --  
7 there is this new thing called hydrogen and it is a green,  
8 renewable energy source and what does it mean for the  
9 bottom line customer. And does this capture feedback from  
10 last fall? We think so.

11 MS. MARQUEZ: Michael, very good.

12 Frank has a question.

13 MR. LOPEZ: On the anti-displacement study, are  
14 there examples that can be shared with us just to see what  
15 that looks like? Thank you.

16 MS. MARQUEZ: That's a yes from Kenta and  
17 Michael. Thanks again, group.

18 Let's go on with our second group, Sarah's group.  
19 We will have Raul from Reimaging LA Foundation report out.

20 MR. CLAROS: So we echo everything that you all  
21 said. Great job over there.

22 So the first one, any additions you would like to  
23 make. We talked about convening with black and brown  
24 communities and open discussions with Q and A, space for  
25 more discussion that is less expert like and more

1 engaging. So even this experience that we were just  
2 having with this breakout session was more fitting.

3 We also felt the energy, way different today. So  
4 I think we were already excited about getting to this  
5 point, which is that pre-Phase 2, and I think the  
6 excitement is Phase 2 is right around the corner. We need  
7 to compare it to, like -- sorry, it was too science-y and  
8 like an information dump. We are trying to figure out who  
9 is who in the zoo. It's just, like, what's going on?  
10 Right?

11 So providing the list of who is included in fees  
12 discussion. And we talked about a communication list.  
13 Again, we could be part of your outreach team because we  
14 might have created relationships now with folks that are  
15 no longer showing up, and so we have an opportunity right  
16 now to re-engage those folks before the train leaves the  
17 station. So this a great time for that.

18 Inclusion of more tribal leaders, including the  
19 example that we gave which Shippo and other groups and  
20 allowing communities to really express how they feel with  
21 more discussion base. So the fact that you all are no  
22 longer just talking, you're listening, is very important,  
23 right, and those discussions being based on the  
24 conversations that we have been having amongst ourselves  
25 and also creating spaces so that those conversations can

1 happen outside of this space here.

2           Considering bigger incentives for joining  
3 meetings. So some people that are not here that we have  
4 gotten feedback from, what we were asking them to do is  
5 too much for too little. Although we do love the food --  
6 and we appreciate the invitation and the incentives that  
7 the entities here have gotten, we probably did lose some  
8 folks, especially in the beginning when it was all that  
9 scientific stuff and it was building the plane.

10           Who knows if the incentives now for the fun part  
11 and exciting part would be enough, it just was not. So  
12 just another nudge and advice for those that are putting  
13 this together in the future. The other thing that we can  
14 do that we found out to gain more people or to keep them  
15 is that certain folks were left out of the process because  
16 they weren't a nonprofit or they didn't have certain  
17 prerequisites, but now you do have established grass root  
18 and grass top organizations that can serve as a pass  
19 through for those neighborhood watches and those public  
20 safety chairs or public health chairs from the  
21 neighborhood council, who, for whatever reason, they're  
22 not here but those are grass root entities that are  
23 already built in.

24           These are active groups that might not  
25 necessarily be a nonprofit, but you could use us all as



1 passthroughs. So the next one was the six key goals, and  
2 which goals were the most important to us and why. What  
3 the capture of the goals looks like. So we talked about,  
4 you know, Phase 2. So I think it's going to be very  
5 important that you all let us know what Phase 2 will look  
6 like as soon as possible so that we can get other people  
7 excited about that as we spin off hopefully with your  
8 support to empower us to hold convenings, whether  
9 regionally or whether they're relationally, so that we can  
10 get folks, like, a tool kit, you know, ready to have,  
11 first, a meeting without you all. And it's just us, the  
12 community, and then maybe having a second phase where the,  
13 quote, unquote, subject matter expert comes in, and able  
14 to take it from there.

15 We talked about 4, concerns about safety and  
16 affordability. And I'm going blank a little bit. I'm  
17 going to come back to that. I might need some help on  
18 that.

19 Would Angeles Link provide more jobs which is  
20 something that was very important to us at Reimagine LA  
21 Foundation, especially with our executive director, Rashad  
22 Rucker-Trapp, especially for the black community to make  
23 sure that we are talking about local jobs and talking  
24 about what that's going to look like, and I would say the  
25 same thing would happen to any of the vulnerable

1 communities that you are going to be working in is local  
2 jobs. Right? And would the Angeles Link provide more  
3 jobs?

4           Again, what is in it for the community? Right.  
5 What are we going back to community with as far as  
6 concrete and tangible things? Using more simple language  
7 and terms so that people -- you know, just everyday people  
8 understand.

9           So when we talk about climate change or  
10 environmental justice, we use the example of making the  
11 connection to whatever is going on with the freeway  
12 traffic and whatever we are building to asthma, cancer --  
13 real things that affect real people in real time. It  
14 doesn't matter about your race or age or anything like  
15 that. It's not where your from, it's where you're at.

16           And so where we are is on these maps, and so we  
17 need to connect that to real impact. Removing the  
18 corporate entity requirements to include more CBOs. We  
19 talked about a workaround around that.

20           Next one. Are there additional engagement  
21 strategies that should be incorporated into the plan? We  
22 talked about the tribal groups, also one-on-one meetings  
23 would be very helpful so that you all can hear this and we  
24 can come up with an actual strategic approach to what you  
25 just heard and what you are hearing from us. Using

1 current CBOs to do that outreach as an ambassador program.

2 And then the last one, did this capture your  
3 feedback? One of the biggest things was the tribal  
4 leaders and that list that we got and really being able to  
5 engage them, so that was something that we still felt was  
6 missing. But at the end of the day, this session today,  
7 and specifically this exercise that we just went through,  
8 for the majority of us that were in this group, we felt  
9 that you have hit the mark and we have landed where we  
10 wanted to from a year ago.

11 MS. MARQUEZ: Thank you, Raul. Now we can just  
12 all go home. Just kidding. Raul, I think you did a  
13 really good job of summarizing these four questions. We  
14 have two more groups to report out, and I'm going to call  
15 on Dustin.

16 If you have anything that was not already said --  
17 because I think both groups did a very thorough job of  
18 answering these questions, please report that out. So I'm  
19 going to call on Dustin's group, if you could please share  
20 anything that you have not already.

21 MR. JEFFORDS: Okay. So for question one, you  
22 know, there weren't a whole lot of additional suggestions,  
23 but there was definitely an appreciation for the use of  
24 multiple screening tools, and then especially some  
25 appreciation on the emphasis on the hydrogen equity

1 principles, and SoCalGas was commended for their response  
2 in that regard.

3 And then question two, the six key goals. So a  
4 lot of the goals were mentioned, but if I were to pick a  
5 standout, I would say No. 4, collaborating with ESJ  
6 communities to address concerns like safety and  
7 affordability was found be pretty important. I believe it  
8 was spoken to specifically by each member of group.  
9 Safety was a really big concern, especially children and  
10 the future of the world that's going to live with the  
11 project. So definitely an appreciation for that aspect.

12 And then question 3, additional engagement  
13 strategies, there was a few things, one being the  
14 meaningful engagement policy that is put forward by the  
15 EPA was suggested by several of the group members, and  
16 kind of looking deeper into that, as well as translations  
17 into Spanish for a lot of the materials, especially given  
18 the community here in Southern California.

19 So there was a lot of talk about how valuable  
20 translation into Spanish would be for a lot of this stuff,  
21 as well as an emphasis on things like visuals and charts  
22 and graphs. There was a sentiment that perhaps some of  
23 the material was very dense and required just a whole lot  
24 of very thorough reading.

25 So as far as getting it out and engaging the

1 community, it was kind of agreed upon that an emphasis on  
2 visuals and to just kind of simplify a lot of the language  
3 would be very valuable to the process. That's all I have  
4 got.

5 MS. MARQUEZ: So 4 was similar to everything  
6 else? It sound like everything was already mentioned in  
7 the other groups already and the reporting out from the  
8 groups?

9 MR. JEFFORDS: Are you talking to me?

10 MS. MARQUEZ: Yes, Dustin.

11 MR. JEFFORDS: Sounds good.

12 MS. MARQUEZ: Good. So last but not least, we  
13 will have Andrea Williams reporting out from the fourth  
14 group, if there is anything that has not been mentioned  
15 that you would like to share, Andrea. Thank you.

16 MS. WILLIAMS: The conversation was pretty much  
17 like the other groups. I think the most information was  
18 around questions 2 and 3, the goals. The two goals that  
19 we thought were the most important were goals 2 and 4, and  
20 those are really based around the community engagement and  
21 making sure that the information that's given to community  
22 members makes sense to them, that it's told to them in a  
23 way that they can understand.

24 And then also just looking at, like, how it would  
25 impact them. And so making sure that you are reviewing

1 the potential risks, any costs that would affect them  
2 personally in terms of bills, paying attention to the  
3 audience so that you are communicating in a way that they  
4 really understand what all this means, but also to make  
5 sure that you're not just giving them promotional  
6 materials, but actually factual materials so that they  
7 really understand what it means to have the use of  
8 hydrogen and the pros and cons.

9           And, you know, any impact that it could have on  
10 their communities so they really understand what is going  
11 to happen. What could happen. And so that they're fully  
12 on board with understanding the entire process and being  
13 able to voice if it's something they don't agree with.

14           And then the third question, question 3 for the  
15 additional engagement strategies. We already talked  
16 about, like, just getting the information out to people,  
17 making sure that it actually is getting into the hands of  
18 the community members and not necessarily just relying on  
19 community-based organizations to hand out the information,  
20 but also that SoCalGas is attending community events where  
21 they have booths and people can come up and ask questions  
22 and they can show them models and maps.

23           But really being able to, like, be in the  
24 community, and then also having that education about the  
25 process. And then also talking about the alternatives.

1 Is this a one option or are there other options? And if  
2 you don't participate, if it doesn't happen in your  
3 neighborhood, what does that actually mean? Does it mean  
4 if you get X, then Y happens? If you don't do X, Z  
5 happens? And just making sure all of that information is  
6 provided so that they know exactly what is in store.

7 And the last question, we didn't really have much  
8 to go back to the feedback from the last fall. So the  
9 only question was engagement timeline needs to be longer.

10 MS. MARQUEZ: Okay. Thank you for that, Andrea,  
11 and reporting out. And thank you, everyone, for your  
12 participation in the small breakout groups. Everything  
13 that was written will be drafted and sent with a report  
14 that you will all receive after the meeting.

15 So you all have access to it, as well as the  
16 organizations that we have all mentioned have not been  
17 attending -- everyone still receives all of the  
18 information even if they're here or not. So the  
19 information that is being shared in that is extremely  
20 important for this process, and especially from all of the  
21 meetings that we did have.

22 So with that, I'm going to move on to our next  
23 steps with Emily.

24 MS. GRANT: All right. Well, thank you for you  
25 extra three minutes today. We appreciate it. I hope you

1 agree, I think this has been a really, really productive  
2 and very, very helpful meeting, so thank you very, very  
3 much for your time. As usual, our presentation and the  
4 meeting recording and all of the materials will be  
5 available on the living library as soon as possible. We  
6 try to do that in less than a week.

7 A reminder that Microsoft has that two-step  
8 verification process. If you have any difficulty  
9 accessing the living library, please reach out to me and  
10 we will help you get online with that. You have a lot of  
11 draft reports with you at the current moment, so here is a  
12 list of all of that, along with their due dates.

13 Again, we are willing to work with you if you  
14 need extra time on a specific draft study or report that  
15 is important to you, please reach out to me and let me  
16 know. With that, if you have any further questions or  
17 comments, please submit them in writing, and as soon as we  
18 have our next meeting date available, we will share them  
19 with you.

20 MR. LOPEZ: Emily, can I highlight a couple of  
21 studies?

22 MS. GRANT: No, you may not, Frank.

23 MR. LOPEZ: Like my children, I love all of my  
24 studies equally, so I hope that you get an opportunity to  
25 review them all. But I know that workforce and jobs



1 always comes up in these meetings and it's been a point of  
2 interest. We didn't present on it today, but we have our  
3 workforce planning and training evaluation study that went  
4 out a few weeks ago, and the comment period closes on 8/2.

5 There is an employment impact analysis that we  
6 did as a part of that, so please go to that and check it  
7 out. It has some information about potential job creation  
8 associated with Angeles Link, and then also the Knox and  
9 other air emission assessment which I mentioned earlier.

10 We mapped out some of the potential air quality  
11 benefits that could come from the project, so I think  
12 that's another topic that came up as part of this process  
13 that I want to point you to. But if you get a chance,  
14 read them all.

15 MS. GRANT: Thank you for that, Frank.

16 With that, we will conclude with today's  
17 workshop. With those are that are here, feel free to take  
18 some food with you, and please drop off your name tags and  
19 badges at the front with Sarah and Keshanna, and have a  
20 good rest of your day.

21 (The meeting concluded at 2:05 p.m.)  
22  
23  
24  
25

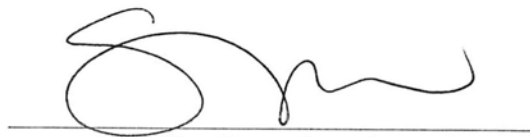
1 HEARING REPORTER'S CERTIFICATE

2  
3 I, Shelby K. Maaske, Hearing Reporter in and for  
4 the State of California, do hereby certify:

5 That the foregoing transcript of proceedings was  
6 taken before me at the time and place set forth, that the  
7 testimony and proceedings were reported stenographically  
8 by me and later transcribed by computer-aided  
9 transcription under my direction and supervision, that the  
10 foregoing is a true record of the testimony and  
11 proceedings taken at that time.

12 I further certify that I am in no way interested  
13 in the outcome of said action.

14 I have hereunto subscribed my name this 29th day  
15 of July, 2024.

16  
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19 

20 Shelby Maaske,  
21 Hearing Reporter  
22  
23  
24  
25

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PLANNING ADVISORY GROUP

LOS ANGELES

FACILITATOR: CHESTER BRITT

IN THE MATTER OF THE: )  
WORKSHOP )  
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CERTIFIED COPY

TRANSCRIPT OF RECORDED PROCEEDINGS

Los Angeles, California

Wednesday, July 24, 2024

Reported by:

ALLISON SWANSON  
CSR No. 13377

Job No.:  
49791MOD

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PLANNING ADVISORY GROUP

LOS ANGELES

FACILITATOR: CHESTER BRITT

IN THE MATTER OF THE: )  
WORKSHOP )  
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TRANSCRIPT OF RECORDED PROCEEDINGS,  
commencing at 9:30 a.m. on Wednesday, July 24, 2024,  
heard before PLANNING ADVISORY GROUP, LOS ANGELES  
reported by ALLISON SWANSON, CSR No. 13377, a  
Certified Shorthand Reporter in and for  
the State of California.

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1 Los Angeles, California, Wednesday, July 24, 2024

2 9:30 a.m.

3  
4  
5 MR. BRITT: I want to thank everyone for being here in  
6 person and those online. This is the Planning Advisory  
7 Group July workshop. And we're gonna go ahead and jump  
8 right into it. We have a full agenda.

9 My name is Chester Britt. I'm the executive vice  
10 president of Arellano Associates. I -- should be familiar  
11 with me if you've been here before. I'm the PAG  
12 facilitator. I see some new faces today, so we'll do a roll  
13 call in just a moment and we'll introduce ourselves. I'm  
14 joined by Alma Marquez. She's with Lee Andrews Group.

15 MS. MARQUEZ: Good morning, everyone.

16 MR. BRITT: And she also facilitates with me the CBOSG.  
17 And so today we are going to -- actually, let me just turn  
18 off my -- I'm hearing audio. Must be from the other  
19 meeting.

20 One second. I want to make sure that we turn that  
21 off. So we're not getting feedback.

22 Okay. Sound better?

23 Great. All right. So we do have a full agenda.  
24 So we want to get into that. A little -- few housekeeping  
25 items. This meeting is being recorded, video and audio. As

1 you heard a second ago, we do have a court reporter who will  
2 be transcribing the meeting. So when you do speak, please  
3 use the microphone.

4 We have the microphones situated around the room.  
5 If you need to pass it to someone, please do that. State  
6 your name and your organization and speak directly into the  
7 mic, like I'm doing, so that everyone, both in person and  
8 online, can hear you and have the benefit of hearing what  
9 you're having to say.

10 We would encourage, if you're online, to use your  
11 camera so we can better engage with you. Its helpful for  
12 people in the room to see you when you're speaking. And so  
13 if you could do that, we would appreciate that.

14 We also have a chat feature as part of the Zoom  
15 meeting. So if you would like to chat a comment or  
16 question, you can do that. We had people monitoring that  
17 while the meeting's going on. In some cases they'll just be  
18 able to provide the answer to your document or a link if you  
19 need a document. In other cases, if you want us to read  
20 your chat, we can read it out in the room so that people can  
21 get the benefit of your comment or your question.

22 If you would like to speak in person, verbally  
23 or -- or I guess just verbally online, you need to raise  
24 your hand on the Zoom feature where it has the "raise a  
25 hand" button at the bottom of the screen. And then we'll be

1 able to see that. When it's the appropriate time, we'll  
2 call on you. And then you'll unmute yourself and we'll do  
3 the same and we should be able to hear you.

4 The wireless microphones, again, are situated  
5 around the room, and we would encourage you to use those.

6 As I mention, we have a full agenda. There is a  
7 continental breakfast. I want to thank SoCalGas for  
8 providing that. So make sure you get some food. We are  
9 going to have lunch provided as well. So try not to look at  
10 the pictures. Because, yesterday, we had our CBOSG meeting,  
11 I was like, wow, I'm getting hungry. And I was looking at  
12 all these food pictures around.

13 But we are going to have a SoCalGas safety moment  
14 and a land acknowledgement and then we'll do the roll call.  
15 We will have a welcome by Frank Lopez to my right, who will  
16 introduce some themes about today's meeting, going forward.  
17 And then we'll have a draft report on the production of  
18 planning and assessment study, followed by a member  
19 discussion.

20 We will also do a draft report presentation on the  
21 preliminary routing configuration analysis pipeline sizing  
22 and design, followed by another member discussion. We'll  
23 break for lunch. And then our final session in the  
24 afternoon will be about environment social justice and staff  
25 planned and ESJ streaming and then we'll have a final member

1 discussion. And then we'll close out our meeting, talking  
2 about calendar and next steps, and then we'll adjourn.

3 So with that, I'm going to pass it to Emily Grant,  
4 the regional public affairs manager for SoCalGas, who's  
5 going to do our safety call.

6 MS. GRANT: Thank you, Chester.

7 Good morning, everybody. Thanks, again, for being  
8 here.

9 Quick safety moment. I'm going to share something  
10 with you from my personal life that I do. I have an almost  
11 11-year-old special needs son, and he is not water safe. So  
12 when I go to pool parties or to the beach or anywhere that  
13 its going to be really crowded and he is at risk of going  
14 into the water and not having anybody with eyes on him, I  
15 pull out my very fancy water watcher badge.

16 And it, it says "while wearing this tag, I agree to  
17 supervise the children in the open water pool, keeping them  
18 in sight at all times. I will not leave the water area  
19 without finding an adult to replace me."

20 So this is a very useful tool. I found even that  
21 people who kind of give me a little bit of grief for walking  
22 in and having my water watcher badge -- when I come to pool  
23 parties or barbecues, I'm a ton of fun. As soon as I get up  
24 to go get a bite to eat or use a restroom and give it to  
25 somebody else, it does make people very, very aware that

1 they are responsible for the kids in the pool.

2 So implementing buddy systems for kids is -- as  
3 they get older, as well, is really effective.

4 So that's my safety tip for today. Thank you.

5 MR. BRITT: Thank you, Emily.

6 All right. We're gonna now pass it over to Alma,  
7 who's going to do the land acknowledgement.

8 MS. MARQUEZ: We respectfully acknowledge the indigenous  
9 people on whose ancestral land we gather who for generations  
10 have cared for these lands and make their home here today.  
11 We honor and pay our deepest respect to their elders and  
12 descendants -- past, present, and emerging -- as they  
13 continue their enduring stewardship of these lands and  
14 waters for generations to come.

15 We are grateful for the opportunity to live and  
16 work on these ancestral lands. We celebrate the resilience,  
17 strength, and unwavering spirit of indigenous peoples and  
18 are dedicated to creating collaborative, accountable, and  
19 respectful relationships with indigenous nations and local  
20 tribal government.

21 MR. BRITT: All right. Thank you.

22 With that, we're going to go into the roll call.  
23 So we'll start in the room and then, after everyone in the  
24 room introduces themselves, we will go online.

25 So I've already introduced myself, and I'm going to

1 pass the microphone to Frank.

2 MR. LOPEZ: Good morning, everyone. Frank Lopez,  
3 director of regional public affairs for SoCalGas.

4 MS. MORENO: Good morning. Edith Moreno, public  
5 affairs --

6 (Reporter clarification)

7 MS. MORENO: Good morning. Edith Moreno, public affairs  
8 strategy and policy manager with SoCalGas.

9 MR. FREEDMAN: Good morning. Yuri Freedman, senior  
10 director of business development, SoCalGas.

11 MS. MARQUEZ: Alma Marquez, again, with Lee Andrews  
12 Group.

13 MR. COLVIN: Good morning, everyone. Michael Colvin,  
14 C-O-L-V-I-N, with Environmental Defense Fund.

15 MR. PEDERSEN: Norman Pedersen, Southern California  
16 Generation Coalition.

17 MR. DOWNS: Robin Downs, UWUA Local 43, Eric's uncle.

18 MR. SHAW: Good morning, everybody. Ernie Shaw.

19 (Reporter clarification)

20 MR. BRITT: And just as a reminder to our court  
21 reporter, we will provide a roster following the meeting.  
22 So you should have access to that as well.

23 MR. SHAW: Good morning, everybody. Once again, good to  
24 see you all. Ernie Shaw, UWUA Local 483, transmission and  
25 storage, president.

1           Good to see you there, Mike Hoagan. No sweater  
2 today, huh?

3           MR. HOAGAN: We're in a heat wave.

4           MR. CLAYTON: Good morning. Ben Clayton with Unit  
5 Association of Local 250.

6           MR. MORTOFF: Brian Mortoff (phonetic), Unit  
7 Association, Local 350.

8           MR. WILLIAMS: Nat Williams, Unit Association,  
9 Local 250.

10          MR. GIPSON: Tracy Gipson, Unit Association, Local 364.

11          MR. SISLEY: John Sisley, Unit Association, Local 364.

12          MR. STILES: Wyatt Stiles, Unit Association, Local 398.

13          MS. WILTFONG: Sarah Wiltfong, Los Angeles County  
14 Business Federation.

15          MR. WALKER: Good morning. Brian Walker, SoCalGas,  
16 director of project management.

17          MS. CANAN RULY: Good morning. Jessica Canan Ruly,  
18 SoCalGas, manager with the environmental portfolio studies  
19 for the project.

20          MS. ING: Good morning. Annie Ng, SoCalGas,  
21 Angeles Link engineering project manager.

22          MS. REGAN: Good morning. Katrina Regan, engineering  
23 and technology development manager, Angeles Link, SoCalGas.

24          MS. KITSON: Good morning. Amy Kitson, director of  
25 engineering and technology, SoCalGas.

1 MS. ARAZI: Good morning. This is Shirley Arazi,  
2 Angeles Link director of regulatory and policy.

3 MR. BRITT: All right. Now we're going to go online.  
4 I'm going to just call off a few names. If I miss you, then  
5 we'll ask you to raise your hand at the end. If you can  
6 unmute yourself, then we should be able to hear you.

7 So the first person I see is Aaron Guthrey.

8 MR. GUTHREY: Good morning. Aaron Guthrey, LADWP.  
9 Thank you.

10 MR. BRITT: Thank you.

11 Armen Keochekian.

12 MR. KEOCHEKIAN: Hi. Good morning. Armen Keochekian  
13 with Insignia Environmental.

14 MR. BRITT: Welcome.

15 Benjamin Tang.

16 MR. TANG: Good morning. Benjamin Tang, Public  
17 Advocates Office.

18 MR. BRITT: Ian Fisher.

19 MR. FISHER: Good morning. Ian Fisher with the Public  
20 Advocates Office.

21 MR. BRITT: June Sung (phonetic).

22 MR. SUNG: Morning. June Sung, EDF, Environmental  
23 Defense Fund.

24 MR. BRITT: Julia Dowell.

25 MS. DOWELL: Good morning, everyone. Julia Dowell,



1 Sierra Club.

2 MR. BRITT: Julie Roshala.

3 MS. ROSHALA: Julie Roshala with Insignia Environmental.

4 MR. BRITT: Katrina Fritz.

5 MS. FRITZ: Katrina Fritz, California Hydrogen Business  
6 Council.

7 MR. BRITT: Welcome.

8 Matt Schrap.

9 MR. SCHRAP: Matt Schrap with the Harbor Trucking  
10 Association.

11 MR. BRITT: Matthew Tall (phonetic).

12 MR. TALL: Matthew Tall, Cal Advocates.

13 MR. BRITT: Miles Heller.

14 MR. HELLER: Miles Heller, Air Products.

15 MR. BRITT: Rizaldo Aldas.

16 MR. ALDAS: Good morning. Rizaldo Aldas, California  
17 Energy Commission.

18 MR. BRITT: Sarah Fitzsimon.

19 MS. FITZSIMON: Good morning. Sarah Fitzsimon with the  
20 Independent Energy Producers Association.

21 MR. BRITT: Tyson Siegele.

22 MR. SIEGELE: Good morning. Tyson Siegele with the  
23 Utility Action Network.

24 MR. BRITT: Welcome.

25 All right. I think I covered everyone. If I

1 missed you, if you want to raise your hand, I should be able  
2 to see that and we can call on you and you can introduce  
3 yourself. Otherwise, we will move forward.

4 Looks like a couple people. Janis Lin.

5 MS. LIN: Good morning, everybody. Janis Lin from the  
6 Green Hydrogen Coalition.

7 MR. BRITT: Welcome. And Sasha Cole.

8 MS. COLE: Good morning. Sasha Cole, Energy Division.  
9 It's CPUC, for those who didn't realize that. Yeah.

10 MR. BRITT: Thank you very much.

11 All right. Well, we have a full group. So  
12 welcome, everyone.

13 And I am going to pass it over to Frank Lopez, the  
14 regional public affairs director with SoCalGas.

15 MR. LOPEZ: Thank you, Chester.

16 Good morning, everyone. I want to thank all of you  
17 for participating in our meeting today, especially those of  
18 you who joined us in person.

19 Yesterday, we had a meeting with our  
20 community-based organization stakeholder group, our CBOSG.  
21 It was a really great meeting.

22 (Reporter clarification)

23 MR. LOPEZ: As I was mentioning, we had a meeting  
24 yesterday with our CBOSG. It was a really great meeting,  
25 really productive conversation. So I'm looking forward to

1 the meeting today. We'll be going over the same content.

2 It's been a month since we last met at our June  
3 quarterly meeting. I want to thank everyone who attended  
4 that meeting as well, over at Banning's Landing. We've made  
5 a couple changes after that meeting, based on some of the  
6 feedback that we received that I just want to kind of  
7 highlight at that meeting.

8 I believe it was Ian Fisher who actually asked for  
9 contact information for other members. So we updated the  
10 roster in the living library to include member e-mails, not  
11 phone numbers, but we do have e-mails there if you want to  
12 contact other members. If you don't want your e-mail  
13 address socialized, please let Emily know and we can correct  
14 that.

15 And we also made a small correction to our Q1  
16 report to include a one-on-one meeting with the CBOSG member  
17 that was inadvertently missed.

18 A couple other updates that have happened since  
19 that June meeting. Two feedback periods have closed that I  
20 want to highlight for you. One is the preliminary findings  
21 for environmental analysis and the draft report on hydrogen  
22 leakage. All of the comment letters that we received on  
23 those are posted in the living library and accessible to all  
24 members.

25 Thank you to those of you who took time to submit

1 comments. We're in the process of reviewing those comments  
2 and we'll respond to those comments in the Q2 report, which  
3 we're currently working on and hope to have out soon.

4 In terms of the draft studies, we are on step four  
5 of our four-step feedback process, as you can see here on  
6 the slide. So the first step was provide the scope of work  
7 and get comments. Our technical approach. Then preliminary  
8 findings. And we are now on that milestone four on draft  
9 reports.

10 You know, when we started this process a year and a  
11 half ago, we knew that several of the studies would be  
12 completed around the same time, due to the lead times for  
13 study scoping, development, interdependancies, and drafting  
14 of reports. So this is why we chose to break up the  
15 feedback opportunities into four sections and to share  
16 information to you and solicit your feedback on that  
17 information as it became available to us instead of waiting  
18 for all of it to be received.

19 So this includes information, as I mention, on  
20 scope, on technical approach, on preliminary findings, and  
21 now on the draft reports.

22 You know, we've also shared a lot of information  
23 with you here in these PAG and CBOSG meetings and one-on-one  
24 meetings that we've had with you in written form, also in  
25 PowerPoint form, and also in the quarterly reports. So a

1 lot of information that we've gathered and responded to.

2 And despite all of that, some of you have been  
3 asking us for more detailed information. So here we are at  
4 the draft study phase of our feedback process. We currently  
5 have nine draft reports out for comment. And we plan to  
6 release the three additional draft reports very soon. So  
7 all studies are now in draft report phase. No more  
8 preliminary findings in PowerPoint form.

9 And I want to acknowledge that this may be a lot of  
10 information to review. But when you review the reports,  
11 hopefully, you know, much of the information should look  
12 familiar. We have been releasing information every step of  
13 the way. And I think you'll see a lot of that reflected in  
14 those studies.

15 But to help you with the review process, we  
16 purposely staggered the release of the reports over a couple  
17 of weeks so that the comment periods won't be all due at the  
18 same time. And then we're also bundling the release of  
19 similar studies so members have information for studies that  
20 may be interdependent or related.

21 To help with the feedback process, too, every  
22 report is going to include an executive summary. It's also  
23 going to include key findings of relevant for meeting the  
24 Commission's expectations for phase 1; integration of key  
25 stakeholder comments that we received thus far; and also

1 future considerations; and more importantly, we're providing  
2 four weeks to receive comments instead of the two-week  
3 period. So hopefully all of this makes it a little bit  
4 easier, although we acknowledge that it is a lot of  
5 information to digest.

6 So I say all of that just to highlight that we are  
7 nearing the end of phase 1. As you can see on the screen,  
8 we're close to issuing all of draft reports. And when we  
9 meet again, it's likely that all of the study -- draft  
10 studies will have been issued and our Q2 report will  
11 probably be issued as well.

12 We have not yet scheduled our next meeting. We  
13 want to provide as much advance notice as possible. I think  
14 we're still working at 31, you know, to identify the best  
15 time for us to reconvene. And as soon as we get that date,  
16 we'll make sure to send out a save the date so you can hold  
17 it. And as always, we will be releasing topics and agendas  
18 prior -- at least one week prior to the meeting.

19 So any questions on any of that?

20 I just have one more additional update. Maybe  
21 we'll take any questions.

22 I do want to highlight that there was really big  
23 news that happened last week with ARCHES. For those of you  
24 who didn't hear, the US Department of Energy and ARCHES  
25 announced that, on July 16th, the official signing of a

1 landmark \$12.6 billion agreement was reached to build a  
2 clean renewable hydrogen hub here in California. And that  
3 includes up to \$1.2 billion in federal funding. The  
4 agreement also includes \$30 million in the first tranche  
5 (phonetic) funding to begin phase 1.

6 And according to ARCHES, this is the largest  
7 cooperative agreement that DOE has ever signed and the first  
8 of the hydrogen hubs to complete their agreement. So we're  
9 really proud for California because this is a major  
10 milestone.

11 Now that ARCHES has signed its agreement with DOE,  
12 it's working with its members, including ourselves, to  
13 provide sub recipient agreements with terms and conditions  
14 for review and potential acceptance. So we're working on  
15 those now.

16 We're in the progress of that effort, so we can't  
17 disclose the information about our projects, other than what  
18 we've already shared with you in previous meetings. But  
19 we're happy to come back and provide an update at a future  
20 meeting date once we have that process finalized.

21 So I do want to encourage those who haven't visited  
22 the ARCHES and DOE website on the announcement to please  
23 visit the website. They have some really great materials.  
24 They have a project fact sheet on all of the projects, kind  
25 of a summary of the projects and the potential benefits

1 associated with them. And also a fact sheet on community  
2 benefits. So a lot of great information that's summarized  
3 there that can be a resource for you.

4 That was a lot of information, so I'm going to stop  
5 there, unless anyone has questions.

6 All right. Back to you, Chester.

7 MR. BRITT: All right. Thank you, Frank.

8 I think I might have passed over Brian Goldstein in  
9 terms of roll call. So if you want to unmute yourself,  
10 Brian, and introduce yourself. I want to make sure you get  
11 a chance to do that.

12 And I don't know -- he might be driving. But if  
13 you want to raise your hand in the future, we can make sure  
14 that you -- he said he can't. He can't unmute himself.

15 Okay. All right. With that, we're going to go  
16 ahead and move forward into our first study presentation.  
17 Yuri Freedman is a senior director of business development  
18 with SoCalGas. And he is going to give a presentation on  
19 the production planning and assessment study.

20 MR. FREEDMAN: Thank you, Chester.

21 Again, good morning. Before I launch into overview  
22 of the slides, I just wanted to go back to what Frank  
23 mentioned and maybe reiterate the point that we are at a  
24 very important pivotal point in development of hydrogen  
25 market in California, in the United States, North America.



1 It actually doesn't happen a lot. In my career, you know,  
2 new commodity gets introduced into the energy system very  
3 rarely. If you think about how long metro gas has been  
4 around for a long time, there's been hard to remember when  
5 it wasn't around.

6 Hydrogen actually is going to be that commodity  
7 that is going to enter the space because billions of public  
8 and private money (indiscernible) invested in production in  
9 all across the (indiscernible) chain. That's going to be  
10 really, really important because that's going to create  
11 large need for skilled jobs. Its going to create really  
12 large need for companies, like ourselves, to make sure that  
13 we bring our skills to do what we are doing today in this  
14 emissions free future.

15 So, again, we'll look back at this point, years  
16 from now, and we'll all, I think, remember that that is  
17 actually where words and slides started to converge into  
18 real action. The project's really exciting.

19 With that, the production planning side, I'm going  
20 to review. The intent of the study was to analyze the  
21 potential of clean renewable hydrogen production in the  
22 circle gas service territory by -- through and by 2045.  
23 Words "clean renewable hydrogen" are important because they  
24 are compliant and consistent with the CPUC decision.

25 Effectively, it's the hydrogen that has the carbon

1 footprint of less than 4 kilograms of CO2, or kilogram of  
2 hydrogen and is not made from fossil fuels. And that's,  
3 frankly, freeing the scope of our study because we need to  
4 look at the sources, at the pathways of how can we make this  
5 clean hydrogen. What sources were out there. And then look  
6 at how it relates to the need of our path to the scale of  
7 our pipeline project.

8           And one point to make clear, and I think I'll  
9 reiterate it several times, we are not going to be a  
10 producer of hydrogen. SoCalGas is not going to be in  
11 hydrogen production business. We look to perform the same  
12 function for hydrogen as we perform today for natural gas,  
13 which is transporting a commodity from the point of  
14 production to demand.

15           Next slide is the brief recap of the scope. And  
16 you'll see sequence of the study. Again, production  
17 acknowledges the one that's most commonly referenced is  
18 combination of renewable power and electrolysis using this  
19 renewable power to split water into hydrogen, oxygen, and  
20 then use hydrogen at various (indiscernible) use  
21 applications.

22           That's not the only pathway. There is also pathway  
23 that is actively looked at by the state, which is pyrolysis  
24 (indiscernible) of biomass. Take biomass and split it up so  
25 that we have hydrogen and solid carbon in various forms. So

1 it's not emission of CO2, it is release of solid carbon,  
2 which can be valuable, more or less, depending what material  
3 it results in, whether it's carbon black or graphene.

4 So we look to several technologies, analyze what  
5 can be done to produce clean hydrogen, clean renewable  
6 hydrogen. We assess the production volumes as they are laid  
7 to the throughput of the project and, again, to recall the  
8 throughput of the project to analyze the range from half to  
9 one half million tons of hydrogen per year.

10 We then proceeded to assess, do we have enough land  
11 in the state -- or maybe better term is, now, a service  
12 territory to produce that. 'Cause no surprise, solar  
13 occupies land. Large amounts of hydrogen require large  
14 amounts of solar. So we conducted desktop review of the  
15 land availability.

16 And last but not least, we emulated production  
17 costs that, ultimately, we used in cost effectiveness tied  
18 in as we look at hydrogen compared to various other options  
19 of decarbonization. Those production cost, as we derived  
20 here, were used in the cost effectiveness study.

21 Let's go to the next slide.

22 Next slide is selected, maybe a list of assumptions  
23 and methodology. There's obviously significantly more  
24 assumptions than this slide has, and we have them all in the  
25 report.

1 First one is what I already mentioned, the  
2 production of hydrogen is going to be a third party, not us.  
3 Second one's important from the marketing design  
4 perspective. We are assuming that we are going to have what  
5 we call "behind the meter solar," which is to say a  
6 dedicated solar facilities built to produce hydrogen,  
7 coupled with electrolysis, which really are not using grid  
8 electricity. That's important assumption. And, again,  
9 we'll go into it a little bit more in the following slides.

10 I mention that we conducted the desk evaluation to  
11 identify suitable land. And you can see several boxes on  
12 the right, which are all important, list of what we included  
13 and what we did not included. We did not included national  
14 parks, state parks, the military interest, and other  
15 sensitive areas. We also excluded the areas which are not  
16 conducive to solar, which is to say steep grade, more than  
17 15 degrees. We excluded that.

18 And then we made an assumption, which is the  
19 industry standard, that it takes about six acres of land to  
20 generate one megawatt of solar. Again, there's  
21 significantly more assumptions where this came from. We  
22 have them all and happy to answer questions as they arise.

23 Let's go to next slide.

24 I know I mentioned, very briefly, the range. But,  
25 again, these numbers are important because they -- we

1 covered them in the past in our demand work. And the  
2 numbers of .5, 1 and 1 and a half throughput are a fraction  
3 of demand that we have identified, which as you can see on  
4 this slide, ranges from approximately 2 to approximately 6  
5 million tons per year in our service territory.

6 We also assessed thorough hydrogen storage. Like  
7 any other commodity, the supply and demand happen at various  
8 points in time, and we need storage to balance out that  
9 mismatch. Some of this mismatch happens in intradatabases,  
10 where the solar goes down then the production obviously  
11 stops.

12 But some of it happens, actually, on interseasonal  
13 basis, where production of solar and solar generation and  
14 production of hydrogen, accordingly, is going to be  
15 significantly different in the course of a year. So will be  
16 the demand. Especially in demand in cypress (indiscernible)  
17 power generation sector. So storage is going to be required  
18 to balance out that mismatch.

19 Storage can be served by a variety of mechanisms.  
20 One of them is actually the pipeline, what they call "line  
21 pack," where pipeline itself storage of hydrogen. And then  
22 there are a range of other options.

23 Let's go to the next slide.

24 One of the draft findings probably will come as  
25 very little to no surprise to many people in this room. We

1 are furniture to have some of the most efficient, if you  
2 will, solar land, which is to say it's going to be the  
3 lowest cost production, really, at the US scale or global  
4 scale. Very high quality of solar source.

5 This also, as many of you know, solar generation is  
6 really mature technology at this point. After a couple of  
7 decades of installing this, we now have gigawatts and  
8 gigawatts of solar. Technology evolution took place because  
9 of the scaling up. And also the -- what I mentioned before,  
10 what they -- they -- foundation and expectation is that  
11 these behind the meter solar, powered with electrolyzers, is  
12 going to be the dominant source.

13 We will have other pathways of production, quite  
14 likely. Again, biomass is what the state is looking at for  
15 a number of reasons, and many other options exist too.  
16 They're probably not going to be as large scale as solar  
17 plus electrolysis. So this is going to be done on pathway.  
18 And that's the one that we assessed in terms of its process  
19 that we were reviewing slides, little bit down the line.

20 And then the last point here is on the  
21 electrolyzers. You may have heard, there are different  
22 types them. Some of them are what is called PEM, which  
23 stands for proton exchange membrane. Some of them are  
24 called alkaline.

25 PEM appears to be a really good feed for

1 renewables. Because renewables, as you all know, are  
2 intermittent. And these technology's able to, if you will,  
3 cycle up and down, turn them up, turn 'em down, in line with  
4 variability of the solar production. And that's really  
5 important attribute for the efficiency of technology and for  
6 its longevity for being able to do it with (indiscernible)  
7 which is reliable to produce hydrogen.

8 Let's go to next slide.

9 Next slide is a recap of the San Joaquin numbers on  
10 the land assessment. As you can see, we looked at the three  
11 key areas where there's a large scale solar source. Those  
12 areas are shown in the slide, red color in the map on the  
13 right. And these three areas are San Joaquin Valley,  
14 Lancaster, and Blythe. Again, as I mentioned, the quality  
15 of resource is very, very high.

16 And the -- the assessments of the land suggested  
17 there is a more than 800 square miles of land in San Joaquin  
18 Valley. There is a more than twice that in Lancaster area.  
19 And then there's more than 400 square miles in the Blythe  
20 area. So when you put it all together and you compare to  
21 how much land it would take to, if you will, produce enough  
22 renewables to fill Angeles Link or the pipeline, it suggest  
23 that we have more than enough land to do that because really  
24 are going to need about 240,000 acres, which represents a  
25 little bit more than 10 percent, or 12 percent of local

1 available land. So land availability appears to be not, if  
2 you will, fatal flaw in -- within confines of this desktop  
3 phase 1 analysis.

4 What was also assessed, is quite important, is the  
5 economics. And the -- both points on the bottom of the  
6 slide is the assessment of the capital costs and operating  
7 costs of solar and electrolyzers. As you can see, the solar  
8 is \$1,100 per kilowatt, capital costs, and the \$20 per  
9 kilowatt operating costs. Electrolyzers are about 2600 per  
10 kilowatt, capital cost, and about \$18 per kilowatt,  
11 operating cost.

12 Again, these are the numbers that when -- that went  
13 into the cost effectiveness study. Because once you take  
14 the capital operating cost numbers, after sort of financial  
15 assumptions, you come up with what we call levelized cost of  
16 hydrogen, which is to say what is the cost of this commodity  
17 on the production side that it'll take.

18 We received feedback from stakeholders up to date.  
19 And this is the selected list of this feedback. One of them  
20 is that we -- there was a concern to make sure that energy  
21 supporting the electric grid is -- well, concern was that  
22 it's not distinguished from the energy use for hydrogen  
23 production. I hope its now an (indiscernible) just  
24 repeating that abundantly clear that we are assuming behind  
25 the meter solar. So no green electricity is used under our



1 assumptions to produce hydrogen. So I think we addressed  
2 the issue here.

3 There's a point that was made that we need to be  
4 realistic about the availability of other clean renewable  
5 hydrogen sources and focus on electrolysis. We agree with  
6 that. I think based on the scalability, based on  
7 economics, this sug -- this is likely going to be do on  
8 pathway.

9 I don't think we're going to have just one pathway  
10 because, again, state supports multiple. And the developers  
11 are looking at multiple ways to utilize source like biomass.  
12 So I think we are aligned with that view, but we are  
13 pointing out that there are multiple ways to produce clean  
14 renewable hydrogen.

15 The point about role of storage, I think we touched  
16 upon that. And definitely, we explored the role of  
17 third-party storage as part of the system and can help  
18 balance that mismatch.

19 And the last but not the least, we addressed the  
20 point on costs because we absolutely are -- we think that  
21 capital and operating costs of production are actually a  
22 component of levelized cost. And that's why we provided  
23 numbers which then flow into the cost effectiveness status.

24 I'm going to stop here (indiscernible) Chester.

25 MR. BRITT: All right. Thank you, Yuri.

1           We are now going to do member discussion. And  
2 before we do that, just as kind of reminder for people in  
3 the room, if you would like to speak, just turn your name  
4 placard up on its end so I can see that you're intending to  
5 request to speak. If you're online and you would like to  
6 speak, you can raise your hand and then I will see that and  
7 be able to call on you and unmute your microphone. You can  
8 also chat something.

9           When you do get a chance to speak, please announce  
10 your name and speak directly into the microphone and your  
11 organization so that the court reporter will have a chance  
12 to capture that. Please be concise and focus on the  
13 discussion at hand. We have a full agenda and we have a lot  
14 of people participating today. So we want to make sure  
15 everyone gets a chance to speak that wants to speak, and we  
16 stay on topic because we have other topics that we'd like to  
17 get to.

18           And then if you do think of something outside of  
19 this meeting, you can always e-mail or send other comments  
20 in. As Frank mentioned, the draft studies are, you know, in  
21 process and there is a comment period where we're receiving  
22 comments. So not just the three studies we're covering  
23 today, but also the other ones as well. There's lots of  
24 opportunities to provide comments.

25           And before we actually get into the Q and A, there

1 was someone who joined, which I want to make sure we give a  
2 chance to introduce yourself. You don't have a name  
3 placard. So maybe we can create one for him and create  
4 that. But go ahead and introduce yourself.

5 MR. SOLIS: Good morning, everybody. My name is Raymond  
6 Solis with the Fernandefio Tataviam Band of Mission Indians  
7 out of Los Angeles.

8 MR. BRITT: Welcome.

9 We also -- I want to go back to Brian Goldman, if  
10 he has a chance to unmute himself. Give him one more  
11 opportunity. If not, then we'll get to the comments in the  
12 room.

13 Brian, are you able to do that?

14 It looked like you almost did. It flickered on my  
15 screen.

16 All right. We're going to go ahead, then, to -- go  
17 to Michael Colvin -- or Colvin, who is here in person. If  
18 we can pass him a microphone. Again, introduce yourself,  
19 Michael, and then we should be able to take your comment.

20 MR. COLVIN: Great. Yuri, thank you so much for the  
21 wonderful presentation. Michael Colvin with Environmental  
22 Defense Fund -- excuse me. If we can actually go back to  
23 the land use slide. I think it's two slides -- that one.  
24 That one. Thank you so much, Chester.

25 So I appreciate what you're trying to demonstrate

1 in terms of the land that's being dedicated to the actual  
2 hydrogen production. Does this scope of work also include  
3 the land that's going to be required for the Angeles Link  
4 project itself, not for the production of the hydrogen? I'm  
5 just trying to get a -- more insight into that.

6 MR. FREEDMAN: It does not. I think you are  
7 foreshadowing the presentation Mike (indiscernible) are  
8 going to give. They're up next. So this is what you call  
9 upstream, which is a third-party hydrogen production.

10 MR. COLVIN: Okay. Thanks. I -- it just helps to make  
11 sure I'm understanding the -- the apples to apples.

12 The second question, just to clarify, very  
13 understandably, you focused on solar low cost, you know,  
14 dedicated resource. I understand why you did that. Was  
15 there any consideration, especially in light of some recent  
16 (indiscernible) activity on the subject on -- and the Energy  
17 Commission's goals on linking hydrogen production to  
18 offshore wind? Was that part of the production? You know,  
19 it's the land use consideration for the land use study. I  
20 think the answer's no. I just wanted to confirm.

21 MR. FREEDMAN: We touched upon offshore being in other  
22 parts, I think, of our work. But here, we focused on  
23 onshore opportunities to (indiscernible) produce solar. Not  
24 to say that we are ignoring, and we obviously welcome  
25 opportunities to develop more renewables that people are now

1 engaging in.

2 MR. COLVIN: Fantastic. Not a criticism, just trying to  
3 understand what was there. Thank you so much.

4 MR. BRITT: Thank you, Michael.

5 We have a few people online who've raised their  
6 hand. Katrina Fritz, I see your hand. If you could unmute  
7 yourself, we should be able to hear you.

8 MS. FRITZ: Hi. Katrina Fritz, California Hydrogen  
9 Business Council.

10 Yuri, you talked on a high level about looking at  
11 different electrolysis technology that's available. There's  
12 a lot of large-scale and smaller distributed scale  
13 electrolyzer systems that are available commercially today.  
14 How will you narrow down, you know -- are you doing a  
15 comprehensive review of those global systems? And then how  
16 will you narrow that down and -- to inform avest (phonetic)  
17 it for Angeles Link?

18 MR. FREEDMAN: Thank you, Katrina. So maybe the first  
19 point to make -- and again, bear with me, because you've  
20 heard this couple times now. This is going to be  
21 third-party decisions. We are not going to be buying  
22 electrolyzers or producing hydrogen. 'Cause we are  
23 assessing is the state of the market and, obviously, we all  
24 have access to the information that's commercially available  
25 through various consultants with regards to efficiency of

1 various systems, the capital costs, operating costs. This  
2 is information we're basing our assessments, as of today,  
3 on.

4 MR. BRITT: Did you have a follow-up question, Katrina,  
5 or did that answer your question?

6 Okay. I'm going to go to Ian Fisher. I saw your  
7 hand raised, next. So we'll take your comment. If you  
8 could unmute yourself.

9 MR. FISHER: Thanks so much. Ian Fisher Cal Advocates.

10 I'm glad we're on this slide -- hi. Good morning,  
11 Yuri. Thanks for the presentation. I really appreciate it.

12 I'm glad we're on this slide. I have real concerns  
13 about the estimates and some of the caveats you have in your  
14 draft reports.

15 Your draft report does say that it excludes issues  
16 around land ordinances, zoning, things like that. I think  
17 that is an error. There are substantial modifications to  
18 those acreages as a consequence of both zoning and ordinance  
19 and things like the land -- the loopers within BLM land.

20 So I can point to evidence now, and I did in my  
21 preliminary study -- in my preliminary comments, on how much  
22 land is actually available around Blythe, especially on BLM  
23 land. And it's like an order of magnitude less. You -- the  
24 moment, BLM are allowing 38,000 acres of disturbance for  
25 solar, under their looper.

1           You need -- I would suggest that you go and talk to  
2 BLM about what they're actually doing, what their current  
3 land management practices actually allow, otherwise you are  
4 out by a factor of ten. And that concerns me.

5           As far as Lancaster, same advice, but for the  
6 opposite reason. As I'm sure everybody here is aware,  
7 Lancaster is very forward in the hydrogen industry. And  
8 they're going to have some -- as I understand it, some  
9 general plan elements or some business elements out in the  
10 near future, which will be directing how they're approaching  
11 solar.

12           Again, please speak to the general manager there.  
13 I spoke to him at the last hydrogen conference, where we  
14 met, a couple months ago, last month. And he's talking --  
15 he's talking about permitting, you know, 10, 20,  
16 30,000 acres. That's what their vision looks like.

17           And then, finally, the San Joaquin Valley -- I  
18 understand why you have so little in the San Joaquin Valley  
19 at this point because you're cutting it off at the bound --  
20 SoCalGas's boundary. This one is where I would ask you to  
21 be a bit flexible about your boundary and think about what  
22 is in the entirety of the San Joaquin Valley.

23           There's a lot of more potential there than I  
24 think we -- than appreciate, especially with the advent of  
25 the -- the likely retirement of farm land. But due to

1 the -- due to the water management acts, the ground water  
2 management acts that are coming into play and the ground  
3 water management plans.

4           So I guess my -- my request is to go a little bit  
5 further with this in the final and have a conversation with  
6 the primary -- it's going to be really important to have a  
7 conversation with the primary permittees -- BLM, Lancaster,  
8 the counties -- to really understand what the tolerance is  
9 and what the availability of land is. Because, you know,  
10 the -- the error bars around these numbers are huge at the  
11 moment. And I'm not convinced that 12 percent is an  
12 honest -- is a true answer, should I say. Especially given  
13 how much other -- the other demands that are going to be  
14 placed on the land for more so for other purposes and not  
15 just hydrogen. Okay.

16           MR. FREEDMAN: Thank you. And I'll try to cover most of  
17 the points you brought up. If I miss something, please  
18 remind me.

19           So I think that your suggestion to go deeper on the  
20 analysis and be more granular in terms of what or is not  
21 available is an absolutely fair one. And that's what we aim  
22 to do in the phase 2 of work. The intent of this work was,  
23 if you will, to assess at the -- not quite the fatal flaw  
24 level to conduct, as I mentioned, desk of study to  
25 understand how we, within the realm of reason, in terms of



1 order of magnitude to something similar.

2 And we believe that based on what we have seen --  
3 granted with all the assumptions, we try to simplify by the  
4 nature. We think that we have cleared the hurdle. There's  
5 no doubt that several things that will happen in a very, I  
6 think, near term are, first of all, you know, us looking  
7 into this as we aim in phase 2.

8 Second of all, ARCHES is going to make the  
9 information that -- on the development of clean renewable  
10 hydrogen public in the, hopefully, short order, after the  
11 negotiations with the DOE are completed. As you know, they  
12 have some indication, some high-level indications of the  
13 production areas.

14 And I think our analysis here is directionally  
15 aligned with theirs. But, clearly, we need to talk to the  
16 locals and to the developers, once the information becomes  
17 public, to better understand. Because our intent is to  
18 align our pipeline with the real development that they  
19 place, if you will, upstream of cost.

20 So I probably left a couple of things that you  
21 mentioned out, but I just wanted to make clear that we  
22 clearly -- our role as a pipeline of this project, will be  
23 to serve the demand. And demand on the upstream side, on  
24 the production side is going to be driven by geography and  
25 scale of that -- that activity. So we are -- it's now our

1 best interest to align ourselves, as much as we can, with  
2 what we will learn about where and how it's happening.

3 MR. BRITT: Ian, did you have any follow-up thoughts?

4 MR. FISHER: Just -- just two. One is, my main concern  
5 is about the Blythe area, who's, you know, overstating the  
6 solar but you -- there's nothing about the geothermal to the  
7 south. Geothermal really is, excuse the pun, a hotbed of  
8 development in the south at the moment for both energy  
9 production and lithium production. So we are -- you are  
10 kind of missing a beat there on what the potential is out --  
11 out east.

12 And then, I mean, if you're going to overstate in  
13 Lancaster and understate in San Joaquin, the risk to me  
14 is -- I mean, I don't whether you demonstrate -- it's easy  
15 to demonstrate if your overstating, but I don't think the --  
16 I don't think the pencil's sharp enough. But you know -- so  
17 my -- again, my request is go and speak to the actual  
18 managers themselves and let's see some narrative about that  
19 in this to demonstrate feasibility to the Commission.  
20 Simply because, as it stands, everything I've said to you,  
21 will come back in comments and will go into future comments  
22 before the Commission.

23 So the best way to kind of work around that will be  
24 to, like, just talk to the managers, talk to the land  
25 managers and then get that narrative in here. Then we

1 can -- we can see where we really stand as far as where the  
2 pipeline will actually be.

3 Okay. Thank you.

4 MR. FREEDMAN: Thank you.

5 MR. BRITT: Thank you.

6 I'm going to go to one more online and then I'm  
7 going to come to you, Norman.

8 Ian -- Ian just spoke. I think we now have  
9 Janis Lin.

10 Janis, if you want to unmute yourself.

11 MS. LIN: Thank you. Yeah, appreciate this  
12 presentation. Thank you, Yuri. Actually, you answered  
13 the --

14 MR. BRITT: I'm sorry, Janis. Could you just announce  
15 yourself and your organization for the court reporter?

16 MS. LIN: Oh, of course. Janis Lin, the Green Hydrogen  
17 Coalition.

18 So as I was saying, Yuri, you partially answered my  
19 question, which was, how will the study be coordinated with  
20 ongoing hub planning with ARCHES? And I think you mentioned  
21 that, soon, they will be making the information in ARCHES  
22 more transparent and publicly available. Because in ARCHES,  
23 we'll have a lot more information about projects, citing,  
24 costs.

25 And I was curious if there was a plan to update

1 these production costs near term as part of the near term  
2 phases that Frank shared a minute ago.

3 And related question is, I know the Arizona project  
4 was not awarded hub funding. But I'm aware of quite a few  
5 large-scale renewable projects and renewable hydrogen  
6 projects planned there. And so I was curious if there was a  
7 plan to also look at production, you know, just at the  
8 boarder or out of state.

9 MR. FREEDMAN: Thank you, Janis.

10 So first, yeah, I think I probably touched upon  
11 ARCHES and the relationship with this process. I do think  
12 that there's been, by now, several months, you know, stage  
13 where parties have been on the closing shelves with ARCHES.  
14 And that is going to open up and become public once  
15 negotiations with the DOE are complete and that  
16 \$1 billion-plus is awarded.

17 I will also say, as Frank mentioned, there's an  
18 \$11 billion, thereabouts, at least of private capital  
19 standing ready to be invested, supported by that billion  
20 dollar government funding.

21 So, you know, that -- that indication of scale --  
22 and that is the real developers looking at real  
23 opportunities to get site control of land and start building  
24 projects. We absolutely look forward to learning about that  
25 and incorporating this now future work as we are, Laura,

1 looking forward to capturing more information on the costs.  
2 I think it will be the next stage of our work. But that is  
3 what we're looking forward to.

4 And with regards to Arizona hub and maybe other  
5 hubs, Angeles Link is focused on the various specific need  
6 that we have identified. Hubs which are going to emerge,  
7 and that's a broader vision, by mid-century, which are  
8 funded by the DOE, they will be several of them. And it's  
9 probably not a far-fetched statement to say that at some  
10 point the commodity within those hubs are going to get  
11 produced will want to move from low cost production to high  
12 value market.

13 So will there be, eventually, linkage of this hubs  
14 one way or the other? We think so. But that is not what we  
15 are looking at right now. Right now, our objective is this  
16 specific project.

17 MR. LOPEZ: And, Yuri, just to build on that, I do want  
18 to highlight that, in the ARCHES DOE announcement that went  
19 out last week, they did state that the hub includes ten  
20 clean, renewable hydrogen production sites throughout  
21 California, but that most of the production sites are  
22 actually located in the Central Valley.

23 MR. BRITT: All right. Thank you for that. We're going  
24 to now go to Norm.

25 MR. PEDERSEN: Thank you. Just -- and I would just like

1 to compliment the team on moving us to this room. The  
2 acoustics are a lot better. It's a lot easier to understand  
3 Ian Fisher; it's a lot easier to understand you, Yuri. So  
4 this is a big step forward.

5 I have several questions and the first one, Yuri,  
6 is you mentioned the standard of four kilograms or less of  
7 CO2 equivalent per kilogram of hydrogen produced. That is  
8 the inflation reduction at standard for the very lowest IRA  
9 subsidy, the \$0.60 per kilogram. What we're shooting for is  
10 the \$3 per kilogram subsidy. And for that, you need less  
11 than .45 kilograms per kilogram of hydrogen produced.

12 How much of the -- of the produced hydrogen you  
13 were talking about, for example, the 1.5 million metric tons  
14 per year per 240,000 acres, how much -- or do you know how  
15 much would be up in that gold standard tier, \$4 per kilogram  
16 subsidy, and how much of it would be in the lower tiers,  
17 which are, you know, much less interesting as sources of  
18 hydrogen, for obvious reasons?

19 MR. FREEDMAN: I don't have the exact number, Norm. And  
20 thank you for asking that.

21 I will say that this pathway of combining behind  
22 the meter solar and the electrolysis is aimed to drive the  
23 lowest carbon footprint by virtue of the fact that you're  
24 only using zero emissions electric power. Green electricity  
25 would be somewhat more carbon intensive until we decarbonize

1 it. But this is the minimal emissions pathway.

2 I'll also say that what we are doing is in  
3 compliance with the CPEC decision (indiscernible) paragraph  
4 which specifically defined clean, renewable hydrogen for the  
5 state as something which, as of now, has footprint less than  
6 four-kilogram of CO2 and is not made from fossil fuels.

7 But I take your point that, obviously, developers I  
8 would expect would be aiming to reach the highest prong of  
9 that letter, which is to say the highest amount of the  
10 federal support.

11 MR. PEDERSEN: So is it fair to say that, given the type  
12 of reduction you're envisioning using electrolyzers and  
13 solar, how are the electrolyzers -- that 240,000 -- what was  
14 it? The 2,000 --

15 (Indiscernible talking)

16 MR. PEDERSEN: -- I think it was 240,000 metric -- no,  
17 1.5 million tons per year that would require 240,000 acres,  
18 that would be \$4 subsidy.

19 MR. FREEDMAN: I think you mean three, about  
20 four-kilogram of CO2, \$3 per kilogram. So that's about --

21 MR. PEDERSEN: \$3 per kilogram of hydrogen.

22 MR. FREEDMAN: Yeah. I -- I cannot confirm it for you  
23 right now on the spot with certainty, but let me come back  
24 to this.

25 MR. PEDERSEN: Okay. Okay. Thanks.

1           Next question, at the beginning of your  
2 presentation, at the end -- and at the end, you talk about  
3 the 11 billion or so private capital that is expected to  
4 augment the 1.2 billion from DOE and actually -- yeah, what  
5 DOE in their press release and ARCHES in their press release  
6 talk about were 11.4 billion public and private matching  
7 funds.

8           This is the first time -- last week was the first  
9 time I heard of this \$11.4 billion figure. Where in the  
10 world did that come from? I know they say public --  
11 private, public -- public and private matching funds. Well,  
12 great. But is \$11.4 billion going to just fall out of the  
13 sky?

14         MR. LOPEZ: That's the cost share -- right? -- for the  
15 participants in ARCHES for the --

16         MR. PEDERSEN: Pardon me, Frank?

17         MR. LOPEZ: It's the cost share, I believe, for the  
18 ARCHES members, their portion of the hydrogen hub  
19 contribution. So the \$1.2 billion, that's the federal  
20 contribution, up to 1.2. And the remaining balance is the  
21 cost share for the ARCHES -- ARCHES members.

22         MR. FREEDMAN: I think what we cannot do, Norm, is speak  
23 for ARCHES with regards to how this \$11 point billion number  
24 came together. I think it represents -- my understanding of  
25 that number, it represents the expectation of the private



1 sector investment, or investor of the capital outside the  
2 federal funding may be a better term. But beyond that, I  
3 have no ability to, you know, to break that number down and  
4 build it up for you to -- to explain how it's been derived.

5 MR. LOPEZ: Yeah, we don't have the details of the  
6 individual projects and who's contributing what. We just --  
7 we're working off of what was publicly announced, that was  
8 in the announcement.

9 MR. PEDERSEN: Okay. Well, you were talking about,  
10 Frank, what was released last week. And I found it to be  
11 incredibly skinny, frankly. I mean, there's a three-page  
12 press release that consists of quotes from various political  
13 figures. The DOE fact sheet was pretty skinny as well.

14 Are there any other sources we can look at to get  
15 more detail about, for example, where the 12.6 billion is  
16 going to come from? I --

17 MR. LOPEZ: We don't have them and we don't speak on  
18 behalf of ARCHES. We're working off of the same information  
19 that you're referencing. I think maybe part of the reason  
20 is I -- I'm assuming, if it's similar to our situation, is  
21 that the sub recipients are negotiating their agreements  
22 with ARCHES now.

23 Now that ARCHES has reached its agreement with DOE,  
24 ARCHES is now working with its sub recipients on their  
25 cooperative agreements. So perhaps once those are reached

1 with the sub recipients, maybe more information will be  
2 revealed. But I'm not aware of that.

3 MR. PEDERSEN: Well, you're talking about the members of  
4 ARCHES. The Times had a nice article about the sig -- the  
5 signing of the agreement -- past week. And -- they say that  
6 their four partners, the California Governor's Office of  
7 Business and Economic Development based -- this is partners  
8 in ARCHES.

9 MR. FREEDMAN: Yeah, I think this is slightly different.  
10 I think they're talking about the parties that are coming  
11 together, came together to form ARCHES: The government, the  
12 academic institutions, and the labor. I think what Frank is  
13 referring to, ARCHES has -- ARCHES' statewide effort to  
14 secure federal funding.

15 That statewide effort, the member -- the people --  
16 the parties, the private and public parties that -- during  
17 that effort, I believe the number is more than hundred. I  
18 know it's a large number. And that is not, obviously,  
19 covered in the paper. But these parties are looking to  
20 build these projects, and they're looking to secure federal  
21 funding to improve the economics of their projects. That is  
22 what's happening.

23 I think -- I know you know all this. But I just  
24 wanted to separate that from the description of the  
25 governor's ARCHES, if you will. And these parties, public

1 and private, in totality, are looking to invest that amount  
2 of money that was quoted in the press release.

3 I expect, personally, that a lot of this will  
4 become public almost by necessity, once the federal funding  
5 is committed because there are, as you know, abundant rules  
6 of disclosure. But that has not yet happened. Once that  
7 happens, I think we'll know significantly more than we do  
8 today.

9 MR. LOPEZ: Yeah. Hey, Norm, if you don't mind, can we  
10 just maybe continue on with some of the additional questions  
11 on the study itself to make sure we capture those? And  
12 during the break, we can connect with you and just finish up  
13 this conversation around ARCHES?

14 MR. PEDERSEN: That sounds great.

15 I have one last question about the study and the  
16 map, actually, that you have up on this slide. All the  
17 information that was in the materials released last week  
18 showed 13 production areas. And there were dots for the 13.  
19 And I'm sure you remember the map with the 13 dots. Looked  
20 to me like certainly four of them were in Northern  
21 California.

22 So are you saying that, of the 13 dots, 9 are  
23 Southern California? And some of 'em were down around  
24 San Diego. So are those -- are those -- how do those dots  
25 match up with the map that you have up on the screen right

1 now?

2 MR. LOPEZ: Norm --

3 MR. FREEDMAN: Yeah.

4 MR. LOPEZ: -- I think you might be referring to the  
5 ARCHES map.

6 MR. FREEDMAN: Yeah.

7 MR. LOPEZ: ARCHES released the map. And it had several  
8 production --

9 MR. PEDERSEN: That's what --

10 MR. LOPEZ: So those are ARCHES' projects not -- yeah.

11 MR. PEDERSEN: That's what you were talking about when  
12 you -- you said "go look at the information on the ARCHES  
13 website." And they have the DOE fact sheet. They have  
14 their press release. And they have -- you're a --  
15 high-level feasibility assessment and permitting analysis.  
16 And among those, the map, with the 13 dots and -- is that  
17 just conjectural or is that supposed to match up at all with  
18 what you have up on the screen?

19 MR. FREEDMAN: So two points, Norm. One is that the map  
20 that ARCHES released is, by definition, statewide. Right?  
21 It shows all the -- all this --

22 MR. PEDERSEN: Yeah.

23 MR. FREEDMAN: -- we looked at the third-party  
24 production potential only within our service data. We have  
25 not looked outside that. That's part, I think, of the

1 difference that you observed there. Another part is  
2 maybe -- excuse me if I say the obvious -- the ARCHES'  
3 points indicates specific parties that are developing  
4 specific projects and expect to receive some funding --  
5 federal funding through ARCHES.

6 What we are doing here is desktop analysis to  
7 assess what are the most promising areas to produce clean,  
8 renewable hydrogen, specifically solar and electrolysis, at  
9 scale. Is there a relationship between the two? Yes, there  
10 is. Is the 1-to-1? No, it's not because we did not look at  
11 this in the project-specific basis.

12 Ultimately, the fundamentals of resource, of the  
13 mantels of solar, of the quality of solar resource are going  
14 to determine that large scale development that will take  
15 place. And we'll look forward to doing more analysis on  
16 that in the next phase, as well as matching this up with  
17 real market developers.

18 MR. PEDERSEN: Thanks. I guess the answer is the 13  
19 dots that are in the DOE fact sheet are --

20 MR. LOPEZ: ARCHES --

21 MR. PEDERSEN: -- pretty much -- or -- or DOE's and  
22 that -- somebody's imagination. Because you were showing no  
23 production sites in the SDGNE service territory, the map you  
24 have up on the screen.

25 MR. FREEDMAN: We analyze the production potential only

1 within SoCalGas service territory, Norm. We have not looked  
2 beyond that.

3 MR. BRITT: Yeah. I think, Norm, you're conflating what  
4 the process -- as part of the 16 work studies in part of  
5 phase 1 of what SoCalGas is doing. They're looking at  
6 production potential; right? And they're looking at within  
7 their own service territory. And ARCHES is doing their own  
8 separate analysis statewide, and they have their own ability  
9 to do that. And we're not ignorant of that, but we're not  
10 tied to that process. So we will talk off-line. I think  
11 that's probably the best way to do this.

12 MR. PEDERSEN: Yeah. I think you cleared it up.

13 MR. BRITT: Yeah.

14 MR. PEDERSEN: Yeah. I think you cleared it up. Thank  
15 you very much.

16 MR. BRITT: Thank you, Norman. If you want to pass your  
17 mic over to Raymond. We'll go to Raymond next.

18 MR. SOLIS: Thank you.

19 MR. BRITT: If you could just introduce yourself.

20 MR. SOLIS: Yes, of course. My name is Raymond Solis.  
21 I'm with the Fernandefio Tataviam Band of Mission Indians.  
22 Our ancestral territory spans the San Fernando,  
23 Santa Clarita, and Antelope Valley's larger part of  
24 Los Angeles County.

25 I just want to call to attention, you know, in

1 reviewing the map and the -- the proposed pipe paths,  
2 crossing a lot of tribal ground. And I would encourage to  
3 build into the process a meaningful consultation and/or  
4 tribal monitoring process. Because in disturbance of all  
5 that ground, there's going to be the unearthing of several  
6 different artifacts, human remains, and things of that  
7 nature. I'm sure that's all part of the plan. I'm sure  
8 everybody's well aware of AB52 and CEQA and all that.

9 I just -- I would really like to -- I guess I can't  
10 say it enough, the significance and importance of embedding  
11 that at the forefront into the entire process and saying,  
12 "Hey, look. If you want to be -- you want to be a  
13 developer, you want to build it out, that's fine. Go ahead.  
14 But, hey, we really need you to work with the local tribe."

15 That map right there crosses many, many, many, many  
16 tribes. Many of those areas which are going to be sensitive  
17 areas, many will not be. I just highly encourage you to  
18 build that into your process as early as possible.

19 MR. BRITT: Yeah. And I would just say that you came to  
20 the right meeting. Because we actually have a presentation  
21 coming up this afternoon on routing, which is going to get  
22 into a lot more details. These -- all these green lines on  
23 these maps are not the proposed -- they're not the actual  
24 corridor, they're just opportunities to now analyze various  
25 corridors before they select the preferred alternative.

1           There's also going to be a presentation on ESJ and  
2 what we're going to be doing to communicate this information  
3 as it becomes more relevant. And in future phases, if we  
4 get approved to go into those future phases, there will be  
5 environmental work that will need to be done at a much  
6 deeper level.

7           So this -- all that we're doing in phase 1 is  
8 feasibility level analysis at a very high level across 16  
9 work studies. So what we're doing now is very conceptual,  
10 and we're making sure there's no fatal flaws. And then, as  
11 we work towards those details, all the things you mentioned  
12 are going to be completely relevant and we're going to need  
13 to get into that detail. And that's why we want you to be  
14 part of this process and -- so that we can make sure that  
15 we're not missing anything as we go along the way.

16           I also see Tyson, that you've raised your hand  
17 online. I want to go to you now and make sure you get a  
18 chance to ask your questions.

19           MR. SIEGELE: Hello. My name is Tyson Siegele. I am  
20 representing the Utility Consumers' Action Network today.  
21 And I had a couple questions here.

22           The first one relates to a couple -- couple of  
23 things that have been brought up by other -- other folks  
24 already. And that is, these production areas and making  
25 sure that they are telling -- telling the -- the full story



1 of what's available.

2 One of the -- the things that came to mind when I  
3 took a look at this map is that this map looks pretty  
4 different than the -- the screens that are used by the IRP  
5 proceeding -- the CPUC's IRP proceeding to determine  
6 production areas. And so one of the -- in addition to  
7 what -- what Ian was saying, I would encourage you to use  
8 all of the screens that the IRP proceeding uses as well so  
9 that the areas within California that can produce -- can be  
10 used for solar production or other energy production,  
11 that -- that that incorporates everything Commission's  
12 already using.

13 And I would assume you could do those as overlays  
14 and then eliminate areas that really cannot be used for  
15 production of electricity for the electrolyzers.

16 The -- the next piece that I wanted to ask about,  
17 and maybe on this one we can go to the response to feedback  
18 that SoCalGas has received, the slide that shows that.

19 MR. BRITT: I'm trying to advance the slide. Tyson,  
20 give me a second.

21 Nancy, can we go to that slide? My clicker is not  
22 working.

23 They're working on it, Tyson. Just give us a  
24 second. Here it goes.

25 MR. SIEGELE: It's the last slide in this section.

1           So I think that two of these are at least a little  
2 bit related. And I would be interested in hearing a little  
3 bit more from you, Yuri, on the, number one, not using the  
4 electric grid and then, number two, using electrolyzers  
5 to -- to help reduce curtailed renewable generation. Those  
6 two seem to be in conflict. But maybe I'm just  
7 misunderstanding the -- what SoCalGas is saying here.

8           MR. FREEDMAN: Thank you, Tyson.

9           I think the first one is, again, the foundational  
10 assumption that underpins our analysis in different body of  
11 work, in the cost effectiveness and the economics. As we  
12 all understand, there's a very big difference between  
13 running electrolyzers off the grid power. It obviously  
14 increase the capacity factor. It does increase the carbon  
15 (indiscernible) because the grid power is not yet emissions  
16 free, as opposed to running this from behind the meter  
17 solar. And also has to do, obviously, with the market  
18 prices that you are going to have to pay for access to the  
19 grid for the power.

20           So the first comment here simply says that we are  
21 assuming behind the meter solar couples with electrolysis as  
22 the pathway for the purpose of the economic calculations.  
23 We have, separate from that, assessed how much hydrogen  
24 could be produced using curtailed power. And that's  
25 something which we did for the (indiscernible) assessments

1 of the comparison scale of that production with the  
2 Angeles Link throughput. We used the functional  
3 (indiscernible) market demand.

4 So that's how this different. I hear you, they --  
5 they appear to be in some (indiscernible) with the other,  
6 but they pursue, if you will, just different objectives.  
7 Does that make sense?

8 MR. SIEGELE: I -- I think maybe I understand in terms  
9 of the -- the curtailed renewable generation. Are you  
10 anticipating -- or when you were reviewing this, did you  
11 anticipate an additional connection to those renewable  
12 generation production locations to electrolyzers? And so in  
13 that way it would, again, not go to the power grid or are  
14 you assuming that there's some way to pull from the CISO  
15 grid that -- that energy that would otherwise be curtailed,  
16 the electricity that would otherwise be curtailed?

17 Is it -- is it -- is it bypass -- I guess in both  
18 cases, is it bypassing the CISO entirely or is there some  
19 sort of partnership that would be needed with the CISO with  
20 the electricity grid in order to address curtailed renewable  
21 energy?

22 MR. FREEDMAN: Yeah, so I don't think I would use the  
23 term "bypass." Again, I think that behind the meter solar,  
24 coupled with electrolysis, is what -- how we are modeling  
25 the economics today.

1           What we are trying to do in the assessment of  
2 curtailments is to, if you will, lay the foundation for a  
3 question to be aimed to addressed in the next phase, which  
4 is to say, what is an optimal way for the State of  
5 California to use their electric grid to make hydrogen? Are  
6 there better solutions that may benefit the rate payers,  
7 that may reduce the cost of hydrogen?

8           And that's the analysis which I know were mention  
9 more than a couple of times. It's significantly, in my  
10 mind, deeper than what we conducted here. And that's what  
11 we will need to do. Because part of this analysis is going  
12 to be what is the best way for hydrogen production to access  
13 power. Part of it will likely be what it benefits.  
14 Hydrogen brings the power markets as a resource.

15           But all this is going to be executed in phase 2.  
16 For now, we simply tried to assess to put some parameters  
17 around what is the curtailment of renewables, how does that  
18 relate in magnitude to the need to produce hydrogen scale  
19 that has been established in the demand study.

20           MR. SIEGELE: I see. So in -- in the assessment of the  
21 curtailed energy, what you're taking a look at is not the  
22 costs involved in using curtailed energy. You are simply  
23 saying there's a -- there's a lot of curtailed energy, what  
24 if we were able to use that.

25           MR. FREEDMAN: That's maybe fair high-level description.

1 MR. SIEGELE: Okay. Got it.

2 And then the next question I had is related to,  
3 sort of, just order of operations. In terms of the  
4 production sites for hydrogen, do you anticipate that there  
5 will be -- you know, assuming that the Angeles Link goes  
6 forward, assuming it's built, do you anticipate the  
7 production sites for the hydrogen would be online and ready  
8 to go when the Angeles Link is completed? Do you think it  
9 would be the opposite direction, where production sites come  
10 online after -- after the Angeles Link? Do you  
11 anticipate -- I guess, it's -- just like with a lot of  
12 energy projects, there's a bit of the chicken-and-the-egg  
13 sort of analysis that has to be done. Which direction do  
14 you see things happening or have you not taken a look at  
15 that at this point?

16 MR. FREEDMAN: I think -- that's a great question. And  
17 I think there's maybe couple of, again, high-level facts  
18 that I think we all know.

19 Just to recap them. First of all, it takes  
20 significantly less time to build a solar project or solar  
21 and electrolysis project than to build the pipeline. That's  
22 just nature of the long linear projects that take longer  
23 time to permit and to build. That -- I think we all know  
24 that the time frame of development of solar and solar and  
25 electrolysis were going to be significantly shorter.

1           That's one. So I guess the long pole on the tent  
2 is not the production. It's usually materializes first.

3           The second one is that that interaction of  
4 producers, which is not going to be us, is going to be third  
5 parties and SoCalGas. That is going to be the integral part  
6 of project development because we need to be sure and they  
7 need to be sure, for commercial reasons, that they have the  
8 capacity to bring their molecules from those far away  
9 production areas to the coast.

10           So that interaction of producers and SoCalGas is  
11 something we should look forward to as they move down the  
12 path of developing their projects because they -- it's in  
13 their commercial interest to make sure that they have the  
14 pipeline available for them to deliver this hydrogen to the  
15 customer at low cost.

16           So it's going to be the collaborative process, as  
17 it always is in pipeline development, but the -- again, on  
18 the simple level, obviously, the time frame of development  
19 of upstream (indiscernible) is significantly shorter.

20           MR. SIEGELE: And do you anticipate either of those --  
21 either the construction of the production facilities or the  
22 construction of the transportation infrastructure, do you  
23 anticipate either of those waiting for the end users to  
24 declare demand, or the hydrogen or do you anticipate  
25 building out of the -- like you said, the pipeline is the

1 longest, takes the longest to build. Do you anticipate the  
2 pipeline being built significantly before the end use demand  
3 materializes?

4 MR. FREEDMAN: Yeah, I can't obviously speak on behalf  
5 of producers. I will say that, especially with the federal  
6 funding, this tremendous interest from the private sector to  
7 start building this projects -- and, frankly, they may be,  
8 you know, moving forward quite expeditiously once the ARCHES  
9 completed their process. That's what I can say. I don't  
10 know if I have a lot to add on top of what I already said.  
11 So I can just stop here.

12 MR. BRITT: All right. The -- Tyson, if you wouldn't  
13 mind, we need to keep going on to the next presentation  
14 because we do have a full agenda. If you could save your  
15 questions and maybe type them into the chat, we'll make sure  
16 that Yuri follows up with you on any of your remaining  
17 questions on this topic. Is that okay?

18 MR. SIEGELE: I -- I'd prefer to ask the questions  
19 during the -- during the meeting, if possible.

20 MR. BRITT: All right. Well, why don't you ask one more  
21 question and then we'll move on.

22 MR. SIEGELE: Sure. In terms of the federal funding,  
23 there was discussion with Norman a few minutes ago. One of  
24 the answers was that, at this point, it's the individual  
25 companies that are negotiating regarding that additional

1 11.4 billion. Can SoCalGas talk at all about whether it  
2 will be receiving or providing -- receiving any of the  
3 1.2 billion or providing any of that 11.4 billion?

4 MR. LOPEZ: Not yet. Not yet, Tyson. We're still in  
5 negotiations with ARCHES, and we haven't reached an  
6 agreement yet. So as soon as we have more information,  
7 we'll come back to this group.

8 MR. SIEGELE: Got it. Thank you.

9 MR. BRITT: All right. Thank you.

10 All right. We're going to go ahead and move  
11 forward on to our next presentation, which is on preliminary  
12 pipeline routing and pipeline design. We have two  
13 representatives who are going to be making parts of the  
14 presentation. Katrina Regan is the engineering and  
15 technology development manager for SoCalGas. And we also  
16 have Annie, who is the engineering project manager for  
17 SoCalGas.

18 Yeah. You might have noticed that we had lunch  
19 brought in. It was brought in a little earlier than we  
20 expected. And so we're going to try to get through this  
21 presentation and discussion and then we'll switch over to  
22 lunch after that, if that's okay with everyone.

23 All right.

24 All right. No problem. All right. Katrina.

25 MS. REGAN: If we start getting hungry --



1 MR. BRITT: Yeah, you guys can --

2 MS. REGAN: Flag us. Go get --

3 MR. BRITT: Go get your food if you -- if you need it.

4 MS. REGAN: Yeah.

5 MR. BRITT: We don't want anyone passing out.

6 MS. REGAN: No.

7 All right. Good morning, everyone. So excited to  
8 be here today with you to discuss our draft routing report.  
9 We'll be discussing routing and the sizing studies, which  
10 connect together quite well, along with a few of our other  
11 Angeles Link studies. And these studies really create the  
12 foundation for our pipeline project.

13 I'm Katrina Regan, as Chester said. I believe you  
14 may remember me from a few of our last meetings over the  
15 last year or so. So I'll go ahead and turn it over to my  
16 colleague, Ng, for her introduction.

17 MS. ING: Thanks, Katrina.

18 Good morning, everyone. This is my first time  
19 speaking at one of these events. So I would like to  
20 introduce myself briefly. I'm Annie Ng. I am one of the  
21 lead project managers for the pipeline sizing and routing  
22 studies. I am a licensed mechanical engineer. I have a  
23 background in chemical engineering and construction  
24 engineering and project development. And I will be  
25 presenting on the routing and sizing findings today.

1 MS. REGAN: All right. So the objective of the routing  
2 analysis was to evaluate and determine several possible  
3 preferred routes during the feasibility phase of  
4 Angeles Link. And in phase 1, we successfully selected some  
5 possible preferred routes. This required the integration of  
6 information across many of the other phase 1 studies, as you  
7 might imagine, including production and demand, but also  
8 environmental social justice and pipeline sizing.

9 Today we're discussing routing and sizing together  
10 because the two studies are intrinsically linked. This  
11 integrated planning approach is appropriate because the two  
12 concepts are interdependent. Routing looks at where a route  
13 is while the design study really looked at consideration  
14 specific to pipeline size and pressure. And chosen route is  
15 going to effect things like length, terrain, elevation. And  
16 those, in turn, influence the required size of the pipeline  
17 to meet capacity and flow.

18 In phase 2, pre feed and feed activities, the front  
19 end engineering design, those activities will be more  
20 specific to the preferred routes and variations that are  
21 identified in phase 1. It'll help develop information that  
22 leads to the selection of a preferred route and further  
23 refinement of the chosen alignments will occur.

24 An approach like this creates multiple  
25 opportunities that allows us to incorporate stakeholder

1 feedback and further refine the associated route.

2 Stakeholder and community input is something that  
3 will also be solicited during phase 2 analysis and would be  
4 considered when making alignment decisions. Once a  
5 preferred system route's identified, then we would move  
6 forward, advancing development of the route. And that would  
7 include things like technical design, planning and  
8 engineering, and develop more information to complete a feed  
9 study and bring a design up to 30 percent.

10 So the diagram here illustrates the evaluation that  
11 was completed within the routing analysis. The methodology  
12 was based in two different parts. There's the system  
13 evaluation and route evaluation. And this process was  
14 inherently iterative because it required the integration of  
15 a continuous influx of information that we receive from  
16 various studies and various sources over the duration. And  
17 using this method really allowed for that information to be  
18 continuously incorporated into the evaluation.

19 First, the system side of things assessed the  
20 overall layout and the pathways to safely transport clean,  
21 renewable hydrogen by examining the role of the system, zone  
22 development, and then identifying initial corridors for  
23 consideration.

24 A systemic approach here was critical because this  
25 allowed us to identify and develop those preliminary routing

1 option because this pipeline would be a new system. This  
2 would be in contrast to a traditional pipeline project where  
3 a pipeline is routed between two existing identified points  
4 within an established system. And this would be a new  
5 system, which made this step very important.

6 The other side of things is the route evaluation.  
7 Now, this included the identification of a variety of  
8 different routes and throughput scenarios for hydraulic  
9 modeling, as well as the development of characteristics of  
10 the different potential routes to allow for further  
11 exploration. And this framework allowed us to create  
12 several preferred routes at the end of phase 1.

13 So as we discussed earlier this year in March and  
14 when we presented our preliminary findings, a wide range of  
15 initial corridors was first identified as the basis for  
16 analysis in phase 1. And this would be further refined into  
17 preferred routes over the course of phase 1, so narrowed  
18 down.

19 These corridors leveraged potential opportunities  
20 for routing that include energy corridors on federal lands,  
21 federal interstate corridors, alternative fueling corridors,  
22 and industrial areas with high demand to help minimize  
23 impacts to the community and environment.

24 Of the approximately 1300 miles of initial corridor  
25 evaluated, which you see shown here, 500 miles were

1 estimated to be within section 368 federal energy corridors,  
2 200 miles were estimated to be aligned with alternative  
3 fueling corridors, and approximately 74 percent of what's  
4 shown here is within 50 feet of existing SoCalGas high  
5 pressure pipeline facilities.

6 These initial corridors were shared with the other  
7 phase 1 feasibility studies.

8 So there's a lot here on this illustration. So  
9 let's first talk about the initial corridors. So the  
10 additional corridors in green here were identified --  
11 evaluated in the context of the objective of Angeles Link,  
12 which is to transport clean, renewable hydrogen, which is  
13 likely going to be produced by multiple local and longer  
14 term regional clean hydrogen production sources, to various  
15 delivery points in Central and Southern California. And  
16 this includes the concentrated demand in the LA Basin and  
17 port area.

18 As many of you probably know living in LA, access  
19 to the LA Basin area is really constrained by geology,  
20 including several mountain ranges. We have the Sierra Madre  
21 mountains, San Gabriels, and the Santa Rosa mountains. And  
22 additionally, there are multiple national forests that also  
23 surround LA Basin. So given these features, there's a  
24 limitation of the potential pathways that access and through  
25 the LA Basin from the lands that surround it.

1           And this slide illustrates those potential pathways  
2 identified for evaluation.

3           Based on preliminary public data, corridors were  
4 also selected that aim to connect areas of highest potential  
5 for production with the areas of demand. So in order to  
6 really dial this in, you can see here as an example of the  
7 natural gas power generation facilities. They're over one  
8 megawatt. These are illustrated in the blue dots you see on  
9 the map.

10           And this supports, again, creating efficient routes  
11 that are closest to these facilities and avoid future  
12 potential for routing of long laterals. And this became one  
13 of the ways in which we looked to describe a preferred  
14 route. That a preferred route connects areas of production  
15 with areas of demand.

16           Next, let's talk about the different colors you  
17 see. So three functional zones: Connection, collection,  
18 and central. I know it's a lot of Cs. Stay with me. These  
19 were also developed during system evaluation. And these  
20 help allow for a systemic approach to the creation of  
21 potential routes. And it considers both short-term and  
22 long-term operational needs and reliability.

23           So the three colors illustrate these different  
24 functional zones. And the zones each reflect different  
25 aspects of hydrogen delivery. So each has a primary rule,

1 but not an exclusive function, which allows for that first  
2 utility.

3 The central zone, in green right there, this is  
4 primarily the area known as LA Basin. The collection zone  
5 is located just outside that, where regional hydrogen  
6 production and demand centers are likely to be located; and  
7 the connection zone, which is the region where pipelines are  
8 needed to connect producers and end users furthest away from  
9 the LA load center.

10 So while each zone serves a specific purpose --  
11 delivery, supply, and a combination of both -- a pipeline  
12 system that interconnects these zones allows the gas to be  
13 efficiently transferred from the likely points of supply,  
14 out in the connection zone, through collection -- where gas  
15 might also be used, sourced, or stored -- to the points of  
16 highest concentrated demand in the LA Basin and Central  
17 zone.

18 So an integration like this helps to manage the  
19 flow of gas according to the need and capacities of each  
20 zone and enhances overall system functionality. Which  
21 brings us to another way we look to describe a preferred  
22 route in our routing analysis, which was that preferred  
23 routes are routes which have a pipeline passing through all  
24 three zones.

25 So next we sought to incorporate information from

1 other studies and conduct route analysis to compare various  
2 routes.

3 MS. NG: Okay. As Katrina described, a preferred route  
4 must connect areas of production with areas of demand, and  
5 must also pass through all three zones. Incorporating the  
6 production study findings shared earlier by Yuri, eight  
7 scenarios were identified and evaluated that depict  
8 different combinations of achieving the envisioned  
9 Angeles Link throughputs of .51 and 1.5 million metric tons  
10 per year that also passed through the connection,  
11 collection, and central zones.

12 Two rounds of system hydraulics were conducted, one  
13 for the regional production area scenarios depicted later  
14 and another round for the preferred routes. System  
15 hydraulics involves using computer modeling to simulate and  
16 analyze the flow of fluids or gas in the network of pipes,  
17 valves, compressors, and other components. By doing this we  
18 can predict how the flow will behave under operating  
19 conditions to determine the preliminary design criteria and  
20 evaluate overall system feasibility.

21 Model that we used assumed an operating pressure  
22 range of approximately 200 to 1200 pounds per square inch  
23 gauge, or PSIG. And the model -- and it modeled the  
24 potential SoCalGas compressor stations at the terminal ends  
25 of the pipeline systems near each third-party production



1 area.

2 The diagram on the right demonstrates the modeled  
3 hydrogen flow panel from regional third-party producers  
4 located in the connection zone to the proposed compressor  
5 stations in the connection and/or collection zones and  
6 finally to the LA Basin and the Central zone, where most  
7 concentrated demand is expected.

8 This area includes the destinations of the ports of  
9 Los Angeles and Long Beach.

10 These hydraulic models use initial corridor  
11 information from the routing analysis and calculate a range  
12 of potential pipe diameters and compression requirements,  
13 which were then used to identify potential pipeline  
14 materials for consideration.

15 The results from these scenarios were also used to  
16 develop as cost estimates for the cost effectiveness study  
17 to determine the potential levelized cost of hydrogen and  
18 the alternative study for options comparison. These costs  
19 were also provided to the workforce analysis for potential  
20 employment analysis as well.

21 Next slide.

22 Here are the eight scenarios that represent  
23 different combinations of system components, such as varying  
24 production and demand locations, target throughputs, and  
25 pipeline routing configurations. The initial round of

1 system hydraulics found that the pipe diameters could range  
2 from 12 inches up to 36 inches, and 1 to 3 compressor  
3 stations may be required to transport the varying system  
4 capacities assessed in these eight scenarios.

5           These scenarios also demonstrate the breath of  
6 evaluation that was conducted to provide potential delivery  
7 pathways for clean, renewable hydrogen at scale from  
8 regional third-party producers located in San Joaquin  
9 Valley, Lancaster, and Blythe to the demand centers in  
10 Central and Southern California, including the LA Basin.

11           Upon comparing these eight scenarios, it was found  
12 that, on average, the distance to connect two production  
13 areas is approximately 500 miles. And additionally, the  
14 average mileage for scenarios 7 and 8, which depict  
15 different configurations to achieve the maximum throughput  
16 of 1.5 million metric tons per year, is also approximately  
17 500 miles.

18           So based on this initial round of hydraulic  
19 analysis of the eight scenarios, it was concluded that a  
20 preferred route to ideally include at least two production  
21 areas with an upper limit of 500 miles or less to  
22 sufficiently transport the desired maximum throughput  
23 capacity.

24           MS. REGAN: All right. So as we've discussed and the  
25 routing analysis really integrated information across

1 multiple phase 1 studies. And through the system evaluation  
2 side of things, preferred routes were determined -- or  
3 defined as those which connect all -- which connect areas of  
4 production with areas of demand and they pass through all  
5 three zones.

6 And then on the routing analysis side of things,  
7 preferred routes were defined as those which are less than  
8 500 miles and additionally connect both SoCalGas pipeline  
9 segments within ARCHES.

10 So as we discussed in March and a little bit  
11 earlier in this meeting, SoCalGas was excited to have two  
12 projects included in the ARCHES application for DOE funding.  
13 And as we move forward with route selection, connection of  
14 these two segments in the broader Angeles Link is important,  
15 as Angeles Link presents an opportunity to move hydrogen at  
16 scale between geographical territories where it will be  
17 produced to the areas of most concentrated demand.

18 It's important that the ARCHES segment be developed  
19 in conjunction with the broader Angeles Link from both a  
20 design and operational perspective to really realize that  
21 delivery in large quantities of clean, renewable hydrogen  
22 production in places like Central and Southern California,  
23 like the LA Basin.

24 Additionally, as an open access pipeline system,  
25 Angeles Link presents potential benefit to many of the other

1 ARCHES-identified production on off-take projects, which  
2 were considered within the routing study.

3 This information was integrated within the routing  
4 analysis to identify those routes of highest possible  
5 potential to achieve the objective of Angeles Link and four  
6 routes were identified. The final four routes traverse a  
7 route mileage that's, on average, approximately 450 miles.

8 And throughout this phase 1 process, we really  
9 sought to intentionally incorporate stakeholder feedback,  
10 which is why, in addition to the four preferred routes,  
11 we've identified a route variation that is part of three of  
12 those preferred routes. And this variation will also be  
13 further considered in phase 2.

14 So the preliminary pipeline segments were assembled  
15 in various configurations to meet the established criteria  
16 for preferred route. And following this previously  
17 described evaluation effort, four route configurations  
18 emerged, which we have titled here A, B, C, and D.

19 Route variation one, which we'll talk a little  
20 bit -- on the next slide, I think, in a little bit more  
21 detail, was also added after evaluating our ESJ screening  
22 information and in response to stakeholder feedback as a  
23 variation for further evaluation in phase 2.

24 This is a variation of preferred routes A, B, and  
25 C. And it has the potential to minimize route mileage

1 traversing disadvantaged communities, or DAC, in the  
2 LA Basin.

3           These routes represent the highest potential with  
4 regard to achieving the objective of Angeles Link to  
5 transport clean, renewable hydrogen production to various  
6 delivery points in Central and Southern California,  
7 including LA Basin, but they are preliminary in nature.  
8 This is phase 1. They are subject to change and subsequent  
9 analysis is going to be needed to determine alignment at a  
10 street level.

11           So in phase 2, route optimization would occur. And  
12 this would aim to really determine the most efficient path  
13 for the pipeline. The process, then, would consider a  
14 variety of factors that would seek to avoid, minimize, and  
15 mitigate potential environmental and social impacts, costs,  
16 and risks while also maximizing efficiency and safety.

17           So these routes really support the state of  
18 California's decarb goals as well as present a system plan  
19 that is designed for a reliable and resilient transmission  
20 of clean, renewable hydrogen throughout Central and  
21 Southern California.

22           Next, let's talk a little bit more about the route  
23 variation. So as described in our study, large areas of our  
24 service territory where potential hydrogen production and  
25 off-take are concentrated are considered to be disadvantaged

1 communities based on state and federal screening tools. So  
2 it may not be feasible to completely avoid DAC in these  
3 areas, as the purpose of Angeles Link is to connect  
4 production and demand.

5 Geographical or geological terrain features, such  
6 as mountain ranges, which we've also talked a little bit  
7 about, really limit our ability to avoid DAC when  
8 identifying routes that connect production of off-take. But  
9 one region where we could minimize traversing DAC is the  
10 LA Basin. So routes A, B, and C, as you can see -- and  
11 here's a zoomed in picture illustrating specifically that  
12 LA Basin area.

13 Routes A, B, and C follow the I-5 and goods  
14 movement corridors in Central and South LA to get to the  
15 ports of LA and Long Beach. And recently available data  
16 from our ESJ screening tool indicate that most census tracks  
17 along these routes are DAC. So based on feedback we  
18 received at our June meeting -- and we understand that folks  
19 want us to consider a route that minimized impacts on DAC.

20 And to be responsive to our feedback, we've added  
21 this variation, which we're calling Route Variation 1, which  
22 utilizes the Sepulveda pass. It follows a pathway that's  
23 parallel that to the footprint of existing SoCalGas high  
24 pressure pipelines as well as an AFECA identified corridor.

25 So Route Variation 1 results in an average decrease

1 of approximately eight percent of routes A, B, and C that  
2 traverse DAC communities. It overall decreases the  
3 percentage of pipeline that traverses DAC within the  
4 LA Basin by about 20 percent.

5 This is a feasibility level study. So alignment at  
6 a street level would be something that would be pursued in  
7 subsequent phases, where we will continue to seek new  
8 opportunities to engage with the community and carefully  
9 evaluate the impact of plans aiming to maximize benefits and  
10 execute our community benefits plan while minimizing adverse  
11 (indiscernible).

12 So this is a breakdown of some of the data that's  
13 been evaluated for these routes and collected within the  
14 final report. This slide covers routes A and B while the  
15 next slide will illustrate the same information for routes C  
16 and D.

17 Routes range in length from approximately 390 to  
18 480 miles. The average length of the four preferred routes  
19 is approximately 450 miles. And this is inclusive of the  
20 two SoCalGas segments within ARCHES California hydrogen hub.  
21 Angeles Link presents an opportunity to move hydrogen at  
22 scale between the geographical territories where it'll be  
23 produced to the areas of most concentrated demand. And as  
24 an open access pipeline system, it presents a potential  
25 benefit to many of the other projects identified by ARCHES.

1           Using this -- the information publicly available  
2 about these ARCHES projects, those identified production and  
3 off-take sites have been quantified by route, as you can see  
4 here.

5           Another characteristic of the routes shown is the  
6 demand access. So as we've discussed, the routing analysis  
7 sought to integrate information across a wide variety and a  
8 wide breadth of the various phase 1 studies. So based on  
9 the 2045 ambitious case within the demand scenario -- demand  
10 study, demand is anticipated to be spread throughout Central  
11 and Southern California area.

12           And based on this distribution of demand and the  
13 locations of different routes, it's possible to see how each  
14 route has the ability to access a demand across the  
15 hard-to-electrify sectors from a geographical standpoint.

16           All right. All four routes were modeled via  
17 hydraulic modeling to create a preliminary high-level system  
18 sizing, which was used to develop cost estimates. For  
19 Angeles Link phase 1 feasibility study, these cost estimates  
20 were what is considered to be class 5 estimates.

21           So this estimate is a high-level budgetary cost  
22 estimate for construction and operation development that's  
23 based on feasibility level information and has wide accuracy  
24 ranges that are appropriate for initial project screening  
25 purposes at an early stage, like phase 1.



1           A range is illustrated here for cost as select  
2 pipelines within the routes were modeled as two parallel  
3 pipes in some instances, or dual run to provide operational  
4 flexibility. Dual run configuration can act as a backup if  
5 one pipeline is temporarily removed from service, such as  
6 maintenance, inspection, or an emergency situation. And  
7 pipeline configurations like this can improve system  
8 resiliency during potential disruption, minimize downtime,  
9 and allow continuous operation.

10           The cost range here really illustrates that the  
11 estimated cost difference between a single or a mixed run  
12 configuration ranges from approximately 20 to 30 percent.

13           These routes really present a pathway toward a  
14 future that has -- a future with clean, renewable --  
15 reliable energy and meeting the state's 2045 decarbonization  
16 goals. So our collaboration with you is really happening at  
17 the earliest stages of this process and allows us to  
18 intentionally prioritize how we consider communities and  
19 others who have been historically impacted by -- the most by  
20 infrastructure projects.

21           So we're excited to include feedback and  
22 collaborate to develop this new resilient energy system in  
23 Central and Southern California.

24           Next, let's talk a little more about how we've  
25 incorporated stakeholder feedback to date. In our routing

1 analysis, we received valuable feedback that focuses on  
2 several key areas. One major theme was the consideration of  
3 a variety of different characteristics around the routes,  
4 including engineering and environmental and social  
5 attributes and the importance of identifying sensitive site  
6 locations and potential -- and the impact on endangered  
7 species, flora, and fauna.

8 In response, we've incorporated a variety of  
9 attributes in our report for the preferred routes. Our  
10 analysis considered and identified these attributes, such as  
11 disadvantaged communities, cultural sites, land use,  
12 endangered species with detailed mileage for those areas  
13 included in the appendix.

14 Another significant feedback aim was the concern  
15 for disadvantaged communities. Stakeholders urged us to  
16 consider avoid routes through these already impacted areas  
17 and, as a result, we proposed Route Variation 1 to preferred  
18 routes A, B, and C, reducing the route's passage through  
19 disadvantaged communities.

20 Feedback also emphasized the need to focus on  
21 intrastate pipeline corridors and provide a list of  
22 potential routes and material. Feedback was incorporated by  
23 prioritizing intrastate route options and providing both the  
24 initially considered corridors as well as the final four  
25 preferred routes and variation.

1           Subsequent work in subsequent phases will focus on  
2 alignment at a street level.

3           Lastly, stakeholders asked us to examine multiple  
4 pipeline routing scenarios considering different production,  
5 disaggregation methods and clearly distinguishing between  
6 interstate and intrastate options. And we incorporated this  
7 feedback by evaluating a variety of different routes and  
8 production quantities with any interstate components  
9 distinctly marked.

10          MS. ING: The design study also received several key  
11 (indiscernible) comments that were also integrated to shape  
12 the approach of our draft report. So some stakeholders  
13 expressed concerns around hydrogen embrittlement and  
14 integrity, emphasizing the importance of safety of leak  
15 protection.

16          Safety is a core value at SoCalGas and is  
17 foundational for Angeles Link. So in response, we evaluated  
18 material leakage, considered potential embrittlement, and  
19 overall pipeline integrity and maintenance programs. Our  
20 material selections will be further refined in subsequent  
21 phases and incorporate safety into the foundation of this  
22 design.

23          Feedback we received also highlighted the need to  
24 address seismic risks. Within this report we discuss future  
25 design measures focused on geohazard locations, including

1 earthquake faults. These measures aim to mitigate risk and  
2 manage the safety and reliability of pipelines in these  
3 potential seismic areas.

4 Multiple scenarios were also assessed within these  
5 evaluation through the integration between the eight  
6 scenarios modeled in the hydraulic analysis discussed  
7 earlier. And these eight scenarios assess different annual  
8 throughputs as requested. And we also use these feedback on  
9 evaluating the repurposing of existing natural gas  
10 pipelines.

11 Although Angeles Link is anticipated to be new  
12 infrastructure, we conducted a high-level evaluation around  
13 the conversion of existing natural gas station pipelines for  
14 hydrogen service and discussed the potential advantages and  
15 disadvantages of both approaches.

16 Lastly, we received comments around electric  
17 reliability. Stakeholders were interested in an assessment  
18 of the potential infrastructure's impact on the power  
19 system's resilience and reliability. In days one, we  
20 conducted a high-level literature review on electric  
21 reliability, which identified challenges, planning  
22 processes, and the integration between the electric and gas  
23 grids. Through this feedback-driven process and approach we  
24 have been able to collaborate with our stakeholders and  
25 corporate information about the areas they believe are of

1 the most importance within this comprehensive evaluation.

2 And I think that wraps up --

3 MR. BRITT: Thank you so much for that presentation. We  
4 are now going to go into the member discussion. But I want  
5 to give Brian another chance to introduce himself. We're  
6 trying to work through technical difficulties. And Katrina  
7 Fritz. But let's start with Brian.

8 Oh, no. Come on, Brian, you can do it. We're all  
9 rooting for you in the room.

10 Well, all right. How about Katrina?

11 No. All right. Should we tell them --

12 MS. FRITZ: Did that work?

13 MR. BRITT: Yep. You're on, Katrina. We can hear you.

14 MS. FRITZ: Okay. Confirming you hear me. Thanks.

15 MR. BRITT: All right. Great.

16 Brian, one more time. This is it. Last chance.  
17 Unmute yourself, we should be able to hear you.

18 All right. Well, if it -- in the meantime, we see  
19 some placards going up again.

20 So, Michael, I want to start with you again. If  
21 you could just pass the microphone to Michael and introduce  
22 yourself and we'll take your question.

23 MR. COLVIN: Michael Colvin with Environmental Defense  
24 Fund.

25 First of all, phenomenal presentation. Really

1 clear. Really thoughtful. It just -- I want to just  
2 commend you. This is -- if I can understand, it means you  
3 all have done a really good job.

4 This is partially a question and partially just a  
5 piece of feedback, I guess. I think there is going to be  
6 attention between, as we're trying to do the right  
7 identification, of there is so much sensitive area in  
8 California, whether it be a DAC or something else that you  
9 could build a very circuitous route, and you kind of have.

10 But with every single change, there's going to be a  
11 trade-off on honoring communities versus overall system  
12 costs and sort of system design (indiscernible). And I  
13 would love to, you know, really be able to dig into this  
14 study more. I have not had the chance to do it yet.

15 But it seems to me that that balance is going to be  
16 very tricky. And it -- I think that we should have almost  
17 polar extreme case before -- not that we would ever actually  
18 do this. But if we were to ignore all CEQA concerns and if  
19 we were to ignore all DSJ concerns, here is the least -- you  
20 know, most direct pathway. Now here is it avoiding every  
21 single -- everything else in between.

22 Just trying to get the book -- trying to get the  
23 bookend of what that route would look like. So that way we  
24 can kind of say, "All right. Here are the two extremes that  
25 we know are never going to actually be able to materialize.

1 And because of that, now here's why we're ending up in these  
2 options that we're in."

3 It might already be in that study and I just missed  
4 it, but I think trying to understand the bookends will help  
5 us then understand, well, what is sort of in the reasonable  
6 range. Because we are trying to balance the trade-offs that  
7 are sort of inherent in all of the options that you're  
8 presenting.

9 The second piece of that feedback, very much  
10 appreciate how you are trying to look at sort of the  
11 three -- three identified areas from the -- from what Yuri  
12 talked about in the previous study that say, "Okay. We got  
13 to pick up the production and then be able to get it to  
14 where our customers are anticipated to be."

15 The next 15-ish years of having that dedicated  
16 clean behind the meter hydrogen source I think is very, very  
17 important. I think there is going to be a time where we  
18 have 100 percent carbon neutral electric grid and having  
19 that dedicated behind the meter requirement may not be as  
20 important. That we could say, look, we can make hydrogen in  
21 a lot of other areas because it's all going to be clean  
22 power. You know, come 2045. So I said 15 years. I  
23 apologize. I can do math. Twenty years.

24 And so I think the question to think through is how  
25 important is it for us to be able to start from these

1 pre-identified locations, in terms of the routing of the  
2 production, versus are there other areas that might make  
3 sense for hydrogen production that are, you know -- and what  
4 would the pipeline look like if we were to do something  
5 closer to any power source and not necessarily these three  
6 particular spots?

7 I'm just trying to understand what I think would be  
8 very helpful. Sort of echoing the point that I was trying  
9 to make to Yuri the first presentation. I think that we are  
10 going to see more new sources of dedicated clean power  
11 coming online in the next -- in this kind of (indiscernible)  
12 of type. And so building a route specifically around one  
13 technology source in these three areas is a choice. And I  
14 just want to make certain we're understanding the stress  
15 test of that choice from both a cause and sort of a  
16 (indiscernible) integrity perspective.

17 So I apologize. It's not really a question. It's  
18 just some initial feedback I wanted to make certain I was  
19 giving. I'll yield the mic over to whoever else is next.

20 MS. REGAN: Thank you so much for your comments,  
21 Michael. I think that understanding those extremes, the  
22 bookends, as you quite nicely put it, is going to be  
23 important because that analysis that we do in phase 2 will  
24 really look at route from quantifiable and a qualitative  
25 perspective. So those are really key and thank you for your



1 comment.

2 MR. BRITT: Yep. Thank you, Michael.

3 MS. REGAN: Yuri may --

4 MR. BRITT: Yuri, did you have something to offer?

5 MR. FREEDMAN: I'll just add, again, I really appreciate  
6 distinctly, I think, what they're describing, I think,  
7 obvious what the goal is to (indiscernible) approach in the  
8 long run. That's basically what we are circling around.

9 I do think that that power market model that's  
10 going to embark on the phase 2 is going to absolutely  
11 include that because that's key. Right? We need to balance  
12 short-term market situation and the -- and as well as the  
13 climate goals and the long-term optimal. And they may not  
14 always coincide, and finding what's the best fit  
15 (indiscernible) is going to be our scope in phase 2. So  
16 thank you.

17 MR. COLVIN: Well, and to be somewhat sharp, the more  
18 that we try to accommodate and reroute the line to  
19 accommodate the sensitive areas, the more additional mileage  
20 we're going to have to do. Which means additional cost per  
21 mile and also, probably, additional compressor stations and  
22 additional sort of technical details.

23 And the thing that gives me heartburn, in addition  
24 to overall costs, is the more surface area that we're trying  
25 to cover in the route, the more potential areas for

1 something to go wrong. And go wrong meaning from a leakage  
2 perspective, from a safety perspective -- like, there's  
3 just -- the longer you build something, the -- you know, the  
4 more variables you're putting into the system.

5 And so just really trying to understand the -- the  
6 trade-off between "all right. We are trying to accomplish  
7 these other policy goals, but this is giving us some  
8 additional risk exposure" I think is important. And so the  
9 more we can highlight that and understand those trade-offs  
10 and say, "Well, look. Is this additional risk or is this  
11 additional complexity or is this additional cost worth it to  
12 us?" is going to be an ultimate question we're going to have  
13 to face.

14 And I don't think we're there yet, but I think the  
15 more that we can understand in this phase of the study what  
16 those trade-offs are, the better off we're going to be from  
17 when we have to get to those really hard questions later on.

18 But again, really fantastic presentation. I really  
19 appreciate the time.

20 MR. BRITT: Yeah. Thank you for that. Very insightful,  
21 Michael. And actually, your comment, Michael, promotes  
22 someone online to follow up on something. So we're going to  
23 go to Janis next and then, Norm, we'll come back to you,  
24 okay?

25 Go ahead, Janis.

1 MS. LIN: Thank you. Janis Lin from the Green Hydrogen  
2 Coalition.

3 Michael, thank you for raising this point about  
4 trade-offs. I completely agree with you and, also, I wanted  
5 to commend the leaders of this effort. It was a very clear  
6 presentation and it's quite exciting to see all of this  
7 start to materialize 'cause we've been thinking about for a  
8 long time.

9 So I have a comment about trade-offs and then I  
10 have a question. So my comment about trade-offs is that  
11 there's -- on the trade-offs, there's also the broader  
12 impacts about -- and I -- just as a reminder of why we're  
13 undertaking this to begin with. And the whole point of the  
14 pipeline is to provide an alternative renewable zero carbon  
15 fuel to displace fossil fuels -- fossil fuel use, especially  
16 diesel, at scale.

17 And I -- I quite understand and empathize with the  
18 construction impacts of building this pipeline. But the  
19 farther away we move it from transit corridors, and I'm  
20 thinking about those 10 to 30,000 trucks that cruise up and  
21 down the I-5 every day, burning on average -- I don't  
22 know -- four to five -- a gallon of diesel for every four or  
23 five miles. The further away we move the alternative fuel,  
24 I just want to make sure we're thinking through, like, how  
25 did that impact the conversion and the switching.

1           Because if we're able, by having a fuel supply  
2 closer to where these trucks move, convert many of those  
3 trucks to zero emission fuel cell trucks a whole lot  
4 quicker, that potential air quality benefit could be  
5 impactful and potential, you know, be significant compared  
6 to the short-term pain of the pipeline construction.

7           And I realize there's no perfect solution, but I  
8 just want to make sure when we look at the trade-offs we're  
9 looking at them realistically and making sure we're not, in  
10 an unintended way, delaying the conversion of, you know, all  
11 these trucks from diesel to renewable hydrogen.

12           And in a related way, I understand this is the  
13 feasibility and it's a first pass, and I was just -- and  
14 I -- and I understand -- and a lot of this is highly  
15 consistent, by the way, with the study that the GHC did,  
16 like, three, four years ago, both in terms of, you know,  
17 where the solar, where there's protection sites, the  
18 volumes, approximate volumes, the demand. So it's extremely  
19 validating, actually.

20           And at that time we did not, in our system plan,  
21 look at the potential of waste -- gasification of waste, the  
22 environmentally responsible gasification of waste to produce  
23 hydrogen. And I was just curious -- I know, you know,  
24 ARCHES includes this -- but have there been any studies done  
25 about the potential for the huge quantities of waste that

1 even LA generates every year?

2 I was looking at the budget and I think it's  
3 \$700 million a year just to get rid of solid waste. It's  
4 another 1.3 billion per year in the LA budget for water  
5 treatment as well. So I was just curious if there's been  
6 any study to date of that potential because it's something  
7 that we're considering looking into more deeply.

8 Thank you.

9 MR. COLVIN: Janis, hey, it's Michael. Before the  
10 SoCalGas folks respond, I just want to make certain I'm  
11 understanding the question. I think what I hear you asking  
12 is, from a routing perspective, are we considering the end  
13 case of making certain that one of the large end uses of  
14 hydrogen is heavy duty transportation -- therefore, the  
15 diesel displacement -- and would the routing impact the --  
16 the end users.

17 And then the second part of your question I think  
18 you're asking is, does non-solar generation resources that  
19 aren't electrolysis but waste production is you're sort of  
20 pointing to would that also change the routing options and  
21 the routing scenarios.

22 Am I understanding your question correctly? I'm  
23 just trying to connect the dots together.

24 I think Janis went back on mute.

25 MR. BRITT: Yeah, you have to unmute yourself.

1 MS. LIN: Sorry. Yeah. The system wouldn't let me  
2 unmute there.

3 But thank you, Michael. Correct. That in looking  
4 at the trade-offs, we have to look at the unintended  
5 consequences of delaying conversion from diesel trucking to  
6 fuel cell trucking. Because fuel supply, costs, and  
7 availability is a big, big factor. There're also many  
8 municipal entities along that route that my guess would  
9 depend on this pipeline to convert their fleets, their uses.

10 So I -- and I know this trade-off thing is super  
11 complicated, but I just want to make sure that we're looking  
12 at -- when we look at the trade-offs, the costs and impacts  
13 and benefits, broadly and -- and what those implications  
14 are.

15 And on the alternative sources of hydrogen,  
16 renewable hydrogen, you know, we're just -- we support and  
17 we agree that electrolytic hydrogen made from solar, we have  
18 abundant solar resources, potentially, in the future  
19 offshore wind. But we cannot ignore the large, large  
20 quantities of all types of waste that are actually generated  
21 in that central zone that are, you know, a huge cost to tax  
22 payers to dispose of, that are going to landfills and  
23 producing all kinds of other problems.

24 So there, I was just curious if -- if there are any  
25 plans to incorporate that. Have there been studies already

1 done because this is something that GHC is looking to study  
2 more deeply going forward. And the location and collection  
3 that waste and possibility for converting it into something  
4 useful instead of trucking it to landfills could be a factor  
5 as well. In the --

6 MR. BRITT: Did you have something to offer, Yuri?

7 MR. FREEDMAN: And, Janis, thank you.

8 This is Yuri.

9 So let me try to give you, maybe, a summary answer.  
10 So first I think what it describe is the expansion of what I  
11 think Michael and I talked about. It's really think about  
12 all this as a large, very large optimization exercise. That  
13 really is what it is. You need to figure out that the best  
14 feed, least cost solution, you bring the pipeline closer to  
15 various off-take centers. You have to spend more time in  
16 mining to bring from production to there. You put the by  
17 plan right next to production centers, then it takes some  
18 time to deliver it to demand.

19 So finding that sweet spot is what we're going to  
20 spend a lot of time on in phase 2. I think it's really,  
21 really important. And -- and in that context, actually,  
22 it's also true for the production pathways.

23 I know you know this, but I'll just say, you know,  
24 there's a reason that hydrogen is the most abundant element  
25 in the universe. It's actually all around us in materials

1 we don't even think about. And many pathways exist for a  
2 reason that hydrogen make in a clean, renewable fashion and  
3 bringing this to the consumer.

4 The question becomes which of those pathways have  
5 the lowest cost, highest (indiscernible) maturity, which  
6 changes as we go along. And also the highest scaleability  
7 to address that need. So that's, again, we are looking  
8 forward to digging into all of that in phase 2.

9 MR. BRITT: Norm, you're up.

10 MR. PEDERSEN: Just going back to Janis for just a  
11 minute. Janis, something you might do is check out what's  
12 going on in the biomethane proceeding (indiscernible)  
13 1302008. It's pertinent to some of the points that you were  
14 making about waste.

15 Also, sticking with Janis's comments, Janis was  
16 making the observation that it looked like the route one,  
17 the avoid DAC route, was focused primarily on avoiding  
18 construction impacts. And I guess question one is -- that I  
19 have, is am I understanding your route one correctly? It's  
20 basically going from following I-5, moving over to 405, and  
21 instead of going through, you know, San Fernando Valley and  
22 Burbank, it is going to go through Brentwood and Bel Air,  
23 which are not DAC.

24 MS. REGAN: It is a variation that could be applied to  
25 routes A, B, and C. And does reduce the route mileage that



1 traverses through a DAC community.

2 MR. PEDERSEN: Well, I'd just like to make an  
3 observation. If you do shift to route one, you know, the  
4 Brentwood/Bel Air alternative as opposed to San Fernando and  
5 Burbank, you miss some important power generation  
6 facilities. Right?

7 MS. REGAN: Absolutely. And thank you, Norm, for your  
8 comment. That is something we're going to continue to  
9 evaluate. And in phase 2 we will be evaluating all four  
10 preferred routes in the inclusion -- including that route  
11 variation.

12 MR. PEDERSEN: Okay. I just wanted to highlight, it's  
13 not just Janis's point about not following where the diesel  
14 trucks are going, but it also ties in with other in-uses.

15 Next question I have is, you know, I did have a  
16 chance to take a look at a high-level feasibility and  
17 assessment permitting analysis. It was prepared by Rincon  
18 Consultants for SoCalGas. And there's obviously a lot of  
19 overlap, except while this mentioned -- while the Rincon  
20 study mentioned the alternative one, it didn't describe the  
21 alternative one. It only described A, B, C, and D.

22 How -- how far is the study -- you're presenting a  
23 draft study that we will be receiving; correct? You're not  
24 describing the Rincon study.

25 MS. REGAN: No, the route study is a different study

1 that's also been issued. I believe it was issued on Friday.  
2 So there'll be four weeks for comment on that as well.

3 MR. PEDERSEN: Oh, Friday. Okay. Well, I got this  
4 before Friday.

5 Thank you for clarifying the connection. It seems  
6 like they're pretty close; correct?

7 MS. CANAN RULY: Norm. This is Jessica Ruly with  
8 SoCalGas. If I could chime in.

9 MR. PEDERSEN: Please.

10 MS. CANAN RULY: So I -- that was under my umbrella of  
11 the studies that we managed the high level feasibility and  
12 permitting analysis. And so that analysis is tied to the  
13 alignments that you see in the routing study as well.

14 So the Route Variation 1 was something that was  
15 considered very late in the process. It was a suggestion  
16 that we heard through stakeholder feedback. And we did  
17 incorporate it. So as Katrina had mentioned, that's going  
18 to be something we'll look at closer in phase 2. But at the  
19 time the permitting analysis was released, that was new to  
20 the table and so, again, it'll be looked at more detail in  
21 phase 2.

22 MR. PEDERSEN: And when you're talking about the routing  
23 analysis, you're not talking about the July Rincon effort,  
24 you're talking about what was posted Friday; correct?

25 MS. CANAN RULY: The July Rincon analysis should have

1 also been posted Friday, concurrently with the routing  
2 study. Those two studies were released concurrently. So  
3 they should have both come out on Friday.

4 MR. PEDERSEN: Oh, they're both posted on --

5 MR. LOPEZ: Correct. Yes. But separate studies.

6 MR. PEDERSEN: -- website.

7 MR. LOPEZ: Yeah. All of the information that we're  
8 presenting on today was studies. The actual studies  
9 themselves were released on Friday. So they're all  
10 available on the living library, including routing, pipeline  
11 sizing, and the ESJ plan that we're going to go over today.

12 MR. PEDERSEN: And so I need to look at, too, the Rincon  
13 study, which I've already reviewed, and also the second  
14 study that Katrina and Annie are talking about.

15 MR. LOPEZ: Yeah. And they presented on two studies:  
16 Pipeline sizing and on routing, two separate but related  
17 studies. Yes. The answer's yes.

18 MR. PEDERSEN: Thank you.

19 Well, okay. Then talking about the studies, there  
20 is the discussion about the ARCHES segments. There are two  
21 ARCHES segments. One is in the connection zone, the  
22 upstream zone, and another one is in the collection zone,  
23 the midstream zone, and it extends from Lancaster, roughly,  
24 down -- down through Santa Clarita, to I-5 and then follows  
25 the I-5 further south, winding up in the South Bay.

1           What is meant by the ARCHES study? Does that mean,  
2 in other words, that that's something that the DOE's going  
3 to pay for?

4           MS. REGAN: Thanks for the comment, Norm.

5           So SoCalGas has two different pipeline segments  
6 that we proposed and worked with ARCHES on. And those have  
7 been included in the application that was submitted by  
8 ARCHES to the DOE. So the two segments are SoCalGas  
9 projects, and they're part of the larger, broader  
10 Angeles Link's system.

11           Does that answer your question?

12           MR. PEDERSEN: No, I don't think so. I am still  
13 confused as to what might be meant by the ARCHES segment. I  
14 assume that they were proposed by ARCHES to DOE and -- and  
15 the agreement that was signed somehow bears on those two  
16 fairly lengthy segments, one of them the San Joaquin Valley,  
17 one going from Lancaster through Santa Clarita, further  
18 south along I-5.

19           So what's the connection between the term "ARCHES  
20 segment" and money coming from --

21           MR. LOPEZ: And we're moving over to the map so you can  
22 visualize it and you can see how the ARCHES segments are  
23 part of the broader Angeles Link's system.

24           So just to remind you, we are proposing  
25 Angeles Link as one entire system. That's inclusive of the

1 ARCHES segments, which are also part of our Angeles Link.

2 So keep going.

3 Other way.

4 Right -- back.

5 It's where the four preferred routes -- one before  
6 this one.

7 Okay. There we go.

8 And it might be a little bit hard to see, but you  
9 can see --

10 MR. PEDERSEN: Yeah.

11 MR. LOPEZ: -- there's --

12 MR. PEDERSEN: It's there in purple, or I think it's --

13 MR. LOPEZ: It's black. It's on -- yeah. It's the  
14 dark-colored portion, not the green.

15 MR. PEDERSEN: Right.

16 MR. LOPEZ: Yeah. So those are the ARCHES' segments.  
17 And all of it together, the green and the black, are the  
18 Angeles Link system that we're evaluating. Is that correct,  
19 Katrina?

20 MR. PEDERSEN: The green and the black is Angeles. And  
21 so the purple is --

22 MR. LOPEZ: The segments.

23 MR. PEDERSEN: The two purple segments are the ARCHES'  
24 segments. I note that the Rincon study had the color for  
25 the Lancaster through Santa Clarita route as extending

1 further down I-5. So looks like there's a little bit of  
2 discrepancy.

3 But nevertheless, the question I have is, what am I  
4 to understand when you call a segment the ARCHES' segment is  
5 it only that that was proposed in -- to DOE by ARCHES and  
6 none of the rest of Angeles Link was in the proposal to DOE  
7 or does it mean something else?

8 MR. LOPEZ: Yes, when we say "the ARCHES' segment,"  
9 we're referring to the black portions up here on this map.

10 MR. PEDERSEN: And they were included in the proposal by  
11 ARCHES to DOE, which DOE --

12 MR. LOPEZ: Correct.

13 MR. PEDERSEN: -- sign off on last week.

14 MR. LOPEZ: Yes.

15 MR. PEDERSEN: Thanks.

16 MS. REGAN: Permitting -- the permitting study did  
17 evaluate all the routing options and all the route corridors  
18 that we illustrated, I think, on one of the first slides.  
19 So there's quite a large breadth.

20 MR. BRITT: All right. So --

21 MR. PEDERSEN: Let's go --

22 MR. BRITT: Norm, we -- our court reporter needs to take  
23 a break. So he's freaking out. So --

24 MR. PEDERSEN: Done.

25 MR. BRITT: Just understand, we've been going for a long

1 time with a lot of detailed information. So we have people  
2 that still have their placards up.

3 Sal, I see your hand online.

4 Norm, you might even have some follow-up questions.

5 What we're going to do is we're going to take a  
6 break. The food is here. Why don't we just grab our food  
7 and we'll make it a working lunch. So if you're online,  
8 we're going to take 15 minutes to make sure that people in  
9 the room get the food. If you're online, grab a potty break  
10 or grab some food yourself and we'll reconvene, let's say,  
11 at 12:35 to start back up. And we'll start with the  
12 follow-up questions that we still have. All right?

13 Okay. Thank you.

14 (Pause in the proceedings.)

15 MR. BRITT: We're going to go ahead and get started  
16 again.

17 Norm, I don't want to put you on the spot, but we  
18 were talking to you when we took the break. Do you have any  
19 follow-up questions that you have? I don't mean to catch  
20 you mid bite.

21 Okay. There you go. All right. Then we're going  
22 to move on to Ernie. I think you're up next. If you could  
23 just pass the microphone to Ernie. There you go.

24 And, Ernie, go ahead and announce yourself for the  
25 reporter.

1 MR. SHAW: All right. Good to go. Good to go.

2 President Ernie Shaw, Utility Workers of America,  
3 Local 43, transition to storage.

4 So I just wanted to ask a few questions just to  
5 kind of clarify some things. So wouldn't -- wouldn't the  
6 Angeles Link help improve some of these disadvantaged  
7 communities through infrastructure enhancement, like, let's  
8 just say, putting power poles or trees or, you know, new  
9 buildings, kind of like just bring in all the good stuff,  
10 the meat and potatoes, and then as well as, like,  
11 employment. Right?

12 So like, Blythe, for example -- I'll say my home  
13 town. Loud and proud. I love it. You know, they just --  
14 Governor Newsom just shut down, or is in the process of  
15 shutting down Chuckawalla State Prison. That's a lot of  
16 people going out of a job right there. You know? Luckily,  
17 my brothers and sisters, literally my family, they're going  
18 to go to Ironwood. So -- and it's only a matter of time  
19 before that shuts down potentially; right?

20 So this could bring in some work for people there  
21 that live in the communities, potentially. So that's my  
22 question first.

23 MS. REGAN: I'll leave Frank to talk about the community  
24 benefits plan. But I do want to thank you for your comment  
25 and note that, if you haven't looked at it already, we do



1 have our workforce study out. And within the appendix,  
2 there is an employment impact report that dives into some of  
3 those numbers around potential for job creation.

4 I think when we're looking at this report and we're  
5 looking at the numbers, it ranges from 53,000 to 74,000 or  
6 75,000 jobs that could be created by this project.

7 So I'll turn it over to Frank and Edith, maybe, for  
8 more about community benefits.

9 MR. LOPEZ: Yeah. And I think Edith's going to get into  
10 some of this into her presentation on the ESJ plan. But,  
11 yeah, Ernie, there -- there's potential for benefits for  
12 disadvantaged communities as well, beyond just the  
13 employment impacts.

14 We also, on Friday, released our NOx emissions  
15 evaluation, which I think includes the maps around air  
16 quality benefits. And if you look at the maps, a lot of the  
17 air quality improvements could also take place in a lot of  
18 these disadvantaged communities.

19 And then as Katrina mentioned, you know, as part of  
20 this project, we've been developing a community benefits  
21 plan that has more comprehensive benefits that Edith's  
22 probably going to get into and how we would do some of that  
23 work as part of phase 2.

24 MR. SHAW: All right. All right. And so let's not  
25 steal Edith's thunder for later, then. But -- but okay.

1 Great. You know, and I think you kind of answered my second  
2 question there, Frank. You know, and I was going to say,  
3 they'd also get an indirect enhancement through air quality,  
4 you know, the AQMD; right? It's like, "Hey, we're testing  
5 the air to make sure it's good for you to breathe."

6 So you know, that's one thing. As well as, like,  
7 our existing right-of-ways that we have. You know, we're  
8 out there, you know, my brothers and sisters, 43 are out  
9 there patrolling day in and day out. We see what's on the  
10 ground and we're able to kind of alert and, you know, fix  
11 it.

12 We -- we always find everything. We always find  
13 everything. We get there -- we leave it better than when we  
14 found it. There you go. I'm sorry. So I think you  
15 already -- so I think you answer that. So thank you.

16 And, also, you know, I know SoCalGas does community  
17 engagement in the service territories that we serve. So,  
18 like, helping the disadvantaged communities and all that.  
19 So I just wanted to kind of make mention of that. That's  
20 where I think this could benefit the disadvantaged  
21 communities as well.

22 And then my last point, you know, I know -- I think  
23 my brother Tyson mentioned, you know, can we build this and  
24 all that and the other. Thank you for mentioning that. The  
25 answer is, I mean, yes.

1           You know, with the help of my brothers and sisters  
2 at UA 250, 364, 398, my brother Salvi Dicostanzo on the  
3 screen there, you know. We're ready to do this and go. And  
4 there's plenty of work for everybody to share. So you know,  
5 there's no bogarting nothing. So I just wanted to say,  
6 like, yeah, you know, let's do this.

7           Thank you.

8           MR. BRITT: Thank you, Ernie.

9           Speaking of Sal, we're going to go to Sal next.  
10 You have your hand raised and you've been waiting patiently.  
11 And then we'll come back to you, Ben.

12           All right. So, Sal, go ahead. Unmute yourself.

13           MR. DICOSTANZO: Great. Can everyone hear me okay?

14           MR. BRITT: Yes, we can.

15           MR. DICOSTANZO: Okay. Great. Well, thank you for the  
16 opportunity to speak here today. I apologize that I won't  
17 be able to be here for the full length of the discussion.  
18 But as usual, this is an excellent -- excellent -- excellent  
19 opportunity to see the work that you guys have done over the  
20 past several months since our last meeting.

21           The benefit of going after speakers like Norm and  
22 Janis and big Ernie is that they cover most of the ground  
23 that you need to cover. So I'll take a different tact on  
24 just the comments I wanted to make here.

25           It's very gratifying for me, as representing --

1 first, I guess I should say, my name is Sal Dicostanzo. I'm  
2 with the International Longshore Warehouse Union, Local 13,  
3 for the benefit of your court reporter there.

4 I'm here representing nearly 15,000 members that  
5 work in and around the harbor or Los Angeles and Long Beach.  
6 We move all the cargo on and off ships, on and off trucks,  
7 on and off trains. And it's obviously very heavy duty work.  
8 It is highly industrial. And the power needs are  
9 substantial.

10 We have some degree of electrification there. We  
11 have a growing amount of projects that involve hydrogen.  
12 And just to underscore that, we have the world's first  
13 hydrogen-powered human-operated zero emission rubber tire  
14 gantry crane. And that is the one-of-the-kind in the world.  
15 It is a PACECO-MITSUI product that is being demonstrated at  
16 Yusen terminals.

17 And it is -- it is one-of-a-kind because it is new  
18 technology. It is necessary technology. We cannot  
19 electrify our way out of this -- out of this predicament  
20 that we're in with relying on diesel.

21 I think last Sunday, if I'm not mistake -- I don't  
22 know exactly who came up with this, but I remember reading  
23 an article that it was the hottest day on record in the last  
24 10,000 years. And, certainly, we need to do something about  
25 that. I think that the Angeles Link project is a step in

1 the right direction to addressing that problem.

2           There's comments made earlier about the routing.  
3 We need to keep in mind that, while I'm grateful that the  
4 route is going to find its way to the port of Los Angeles  
5 and Long Beach for our members and the equipment that we  
6 use, there are other folks in this supply chain that will  
7 also need that power. They are our partners at rail and  
8 they are our partners in trucking. They have similar issues  
9 to those that the ILW has with needing enormous amount of  
10 power to move very heavy loads over long distances. And to  
11 meet, you know, all kinds of timing and restrictions,  
12 et cetera.

13           So we see electrification and hydrogen production  
14 as complementary to one another. They're not necessarily in  
15 competition with each other. We need them both. And we  
16 need it deployed as smartly as possible.

17           Southern California is also the world's largest  
18 manufacturing center. And consequently, you know, with the  
19 location of those facilities and their proximity to power  
20 plants that are going to supply them with the energy that  
21 they need to do the work that they're involved with, that  
22 needs to be taken into consideration too.

23           So if the -- you know, to comment on -- to dovetail  
24 in with Janis and Ernie, if this route goes through area A  
25 and it provides extra jobs and it's the shortest route and

1 it provides the most bang for your buck with the least risk,  
2 then that may be the route that we need to go along the 5  
3 and, you know, down the corridor there.

4 That's not to say that disadvantaged communities  
5 don't need to be considered. We -- our members make up  
6 disadvantage -- our members are disadvantaged communities  
7 around the ports.

8 Nevertheless, what we don't want to do is we don't  
9 want to chase work away from here. Because we are under  
10 various rules that are being implemented by car  
11 (indiscernible) there is real risk that work could be driven  
12 away from these ports and sent to other ports around the  
13 country. If that happens, we're not really solving the  
14 greenhouse gas problem. We're just moving it around. We're  
15 moving it from being an LA/Long Beach problem to other  
16 ports. And that's not going to solve the bigger issue.

17 So I'm in full support of this project. Our  
18 members are in full support. We have been working on and  
19 continue to work on demonstration projects involving  
20 hydrogen at Fenix Marine terminal, at YTI. Stevedoring  
21 Services of America is also interested. And anything that  
22 we can do to help this project along, we will be happy to  
23 discuss in any way we need to.

24 MR. BRITT: All right. Thank you, Sal.

25 We're going to go back in person to Ben Clayton.

1 If you could just introduce yourself.

2 MR. CLAYTON: All right. I'm Ben Clayton with the  
3 United Association.

4 I just want to kind of echo on what brother Ernie  
5 said here. We already work with SoCalGas on maintaining  
6 these lines. So as far as, like, any impact on anything,  
7 just routing, if we're working where there's already a pipe  
8 at, we're already digging it up, we're already fixing stuff,  
9 we're replacing it, SoCalGas does a good job of maintaining  
10 it, so --

11 MR. BRITT: I'm sorry, Ben. Could you just speak  
12 directly into the mic for the people online. Thank you.

13 MR. CLAYTON: So we're already working in all these  
14 areas right now. The only difference is going to be, it's  
15 going to be a large area, it sounds like, at one time,  
16 maybe, once we get rolling on this. But it doesn't matter  
17 if it's in the middle of the desert or Downtown LA, we  
18 currently perform work on all these lines.

19 You know, also, I've been hearing the trade-off for  
20 the disadvantaged areas. Well, our trade-off is we build  
21 football stadiums. We build soccer stadiums. We build  
22 museums. We build high-rises. We're already doing all this  
23 stuff in this disadvantaged areas. And the trade-off is  
24 usually a community workforce agreement, a project labor  
25 agreement, sharing that.

1           We meet some zip code requirements to hire the  
2 individuals who live there. Maybe a path to be  
3 apprenticeship to the middle class. I mean, they're very  
4 receptive to this kind of stuff. So that -- that should not  
5 be a deterrence.

6           And that's about all I had. Not really any  
7 questions, just wanted to make a couple points of interest.

8           And then on a kind of a -- a greedy point here, the  
9 dual pipeline sounds good to me. And -- and, you know,  
10 20 percent of a billion dollars is a lot of money. What's  
11 it going to cost ten years from now to go add another one?  
12 I mean, that's probably going to be \$5 billion to go and  
13 improve it at that point. Especially the -- I don't know  
14 the process now with the hydrogen versus natural gas on  
15 doing repairs and can you shut it down the same way and, you  
16 know, put bypasses in and everything that we do now. I  
17 don't know what the new sequence for events is going to be  
18 here for the future for the hydrogen, but can't go wrong  
19 with an extra pipeline.

20           Thanks.

21           MR. BRITT: All right. Thank you.

22           I'm going to just read something that Janis  
23 chatted. Going back to give a shout out to Norm. She said,  
24 "I agree with Norm. We need to look -- we need -- we need  
25 to look at need to keep clean from detachable power online.



1 If these power plants don't have access to renewable  
2 hydrogen, then they will likely continue to combust natural  
3 gas to achieve electrical system reliability."

4 So a shout out to you, Norm.

5 MR. PEDERSEN: Thank you.

6 MR. BRITT: Now we're going to go to Tyson online. You  
7 have your hand raised.

8 Tyson, you're next.

9 MR. SIEGELE: Hello. Tyson Siegele. Today I am  
10 speaking on behalf of the Utility Consumers' Action Network.

11 I have a few different questions and then I'd like  
12 to share a little bit information regarding opportunities  
13 for considering different pipeline routing.

14 The first one is in the -- in the analysis, in the  
15 routing analysis and consideration of pipelines, it -- it  
16 looked like there is -- is very little difference in terms  
17 of overall cost for running two pipelines versus one  
18 pipeline.

19 I -- I agree, you know, 20 percent of a billion  
20 dollars is a lot of money. But in the grand scheme of  
21 things, I have to agree with the previous speaker. You  
22 know, making sure that reliability is there is important.  
23 It's one of the things that -- that the Utility Consumers'  
24 Action Network is definitely interested in, especially  
25 considering how long line 235 -- SoCalGas line 235 was

1 either out of service or was operating at below its designed  
2 capacity.

3 The -- that actually occurred from 2017 all the way  
4 to last November. And that is -- I think Sal mentioned in  
5 previous meetings that, you know, if the courts don't have  
6 the -- the energy that they need in order to -- in order to  
7 operate, then shelves are going to go bare in places around  
8 the country. And that's -- that's definitely something that  
9 we can't have.

10 So when -- when the end users are expecting to have  
11 hydrogen, they need to have hydrogen. A dual pipeline  
12 system seems like it makes a lot of sense if this project  
13 goes forward.

14 The next question I had is, in terms of piping  
15 sizes, there were pipings sizes mentioned between 12 inches  
16 and 36 inches, I believe. I -- I -- maybe I missed it. Is  
17 there a range that is -- that SoCalGas is taking a look at  
18 in terms of costs of different pipeline sizes?

19 MS. REGAN: Thanks for your comments, Tyson.

20 We do have pipeline sizes listed in the report for  
21 the hydraulic modeling that was completed on the eight  
22 scenarios. And then we also have pipeline sizes identified  
23 for the second hydraulics which was specific to the four  
24 preferred routes. Those pipe sizes are part of what the  
25 cost estimate uses for a class 5 estimate.

1 MR. SIEGELE: Got it. And do those pipeline sizes  
2 correspond to the demand studies, low and then high demand?

3 MS. REGAN: No, they do not.

4 MR. SIEGELE: What -- what's -- what is helping to  
5 determine pipeline sizes for the different routes and  
6 different configurations?

7 MS. REGAN: Great. Thank you for your question.

8 The pipe sizes comes through that work that's  
9 conducted within the hydraulic modeling are various  
10 equations are applied to state to identify what correct  
11 sizes should be used in different places to keep pressures  
12 and flow in an appropriate range.

13 MR. SIEGELE: But ultimately, it's to deliver the amount  
14 of hydrogen that SoCalGas is estimating; right?

15 MS. REGAN: The systems that were modeled for hydraulics  
16 were .51 and 1.5 million metric tons per year.

17 MR. SIEGELE: Got it.

18 MS. REGAN: That is the annual throughput.

19 MR. SIEGELE: Got it. Thank you.

20 The -- the next topic, really, I guess, is related  
21 to the -- the preferred pipeline routing and then the  
22 alternative pipeline routing. The alternative pipeline  
23 routing, it looks like that is -- it is shorter; is that  
24 correct?

25 MS. REGAN: I think that you're talking about Route

1 Variation 1.

2 MR. SIEGELE: Exactly.

3 MS. REGAN: It is a component of preferred routes A, B,  
4 and C. So it would not be a route all on its own. It would  
5 just be a variation in those routes.

6 MR. SIEGELE: Is -- is that preferred pipeline route A,  
7 B, and C, is that -- I guess is the alternative a -- an  
8 alternative route a part of that overall A, B, and C route?  
9 Is that what you're saying?

10 MS. REGAN: Yes, that's correct. It is part of the  
11 overall route. So it would take the place of that portion  
12 of the route that goes down the I-5 corridor for those  
13 routes. Route D does not traverse that area. So the  
14 variation wasn't apply to route D.

15 MR. SIEGELE: Got it.

16 And for A, B, and C, though, the alternative, it --  
17 just eyeballing it, it looks a little bit shorter; is  
18 that -- is that right?

19 MS. REGAN: They're both approximately 42 miles. I  
20 would need to double-check, but I want to say it's a  
21 difference of 41 to 43 miles. So give or take two miles.

22 MR. SIEGELE: Got it. Got it.

23 The other question I had about that is, when you  
24 are considering the variations, are you -- for instance,  
25 Norman mentioned that some -- some power plants are on the

1 preferred route and are not on the variation one. Can you  
2 talk a little bit about what you would do for those -- those  
3 other power plants. Would that then be connected through  
4 some -- some additional pipeline? Would it be connected  
5 with -- I assume distribution is not something that would  
6 work there. Can you talk a little bit about that?

7 MS. REGAN: Yeah. So if you want to go back one more --  
8 two more slides, maybe.

9 Yeah, so we -- we identified the location  
10 throughout Southern/Central California where there are  
11 currently natural gas-fired power plants that are greater  
12 than one megawatt. And those are the blue bubbles  
13 identified on the map. But working through exactly specific  
14 off-takers is something that we would pursue in subsequent  
15 stages. So that will play a big role in identifying exactly  
16 how that last final delivery occurs.

17 MR. SIEGELE: Got it.

18 One of the -- one of the things that's happening in  
19 the power sector right now, in terms of electricity  
20 generation, is a conversion to natural gas to renewable  
21 resources. There are a variety of studies that are, you  
22 know, coming out on a regular basis discussing which power  
23 plants could be shut down, what the cost of replacing those  
24 with renewable generation.

25 Are -- have you taken a look at the IRP proceeding

1 and which power plants you think are likely to -- to not be  
2 functioning, either when the Angeles Link comes online or,  
3 say, ten years after that Angeles Link comes online in order  
4 to -- to optimize routing such that you -- you actually hit  
5 the power plants that are going to continue to operate  
6 versus, you know, not needing to run to those other power  
7 plants that will be shut down?

8 MS. REGAN: Yeah. So in phase 2, I think that's when  
9 we'll really start doing more route alignment, as we've  
10 discussed, and that will be important to consider both those  
11 reports and also work directly with folks to identify those  
12 specific off-take sites and do further evaluation. So we'll  
13 be sure to make that information available in those  
14 subsequent phases.

15 MR. LOPEZ: Tyson, I don't know if we -- if -- Yuri had  
16 to leave, fortunately. So he's no longer here and he was  
17 the lead on that production study. I don't think that we  
18 looked at IRP. I don't know if it's within scope. But let  
19 me flag that for him and then we could follow up with you to  
20 confirm that.

21 MR. SIEGELE: Great. Thank you.

22 The -- the other thing I'm going to do -- I'll drop  
23 into the chat a link to a California Energy Commission study  
24 that specifically -- a portion of it addresses electricity  
25 generation in the LA Basin and natural gas fire power plants

1 within the LA Basin.

2 And what the study found is, with renewable  
3 generation sources and with batteries -- long-duration  
4 batteries, specifically multi-day duration batteries, that  
5 every power plant within disadvantaged communities within  
6 the LA Basin could be closed and save repairs money while  
7 doing that.

8 And so I -- it's -- it's a study I think it would  
9 be worthwhile to take a look at and include in the  
10 consideration for, you know, pipeline routing and how to  
11 make sure that disadvantaged communities are receiving the  
12 most clean air benefits that they can through, you know,  
13 the -- this possible Angeles Link project.

14 I think that -- that covers the -- the main pieces  
15 that I wanted to go over.

16 MR. LOPEZ: Tyson, just on that note --

17 MR. SIEGELE: Thank -- thanks for the answers.

18 MR. LOPEZ: Thanks for flagging that for us. I'm  
19 assuming you're going to submit comments on the production  
20 study. When you do, if you could just remind us and  
21 reference that -- that study when you submit your comments,  
22 please.

23 MR. SIEGELE: Absolutely.

24 MR. BRITT: All right. Thank you so much, Tyson.

25 All right. With that, we're going to now

1 transition to our last presentation, which -- oop. Sorry.  
2 Ernie raised her hand -- I mean, his hand. I didn't see  
3 that. Sorry. Go ahead, Ernie.

4 MR. SHAW: Thank you, Chester.

5 Ernie Shaw. President of four -- Local 43, Utility  
6 Workers Transmission Storage.

7 So just for the record, I just want to clarify  
8 something so I'm understanding this right. I forget which  
9 slide it's on, but I think it's on the A, B, and C slide.  
10 If you can go back to that.

11 There you go. The routing. Thank you, Robin.

12 There it is.

13 So, yeah, for the phase 1 preferred routes. So if  
14 I'm understanding this correctly. Route B completely leaves  
15 out a section of the 5 Freeway, like our right-of-ways and  
16 stuff like. You know, Burbank and Glendale and all that. I  
17 mean, my only issue with that is, there -- there's  
18 significant end users in that area. The Burbank steam  
19 plant, Glendale steam plant.

20 So I mean, if we cut them out of the equation, man,  
21 you know, they're a vital, you know, artery that's, you  
22 know, going to serve everything else in terms of, like,  
23 power and all -- 'cause, you know, that sorts of things. So  
24 is that kind of what I'm understanding with route D?

25 MS. REGAN: Thanks for your comment, Ernie.



1           Route D does take a different approach to accessing  
2 the LA Basin. Because there are limitations on the pathways  
3 into LA, we wanted to be sure to consider various areas.  
4 And this does traverse a different corridor. So there's  
5 potential that different sources of production and off-take  
6 would be available along that route as opposed to A, B, and  
7 C.

8           MR. SHAW: I see. I see. Man, it's a shame 'cause  
9 it's -- he's not here. The guy from Burbank that's always  
10 here, but I'm sure he would disagree with --

11           UNIDENTIFIED: He's online.

12           MR. SHAW: -- route D.

13                           (Indiscernible talking)

14           MR. LOPEZ: And, actually, you know, that's why we're  
15 here.

16           MR. SHAW: Yeah.

17           MR. LOPEZ: Right? To have this discussion.

18           MR. SHAW: Yeah.

19           MR. LOPEZ: And, again, we're looking at options and  
20 looking at various options gives us that balance of analysis  
21 to understand what the trade-offs are.

22           MR. SHAW: Yeah. I -- I definitely think, then, you  
23 know, route A, B, and C would be optimal. Or the route one  
24 variation. But I think I'm reading that right so.

25           MR. LOPEZ: Yep.

1 MS. REGAN: Any -- any comments you have, too, about how  
2 that selection occurs? You know, in your feedback, that's  
3 also appreciated as we go through that process.

4 MR. LOPEZ: Yeah.

5 MR. BRITT: Ernie, I think you created another question  
6 online. So Aaron raised his hand.

7 Aaron, go ahead.

8 MR. GUTHREY: Good afternoon. Aaron Guthrey with the  
9 City of Pasadena Water and Power.

10 One of the questions that we've been looking at as  
11 we have power plants in Pasadena as well, and we're looking  
12 to convert those to hydrogen is whether we would  
13 (indiscernible) within the city. (Indiscernible) once it's  
14 actually built. So that route B or (indiscernible) on the  
15 other side (indiscernible) --

16 MR. BRITT: Aaron -- Aaron, can I interrupt you for a  
17 second? We're having trouble hearing you. So I don't know  
18 if you're further away from your mic or something, but if  
19 you could try to readjust that, that would help us.

20 MR. GUTHREY: Is this better?

21 MR. BRITT: It is better. Thank you.

22 MR. GUTHREY: Okay. I'll just talk louder.

23 MR. BRITT: Whatever works.

24 MR. GUTHREY: So in Pasadena we also have -- we have  
25 five different power plants that are gas-powered units that,

1 as we move forward, IRP -- our IRP looks at the fact that we  
2 want to keep those plants because the way they were islanded  
3 with the ISO. So we have to have them for local  
4 reliability.

5 It would be ideal if the Angeles Link was at least  
6 within striking distance for us to try to incorporate  
7 hydrogen flowing across that pipeline as opposed to us  
8 trying to create hydrogen within Pasadena.

9 MR. LOPEZ: Yep. Totally understood.

10 MS. REGAN: Thank you so much, Aaron.

11 And I -- I do want to just remind everyone, these  
12 are preliminary routes. So I think as we learn and  
13 understand more around those specific potential off-takers,  
14 the routes may change and, you know, as we explore that  
15 alignment further in phase 2, they'll be even more  
16 developed. So these are by no means the final and there are  
17 definitely still opportunities to adjust and change them.

18 MR. LOPEZ: And I would just --

19 MR. GUTHREY: I think one of the things that --

20 MR. LOPEZ: Oh, go ahead.

21 MR. GUTHREY: Like Norm -- one of the things that Norm  
22 was speaking earlier, he was saying that there are other  
23 off-takers who definitely have additional generation. And  
24 you'd be reticent not to recognize the fact that a lot of  
25 the cities used to be their own balance authority areas and

1 are now still generators within the (indiscernible).

2 And the plants that are there, as we move forward,  
3 we are looking at retrofitting those plants so that they  
4 could then use hydrogen. So that's -- that's just little  
5 something to throw out there.

6 MR. BRITT: Yep. And I would just echo what Frank said  
7 earlier, which is that although we're documenting or  
8 recording everything we're hearing today, we would encourage  
9 you very much to make sure you look at those draft studies  
10 in terms of routing and production and the other ones we've  
11 been covering and provide as much detailed information as  
12 you can as part of this process because that really does  
13 help. And that's why we're doing what we're doing is to  
14 make sure we get your comments.

15 So okay. We're now going to transition to our last  
16 presentation. Let me just fast forward.

17 Having clicker challenges today, but we're making  
18 it through here.

19 Okay. I want to introduce Edith Moreno. She is  
20 the public affairs strategy and policy manager with  
21 SoCalGas. And she's going to be making a presentation on  
22 the environmental social justice community engagement plan.

23 MS. MORENO: Thank you, Chester.

24 I know I lost half of the people in the room, but I  
25 hope folks are online are still with us. Actually, can you

1 click for me? I just -- thank you, Brian. 'Cause it's been  
2 a little glitchy.

3 Actually, can you just go back to the introduction?

4 So again, thank you for the opportunity to be here  
5 with you all today and reconnect with some of you.

6 Good to see you again, Ernie.

7 Nice to final meet you in person, Ray.

8 But excited to dive into a topic that is pretty  
9 close to my heart as you know I am from one of these areas  
10 that we've been talking about; right? The disadvantaged  
11 communities. And that's the seven -- 710 corridor, which is  
12 right down the street from where we are today.

13 So as a reminder, Norm, just to clarify, you should  
14 have received both of the two works here that I'm going to  
15 be talking to you about today. So there is an environmental  
16 social justice screen, which I will talk about first. And  
17 then we have an environmental social justice community  
18 engagement plan, which I will also discuss with you all  
19 today in a little further detail.

20 But first I'm going to start with our environmental  
21 social justice screening. This workscreen was originally  
22 part of the environmental analysis that Jessica Fowely  
23 (phonetic), I know she just stepped out in the room, is  
24 leading. But we make a decision to separate it largely  
25 because, you know, it is really such a critical and

1 important topic.

2 I'm going to pause 'cause there's some noise in the  
3 hallway. Can you guys close that door?

4 Thank you, Shirley.

5 Okay. I do want to note that, you know, the Public  
6 Utilities Commission did specifically require us to address  
7 some of the impacts to disadvantaged communities and other  
8 environmental justice concerns. But during this  
9 presentation, I want to note that I will be using the term  
10 ESJ or environmental justice throughout my remarks this  
11 afternoon.

12 So our initial approach in this process was we did  
13 a desktop screening using some tools that some of you might  
14 be familiar with. That these were developed by federal and  
15 state agencies. The first is CalEnviroScreen, which is very  
16 well known here in the state, which is a requirement that  
17 stems from Senate bill 535. So it's a mapping tool that was  
18 developed by the Office of Health Hazard Assessment, or  
19 OHHA, that helps identify those communities that are most  
20 impacted by sources of pollution in our state.

21 The second is a newer tool that has been developed  
22 by the Biden administration's council on environmental  
23 quality. And so that tool is called the California [sic]  
24 Economic Justice Screening Tool, or CEJST for short. And  
25 it's essentially another mapping tool that identifies some

1 of the communities throughout the country, not just  
2 California, that are experiencing certain categorical  
3 burdens, such as energy pollution or -- or even energy  
4 burden.

5 I do want to emphasize that these are just  
6 screening tools -- right? -- that we are leveraging to  
7 better understand where environmental justice communities  
8 are located. But I also really want to, you know, make the  
9 point and acknowledge that this screening information in no  
10 way represents the full spectrum of where environmental  
11 justice communities are located; right?

12 These -- the information that is displayed on the  
13 maps is -- in both of these tools, is developed by census  
14 tract. It doesn't really give you that granular information  
15 to really understand the burdens that various of these --  
16 that various low income community and communities of color  
17 are facing.

18 But if there are any suggestions from our Planning  
19 Advisory Group to include any additional screening  
20 mechanisms that they want us to incorporate in this  
21 screening report, please share that with us either today  
22 verbally or provide that to us via written comments. We  
23 really want to learn from our stakeholders and foster a  
24 collaborative, transparent approach.

25 I will note that, you know, we did present this

1 information to our community-based organization stakeholder  
2 group, and I did have a couple of folks that came up to me  
3 after and offered to provide some additional information.  
4 And we'll be looking into incorporating some of that  
5 feedback. But, again, if the Planning Advisory Group  
6 members have anything to add, we would love to have it come  
7 our way.

8 Next slide, please.

9 Okay. So I'm going to break down the screen in a  
10 little more detail. And so what we did is we took all of --  
11 you know, kind of the first pass of the conceptual routes  
12 that were identified by, you know, Katrina and the team in  
13 the routing study that she talked about earlier. And so we  
14 broke down those 1300 miles of the conceptual routes into  
15 kind of 13 tranches, or 13 study areas. We then polled the  
16 CalEnviroScreen and CEJST data for each of these areas and  
17 we also pulled additional demographic information like, you  
18 know, population density, income levels, et cetera,  
19 et cetera.

20 And so if folks have had the opportunity to look at  
21 the screening report or if you haven't done so, what you  
22 will see is you will see a lot of tables with a lot of  
23 information that was pulled for each study area. Again,  
24 it's just kind of summarizing a lot of this demographic data  
25 and some of data that you see from CalEnviroScreen and



1 CEJST.

2 I want to highlight that we didn't pull the same  
3 tabular kind of information for the route variation that  
4 Katrina talked about. But we are planning to do a little  
5 bit more of the detailed screening assessment in the second  
6 phase of the project, once we get authorization to do so.

7 But we did include maps in the screening report.  
8 So there are 13 maps that do include the variation that was  
9 discussed. And so you'll be able to see just kind of how  
10 that overlay -- overlays with some of the -- the mapping  
11 tools that identify disadvantaged communities kind of  
12 throughout the conceptual routes that were identified.

13 And then the only other additional point I kind of  
14 want to make here -- or the last couple of points here is,  
15 you know, the information in the screening report --  
16 right? -- like I said, it was based on just kind of the  
17 preliminary routes. And so we're planning to update it so  
18 it reflects the final routes that were analyzed in -- in the  
19 routing study.

20 And I can't -- I really can't emphasize enough this  
21 kind of final point here, but this screening information is  
22 just one tool that we're going to be using to guide our  
23 stakeholder identification process. It's going to allow us  
24 to refine our approach on how we engage with stakeholders in  
25 the second phase. And it in no way will replace or

1 supercede any of the input that we receive from CBOs kind  
2 of, you know, tribal entities and any other local community  
3 leaders; right? 'Cause we really want this to be a  
4 community-driven stakeholder process.

5 And then I know we were talking a little bit about  
6 the community benefits plans as well. The information from  
7 this screening is going to give us a little bit more  
8 baseline information on which areas -- right? -- are the  
9 folks that need, you know, kind of most of the benefits  
10 of -- of the project.

11 Next slide.

12 I know you might have seen this in the past, but  
13 this is just kind of one big overview map of all of the  
14 conceptual routes in the ESJ screening. I will break down  
15 the colors 'cause it's a little difficult to differentiate  
16 here on the screen.

17 So essentially, I think it's the -- the lighter --  
18 the lighter mauve or the pinky is the CalEnviroScreen. The  
19 blue is that federal tool, the mapping tool, CEJST. And  
20 then the darker purple is where they both overlap. And I  
21 want -- kind of want to make a comment that I know far east  
22 it looks like the entire, you know, Coachella Valley or --  
23 or even the desert area is all -- all covered as -- as a  
24 DAC. But it's because a lot of this information is  
25 categorized by -- by census tract. So it then just makes

1 that entire cell that color.

2 This map specifically is not within that screening  
3 report. We did provide the 13 maps. So you'll be able to  
4 break down these different areas and drill down into the  
5 information that's displayed. Just for the sake of making  
6 this presentation a little more streamline, I didn't want to  
7 flash, you know, 13 different maps. But this map, if folks  
8 do want to have a copy of this, it was included as an  
9 attachment to the NOx study. And that is also on the living  
10 library as well.

11 Next slide, Chester.

12 Thank you.

13 So this is the new kind of part of -- of our work  
14 stream here. And this is the environment social justice  
15 community engagement plan. So this plan was developed in  
16 response to some feedback we received, actually, a year ago,  
17 when we hosted a workshop. Essentially, the workshop was  
18 aimed at getting input on the scope of our environmental  
19 justice assessment.

20 And so, you know, we received feedback specifically  
21 from some of our community-based organization stakeholder  
22 group members that, you know, they wanted us to do a little  
23 bit more meaningful engagement. So we went back to the  
24 drawing board and put together a very preliminary outline of  
25 an engagement plan -- right? -- so that we can meaningfully

1 engage with several of our environmental justice communities  
2 and other stakeholders -- right? -- that have been  
3 historically overlooked or excluded for project development  
4 processes.

5           And so what you see here, the little kind of  
6 stickies in the blue and yellow, are some, you know -- we  
7 had a breakout session with our CBOs in particular. I know  
8 we didn't have that specifically with the Planning Advisory  
9 Group, but we had a little bit more of a break -- working  
10 group session with our CBOs.

11           And so we were able to gather input on just kind of  
12 the preliminary framework of the plan. And we talked about  
13 what they wanted to see in the plan, what engagement  
14 strategies they thought would work best for them. And so we  
15 had all of that information incorporated. And it's all  
16 mostly reflected in the draft community engagement plan.

17           And then one point that I did emphasize with our  
18 CBO members yesterday -- right? -- because I know they  
19 wanted us to do more -- more outreach in our communities is,  
20 you know, the Commission did limit our engagement with  
21 stakeholders in phase 1 largely to the Planning Advisory  
22 Group and the community-based organization stakeholder  
23 group.

24           And so many of the activities or strategies that  
25 are outlined in the plan are not something that we're

1 planning to do in phase 1. This is something that we're  
2 planning to do in the second phase of the project, once we  
3 receive authorization from the Commission to do so.

4 Next slide.

5 So this is just an overview of the contents of the  
6 plan. I wouldn't go through line by line. But I know folks  
7 will be receiving a copy of the DAG. And you should also  
8 have a copy of the environmental social justice community  
9 engagement plan. But if there are any missing components,  
10 please provide us kind of that feedback via written comments  
11 or offer any suggestions.

12 But we did have, again, present this to our CBOs  
13 yesterday and they were, overall, relatively pleased to see  
14 the various components of the plan. And we had some  
15 additional discussion with them to kind of drill a little  
16 bit more into -- into some of the engagement strategies and  
17 some of the goals of the plan, which is a good segue into  
18 the next slide, please, Chester.

19 So here are the goals of the plan. And you'll see  
20 here from the bolded headers that we really do want to  
21 actively involve environmental social justice communities,  
22 you know, collaborate with them, gather input, provide ESJ  
23 communities with information they need to empower them to be  
24 active contributors to the project. And if there are any  
25 goals that the Planning Advisory Group thinks we need to

1 remove and refine, et cetera, et cetera -- again, we want  
2 to -- we did want to get that feedback from you all in  
3 written comments or verbally today.

4 Next slide.

5 These are some of the proposed engagement  
6 strategies we want to implement, again, in phase 2 of the  
7 project. You know, some of these engagement activities  
8 mirror -- or -- and I'll just kind of highlight a couple of  
9 'em. But one of them includes, you know, mirroring or  
10 leveraging the Promotoras health model. And if folks are  
11 not familiar what that is, it's essentially a model where we  
12 would educate trusted members of the community. And then  
13 these are kind of trusted leaders, community leaders that  
14 are a trusted partner that could be a resource for the  
15 community at large.

16 We also are thinking about doing, you know, more  
17 robust, direct community engagement, or more  
18 boots-on-the-ground touch points as well as partner with  
19 local governments, which includes, you know, increased  
20 engagement with tribes, to educate these communities and  
21 various members as large.

22 And then I know, Ernie, you did mention this  
23 earlier, that, you know, we already do a lot of engagement  
24 at SoCalGas. But some of these strategies that we are  
25 proposing, you know, are a little bit new. It's a new

1 frontier for SoCalGas and we're looking forward to being  
2 more of an active community partner and engage with our  
3 environmental social justice communities; right?

4 We really, again -- I can't emphasize this  
5 enough -- but we really do want this to be an inclusive  
6 process. And like I highlighted kind of throughout my  
7 remarks -- right? -- we did -- we did work through some of  
8 these engagement strategies, the goals, during our breakout  
9 sessions with the community-based organizations stakeholder  
10 group yesterday. And, again, it was a fairly positive  
11 feedback and it was really well received.

12 Next slide.

13 Okay. So, next, I wanted to highlight or just kind  
14 of talk a little bit about the Equity Principles for  
15 Hydrogen. And this was a document that was developed by  
16 several prominent environmental justice organizations in  
17 California. And I wanted to give it a little bit of air  
18 time today.

19 We did develop a response to this principles  
20 document, and we did include it as an attachment in our last  
21 quarterly report. But, unfortunately, it was a little  
22 buried in, you know, the various attachments. So we wanted  
23 to, you know, again, bring that forward to you all today to  
24 just bring some awareness that this document exists. And  
25 it's really good for our various stakeholders just to be

1 aware of the contents and the environmental social justice  
2 position on hydrogen.

3 And so SoCalGas did review the plan. And, you  
4 know, for the most part, we do see a lot of alignment with  
5 the equity principles as to how we build out Angeles Link.  
6 And, again, the equity principles and the response were in  
7 the quarterly report. But we are also including them in our  
8 ESJ engagement plan.

9 Next slide.

10 Okay. So I'm going to pivot a little bit from the  
11 ESJ plan and just kind of get you all up to speed with some  
12 of the expanded engagement that we have conducted in the  
13 past couple of months.

14 We did receive feedback specifically from CBE, or  
15 Communities for Better Environment, to expand in our  
16 engagement in areas like the San Joaquin Valley, which are  
17 areas that we have identified, you know, possible corridors  
18 in our routing study. And, you know, most of our engagement  
19 to date was largely limited within the Los Angeles Basin  
20 because we didn't really know right where Angeles Link could  
21 possibly go.

22 And so, again, you know, kind of hit the road here  
23 and we had many meetings with additional CBOs and tribes  
24 that you have listed here. And as a result of this  
25 engagement, which is actually why we have Ray Solis here;



1 right? He really wanted to get in on -- in this space, and  
2 I really do want to thank you for -- for make -- taking the  
3 time to be with us -- to be here with us today.

4 And so if there are any organizations that you  
5 think that we are missing, please let us know. And if you  
6 can facilitate an introduction as well, I think that would  
7 also be very welcome.

8 And then I do want to clarify with this group that  
9 this additional engagement was not reported to the  
10 Angeles Link memorandum account, since the stakeholder  
11 activities that were approved in phase 1 by the Commission  
12 were limited to this PAG and our meetings with the CBOSG.

13 Next slide.

14 And I think this is my final slide. I'll just kind  
15 of wrap up and summarize some of the valuable feedback that  
16 we've received on just kind of the ESJ topic in general.  
17 And so what we've done in response is -- right? -- we've  
18 conducted additional engagement; right? Folks wanted us to  
19 go outside of the LA Basin and meet with various  
20 organizations. They wanted us to give more detailed maps.

21 And as part of the screening, there is an  
22 opportunity to kind of dig into more of the -- the data of  
23 where ESJ communities are located and where the -- the  
24 conceptual corridors are located.

25 And then we also received, you know, some comments

1 around, you know, limiting our use of promotional or  
2 marketing language. And so, you know, we've -- we've taken  
3 that seriously and are trying to produce materials that are  
4 a little bit more actual in nature.

5 And I think that concludes my presentation. And,  
6 Chester, I will pass it back to you.

7 MR. BRITT: All right. Thank you so much for that great  
8 presentation.

9 I want to now turn it over to the members. If  
10 there is anyone that has anything they want to share or ask  
11 a question about, now's the time to -- to raise your hand or  
12 turn your placard up.

13 We have Tyson online.

14 Tyson, go ahead.

15 MR. SIEGELE: Hi. Tyson Siegele, Utility Consumers'  
16 Action Network.

17 First, thank you for the presentation. The -- the  
18 clarification in regards to what is being tracked and what  
19 is not being tracked in the memorandum account is very  
20 helpful. It -- it demonstrates an understanding of the --  
21 the final decision and -- and I really appreciate the -- the  
22 description of what's being tracked.

23 The -- the next piece that I wanted to -- to talk a  
24 little bit about was the equity principles. One of the  
25 pieces that SoCalGas has been very clear in -- in numerous

1 meetings now, regarding the hydrogen that will be allowed on  
2 to the Angeles Link pipeline is that the SoCalGas will not  
3 advocate for and will not limit the hydrogen that is  
4 transported along the pipeline to exclusively hydrogen  
5 produced in a clean way using the three pillars of clean  
6 hydrogen. And that's a real concern.

7           The -- when I went through and I read the equity  
8 principles for hydrogen, and I -- I dropped the link into  
9 the chat here. So anybody who hasn't seen those principles  
10 can take a look at those at their leisure. When I was  
11 reading those principles, what I saw as a core piece is --  
12 is the three pillars of clean hydrogen.

13           And when SoCalGas has said on numerous occasions  
14 that it will not limit or even advocate for the three  
15 pillars of clean hydrogen, which through extensive modeling  
16 has been demonstrated to show that that is the best way to  
17 reduce emissions, to keep emissions low for hydrogen that is  
18 produced, whether -- when SoCalGas is not limiting two,  
19 three pillars produced hydrogen, I don't understand how  
20 SoCalGas can make the claim that it is in alignment with  
21 the -- the hydrogen equity principles.

22           Can you talk a little bit more about the -- the  
23 three pillars of clean hydrogen and what SoCalGas sees as  
24 the -- the conflict there. I mean, it's -- it's a pretty  
25 straight forward and well-accepted modeling that shows that

1 is the way you keep emissions low for hydrogen that is  
2 produced.

3 MS. MORENO: Thank you, Tyson. I'm going to tag-team  
4 this question with Frank. But I'll -- I'll start.

5 You know, a lot of what we're doing in Angeles Link  
6 is very much aligned with the Commission's, you know, final  
7 decision. Right? There was the clean, renewable  
8 hydrogen -- right? -- definition that we're required to  
9 study. You know, the hydrogen that will also be transported  
10 in Angeles Link is supposed to be non-fossil. So although  
11 we -- you know, we can't commit to the type of hydrogen  
12 specifically and what beet stock that is going to be  
13 transported via, you know, Angeles Link, we are still very  
14 much supportive of the various pillars that the  
15 environmental justice, you know, organizations have -- have  
16 brought forth in the equity principles.

17 Yes, there are some nuances; right? But I think,  
18 overall -- right? -- we -- we understand their concerns.  
19 And, you know, again, SoCalGas is not producing hydrogen.  
20 So, you know, we -- we can't really dictate what our -- what  
21 our third-party producers do. We just know that we have to  
22 be aligned with the directive of -- of the Commission which,  
23 today, you know, kind of is a little bit more of a broader  
24 definition of clean, renewable hydrogen. But -- right? --  
25 we're -- it's still non -- non-fossil, which I think is --

1 is -- is a right step in the right direction.

2 I don't know, Frank, if you want to add anything.

3 MR. LOPEZ: Yeah, no, I think you covered most of the  
4 stuff. And, Tyson, we've discussed this multiple times in  
5 previous meetings, but I'll just reiterate, the type of  
6 hydrogen that we're able to deliver through Angeles Link is  
7 going to be subject to CPC -- CPUC direction in a future  
8 proceeding.

9 And there will stakeholder input on what type of  
10 hydrogen we can deliver. We intend to comply with whatever  
11 decisions the CPUC makes around that. But we are going to  
12 continue advancing this project as an open access clean,  
13 renewable hydrogen system.

14 MR. SIEGELE: I see. The -- what I would request is  
15 that SoCalGas consider advocating for and requesting the --  
16 the Commission adopt a policy for the use exclusively of  
17 three pillars hydrogen for any hydrogen that's transported.  
18 Because I completely agree, while SoCalGas does not -- does  
19 not have the ability to restrict what kind of hydrogen, the  
20 production of hydrogen, and, you know, that is transported  
21 through the Angeles Link, the Commission does. And it would  
22 be a big step in the right direction to -- to advocate for  
23 the cleanest hydrogen.

24 And, again, that is -- has been shown through  
25 numerous modeling exercises from numerous sources that that

1 three pillars hydrogen is the cleanest hydrogen. And, you  
2 know, SoCalGas takes -- takes policy positions every day  
3 with -- with numerous government entities, including the  
4 Commission. And this is something that, you know --  
5 speaking of community benefits, this is something that would  
6 benefit the community if SoCalGas were to advocate for three  
7 pillars hydrogen. So I would request that SoCalGas consider  
8 that.

9 In -- in addition to that issue about community  
10 benefits, one of the other community benefits issues that --  
11 that I haven't seen discussed is the cost of hydrogen and  
12 the cost of hydrogen to Californians.

13 One of the concerns for Utility Consumers' Action  
14 Network is that the energy consumers in California are  
15 paying very high prices for energy. And when we take a look  
16 at the cost of energy that is provided through  
17 investor-owned utilities versus energy that is provided  
18 through public utilities like LADWP and -- and others, it  
19 is -- it is always the case that -- for instance, SoCalGas's  
20 sister organization, SDGNE, charges more for residential  
21 electricity than every single publicly owned utility in the  
22 State of California.

23 That's over 40 publicly owned utilities that charge  
24 less for electricity than -- than investor-owned utilities,  
25 than -- than SDGNE. And so when -- again, when the Utility

1 Consumers' Action Network is taking a look at that, what we  
2 see is the -- the billions of dollars that the  
3 investor-owned utilities extract from the communities. And  
4 billions of dollars annually.

5 I'll go ahead and drop a set of comments into the  
6 chat that -- that you can put together for the  
7 disconnections -- I believe it was the disconnections  
8 proceeding at the Public Utilities Commission. And in that  
9 set of comments, what we took a look at was the cost of  
10 electricity from investor-owned utilities versus the cost of  
11 electricity for publicly-owned utilities. We -- we include  
12 LADWP in that. And it is a -- it's a stark difference.

13 For instance, when you take a look at LADWP versus  
14 the other utilities -- PGNE, SDGNE, SCE -- there is up to  
15 double the cost, approximately, for the cost of electricity  
16 that PGNE provides versus the cost of electricity that  
17 LADWP.

18 In addition to that, figure two in this set of  
19 comments, those that the IOU profits in 2023 were  
20 \$6.4 billion. That's just one year of profits.  
21 \$6.4 billion. And when -- when I'm taking a look at this  
22 and -- and saying, okay. What is the community benefit?  
23 Number one, communities want to see cleaner energy. So  
24 we -- we want to see three pillars energy. And then in  
25 addition to that, we want it to be as inexpensive as

1 possible.

2           And so, you know, the question, really, that should  
3 be asked is, does it make sense for SoCalGas to be providing  
4 a hydrogen pipeline or if a hydrogen pipeline is necessary,  
5 if it's needed, then should that be provided through a  
6 public utility or through a state-funded utility that is --  
7 that is putting in a new network that is going to cost  
8 consumers a lot less money, that's going to cost a lot less  
9 money for truckers who decide to use hydrogen, that's going  
10 to cost less money for power plants that decide to use  
11 hydrogen, or -- or other end uses.

12           And I think that's something that we shouldn't  
13 gloss over. And if SoCalGas feels like it can provide a  
14 cost effective solution, then that really needs to be front  
15 and center for the communities, for -- and -- and  
16 demonstrate why SoCalGas believes it can do hydrogen at a  
17 lower cost than public utilities across the state.

18           So those are the -- the general comments.

19           Thank you for the presentation.

20           MR. BRITT: Thank you, Tyson.

21           We're going to switch now to in comment --  
22 in-person comments.

23           Norm, go ahead.

24           MR. PEDERSEN: Yes. Thank you, Chester. Norman  
25 Pedersen for SCGC.



1           The three pillars that Tyson is talking about are  
2 standards for whether or not a kilogram of hydrogen would be  
3 eligible for the Inflation Reduction Act protection tax  
4 credit.

5           The IRS and treasury are still looking at the three  
6 pillars. Those are incrementality, temporal matching, and  
7 geographic proximity. And there are problems with the three  
8 pillars that have been raised in numerous, underscore that,  
9 comments with treasury. To me, something more important is  
10 what level of credit that hydrogen, transported through  
11 Angeles Link, would receive.

12           Under the proposed regulations from IRS and  
13 treasury, as I mentioned this morning, a kilogram of  
14 hydrogen to get a credit of four kilograms -- even if four  
15 kilograms of CO2 are released, life cycle, per kilogram of  
16 hydrogen produced. That would be the \$0.60 credit.

17           This morning, Yuri was indicating that, well, what  
18 SoCalGas is intended to transport through Angeles Link is  
19 hydrogen produced through electrolysis with the electricity  
20 to perform the electrolysis coming from solar resources.  
21 That was the one that Yuri identified. In that case, less  
22 than 0.45 kilograms life cycle of CO2e would be produced per  
23 kilogram. It would be eligible for the \$3 credit.

24           And so it seems to me that what SoCalGas is aiming  
25 towards is what we, as consumers of hydrogen, would want to

1 see. And that is a transportation of hydrogen that is  
2 eligible for the \$3 per -- per kilogram of hydrogen, not the  
3 \$0.60 per kilogram of hydrogen.

4 And so perhaps we could just table this discussion  
5 about the three pillars because I don't think that the three  
6 pillars are really that relevant to the discussion. The  
7 most relevant factor is how many kilograms of CO2 would be  
8 produced, life cycle, in comparison to a kilogram of  
9 hydrogen. And certainly, .45 kilograms or less is what we  
10 would be hoping to see in order to get the \$3 credit. And  
11 we could just let the three pillars debate that is going on  
12 in the federal government, that treasury and the IRS  
13 continue its -- its merry way.

14 Now, I think down the road, as we get further  
15 towards a resolution, most likely by the BUC -- we haven't  
16 seen a decision on jurisdiction yet, of course, so we don't  
17 know it will be the CPUC. But we can have this discussion  
18 about what standards SoCalGas would apply. But right now,  
19 given the uncertainty about the three pillars, given the  
20 issues about the three pillars, and given the fact that  
21 there is, in our judgment, a better standard for determining  
22 what type of hydrogen would be transported through the  
23 pipeline, we could just bracket this discussion and leave it  
24 for the inevitable later debate.

25 UNIDENTIFIED: I agree. Thank you, Norm.

1 MR. BRITT: Thank you, Norm.

2 Ernie, you're next.

3 MR. SHAW: Thank you. Thank you.

4 MS. REGAN: Is it going to be an EJ question, Ernie?

5 MR. SHAW: More or less. More or less.

6 MS. REGAN: Trying to get us back on topic.

7 MR. SHAW: More or less. Perhaps.

8 MS. REGAN: A little bit of a production --

9 MR. SHAW: Yeah. Yeah. Perhaps. More or less.

10 Once again, Ernie Shaw, president of Utility  
11 Workers of America, Local 483, transmission and storage.

12 So it's mainly a -- I guess in response to what  
13 Tyson was saying up there. I always like hearing you speak,  
14 Tyson. You know, you're a smooth talker, man. I learn a  
15 lot from you. So...

16 And it actually may lead to a rhetorical question,  
17 maybe not so rhetorical.

18 So you've introduced the three pillars -- right? --  
19 which I'm still kind of learning and catching up on what  
20 that is. But from the sound of it, man, it's -- you know,  
21 you've almost posed, like, a "damned if you do damned if you  
22 don't" kind of situation, man.

23 Because it's almost like you're asking, can  
24 hydrogen be possible? And if it is, you know, SoCalGas, it  
25 has to be -- it has to be affordable. And if it's not

1 affordable then, you know, you can't build it. And if we  
2 can't build it, then give it to, you know, LADWP. And  
3 sorry, Ernie. You and your union members, you're all out of  
4 work, so go join the LADWP. What it kind of sounds like to  
5 me.

6           So I -- I mean, what I'm asking is, what would you  
7 propose SoCalGas do to kind of hit all the points,  
8 especially keep in mind union members at work. Let's just  
9 say if this thing goes down in flames, because it's -- you  
10 know, it doesn't hit every point that you -- you -- you  
11 requested. 'Cause, I mean, I'm going to call you up if this  
12 thing doesn't go through and I'm going to say, "Hey, man. I  
13 want you to come meet all the members you're putting out of  
14 work because you wanted to go to LADWP" or somewhere else  
15 that's more affordable or more environmentally friendly or  
16 whatever -- whatever else you want to think of.

17           So can you answer that?

18           MR. BRITT: So I want to go back to what Norm said.  
19 I -- I really don't think this should turn into a three  
20 pillars discussion. That's not the form for this  
21 discussion. We've heard, as Frank mentioned, from Tyson,  
22 many times about his interest in having SoCalGas support the  
23 three pillars. We've documented this. We've had full  
24 discussions about it. We talked about it today. There's  
25 differencing opinions on that. And as Norm so eloquently, I

1 think, alluded to, that is a discussion that is going on  
2 outside of these four walls and is going to continue to go  
3 on. And there's a place for that. And maybe even members  
4 of this discussion will be part of that discussion.

5 But for today's purposes, I would like to focus on  
6 Edith's presentation. We only have a few more minutes to  
7 close out this meeting and we have a couple more slides.

8 So I saw, Tyson, that you raised your hand again.  
9 I'm assuming that it's in response to what Norm and Ernie  
10 just said. So I don't want to get into the three pillars  
11 discussion. You can chat us, Tyson, if you have a separate  
12 question and we will certainly entertain that. But  
13 otherwise, I would like to just move on, if we could, to the  
14 next couple slides that we have and close out our meeting.  
15 Does that make sense?

16 All right. So I'm going to turn it over to Emily,  
17 I believe, who has a couple of things to say and then we'll  
18 close out our meeting.

19 MS. GRANT: Thank you, Chester.

20 So thanks again, everybody, for your time today.  
21 As usually, my same schpiel. Meeting materials will be  
22 available on the living library on the next week or so. We  
23 try to get that out to you as soon as possible.

24 Greg, since you're new, that includes the  
25 presentation, any supporting materials that you have,

1 that'll all be posted for you, as well as the court reporter  
2 transcript and the recording of the Zoom meeting. So if you  
3 want to come back and relive this all over again, you have  
4 the opportunity to do it.

5 And a reminder too, for that living library, if  
6 folks are still having difficulty accessing that, just give  
7 me a shout and I'll be happy to troubleshoot that with you.  
8 You right now, currently, have quite a few draft reports  
9 that are out for your feedback and review.

10 We're always willing to work with you if you want  
11 to dive a little bit deeper into any of those reports.  
12 Again, just contact me and we'll get you to the right  
13 resource. And usual, if you have any other questions,  
14 comments, or concerns, please let me know. We'll be happy  
15 to help you.

16 And lastly, when, as Frank said at the beginning of  
17 the meeting, when our next meeting date is available, we  
18 will share that with you as soon as possible.

19 Norm.

20 MR. PEDERSEN: Thanks, Emily. Two questions. How soon  
21 do you think you'll be able to post the slides, not the  
22 transcript from today, but just the slides that were used  
23 today?

24 MS. GRANT: I'm going to look at these guys back --  
25 Nancy, do you think we could get those up today?

1 MS. NANCY: Yeah. Today.

2 MR. PEDERSEN: Perfect. Thank you.

3 And the second question is, I understand from  
4 Katrina -- thank you very much Katrina -- that we have five  
5 reports -- or draft reports that we should be taking a look  
6 at for right now: Routing, sizing, ESJ, production, and  
7 permitting.

8 MS. GRANT: Yes, so you have a few more. So you can see  
9 up here.

10 MR. PEDERSEN: Okay.

11 MS. GRANT: It's more than five. You had --

12 MR. PEDERSEN: Well, I was -- I was talking about the  
13 ones posted Friday.

14 MS. GRANT: Friday was five, correct.

15 MR. PEDERSEN: Yes.

16 MS. GRANT: And those are due August 16th.

17 MR. PEDERSEN: August 16th.

18 MS. GRANT: Yes.

19 MR. PEDERSEN: Now, on the living library, can you  
20 somehow put those slides together, like, at the top, so we  
21 can just pull them off right away? The problem with living  
22 library is things sometimes can be scattered around and you  
23 have to hunt for them.

24 MS. GRANT: So you want them ordered chronologically  
25 versus alphabetically? Like, when they --

1 MR. PEDERSEN: Chronologically, would, for me, at least,  
2 be much better. Because I would know what's hottest off the  
3 press.

4 MS. GRANT: Okay. We can take a look at that and maybe  
5 we can even color code it in the batches so that the due  
6 dates have the same color folders. And we'll take a look at  
7 how we can organize that a little bit better.

8 MR. PEDERSEN: Excellent. Thanks.

9 MR. LOPEZ: We'll make it even easier for you. We'll  
10 just send you an individual e-mail with the link so it'll  
11 make it much easier for you to access it directly. And you  
12 don't have to look for it.

13 MR. PEDERSEN: Oh, thank you. I accept, Frank.

14 MR. LOPEZ: The least we can do. You stick around the  
15 whole day, so...

16 MS. GRANT: Perfect. If that's it, I'll give it back to  
17 Chester. Okay.

18 MR. BRITT: All right. It's been a very full day;  
19 right? We've had a good discussion. We've had a lot of  
20 members participating.

21 Just as a reminder, we did have our CBOSG meeting  
22 yesterday. It was very well attended as well. We had a  
23 full discussion yesterday on all the topics. So we're  
24 moving through these discussions. We've been together now  
25 for almost -- well, I don't know, is it 14, 15 months.



1 Whatever it's been. We're meeting almost every month. And  
2 we've had, you know, lots of conversations. There is a lot  
3 of information out now.

4 We would welcome you to, you know, please go  
5 through those, as many as you would feel, you know, make  
6 sense for you, and provide comments to us. That's why we're  
7 doing this.

8 So with that, as Frank, I think, mentioned earlier,  
9 we will be having another meeting. We're not sure exactly  
10 when, but we will notify you and that should be coming out  
11 fairly soon. And then we look forward to seeing you guys  
12 again. So drive safe on your way home. Take some extra  
13 food if you can. We have lots of food. And thank you,  
14 again, for coming in person.

15 (Meeting adjourned)

16  
17   
18 ALLISON SWANSON, CSR NO. 13377  
19 CERTIFIED SHORTHAND REPORTER  
20 FOR THE STATE OF CALIFORNIA  
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**Yusen** 103:16

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**Z**

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**zip** 107:1

**zone** 62:21 66:3,4,  
 7,10,14,17,20  
 68:4,6 89:21  
 94:21,22,23



## **Appendix 6 - CBOSG Workshop Meeting Materials**

July 23, 2024  
10:00 a.m. – 2:00 p.m.



## Community Based Organization Stakeholder Group (CBOSG) July Workshop

Warm welcome to our participants!  
We will be starting at 10:00 a.m.  
to make sure everyone is present.



# WELCOME FROM OUR FACILITATOR



**CHESTER BRITT**  
Executive Vice President  
Arellano Associates  
PAG Lead



**ALMA MARQUEZ**  
Vice President Gov.  
Relations  
Lee Andrews Group  
CBOSS Lead

# HOUSEKEEPING



This meeting will be recorded (video and audio), and a court reporter will be transcribing the meeting. Please announce yourself before you speak



Zoom microphones are muted by the host to eliminate background noise. You will need to unmute your microphone when called on to speak. *For both in-person and on-line participants please speak directly into the microphone to ensure everyone can hear*



We encourage you to turn on your cameras so we can better engage with you



Please feel free to use the Zoom chat to provide input and ask questions throughout the meeting



If you would like to speak, please use the "Raise Hand" button at the bottom of the Zoom screen

Wireless microphones will be passed to those speakers attending in person





# CBOSG AGENDA



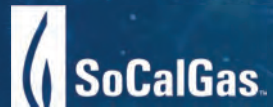
- » Arrival and Continental Breakfast
- » SoCalGas Safety Moment, Land Acknowledgement & Roll Call
- » SoCalGas Welcome
- » Draft Report: Production Planning & Assessment Study
  - Member Discussion
- » Draft Report: Preliminary Routing/ Configuration Analysis with Pipeline Sizing & Design
  - Member Discussion
- » Lunch
- » Environmental Social Justice Plan and Screening
  - Breakout Session
  - Member Discussion
- » Calendar/Next Steps
- » Adjourn



# SOCALGAS SAFETY MOMENT



**EMILY GRANT**  
Regional Public Affairs  
Manager  
SoCalGas





# LAND ACKNOWLEDGEMENT & ROLL CALL

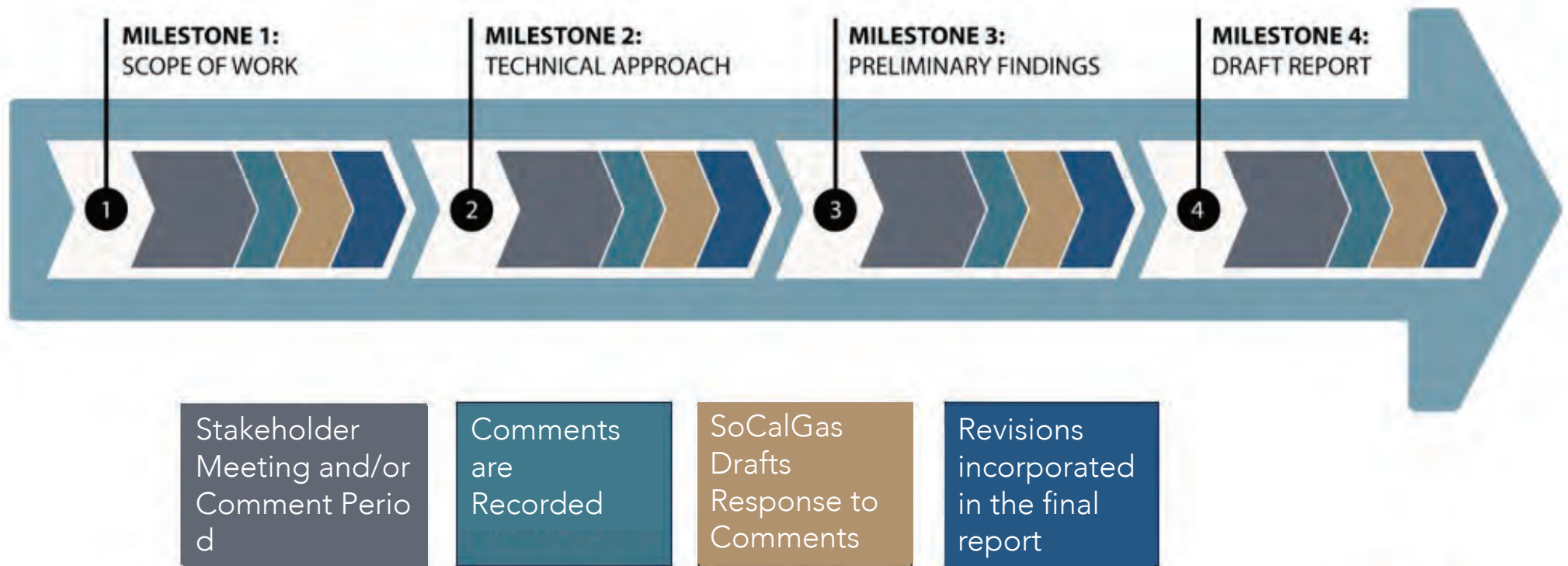


# SOCALGAS WELCOME



**FRANK LOPEZ**  
Regional Public Affairs  
Director  
SoCalGas

# STAKEHOLDER COMMENT UPDATE



# Status of Phase 1 Studies

1	Demand Study (2/23)
2	Hydrogen Leakage Assessment (6/26)
3	Plan for Applicable Safety Requirements (7/19)
4	Water Resources Evaluation (8/2)
5	Workforce Planning & Training Evaluation (8/2)
6	Greenhouse Gas (GHG) Evaluation (8/7)
7	Nitrous Oxide (NOx) and Other Air Emissions Assessment (8/14)
8	Production Planning & Assessment (8/16)
9	ESJ Community Engagement Plan and Screening (8/16)
10	High Level Feasibility Assessment & Permitting Analysis (8/16)
11	Preliminary Routing /Configuration Analysis (inc. ROW/Franchise) (8/16)
12	Pipeline Sizing & Design Criteria (8/16)
13	High-Level Economic Analysis and Cost Effectiveness
14	Project Options & Alternatives
15	Environmental Analysis

Draft Studies Issued and Comment Period Completed

Drafts Issued and Open For Comments

Pending Draft Issuance



*\*Given the relationship with the routing analysis, right-of-way and franchise information will be integrated within the Routing Study.*



# PRODUCTION PLANNING & ASSESSMENT STUDY

## DRAFT REPORT



**YURI FREEDMAN**  
Senior Director  
Business Development

# PRODUCTION PLANNING & ASSESSMENT STUDY

- » The Hydrogen Production Planning & Assessment (Production Study) Analyzes clean renewable hydrogen<sup>1</sup> production potential in SoCalGas's service territory through 2045
- » Evaluates potential sources, input requirements and estimated cost of production
- » SoCalGas will not be producing hydrogen but analyzed potential production options

<sup>1</sup>CPUC Decision (D).22-12-055, Ordering Paragraph 3(a) states, "Feasibility studies for the Angeles Link Project shall be restricted to the service of clean renewable hydrogen that is produced with a carbon intensity equal to or less than four kilograms of carbon dioxide-equivalent produced on a lifecycle basis per kilogram and does not use any fossil fuel in its production process."





# STUDY APPROACH / SCOPE



## H2 Production Technologies

Evaluate hydrogen production technologies that use renewable energy resources, such as solar and wind, and meet the clean renewable hydrogen standard as defined in D.22-12-055



## H2 Production Volumes

Assessment of potential clean renewable hydrogen production volumes estimated for Angeles Link throughput assumptions to meet demand



## H2 Production Land Assessment

Evaluation of available land for potential solar powered electrolytic production facilities



## H2 Production Costs

Assessment of capital and operating costs, focusing on solar powered electrolytic production facilities, to support High-Level Economics and Cost Effectiveness Study

# STUDY ASSUMPTIONS AND METHODOLOGY

Third-party production of clean renewable hydrogen, not produced by SoCalGas

Standalone behind-the-meter solar generation provides power to operate electrolyzer units

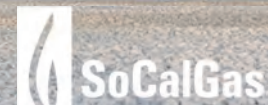
A preliminary desktop evaluation was conducted to identify suitable land for hydrogen production

Assumes solar power coupled with PEM electrolyzers to estimate land requirements

Acreage for solar/electrolytic hydrogen production estimated at approximately 6 acres per megawatt of solar capacity.

Excludes national and state parks, government refuges, preserves, and military ranges.

Also excludes topography greater than 15% slopes, structures/buildings, setback constraints from highways, bodies of water, and other culturally and environmentally sensitive areas.



# STUDY ASSUMPTIONS AND METHODOLOGY

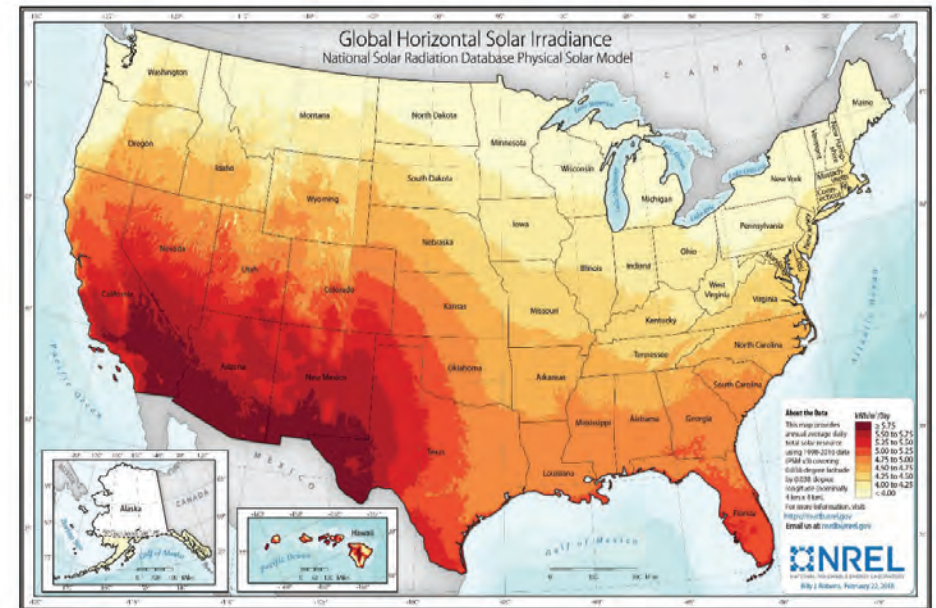
- » Angeles Link is envisioned to support throughput scenarios of 0.5, 1, and 1.5 million metric tonnes per year (MMTPY), a portion of the estimated hydrogen demand of 1.9 - 5.9 MMTPY in SoCalGas's service territory identified in the Draft Demand Report (January 2024)
- » The roles of, and options for, hydrogen storage were assessed, including consideration of:
  - Underground and aboveground hydrogen storage (including at production sites and end users)
  - Storage in the pipeline (e.g., line pack)
  - Balancing supply and demand
  - The illustrative examples show the potential role of long-term, large-scale storage, upon full buildout by 2045.



# DRAFT FINDINGS

## Renewable Power and Electrolyzers

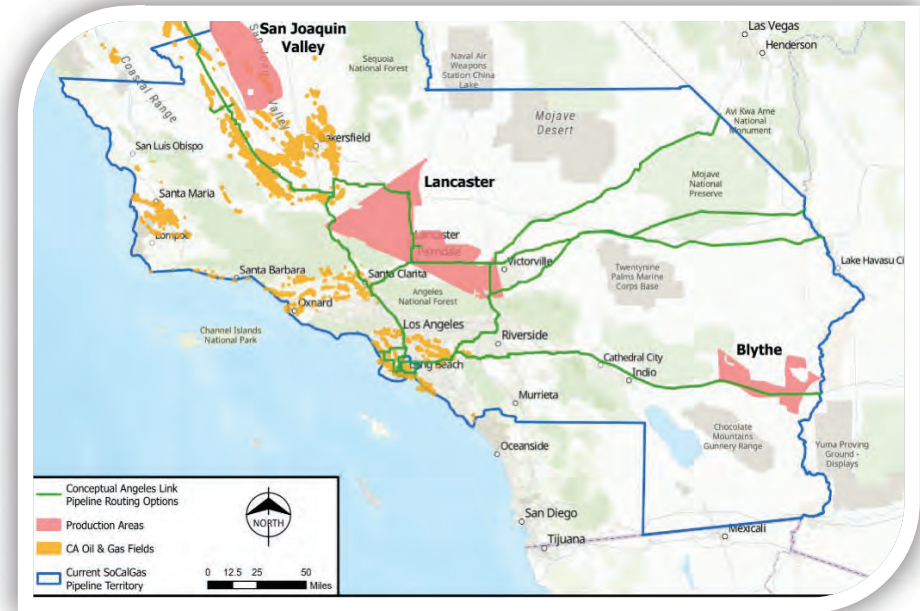
- » Solar irradiance in most of SoCalGas's territory is some of the most efficient in the country
- » Solar generation is a mature technology and among the lowest cost renewable energy source, and can be co-located near hydrogen production
- » Solar power paired with electrolyzers expected as the primary renewable energy source and technology used for clean renewable hydrogen production at scale
- » Other renewable sources may support hydrogen production but on a smaller scale due to resource limitations in Central and Southern California
- » Proton Exchange Membrane (PEM) electrolyzers have startup times and ramp rates as well as turndown capabilities that are suitable as a technology to pair with intermittent and variable power supplies such as solar



# DRAFT FINDINGS

## Land Assessment and Production Areas

- » Based on preliminary analysis, approximately 2 million acres of suitable land is identified in three primary production locations
  - San Joaquin Valley – 535,000 acres (836 square miles)
  - Lancaster – 1,124,000 acres (1,756 square miles)
  - Blythe – 273,000 acres (427 square miles)
- » Land required to support production of 1.5 MMTPY for Angeles Link throughput capacity to meet demand is estimated to be 240,000 acres, which represents approximately 12% of the land identified as potentially suitable for hydrogen production from all three production areas



## Third-Party Production Costs

- » The total capital and operational costs<sup>1</sup> to produce solar-powered electrolytic hydrogen is estimated at:
  - Solar Power: Approximately \$1,100/kW (capital) and \$20/kW (annual operational expense)
  - Electrolyzer: Approximately \$2,600/kW (capital) and \$18/kW (annual operational expense calculated as 0.7% of capital)

<sup>1</sup>Estimates do not include certain costs such as land costs, permitting costs, and hydrogen pipeline, storage and compression costs. Stack replacement costs are estimated at 19% of initial capital every nine years.

# FEEDBACK

Thematic Comments from PAG/CBOSG	Plan to Incorporate/Address
Concerned that energy supporting the electric grid not distinguished from energy used for hydrogen production.	This study assumes renewables for hydrogen production are behind-the-meter systems that could be independent from the electric grid. It is currently assumed when renewables (e.g., solar) are not available for hydrogen production, grid energy will not be utilized to supplement power for production.
Expressed goal to be realistic about the availability of other clean renewable hydrogen sources and focus on electrolytic hydrogen.	Focus of the study is on solar powered electrolytic production facilities. Other potential hydrogen pathways are evaluated, "...with a carbon intensity equal to or less than four kilograms of carbon dioxide-equivalent produced on a lifecycle basis per kilogram and does not use any fossil fuel in the production process" in accordance with D.22-12-055, OP 3(a).
Consider role of storage and curtailed renewable generation.	Explored role of third-party storage as part of a system that can help balance clean renewable hydrogen production and demand profiles. The study also explores how renewables on the CAISO grid that are curtailed may potentially be reused for hydrogen production
Costs to produce hydrogen should include renewable energy and electrolyzer facilities.	Capital and operating costs were estimated and will be included as part of the report.

1. All comments are available on the living library in the Comment Letters folder located on the Homepage.  
<https://arellanoassociates.sharepoint.com/sites/SCGAngelesLink>





## MEMBER DISCUSSION: **PRODUCTION PLANNING & ASSESSMENT STUDY**

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- Be concise and focus on discussion topics
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- We are accepting written input after this meeting if we run short on time, or you think of things later

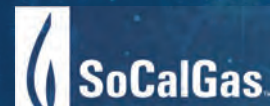
# PRELIMINARY PIPELINE ROUTING AND PIPELINE DESIGN DRAFT REPORTS DISCUSSION



**KATRINA REGAN**  
Engineering & Technology  
Development Manager  
SoCalGas



**ANNIE NG**  
Engineering Project Manager  
SoCalGas





# FEASIBILITY STUDIES & THE FUTURE

## Preliminary Routing/Configuration Analysis

- » Evaluates a variety of existing pipeline corridors to connect areas of potential demand and offtake
- » Incorporates data from other Phase 1 feasibility studies
- » Identifies and compares possible routes and configurations for the clean renewable hydrogen system
- » Identifies several preferred routes of highest potential for further analysis in subsequent phases

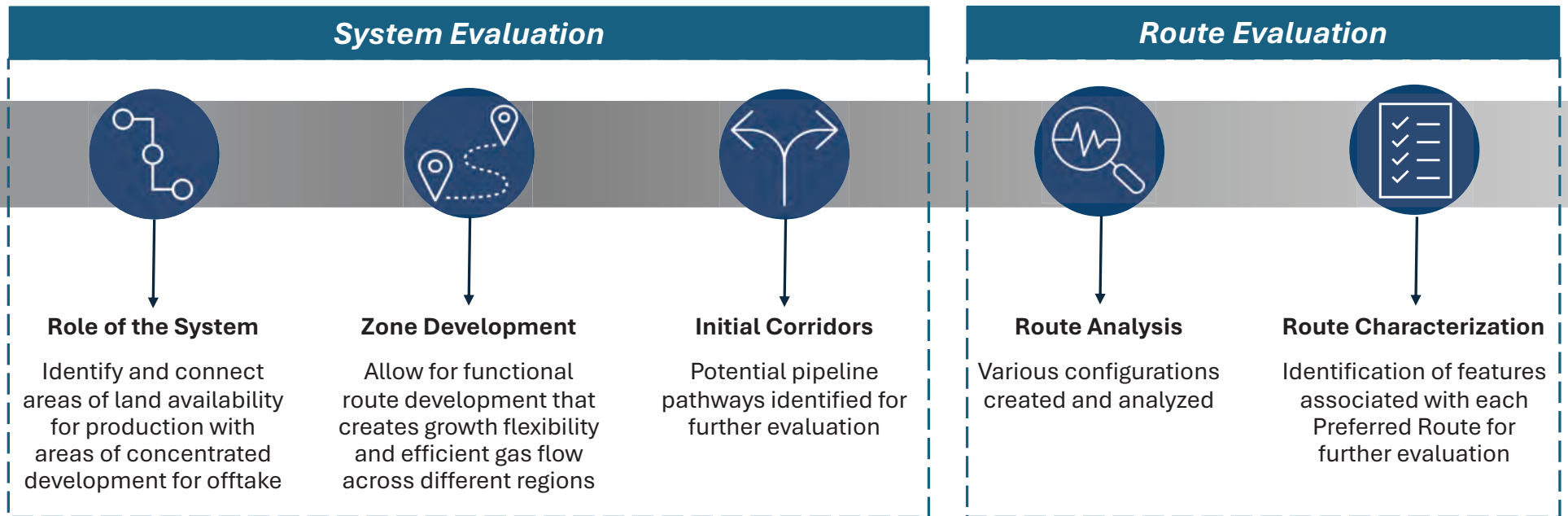
## Pipeline Sizing & Design

- » Estimates potential pipeline sizes for possible routes and configurations
- » Evaluates compression characteristics and options
- » Identifies potential pipeline materials based on hydraulic analyses

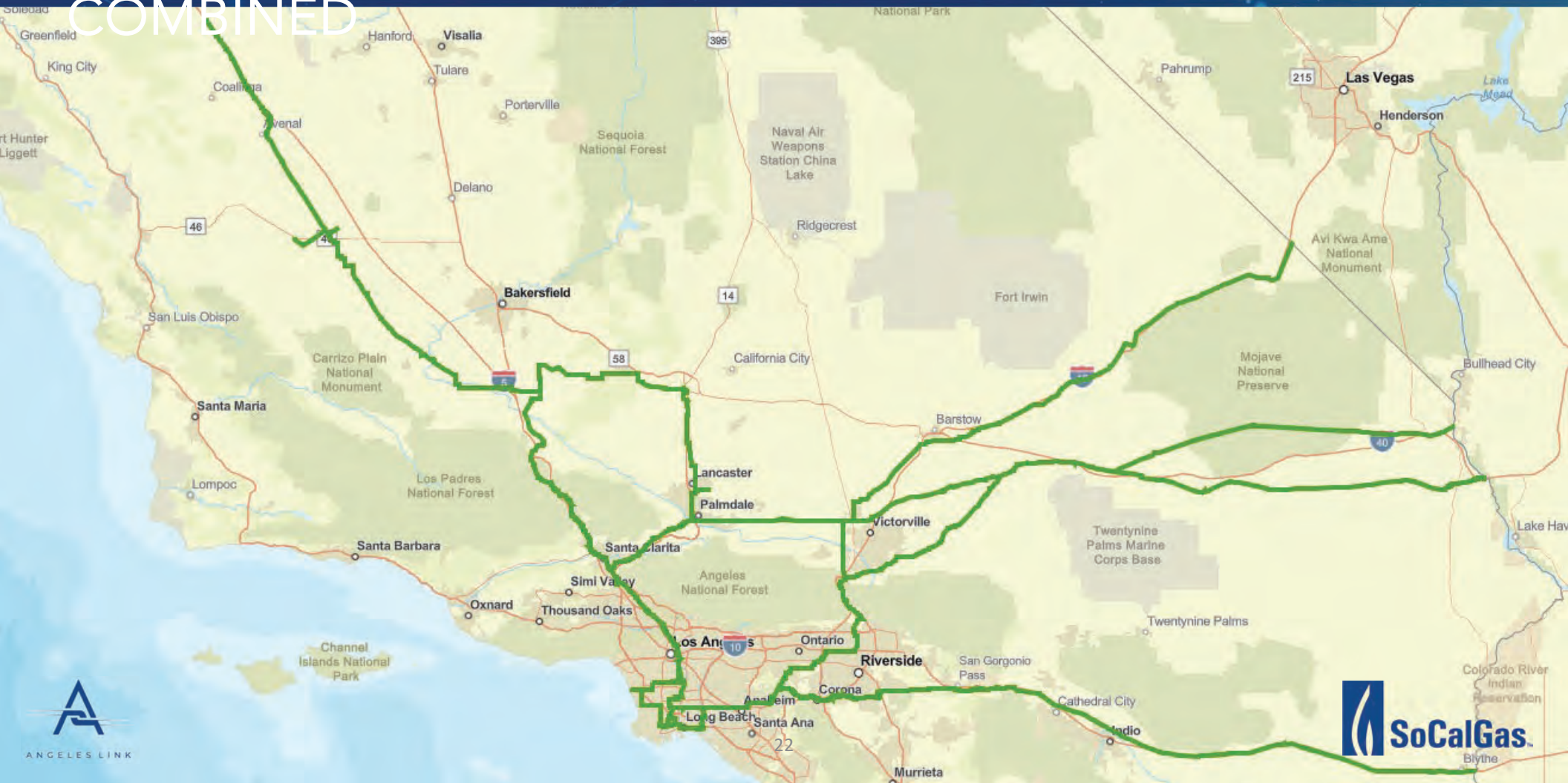
## Phase 2 Will Include

- » Development of criteria for further evaluation
- » Street-level alignment evaluation
- » Pipeline rerouting scenarios
- » External outreach
- » Selection of a single preferred route
- » Continued refinement of permitting analysis
  
- » Detailed facility designs
- » Detailed equipment lists
- » Material sourcing
- » 30% design

# ROUTING STUDY APPROACH



# SYSTEM EVALUATION – CORRIDORS EVALUATED, COMBINED



# SYSTEM EVALUATION – CORRIDORS EVALUATED, COMBINED

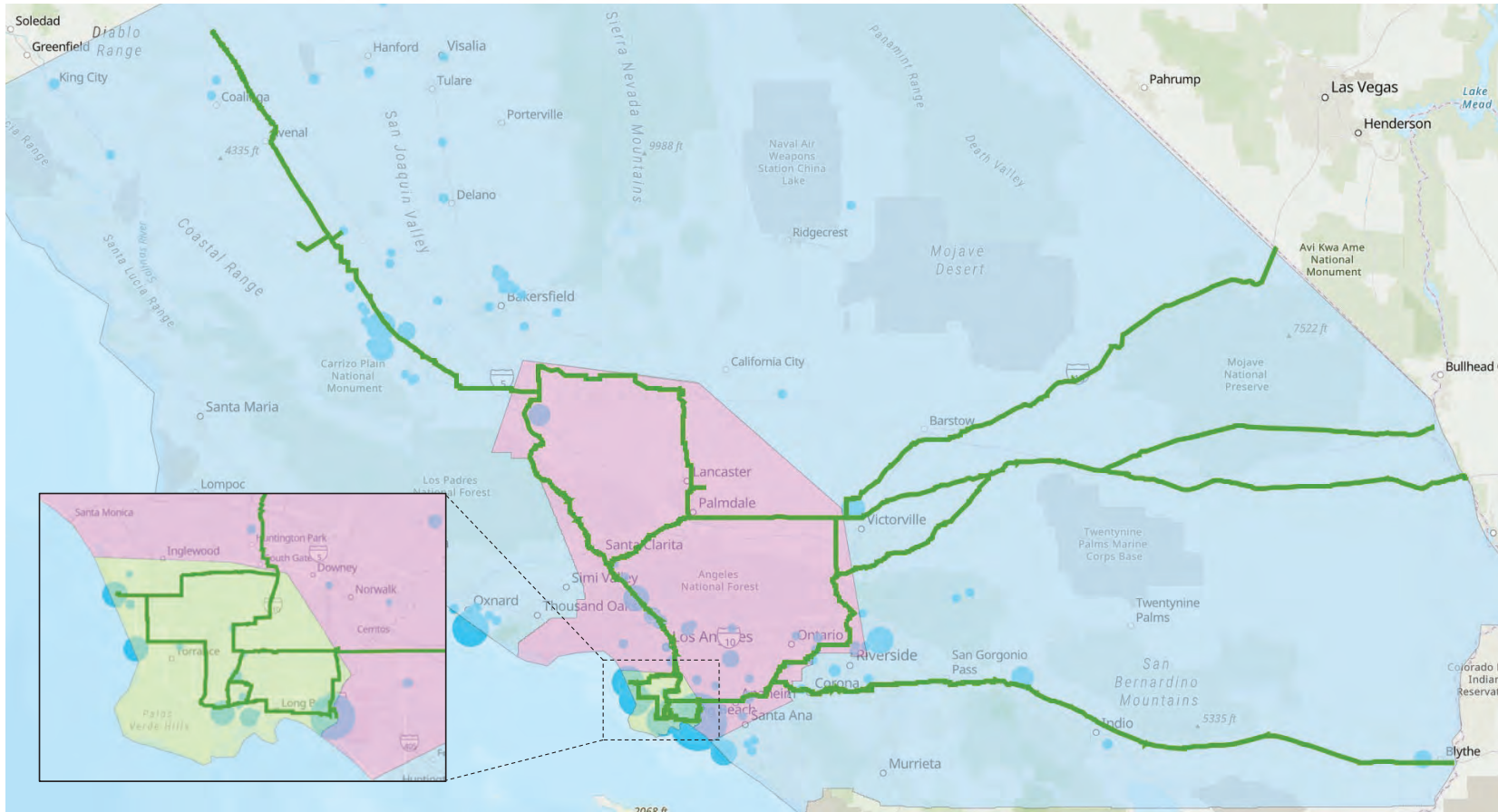
**Central Zone**  
Support large-scale delivery within LA Basin

**Collection Zone**  
Support needs of producers and end users

**Connection Zone**  
Support supply & reliability

**Legend**

- Evaluated Corridors
- NG Power Plant<sup>1</sup> (>1MW)



<sup>1</sup> Active power plant with natural gas as primary source. Data from the [California Energy Commission](http://www.energy.ca.gov)

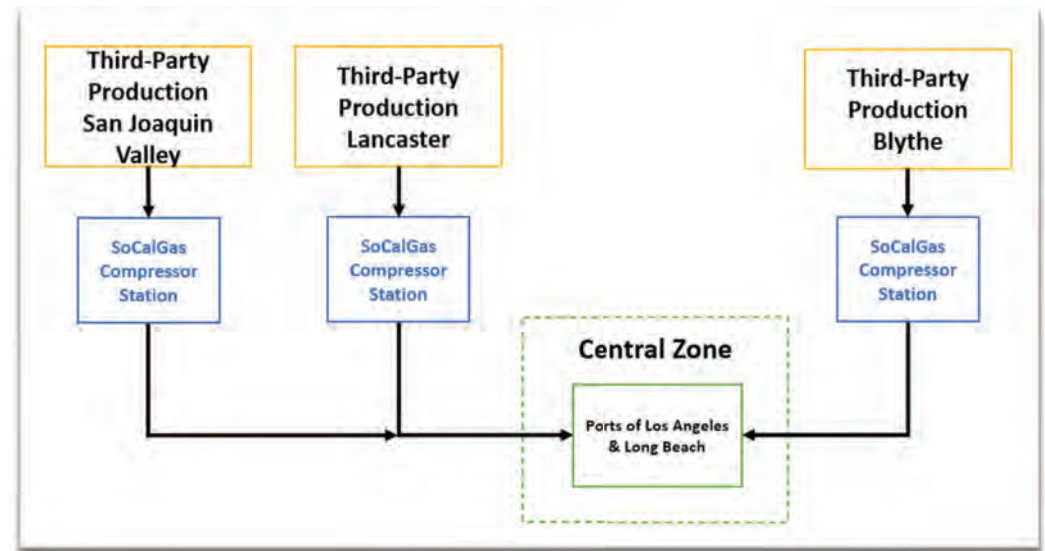


# ROUTE ANALYSIS - SCENARIO HYDRAULIC EVALUATION

## Scenario Hydraulic Analysis

- » Production Range (MMTPY): 0.5, 1.0, 1.5
- » Eight different scenarios were evaluated
  - Scenarios 1 – 3: Throughput of 0.5MM TPY
  - Scenarios 4 – 6: Throughput of 1.0MM TPY
  - Scenarios 7<sup>1</sup> – 8: Throughput of 1.5MM TPY
- » Total Route Mileage Range: 303mi – 616mi
- » Up to 500-mile route may be needed to reach two production areas and LA Basin
- » Scenario results provided to Economics, Workforce, and Alternatives Studies

## Scenarios Evaluated<sup>2</sup>

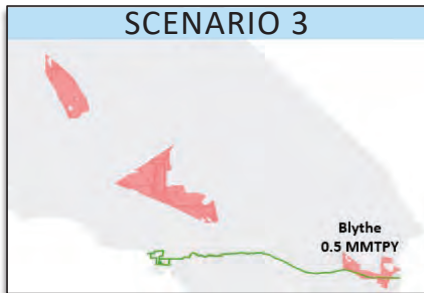
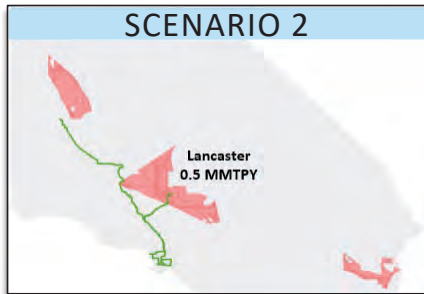
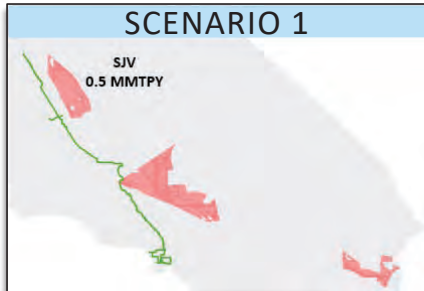


<sup>1</sup> Preferred Routes are different configurations of “Scenario 7”

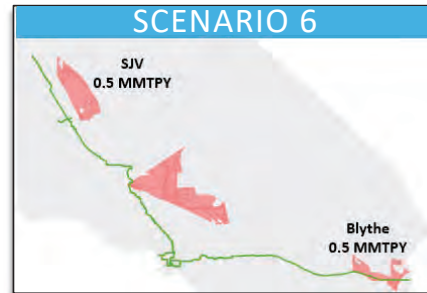
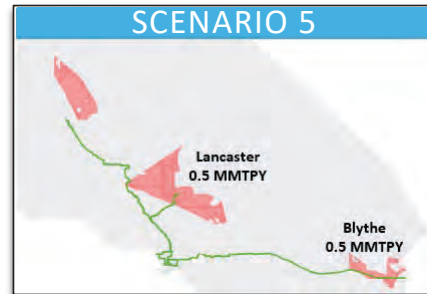
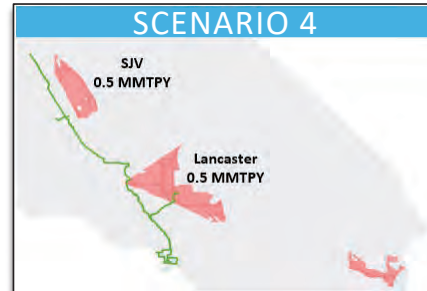
<sup>2</sup> Schematic flow path of scenarios modeled. Pipeline system anticipated to deliver clean renewable hydrogen to Central and Southern California.

# ROUTE ANALYSIS - SCENARIO COMPARISON

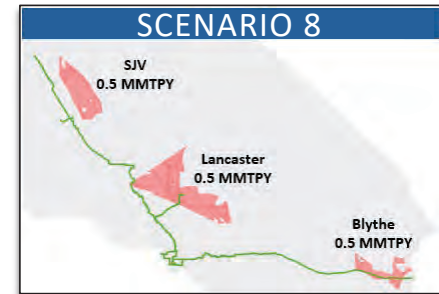
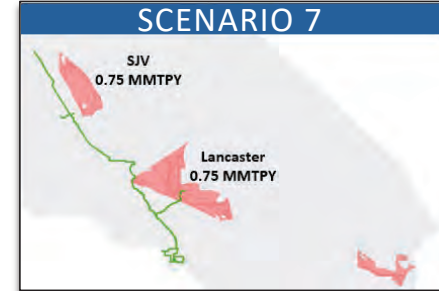
## 0.5 MMTPY Throughput





## 1.0 MMTPY Throughput



## 1.5 MMTPY Throughput



**Legend**

-  Evaluated Corridors
-  Third-Party Production Areas



# PREFERRED ROUTE FORMATION

## SYSTEM EVALUATION

- » Initial supply & demand location awareness led to Zone development
- » Pass through all 3 zones
- » Connect concentrated demand in LA Basin with clean renewable production

## SCENARIO MODELING

- » Eight Scenarios considered for varying system capacity (Production & Demand studies); Average of approx. 500 miles route to achieve proposed Angeles Link capacity of 1.5 MMTPY to meet end user demand

## ARCHES CONSIDERATION

- » Production and Offtake sites in Central and Southern California
- » Connect two SoCalGas ARCHES segments

## POSSIBLE PREFERRED ROUTES

- » Four preferred route configurations identified that meet objectives; on average the preferred routes span 450 miles
- » Route Variation 1 identified to reduce DAC and ESJ impacts
- » Each to be evaluated further in Phase 2



# PHASE 1 PREFERRED ROUTES



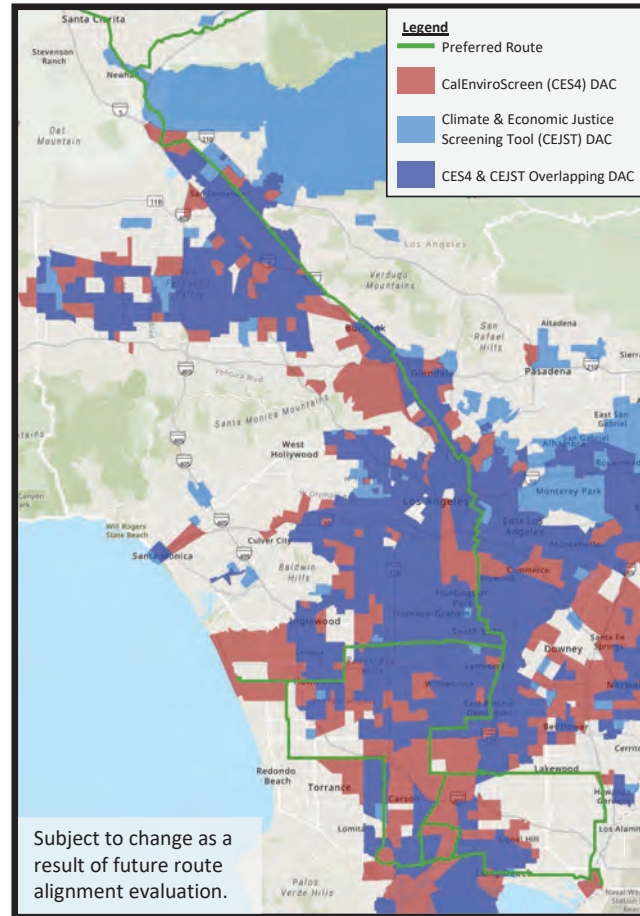


# ROUTE VARIATION

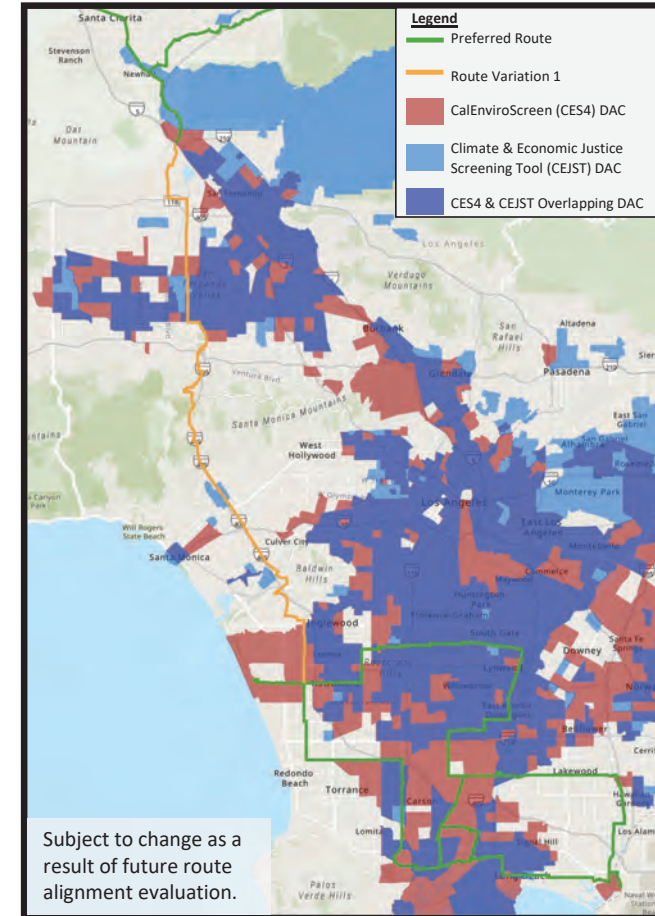
- » Application of multiple lenses to identify potential route variation for further evaluation
  - CalEnviroScreen (CES4) DAC
  - Climate & Economic Justice Screening Tool (CEJST) DAC
- » Route variation is parallel to footprint of existing SoCalGas facilities as well as the AFDC identified corridors
- » Responsive to Stakeholder Feedback
- » To be further analyzed in Phase 2



**Preferred Route A, B, C**



**Route Variation 1\***



\*This variation does not impact Preferred Route D.

# PREFERRED ROUTES A & B

## ROUTE A

## ROUTE B

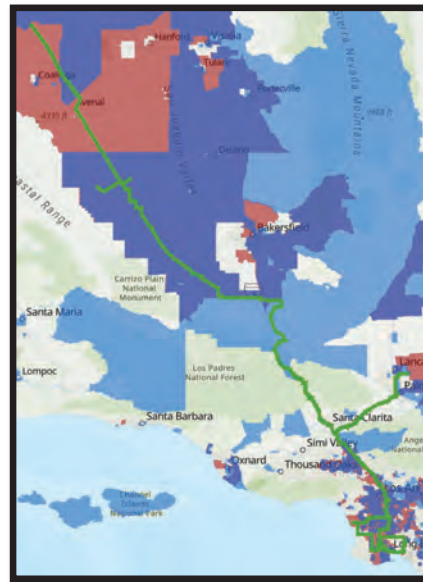
### Routing Analysis

Total Route Mileage (mi)	390
ARCHES Production (sites)	5
ARCHES Offtake (sites)	8
Demand Access <sup>1</sup> (%)	83%
DAC Mileage <sup>2</sup> (%)	76% / 67%
Urban, Rural, Mountain (%)	38%, 56%, 7%

Initial Evaluation /  
Route Variation 1

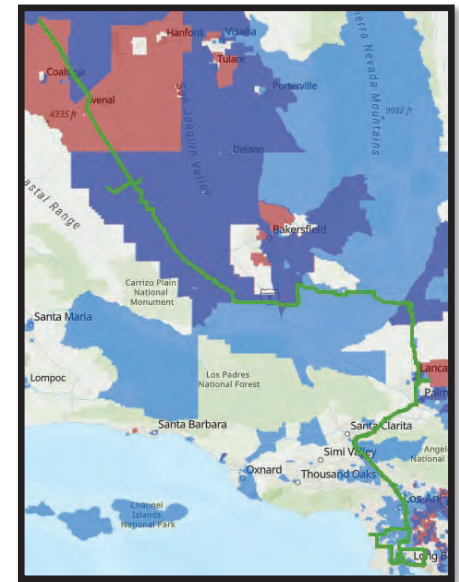
### Design Study

Cost Range <sup>3</sup> - Single/Mixed (B)	\$9 - \$11
Pipeline Sizing <sup>4</sup>	16" - 36"
Compression Requirements	2 stations

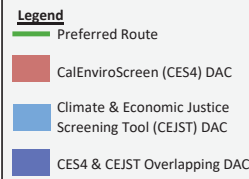


Subject to change as a result of future route alignment evaluation.

Total Route Mileage (mi)	406
ARCHES Production (sites)	5
ARCHES Offtake (sites)	8
Demand Access <sup>1</sup> (%)	83%
DAC Mileage <sup>2</sup> (%)	81% / 73%
Urban, Rural, Mountain (%)	45%, 48%, 6%



Subject to change as a result of future route alignment evaluation.



<sup>1</sup> 2045 Ambitious Demand Study Distribution Profile

<sup>2</sup> Mileage within a Disadvantaged Community

<sup>3</sup> Cost based on Class 5 estimates, which have accuracy ranges of -50%/+100%.

<sup>4</sup> Pipe sizes for single-run configuration



# PREFERRED ROUTES C & D

## Routing Analysis

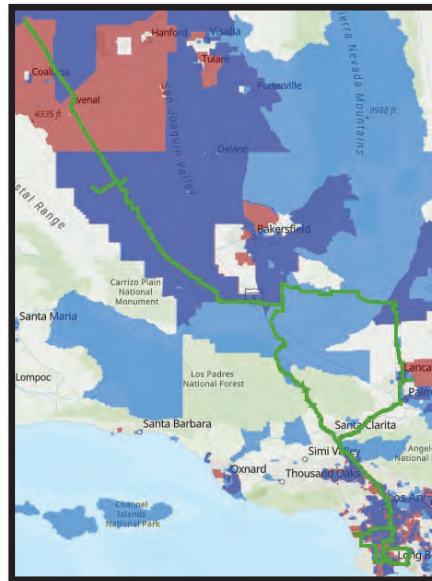
Total Route Mileage (mi)	472
ARCHES Production (sites)	5
ARCHES Offtake (sites)	9
Demand Access <sup>1</sup> (%)	83%
DAC Mileage <sup>2</sup> (%)	77% / 70%
Urban, Rural, Mountain (%)	38%, 56%, 7%

Initial Evaluation /  
Route Variation 1

## Design Study

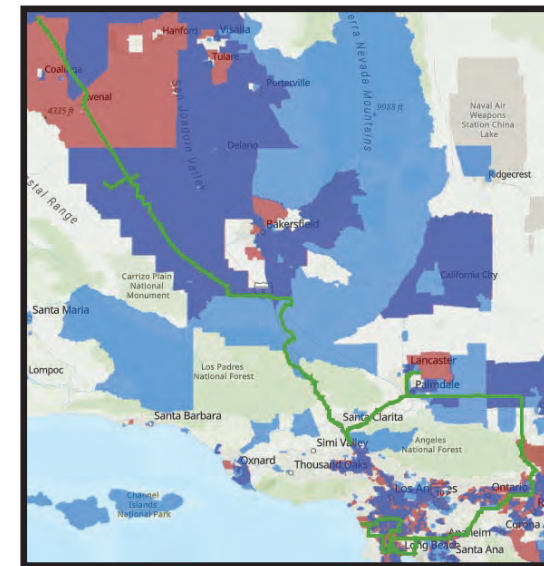
Cost Range <sup>3</sup> - Single/Mixed (B)	\$9 - \$12
Pipeline Sizing <sup>4</sup>	20" - 36"
Compression Requirements	2 stations

## ROUTE C



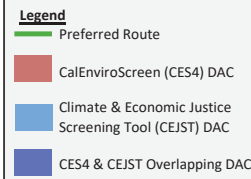
Subject to change as a result of future route alignment evaluation.

## ROUTE D



Subject to change as a result of future route alignment evaluation.

Total Route Mileage (mi)	481
ARCHES Production (sites)	7
ARCHES Offtake (sites)	15
Demand Access <sup>1</sup> (%)	92%
DAC Mileage <sup>2</sup> (%)	69% / N/A
Urban, Rural, Mountain (%)	39%, 53%, 8%
Cost Range <sup>3</sup> - Single/Mixed (B)	\$11 - \$14
Pipeline Sizing <sup>4</sup>	24" - 36"
Compression Requirements	2-3 stations



<sup>1</sup> 2045 Ambitious Demand Study Distribution Profile

<sup>2</sup> Mileage within a Disadvantaged Community

<sup>3</sup> Cost based on Class 5 estimates, which have accuracy ranges of -50%/+100%.

<sup>4</sup> Pipe sizes for single-run configuration



# FEEDBACK - ROUTING

Thematic Comments from PAG/CBOSG	Plan to Incorporate/Address
<p><b>Engineering, Environmental, and Social attributes.</b> Identify sacred site locations, potential for seismic activity, and flora and fauna potentially impacted. Include analysis of potential land use and zoning constraints.</p>	<p>Engineering, Environmental, and Social attributes identified include DAC, cultural sites, land use, endangered species, and ROW. The total mileage within these areas was identified and included in the Appendix.</p>
<p><b>Disadvantaged Communities.</b> Focus on routing that is outside of communities that are already disadvantaged.</p>	<p>Route Variation 1 is a proposed variation of preferred routes A, B, and C that results in a decrease of the route that traverses a DAC community.</p>
<p><b>Pipeline Corridors.</b> Focus the routing study on intrastate options and provide a list of potential pipeline routes and manufacturers.</p>	<p>Those initially considered as well as the final four preferred routes that were developed are identified through this analysis. Focus was placed on routes that are all intra-state. A list of manufacturers and suppliers was considered out of scope for this feasibility analysis.</p>
<p><b>Multiple Scenarios.</b> Examine multiple scenarios for pipeline routing that include different ways of disaggregating production and illustrate how routing siting is affected by hydrogen production locations. Inter-state options evaluated should be marked distinctly from intra-state options.</p>	<p>Varying routes and production quantities were evaluated as different Scenarios. Those scenarios that include reference to inter-state facilities are clearly marked.</p>

1. All comments are available on the living library in the Comment Letters folder located on the Homepage. <https://arellanoassociates.sharepoint.com/sites/SCGAngelesLink>



# FEEDBACK – PIPELINE SIZING & DESIGN

Thematic Comments from PAG/CBOSG	Plan to Incorporate/Address
<p><b>Hydrogen Embrittlement &amp; Integrity.</b> Focus on safety and leak prevention with regard to materials, monitoring technologies, proposed retrofits, siting, notification, and safety protocols.</p>	<p>The evaluation of material leakage was discussed and includes potential embrittlement as well as pipeline integrity and maintenance. As described, material selections will be further refined and continued evaluation will be conducted.</p>
<p><b>Geohazards.</b> Measures that can be taken to address seismicity.</p>	<p>Design measures that are considered for geohazard locations such as earthquake faults, are discussed.</p>
<p><b>Multiple Scenarios.</b> Examine multiple scenarios for pipeline routing that include different ways of disaggregating production. Inter-state options evaluated should be marked distinctly from intra-state options.</p>	<p>Varying routes and production quantities were evaluated as different Scenarios. Those scenarios that include reference to inter-state facilities are clearly marked.</p>
<p><b>Asset Repurposing.</b> Assessment of materials and potential for leakage with the repurposing of existing gas pipelines.</p>	<p>A high-level evaluation of repurposing existing natural gas pipelines was conducted. Potential advantages and disadvantages to converting natural gas pipeline versus building new pipelines intended for hydrogen service are discussed.</p>
<p><b>Electric Reliability Literature Review.</b> Assessment of proposed infrastructure with regard to power system resilience and reliability on electricity for end-use demand resulting in greater criticality of disruptions to electricity</p>	<p>A literature review was conducted on electric reliability that included identification of challenges, planning process and outlook, and the integration between the electric and gas grid.</p>

1. All comments are available on the living library in the Comment Letters folder located on the Homepage. <https://arellanoassociates.sharepoint.com/sites/SCGAngelesLink>





**YURI FREEDMAN**  
Senior Director  
Business Development



**AMY KITSON**  
Angeles Link Director  
Engineering &  
Technology



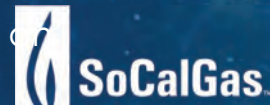
**FRANK LOPEZ**  
Regional Public Affairs  
Director



**SHIRLEY ARAZI**  
Angeles Link Director  
Regulatory & Policy

## MEMBER DISCUSSION: PRELIMINARY ROUTING/CONFIGURATION ANALYSIS

- Please announce your name and speak directly into the microphone
- Be concise and focus on discussion topics
- Verbal comments are not the only way to provide input, feel free to type a chat
- We are accepting written input after this meeting if we run short of time, or you think of things later





## MEMBER DISCUSSION: PRELIMINARY ROUTING / CONFIGURATION ANALYSIS

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# LUNCH





# ENVIRONMENTAL SOCIAL JUSTICE COMMUNITY ENGAGEMENT PLAN AND ESJ SCREENING



**EDITH MORENO**  
Public Affairs  
Strategy & Policy Manager  
SoCalGas



**FRANK LOPEZ**  
Regional Public Affairs  
Director  
SoCalGas

# ENVIRONMENTAL SOCIAL JUSTICE (ESJ) SCREENING

*These tools serve as preliminary information intended to assist SoCalGas in identifying potential disadvantaged communities (DACs)/ESJ Communities and may not fully represent DACs/ESJ Communities in its service territory*

ESJ Screening	
Data Used	Environmental Justice community mapping based on CalEnviroScreen and the Climate and Economic Justice Screening Tool (CEJST) data and indicators
Contents of Screening Report	Provides community profile; census tract statistics; disadvantaged communities; socioeconomic conditions; public services; and minority/ethnicity
Areas Assessed	Total distance evaluated included approximately 1,300 linear miles



## PHASE 1 PREFERRED PIPELINE ROUTES COMBINED: ESJ COMMUNITIES

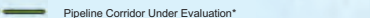
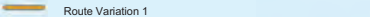
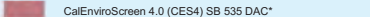
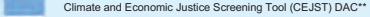

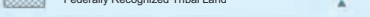
- » Although Angeles Link is proposed to traverse ~450 miles, the Routing Analysis identified approximately 1,300 miles of conceptual pipeline routes. Pipeline routes were broken up into 13 study areas.
- » ESJ Screening was conducted for each of the study areas. In addition to CalEnviroScreen and CEJST, other socioeconomic conditions (population, income, unemployment, etc.) were collected.
- » Comprehensive screening not inclusive of additional variation (Route Variation 1) identified.
- » ESJ Screening report will help guide the identification of stakeholders and communities to engage in Phase 2 and allow us to target outreach and resource allocation.

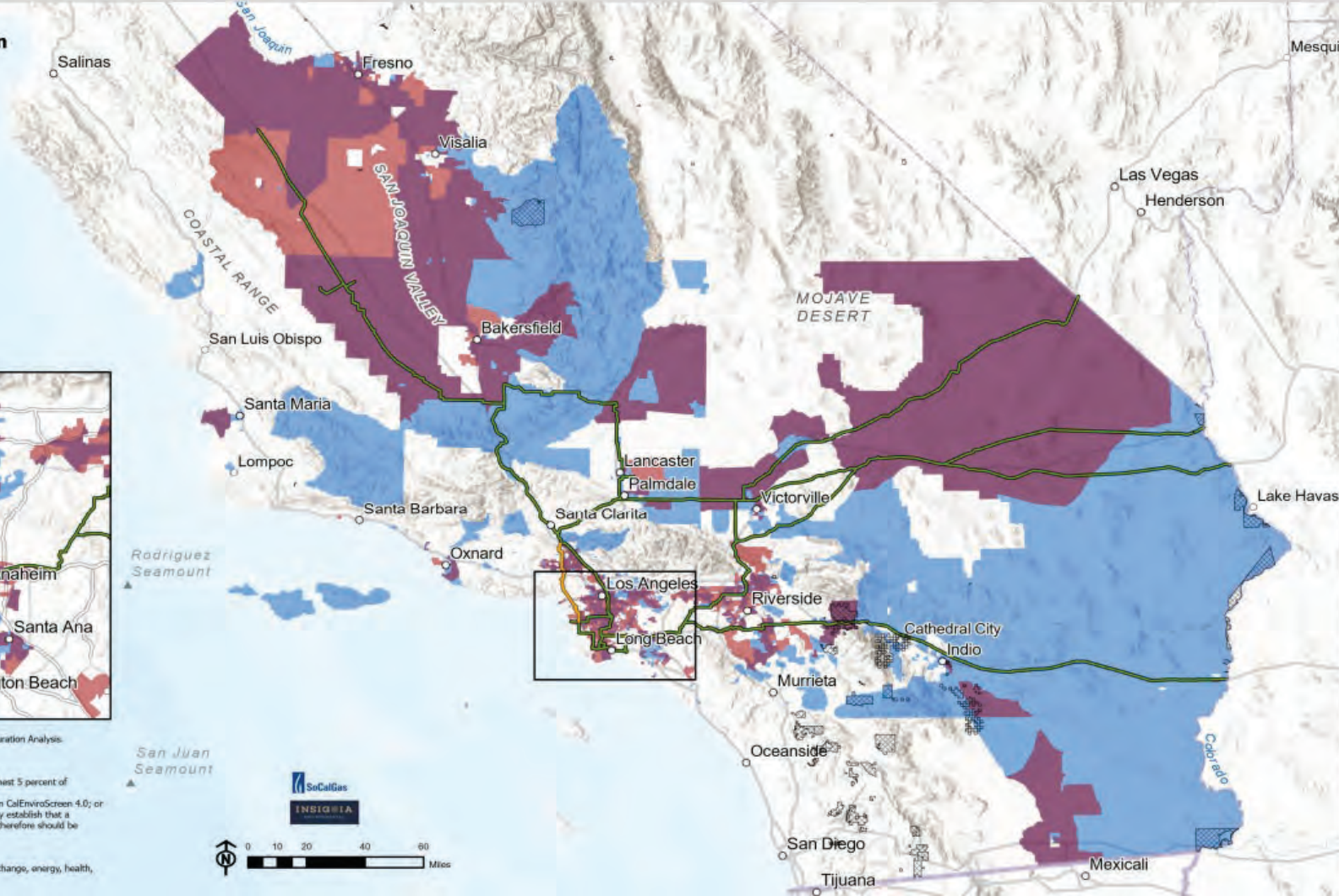
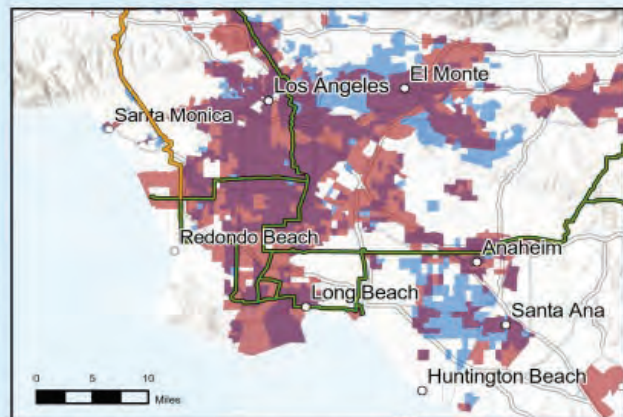


# PHASE 1 POTENTIAL PIPELINE ROUTES COMBINED: ESJ COMMUNITIES

## Angeles Link Project Phase 1 Potential Pipeline Corridors Under Evaluation

### Disadvantaged Communities (DACs)

-  Pipeline Corridor Under Evaluation\*
-  Route Variation 1
- Disadvantaged Community**
-  CalEnviroScreen 4.0 (CES4) SB 535 DAC\*
-  Climate and Economic Justice Screening Tool (CEJST) DAC\*\*
-  CES4 and CEJST Overlapping DACs
-  Federally Recognized Tribal Land



^ Alignment based upon pipeline routes identified in May 2024 during the Preliminary Routing/Configuration Analysis.

\* CalEnviroScreen 4.0 (CES4) SB 535 DAC identified as:

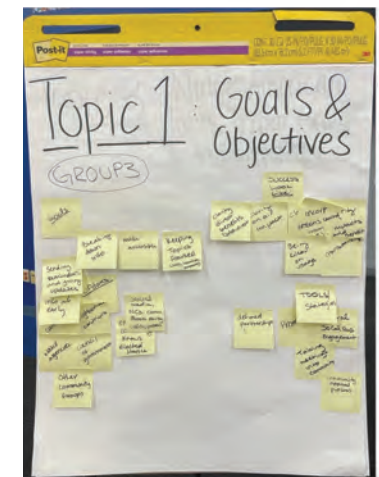
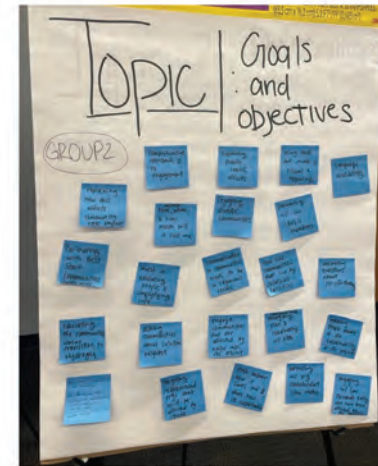
- 1) Census tracts receiving the highest 25 percent of overall scores in CalEnviroScreen 4.0;
- 2) Census tracts lacking overall scores in CalEnviroScreen 4.0 due to data gaps, but receiving the highest 5 percent of CalEnviroScreen 4.0 cumulative pollution burden scores;
- 3) Census tracts identified in the 2017 DAC designation as disadvantaged, regardless of their scores in CalEnviroScreen 4.0; or
- 4) Lands under the control of federally recognized tribes. For purposes of this designation, a tribe may establish that a particular area of land is under its control even if not represented as such on CalEPA's DAC map and therefore should be considered a DAC.

\*\* Climate and Economic Justice Screening Tool (CEJST) DAC identified as:

- 1) Census tracts that meet the thresholds for at least one of the tool's categories of burden (climate change, energy, health, housing, legacy pollution, transportation, water and wastewater, and workforce development); or

# ESJ COMMUNITY ENGAGEMENT PLAN BACKGROUND

- » Desktop ESJ analysis originally developed as part of Environmental Analysis
  - CBOSG wanted more than a desktop GIS analysis being conducted for Environmental Analysis
- » ESJ Plan developed in response to stakeholder feedback provided during July 2023 CBOSG workshop
- » Preliminary framework of the ESJ Plan was presented to CBOSG members in September 2023
  - Breakouts at CBOSG meeting informed the development of the ESJ Plan
- » ESJ Draft Plan shared with PAG/CBOSG members prior to this meeting



# ESJ COMMUNITY ENGAGEMENT PLAN CONTENTS

Introduction

Background

Goals of the Plan

Alignment with CPUC ESJ Action Plan

Preparation of Community Benefits Plans

Hydrogen Equity Principles

ESJ Screening

Engagement Strategies

Community Engagement Meeting Approaches

Conclusion

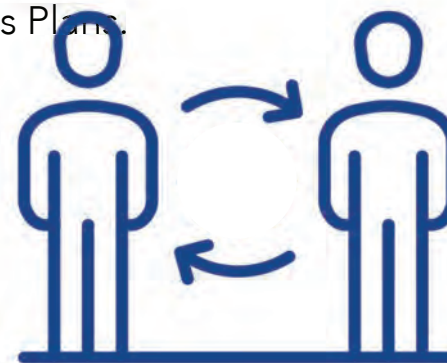


PRIVILEGED AND CONFIDENTIAL



# ESJ PLAN GOALS

- » **Actively involve ESJ Communities** in educational discussions about SoCalGas's operations and relevant regulatory frameworks, emphasizing transparency and trust building.
- » **Provide ESJ Communities with information** regarding routing and placement of new hydrogen infrastructure and collaborate with them to solicit feedback on project design to minimize and address potential impacts.
- » **Identify themes of interest to ESJ Communities** and integrate them into Phase 2 stakeholder engagement efforts.
- » **Collaborate with ESJ Communities** to address potential concerns such as safety and affordability.
- » **Identify the potential benefits** that could result from Angeles Link, including economic, workforce, improved air quality, and greenhouse gas emission reduction benefits.
- » **Gather ESJ Community input** on potential direct benefits desired by impacted communities at-large. Insights gathered from ESJ Communities will help shape the development of Community Benefits Plans.



PRIVILEGED AND CONFIDENTIAL



# ENGAGEMENT STRATEGIES

## Sample of Proposed Engagement Strategies

- » Collaborate with Grassroots Organizations Along Routes
- » Leverage “Promotoras” model
- » Direct Community Engagement
- » Educate through Local Media
- » Partner with Local Governments
- » Toll Free Hotline
- » Dedicated Angeles Link Website For Information and Public Comments Submission
- » Specialized Small Sub-Group Convenings



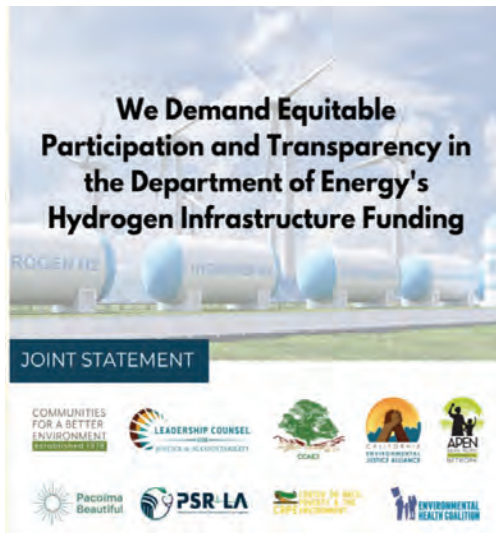
From Draft ESJ Engagement Plan:

“Beyond an information sharing framework, the ESJ Plan also aims to enable the active involvement of ESJ Communities and other stakeholders that have been historically overlooked in a typical project development process. The ESJ Plan is designed to provide these communities with a seat at the table, creating a feedback loop that allows SoCalGas to listen to and learn from ESJ Community stakeholders directly.”





# EQUITY PRINCIPLES FOR HYDROGEN



SoCalGas has reviewed the Equity Principles for Hydrogen (Principles) and sees significant alignment between many of the values and positions tied to transportation outlined in the Principles and Angeles Link.

SoCalGas and Principles align with:

- » Prioritizing Community Engagement
- » Tribal Consultation
- » Minimizing and Mitigating Environmental Impacts and Reducing Energy Pollution
- » Safety is Foundational Throughout the Lifecycle
- » Cost Transparency

SoCalGas supports issues raised by Principles:

- » Non-fossil Hydrogen Production
- » Hydrogen Production Regulation
- » Continued Research on Hydrogen End Uses



# EXPANDED CBO/TRIBAL ENGAGEMENT

- » SoCalGas primarily focused its initial stakeholder engagement efforts within the Los Angeles Basin
- » SoCalGas has since expanded CBO/Tribal engagement outside of the LA basin\*

*\*Not inclusive of all informational meetings held.*



Center for Race Poverty & Environment (No Response)	Radio Campesina
Central California Asthma Collaborative	San Manuel Band of Mission Indians
Central California Environmental Justice Network (Pending)	Tejon Indian Tribe
Central Valley Air Quality Coalition (Declined)	Sequoia Riverlands Trust
Central Valley Community Foundation	SocioEnvironmental and Education Network (SEEN)
Fernandeño Tataviam Band of Mission Indians	Union of Concerned Scientists
Leadership Counsel (Scheduling)	Valley Clean Air Now
Pacoima Beautiful (Scheduling)	



# FEEDBACK

Number of stakeholders have provided verbal and written comments<sup>1</sup> on our preliminary findings, including but not limited to:

Thematic Comments	Plan to Incorporate/Address
Additional engagement in all preliminary corridors identified in Phase 1	» SoCalGas has expanded engagement to approximately 30 organizations
Lack of detailed data, including more granular maps and routes	» Additional information on routing and DACs has been issued to PAG/CBOSG
Use of promotional/marketing language	» Review of materials to provide fact-based information

1. All written comments are available on the living library in the Comment Letters folder located on the Homepage. <https://arellanoassociates.sharepoint.com/sites/SCGAngelesLink>



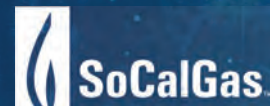


## MEMBER DISCUSSION: ENVIRONMENTAL SOCIAL JUSTICE COMMUNITY ENGAGEMENT PLAN AND ESJ SCREENING

- Please announce your name and speak directly into the microphone
- Be concise and focus on discussion topics
- Verbal comments are not the only way to provide input, feel free to type a chat
- We are accepting written input after this meeting if we run short on time, or you think of things later



# BREAKOUT SESSION: ENVIRONMENTAL SOCIAL JUSTICE PLAN





## BREAKOUT SESSION QUESTIONS: ENVIRONMENTAL SOCIAL JUSTICE PLAN

- What do you like? Any additions you would like us to make?
- The ESJ Plan outlines 6 key goals. Which goals are most important to you and why?
- Are there additional engagement strategies that should be incorporated into the ESJ plan?
- Does this properly capture your feedback from last Fall?



## MEMBER DISCUSSION: ENVIRONMENTAL SOCIAL JUSTICE PLAN REPORT OUT

- Please announce your name and speak directly into the microphone
- Be concise and focus on discussion topics
- Verbal comments are not the only way to provide input, feel free to type a chat
- We are accepting written input after this meeting if we run short on time, or you think of things later

## NEXT STEPS

- Today's presentation and meeting recording will be available soon on the living library
  - Microsoft now requires two-step verification to access the living library. If you have any difficulties accessing the library, please let us know
- Current Draft Reports posted for feedback
  - Water Resource Evaluation due on Friday, 8/2
  - Workforce Planning & Training Evaluations due Friday, 8/2
  - GHG Evaluation due Wednesday, 8/7
  - NOx and Other Air Emissions Assessment due Wednesday, 8/14
  - Production Planning & Assessment due Friday, 8/16
  - High-Level Feasibility Assessment and Permitting Analysis due Friday 8/16
  - Preliminary Routing/Configuration Analysis (inc. ROW/Franchise) due Friday, 8/16
  - Pipeline Sizing & Design Criteria due Friday, (8/16)
- If you have questions or comments, please submit them in writing
- When the next meeting date is available, it will be shared with you







THANK YOU FOR YOUR PARTICIPATION



## SUMMARY

The Production Planning & Assessment analyzes the potential for clean renewable hydrogen production in SoCalGas’s service territory through 2045, evaluating sources, input requirements, and estimated costs, though SoCalGas will not produce hydrogen itself.

## KEY FINDINGS

### RENEWABLE POWER AND ELECTROLYZERS:

- SoCalGas’s territory has some of the best solar energy potential in the country.
- Renewable solar energy, combined with electrolyzers, is expected to be the main method for large-scale clean hydrogen production.
- Solar power is a low-cost, established renewable energy source that can be used near hydrogen production sites.
- Other renewable energy sources can contribute to hydrogen production but will play a smaller role due to limited resources in Central and Southern California.
- Proton Exchange Membrane (PEM) electrolyzers are ideal for working with solar power because they can quickly start up and adjust to intermittent and variable power levels.

### LAND ASSESSMENT AND PRODUCTION AREAS:

- Preliminary analysis identifies around 2 million acres of suitable land for hydrogen production across three locations: San Joaquin Valley (535,000 acres), Lancaster (1,124,000 acres), and Blythe (273,000 acres). To support the production capacity of 1.5 MMTpy for the Angeles Link, approximately 240,000 acres are needed, representing about 12% of the identified suitable land.

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**KEY TAKEAWAYS** 

- Clean renewable hydrogen is produced by third-party sources, not by SoCalGas.
- A preliminary evaluation identified suitable land for hydrogen production using solar power and PEM electrolyzers, estimating 6 acres per megawatt of solar capacity, excluding protected lands and sensitive areas.
- Power for the electrolyzers will come from standalone solar generation.

## SUMMARY

The analysis identified, evaluated, and compared possible pipeline routing configurations for Angeles Link. Preliminary pipeline sizes, compression requirements, and materials were calculated for the pipeline routes and system design.

## KEY FINDINGS

### IDENTIFIED FOUR POSSIBLE PREFERRED ROUTES AND ROUTE VARIATION 1:

- Meet objective of Angeles Link to connect potential regional clean, renewable hydrogen producers to end-users.
- Supports reliability and resiliency of system planning in alignment with regional zones, alignment with ARCHES, and connect SoCalGas's ARCHES projects.
- Preferred Routes traverse less than 500 miles (and on average span 450 miles), to efficiently access and deliver a capacity up to 1.5 MMTPY.
- Route Variation 1 was also added for further analysis in Phase 2 due to its potential to minimize traversing disadvantaged communities in the LA Basin.

### PRELIMINARY HYDRAULIC RESULTS FOR THE POSSIBLE PREFERRED ROUTES INCLUDE:

- Pipe sizes range from 16-inch up to 36-inch in nominal diameter.
- Two to three compressor stations may be required.
- Operating pressure range between 200 to 1200 pounds per square inch gauge (psig).
- Class 5 Estimates developed and provided to Cost Effectiveness, Workforce, and Alternative Studies.



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## KEY TAKEAWAYS

### PRELIMINARY ROUTING/CONFIGURATION ANALYSIS

- System evaluation analyzed the role of the Angeles Link, developed Zones and Initial Corridors.
- Route evaluation analyzed various configurations to meet the objectives of Angeles Link, and assessed high-level engineering, environmental, and geographical attributes.

### PIPELINE SIZING & DESIGN CRITERIA

- Established preliminary engineering and design basis that supports the consideration of cost estimates, reliability, and resiliency.
- Performed hydraulic modeling for eight operational scenarios and four possible preferred routes to calculate range of preliminary pipeline sizes, compression requirements, and materials consideration.

**Four possible Preferred Routes, Route Variation 1, and preliminary design criteria will be further evaluated in Phase 2.**



## SUMMARY

This presentation illustrates the engagement of ESJ Communities and DACs through discussions, feedback collection, and collaboration on the project, using innovative outreach methods for effective community involvement and education.

## OVERVIEW

### ENVIRONMENTAL SOCIAL JUSTICE PLAN GOALS

- Engage ESJ Communities in discussions on SoCalGas operations and relevant regulatory frameworks to build trust and transparency.
- Update ESJ Communities on hydrogen infrastructure routing and placement, and gather their feedback to address potential impacts.
- Capture ESJ community themes for Phase 2 engagement integration.
- Collaborate with ESJ Communities to address potential concerns like safety and affordability.
- Identify potential benefits of Angeles Link, including economic, workforce, environmental, health, and greenhouse gas emission reduction benefits.
- Gather ESJ Community input on desired benefits to shape the Community Benefits Plans.

### ENVIRONMENTAL SOCIAL JUSTICE SCREENING

- Environmental Justice community mapping utilizes CalEnviroScreen and CEJST data to provide community profiles, census tract statistics, information on disadvantaged communities, socioeconomic conditions, public services, and minority/ethnicity demographics, covering approximately 1,300 linear miles.

## KEY TAKEAWAYS

### ENGAGEMENT STRATEGIES

- Work with grassroots organizations along the routes.
- Implement the "Promotoras" model.
- Direct community engagement.
- Collaborate with local governments.
- Educate communities using local media.
- Provide a toll-free hotline.
- Dedicated Angeles Link website for information and public comment submission.
- Specialized small group meetings.



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## **Appendix 7 - PAG Workshop Meeting Materials**



## PAG WORKSHOP AGENDA

### 10:00 AM – 2:00 PM

- Arrival and Breakfast
- SoCalGas Safety Moment, Land Acknowledgement & Roll Call
- SoCalGas Welcome
- Draft Report: Production Planning & Assessment Study
  - Member Discussion
- Draft Report: Preliminary Routing/ Configuration Analysis with Pipeline Sizing and Permitting
  - Member Discussion
- LUNCH
- Environmental Social Justice Plan and Screening
  - Member Discussion
- Next Steps/Adjourn

July 24, 2024

10:00 a.m. – 2:00 p.m.



## Planning Advisory Group (PAG) July Workshop

Warm welcome to our participants!  
We will be starting at 10:00 a.m.  
to make sure everyone is present.



# WELCOME FROM OUR FACILITATOR



**CHESTER BRITT**  
Executive Vice President  
Arellano Associates  
PAG Lead



**ALMA MARQUEZ**  
Vice President Gov. Relations  
Lee Andrews Group  
CBOSG Lead



# HOUSEKEEPING



This meeting will be recorded (video and audio), and a court reporter will be transcribing the meeting. Please announce yourself before you speak



Zoom microphones are muted by the host to eliminate background noise. You will need to unmute your microphone when called on to speak. *For both in-person and on-line participants please speak directly into the microphone to ensure everyone can hear*



We encourage you to turn on your cameras so we can better engage with you



Please feel free to use the Zoom chat to provide input and ask questions throughout the meeting



If you would like to speak, please use the "Raise Hand" button at the bottom of the Zoom screen



Wireless microphones will be passed to those speakers attending in person



# PAG AGENDA



- » Arrival and Continental Breakfast
- » SoCalGas Safety Moment, Land Acknowledgement & Roll Call
- » SoCalGas Welcome
- » Draft Report: Production Planning & Assessment Study
  - Member Discussion
- » Draft Report: Preliminary Routing/ Configuration Analysis with Pipeline Sizing & Design
  - Member Discussion
- » Lunch
- » Environmental Social Justice Community Engagement (ESJ) Plan and ESJ Screening
  - Member Discussion
- » Calendar/Next Steps
- » Adjourn

# SOCALGAS SAFETY MOMENT



**EMILY GRANT**  
Regional Public Affairs Manager  
SoCalGas





# LAND ACKNOWLEDGEMENT & ROLL CALL



# SOCALGAS WELCOME

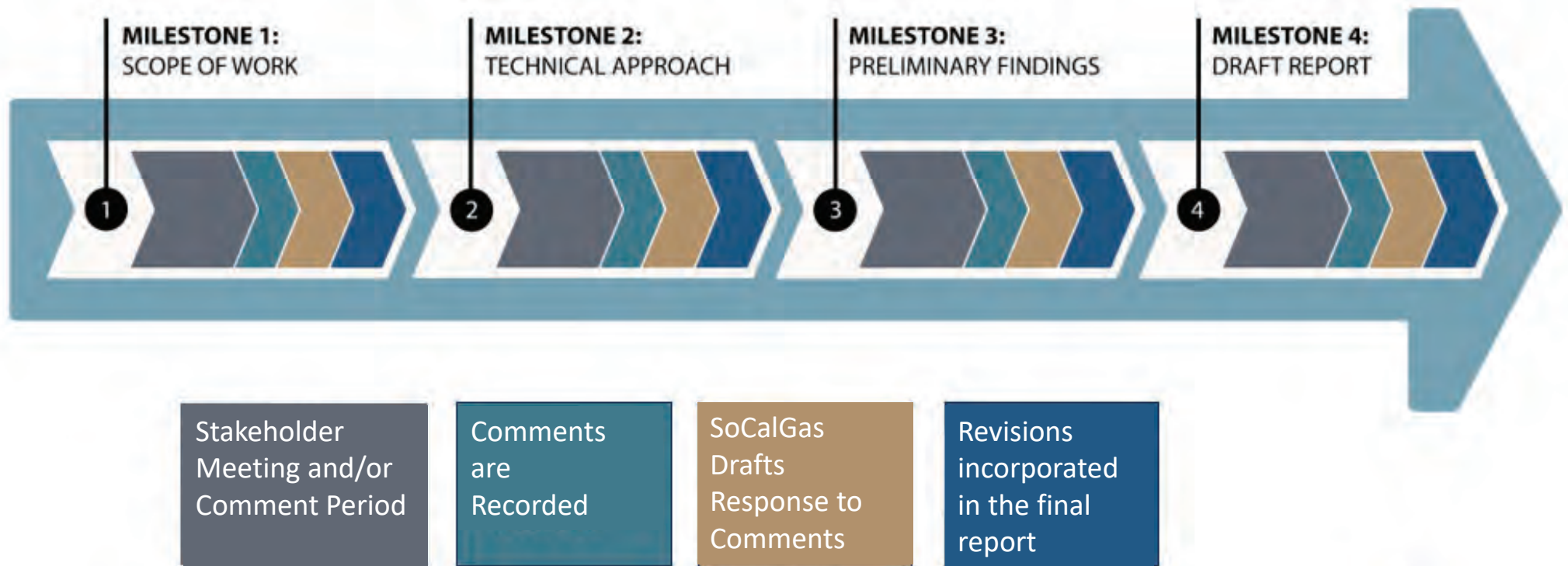


**FRANK LOPEZ**  
Regional Public Affairs  
Director  
SoCalGas





# STAKEHOLDER COMMENT UPDATE



# Status of Phase 1 Studies

1	Demand Study (2/23)
2	Hydrogen Leakage Assessment (6/26)
3	Plan for Applicable Safety Requirements (7/19)
4	Water Resources Evaluation (8/2)
5	Workforce Planning & Training Evaluation (8/2)
6	Greenhouse Gas (GHG) Evaluation (8/7)
7	Nitrous Oxide (NOx) and Other Air Emissions Assessment (8/14)
8	Production Planning & Assessment (8/16)
9	ESJ Community Engagement Plan and Screening (8/16)
10	High Level Feasibility Assessment & Permitting Analysis (8/16)
11	Preliminary Routing /Configuration Analysis (inc. ROW/Franchise) (8/16)
12	Pipeline Sizing & Design Criteria (8/16)
13	High-Level Economic Analysis and Cost Effectiveness
14	Project Options & Alternatives
15	Environmental Analysis

**Draft Studies Issued and Comment Period Completed**

**Drafts Issued and Open For Comments**

**Pending Draft Issuance**



*\*Given the relationship with the routing analysis, right-of-way and franchise information will be integrated within the Routing Study.*



# PRODUCTION PLANNING & ASSESSMENT STUDY

## DRAFT REPORT



**YURI FREEDMAN**  
Senior Director  
Business Development



# PRODUCTION PLANNING & ASSESSMENT STUDY

- » The Hydrogen Production Planning & Assessment (Production Study) Analyzes clean renewable hydrogen<sup>1</sup> production potential in SoCalGas's service territory through 2045
- » Evaluates potential sources, input requirements and estimated cost of production
- » SoCalGas will not be producing hydrogen but analyzed potential production options

<sup>1</sup>CPUC Decision (D).22-12-055, Ordering Paragraph 3(a) states, "Feasibility studies for the Angeles Link Project shall be restricted to the service of clean renewable hydrogen that is produced with a carbon intensity equal to or less than four kilograms of carbon dioxide-equivalent produced on a lifecycle basis per kilogram and does not use any fossil fuel in its production process."



# STUDY APPROACH / SCOPE



## H2 Production Technologies

Evaluate hydrogen production technologies that use renewable energy resources, such as solar and wind, and meet the clean renewable hydrogen standard as defined in D.22-12-055



## H2 Production Volumes

Assessment of potential clean renewable hydrogen production volumes estimated for Angeles Link throughput assumptions to meet demand



## H2 Production Land Assessment

Evaluation of available land for potential solar powered electrolytic production facilities



## H2 Production Costs

Assessment of capital and operating costs, focusing on solar powered electrolytic production facilities, to support High-Level Economics and Cost Effectiveness Study

# STUDY ASSUMPTIONS AND METHODOLOGY

Third-party production of clean renewable hydrogen, not produced by SoCalGas

Standalone behind-the-meter solar generation provides power to operate electrolyzer units

A preliminary desktop evaluation was conducted to identify suitable land for hydrogen production

Assumes solar power coupled with PEM electrolyzers to estimate land requirements

Acreage for solar/electrolytic hydrogen production estimated at approximately 6 acres per megawatt of solar capacity.

Excludes national and state parks, government refuges, preserves, and military ranges.

Also excludes topography greater than 15% slopes, structures/buildings, setback constraints from highways, bodies of water, and other culturally and environmentally sensitive areas.



# STUDY ASSUMPTIONS AND METHODOLOGY

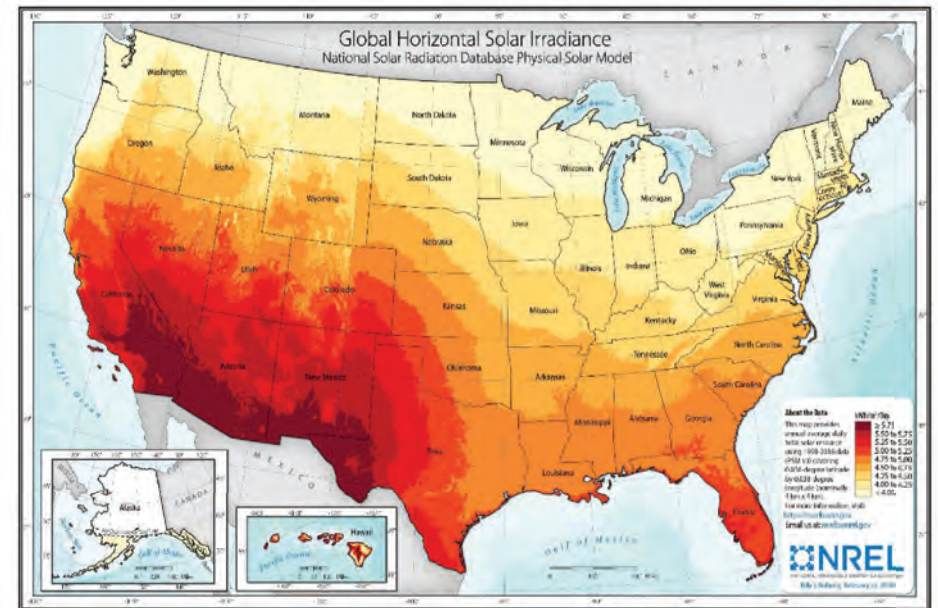
- » Angeles Link is envisioned to support throughput scenarios of 0.5, 1, and 1.5 million metric tonnes per year (MMTPY), a portion of the estimated hydrogen demand of 1.9 - 5.9 MMTPY in SoCalGas's service territory identified in the Draft Demand Report (January 2024)
- » The roles of, and options for, hydrogen storage were assessed, including consideration of:
  - Underground and aboveground hydrogen storage (including at production sites and end users)
  - Storage in the pipeline (e.g., line pack)
  - Balancing supply and demand
  - The illustrative examples show the potential role of long-term, large-scale storage, upon full buildout by 2045.



# DRAFT FINDINGS

## Renewable Power and Electrolyzers

- » Solar irradiance in most of SoCalGas's territory is some of the most efficient in the country
- » Solar generation is a mature technology and among the lowest cost renewable energy source, and can be co-located near hydrogen production
- » Solar power paired with electrolyzers expected as the primary renewable energy source and technology used for clean renewable hydrogen production at scale
- » Other renewable sources may support hydrogen production but on a smaller scale due to resource limitations in Central and Southern California
- » Proton Exchange Membrane (PEM) electrolyzers have startup times and ramp rates as well as turndown capabilities that are suitable as a technology to pair with intermittent and variable power supplies such as solar





# DRAFT FINDINGS

## Land Assessment and Production Areas

- » Based on preliminary analysis, approximately 2 million acres of suitable land is identified in three primary production locations
  - **San Joaquin Valley – 535,000 acres (836 square miles)**
  - **Lancaster – 1,124,000 acres (1,756 square miles)**
  - **Blythe – 273,000 acres (427 square miles)**
- » Land required to support production of 1.5 MMTPY for Angeles Link throughput capacity to meet demand is estimated to be 240,000 acres, which represents approximately 12% of the land identified as potentially suitable for hydrogen production from all three production areas



## Third-Party Production Costs

- » The total capital and operational costs<sup>1</sup> to produce solar-powered electrolytic hydrogen is estimated at:
  - **Solar Power:** Approximately \$1,100/kW (capital) and \$20/kW (annual operational expense)
  - **Electrolyzer:** Approximately \$2,600/kW (capital) and \$18/kW (annual operational expense calculated as 0.7% of capital)



<sup>1</sup>Estimates do not include certain costs such as land costs, permitting costs, and hydrogen pipeline, storage and compression costs. Stack replacement costs are estimated at 19% of initial capital every nine years.



# FEEDBACK

Thematic Comments from PAG/CBOSG	Plan to Incorporate/Address
Concerned that energy supporting the electric grid not distinguished from energy used for hydrogen production.	This study assumes renewables for hydrogen production are behind-the-meter systems that could be independent from the electric grid. It is currently assumed when renewables (e.g., solar) are not available for hydrogen production, grid energy will not be utilized to supplement power for production.
Expressed goal to be realistic about the availability of other clean renewable hydrogen sources and focus on electrolytic hydrogen.	Focus of the study is on solar powered electrolytic production facilities. Other potential hydrogen pathways are evaluated, "...with a carbon intensity equal to or less than four kilograms of carbon dioxide-equivalent produced on a lifecycle basis per kilogram and does not use any fossil fuel in the production process" in accordance with D.22-12-055, OP 3(a).
Consider role of storage and curtailed renewable generation.	Explored role of third-party storage as part of a system that can help balance clean renewable hydrogen production and demand profiles. The study also explores how renewables on the CAISO grid that are curtailed may potentially be reused for hydrogen production
Costs to produce hydrogen should include renewable energy and electrolyzer facilities.	Capital and operating costs were estimated and will be included as part of the report.

1. All comments are available on the living library in the Comment Letters folder located on the Homepage.  
<https://arellanoassociates.sharepoint.com/sites/SCGAngelesLink>





## MEMBER DISCUSSION: PRODUCTION PLANNING & ASSESSMENT STUDY

- Please announce your name and speak directly into the microphone
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# PRELIMINARY PIPELINE ROUTING AND PIPELINE DESIGN

## DRAFT REPORTS DISCUSSION



**KATRINA REGAN**  
Engineering & Technology  
Development Manager  
SoCalGas



**ANNIE NG**  
Engineering Project Manager  
SoCalGas

# FEASIBILITY STUDIES & THE FUTURE

## Preliminary Routing/Configuration Analysis

- » Evaluates a variety of existing pipeline corridors to connect areas of potential demand and offtake
- » Incorporates data from other Phase 1 feasibility studies
- » Identifies and compares possible routes and configurations for the clean renewable hydrogen system
- » Identifies several preferred routes of highest potential for further analysis in subsequent phases

## Pipeline Sizing & Design

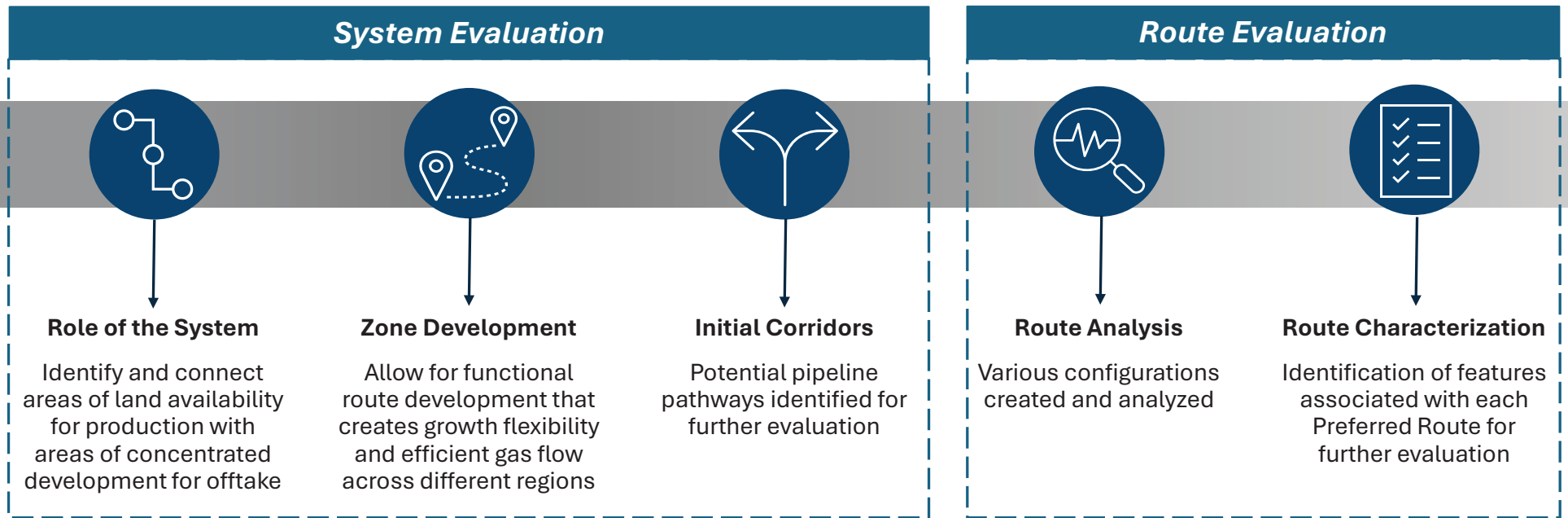
- » Estimates potential pipeline sizes for possible routes and configurations
- » Evaluates compression characteristics and options
- » Identifies potential pipeline materials based on hydraulic analyses

## Phase 2 Will Include

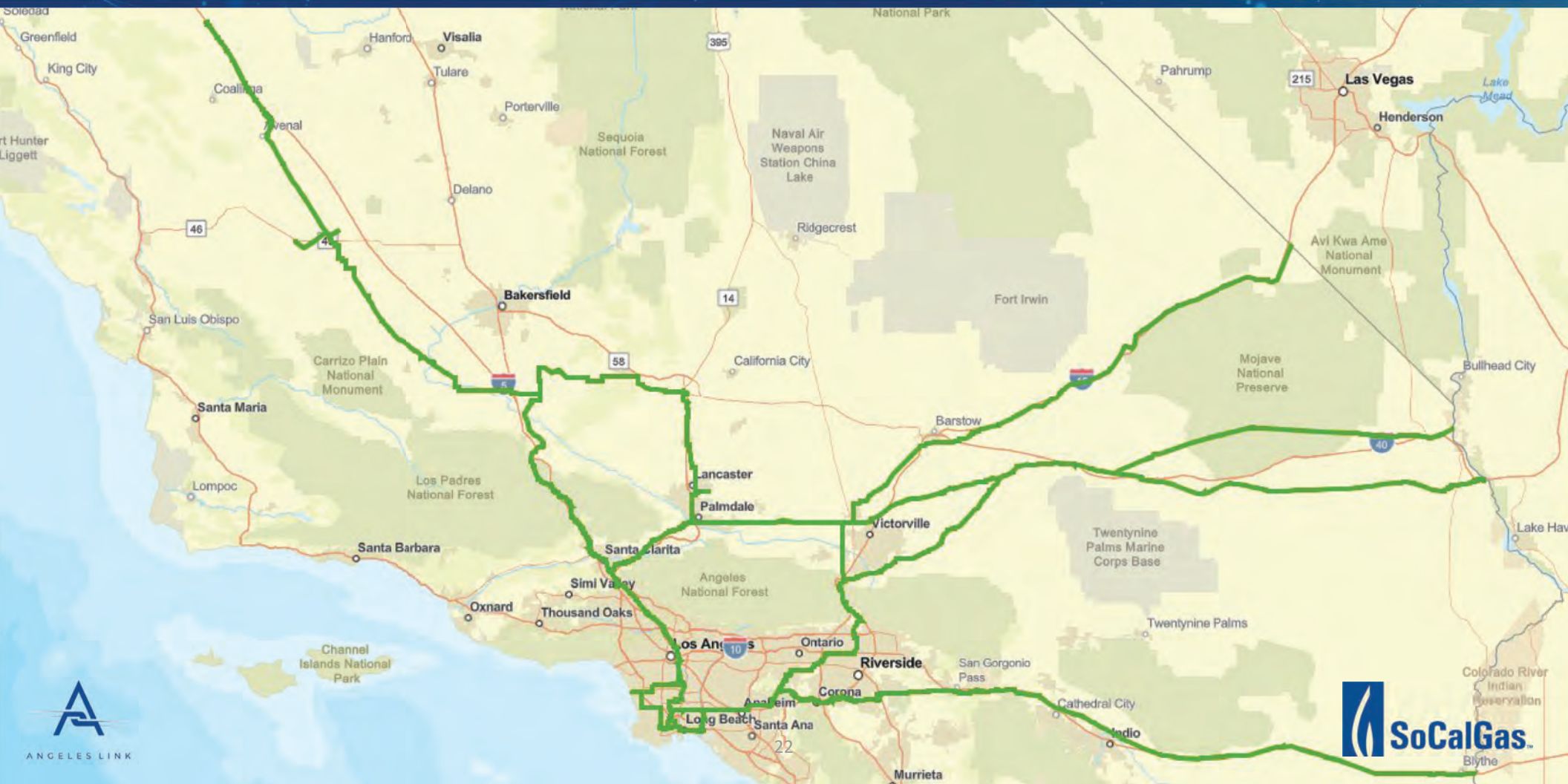
- » Development of criteria for further evaluation
- » Street-level alignment evaluation
- » Pipeline rerouting scenarios
- » External outreach
- » Selection of a single preferred route
- » Continued refinement of permitting analysis
- » Detailed facility designs
- » Detailed equipment lists
- » Material sourcing
- » 30% design



# ROUTING STUDY APPROACH



# SYSTEM EVALUATION – CORRIDORS EVALUATED, COMBINED



# SYSTEM EVALUATION – CORRIDORS EVALUATED, COMBINED

## Central Zone

Support large-scale delivery within LA Basin



## Collection Zone

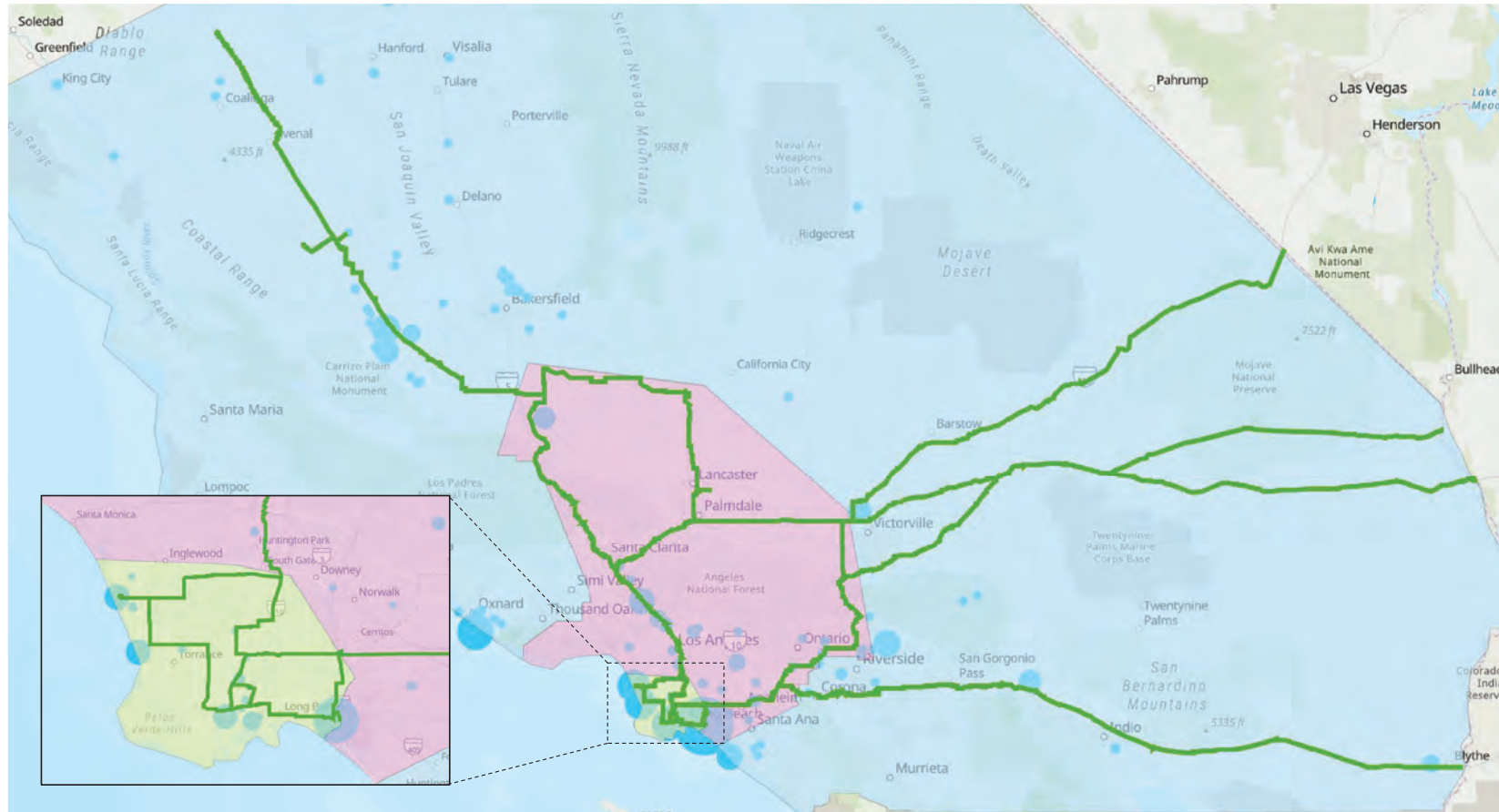
Support needs of producers and end users

## Connection Zone

Support supply & reliability

### Legend

-  Evaluated Corridors
-  NG Power Plant<sup>1</sup> (>1MW)



<sup>1</sup> Active power plant with natural gas as primary source. Data from the [California Energy Commission](https://www.energy.ca.gov/)



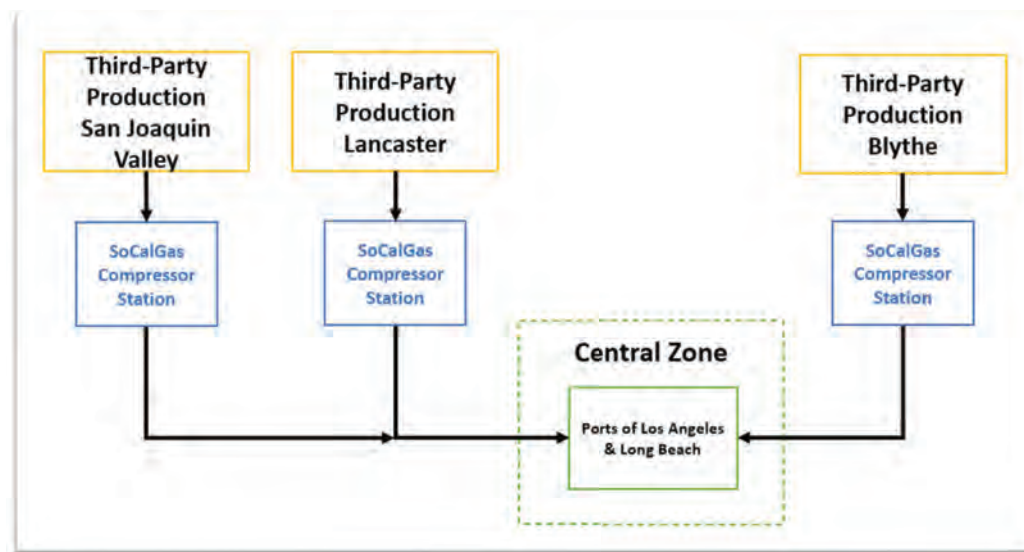


# ROUTE ANALYSIS - SCENARIO HYDRAULIC EVALUATION

## Scenario Hydraulic Analysis

- » Production Range (MMTPY): 0.5, 1.0, 1.5
- » Eight different scenarios were evaluated
  - Scenarios 1 – 3: Throughput of 0.5MM TPY
  - Scenarios 4 – 6: Throughput of 1.0MM TPY
  - Scenarios 7<sup>1</sup> – 8: Throughput of 1.5MM TPY
- » Total Route Mileage Range: 303mi– 616mi
- » Up to 500-mile route may be needed to reach two production areas and LA Basin
- » Scenario results provided to Economics, Workforce, and Alternatives Studies

## Scenarios Evaluated<sup>2</sup>



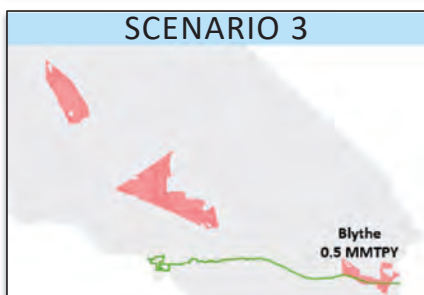
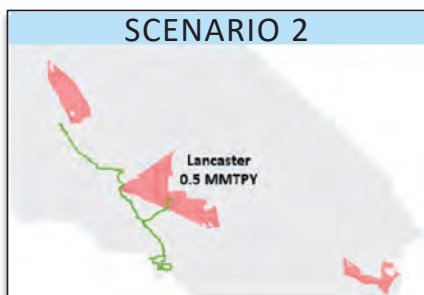
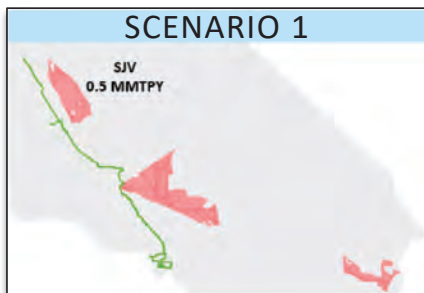
<sup>1</sup> Preferred Routes are different configurations of “Scenario 7”

<sup>2</sup> Schematic flow path of scenarios modeled. Pipeline system anticipated to deliver clean renewable hydrogen to Central and Southern California.

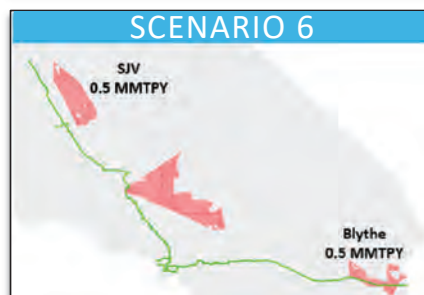
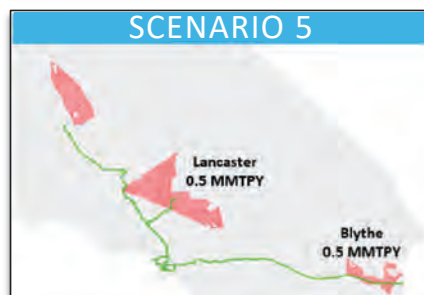
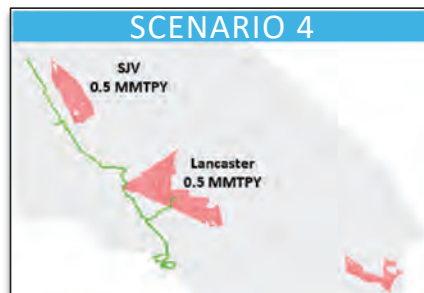


# ROUTE ANALYSIS - SCENARIO COMPARISON

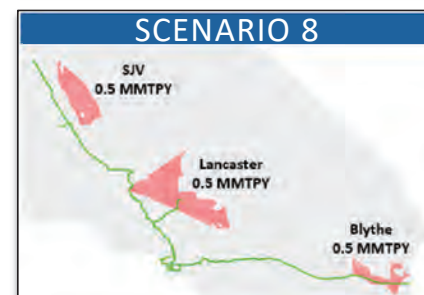
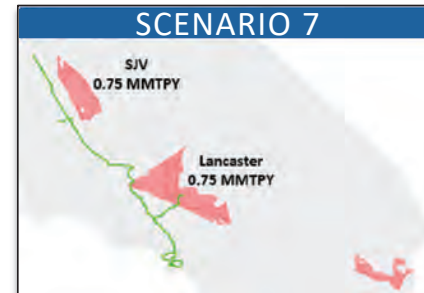
## 0.5 MMTPY Throughput





## 1.0 MMTPY Throughput



## 1.5 MMTPY Throughput



**Legend**

-  Evaluated Corridors
-  Third-Party Production Areas



# PREFERRED ROUTE FORMATION

## SYSTEM EVALUATION

- » Initial supply & demand location awareness led to Zone development
- » Pass through all 3 zones
- » Connect concentrated demand in LA Basin with clean renewable production

## SCENARIO MODELING

- » Eight Scenarios considered for varying system capacity (Production & Demand studies); Average of approx. 500 miles route to achieve proposed Angeles Link capacity of 1.5 MMTPY to meet end user demand

## ARCHES CONSIDERATION

- » Production and Offtake sites in Central and Southern California
- » Connect two SoCalGas ARCHES segments

## POSSIBLE PREFERRED ROUTES

- » Four preferred route configurations identified that meet objectives; on average the preferred routes span 450 miles
- » Route Variation 1 identified to reduce DAC and ESJ impacts
- » Each to be evaluated further in Phase 2



# PHASE 1 PREFERRED ROUTES



**Legend**

- Preferred Route
- - - Route Variation 1
- ARCHES Segment

# ROUTE VARIATION

» Application of multiple lenses to identify potential route variation for further evaluation

- CalEnviroScreen (CES4) DAC
- Climate & Economic Justice Screening Tool (CEJST) DAC

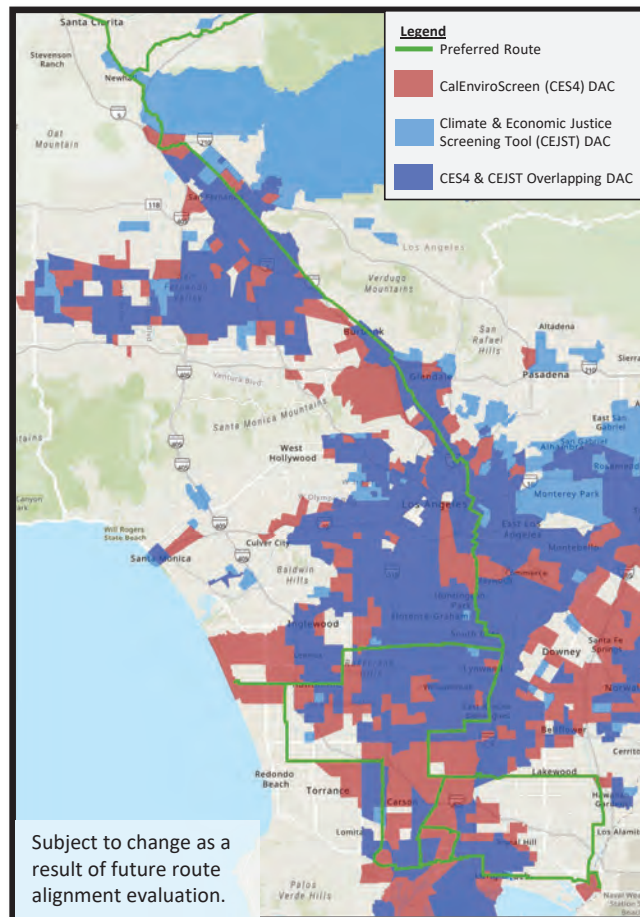
» Route variation is parallel to footprint of existing SoCalGas facilities as well as the AFDC identified corridors

» Responsive to Stakeholder Feedback

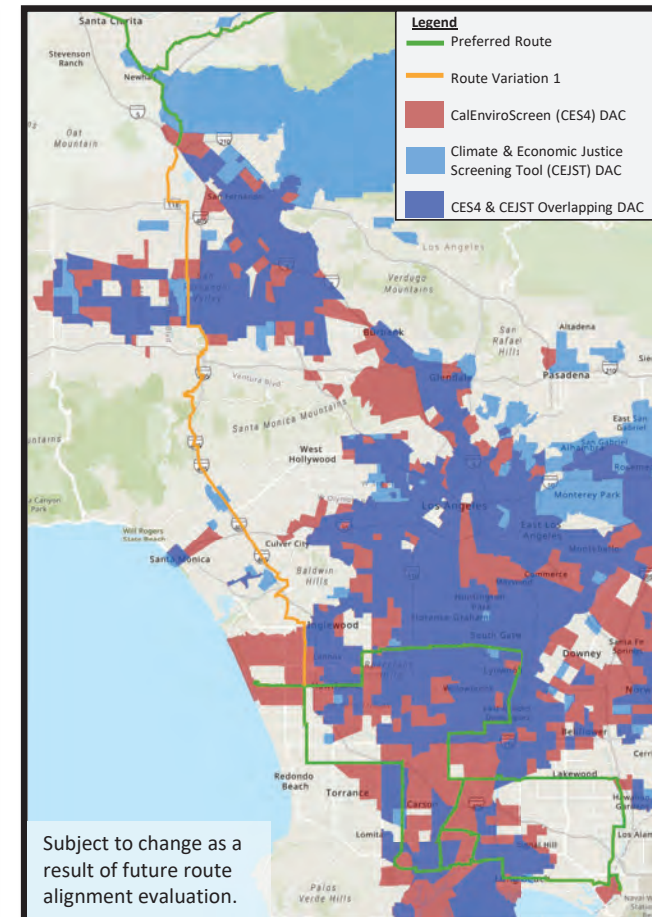
» To be further analyzed in Phase 2



Preferred Route A, B, C



Route Variation 1\*



\*This variation does not impact Preferred Route D.

# PREFERRED ROUTES A & B

## ROUTE A

## ROUTE B

### Routing Analysis

Total Route Mileage (mi)	390
ARCHES Production (sites)	5
ARCHES Offtake (sites)	8
Demand Access <sup>1</sup> (%)	83%
DAC Mileage <sup>2</sup> (%)	76% / 67%
Urban, Rural, Mountain (%)	38%, 56%, 7%

Total Route Mileage (mi)	406
ARCHES Production (sites)	5
ARCHES Offtake (sites)	8
Demand Access <sup>1</sup> (%)	83%
DAC Mileage <sup>2</sup> (%)	81% / 73%
Urban, Rural, Mountain (%)	45%, 48%, 6%

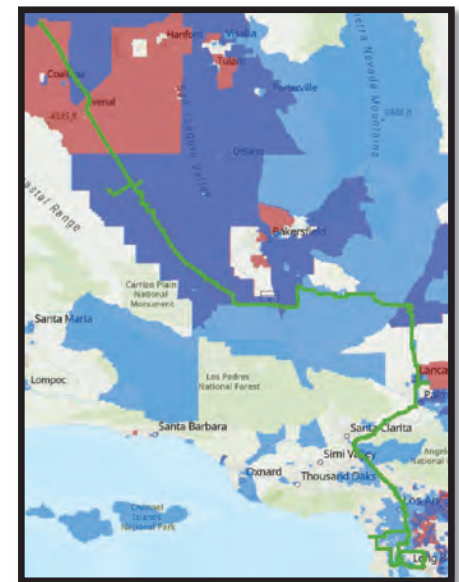
### Design Study

Cost Range <sup>3</sup> - Single/Mixed (B)	\$9 - \$11
Pipeline Sizing <sup>4</sup>	16" - 36"
Compression Requirements	2 stations

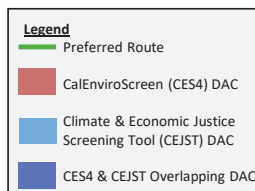
Cost Range <sup>3</sup> - Single/Mixed (B)	\$10 - \$13
Pipeline Sizing <sup>4</sup>	20" - 36"
Compression Requirements	2 stations



Subject to change as a result of future route alignment evaluation.



Subject to change as a result of future route alignment evaluation.



<sup>1</sup> 2045 Ambitious Demand Study Distribution Profile

<sup>2</sup> Mileage within a Disadvantaged Community

<sup>3</sup> Cost based on Class 5 estimates, which have accuracy ranges of -50%/+100%.

<sup>4</sup> Pipe sizes for single-run configuration



# PREFERRED ROUTES C & D

## Routing Analysis

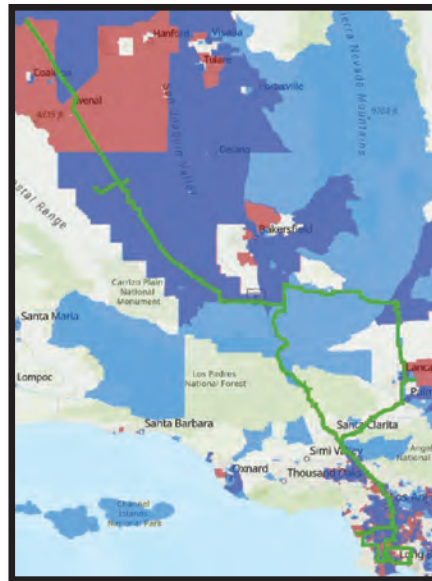
Total Route Mileage (mi)	472
ARCHES Production (sites)	5
ARCHES Offtake (sites)	9
Demand Access <sup>1</sup> (%)	83%
DAC Mileage <sup>2</sup> (%)	77% / 70%
Urban, Rural, Mountain (%)	38%, 56%, 7%

Initial Evaluation /  
Route Variation 1

## Design Study

Cost Range <sup>3</sup> - Single/Mixed (B)	\$9 - \$12
Pipeline Sizing <sup>4</sup>	20" - 36"
Compression Requirements	2 stations

## ROUTE C

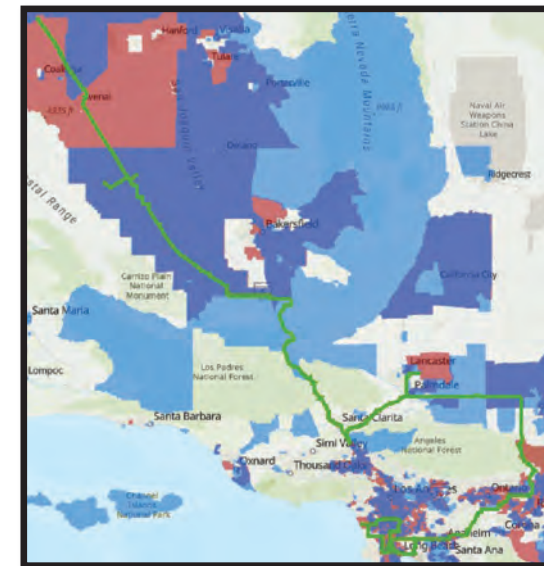


Subject to change as a result of future route alignment evaluation.

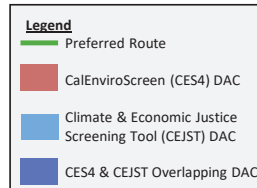
481
7
15
92%
69% / N/A
39%, 53%, 8%

\$11 - \$14
24" - 36"
2-3 stations

## ROUTE D



Subject to change as a result of future route alignment evaluation.



<sup>1</sup> 2045 Ambitious Demand Study Distribution Profile  
<sup>2</sup> Mileage within a Disadvantaged Community  
<sup>3</sup> Cost based on Class 5 estimates, which have accuracy ranges of -50%/+100%.  
<sup>4</sup> Pipe sizes for single-run configuration



# FEEDBACK - ROUTING

Thematic Comments from PAG/CBOSG	Plan to Incorporate/Address
<p><b>Engineering, Environmental, and Social attributes.</b> Identify sacred site locations, potential for seismic activity, and flora and fauna potentially impacted. Include analysis of potential land use and zoning constraints.</p>	<p>Engineering, Environmental, and Social attributes identified include DAC, cultural sites, land use, endangered species, and ROW. The total mileage within these areas was identified and included in the Appendix.</p>
<p><b>Disadvantaged Communities.</b> Focus on routing that is outside of communities that are already disadvantaged.</p>	<p>Route Variation 1 is a proposed variation of preferred routes A, B, and C that results in a decrease of the route that traverses a DAC community.</p>
<p><b>Pipeline Corridors.</b> Focus the routing study on intrastate options and provide a list of potential pipeline routes and manufacturers.</p>	<p>Those initially considered as well as the final four preferred routes that were developed are identified through this analysis. Focus was placed on routes that are all intra-state. A list of manufacturers and suppliers was considered out of scope for this feasibility analysis.</p>
<p><b>Multiple Scenarios.</b> Examine multiple scenarios for pipeline routing that include different ways of disaggregating production and illustrate how routing siting is affected by hydrogen production locations. Inter-state options evaluated should be marked distinctly from intra-state options.</p>	<p>Varying routes and production quantities were evaluated as different Scenarios. Those scenarios that include reference to inter-state facilities are clearly marked.</p>

1. All comments are available on the living library in the Comment Letters folder located on the Homepage.  
<https://arellanoassociates.sharepoint.com/sites/SCGAngelesLink>





# FEEDBACK – PIPELINE SIZING & DESIGN

Thematic Comments from PAG/CBOSG	Plan to Incorporate/Address
<p><b>Hydrogen Embrittlement &amp; Integrity.</b> Focus on safety and leak prevention with regard to materials, monitoring technologies, proposed retrofits, siting, notification, and safety protocols.</p>	<p>The evaluation of material leakage was discussed and includes potential embrittlement as well as pipeline integrity and maintenance. As described, material selections will be further refined and continued evaluation will be conducted.</p>
<p><b>Geohazards.</b> Measures that can be taken to address seismicity.</p>	<p>Design measures that are considered for geohazard locations such as earthquake faults, are discussed.</p>
<p><b>Multiple Scenarios.</b> Examine multiple scenarios for pipeline routing that include different ways of disaggregating production. Inter-state options evaluated should be marked distinctly from intra-state options.</p>	<p>Varying routes and production quantities were evaluated as different Scenarios. Those scenarios that include reference to inter-state facilities are clearly marked.</p>
<p><b>Asset Repurposing.</b> Assessment of materials and potential for leakage with the repurposing of existing gas pipelines.</p>	<p>A high-level evaluation of repurposing existing natural gas pipelines was conducted. Potential advantages and disadvantages to converting natural gas pipeline versus building new pipelines intended for hydrogen service are discussed.</p>
<p><b>Electric Reliability Literature Review.</b> Assessment of proposed infrastructure with regard to power system resilience and reliability on electricity for end-use demand resulting in greater criticality of disruptions to electricity</p>	<p>A literature review was conducted on electric reliability that included identification of challenges, planning process and outlook, and the integration between the electric and gas grid.</p>

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<https://arellanoassociates.sharepoint.com/sites/SCGAngelesLink>





**YURI FREEDMAN**  
Senior Director  
Business Development



**AMY KITSON**  
Angeles Link Director  
Engineering & Technology



**FRANK LOPEZ**  
Regional Public Affairs  
Director



**SHIRLEY ARAZI**  
Angeles Link Director  
Regulatory & Policy



## **MEMBER DISCUSSION: PRELIMINARY ROUTING/CONFIGURATION ANALYSIS**

- Please announce your name and speak directly into the microphone
- Be concise and focus on discussion topics
- Verbal comments are not the only way to provide input, feel free to type a chat
- We are accepting written input after this meeting if we run short on time, or you think of things later





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# LUNCH



# ENVIRONMENTAL SOCIAL JUSTICE COMMUNITY ENGAGEMENT PLAN AND ESJ SCREENING



**EDITH MORENO**  
Public Affairs  
Strategy & Policy Manager  
SoCalGas



**FRANK LOPEZ**  
Regional Public Affairs  
Director  
SoCalGas



# ENVIRONMENTAL SOCIAL JUSTICE (ESJ) SCREENING

*These tools serve as preliminary information intended to assist SoCalGas in identifying potential disadvantaged communities (DACs)/ESJ Communities and may not fully represent DACs/ESJ Communities in its service territory*

ESJ Screening	
<b>Data Used</b>	Environmental Justice community mapping based on CalEnviroScreen and the Climate and Economic Justice Screening Tool (CEJST) data and indicators
<b>Contents of Screening Report</b>	Provides community profile; census tract statistics; disadvantaged communities; socioeconomic conditions; public services; and minority/ethnicity
<b>Areas Assessed</b>	Total distance evaluated included approximately 1,300 linear miles



## PHASE 1 PREFERRED PIPELINE ROUTES COMBINED: ESJ COMMUNITIES

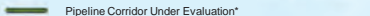
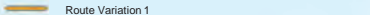

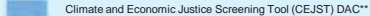

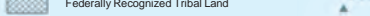
- » Although Angeles Link is proposed to traverse ~450 miles, the Routing Analysis identified approximately 1,300 miles of conceptual pipeline routes. Pipeline routes were broken up into 13 study areas.
- » ESJ Screening was conducted for each of the study areas. In addition to CalEnviroScreen and CEJST, other socioeconomic conditions (population, income, unemployment, etc.) were collected.
- » Comprehensive screening not inclusive of additional variation (Route Variation 1) identified.
- » ESJ Screening report will help guide the identification of stakeholders and communities to engage in Phase 2 and allow us to target outreach and resource allocation.

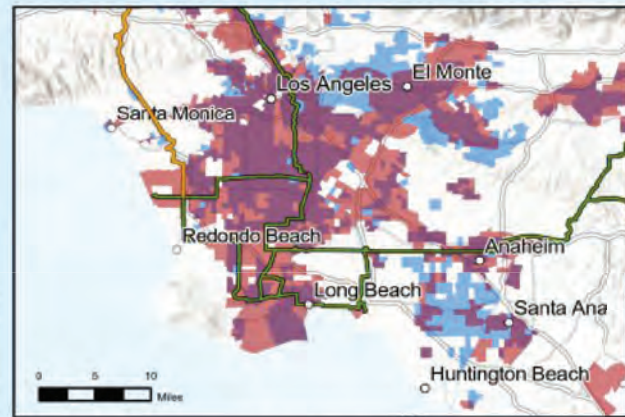


# PHASE 1 POTENTIAL PIPELINE ROUTES COMBINED: ESJ COMMUNITIES

## Angeles Link Project Phase 1 Potential Pipeline Corridors Under Evaluation

### Disadvantaged Communities (DACs)

-  Pipeline Corridor Under Evaluation\*
-  Route Variation 1
- Disadvantaged Community**
-  CalEnviroScreen 4.0 (CES4) SB 535 DAC\*
-  Climate and Economic Justice Screening Tool (CEJST) DAC\*\*
-  CES4 and CEJST Overlapping DACs
-  Federally Recognized Tribal Land



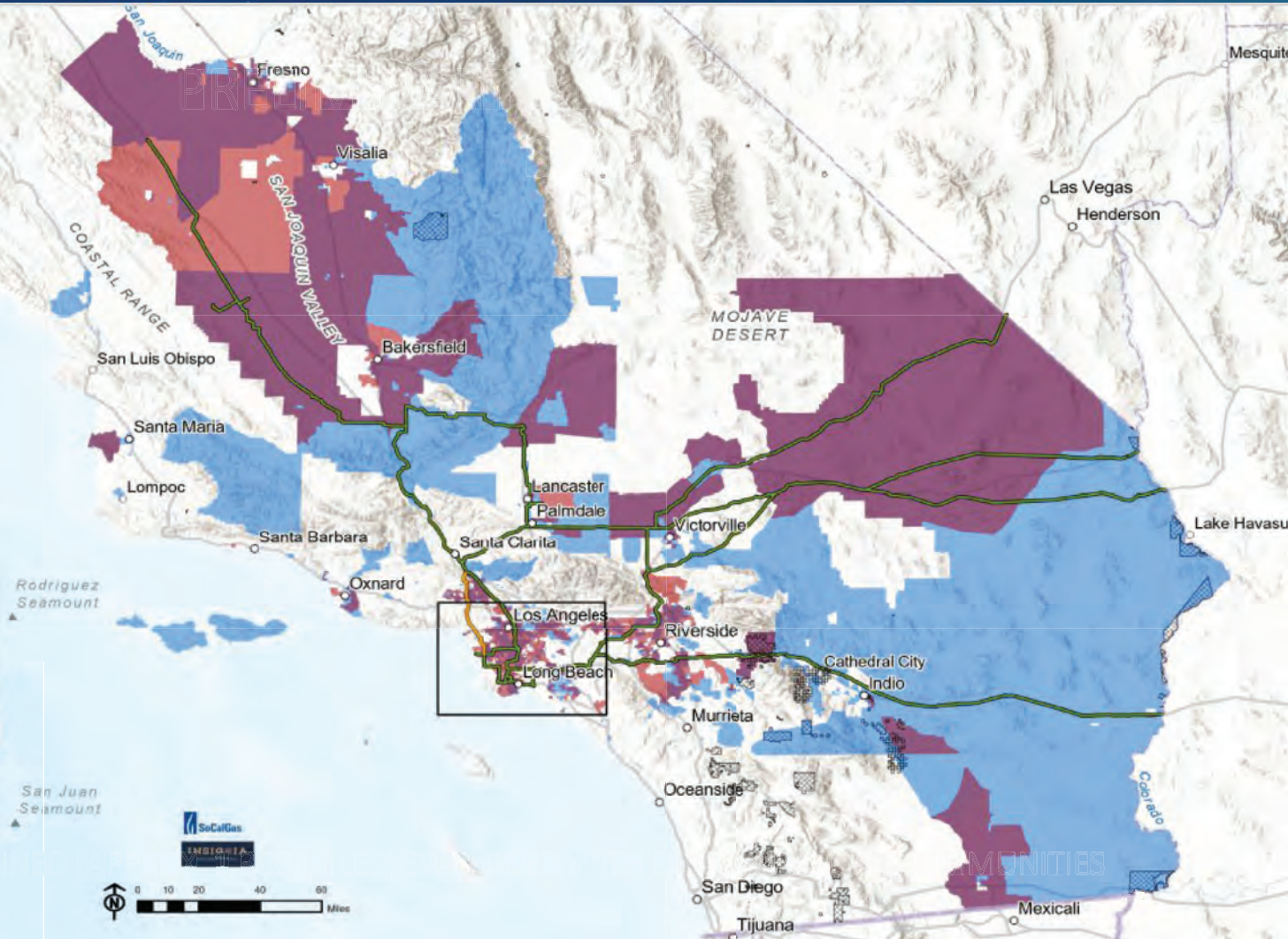
\*Alignment based upon pipeline routes identified in May 2024 during the Preliminary Routing/Configuration Analysis.

\*CalEnviroScreen 4.0 (CES4) SB 535 DAC identified as:

- 1) Census tracts receiving the highest 25 percent of overall scores in CalEnviroScreen 4.0;
- 2) Census tracts lacking overall scores in CalEnviroScreen 4.0 due to data gaps, but receiving the highest 5 percent of CalEnviroScreen 4.0 cumulative pollution burden scores;
- 3) Census tracts identified in the 2017 DAC designation as disadvantaged, regardless of their scores in CalEnviroScreen 4.0; or
- 4) Lands under the control of federally recognized tribes. For purposes of this designation, a tribe may establish that a particular area of land is under its control even if not represented as such on CalEPA's DAC map and therefore should be considered a DAC.

\*\*Climate and Economic Justice Screening Tool (CEJST) DAC identified as:

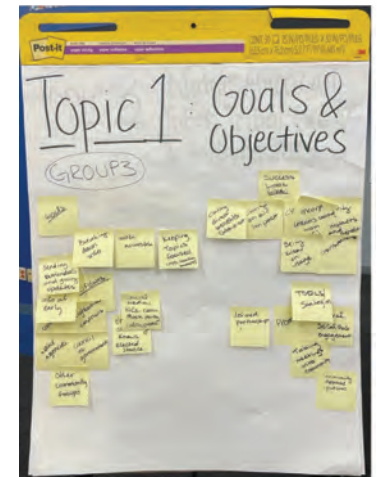
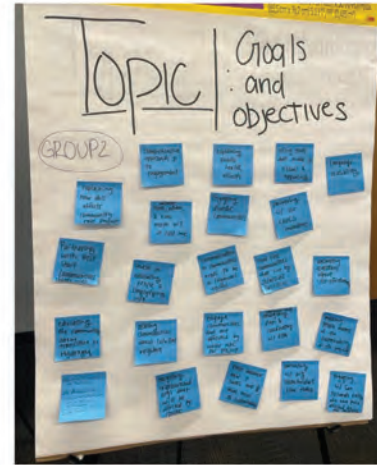
- 1) Census tracts that meet the thresholds for at least one of the tool's categories of burden (climate change, energy, health, housing, legacy pollution, transportation, water and wastewater, and workforce development); or





# ESJ COMMUNITY ENGAGEMENT PLAN BACKGROUND

- » Desktop ESJ analysis originally developed as part of Environmental Analysis
  - CBOSG wanted more than a desktop GIS analysis being conducted for Environmental Analysis
- » ESJ Plan developed in response to stakeholder feedback provided during July 2023 CBOSG workshop
- » Preliminary framework of the ESJ Plan was presented to CBOSG members in September 2023
  - Breakouts at CBOSG meeting informed the development of the ESJ Plan
- » ESJ Draft Plan shared with PAG/CBOSG members prior to this meeting



# ESJ COMMUNITY ENGAGEMENT PLAN CONTENTS

Introduction

Background

Goals of the Plan

Alignment with CPUC ESJ Action Plan

Preparation of Community Benefits Plans

Hydrogen Equity Principles

ESJ Screening

Engagement Strategies

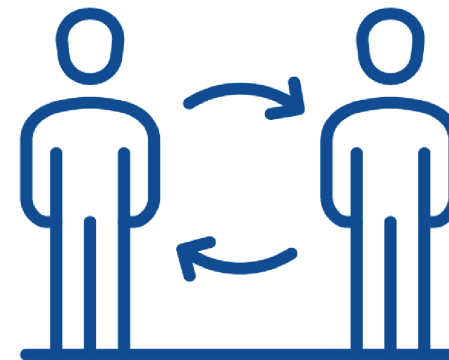
Community Engagement Meeting Approaches

Conclusion



## ESJ PLAN GOALS

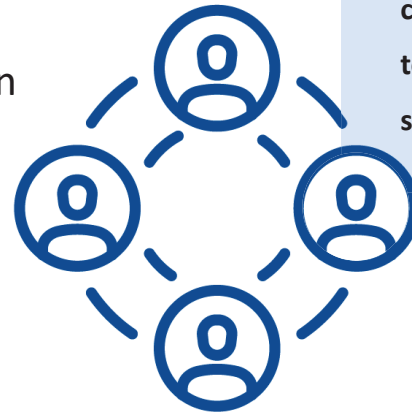
- » **Actively involve ESJ Communities** in educational discussions about SoCalGas's operations and relevant regulatory frameworks, emphasizing transparency and trust building.
- » **Provide ESJ Communities with information** regarding routing and placement of new hydrogen infrastructure and collaborate with them to solicit feedback on project design to minimize and address potential impacts.
- » **Identify themes of interest to ESJ Communities** and integrate them into Phase 2 stakeholder engagement efforts.
- » **Collaborate with ESJ Communities** to address potential concerns such as safety and affordability.
- » **Identify the potential benefits** that could result from Angeles Link, including economic, workforce, improved air quality, and greenhouse gas emission reduction benefits.
- » **Gather ESJ Community input** on potential direct benefits desired by impacted communities at-large. Insights gathered from ESJ Communities will help shape the development of Community Benefits Plans.



# ENGAGEMENT STRATEGIES

## Sample of Proposed Engagement Strategies

- » Collaborate with Grassroots Organizations Along Routes
- » Leverage “Promotoras” model
- » Direct Community Engagement
- » Educate through Local Media
- » Partner with Local Governments
- » Toll Free Hotline
- » Dedicated Angeles Link Website For Information and Public Comments Submission
- » Specialized Small Sub-Group Convenings

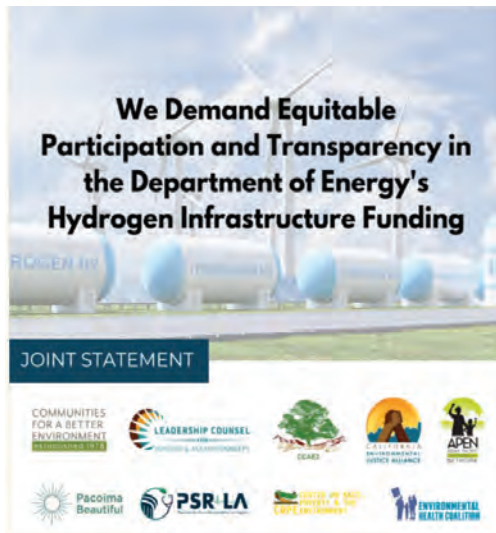


## From Draft ESJ Engagement Plan:

“ Beyond an information sharing framework, the ESJ Plan also aims to enable the active involvement of ESJ Communities and other stakeholders that have been historically overlooked in a typical project development process. The ESJ Plan is designed to provide these communities with a seat at the table, creating a feedback loop that allows SoCalGas to listen to and learn from ESJ Community stakeholders directly.”



# EQUITY PRINCIPLES FOR HYDROGEN



SoCalGas has reviewed the Equity Principles for Hydrogen (Principles) and sees significant alignment between many of the values and positions tied to transportation outlined in the Principles and Angeles Link.

SoCalGas and Principles align with:

- » Prioritizing Community Engagement
- » Tribal Consultation
- » Minimizing and Mitigating Environmental Impacts and Reducing Energy Pollution
- » Safety is Foundational Throughout the Lifecycle
- » Cost Transparency

SoCalGas supports issues raised by Principles:

- » Non-fossil Hydrogen Production
- » Hydrogen Production Regulation
- » Continued Research on Hydrogen End Uses



# EXPANDED CBO/TRIBAL ENGAGEMENT

- » SoCalGas primarily focused its initial stakeholder engagement efforts within the Los Angeles Basin
- » SoCalGas has since expanded CBO/Tribal engagement outside of the LA basin\*

*\*Not inclusive of all informational meetings held.*

Center for Race Poverty & Environment (No Response)	Radio Campesina
Central California Asthma Collaborative	San Manuel Band of Mission Indians
Central California Environmental Justice Network (Pending)	Tejon Indian Tribe
Central Valley Air Quality Coalition (Declined)	Sequoia Riverlands Trust
Central Valley Community Foundation	SocioEnvironmental and Education Network (SEEN)
Fernandeño Tataviam Band of Mission Indians	Union of Concerned Scientists
Leadership Counsel (Scheduling)	Valley Clean Air Now
Pacoima Beautiful (Scheduling)	



# FEEDBACK

Number of stakeholders have provided verbal and written comments<sup>1</sup> on our preliminary findings, including but not limited to:

Thematic Comments	Plan to Incorporate/Address
<b>Additional engagement in all preliminary corridors identified in Phase 1</b>	» SoCalGas has expanded engagement to approximately 30 organizations
<b>Lack of detailed data, including more granular maps and routes</b>	» Additional information on routing and DACs has been issued to PAG/CBOSG
<b>Use of promotional/marketing language</b>	» Review of materials to provide fact-based information

1. All written comments are available on the living library in the Comment Letters folder located on the Homepage. <https://arellanoassociates.sharepoint.com/sites/SCGAngelesLink>





## MEMBER DISCUSSION: ENVIRONMENTAL SOCIAL JUSTICE COMMUNITY ENGAGEMENT PLAN AND ESJ SCREENING

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## NEXT STEPS

- Today's presentation and meeting recording will be available soon on the living library
  - Microsoft now requires two-step verification to access the living library. If you have any difficulties accessing the library, please let us know
- Current Draft Reports posted for feedback
  - Water Resource Evaluation due on Friday, 8/2
  - Workforce Planning & Training Evaluations due Friday, 8/2
  - GHG Evaluation due Wednesday, 8/7
  - NOx and Other Air Emissions Assessment due Wednesday, 8/14
  - Production Planning & Assessment due Friday, 8/16
  - High-Level Feasibility Assessment and Permitting Analysis due Friday 8/16
  - Preliminary Routing/Configuration Analysis (inc. ROW/Franchise) due Friday, 8/16
  - Pipeline Sizing & Design Criteria due Friday, (8/16)
- If you have questions or comments, please submit them in writing
- When the next meeting date is available, it will be shared with you



# THANK YOU FOR YOUR PARTICIPATION

**Water and Best Management Practices**

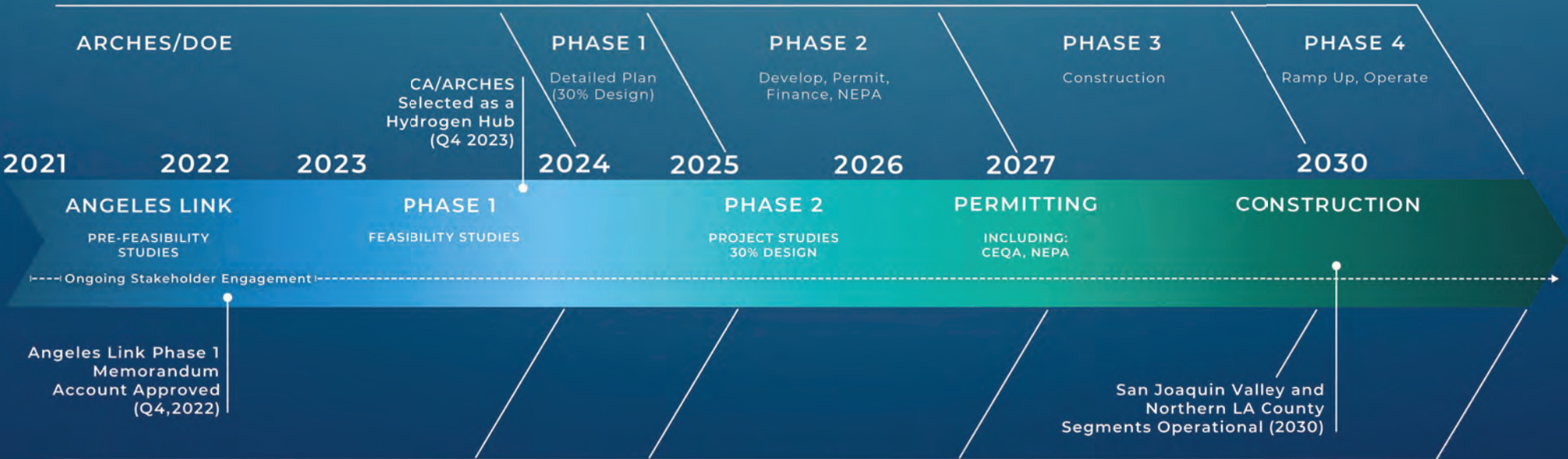
SoCalGas California Gas Company proudly offers this approach captures tens of thousands of gallons of potentially hazardous runoff and reclaims it. Here's how it works:

- Rain is captured on the roof with drains, crates and gutters.
- The runoff then is transported throughout the landscape by perforated pipes in gravel-filled trenches, eliminating standing water.
- The pipes eventually lead the water to dry streambeds where much of it will sit and infiltrate.
- To minimize erosion, excessive and possibly damaging runoff from large storms is directed to overflow drains that quickly transport it to the storm drain system.





# CONCEPTUAL ANGELES LINK TIMELINE



ESTIMATED AS OF APRIL 2024



## **Appendix 8 - Summary of CBOSG Workshop Meeting**

## SoCalGas Angeles Link

### Community Based Organizations Stakeholder Group (CBOSG)

#### July Q3 Workshop/Meeting Summary

7/23 CBOSG July Workshop (10:00 AM-2:00 PM)

**Hybrid (In-Person/Via Zoom)**

#### I. Attendee Report

- 8 in-person attendees; 9 virtual attendees; 15 CBOs represented

\*Please refer to Attachment A for a complete list of attendees.

#### II. Purpose

- Provide information and gather feedback on the following topics:
  - Draft Report: Production Planning and Assessment Study
  - Draft Report: Preliminary Routing/ Configuration Analysis with Pipeline Sizing and Permitting
  - Environmental Social Justice Plan and Screening
- Breakout Session: Environmental Social Justice Plan

#### III. Presentation Highlights and Feedback Themes

- **Draft Report: Production Planning and Assessment Study:** The presentation focused on providing an analysis for clean renewable hydrogen production by third parties in the SoCalGas service territory.
  - Discussion/Feedback Themes:
    - Some members emphasized the importance of solar power and electrolysis as the dominant pathway for clean hydrogen production, with other sources like biomass gasification playing a smaller role.
    - Some members discussed the need to consider all hydrogen storage options, including using the pipeline itself, as a mechanism to balance the supply and demand.
    - Members requested that SoCalGas include more details on the costs of renewable energy and electrolyzer facilities that were used to calculate the levelized cost of hydrogen.
- **Draft Report: Preliminary Routing/ Configuration Analysis with Pipeline Sizing and Permitting:** The presentation focused on the analysis and evaluation of potential pipeline routing configurations for Angeles Link.
  - Discussion/Feedback Themes:

- Members expressed appreciation for the consideration of disadvantaged communities and efforts to minimize impacts, such as the proposed route variation.
  - Members emphasized the importance of continuing to engage with stakeholders, especially those in historically impacted communities, as the route selection process moves forward in Phase Two.
  - Some members were interested in understanding how the pipeline routing and design will integrate with other transportation and energy infrastructure, such as electric transmission lines.
- **Environmental Social Justice Plan and Screening:** The presentation focused on illustrating the engagement of ESJ communities and DACs on the project for effective community involvement and education.
  - Discussion/Feedback Themes:
    - Members commended SoCalGas for considering a route variation that could reduce the percentage of the pipeline traversing disadvantaged communities.
    - Members emphasized the importance of meaningfully engaging historically excluded stakeholders in the project development process.
    - Members stressed the importance of minimizing adverse impacts to disadvantaged communities.
    - Members suggested more outreach to different native communities to get them involved in the process.
  - Breakout Sessions:
    - Members spoke of the impact of Angeles Link on Black and Brown communities, including what benefits the communities would gain, like jobs.
    - Groups were very receptive to the “Promotora” Model and thought community members conducting outreach and educating would be highly effective.
    - CBOs stressed that collaboration with ESJ communities to address concerns like safety was of critical importance.
    - Members had a strong desire for transparent and accessible information – including translations into Spanish, about the project and its potential impacts.

- There was a strong discourse about what SoCalGas can do in support of anti-displacement studies for communities where Angeles Link is being built, including data for renters and businesses.

## Appendix A

### CBOSG July Workshop Attendee Roster

#	First Name	Last Name	Affiliation
<b>CBOSG Members</b>			
1	Marcia	Hanscom	Ballona Wetlands Institute*
2	Michael	Berns	California Greenworks*
3	Ricardo	Mendoza	Coalition for Responsible Community Development*
4	Kenta	Estrada-Darley	Coalition for Responsible Community Development*
5	Jay	Parepally	Communities for Better Environment +
6	Robert	van de Hoek	Defend Ballona Wetlands*
7	Hyepin	Im	Faith and Community Empowerment (FACE)
8	Andrea	Vega	Food and Water Watch
9	Jill	Buck	Go Green Initiative
10	Kisa	Ito	Little Tokyo LA
11	Ciriaco "Cid"	Pinedo	Mexican American Opportunity Foundation
12	Michelle	Yanez	Soledad Enrichment Action*
13	Alex	Jasset	Physican for Social Responsibility-LA
14	Rashad	Rucker-Trapp	Reimagine LA +
15	Raul	Claros	Reimagine LA* +
16	Enrique	Aranda	Soledad Enrichment Action*
17	Andrea	Williams	Southside Coalition of Community Health Centers
<b>Non-CBOSG Members</b>			
18	Christopher	Arroyo	California Public Utilities Commission
19	Armen	Keochekian	Insignia Environmental
20	Julie	Roshala	Insignia Environmental
21	Anniken	Lydon	Insignia Environmental
22	Frank	Lopez	SoCalGas*
23	Emily	Grant	SoCalGas*

24	Yuri	Freedman	SoCalGas*
25	Jessica	Foley	SoCalGas*
26	Shirley	Arazi	SoCalGas*
27	Amy	Kitson	SoCalGas*
28	Chanice	Allen	SoCalGas*
29	Katrina	Regan	SoCalGas*
30	Annie	Ng	SoCalGas*
31	Alma	Marquez	Lee Andrews Group*
32	Sarah	James	Lee Andrews Group*
33	Keshanna	Wiley	Lee Andrews Group*
34	Chester	Britt	Arellano Associates*
35	Stephanie	Espinoza	Arellano Associates*
36	Keven	Michel	Arellano Associates*
37	Nancy	Verduzco	Arellano Associates*

In-Person Attendees (\*)

PAG/CBOSG Members (+)





## **Appendix 9 - Summary of PAG Workshop Meeting**

# SoCalGas Angeles Link Planning Advisory Group (PAG)

July 2024 Workshop

7/24/24 PAG Workshop (10:00AM-2:00PM)  
SoCalGas Energy Resource Center & Online via Zoom

## I. Attendee Report

- PAG attendees (12 in-person; 27 via Zoom)

Please refer to Attachments A for a complete list of attendees.

## II. Purpose

- Provide information and gather feedback on the following topics:
  - Draft Report: Production Planning and Assessment Study
  - Draft Report: Preliminary Routing/ Configuration Analysis with Pipeline Sizing and Design
  - Environmental Social Justice Plan and Screening

## III. Presentation Highlights and Feedback Themes

- **Draft Report: Production Planning and Assessment Study:** The presentation focused on analyzing the potential of clean renewable hydrogen production in SoCalGas service territory.
  - Feedback Themes:
    - Concerns were expressed about the viability and costs of using behind-the-meter solar and electrolysis, with an emphasis on the need for detailed analysis of capital and operational expenses.
    - Questions on the availability of suitable land for solar installations and recommended a thorough examination of land use constraints, particularly regarding environmental and zoning regulations.
    - Clarification on how the projects aim to use renewable energy exclusively avoiding grid electricity to produce hydrogen.
- **Draft Report: Preliminary Routing/Configuration Analysis with Pipeline Sizing and Design:** The presentation explored potential pipeline routes, assessing technical, environmental, and social factors to determine the most feasible and least impactful routing design options.
  - Feedback Themes:
    - Emphasis on the necessity of avoiding disadvantaged communities and sensitive environmental areas.
    - Emphasis on the importance of considering social and environmental attributes, including endangered species and cultural sites.

- Concerns about the potential risks of hydrogen embrittlement and seismic activity were highlighted.
  - Recommendations to prioritize safety in the design and material selection processes.
  - Requests the need for a transparent and inclusive process, ensuring that all stakeholders, including local communities and tribes, are involved and informed.
- **Environmental Social Justice Plan and Screening:** The presentation focused on the environmental justice screening and the environmental justice plan.
  - Feedback Themes:
    - Emphasis on the importance of equitable engagement and the need for comprehensive assessments to ensure that disadvantaged communities are not disproportionately affected.
    - Suggestions for more robust engagement strategies, such as leveraging local leaders and providing transparent information to empower communities.
    - Suggestions for allowing local communities to provide input/feedback for engagement strategies.

## Attachment A

### July Workshop 2024 Attendee Roster

#	First Name	Last Name	Affiliation
<b>Members</b>			
1	Miles	Heller	Air Products
2	Sarah	Wiltfong	Bizfed
3	Rizaldo	Aldas	California Energy Commission
4	Katrina	Fritz	California Hydrogen Business Council
5	Benjamin	Tang	California Public Utilities Commission
6	Sasha	Cole	California Public Utilities Commission
7	Matthew	Taul	California Public Utilities Commission
8	Erik	Johnson	City of Pasadena
9	Tyson	Siegele	Clean Energy Strategies representing the Utility Consumers' Action Network
10	Christopher	Arroyo	California Public Utilities Commission
11	Iain	Fisher	California Public Utilities Commission
12	Michael	Colvin	Environmental Defense Fund*
13	Joon Hun	Seong	Environmental Defense Fund
14	Ray	Salas	Fernandeno Tataviam Band of Mission Indians*
15	Janice	Lin	Green Hydrogen Coalition
16	Matthew	Schrap	Harbor Trucking Association
17	Sara	Fitzimon	IEPA
18	Sal	DIConstanzo	International Longshore and Warehouse Union   Local 13 (ILWU3)
19	Jesse	Vismonte	Los Angeles Department of Water and Power
20	Aaron	Guthrey	Los Angeles Department of Water and Power
21	Julia	Dowell	Sierra Club
22	Charles	Wilson	Southern California Water Coalition
23	Sam	Cao	South Coast AQMD
24	Norman	Pedersen	Southern California Generation Coalition*
25	Ben	Clayton	UA Local 250*
26	Nat	Williams	UA Local 250*
27	Brandon	Mortoff	UA Local 250*
28	John	Sisley	UA Local 364*
29	Wyatt	Stiles	UA Southern California District Council*
30	Tracy	Gipson	UA Southern California District Council*
31	Ernest	Shaw	Utility Workers Union of America 483*
32	Robin	Downes	UWA Local 43*

Non-Members			
33	Chester	Britt	Arellano Associates*
34	Nancy	Verduzco	Arellano Associates*
35	Suzanna	Tran	Arellano Associates*
36	Armen	Keochekian	Insignia Environmental
37	Anniken	Lydon	Insignia Environmental
38	Sarah	James	Lee Andrews Group*
39	Keshanna	Wiley	Lee Andrews Group*
40	Emily	Grant	SoCalGas*
41	Frank	Lopez	SoCalGas*
42	Edith	Moreno	SoCalGas*
43	Jessica	Foley	SoCalGas*
44	Shirley	Arazi	SoCalGas*
45	Yuri	Freedman	SoCalGas*
46	Annie	Ng	SoCalGas*
47	Katrina	Regan	SoCalGas*
48	Amy	Kitson	SoCalGas*
49	Chanice	Allen	SoCalGas*

\*In person attendee



## **Appendix 10 - Hydrogen Safety Panel Review**

# Hydrogen Safety Panel Review Process

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Southern California Gas Company (SoCalGas) is proposing to develop Angeles Link, a clean renewable hydrogen<sup>1</sup> pipeline system to facilitate transportation of clean renewable hydrogen from multiple regional third-party production sources and storage sites to various delivery points and end users in Central and Southern California, including in the Los Angeles Basin. SoCalGas developed a portfolio of feasibility studies to evaluate Angeles Link. One such study is the Evaluation of Applicable Safety Requirements (Safety Study)<sup>1</sup>.

As part of a robust stakeholder feedback and collaboration process, SoCalGas solicited review of the Safety Study by the Hydrogen Safety Panel (HSP),<sup>2</sup> amongst other external stakeholder groups.<sup>3</sup> SoCalGas provided the draft Safety Study to the HSP on April 11, 2024 for comment and review. The HSP provided a Comment Report to SoCalGas on June 7, 2024. In response to HSP's request, SoCalGas reviewed the Comment Report and identified areas of correction for inaccuracy and/or for clarification. The final Comment Report from HSP is attached in this Appendix 10.

As a result of the comments and guidance received from HSP, the Safety Study has been enhanced to include additional information, provide clarification, and describe next steps for Angeles Link safety planning. Specifically, the following modifications have been made:

- In future phases of Angeles Link, in collaboration with HSP, SoCalGas will use formal safety plan templates, such as the recommended standard HSP Pacific Northwest National Laboratory (PNNL) Safety Plan Guide and related template(s), as guides in furtherance of Angeles Link.
- Angeles Link safety planning will also include a more detailed assessment of SoCalGas's Safety Management System with emphasis on safety culture.
- Additional risk analysis and management information was incorporated in the Safety Study to describe SoCalGas's enterprise risk management model, including preliminary potential risk and risk management considerations regarding the transportation of fuel by pipeline.

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<sup>1</sup> For clarity, the title of the Safety Study was changed from "A Plan for Applicable Safety Requirements" to "Evaluation of Applicable Safety Requirements" to provide clarification that the study is an evaluation of safety concerns involved in pipeline transmission, storage, and transportation as directed by the California Public Utilities Commission.

<sup>2</sup> The HSP is a group of experts recognized for their specialized knowledge in hydrogen technologies and safety protocols. The panel includes professionals from national laboratories, academia, and industry, many of whom hold key certifications such as Professional Engineer licenses and are involved in the development of critical safety standards, including safety guidelines under the U.S. Department of Energy Hydrogen and Fuel Cells Program.

<sup>3</sup> In parallel to the review and collaboration with HSP, the Safety Study was issued to the Angeles Link Planning Advisory Group (PAG) and the Community-Based Organization Stakeholder Group (CBOSG) for additional input. Responses to Comments from PAG/CBOSG on the Safety Study are provided in this Q3 2024 quarterly report, Appendix 3.

Based on HSP's recommendation, the Risk Management table in the Safety Study was updated to designate the potential risks organized by three key safety analysis topics: people, equipment, and the environment. An explanation of SoCalGas's standard and policy for a process hazard analysis was also added to this section. A comprehensive risk analysis is expected to be conducted in subsequent phases of Angeles Link as more detailed information is available.

- HSP's comprehensive review flagged key procedures and processes, such as purging procedures and electrical area classification, that were recommended to be prioritized as these items have significant impact to design and operations. A summary of these items was added to the Specifications, Standards, and Procedures (SSPs) section of the Safety Study. A more detailed and comprehensive evaluation of procedures and processes will be completed in future phases of Angeles Link as specific design and operational information is developed. This evaluation will entail creating any new procedures or processes that are needed to support hydrogen pipeline transportation.
- The Safety Study was also revised to highlight lessons learned, along with a summary of SoCalGas's internal procedure for performing and determining a root cause analysis for events that may have enterprise-wide impacts on the safety of employees, public, the environment, or the integrity or reliability of the natural gas pipeline system.
- The Safety Study underscores the importance of pipeline transportation of clean renewable hydrogen to be safely achieved through design, construction, compliance, and safety culture. Industry recommended best practices and lessons learned will also be applied.

With its decades of gas pipeline experience and a dedicated, skilled workforce, SoCalGas is well positioned to safely build, operate, and maintain a clean renewable hydrogen pipeline system and intends to continue collaborating with the HSP in future phases of Angeles Link.



Please Note:

Truncated comments [ART2R1], [AC5], and [AC10] are fully displayed in the last page of this comment report.

## Title: Angeles Link Project; Feasibility Study #1; Task #4: Plan for Evaluation of Applicable Safety Requirements

SoCalGas

Task #4; Contractor Project No. 159059

### Background

At the request of Southern California Gas Company (SoCalGas), a Sempra Energy Utility in southern California, members from the Hydrogen Safety Panel (HSP) reviewed design and safety information in feasibility study #1, "Task #4: Plan for Applicable Safety Requirements," (Study #1) associated with the Angeles Link project. This review is contracted through the AIChE Center for Hydrogen Safety. The objective of the project is to develop a system that will transport clean renewable hydrogen, likely from multiple local and longer term regional clean hydrogen production sources to various delivery points in the Los Angeles Basin, and in the broader southern and central California regions. The project is in its early conceptual phase. The HSP is contracted to support three feasibility studies associated with conceptual design effort. This review is for the first feasibility study which develops safety planning criteria and guidance.

Study #1 is not a typical safety plan developed per the standard HSP Pacific Northwest National Laboratory (PNNL) safety plan guide, "Safety Planning for Hydrogen and Fuel Cell Projects," PNNL-25279.<sup>1</sup> Study #1 includes specifications and general criteria to be used for further safety planning. It was prepared by Burns and McDonnell engineering design firm to support phase 1 of the project. Review comments are organized by the structure of the study with additional evaluation against the HSP safety plan template criteria. This document may be updated as Study #1 is updated and finalized. Annex A contains a list of SoCalGas-supplied documentation reviewed by the HSP.

The HSP participated in an initial kick-off meeting on February 14, 2024, where the project was introduced. The HSP also participated in a meeting to discuss preliminary findings on June 4, 2024.

The two remaining feasibility studies, addressing pipeline sizing and design criteria, and preliminary routing/configuration analysis are not yet initiated.

### Summary of Results

SoCal Gas is to be commended for its serious consideration of the safety aspects of hydrogen system safety at this stage of the project. The Study #1 is a high-quality safety assessment of SoCalGas systems. The most significant issue identified is a lack of clarity in examining SoCalGas' total SMS program, and in its application of future hazard analyses when it approaches its design phase. In addition to comments on the specific sections, additional review against the standard HSP safety template criteria are provided for SoCalGas consideration.

The HSP is honored to be involved in the implementation of the Angeles Link project, and looks forward to involvement with SoCalGas to ensure its future hydrogen-related hazards are safely managed. The HSP would appreciate any feedback on how its review has enhanced the safety of the project or if any of its conclusions are inaccurate.

### Comments on Study #1

#### Executive Summary

<sup>1</sup> [https://h2tools.org/sites/default/files/Safety\\_Planning\\_for\\_Hydrogen\\_and\\_Fuel\\_Cell\\_Projects.pdf](https://h2tools.org/sites/default/files/Safety_Planning_for_Hydrogen_and_Fuel_Cell_Projects.pdf)

**Commented [CA1]:** Please remove reference to "Task 4," as this language is not included in the title of the study.

**Commented [ART2R1]:** Modified but not according to comment. Removed the 1<sup>st</sup> 6 words "Angeles Link Project; Feasibility Study #1". Kept struck-out language; the copy of the document we reviewed has the text exactly as written. Here it is. [1]

**Commented [CA3]:** Please remove "Energy" as the correct entity name is simply "Sempra"

**Commented [ART4R3]:** Not accepted. The copy of the document we reviewed shows the text "Sempra Utility" on the title page.

**Commented [AC5]:** Study #1 is not intended to be a safety plan. SoCalGas clarifies that Study #1 is an evaluation of safety concerns involved in pipeline transmission, storage, and transportation as ordered by the California Public Utilities Commission. CPUC Decision (D.22-12-055, Ordering Paragraph [OP] 6 (f)). This is not a safety plan. [2]

**Commented [CA6R5]:** The title of this safety study has been changed to "Evaluation of Applicable Safety Requirements", to be consistent with California Public Utilities Commission. CPUC Decision (D.22-12-055, Ordering Paragraph [OP] 6 (f)).

**Commented [ART7R5]:** Have clarified that Study#1 is not "meant" to be safety plan. Have also revised Study #1 to Plan since SoCal Gas has indicated that Feasibility studies 2 and 3 will probably not be submitted to the HSP.

**Commented [AC8]:** Consider updating this statement to reflect new cover page of Study #1 "SoCalGas commissioned this analysis from Burns & McDonnell. The analysis was conducted, and this report was prepared, collaboratively."

**Commented [ART9R8]:** Accepted. Text modified.

**Commented [AC10]:** Since Study #1 is not intended to be a safety plan but rather an evaluation of safety concerns involved in pipeline transmission, storage, and transportation. Any recommended assessments as a safety plan will be done as more details about the project design and locations are developed if needed. [3]

**Commented [AC11R10]:** The draft studies for the pipeline sizing/design criteria and preliminary routing have been shared with stakeholders and will not be included in this review request to HSP. Propose to remove this sentence to avoid confusion.

**Commented [ART12R10]:** Accepted. Text deleted and Study #1 terminology replaced with "Plan."

1. The Executive Summary highlights the safety management system (SMS) of SoCalGas, but these protocols are not mentioned elsewhere in the document. The mention of SMS in the following “Pipeline Safety Management” section is the second and only other location of this overarching safety program; and it is described in context of assessing SMS maturity. The Study #1 does not provide details of the SoCalGas SMS maturity, or describe the process for conducting an assessment. **Recommend that this document include a comparison Appendix of SoCalGas SMS program elements against industry standards (example: pipeline safety management system<sup>2</sup>).**

**Commented [AC13]:** SoCalGas anticipates conducting a more detailed analysis in subsequent phases as the project progresses and data is available.

**Commented [AC14R13]:** Proposed clarification “Recommend that the safety plan developed in the subsequent phases of the project include a comparison Appendix of SoCalGas SMS program elements against industry standards.” This is a suggestion for HSP for consideration in final draft.

**Commented [ART15R13]:** Accepted. Text modified.

Introduction

2. This section describes that the transmission of hydrogen is a mature industry with “the properties and risks associated with hydrogen well known.” This is true for the chemical/petroleum industries generating or processing hydrogen but mostly inaccurate for all other industries. **There is a tendency, especially for the methane and propane gas industries, to oversimplify the safety implications of blending or transmitting pure hydrogen. It would be expected that while a natural gas production and transmission company could certainly leverage its flammable gas SMS safety culture that the overall tone in the Introduction would be more serious for evaluating and addressing hydrogen safety concerns.**
3. This section identifies the purpose of the Study #1 to identify potential updates to SoCalGas standards, specifications, and procedures. Standards, specifications, and procedures are normally only a part of a proper SMS. How will SoCalGas identify gaps in actual safety assessments and document the needed updates to other SMS elements?

Pipeline Safety Management

4. The description of activities relative to API 1173 program elements is a very good comparison. Specific section comments are noted below.
  - a) “Risk Management” Is the management of risk describing an evaluation against asset damage or does it encompass hazard evaluation and ensuing risk planning to prevent or mitigate hazards? The description is vague. The plans to integrate hydrogen and hydrogen assets into this process is unclear without further details. For example, does SoCalGas have a process hazard assessment for its existing facilities and if so, will it be re-evaluated to address hydrogen hazards?
  - b) “Safety Assurance” This section appears to be addressing injuries, but it is unclear. It mentions SMS but then discusses metric that can only be addressing injuries. If there are plans to expand metric tracking for other safety-related systems (e.g., in maintenance systems tracking failure of safety sensors) then this should be detailed.
5. The challenge with using prescriptive industry guide SMS elements is that they often overlook the larger system, i.e., do not provide a holistic review. This is often witnessed when a firm performs a hazard analysis, such as a Failure, Modes, and Effects Analysis on a specific piece of equipment but ignores hazards from common cause failures, such as a power outage. A major topic for system evaluation that needs addressed for this project is interface management. Since the pipeline will be attached to several suppliers using potentially divergent technologies how are the interfaces being managed? For example, what standards, policies and controls are being levied on the suppliers? How will alarms and interlocks be communicated across the various firms and operations? What common training and emergency preparedness systems need to be in place prior for all operations prior to flowing hydrogen?

**Commented [AC16]:** The recommended assessment is outside the scope of the Phase I Study. The recommended assessment will be done as more details about the project design and locations are developed in subsequent phases of the project.

**Commented [ART17R16]:** Accepted. Text modified to recommend addressing system hazards in future safety planning.

<sup>2</sup> <https://pipelinesms.org/>

### Physical and Chemical Properties

6. The focus on comparison of hydrogen and natural gas properties is well done. **Consider modifying the table and/or discussion to qualify changes needed or best practices addressing hydrogen/methane mixtures and a pure hydrogen stream. The way the data is presented is slightly misleading. For example, in the “Odor” row, and in other rows, management is summarized by using odorants. This is practical for methane transmission, but regardless of several European papers, the value of odorants for a pure hydrogen stream is not qualified by and national code. Recommend replacing the “Management” column with 2 columns describing only potential additional management strategies for both hydrogen/methane mixtures and pure hydrogen.**
7. Hydrogen’s propensity to explode compared to natural gas was not mentioned.

**Commented [AC18]:** Clarification - The proposed project is a 100% clean renewable hydrogen transport system and is evaluated within that context. To avoid confusion with other SoCalGas hydrogen projects, it is inapplicable to include hydrogen/methane mixtures for this proposed project.

### Risk Management

8. Before listing specific risks and consequences this section should provide a description of the overall SoCalGas hazard and safety analysis process. How does SoCalGas conduct hazard/safety analysis? What is the plan for incorporating hydrogen risks into existing hazard analyses? What is the risk ranking process from identified hazards? Does the SoCalGas hazard and safety analysis program need major revamping (i.e., per Appendix A) to address hydrogen? If so, this warrants additional explanation and planning. Recommend listing preliminary/final hazard analysis methods in the Potential Management column in the Design row.
9. The wording here implies a complete evaluation; however, the quality and completeness of this data is indeterminate without describing the process for how table items were identified and the process for determining risk, with the protocols for applying preventive or mitigative controls.
10. The identified risks appear to be very high-level. What is their source? The potential consequences are generally appropriate but sometimes are also too high-level (under design risks: “Properties of hydrogen that differ from natural gas are not appropriately accounted for in design and construction, leading to failures and impacting areas adjacent to the failure location(s) and the end users.”), or are responsive to non-safety issues (under design risks: “If a significant failure occurs, the shutdown could lead to fuel shortages and service disruptions...”). Recommend that high-level risks be organized around the three key safety analysis topics: people, equipment, and the environment.
11. Additional items for management of design risks include evaluation of specific hydrogen safety codes and standards, such as from the National Fire Protection Agency (NFPA) and Compressed Gas Association (CGA); i.e., those documents identified in the Codes and Standards section. The sole mention of API documents infers that this is the only primary standard mitigative process (and in actuality are only industry guides.)

**Commented [ART19R18]:** Accepted. Text modified to eliminate discussion of hydrogen/methane mixtures. Last recommendation deleted and text describing approach in the Plan for comparing hydrogen and methane properties clarified. Odorant comment separated into a sub-comment and clarified.

### Key Safety Codes

12. A comprehensive list was provided. There is a reference to NFPA 2 which then by reference will point the user to NFPA 68 and NFPA 69 for Explosion Control and Prevention. However, along with the discussion above about explosions, these documents should be directly listed.

### Specifications, Standards & Procedures Evaluation

13. Two major issues that are worthy of specific discussion are purging (for testing, maintenance, and some normal equipment operation), and electrical area classification. These items have the potential for significant impact to design and operations.

14. Potential odorants have significant discussion, with multiple European documents mentioning potential success. The national hydrogen safety industry is not focused on odorants for multiple reasons. **What would be more valuable would be a discussion on the value of odorants to both a blended gas pipeline and pure hydrogen.** This is an example where typical safety planning in regards to methane and propane is less appropriate for [pure] hydrogen. There has been discussion that hydrogen might leak where odorant does not, thereby limiting effectiveness. This may not be an issue if already addressed in the studies. A related reference is made that fuel cells need 99.97% hydrogen. While this is correct, this overlooks specific contaminants that are a concern even at PPB levels. The issue with odorants is not total purity' it's the individual effect of contaminants in various processes.
15. The discussion on page 18 and page 24 regarding personal mobile hydrogen detection equipment is another example where safety thinking is biased from natural gas or other flammable gas applications. Outside, unless a personal monitoring device is directly in the path of a hydrogen jet stream leak, or directly above in concentrated cloud, a worn personal detector has minimal value because of the buoyancy of hydrogen. If these two conditions are actually encountered then personnel are in extremely dangerous conditions, indicating a failure to qualify site conditions before any personnel entry.

Control Room and Emergency Response

16. This is a good high-level summary, **but what was expected is a more detailed discussion of the plans related to hydrogen**, e.g. is the Angeles Link going to have a separate control room, how is the response going to be managed in particular what is the approach to alarm differentiation and response (could a crew show up to a hydrogen problem only prepared for natural gas?).

Awareness, Education, and Training

17. The resources to be tapped for support in training developed are appropriate. Section 3.0 outlines important hydrogen properties that need to be referenced in the training and procedures. This table should include the largely invisible nature of hydrogen fires (in daylight). This nuance of a hydrogen fire underscores the importance of flame-resistant gear and access to handheld UV/IR tools for first responders. The low radiant heat fraction of a hydrogen flame coupled with the invisible nature creates an increased chance that someone can enter a hydrogen flame unwittingly. Additionally, flammability ranges are mentioned but the transition of a hydrogen/air mixture from a flash fire to deflagration and transition to detonation should be added. Hydrogen/air mixtures require far less congestion to create a dangerous explosion than does a natural gas/air mixture. Flame speeds are mentioned in the context of modifications to combustion devices but not in a loss of containment and vapor cloud explosion.

Lessons Learned

18. This is a good high-level summary but should also discuss how lessons learned are captured and addressed by SoCal Gas.

Conclusion

19. **It is recommended that the conclusion and executive summary include a task-based matrix that identifies this "task #4" and the other associated tasks in parallel, along with specific high-level actions. Understanding what comes next and who will be accessing**

**Commented [AC20]:** The recommended assessment is outside the scope of the Phase I Study. The recommended assessment will be done as more details about the project design and locations are developed in subsequent phases of the project.

**Commented [AC21R20]:** Propose clarification "what is expected in development of the safety plan in subsequent phases of the project, is a more detailed discussion of the plans related to hydrogen...." This is a suggestion for HSP for consideration in final draft.

**Commented [ART22R20]:** Accepted. Text modified.

findings and documents can help prioritize the timing and establish the key stakeholders. The context of the other tasks was not self-evident.

**Commented [AC23]:** Correction/clarification for "task #4" it has been removed and has no relevancy to any associated tasks. The task labeling was intended to track this deliverable.

**Commented [AC24R23]:** Propose to remove this comment. This is a suggestion for HSP for consideration in final draft.

**Commented [ART25R23]:** Accepted. Text modified to simply identify value in identifying next steps and comparison of 10 recommended items to HSP safety plan template.

### Comments on Study #1 Appendices

#### Appendix A

20. The evaluation of impacts to existing SoCalGas standards, specifications, and procedures is an excellent first step for identifying gaps in program criteria. It is difficult however to understand the quality of this evaluation with the minimal description. While it described a general methodology, the appendix did not identify the evaluation and review process for determination of gaps, nor give any examples. How were existing documents reviewed, searched, or analyzed? Did the evaluation include an expert panel? Was the evaluation peer-reviewed? The appendix did not reference where this data is located and managed. Most importantly, it did not describe how the gaps will be addressed, tracked, and documented. This appears a simple summary which could be easily incorporated into the plan. Suggest that this Appendix be greatly expanded to qualify the evaluation process.
21. Relative to comment #1, it would be expected that this evaluation would be completed for every SoCalGas SMS program item.
22. The gaps might be rank in order of importance based on the phase and task organization of the overall project.

**Commented [AC26]:** The recommended assessment is outside the scope of the Phase 1 Study. The recommended assessment will be done as more details about the project design and locations are developed in subsequent phases of the project.

**Commented [ART27R26]:** Noted; however, comment is still valid for the minimal detail noted in the Appendix. Text modified to identify preparation of assessment as a future activity while including missing detail.

#### Appendix B

23. Appendix B was very interesting information and indicated that SoCalGas has information at its disposal to build into their project. However, its value to the safety plan is unclear. There is no link or reference in Study #1 to this Appendix. In particular, it's not clear if the Angeles Link will be for industrial-only applications or at some point might be connected to a residential/commercial distribution.

**Commented [AC28]:** Appendix B was removed from Study #1 shortly after submittal to HSP to avoid confusion with the scope of the project and the Appendix B content that included hydrogen-blending. Propose to remove this comment. This is a suggestion for HSP for consideration in final draft.

**Commented [ART29R28]:** Not accepted. Appendix B was submitted for review and comment is valid, since identified in Section 12 of the Plan.

### Other Comments

The Study #1 would benefit from evaluation of the standard requested information in the HSP Pacific Northwest National Laboratory (PNNL) safety plan guide, "Safety Planning for Hydrogen and Fuel Cell Projects," PNNL-25279.<sup>3</sup> Section E.13 in Appendix B identifies this planning in its general evaluation of hydrogen safety. The following comments are provided in addition to the those above to improve current safety planning from the PNNL document standard safety plan report structure.

**Commented [AC30]:** This safety study explores applicable safety requirements and considerations for Angeles Link. In collaboration with the hydrogen safety panel, we recognize there are formal safety plan templates available and in future phases of the project will use related template(s) as guides for furtherance of development of the project.

**Commented [AC31R30]:** Propose clarification "The development of the safety plan in subsequent phases of the project, would benefit from evaluation of the standard requested information in the HSP PNNL safety plan guide...." This is a suggestion for HSP for consideration in final draft.

**Commented [ART32R30]:** Accepted. Text modified to qualify comments for possible Plan clarity improvement and for future planning. Similar minor text editing was made to all remaining comments (#24-47) to clarify for future safety planning.

**Commented [AC33]:** Appendix B was removed from Study #1 shortly after submittal to HSP to avoid confusion with the scope of the project and the Appendix B content that included hydrogen-blending. Propose to remove this comment. This is a suggestion for HSP for consideration in final draft.

**Commented [ART34R33]:** Not accepted. Document was provided for review and noted in Section 12.0 of the plan.

#### Description of Work (Scope)

24. The Executive Summary and/or general document would benefit from a more detailed scope discussion, related to specific facilities, locations, gas volumes and pressures, customer connections, overall distances, etc. While this is early in the project, it's difficult to understand the potential details and issues.
25. The introduction meeting held on February 14 and associated slide deck were helpful, but it is noted that item number 4 in the presentation does not seem to align with this report stated as Task #4 (the object of this safety plan). Generally, a safety plan should be an arching policy document that informs next steps and ongoing behaviors. Recommend that this discussion be added to the introduction.

<sup>3</sup> [https://h2tools.org/sites/default/files/Safety\\_Planning\\_for\\_Hydrogen\\_and\\_Fuel\\_Cell\\_Projects.pdf](https://h2tools.org/sites/default/files/Safety_Planning_for_Hydrogen_and_Fuel_Cell_Projects.pdf)

#### Organizational Policies and Procedures

26. SoCalGas has an extensive library of policies and procedures for the operation of their existing natural gas infrastructure. Study #1 is indicative that the project is following a methodical approach to understand where those existing documents might have gaps with regard to hydrogen. While detailed statistics of this review are provided, as stated above, it is not clear what metrics are being applied to determine which documents need to be modified or rewritten.

#### Hydrogen and Fuel Cell Experience

27. SoCalGas has extensive experience with natural gas systems. It is not clear how much direct experience they might have with hydrogen, although several efforts are described to develop that in-house expertise based upon other relevant industries. One item that could be considered is a discussion of SoCalGas' involvement with other industry groups and safety organizations. It is noted that Study #1 mentions its data is being reviewed by the HSP (page 7).

#### Identification of Safety Vulnerabilities (ISV)

28. Recognizing a preliminary design as pending artifact, the safety plan at this point may be improved by referencing the intent of qualitative or process hazard tools (FMEA or HAZOP) as requirements. Once a detailed design and siting plan is available, a more formal QRA might be appropriate.
29. One significant missing item in Section 3.0's comparison of hydrogen and natural gas was a discussion on how hydrogen has a much higher propensity to develop dangerous overpressures, particularly when confined. This could be especially pertinent with regard to production facilities, pipeline compressor stations, and customer locations where these facilities will need additional evaluation with regard to overpressure within the facility and to neighboring exposures. In particular, pipelines often have relief devices and vents where the hydrogen will need to be safely vented at very high flowrates. Industry experience has shown that large releases of hydrogen have led to significant overpressure events that were not predicted with simple gas dispersion or thermal radiation models.
30. One example of a potential difference in approach was a reference on page 16 that mentioned a compressor enclosure requiring gas detection when enclosed by more than 50% walls. An enclosure with a roof with walls more than 25% of the perimeter would be considered indoors per NFPA 2, so there will be some likely differences with regard to equipment and enclosures.
31. Section 3.0 also referred to coatings on the interior of lines to potentially reduce the risk of hydrogen embrittlement. This is a questionable practice and may have limited or no protection effect.

#### Risk Reduction Plan

32. A specific hydrogen safety plan should detail the risk preventive and mitigation controls being employed matched to the listing of hazards from the ISV. At a minimum, the safety plan should detail this process.
33. What tools (e.g., modeling) might be used to evaluate large releases within facilities or in the general public? What are the consequences to the risk assessment once a high consequence area is determined?

#### Codes and Standards

34. The HSP maintains a listing of all relevant hydrogen safety-related codes and standards on its web site.<sup>4</sup>

#### Procedures

35. A key procedure noted in normal safety plan reviews as lacking is a commissioning or readiness review plan that verifies the installation is constructed as designed and per the appropriate codes and standards. This includes review and checks of items such as design drawings, quality control criteria, safety analysis controls, safety system testing (e.g., alarms and interlocks), purge completion, and tracking of open items.

#### Equipment and Mechanical Integrity

36. At this stage of the project the equipment and mechanical integrity control is implied through the codes, standards and existing procedures referenced. A detailed design and operational review with process hazard analysis (PHA) and other risk-based approaches will likely identify mechanical integrity risk points to be addressed which will drive specification and procedural adjustments. If PHA usage is identified in the safety plan, the anticipation of equipment and mechanical integrity issue identification should be noted.

#### Management of Change

37. While management of change (MOC) is noted in AP I1173 item 4, the MOC plan for the safety plan itself is not explicitly identified. The document is clearly under an MOC protocol as evident by the change block on the cover page noting rev. C. Recommend that the owner and reviewing parties of the plan itself be identified in the plan in section 2.0. An MOC process may be included in SoCalGas standard specification documentation but it is unclear. Proper MOC is a major underlying gap in many hydrogen incidents, and thus highlighted in the standard safety plan template as a key safety culture item.

#### Safety Reviews

38. The plan for ongoing safety reviews and associated updates should be mentioned as a future effort in the operational stage of the project.

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<sup>4</sup> <https://h2tools.org/codes-standards>

#### Project Safety Documentation

39. This was not really addressed in the Plan directly, but presumably given existing natural gas processes and regulation, will not be an issue.
40. In addition to this safety plan, a dossier of documentation should include, when completed, the PHA and/or other risk-based studies on the design and the training materials. These materials need to be under an MOC protocol and accessible to teams that influence and are subject to the safety procedures.

#### Training

41. Provide training for all personnel that may interact with the hydrogen systems. Different levels and complexity of training may be applicable depending on personnel scope, such as general awareness, expert, and emergency responder training.
42. A list of training opportunities was listed but there was not a description of how those training organizations or courses would be applied to the project. Extra training will be needed to reinforce the reasons and protocols for the differences between natural gas and hydrogen for all employees.

#### Safety Events and Lessons Learned

43. A link to the list in section 9 to h2tools.org might be a good addition so that future readers can get any updates.

#### Emergency Response

44. This seemed to be an oversight in Appendix A since it was not listed, but there was some discussion in the text of the Safety Plan that addressed. Perhaps this could be approved by the new Chief Clean Fuels Officer to signify top level commitment.
45. The emergency response plan is appropriate. First responders are a critical audience for training efforts and training documentation MOC and accessibility.

#### Supporting Documentation

46. At this stage of the project supporting documentation is not applicable. Items to be considered for update in the future include, piping and instrumentation diagrams, site plans, alarm/interlock and critical shutdown matrices, and diagrams showing emergency equipment.

#### Safety Plan Approval

47. No approval process was provided.



## Annex A: Review Documents

Table 1. Files/Documents Supplied by SoCalGas Used for Review	
#	Document Identifier and Description
Primary Documents	
1	SoCalGas - HSP Safety Study Submit_PLAN FOR APPLICABLE SAFETY REQUIREMENTS.docx (41 pages)
2	Appendix A - SoCalGas Standards Review Summary-HSP Submit.docx (2 pages)
3	Appendix B - Study of hydrogen in natural gas infrastructure.pdf (262 pages)

**Commented [AC35]:** Please remove reference to Appendix B.

**Commented [ART36R35]:** Not accepted. Appendix B was provided for review and noted in section 12.0 of the Plan. Additional item #1 details were added. A new #4 item was added to document kick-off meeting presentation

*Disclaimer: This review and report were requested by the Center for Hydrogen Safety, and were prepared as an account of work sponsored by an agency of the United States Government. Neither the Center for Hydrogen Safety, United States Government nor any agency thereof, nor Battelle Memorial Institute, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the Center for Hydrogen Safety, United States Government or any agency thereof, or Battelle Memorial Institute. The views and opinions of authors expressed herein do not necessarily state or reflect those of the Center for Hydrogen Safety, United States Government or any agency thereof. Additionally, the report does not provide any approval or endorsement by the United States Government, Battelle, or the Hydrogen Safety Panel of any system(s), material(s) or equipment discussed in the report.*

DRAFT

Modified but not according to comment. Removed the 1<sup>st</sup> 6 words “Angeles Link Project; Feasibility Study #1”. Kept struck-out language; the copy of the document we reviewed has the text exactly as written. Here is screen shot of the first page



# Task #4: Plan for Applicable Safety Requirements

Angeles Link Engineering/Design

Phase 1

Contractor Project No 159059

Contract 4700023407

Study #1 is not intended to be a safety plan. SoCalGas clarifies that Study #1 is an evaluation of safety concerns involved in pipeline transmission, storage, and transportation as ordered by the California Public Utilities Commission. CPUC Decision (D.22-12-055, Ordering Paragraph [OP] 6 (f)). This safety study explores applicable safety requirements and considerations for Angeles Link. In collaboration with the hydrogen safety panel, we recognize there are formal safety plan templates available and in future phases of the project will use related template(s) as guides for furtherance of development of the project.

Since Study #1 is not intended to be a safety plan but rather an evaluation of safety concerns involved in pipeline transmission, storage, and transportation. Any recommended assessments as a safety plan will be done as more details about the project design and locations are developed in subsequent phases of the project. With respect to the two other reports mentioned, those reports will be shared with stakeholders, but are not being submitted for HSP formal peer review. However, SoCalGas welcomes any feedback that the HSP has on those reports.

## **Title: Task #4: Plan for Applicable Safety Requirements**

**SoCalGas**

**SoCalGas Document Control No.: BMCD-ALP1-Task4-0001**

### **Background**

At the request of Southern California Gas Company (SoCalGas; a Sempra Energy utility), members from the Hydrogen Safety Panel (HSP) reviewed design and safety information in the feasibility study “Task #4: Plan for Applicable Safety Requirements” (Plan), associated with the Angeles Link project. The objective of the project is to develop a system to transport clean renewable hydrogen, likely from multiple local and longer term regional clean hydrogen production sources, to delivery points in the Los Angeles Basin and the broader southern and central California regions. The project is in its early conceptual phase.

This review is contracted through the American Institute of Chemical Engineers (AIChE) Center for Hydrogen Safety and is the first of several feasibility studies that the HSP may review. This feasibility study develops safety planning criteria and guidance.

The Plan is not meant to be a typical safety plan developed per the HSP Pacific Northwest National Laboratory (PNNL) guide.<sup>1</sup> Instead, it includes specifications and general criteria for further safety planning and generation of a hydrogen safety plan, as applicable. SoCalGas commissioned the analysis from Burns & McDonnell and collaborated on its development. Review comments are organized by the structure of the study with an additional evaluation against the criteria in the HSP safety plan template.

The HSP participated in an initial kick-off meeting on February 14, 2024, where the project was introduced. An HSP review was drafted in June 2024, followed by a discussion meeting with SoCalGas. SoCalGas subsequently conducted a fact-check and provided comments on the HSP review in early September. This final review document incorporates minor changes from that fact-check. Annex A contains a list of SoCalGas-supplied documentation reviewed by the HSP.

### **Summary of Results**

SoCalGas is to be commended for seriously considering hydrogen system safety at this stage of the project. The Plan is a high-quality safety assessment of SoCalGas systems. The most significant issue with the Plan is a lack of clarity about the SoCalGas total safety management system (SMS) program and in its application to future hazard analyses when the project approaches the design phase.

The HSP is honored to be involved in the implementation of the Angeles Link project and looks forward to involvement with SoCalGas to ensure its future hydrogen-related hazards are safely managed. The HSP would appreciate any feedback on how its review has enhanced the safety of the project or if any of its conclusions are inaccurate.

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<sup>1</sup> [https://h2tools.org/sites/default/files/Safety\\_Planning\\_for\\_Hydrogen\\_and\\_Fuel\\_Cell\\_Projects.pdf](https://h2tools.org/sites/default/files/Safety_Planning_for_Hydrogen_and_Fuel_Cell_Projects.pdf)

## Comments on Plan

### Executive Summary

1. The Executive Summary highlights the SoCalGas SMS, but these protocols are not discussed elsewhere in the document. The only other mention of SMS is in the “Pipeline Safety Management” section, where it is described in context of assessing SMS maturity. The Plan does not provide details on the maturity of the SMS or describe the assessment process. It is recommended that future revisions of the Plan or subsequent safety plan documents consider an appendix comparing the SoCalGas SMS program elements against industry standards (e.g., pipeline SMS<sup>2</sup>).

### Introduction

2. This section states that hydrogen transmission is a mature process with “the properties and risks associated with hydrogen well known.” This is true for chemical/petroleum industries generating or processing hydrogen but is mostly inaccurate for other industries. There is a tendency to oversimplify the safety implications of blending or transmitting pure hydrogen, especially within the methane and propane gas industries. Although a natural gas production and transmission company could certainly leverage its SMS safety culture for flammable gas, the overall tone in the introduction should better highlight the unique safety concerns of hydrogen.
3. This section states that the Plan’s purpose is to identify potential updates to SoCalGas standards, specifications, and procedures. These documents are normally only a part of a SMS. How will SoCalGas identify gaps in actual safety assessments, and document the updates needed to other SMS elements?

### Pipeline Safety Management

4. The comparison of activities to American Petroleum Institute (API) 1173 program elements is a very good. Specific comments on this section are given below.
  - a. Risk Management: The description is vague. Is the management of risk describing an evaluation against asset damage or does it encompass hazard evaluation and ensuing risk planning to prevent or mitigate hazards? More details are needed on how the project plans to integrate hydrogen and hydrogen assets into this process. For example, does SoCalGas have a process hazard assessment for its existing facilities , and if so, will it be reevaluated to address hydrogen hazards?
  - b. Safety Assurance: This section appears to be addressing injuries, but it is unclear. It mentions SMS but then discusses a metric that can only be used for injuries. Any plans to expand metric tracking for other safety-related systems (e.g., in maintenance systems tracking failure of safety sensors) should be detailed.
5. SMS elements in prescriptive industry guides sometimes overlook the larger system (i.e., lack a holistic review). An example is when a firm performs a hazard analysis – such as failure, modes, and effects (FMEA) – on a specific piece of equipment but does not address hazards from common cause failures, such as a power outage. A related topic for future project safety planning is interface management. Since the pipeline will be attached to several suppliers using potentially divergent technologies, how are the interfaces being managed? For example, what standards, policies, and controls are being levied on the suppliers? How will alarms and interlocks be communicated across

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<sup>2</sup> <https://pipelinesms.org/>

the various firms and operations? What common training and emergency preparedness systems need to be in place for all operations prior to flowing hydrogen?

### Physical and Chemical Properties

6. The focus on comparing hydrogen and natural gas properties is valuable. Consider modifying the table and/or discussion to include best practices for hydrogen compared to methane (i.e., replacing the Management column).
  - a. An example is the use of odorants as a management tool (in the Odor and Toxicity rows), implying that this is a common practice for hydrogen mitigation. This is practical for methane transmission, but regardless of several European papers, the use of odorants for a pure hydrogen stream is neither common nor qualified by national code.
7. There is no mention of hydrogen's greater propensity to explode compared to natural gas.

### Risk Management

8. Before listing specific risks and consequences, this section should describe the overall SoCalGas process for hazard and safety analysis. How does SoCalGas conduct hazard/safety analysis? What is the plan for incorporating hydrogen risks into existing hazard analyses? What is the risk ranking process from identified hazards? Does the SoCalGas hazard and safety analysis program need major revamping (i.e., per Appendix A) to address hydrogen? If so, this warrants additional explanation and planning. It is recommended that preliminary/final hazard analysis methods be listed in the Potential Management column in the Design row.
9. The wording here implies a complete evaluation; however, the quality and completeness of this data is indeterminate without a description of the process for identifying table items and the process for determining risk, with the protocols for applying preventive or mitigative controls.
10. The identified risks appear to be very high level. What is their source? The potential consequences are generally appropriate but sometimes are also too high level (under design risks: "Properties of hydrogen that differ from natural gas are not appropriately accounted for in design and construction, leading to failures and impacting areas adjacent to the failure location(s) and the end users"), or are responsive to non-safety issues (under design risks: "If a significant failure occurs, the shutdown could lead to fuel shortages and service disruptions"). It is recommended that high-level risks be organized around the three key safety analysis topics: people, equipment, and the environment.
11. Additional items for management of design risks include evaluation of specific hydrogen safety codes and standards, e.g., from the National Fire Protection Agency (NFPA) and Compressed Gas Association (CGA) (i.e., those documents identified in the Codes and Standards section). The sole mention of API documents infers that they are primary standards when in actuality are only industry guides.

### Key Safety Codes

12. A comprehensive list is provided. There is a reference to NFPA 2, which directs the reader to NFPA 68 and NFPA 69 for explosion control and prevention. However, along with the discussion above about explosions, these documents should be directly listed.

### Specifications, Standards, & Procedures Evaluation

13. Two major issues worthy of discussion are purging (for testing, maintenance, and some normal equipment operation) and electrical area classification, both of which can significantly impact design and operations.
14. There is significant discussion about odorants in pure hydrogen piping systems, with multiple European documents mentioning potential success. However, the hydrogen safety industry is not focused on odorants for multiple reasons. A discussion on the value of odorants to both a blended gas pipeline and pure hydrogen would be more appropriate. This is an example where typical safety planning for methane and propane is less appropriate for pure hydrogen. A major weakness in the use of odorants as risk mitigation is where hydrogen might leak where odorant does not, limiting effectiveness. The Plan notes that fuel cells need 99.97% hydrogen. While this is correct, this overlooks specific contaminants that are a concern even at PPB levels. The issue with odorant contamination is not total purity but rather the individual effect of contaminants in various processes.
15. The discussion on personal mobile hydrogen detection equipment (page 18 and page 24) is another example where safety thinking is biased toward natural gas or other flammable gas applications. Outdoors, unless a personal monitoring device is directly in the path of a hydrogen jet stream leak or directly above in concentrated cloud, it has minimal value because of the buoyancy of hydrogen. If these two conditions are encountered, personnel are in extreme danger, indicating a failure to qualify site conditions before personnel entry.

### Control Room and Emergency Response

16. This is a good high-level summary. In subsequent phases of the project, the Plan or subsequent safety planning documents should provide more details on hydrogen emergency response, specifically from the control room. For example, will the Angeles Link have a separate control room? How will the response be managed? Specifically, what is the approach to alarm differentiation and response? Could a crew show up to a hydrogen incident prepared only for natural gas?

### Awareness, Education, and Training

17. The resources to be accessed for support in training development are appropriate. Section 3.0 outlines important hydrogen properties that need to be referenced in the training and procedures. This table should include the largely invisible nature of hydrogen fires (in daylight). This nuance of hydrogen fires underscores the importance that first responders have flame-resistant gear and access to handheld ultraviolet/infrared tools. The low radiant heat fraction of a hydrogen flame coupled with its near-invisible nature increases the chance of someone entering a hydrogen flame unwittingly. This section also mentions flammability ranges, but future safety planning should better consider the transition of a hydrogen/air mixture from a flash fire to deflagration and transition to detonation. Hydrogen/air mixtures require far less congestion to create a dangerous explosion compared to a natural gas/air mixture. Flame speeds are mentioned in the context of modifications to combustion devices but not in the context of a loss of containment and vapor cloud explosion.

### Lessons Learned

18. This is a good high-level summary, but it should also discuss how lessons learned are captured and addressed by SoCal Gas.

### Conclusion

19. The conclusion appropriately identifies the future value of emergency responder and workforce training and application of codes and standards. The 10 topics referenced for potential modifications by SoCalGas are valid; however, a specific matrix comparison with “next steps” would provide better detail.

### **Comments on Plan Appendices**

#### Appendix A

20. The evaluation of impacts to existing SoCalGas standards, specifications, and procedures is an excellent first step toward identifying gaps in program criteria. However, the minimal description makes it difficult to understand the quality of this evaluation. While the appendix describes a general methodology, it does not identify the evaluation and review process for determining gaps or give any examples. For example, how were existing documents reviewed, searched, or analyzed? Did the evaluation include an expert panel? Was the evaluation peer-reviewed? The appendix does not indicate where this data is located and managed. Future assessments should clarify these details and describe how the gaps will be addressed, tracked, and documented.
21. It would be expected that an evaluation of impacts would address every SoCalGas SMS program item.
22. It is suggested that gaps be ranked in order of importance based on the phase and task organization of the overall project.

#### Appendix B

23. Appendix B is very interesting and indicates that SoCalGas has information at its disposal to build into their project. However, its value to the safety plan is unclear. In particular, it’s not clear if the Angeles Link will be for industrial-only applications or might be connected to a residential/commercial distribution. The Plan does not reference this appendix except in a listing in Section 12.

### **Other Comments**

While the Plan is not meant to be a formal safety plan, the following comments are provided for consideration to improve Plan clarity and for future project safety planning documentation. They are organized from the safety culture topics in the PNNL safety planning guide.<sup>3</sup> (Section E.13 in the Plan Appendix B identifies this guide in its general evaluation of hydrogen safety.)

#### Description of Work (Scope)

24. The Executive Summary and/or document in general would benefit from a more detailed scope discussion related to specific facilities, locations, gas volumes and pressures, customer connections, and overall distances, among other topics.
25. The purpose and value of a hydrogen safety plan is a key descriptor. One option would be to integrate hydrogen safety planning into an existing company safety analysis. Generally, a safety plan should be an arching policy document that informs next steps and ongoing behaviors.

<sup>3</sup> [https://h2tools.org/sites/default/files/Safety\\_Planning\\_for\\_Hydrogen\\_and\\_Fuel\\_Cell\\_Projects.pdf](https://h2tools.org/sites/default/files/Safety_Planning_for_Hydrogen_and_Fuel_Cell_Projects.pdf)

### Organizational Policies and Procedures

26. SoCalGas has an extensive library of policies and procedures for the operation of their existing natural gas infrastructure. The Plan indicates that the project follows a methodical approach to identify gaps regarding to hydrogen in the existing documents. While statistics of this review were presented at the kickoff meeting, additional detail on this analysis would benefit the Plan and future safety planning.

### Hydrogen and Fuel Cell Experience

27. SoCalGas has extensive experience with natural gas systems, and the Plan describes several efforts to develop hydrogen expertise in-house, including mentioning that the project's data is being reviewed by the HSP (page 7). Future planning could also include formal involvement with other industry groups and safety organizations, such as the AIChE Center for Hydrogen Safety.

### Identification of Safety Vulnerabilities (ISV)

28. Qualitative or process hazard tools (FMEA or HAZOP) should be considered as requirements. Once a detailed design and siting plan is available, a more formal qualitative risk assessment might be appropriate.
29. The comparison of hydrogen and natural gas in Section 3.0 is missing a discussion on hydrogen's potential to develop dangerous overpressures, particularly when confined. This is a significant potential hazard and could be especially pertinent for production facilities, pipeline compressor stations, and customer locations where these facilities will need additional evaluation of overpressure in the facility and to neighboring exposures. Pipelines often have relief devices and vents where the hydrogen will need to be safely vented at very high flow rates. Industry experience has shown that large releases of hydrogen have led to significant overpressure events that were not predicted with simple gas dispersion or thermal radiation models.
30. One example of a potential difference in the mitigation approaches to hydrogen versus methane is a reference on page 16 that mentions a compressor enclosure requiring gas detection when enclosed by more than 50% walls. An enclosure with a roof with walls on more than 25% of the perimeter would be considered indoors per NFPA 2, so there will likely be differences with regard to equipment and enclosures.
31. Section 3.0 refers to the use of coatings on the interior of lines to potentially reduce the risk of hydrogen embrittlement. This is a questionable practice and may provide only limited or no protection.

### Risk Reduction Plan

32. A hydrogen safety plan should eventually match the risk preventive and mitigation controls being used to the hazards from the ISV.
33. Consider qualifying the tools (e.g., modeling) needed to evaluate large releases in facilities or in public. What are the impacts to the risk assessment once a high-consequence area is determined?

### Codes and Standards

34. The HSP maintains a listing of all relevant hydrogen safety-related codes and standards on its web site.<sup>4</sup>

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<sup>4</sup> <https://h2tools.org/codes-standards>



### Procedures

35. A key procedure lacking in normal safety planning is a commissioning or readiness review plan that verifies that the installation is constructed as designed and per the appropriate codes and standards. This includes review and checks of items such as design drawings, quality control criteria, safety analysis controls, safety system testing (e.g., alarms and interlocks), purge completion, and tracking of open items.

### Equipment and Mechanical Integrity

36. At this stage of the project, the equipment and mechanical integrity control is managed through the codes, standards, and existing procedures referenced. A detailed design and operational review with process hazard analysis (PHA) and other risk-based approaches will likely identify mechanical integrity risk points to be addressed, which will drive adjustments to specifications and procedures.

### Management of Change

37. While management of change (MOC) is noted under API 1173, item 4, the MOC plan for future safety planning is not explicitly identified. The Plan is clearly under an MOC protocol, as evidenced by the change block on the cover page. It is recommended that Section 2.0 identify the owner and reviewing parties of the Plan. It is unclear if the SoCalGas standard specification documentation includes an MOC process. Proper MOC is a major underlying gap in many hydrogen incidents, and thus a key safety culture item, and should apply across all project phases.

### Safety Reviews

38. Ongoing safety reviews and associated updates are key activities in this stage of the project.

### Project Safety Documentation

39. Identification of key safety documentation is a critical activity for future safety planning.

40. A dossier of documentation should include the PHA and/or other risk-based studies on the design and the training materials. These materials need to be under an MOC protocol and accessible to teams that influence and are subject to the safety procedures.

### Training

41. Safety planning should result in training for all personnel who may interact with the hydrogen systems. Different levels and complexities of training may be applicable depending on personnel scope, such as general awareness, expert, and emergency responder training.

42. The list of training opportunities could be enhanced by describing how the training organizations or courses will be applied to the project. Extra training will be needed to reinforce the reasons and protocols for the differences between natural gas and hydrogen for all employees.

### Safety Events and Lessons Learned

43. The list in Section 9 to could be enhanced by a link to [h2tools.org](https://h2tools.org) to enable future readers to access updates directly.

### Emergency Response

44. Appendix A does not provide details on emergency response, but there is good discussion in the Plan and the conclusion. It is recommended that the new Chief Clean Fuels Officer approve future emergency response planning.



45. First responder protocols should consider both onsite and offsite response personnel as a critical audience for training efforts, training documentation MOC, and accessibility.

#### Supporting Documentation

46. At this stage of the project, supporting documentation is not applicable. Items to be considered for update in the future include piping and instrumentation diagrams, site plans, alarm/interlock and critical shutdown matrices, and diagrams showing emergency equipment.

#### Safety Plan Approval

47. A description of the approval process for safety documentation, and specifically any formal safety plan is valuable to qualify how all management teams and project partners are involved in safety planning.

**Annex A: Review Documents**

Table 1. Files/Documents Supplied by SoCalGas Used for Review	
#	Document Identifier and Description
1	SoCalGas - HSP Safety Study Submit_PLAN FOR APPLICABLE SAFETY REQUIREMENTS.docx (41 pages) Rev C 2/8/24; SoCalGas Document Control No.: BMCD-ALP1-Task4-0001
2	Appendix A - SoCalGas Standards Review Summary-HSP Submit.docx (2 pages)
3	Appendix B - Study of hydrogen in natural gas infrastructure.pdf (262 pages)
4	SCG-HSP Kickoff Meeting 2-14-2024.pdf Kickoff meeting presentation (15 pages)

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