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STATE OF CALIFORNIA  
CALIFORNIA ENERGY COMMISSION

In the matter of:

Preliminary Gas Price Projections )  
The 2023 Integrated Energy Policy ) Docket No. 22-IEPR-03  
Report )  
 )  
 ) RE: Preliminary Gas  
 ) Price Projections  
\_\_\_\_\_

STAFF WEBINAR ON THE PRELIMINARY GAS PRICE PROJECTIONS

REMOTE ACCESS VIA ZOOM

TUESDAY, APRIL 18, 2023

10:00 A.M.

Reported by:  
Chris Caplan

APPEARANCESCEC STAFF

Jennifer Campagna, Natural Gas Unit

Anthony Dixon, Electric Generation Systems Specialist I

Ryan Ong, Natural Gas Market Modeler

PUBLIC COMMENT

Sarah Taheri

P R O C E E D I N G S

10:00 a.m.

TUESDAY, APRIL 18, 2023

MS. CAMPAGNA: Good morning, everyone. Welcome to our webinar on the IEPR Preliminary Gas Price Projections. We're going to give a couple of minutes to give everyone to jump on, so just sit tight for a couple more minutes. Thank you.

(Pause)

MS. CAMPAGNA: Welcome everyone. This is the IEPR staff webinar on the Preliminary Gas Price Projections. My name is Jennifer Campagna. I'm the Supervisor of the Natural Gas Unit in the Energy Assessments Division at the California Energy Commission.

Today's webinar is remote access only. We will have public comments at the end of the workshop. And written comments will be due by May 2nd close the business.

Next slide, please. Okay, we can go ahead and go to the next slide. Thank you.

So, as I said, my name is Jennifer Campagna. Thank you to everyone for joining our Zoom webinar on the Natural Gas Preliminary Price Projections in support of the 2023 Integrated Energy Policy Report. We would like this to be an interactive webinar, so we encourage feedback and questions.

1           This slide shows today's agenda. The first  
2 presentation by Anthony Dixon will provide preliminary  
3 projections of the North America gas commodity prices.  
4 Anthony is our lead modeler of the North American natural  
5 gas prices and market assessments. Ryan Ong is the lead  
6 over end use rates, formerly known as the burner tip model,  
7 and he will conduct the second presentation on delivered  
8 costs of natural gas. Each presentation will be followed  
9 by a question and answer session. And then at the end, we  
10 will have opportunity for public comment.

11           Next slide, please.

12           So a few housekeeping items before we begin.

13           As I mentioned, this is a virtual webinar with  
14 participation over Zoom. It is being recorded and the  
15 recording will be posted to the 2023 IEPR docket. The  
16 docket for this proceeding is listed here, it's 23-IEPR-03.  
17 The presentations have already been posted to this docket.

18           To ask questions, please use the Q&A function in  
19 Zoom. I can help answer those questions there, or we can  
20 raise them during the open Q&A sessions following each  
21 presentation. During the public comment period, we will  
22 have you use the raise hand feature, and we can unmute you  
23 for your question or your public comment.

24           Next slide, please.

25           So I included this in here just to give a quick

1 30,000-foot perspective of the price modeling process. So  
2 we present the preliminary findings in April of the odd  
3 IEPR years. We update the model with revised inputs after  
4 this and typically provide revised findings in the August  
5 time frame. We docket the revised findings and they become  
6 part of the IEPR. So, usually, they're either reported as  
7 part of a chapter in the IEPR or in an appendix.

8           So a primary goal of today's webinar is to  
9 provide the end users of our product with information about  
10 updates or changes that have been made to the model. We  
11 look at various pricing points and provide comparisons.  
12 Our model is a forward look of 30 years. And these results  
13 will feed into some other CEC models and analysis. It's a  
14 high-level look, but our presenters will get into more  
15 detail.

16           Next slide, please.

17           And here is my contact information with my email  
18 address. Thank you.

19           At this point, I would like to introduce Anthony  
20 Dixon for his presentation on the preliminary commodity  
21 prices.

22           Thank you, Anthony.

23           MR. DIXON: Alright. Good morning, everyone. As  
24 Jennifer mentioned, I'm Anthony Dixon. I will be  
25 presenting our NAMGas commodity price projections.

1           Next slide, please.

2           So we do this because it's part of our  
3 requirement to assess major natural gas trends and issues  
4 throughout California. These projections are used in many  
5 different ways. They're used as part of our Natural gas  
6 Demand Forecast. The CEC uses it also as part of their  
7 production cost modeling, which is the team that uses our  
8 PLEXOS modeling to do electricity dispatched in the WECC.  
9 And continuing on that, the WECC actually uses our prices  
10 in their modeling as well. The CPUC uses the Aliso Canyon  
11 proceedings, their long-term planning. The ISO uses these  
12 prices. Northwest Power Association also uses our prices  
13 and we work with them closely.

14           Next slide, please.

15           So the NAMGas Model is a North American Market  
16 Gas Trade Model. We use all of North America because it is  
17 an integrated market. It's created with the late market  
18 builder platform. We've been using this for many, many  
19 years. It's well vetted. It's a general equilibrium  
20 model.

21           Some of the updates we did this year, we returned  
22 back to an annual model. We experimented with the monthly  
23 model. Unfortunately, there were some issues that we still  
24 haven't fully worked out. We've updated the model with the  
25 Demand Forecast, the most recent one of 2021, for part of

1 the IEPR. We have our most recent demand projections for  
2 electricity generation in the WECC from our Production Cost  
3 Modeling Team.

4 And we've done some -- as always, we always  
5 revise information on the gas reservoirs. We check to make  
6 sure pipeline capacities are there, LNG export and import  
7 facilities are updated. That's done every time we do these  
8 model runs.

9 Next slide, please.

10 A simplified view of the model. The model  
11 basically takes natural gas supply basins, which are  
12 connected to interstate and intrastate pipelines, which are  
13 connected to demand center, so you have supply,  
14 transmission, demand. The model basically takes all these  
15 components, there's many supply curves, cost curves, demand  
16 curves, some of them even have elasticities, and it tries  
17 to balance supply and demand under economic conditions  
18 across all nodes, across all time points.

19 So the model will produce demand. It will  
20 produce supply at economic things. It will also do flows  
21 through the pipelines and we can kind of see where things  
22 are flowing and where everything is coming and going from.

23 Next slide, please.

24 So just to kind of iterate again, our price  
25 projections are North America-wide, which includes all of



1 Canada and the northern part of Mexico. The system is  
2 fully integrated, so what goes on in numerous places  
3 affects prices throughout all of North America, so we have  
4 to model it.

5           Just kind of note to mention that California  
6 prices can be affected greatly by things outside of  
7 California because we are at the end of the pipeline. S

8           o we developed three cases, a base case which is  
9 just what we see right now is going to keep continuing as  
10 far as economics, as far as policies, everything's just  
11 kind of set in standard and not going to change over the  
12 forecast horizon.

13           We developed two other cases, a high natural gas  
14 supply case, basically, it's a high availability of natural  
15 gas. The costs are low. There's a high technology  
16 advancement, so things actually become even cheaper and  
17 more abundant as time goes on, and changes to demand growth  
18 rates throughout the modeling. And then the low supply  
19 case is basically opposite. There's less gas available.  
20 The costs are higher. The technology is very slow and  
21 demand growth rates change accordingly, which will be  
22 showing all these changes in the next few slides.

23           Also, just kind of a note, I tried to do a fourth  
24 case to look at what a high electrification would do and  
25 researched a few different studies about what they saw.

1 And, basically, there was really no change between it and  
2 the base case until I greatly increased the  
3 electrification. So it would be four times -- it had to be  
4 four times what we were seeing in California before we saw  
5 natural gas prices really show any significant changes.  
6 And part of that is because a lot of the gas would just be  
7 shipped to LNG facilities and things like that. So it's  
8 something we're going to keep looking into and hopefully  
9 have a better one, maybe have something that is better when  
10 we come out in August with some revised numbers. But for  
11 this preliminary thing, it just didn't do anything  
12 productive.

13           Next slide, please.

14           So our assumptions for the demand side of things.  
15 Demand in all three cases, this is again North America  
16 wide, is 31.9 trillion cubic feet in all cases in 2022. I  
17 always start and do one year of a backcast. I try and  
18 calibrate the model. I figure if my model can't somewhat  
19 simulate what's happened in reality, it won't be a good  
20 predictor of what's going to happen in the future. And so  
21 throughout the three cases, you can see in the base case,  
22 36.2 trillion cubic feet of natural gas demand in 2050.  
23 And the high supplies, it's higher at '45. And the low  
24 supply, you can see we really do a lot more switching due  
25 to economic concerns. So, you're going to see a lower

1 demand for natural gas at only 31 trillion cubic feet.

2           So the growth rates for each sector, a key note  
3 on this is to remember that in California, we do not have  
4 any elasticity. All growth, all demands from the  
5 residential, commercial, industrial, and transportation  
6 come from our demand forecast. We put those numbers  
7 directly into the model and turn elasticities off, so those  
8 demands will not change. These numbers are for the rest of  
9 the North America.

10           And another caveat that is for the WECC and  
11 electricity generation, that is provided to us by the  
12 PLEXOS Modeling Team in their production cost modeling.  
13 (Clears throat.) Excuse me. And so, again, those numbers  
14 are hardwired into the model and will not change, so only  
15 the prices will change. Demands will not change for those  
16 specified sectors. The rest of these numbers are for  
17 everything else throughout North America. And we took  
18 these numbers from EIA using their forecast because they  
19 have a little more resources to put into a demand part.

20           So as you can see, in the base case, we have  
21 residential demand declining one percent per year.  
22 Commercial demand will increase 0.2 percent per year.  
23 Industrial is up 0.8 percent per year. Electricity  
24 increasing 4.7. And transportation is also 4.7 per year.  
25 You can see in the two different cases how it changes. In

1 the high gas supply with low cost, you see higher growth  
2 rates. And then the low supply case with much higher cost  
3 and less supply, you can see how things don't grow nearly  
4 as fast.

5 Next slide, please.

6 And this is our supply assumptions. All of them  
7 start at the 625.4 trillion cubic feet approved supplies  
8 currently available. These numbers come from EIA. We use  
9 the Colorado School of Mines Forecast, also, for potential  
10 supplies. We do a lot of research and work into this.  
11 Robert Gullicksen is the one who does that. And as a note,  
12 we're going to be doing some more work hopefully that we'll  
13 have by the August timeframe on these supplies. We've kind  
14 of changed things a little.

15 As you can see, they start at 625 trillion cubic  
16 feet in the base case and rise to 1,300 trillion cubic  
17 feet. Basically, we use an average of what's happened in  
18 the past, growing about five percent per year through 2037,  
19 then the flat, the high gas supplies, they grow about eight  
20 percent, and the low supplies drop about five percent per  
21 year.

22 And also you can see how costs change. In the  
23 high natural gas supply case, you can see costs drop about  
24 ten percent per year, and that's mainly because technology  
25 increases things and makes it cheaper and better and you

1 can get more for the same price or lesser prices, while the  
2 low supply, the costs increase.

3 Next slide, please.

4 So some of our preliminary price results that  
5 we're going to show today, more will be posted in the IEPR  
6 folder, so we do the Henry Hub. It's a national benchmark.  
7 We really need to show that because doing a lot of things,  
8 whatever happens at Henry Hub really kind of sprawls  
9 throughout all of North America.

10 Once again, we do backcasts of this. We compare  
11 our prices to the EIA's Short-Term Energy Outlook, their  
12 annual energy outlook. The backcast is calibrated to NGI  
13 midweek average prices for the weighted volume average  
14 prices for the year. We've also included our own price  
15 projections from 2022 out to 2050. And then we'll also  
16 look at some of the California-specific hubs.

17 Next slide, please.

18 So look at Henry Hub. Again, we'll start with  
19 the other forecasts and things. The purple line is a  
20 historical average of midweek prices for the last four  
21 years. The orange is, as of January 10th, the Short-Term  
22 Energy Outlook from EIA, their couple-year outlook using an  
23 econometric model. Then we have the black line is the 2022  
24 EIA Annual Energy Outlook. We will have, for the August --  
25 well, they just came out with their new one, so I

1 haven't -- I didn't update this yet. So they do have a  
2 2023 Outlook which we'll be looking at and looking at their  
3 assumptions and see what's going on. A lot of that  
4 information will be put into the model for our next runs.

5           And then we have our three cases. We see prices  
6 kind of rising and leveling off and staying relatively flat  
7 in the base case over the forecast horizon. It's just  
8 there's a lot of gas out there, there's a lot of  
9 availability of the gas. A lot of things will depend on  
10 policies, on expansions. LNG is something we need to kind  
11 of keep an eye on.

12           And then our high supply case is kind of the same  
13 pattern, just lower, higher availability of gas at a lower  
14 price.

15           And then the low supply case, you can actually  
16 see it growing significantly, about one percent per year  
17 throughout the forecast horizon. And this is, again, due  
18 to low supplies, high costs to produce the gas, and it just  
19 keeps increasing over the year, time.

20           Next slide, please.

21           So just kind of a quick look at California as we  
22 go -- before we go into the California-specific hubs.  
23 We're fed by a few pipelines, but again, as you can see on  
24 this, we are the last on the pipeline.

25           You can see we get about 30 percent of our gas

1 from Western Canada, 30 percent from the Rocky Mountains,  
2 30 percent from the San Juan Basin, and about 10 percent  
3 from the Permian Basin in West Texas. Even though there's  
4 really cheap gas in West Texas and that Permian Basin,  
5 unfortunately, the pipelines coming out of there are  
6 completely at capacity in full, so we don't see as much  
7 benefit from that low price gas as we would be nice to see.  
8 They just can't get that gas to us. So the San Juan Basin  
9 more sets the price in the Rocky Mountain Basin than the  
10 Permian Basin.

11 Next slide, please.

12 So the first of the California hubs, this is one  
13 of the major pricing points coming into California, this is  
14 the northern receipt point. This is where we mainly get  
15 our gas from Western Canada. It comes down the GTM  
16 pipeline through Kingsgate, through Stanfield in Oregon,  
17 and then to Malin. Some gas can come across the Ruby  
18 Pipeline, just not a whole lot is being used on that, and  
19 there's a bunch of other economic issues going on with that  
20 pipeline.

21 So in the base case, we are seeing, right now in  
22 this preliminary case, that prices will fall about 24  
23 percent for 2023, a little bit more in 2024, and then  
24 remain flat throughout 2050, just below \$5.00 per MMBtu.  
25 In the high supply case, projections are about \$0.50 lower

1 and also remain that kind of flat projection. This is just  
2 because there's a lot of gas available. And again, then on  
3 the low supply case, we see prices starting about \$0.50  
4 higher, but increasing about one percent, just like we saw  
5 on Henry Hub. And this kind of same dynamic is true  
6 throughout all the different hubs, it's just the price  
7 starting point kind of prices will change.

8 Next slide, please.

9 So Topock is our southern receipt point for both  
10 SoCal and PG&E. As you can see, prices kind of have that  
11 same look of being flat in the base and low and in the high  
12 supply case, increasing the low supply case. We just see  
13 prices at a different price point. We see them at about  
14 \$5.00 in the base case out in 2050, a little bit higher  
15 than Malin. It's just up in Malin, you have that very  
16 inexpensive gas coming out of Canada that's helping keep  
17 prices subdued.

18 Next slide, please.

19 So within California, we have PG&E and Citygate.  
20 Prices also have that same kind of look. Again, you have  
21 to remember, this is an annual model, so a lot of the  
22 issues that we see in a month or two months or even three  
23 months, like this last winter and other times when we see  
24 these, they get muted out in an annual model. Storage is  
25 not taken into account in an annual model because it's



1 considered zeroed out over the course of a whole year or  
2 seasons. So a lot of those specific minute-type things  
3 will not be shown up in these models. But again, we see  
4 this kind of same projections. We only see about \$4.60 in  
5 MMBtu. You know, the border price was \$4.00 in the base  
6 case. (Clears throat.) Excuse me.

7 Next slide.

8 So again, SoCal Citygate, same kind of things as  
9 PG&E, just prices are a little bit higher in the model, and  
10 a lot of that has to do with some of the issues going on.  
11 Again, these are preliminary. I haven't had a chance to do  
12 extra runs. I was going to look at the differences, if  
13 pipelines are more restricted, less restricted, different  
14 things like that. Hopefully we'll have something for our  
15 revised. But again, a lot of those issues get muted out  
16 because it is an annual model.

17 Next slide, please.

18 So kind of some conclusions. Prices seem to be  
19 declining this year and even compared to the last couple of  
20 years due to production coming back, just not only to pre-  
21 COVID levels but there are reaching record levels.

22 Some of the things we want to really kind of keep  
23 an eye on is this buildout of LNG capacity. We have a lot  
24 of projects that are coming on in the next few years. But  
25 then after that, it's going to take some more time. LNG is

1 not quick. It takes five-plus years to site, permit, build  
2 and get these things online up and going, which gives  
3 plenty of time if they are going to build a lot of LNG  
4 facilities for export to try and help out Europe and other  
5 areas, that it will give time to up production, to up  
6 pipeline capacities or reduce demand domestically to offset  
7 these.

8           It's just still something to kind of keep an eye  
9 on because the market is very reactive to things, so it can  
10 jump up or down just on little, what used to be considered,  
11 very small, minute changes to supply and demand dynamics.

12           So kind of more conclusions. The base case  
13 remained flat due to abundant gas in the high supply case,  
14 same kind of flat projections but just \$0.50 lower than the  
15 base case, just so much gas is available.

16           And then the low case, we see things about 50  
17 cents higher and growing about one percent per year over  
18 the forecast timeframe.

19           Next slide, please.

20           So again, written comments to May 2nd by 5:00  
21 p.m., and the docket number is there. This will be  
22 repeated a few times throughout today's workshop.

23           So what we're for sure going to do before the  
24 next result in August, we're going to be updating the AEO  
25 from EIA, updating our historical data, working on some

1 supply basin work that Robert Gulliksen is working on,  
2 possible other scenarios, looking at that high  
3 electrification case, maybe see what happens with some  
4 pipeline issues in SoCal. And then hopefully, tentatively,  
5 we'll be doing a workshop in August.

6 Next slide.

7 And that is all for my presentation. And my  
8 email is there for any other questions and comments.

9 MS. CAMPAGNA: Thank you, Anthony. I don't have  
10 any Q&A that have come in over the -- oh, okay, I'm sorry,  
11 one just came in. I can read that out for you, from  
12 Patrick McGuire.

13 "Are the California Citygate prices NAMGas outputs?  
14 What type of interstate transportation rates are  
15 assumed for border to Citygate and NAMGas? For  
16 example, is it the Redwood Baja Path usage rates on  
17 PG&E?"

18 MR. DIXON: So we look at, for the rates, we do  
19 look at what is currently posted and use those into the  
20 model for their rates, if that explains it? We constantly  
21 update and look at them every time we run the cycles. We  
22 are always on the rate cases and seeing what's going on.

23 So currently in the model, it's not perfect,  
24 because there are so many different rates, so we do do  
25 average kind of rates of all the different rates across the

1 pipelines to come up with those rates.

2 MS. CAMPAGNA: Okay. Thanks, Anthony.

3 A question from Beth Kelly: "Does the base case  
4 scenario reflect IEPR declining gas demand? It seems to be  
5 high."

6 MR. DIXON: Again, we don't have the newest --  
7 the gas -- we have their newest Gas Demand Forecast. But  
8 that's just in -- you got to remember, that's only in  
9 California for the Demand Forecast. This model is North  
10 America-wide. So those demands listings you see are North  
11 America-wide, the numbers I posted here. I didn't post  
12 specific numbers that were in California only. That's from  
13 our Demand Forecast, which was posted the last IEPR cycle.

14 MS. CAMPAGNA: Okay. Thank you.

15 Are there any other questions anyone wants to  
16 submit over the Q&A? I'll just wait a couple minutes.

17 So just a quick note for anyone who's raising  
18 hands, that we do use that feature for the public comment.  
19 So if you have public comment, please note we will do that  
20 at the end of the Q&A, after the Q&A, after Ryan Ong's  
21 presentation. So just wanted to make that quick note. But  
22 if you do have a Q&A, please submit it using the Q&A  
23 feature at the bottom of the screen.

24 I'm not seeing any other questions for Anthony.  
25 So if there are any questions that anyone thinks of in the

1 meantime, we will have another Q&A session after Ryan's  
2 presentation.

3 Oh, I spoke too soon. Okay, a question from  
4 Patrick McGuire. "Will the draft results of the  
5 preliminary burner tip model be posted online?"

6 MR. DIXON: They should already be there. But,  
7 yes, if not, they definitely will be, same with the NAMGas  
8 results. They're all posted on that IEPR docket.

9 MS. CAMPAGNA: Okay. Thank you, A.J.

10 Alright, so why don't we go ahead and move on to  
11 Ryan Ong's presentation?

12 Thanks, Ryan.

13 MR. ONG: Thanks, Jennifer. So my name is Ryan  
14 Ong. Again, I'm with the Natural Gas Unit in the Energy  
15 Assessments Division.

16 Next slide, please.

17 So for the last few months, I've started to  
18 update the end-use natural gas cost projections for the  
19 2023 IEPR. The end-use updates include the electric  
20 generators, residential, commercial, and industrial  
21 delivered costs. Cost projections are required to fulfill  
22 statutory requirements and meet the electricity and natural  
23 gas forecast scoping order for the 2023 IEPR.

24 The end-use price rates are used internally and  
25 externally, such as the California Public Utilities

1 Commission, the Western Electricity Coordinating Council,  
2 private entities, and PLEXOS. So today, my presentation  
3 will focus on providing an overview of the end-use natural  
4 gas cost rate projections. And we're looking for feedback  
5 on any assumptions or results shown today.

6 Next slide.

7 So just some terminology clarification. So  
8 delivered cost is the total cost experienced by the end-  
9 user, which is a function of commodity cost plus  
10 transportation rate. Commodity is the cost to extract and  
11 produce natural gas, while transportation rates are the  
12 cost to deliver natural gas to end-users, again, like  
13 electric generators, commercial, industrial, or  
14 residential.

15 Next slide, please.

16 So just an overview of the two models that I work  
17 with. The first one is the Electric Generation Model, and  
18 the second one is for end-use, such as commercial,  
19 residential, and industrial.

20 The Electric Generation Model projects 31 price  
21 points within the electricity, Western Electricity  
22 Coordinating Council. Fifteen commodity hubs are used from  
23 the NAMGas Model. Transportation rates involve 15  
24 interstate pipeline company tariff rates. And then for  
25 California utilities, we use the California Transportation

1 Rates Model for PG&E, SoCalGas, and San Diego Gas and  
2 Electric. So that's for the electric generation.

3 For the end-use, the second model, it projects  
4 rates by aggregating the commodity price from NAMGas for  
5 PG&E and SolCalGas Citygates. And then it tacks on the  
6 California Transportation Rates Model for PG&E, SolCalGas  
7 and SDG&E. And those rates include, again, residential,  
8 commercial, and industrial.

9 Next slide, please.

10 So to produce the monthly projection for  
11 electricity generation, as A.J. mentioned, the NAMGas Model  
12 is an annual model. So what I do is I take NAMGas's year-  
13 to-year cost difference and distribute it evenly over 12  
14 months to get a monthly commodity price. And then from  
15 there, a monthly spread factor is also applied. And that  
16 spread factor is based on the Energy Information  
17 Administration's historical Henry Hub prices from 2009 to  
18 February 2023.

19 And also, in looking over the data from EIA, we  
20 removed price outliers by taking two standard deviations  
21 away from the mean for a given month. And then as the  
22 graph illustrates on this slide, you get a seasonality, a  
23 low point for shoulder months, and then the price is  
24 higher, or the spread factor is higher, in the winter  
25 months.

1           The 15 interstate transportation tariff rates  
2 were reviewed and updated accordingly. And these rates are  
3 current as of February. The California transportation  
4 utility rates, again, are based on the 2023 California  
5 Transportation Rates Model, and this was updated by Aspen  
6 Environmental. So key updates for this include the  
7 utility's transportation revenue requirement, the end-use  
8 class spread, and demand.

9           And then for the second model, the end-use model,  
10 I am in the process of updating the rates for residential,  
11 commercial, and industrial costs. Again, that model will  
12 take the NAMGas annual price projections and then tack on  
13 the California Transportation Rates Model per class.

14           In addition, I will also need to chain the class  
15 rates to the base year 2022. I plan to use the Bureau of  
16 Economic Analysis Consumer Price Index. And so the output  
17 would be residential prices in 2022. And then the next  
18 model is the output would be residential prices in 1977 per  
19 therm, commercial prices in 2012 dollars per MMBtu, and  
20 then industrial prices in 2005 per therm, dollars per  
21 therm.

22           Next slide, please.

23           So this slide is just showing where the price  
24 points are located throughout the WECC, which the Electric  
25 Generation Model produces and estimates.



1           Next slide, please.

2           This heat map, this truncated heat map, shows  
3 that California price points are projected to trend higher  
4 than other locations out to 2050 compared to other price  
5 points located outside of California throughout the WECC.

6           Next slide, please.

7           This slide is the interstate transportation rates  
8 used in the Electric Generation Cost Model. It's just  
9 basically reflecting that rates are relatively unchanged in  
10 comparison to 2021. In most cases, the changes were less  
11 than a penny per MMBtu. The most notable change was from  
12 Colorado Interstate Gas, which had a six cent  
13 transportation rate decrease per MMBtu.

14          Next slide, please.

15          Okay, so the next few slides will cover the  
16 California transportation rates projections. So all  
17 utilities assume a four percent annual revenue requirement  
18 rate of growth out to 2050. Demand is projected using each  
19 utility's 2023 demand as the base and applying the Energy  
20 Commission's annual demand rate change out to 2035. After  
21 2035, demand was held constant over the forecast out to  
22 2050.

23          The graph on the right reflects the rate  
24 projections over the horizon for the transportation by end  
25 use. As you can see, residential commercial prices

1 increase at a higher rate than the other classes.

2 Next slide, please.

3 So similar to PG&E, demand is constant while a  
4 four percent annual growth rate is assumed for the revenue  
5 requirement for SoCalGas. Again, the graph on the right  
6 shows the projected rate of trajectory, again, residential  
7 and commercial are higher compared to the other classes.

8 Next slide, please.

9 So San Diego Gas & Electric, again, the rates are  
10 estimated as the same demand, and also -- sorry, the same  
11 demand being using their base 2023 rate for the base demand  
12 estimate and then carrying the annual growth from the  
13 Energy Commission's projections out to 2035. And then from  
14 2035 to 2050, the demand is held constant. And again, as  
15 you notice in all three utility cases, residential and  
16 commercial have the highest rate increases out to 2050.

17 Next slide, please.

18 This slide is basically showing the change from  
19 2021 to 2023. In comparison to 2021, in California, some  
20 rates have increased while others have decreased. And then  
21 so for comparison purposes, the 2021 model only ran out to  
22 2030, so this is really just showing from 2023 to 2030, the  
23 difference.

24 You'll notice for PG&E, the residential rates  
25 have decreased, industrial rates, as well, and the

1 commercial has increased, and electric generation has  
2 increased as well. For Southern California Gas &  
3 Electric -- or sorry, for SoCalGas, all the rates have  
4 increased for this class compared to 2021. And then for  
5 San Diego Gas and Electric, residential decreased and  
6 commercial decreased, industrial, as well, and electric  
7 generation increased.

8 Next slide, please.

9 And this slide is basically showing the  
10 preliminary estimates by class. So the next three slides  
11 will cover each utility's estimated projection for rates  
12 per class, and this is in 2022 dollars. The range is from  
13 2023 to 2050.

14 So you notice PG&E is around \$6.00 initially, and  
15 then it increases to \$7.50 over the horizon. PG&E electric  
16 generation local transmission is around \$7.00, as well, and  
17 then it increases to around \$9.40. Residential is around  
18 \$18.00, and it increases to around \$41.00. Commercial is  
19 around \$16.00, and then increases to \$33.00. And then  
20 finally, industrial is around \$8.00, and increases to  
21 around over \$12.00 by 2050.

22 Next slide, please.

23 So for Southern California Gas, delivered costs  
24 for electric generation starts out initially at a little  
25 over \$6.00, and then out to 2050, it ends at around \$7.68.

1 Residential starts out at \$16.71, and then approaches  
2 around \$38.00 by 2050. Commercial is around \$13.50, and  
3 then carried out all the way out to \$26.00 by 2050.  
4 Industrial ranges between \$6.82 to \$8.91.

5 Next slide, please.

6 So electric generation for San Diego Gas &  
7 Electric starts out at around \$6.21, and then by 2050, it  
8 ends at \$7.35. Residential ranges around \$22.00 to \$53.00.  
9 Commercial ranges from \$12.00 to \$23.80. And industrial is  
10 around \$7.60 to \$10.95 by 2050.

11 Next slide, please.

12 So key observations. The end-use costs are  
13 primarily higher than the last IEPR cycle, primarily due to  
14 NAMGas's commodity projections. Commodity costs start  
15 higher for this cycle than the last one.

16 And then just to note that, you know, as A.J.  
17 showed, the price points are relatively flat over the  
18 horizon for commodity. But the reason why the rates are  
19 higher right now, again, is because of the higher starting  
20 point for this cycle for price.

21 And then electric generator delivery costs are  
22 higher for 2023 compared to 2021. Interstate transmission  
23 rates are relatively unchanged for electric generators  
24 located outside of California. And then for the 2023  
25 transmission rates, transportation rates for PG&E, SoCalGas

1 and SDG&E were mixed compared to 2021. PG&E residential  
2 and industrial rates are less than 2021, while commercial  
3 and electric generation rates increased. Again, as  
4 mentioned, SoCalGas's rates increased across all classes.  
5 And SDG&E's residential and industrial rates decreased  
6 while commercial and electric generation increased.

7 Next slide, please.

8 So the next steps, we'll continue to vet the  
9 rates and adjust the methodology and assumptions based on  
10 feedback. And then we look to incorporate the next  
11 iteration of the NAMGAS price projections. And then we  
12 also look to incorporate or include or account for cap and  
13 trade projections for those that do not have an established  
14 methodology to account for cap and trade.

15 Next slide, please.

16 And that concludes my presentation. Thanks.

17 MR. DIXON: Hello, everyone. I wanted to jump in  
18 real quick. It came to my attention that we didn't get  
19 these data posted into the docket. I apologize greatly for  
20 that. We will get those sent over and posted hopefully  
21 today or maybe tomorrow at the latest, however long it  
22 takes them to get put up there. But we have them. They're  
23 ready to go. We just, I guess, forgot to send them out. I  
24 apologize for that. And we'll have them up as soon as  
25 possible.

1 MR. ONG: Yeah. And then for the electric  
2 generation, the burner tip, I will post the updated model,  
3 get on that after this workshop concludes. So I hope to  
4 get that up soon too.

5 MS. CAMPAGNA: Thank you, Ryan. And Ryan, you  
6 were referring to the burner tip web page; right? So we  
7 have that page as well in addition to the dockets.

8 MR. ONG: Yes. Sorry. Thank you for the  
9 clarification.

10 MS. CAMPAGNA: Okay.

11 MR. ONG: Yeah.

12 MS. CAMPAGNA: So maybe that's something we can  
13 get out to everyone that addressed, but it will also be in  
14 the dockets, so, okay. Thank you.

15 So we have a couple questions, Ryan, in the Q&A.  
16 First one is from Jun Sung from EDF.

17 "Why was demand assumed to remain constant given  
18 previous declining demand scenarios from IEPR and  
19 other state projections?"

20 MR. ONG: So the California Transportation Rates  
21 Model only went out -- the projections only went out to  
22 2035. And then as a way to carry out a demand estimate, we  
23 held it constant from 2036 to 2050. We just, we didn't  
24 have a demand forecast or projection for that, so that's  
25 why it was held constant in the latter half of the -- for

1 the model.

2 MS. CAMPAGNA: Okay. Thanks, Ryan.

3 There's another question here from Patrick  
4 McGuire.

5 "Is the four percent growth in transportation revenue  
6 requirement on slide number nine real 2022 or  
7 nominal?"

8 "Also, do you know what NAMGAS hub is used to do the  
9 PG&E EGLT and EGBB price forecast? Is it the PG&E  
10 Citygate for both?"

11 "And thank you for your intent to post the draft  
12 models."

13 MR. ONG: So I believe the four percent growth is  
14 nominal, it's just carried out over the horizon annually.

15 And then for PG&E EGLT, it is based on PG&E  
16 Citygate. And then the backbone is a combination of Malin  
17 and Topock prices.

18 MR. DIXON: And to kind of further that, if I'm  
19 not mistaken, Ryan -- this is Anthony Dixon, by the way --  
20 for those we do, like when we use a border price, we do  
21 have a transportation rate that would get it to the  
22 Citygate and then a second rate to the end use as all these  
23 prices do, basically, have to be transported to the  
24 Citygate and then out; correct, Ryan?

25 MR. ONG: Yeah.

1 MR. DIXON: Okay.

2 MR. ONG: Thanks, A.J.

3 MR. DIXON: Yeah. Yeah.

4 MS. CAMPAGNA: Okay. Thank you.

5 So I'll wait a couple minutes to see if anyone  
6 has other questions.

7 MR. ONG: Oh, sorry, Jennifer, I misspoke.  
8 Escalation rate is actually real. My apologies. Just to  
9 clarify, it's real.

10 MS. CAMPAGNA: Okay.

11 MR. ONG: Sorry about that.

12 MS. CAMPAGNA: No, that's okay. Thanks for  
13 clarifying.

14 And Patrick says, "Thanks."

15 Okay, any other questions? Okay.

16 So at this point, I think we can go ahead and  
17 move on to public comment. I'm going to just make a few  
18 announcements here about that process.

19 So one person per organization may comment, and  
20 comments are limited to three minutes per speaker. A  
21 reminder that we welcome your comments but we'll not be  
22 responding to questions during the public comment period.  
23 And the notice that is posted in the docket does provide  
24 information about how you can follow up with my team with  
25 any other questions you may have, and we'll be happy to



1 help you with those.

2           So please use the raise-hand feature to let us  
3 know you'd like to comment, and then we'll call on you and  
4 open your line to make those comments. If you're on the  
5 phone, you'll have to dial asterisk nine to raise your hand  
6 and asterisk six to mute or unmute your phone line. We'll  
7 unmute your line from our end.

8           For the raised hands, I will call on you and let  
9 you know that your line is open, and you may need to unmute  
10 on your end, and please state your name and spell your name  
11 and your affiliation for the record before commenting. And  
12 please don't use your speaker phone so we don't have any of  
13 the echo.

14           And so once we're done, that'll be the end of the  
15 webinar, so why don't we go ahead and and open up for  
16 public comment. I will look for raised hands.

17           Okay, Sarah Taheri, do you have a comment? I  
18 went ahead and unmuted you. I think you need to unmute  
19 your side.

20           MS. TAHERI: No comment, Jennifer. Sorry about  
21 that.

22           MS. CAMPAGNA: Oh, okay. No problem.

23           Okay, I don't see any raised hands, but I'll give  
24 it a couple more minutes. Okay, I am not seeing any raised  
25 hands.

1           So, okay, with that, just a couple closing  
2 remarks.

3           Again, a reminder to submit your written comments  
4 to the 2023 IEPR page. There you will click on 23-IEPR-03  
5 and click on submit e-comments. And, again, comments are  
6 due May 2nd by close of business.

7           And I'll just reiterate, if any of the  
8 participants today have any follow-up questions on either  
9 of the presentations, please don't hesitate to reach out to  
10 myself or Anthony or Ryan, and we are happy to respond.

11           And that is it for me. I will close and say  
12 thank you, everyone, for attending the webinar today. And  
13 we look to, as Anthony said, probably around the August  
14 timeframe, have a follow-up webinar or workshop on the  
15 revised findings. So thank you.

16           (The workshop adjourned at 10:53 a.m.)

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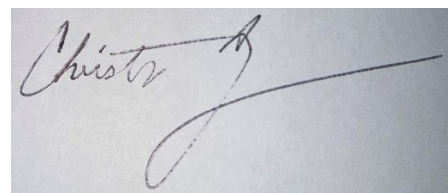
**REPORTER' S CERTIFICATE**

I do hereby certify that the testimony in the foregoing hearing was taken at the time and place therein stated; that the testimony of said witnesses were reported by me, a notary public and disinterested person, and was under my supervision thereafter transcribed into typewriting.

And I further certify that I am not of counsel or attorney for either or any of the parties to said hearing nor in any way interested in the outcome of the cause named in said caption.

IN WITNESS WHEREOF,

I have hereunto set my hand this 3rd day of May, 2023.

A photograph of a handwritten signature in black ink on a light-colored surface. The signature is written in a cursive style and appears to read "Chris Caplan".

---

Chris Caplan  
Electronic Reporter  
CER\*\*1971

## CERTIFICATE OF TRANSCRIBER

I do hereby certify that the testimony in the foregoing hearing was taken at the time and place therein stated; that the testimony of said witnesses were transcribed by me, a certified transcriber and a disinterested person, and was under my supervision thereafter transcribed into typewriting.

And I further certify that I am not of counsel or attorney for either or any of the parties to said hearing nor in any way interested in the outcome of the cause named in said caption.

I certify that the foregoing is a correct transcript, to the best of my ability, from the electronic sound recording of the proceedings in the above-entitled matter.

May 3, 2023

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MARTHA L. NELSON, CERT\*\*367