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UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION

CONSENT ELECTRIC, CONSENT GAS,  
CONSENT HYDRO, CONSENT CERTIFICATES,  
DISCUSSION ITEMS, STRUCK ITEMS

1054th COMMISSION MEETING  
Thursday, April 18, 2019  
Commission Meeting Room  
Federal Energy Regulatory Commission  
888 First Street, NE  
Washington, D.C. 20426

1                   The Commission met in open session at 11:02 a.m.,

2 when were present:

3                   CHAIRMAN NEIL CHATTERJEE

4                   COMMISSIONER CHERYL LaFLEUR

5                   COMMISSIONER RICHARD GLICK

6                   COMMISSIONER BERNARD McNAMEE

7                   SECRETARY KIMBERLY D. BOSE

8

9    Agenda Items:

10

11    Consent-Electric

12    E-1, E-5, E-6, E-7, E-8. E-9 E-10, E-11 and E-12

13

14    Consent-Gas

15    G-1, G-2, G-3, G-4, G-5 and G-6

16

17    Consent-Hydro

18    H-2, H-3, H-4, H-5 and H-6

19

20    Consent-Certificates

21    C-1, C-2 and C-3

22

23    Discussion Items

24    E-2, E-3, H-1 and A-3

25

1 Struck Items

2 None

3

4 Commissioner Recusals and Statements for April

5 18, 2019

6 Commissioner McNamee is not participating in the

7 following consent items:

8 E-6, E-10, G-1, G-2 and H-1

9

10 C-2 Commissioner LaFleur concurring with a separate

11 statement

12

13 C-2 Commissioner Glick dissenting with a separate statement

14

15 C-3 Commissioner LaFleur concurring with a separate

16 statement

17

18 C-3 Commissioner Glick dissenting in part with a separate

19 statement

20

21 Discussion and/or Presentations

22

23 E-2 & E-3 - Presentation by Daniel Kheloussi (OEPI)

24 accompanied by Elizabeth Topping (OEPI), Kaleb Lockwood

25 (OGC), Jorge Moncayo (OEMR) and Scotiana Bennett (OEMR)

1 H-1 Presentation by Tara DiJohn (OGC) accompanied by Kenneth  
2 Yu (OGC) and Shana Wiseman (OEP)

3

4 A-1 Presentation by Adam Bennett (OE) and Hillary Huffer  
5 (OE) accompanied by Alexander Ovodenko (OE) and Gregory Vitz  
6 (OE)

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8 Struck Items

9 None

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## P R O C E E D I N G S

(10:02 a.m.)

1  
2  
3 SECRETARY BOSE: Thank you. Good morning. The  
4 purpose of the Federal Energy Regulatory Commission's open  
5 meeting is for the Commission to consider the matters that  
6 have been duly posted in accordance with The Government in  
7 The Sunshine Act.

8 Members of the public are invited to observe,  
9 which includes attending, listening, and taking notes, but  
10 does not include participating in the meeting or addressing  
11 the Commission.

12 Actions that purposely interfere or attempt to  
13 interfere with the commencement or conducting of the  
14 meeting, or inhibit the audience's ability to observe or  
15 listen to the meeting, including attempts by audience  
16 members to address the Commission while the meeting is in  
17 progress, are not permitted.

18 Any persons engaging in such behavior will be  
19 asked to leave the building. Anyone who refuses to leave  
20 voluntarily will be escorted from the building.  
21 Additionally, documents presented to the Chairman,  
22 Commissioners, or staff, during the meeting will not become  
23 part of the official record of any Commission proceeding,  
24 nor will they require further action by the Commission.

25 If you wish to comment on an ongoing proceeding

1 before the Commission, please visit our website for more  
2 information.

3 Thank you for your cooperation.

4 CHAIRMAN CHATTERJEE: Madam Secretary, we are  
5 ready to begin.

6 SECRETARY BOSE: Good morning, Mr. Chairman.  
7 Good morning, Commissioners. This is the time and the place  
8 for the open meeting of the Federal Energy Regulatory  
9 Commission to consider the matters that have been duly  
10 posted by the Commission.

11 Please join us in the Pledge of Allegiance.

12 (Pledge of Allegiance recited.)

13 SECRETARY BOSE: Commissioners, since the March  
14 open meeting the Commission has issued 60 Notational Orders.  
15 Thank you, Mr. Chairman.

16 CHAIRMAN CHATTERJEE: Thank you, Madam Secretary,  
17 and good morning to everyone. I'd like to open today's  
18 meeting with some exciting news by introducing my new Chief  
19 of Staff, Maria Farinella. Maris has over 20 years of  
20 experience in the energy industry, including practicing  
21 energy law in Washington, D.C., and here at the Commission.

22 She has worked in several key positions at FERC,  
23 including as a senior attorney in the Office of the General  
24 Counsel's Energy Markets Division from 2009 to 2011, and as  
25 a senior legal advisor in the Office of the General

1 Counsel's front office from 2011 to 2019. She also served  
2 as a legal advisory to Chairman Joe Kelliher from 2007 to  
3 2009. Maria is a graduate of Smith College and American  
4 University's Washington College of Law.

5 Maria's accomplished career at FERC over the past  
6 decade and in private practice makes her eminently qualified  
7 to fill this key role. I want to thank Maria for her  
8 willingness to serve in this critical role, and look forward  
9 to continuing to work with her as we tackle a number of big  
10 issues before us at FERC. Please join me in welcoming  
11 Maria.

12 (Applause.)

13 CHAIRMAN CHATTERJEE: I'd also like to take this  
14 opportunity to welcome Dr. Yolanda Garcia Mezquita to FERC  
15 as a special liaison from the European Commission's  
16 Directorate-General for Energy, known as DG Energy. She  
17 will spend three months in the Commission's Office of Energy  
18 Policy and Innovation.

19 Dr. Garcia Mezquita, who holds a Doctorate in  
20 Economics, has worked for DG Energy since 2009. Her work  
21 focuses on issues related to the "security or supply" both  
22 in the electricity and natural gas sectors. Dr. Garcia  
23 Mezquita will provide key insight on how Europe's  
24 electricity and gas markets function and how those markets  
25 are regulated.

1           She is joining us consistent with the 2016  
2 Memorandum of Understanding with DG Energy. Under that MOU,  
3 our two agencies regularly exchange information on emerging  
4 issues common to the European and American energy markets.

5           Please join me in welcoming Dr. Garcia Mezquita  
6 to the Commission.

7           (Applause.)

8           CHAIRMAN CHATTERJEE: I also want to note that  
9 today is National Linemen Appreciation Day. So I want to  
10 recognize the critical work of the men and women who keep  
11 the lights on for all of us.

12           Now on another matter. I am pleased that we are  
13 issuing two LNG Certificates today--Driftwood LNG in  
14 Louisiana, and Port Arthur LNG in Texas. LNG export  
15 facilities like these are important not only to the United  
16 States economy and energy exports, but to our partners  
17 around the globe.

18           Exporting U.S. LNG means increasing the  
19 availability of inexpensive, clean-burning fuel to our  
20 global allies who are looking for an efficient, affordable,  
21 environmentally friendly source of generation.

22           I would like to thank Commissioners McNamee and  
23 LaFleur for their work crafting a bipartisan compromise on  
24 these orders. And of course I'd like to thank the  
25 Commission staff for their hard work and diligence in



1 processing these applications.

2 With that, I will conclude my remarks and turn  
3 back to my colleagues for any additional opening statements  
4 or announcements they may have.

5 Commissioner LaFleur?

6 COMMISSIONER LaFLEUR: Well thank you very much,  
7 Mr. Chairman. I would also like to congratulate Maria on  
8 being named Chief of Staff. I have enjoyed working with her  
9 for many years, and I know she's frequently being assigned  
10 to the hardest things that the Commission has tackled. So I  
11 know we all look forward to working with her in her new  
12 role.

13 Welcome to Dr. Garcia Mezquita. We're lucky to  
14 have you here. I know a couple of years ago we sent Mike  
15 Bardee over on a detail to work for Director Restore at the  
16 EU, so maybe they sent back their best and their brightest,  
17 and that would be great. Thank you.

18 On a personal note, I want to welcome my son,  
19 Daniel Kuncik who is attending his first FERC open meeting.  
20 He was busy the last nine years--

21 (Laughter.)

22 COMMISSIONER LaFLEUR: --but actually Dan is a  
23 high school science teacher back home. He teaches physics  
24 and chemistry and coaches track, and he's on spring break  
25 this week. So we're happy to have him with us. With him is

1 my husband, Bill Kuncik who has been here a lot. And for  
2 the members of our friendly press corps, the fact that I  
3 have my family here does not mean it's my last meeting.

4 (Laughter.)

5 COMMISSIONER LaFLEUR: I will let you know when  
6 it's my last meeting, I promise.

7 (Laughter.)

8 COMMISSIONER LaFLEUR: I'd also like to mention  
9 that last week Kak Yohan of my team and I went to the U.S.  
10 Society of Dams Conference in Chicago. You haven't lived  
11 until you've been to a Dam Engineer Conference. It was the  
12 best dam conference I've done all year.

13 (Laughter.)

14 COMMISSIONER LaFLEUR: It was exciting. But we  
15 really enjoyed meeting with a whole bunch of folks who work  
16 for Terry and Dave Kapka in DDINS West Side, the Division of  
17 Dam Safety and Inspection, who work on the dam inspections  
18 all around the country. They're getting into their busy  
19 season now, but a bunch of them were in Chicago for  
20 training. And I just wanted to mention that earlier this  
21 month, just a couple weeks ago, the rebuilt Oraville  
22 Spillway was operated for the first time after many months  
23 and years of reconstruction, and that really highlights the  
24 importance of what all Terry's people do. So thank you.

25 Turning to the agenda, I want to note that

1 there's a few significant orders being issued today that are  
2 not on the discussion agenda, besides LNG. I particularly  
3 want to mention E-1, which grants AWEA's complaint and  
4 eliminates SPP's exit fees for nontransmission-owning  
5 members, and E-12 which grants Sun Run's limited waiver of  
6 QF requirements for distributed small residential solar  
7 facilities. Both of them are examples of the Commission  
8 acting unanimously to change our rules to make sure that  
9 they are fair for new resources coming onto the grid, and  
10 they might not get the attention of some of the others but I  
11 think it shows we can still do things unanimously that have  
12 positive, real-world impacts.

13           Finally, I do want to say a couple words about  
14 LNG. I am concurring in both the Driftwood and Port Arthur  
15 cases that we're issuing today, and I wanted to make a few  
16 comments.

17           It's not lost on me that people consider me the  
18 swing vote that's allowing these LNG projects to be  
19 authorized. I am continuing down a path I started over a  
20 year ago of trying to decide each case on the merits  
21 regarding whether the part of the case that we have  
22 jurisdiction over is in the public interest.

23           Despite my considerable, and even growing  
24 concerns about the Commission's current approach to  
25 analyzing climate impacts in these cases, I am trying to

1 supplement that analysis myself and decide case-by-case so I  
2 don't become paralyzed into having to dissent in every case  
3 because I don't like the way the Commission is doing it.

4           And in spite of the fact that we have reached  
5 compromises on some language, as the Chairman mentioned,  
6 it's getting harder, not easier, to do that in the cases.

7           At a time when the courts have spoken and keep  
8 speaking in cases around the country on the requirements of  
9 considering climate change in project cases, I don't  
10 understand why we do not act proactively together to work to  
11 address the issues in our cases.

12           We treat climate change and our environmental  
13 analyses differently than every other environmental impact,  
14 and I think we're just waiting for the court to impose  
15 requirements on us that could add unnecessary complexities  
16 and legal risks to these very big projects. And I believe  
17 all interested parties would be better served by our solving  
18 this problem ourselves, rather than being forced to respond  
19 to judicial mandates.

20           However, in the real world where we live and have  
21 to deal with the way it's being done now, I am writing  
22 concurrences in both of today's orders to highlight my  
23 concerns on two issues: Our treatment of direct GHG  
24 emissions, the considerable emissions that come from the  
25 liquefaction of the gas onsite in Louisiana and Texas, as

1 well as the cumulative impacts of those greenhouse gas  
2 emissions when combined with other LNG and other projects in  
3 the same 50-kilometer radius.

4           In both cases, I substantially supplemented the  
5 disclosure of the information that was in the Commission's  
6 Order, and including discussing the significance of direct  
7 emissions in the Driftwood case. I do appreciate that the  
8 Commission is now disclosing the direct emissions as of the  
9 Calfish case, and that with Commissioner McNamee's help we  
10 made some attempt to reply to the comments in the Driftwood  
11 case who asked about cumulative GHGs.

12           Those comments were critical to allowing me to  
13 vote for the cases.

14           Looking at the bigger picture, though, I  
15 recognize and I agonize that some of the concerns I'm  
16 raising in my concurrences might sound pedantic to some, but  
17 both my thrashing on the cumulative impacts of the various  
18 LNGs we're approving, and my continual reliance on the 2014  
19 National Energy Technology Lab Study on the Life Cycle GHG  
20 Impacts of Exported U.S. Gas, which found that on balance at  
21 that time in that study it had a positive climate impact,  
22 that was the last government study on this, those both come  
23 from the same place in my mind. They both put me in the  
24 same larger context.

25           I am trying to look at the specific decisions

1 we're making in a larger context. As I've said, in pipeline  
2 cases where I think we should take a regional view, I  
3 believe that the policymakers in both FERC and DOE who work  
4 on approving the export of LNG should take a holistic view  
5 of the climate and other impacts of exporting LNG, including  
6 the benefits of the export which are in the purview of the  
7 DOE, and the environmental impacts on the global environment  
8 which are in both purview depending on whether they're  
9 direct impacts of the facility or downstream impacts, and  
10 the impacts on the particular regions of the country where  
11 these facilities are being clustered.

12 I know it's more complicated than in pipeline  
13 cases, because we can't see both ends of the supply chain,  
14 but I believe it's within our ability between FERC and DOE  
15 to do this, and we would be well served to do it for the  
16 benefit of the public whose interests we seek to protect.

17 In the meantime, I will try to keep grappling  
18 with them order by order, and keep working with my  
19 colleagues. And thank you very much.

20 CHAIRMAN CHATTERJEE: Commissioner Glick?

21 COMMISSIONER GLICK: Thank you, Mr. Chairman.  
22 First I also want to congratulate Maria on becoming the  
23 Chief of Staff. And I've heard--I don't know Maria very  
24 well, but I've heard nothing but stellar things about her.  
25 She's--a number of people in our office, she's been a mentor

1 to a lot of folks in the Office of General Counsel and  
2 elsewhere, and am very much looking forward to working with  
3 you. I think on the 11th floor you're going to be--your  
4 talents are going to be very much needed, especially your  
5 expertise in the Commission's activities and what we do on a  
6 daily basis. We haven't had that since I've been here, so I  
7 think it's really important to have a Chief of Staff that  
8 can handle that and represent the Chairman's interests. So  
9 thank you very much.

10           Secondly, Dr. Garcia Mezquita, I really look  
11 forward to learning a little bit more about what you all  
12 were doing in Europe in grappling with some of the issues,  
13 how you grapple with the issues differently than what we do.  
14 Climate change is certainly one example, but there's a whole  
15 bunch of others that I want to learn more about.

16           And then I also wanted to associate myself with  
17 Commissioner LaFleur's comments about some of the actions  
18 that we're taking today that are kind of under the radar,  
19 but they are unanimous decisions. And most of our decisions  
20 are unanimous decisions. Sometimes we highlight, and we'll  
21 get to that in a second, some areas that we don't  
22 necessarily agree on, but certainly there are a lot of  
23 issues we do agree on and I think we should note that on  
24 occasion.

25           And then just a couple of administrative matters.

1 I want to introduce two folks that have joined our office  
2 recently. One of them is Gretchen Kersha. Gretchen is with  
3 the Office of General Counsel. She's on detail to our office  
4 while Erica Hoke is on maternity leave. And Gretchen  
5 actually detailed with us last year when Nat Christensen was  
6 on paternity leave, and she did a great job with us. I'm  
7 actually excited she wanted to come join us again.

8 (Laughter.)

9 COMMISSIONER GLICK: But it was extremely--she was  
10 extremely beneficial to us last year, and look forward to  
11 working with her again.

12 And then I also wanted to introduce Anon  
13 Wisfonoffen. Anon is with the Solicitor's Office here at  
14 FERC, the Office of General Counsel. And he's got a lot of  
15 claims to fame. One of them is he actually worked very  
16 heavily on the pleading that went to the Seventh Circuit  
17 that was successful in persuading the Seventh Circuit not to  
18 pursue action further on the nuclear ZAC cases. The  
19 Supreme Court just this past week did not cert on those  
20 cases. So anyway, he did some great work.

21 I really appreciate James and Bob Thalman's  
22 willingness to give us two of their stellar employees, to  
23 allow us to help out. Anon is going to be helping out while  
24 we have one of our--one of my advisors is going to be on  
25 grand jury duty for about a month or so, so he is going to



1 be helping us out. So we definitely very much could use the  
2 help, and I'm glad that you decided to join us.

3 Moving on, one other issue, the LNG facilities.  
4 And, Mr. Chairman, I noticed that when you were thanking  
5 Commissioner McNamee and Commissioner LaFleur, you forgot to  
6 thank me for my dissent--

7 (Laughter.)

8 COMMISSIONER GLICK: --but I'm sure that was an  
9 oversight.

10 But, no, I did want to spend a couple minutes  
11 talking about the Driftwood and Port Arthur LNG facility  
12 orders in C-2 and C-3 that we're issuing today. And I  
13 promise not to engage in another lengthy tirade like I did  
14 last month, so everyone can rest assured you'll be out of  
15 here at a reasonable hour this time.

16 But I think it's really important to really make  
17 three major points about these orders, and I want to explain  
18 why I'm dissenting.

19 First of all, we're talking about two projects  
20 with significant--substantial amounts of greenhouse gas  
21 emissions. At Port Arthur we're talking about 4.8 million  
22 tons of CO2 equivalent emission. And at Driftwood, even  
23 more, 10.6 million tons of CO2 equivalent.

24 And I think it's great that in the Order, as  
25 Commissioner LaFleur mentioned, that we actually put down,

1 you know, listed the emissions and had some figures in  
2 there, but putting figures in there without context doesn't  
3 do anything. For instance, we could have added what last  
4 night's score of the Nationals Game was in the Order, but  
5 without saying why we put it in there it doesn't make any  
6 sense. Well that's what we're doing here. We're listing  
7 the CO2 emissions, but what we're leaving out is any context  
8 in terms of examining whether these figures, these  
9 emissions, are significant in terms of having an adverse  
10 impact or an impact on greenhouse gas emissions and, more  
11 importantly, an adverse impact on the environment.

12           The dirty little secret of all of this is that it  
13 doesn't matter how many emissions we're talking about  
14 because if you follow the majority's approach through to its  
15 logical conclusion, we're never going to consider whether  
16 greenhouse gas emissions are significant no matter how large  
17 the emission.

18           So we're talking about 10 million metric--10  
19 million tons with regard to Driftwood. What if we go to 100  
20 million tons? Nope? How about a billion tons? No, we're  
21 not going to do it. Five billion tons, which is pretty much  
22 as I understand it doubles the U.S. emissions on a national-  
23 -we're talking annual emissions, so it doubles U.S.  
24 emissions. But, no, we couldn't do that because the  
25 majority is saying we cannot consider the significance of

1 the greenhouse gas emissions' impact on climate change.

2           And so we're left in the situation here where we  
3 are not achieving our responsibilities both under NEPA and  
4 the Natural Gas Act, and a situation here which is pretty  
5 dangerous when we're saying something. We're saying in this  
6 Order, or these two Orders, that these projects have no  
7 adverse impact on the environment. But we're ignoring the  
8 biggest impact on the environment that we can think of,  
9 climate change.

10           So what are we doing here--

11           (Applause.)

12           COMMISSIONER GLICK: Please don't applaud. Let  
13 me finish up, first of all.

14           Secondly, I want to make the point that I think--  
15 and Commission LaFleur said it well--but I would encourage  
16 you, once again, to go back and read Commissioner LaFleur's  
17 concurrence, because she makes some very interesting points.

18           What she proves--what she demonstrates, one of  
19 the thing she demonstrates in her concurrence is that we can  
20 consider significance. You get it. She said these  
21 emissions are significant. How come the Commission, the  
22 majority of the Commission says we can't consider their  
23 significance? I don't really understand that.

24           You know, but the problem is that a concurrence,  
25 no matter how well written, can't cure the defect of the

1 underlying Order. So I think the Order itself speaks for  
2 itself, that we're just not going to examine--we're going to  
3 stick our head in the sand, or bury our heads in the sand  
4 and say we're not going to consider--we're not going to  
5 examine greenhouse gas emissions.

6 Third, and this is an important point, even if we  
7 were to find--even if the majority of the Commission were to  
8 find that the emissions from these facilities are  
9 significant, that doesn't end our--end what we're supposed  
10 to do under the law, under NEPA or the Natural Gas Act. All  
11 you have to do--I think I mentioned this last time--but you  
12 should read these environmental impact statements  
13 associated with these LNG facilities because they're really  
14 interesting. And I encourage everyone to read them, to the  
15 extent they haven't already.

16 But the environmental impact statements list a  
17 whole bunch of potential environmental impacts associated  
18 with these projects, and in most cases they address  
19 mitigation associated with the projects.

20 And, for example, in both Driftwood and in the  
21 Port Arthur Orders, or I should say the environmental impact  
22 statements, in both cases they have mitigation activities  
23 associated with lost wetlands. Both projects, if they're  
24 built, are going to cause a loss of wetlands. So what do  
25 they do? Both of them are working with their state programs

1 to encourage, or add new wetlands elsewhere. And secondly,  
2 as I understand it, they're buying credits from the Corps of  
3 Engineers to offset whatever else is lost in terms of the  
4 wetlands.

5           Why can't we do that for greenhouse gas  
6 emissions? We have the authority. But every time we issue  
7 an order, either under LNG or pipelines, we have all sorts  
8 of mitigation authority. We use it all the time. We  
9 actually condition our approvals on a company's engaging in  
10 mitigation activities on a whole slew of environmental  
11 impacts, but we're refusing to do so on climate change.

12           And I think everyone knows what's going on here.  
13 This is climate change. That's why we just can't talk about  
14 it. And I think we need to reassess that, because people  
15 are losing faith in Washington, D.C., for a lot of reasons  
16 and this is certainly one of them.

17           So thank you very much, Mr. Chairman.

18           CHAIRMAN CHATTERJEE: Commissioner McNamee.

19           (Delayed applause.)

20           COMMISSIONER McNAMEE: Thank you, Mr. Chairman.  
21 I also want to congratulate Maria. We haven't had a chance  
22 to work together, but I'm looking forward to having you  
23 upstairs and helping with the work of the Commission. So  
24 thank you for your willingness to do that.

25           And I will also thank Dr. Garcia Mezquita for

1 joining us, and look forward to learning from you as well.

2           And I have another introduction to make for the  
3 Commission, and that is Hanna Dirks is joining us as my  
4 confidential assistant. Hanna previously had worked on the  
5 Hill as a legislative assistant for former Congressman Steve  
6 Braswell of Oklahoma, where she worked on energy,  
7 environment, and transportation issues.

8           She's from Oklahoma, and received her Bachelor's  
9 Degree from the Northwestern Oklahoma State University.  
10 Before she went to the United Kingdom where she got a  
11 Masters in War, Media, and the Society, from the University  
12 of Kent at Canterbury. I think that Masters may be very  
13 useful here at the Commission.

14           And then, you know, she's obviously got an  
15 interest in energy issues, and we're really looking forward  
16 to having her work with us. She started this week and has  
17 been doing a great job.

18           Because I don't want to break the trend, I'm also  
19 going to talk about the LNG issues. And, you know, today in  
20 our approval of the Driftwood and Port Arthur LNG export  
21 facilities it's good news for American workers and the  
22 American economy, as well as for our friends and allies  
23 throughout the world.

24           With these two projects, along with February's  
25 approval of the Calcasieu Pass export facility, FERC is doing

1 its job to make sure that we develop energy infrastructure  
2 in a responsible manner.

3           After two years in which no LNG project was  
4 approved, the Commission has now approved, in two months,  
5 three LNG export facilities that will be able to export a  
6 total export capacity of 7.3 billion cubic feet a day of  
7 LNG.

8           And though these projects were approved on the  
9 merits of their applications and the record, the impacts of  
10 these approvals on the American worker, our economy, and  
11 U.S. policymakers cannot be underscored--or cannot be  
12 emphasized enough. The approvals of the two LNG export  
13 facilities are going to unleash tens of billions of dollars  
14 in direct investment, create thousands of construction  
15 jobs, and provide hundreds of full-time jobs for American  
16 workers.

17           The projects are going to contribute to economic  
18 growth, and ensure that the American energy renaissance will  
19 continue by providing access to new markets for  
20 American-produced natural gas.

21           And as addressed in the Orders and in the full  
22 environmental impact statements, the Commission did take a  
23 hard look at the environmental impacts of the projects,  
24 including greenhouse gases. That some may wish better  
25 analysis was done in a different manner, disagreeing about

1 how to consider these impacts does not mean that we fail to  
2 give them thoughtful consideration. Importantly, the  
3 Commission has demonstrated that it knows how to come  
4 together and approve energy infrastructure projects in  
5 accordance with the law and in an environmentally  
6 responsible manner.

7           These approvals demonstrate that when we work  
8 together, pay attention to the laws and the facts, and  
9 listen to each other, we can find common ground. And I  
10 thank the efforts of Chairman Chatterjee and Commissioner  
11 LaFleur in finding these common grounds and the results of  
12 these approvals. And, yes, I even thank Commissioner Glick  
13 for his dissent, because I think in our process it's always  
14 good to have all voices heard.

15           So it is important to acknowledge also that it's  
16 just not the work that we were able to accomplish together,  
17 but there's also the hard work that goes before we make  
18 these decisions, the work of the staff. They are the  
19 foundation of what we are able to do, whether it's the EIS,  
20 whether it's developing the record, going into the issues,  
21 it's all very important to making it so we can do our jobs  
22 and do it responsibly. And so I thank all of you who have  
23 worked on this.

24           And in the end, each case has to be looked at  
25 individually. I know each of us do, and so I will continue



1 to look at each project as it comes along based on the facts  
2 that are on the record, the current status of the law, and I  
3 will make my decisions on that.

4 But at the end of the day, I think this is good  
5 news to have approved these LNG projects. Thank you.

6 CHAIRMAN CHATTERJEE: Thank you, Commissioner  
7 McNamee. I also want to welcome Hannah--you're over there--  
8 to the Commission, as Commissioner McNamee's new  
9 confidential assistant. He is fortunate to have you as a  
10 member of the team, and thank you for your willingness to  
11 serve here at FERC.

12 I also want to welcome Gretchen back up to the  
13 11th Floor, and Anna, and look forward to getting to know  
14 and working with you as well.

15 With that, Madam Secretary, we are ready to go to  
16 the Consent Agenda.

17 SECRETARY BOSE: Thank you, Mr. Chairman. Since  
18 the issuance of The Sunshine Act Notice on April 11th, 2019,  
19 no items have been struck from this morning's agenda. Your  
20 Consent Agenda is as follows:

21 Electric Items: E-1, E-5, E-6, E-7, E-8, E-9,  
22 E-10, E-11, and E-12.

23 Gas Items: G-1, G-2, G-3, G-4, G-5, and G-6.

24 Hydro Items: H-2, H-3, H-4, H-5, and H-6.

25 Certificate Items: C-1, C-2, and C-3.

1           As to E-6, E-10, G-1, G-2, and H-1, Commissioner  
2     McNamee is not participating.

3           As to C-2, Commissioner LaFleur is concurring  
4     with a separate statement.    And Commissioner Glick is  
5     dissenting with a separate statement.

6           As to C-3, Commissioner LaFleur is concurring  
7     with a separate statement.    And Commissioner Glick is  
8     dissenting with a separate statement.

9           With the exception of H-1 where a vote will be  
10    taken after the discussion and presentation of that item, we  
11    are now ready to take a vote on this morning's Consent  
12    Agenda.    The vote begins with Commissioner McNamee.

13           COMMISSIONER McNAMEE:   I vote aye on all the  
14    items except for the ones that you listed, E-6, E-10, G-1,  
15    G-2, and H-1.

16           SECRETARY BOSE:   Commissioner Glick.

17           COMMISSIONER GLICK:   Noting my dissents in C-2  
18    and C-3, I vote aye.

19           SECRETARY BOSE:   Commissioner LaFleur.

20           COMMISSIONER LaFLEUR:   Noting my concurrences in  
21    C-2 and C-3, I vote aye.

22           SECRETARY BOSE:   And Chairman Chatterjee.

23           CHAIRMAN CHATTERJEE:   Aye.

24           SECRETARY BOSE:   We are now ready to move on to  
25    the Discussion and Presentation Items for this morning.   The

1 first item is a joint presentation on Items E-2 and E-3.  
2 These are two Draft Orders Concerning Fast Start Pricing  
3 Practices.

4           There will be a presentation by Daniel Kheloussi  
5 from the Office of Energy Policy and Innovation. He is  
6 accompanied by Elizabeth Topping from the Office of Energy  
7 Policy and Innovation; Kaleb Lockwood from the Office of the  
8 General Counsel; and Jorge Moncayo and Scotiana Bennett from  
9 the Office of Energy Market Regulation.

10           MR. KHELOUSSI: Good morning, Mr. Chairman and  
11 Commissioners.

12           On December 21st, 2017, the Commission opened  
13 investigations pursuant to Section 206 of the Federal Power  
14 Act into the fast-start pricing practices of the New York  
15 ISO and PJM as part of the Commission's broader price  
16 formation initiative.

17           The Commission preliminarily found that current  
18 practices in the New York ISO and PJM may be unjust and  
19 unreasonable because those practices do not allow prices to  
20 accurately reflect the marginal cost of serving load when a  
21 fast-start resource is needed to quickly respond to  
22 unforeseen system needs.

23           Without some form of fast-start pricing, many  
24 fast-start resources are not eligible to set prices, even  
25 when they are effectively the marginal resource. Further,

1 even when fast-start resources can set prices, they may not  
2 be able to recover their commitment costs such as start-up  
3 and no-load costs through prices.

4 As a result, prices may not reflect the marginal  
5 cost of serving load, muting price signals for efficient  
6 investments. Several RTOs and ISOs have already implemented  
7 fast-start pricing practices to address these issues.

8 Items E-2 and E-3 largely confirm the preliminary  
9 findings from the December 2017 orders and direct the New  
10 York ISO and PJM, respectively, to implement tariff changes  
11 to ensure that their fast-start pricing practices are just  
12 and reasonable.

13 Both Items E-2 and E-3 direct the New York ISO  
14 and PJM to allow fast-start resources to set prices and to  
15 allow the commitment costs of those resources to be  
16 reflected in prices. Items E-2 and E-3 also require the New  
17 York ISO and PJM to apply fast-start pricing to  
18 non-block-loaded fast-start resources.

19 Finally, in December 2017 the Commission also  
20 opened an investigation into the fast-start pricing  
21 practices in SPP. That proceeding remains pending before  
22 the Commission.

23 Thank you. I would also like to thank the team.  
24 And this concludes our presentation, and we're happy to  
25 answer any questions you may have.

1           CHAIRMAN CHATTERJEE: Thank you for the excellent  
2 presentation. I also want to thank the broader team that  
3 worked on these Orders, as well as the Orders in our price  
4 formation proceeding.

5           I am very pleased that we are acting on these  
6 Orders today. I think these incremental changes to the  
7 energy market will have a positive impact. And over the  
8 long term, I believe consumers will benefit from price  
9 signals that more clearly represent the cost of serving  
10 load, and I think today's Order accomplishes that goal.

11           I don't have any questions, but again just want  
12 to thank you and the broader team for your great work.  
13 Appreciate it.

14           COMMISSIONER LaFLEUR: Thank you, Chairman  
15 Chatterjee, for putting this item on the discussion agenda.  
16 And thank you to the team, not just the five folks sitting  
17 at the table but all the team that's worked on the price  
18 formation effort for the last five years.

19           I am aware that these items in particular that  
20 we're voting out today have been eagerly awaited by a lot of  
21 folks in the markets, and I'm very happy that they're on  
22 today's agenda.

23           Today's Orders represent one of the last steps in  
24 the price formation effort that we began in 2014, and it was  
25 one of my--has been one of my personal priorities. Because

1 there's been so much recent discussion of new proposals  
2 related to energy price formation, I thought it was worth  
3 taking a couple minutes to review where we've been.

4           When we started this effort with a series of  
5 staff papers and a series of workshops back in 2014, there  
6 were four stated goals of price formation. And I don't know  
7 how many times I made Arnie Quinn come up to my office with  
8 a list of the four goals because I kept losing them, but now  
9 he's gone so I'll summarize them briefly:

10           To maximize market surplus for consumers and  
11 suppliers;

12           To provide correct incentives for market  
13 participants to follow dispatch and invest money to maintain  
14 reliability;

15           To provide pricing transparency and to ensure  
16 suppliers have an opportunity to recover their costs.

17           In short, the whole price formation effort, all  
18 the many dockets, was an attempt to make sure that the  
19 energy prices in the market reflect what it actually takes  
20 to keep the lights on.

21           After a series of staff papers and workshops, as  
22 I mentioned, the Commission has issued a long series of  
23 orders in several areas--offer caps--these are all barn  
24 burners, you should all go back and re-read them, they're so  
25 thrilling--

1 (Laughter.)

2 COMMISSIONER LaFLEUR: Offer caps, settlement  
3 intervals, and shortage pricing, uplift transparency, and  
4 today pricing of fast-start resources.

5 I think today's actions are an important step to  
6 help accomplish the key goals of the effort, and I'd like to  
7 thank you for all your work over the last several years.

8 I do have one question, something in the Order  
9 I'd like to highlight. There's one element of today's PJM  
10 Order that I'd like to dig down on a little.

11 In the Order, the Commission requires that  
12 resources--that fast-start pricing, resources eligible for  
13 fast-start pricing, be able to start up within one hour or  
14 less, and have a minimum run time of one hour or less. And  
15 that compares to the two hours requested by PJM.

16 And could you explain a little bit more about  
17 that part of the Order, and whether there are any other RTOs  
18 or ISOs that have start-up or minimum run times that are  
19 more than an hour?

20 MR. KHELOUSSI: Sure. And thanks for the  
21 question, Commissioner LaFleur. We talk about this in the  
22 Order. It is truly a barn burner, so--

23 (Laughter.)

24 MR. KHELOUSSI: --you can look forward to reading  
25 that. But I'll try to summarize it here. The Draft Order

1 finds that resources with start-up or minimum run times in  
2 excess of an hour lack the flexibility to operate in a  
3 manner consistent with unforeseen or transient real-time  
4 needs. And therefore commitment and dispatch of such  
5 resources are not analogous to a marginal decision.

6 Applying fast-start pricing logic to such  
7 resources would result in prices failing to reflect the  
8 marginal cost of serving load.

9 That being said, the Draft Order acknowledges  
10 there is no bright line between what is marginal and what is  
11 not marginal. However, the commitment of a resource with  
12 the one-hour start-up and minimum run times is more closely  
13 analogous to a marginal decision than a commitment of a  
14 resource with a two-hour start-up and minimum run time.

15 As to what the other RTOs do, I'm going to turn  
16 to Jorge.

17 MR. MONCAYO: So other RTOs have a range of  
18 start-up and minimum run time requirements for fast-start  
19 resources. MISO allows resources that have start-up and  
20 minimum run times of one hour or less to be eligible for a  
21 fast-start pricing treatment.

22 In ISO New England, fast-start resources must be  
23 able to start up in 30 minutes and have a minimum run time  
24 of one hour or less. SPP applies fast-start pricing  
25 treatment to resources that can start within 10 minutes.



1 And, finally, we note that NISO currently has a 30-minute or  
2 less start-up time requirement, and a one-hour or less  
3 minimum run time requirement for online resources, and  
4 separate requirements for offline resources.

5 So today's Draft Order does not change these  
6 requirements.

7 COMMISSIONER LaFLEUR: Well thank you. I mean I  
8 didn't focus on it just because I'm a geek--although I am a  
9 market geek--but obviously the point of these orders is that  
10 not just those resources, they were already getting paid,  
11 but other resources that are in the market in that time will  
12 be able to benefit from the costs of those fast-start  
13 resources. It will make the market prices go up when we use  
14 them. But this is one element of the Order that people  
15 might be--some people might be disappointed with. But I  
16 think it's important to make sure the rates are just and  
17 reasonable and that fast-start resources be fast. So I  
18 agree with that recommendation and am happy to support the  
19 Order. Thank you very much.

20 COMMISSIONER GLICK: Thank you. I want to thank  
21 the staff for the presentation, but also I wanted to thank  
22 the staff and the team for really working very well with our  
23 office in getting these Orders out. I think they are going  
24 to be very beneficial Orders.

25 As I previously indicated, one of the

1 Commission's most important responsibility is to make sure  
2 that we are removing the barriers to new technology, the  
3 entry of new technologies, and ensuring that the markets are  
4 properly valuing the services that resources are providing  
5 the grid. And that doesn't always occur.

6 Electric markets need proper price signals to  
7 incentivize short-term and long-term action. These days,  
8 everyone throws around the term "price formation." But  
9 getting prices right isn't about whether the prices are too  
10 high or too low; it's about ensuring that the prices reflect  
11 marginal costs, as was just discussed, and that we are  
12 properly valuing resources for the services they provide.

13 Today's Orders requiring PJM and the New York ISO  
14 to modify their fast-start pricing rules get to exactly  
15 that. Fast-start resources provide significant value and  
16 flexibility to the grid, particularly during tight or  
17 unexpected system conditions.

18 It is important that we send the right long-term  
19 signals to reflect the value certain resources provide, and  
20 to derive investments in those resources needed for the grid  
21 of the future, as opposed to focusing our pricing efforts on  
22 preserving resources designed for the grid of the past.

23 So thank you very much.

24 CHAIRMAN CHATTERJEE: Commissioner McNamee?

25 COMMISSIONER McNAMEE: I also thank you for your

1 work on this. It's tough and interesting stuff, but it may  
2 not be a barn burner but it definitely takes a lot of  
3 intensity to really think it out. And that goes to another  
4 point that I think these fast-start resources, other things  
5 that we've dealt with recently, the BR curve I know was in  
6 conversation, is that these markets are not free markets.  
7 They are regulatory constructs in which there's a lot of  
8 assumptions. There's a lot of inputs. And there's often  
9 tariffs that you could stack up that (indicating) high. And  
10 so our job here in creating these FERC-organized markets is  
11 to constantly look at them to make sure that they are  
12 functioning as best as they can, but recognizing that they  
13 are markets that are always subject to a lot of tariffs, a  
14 lot of inputs, and that we always have to be vigilant and be  
15 working to make sure that they are functioning as best as  
16 possible.

17 So I thank you all for your work.

18 SECRETARY BOSE: We are now ready to take a vote  
19 on these items. We will take a vote on these items  
20 together, E-2 and E-3. The vote begins with Commissioner  
21 McNamee.

22 (Protester is yelling, microphones are turned  
23 off.)

24 SECRETARY BOSE: Commissioner Glick?

25 COMMISSIONER GLICK: Aye.

1 SECRETARY BOSE: Commissioner LaFleur.

2 COMMISSIONER LaFLEUR: Aye.

3 SECRETARY BOSE: And Chairman Chatterjee.

4 CHAIRMAN CHATTERJEE: Aye.

5 SECRETARY BOSE: The next item for presentation  
6 and discussion this morning is H-1, a draft final rule  
7 concerning an expedited process for licensing certain  
8 hydroelectric projects.

9 There will be a presentation by Tara DiJohn from  
10 the Office of the General Counsel. She is accompanied by  
11 Kenneth Yu from the Office of the General Counsel; and Shana  
12 Wiseman from the Office of Energy Projects.

13 MS. DiJOHN: Good morning, Mr. Chairman, and  
14 Commissioners.

15 On October 23rd, 2018, the America's Water  
16 Infrastructure Act was signed into law. Among other things,  
17 the Act directed the Commission to issue a rule within 180  
18 days establishing an expedited process for licensing and  
19 amending licenses for qualifying facilities at nonpowered  
20 dams and for qualifying closed-loop pumped storage projects.

21 In establishing the expedited process, the Act  
22 also directed the Commission to convene an interagency task  
23 force to coordinate the regulatory processes associated with  
24 the authorizations required to construct and operate the  
25 qualifying hydroelectric facilities.

1           Accordingly, on November 13th, 2018, the  
2 Commission issued a notice inviting federal and state  
3 agencies and tribes to participate in an interagency task  
4 force for the purpose of consulting on a new, expedited  
5 licensing process.

6           A month later, on December 12th, 2018, the  
7 Commission held a meeting with 28 interagency task force  
8 participants. Informed by the coordination efforts of the  
9 task force, the Commission issued a Notice of Proposed  
10 Rulemaking on January 31st, 2019.

11           The final rule in H-1 establishes an expedited  
12 process for licensing two types of hydroelectric projects:  
13 qualifying facilities at existing, nonpowered dams; and  
14 closed-loop pumped storage projects.

15           Under this expedited process, the Commission will  
16 seek to ensure that a final decision on a license  
17 application is issued no later than two years after the  
18 Commission receives a completed application. The final rule  
19 will be codified in a new part that will be added to the  
20 Commission's regulations.

21           Use of the expedited process is voluntary and  
22 limited in scope to original license applications. The  
23 rule does not change the Commission's pre-filing process.  
24 That is, the rule does not modify the existing process  
25 milestones and stakeholder consultation that an applicant

1 must complete before a license application--before filing a  
2 license application. Pursuant to the final rule, an  
3 applicant must submit a request for the expedited process  
4 when it files a license application.

5           An application submitted with a request to use  
6 the expedited process must demonstrate compliance with  
7 certain qualifying criteria promulgated by Congress in the  
8 201 Water Infrastructure Act. Section 34(e) of the Federal  
9 Power Act, as amended by the 2018 Act, sets forth the  
10 qualifying criteria that a facility at an existing,  
11 nonpowered dam must meet in order to be eligible for the  
12 expedited licensing process. Section 34(e) also defines the  
13 term "qualifying nonpowered dam."

14           In contrast, Section 35(g) of the Federal Power  
15 Act directs the Commission to establish criteria for, for a  
16 closed-loop pump storage project to be eligible for the  
17 expedited process.

18           In establishing the qualifying criteria for  
19 closed-loop pumped storage projects, Congress directed the  
20 Commission to include two specific criteria. First, an  
21 eligible pumped storage project must cause little to no  
22 change to existing surface and groundwater flows and uses.  
23 And second, an eligible pumped storage project must be  
24 unlikely to adversely affect species listed as threatened or  
25 endangered under the Endangered Species Act.

1           In addition to meeting the eligibility criteria  
2 set forth by Congress, the final rule requires an applicant  
3 to submit, at the time the application is filed,  
4 documentation demonstrating that the applicant has consulted  
5 with stakeholders including tribes and federal and state  
6 agencies responsible for required authorizations under the  
7 Clean Water Act, the Endangered Species Act, and the  
8 National Historic Preservation Act.

9           If the project is proposed at a nonpowered dam,  
10 the applicant must also provide documentation demonstrating  
11 that the owner of the dam is not opposed to hydropower  
12 development at the site.

13           Lastly, if the project would use any park,  
14 recreation area, or wildlife area created by state or local  
15 law, the applicant must provide documentation confirming  
16 that the managing entity is not opposed to use of the site  
17 for hydropower development.

18           No later than 180 days from the date the  
19 application and request are filed, the Director of the  
20 Commission's Office of Energy Projects will act on a request  
21 to use the expedited process.

22           If an application demonstrates compliance with  
23 the eligibility criteria, includes the required consultation  
24 documentation, and has no outstanding deficiencies, the  
25 Director will issue a notice that approves the expedited

1 processing request.

2           This notice will also accept the license  
3 application, find it ready for environmental analysis, and  
4 provide a processing schedule. If an expedited processing  
5 request is approved, the two-year process will be deemed to  
6 have begun on the date the application was filed. In other  
7 words, the amount of time it takes the Commission to approve  
8 a request to use the expedited process will be included in  
9 the two-year timeline.

10           The final rule will take effect 90 days after  
11 publication in the Federal Register.

12           This concludes our presentation. We are happy to  
13 answer any questions you may have.

14           CHAIRMAN CHATTERJEE: Thank you for the excellent  
15 presentation. Today the Commission adopts this final rule  
16 establishing an expedited process for certain licenses at  
17 existing nonpowered dams and closed-loop pump storage  
18 projects. Congress directed us to do this in last year's  
19 America's Water Infrastructure Act to implement an expedited  
20 licensing process that will help develop more renewable  
21 energy.

22           I would like to say thank you to stakeholders,  
23 and especially to FERC staff for all the work that went into  
24 completing this rulemaking on schedule. 180 days was a  
25 tight time frame for a FERC rulemaking, but we beat the



1 deadline with 3 days to spare. Very well done. Thank you.

2 Commissioner LaFleur?

3 COMMISSIONER LaFLEUR: Thank you. I would also  
4 like to thank the team for all your work on this effort that  
5 led to the final rule.

6 Congress doesn't pass legislation changing our  
7 enabling Acts very often, at least not in the last decade--  
8 maybe the Federal Power Commission in the 1920s got new laws  
9 all the time, but we don't. And when Congress tells us to  
10 do something this important, that we do it and do it on  
11 time. So I appreciate your making that happen.

12 I hope that we have a large number of license  
13 applicants take advantage of the new process, both for  
14 unpowered dams and closed-loop pump storage. There are  
15 approximately 80,000 unpowered dams in the United States.  
16 Not many of them are probably not suited for power  
17 production, but some of them are and could be brought online  
18 to help contribute reliable, carbon-free, flexible  
19 electricity, and I hope today's new rule and the regulations  
20 that it puts into effect will help spur such development.

21 Thank you.

22 COMMISSIONER GLICK: Thanks also to the team. I  
23 don't have any questions for you. I am just glad that we're  
24 complying with what the statute says, that Congress has  
25 directed us to undertake.

1           I just wanted to quickly talk about, just to  
2 follow up on Commissioner LaFleur's point, I think the  
3 reason why these items are important I think is to the  
4 extent you can increase hydropower development, whether it  
5 be a closed-loop pump storage facility or development at  
6 nonpowered federal dams, these facilities have the  
7 potential to provide enormous amounts of sources of  
8 emissions-free generation, and also to help integrate a  
9 variable resource in a very cost-effective manner.

10           So I look forward to seeing how this process  
11 works, and hopefully we will get many applications.

12           COMMISSIONER McNAMEE: I have no specific  
13 comments, but thank you for your efforts.

14           SECRETARY BOSE: Noting that Commissioner McNamee  
15 is not participating in the voting of this item, we are now  
16 ready to take a vote. The vote begins with Commissioner  
17 Glick.

18           COMMISSIONER GLICK: Aye.

19           SECRETARY BOSE: Commissioner LaFleur?

20           COMMISSIONER LaFLEUR: Aye.

21           SECRETARY BOSE: And Chairman Chatterjee.

22           CHAIRMAN CHATTERJEE: Aye.

23           SECRETARY BOSE: The last item for presentation  
24 and discussion this morning is A-3. This is concerning the  
25 2018 State of The Markets. There will be a presentation by

1 Adam Bennett and Hillary Huffer from the Office of  
2 Enforcement. They are accompanied by Alexander Ovodenko and  
3 Gregory Vitz from the Office of Enforcement. There will be  
4 a presentation, PowerPoint presentation, on this item.

5 MR. BENNETT: Thank you, Mr. Chairman and  
6 Commissioners.

7 The Office of Enforcement's Division of Energy  
8 Market Oversight is pleased to present the 2018 State of the  
9 Markets Report to you today. This Report summarizes our  
10 assessment of natural gas, electric, and other market  
11 developments during the past year.

12 In 2018, natural gas demand reached a record  
13 high, driven primarily by increased demand for natural  
14 gas-fired generation and liquefied natural gas export  
15 growth. Record high demand was accompanied by record high  
16 production, with the largest growth from the Marcellus Shale  
17 and the Permian Basin.

18 However, demand growth outpaced production  
19 growth, resulting in consistently lower-than-average storage  
20 levels that at times were the lowest in more than a decade.  
21 Low storage contributed to rising natural gas prices across  
22 the Nation, although pipeline additions helped to broadly  
23 distribute growing production and ease tightness in some  
24 markets.

25 In the electric markets, day-ahead on-peak prices

1 increased across the country, reflecting the general  
2 increase in natural gas prices. In addition, the majority  
3 of additions to generating capacity consisted of natural  
4 gas, wind, and solar resources.

5 U.S. natural gas spot prices generally rose in  
6 2018 from 2017, with the Henry Hub averaging \$3.12 per MMBtu  
7 for the year, up 5 percent from \$2.96 in 2017. Relatively  
8 low natural gas prices masked increased price volatility  
9 which was brought on by extended periods of low winter  
10 temperatures, storage deficits during the second half of the  
11 year, and infrastructure constraints in the West.

12 In January 2018, a cold snap along the East Coast  
13 led to natural gas prices as high as \$140.85 per MMBtu in  
14 New York, and \$128.39 in the Mid-Atlantic on January 4th.

15 By comparison, New York's spot price did not  
16 exceed \$20.82 throughout all of 2017. New England was also  
17 affected with prices peaking at \$78.88 in Boston, also on  
18 that day on January 4th. The Northeast region averaged  
19 \$16.23 for the month of January.

20 During the summer, natural gas demand reached  
21 record highs but was also met with record high production,  
22 tempering prices during the third quarter of last year.

23 However, the record high demand kept storage from  
24 filling at its typical rate. The diminished storage  
25 backstop caused fourth quarter prices across the country to

1 surge, with the Henry Hub prices up 31 percent compared to  
2 the fourth quarter of 2017.

3           The lowest natural gas prices were seen in the  
4 Permian Basin where associated gas from oil fields faced  
5 takeaway capacity constraints. Gas prices in that region  
6 averaged \$1.95 per MMBtu during 2018, which was a 27 percent  
7 decrease from 2017, and actually fell as low as \$0.45 in  
8 late November.

9           Southern California experienced the highest  
10 average spot price for the year at \$5.14, mainly due to  
11 storage limitations and pipeline transmission outages and  
12 constraints. This represents a 54 percent increase year  
13 over year.

14           U.S. natural gas production continued to reach  
15 historic highs in 2018, and averaged 88.2 Bcf a day in  
16 November. For the year, production averaged 80.7 Bcf a  
17 day, an increase of 8.5 Bcf a day or 12 percent from 2017.

18           The majority of this growth came from  
19 unconventional resources, including shale. Production from  
20 the Marcellus Shale, which is the most productive basin in  
21 the United States today, averaged 19.4 Bcf per day for the  
22 entire year of 2018 and grew nearly 2.3 Bcf per day from  
23 2017.

24           The Marcellus actually averaged more than 21 Bcf  
25 a day in December alone. The Haynesville Shale and Permian

1 Basin also had strong year-over-year production gains.  
2 Higher natural gas prices and lower production costs  
3 increased Haynesville production by an average of 2.1 Bcf a  
4 day over 2017 levels, to an average of 6.5 Bcf a day, which  
5 is a 46 percent annual increase. Rising crude oil prices  
6 contributed to a 2.1 Bcf a day year-over-year increase in  
7 associated natural gas production from the oil-rich Permian  
8 Basin, to an average of 7.2 Bcf a day.

9 Over 13 Bcfd and 689 miles of  
10 Commission-jurisdictional pipeline capacity entered service  
11 during 2018. Similar to the previous year, in which 12 Bcfd  
12 of new pipeline capacity entered service, many of these new  
13 projects connected Marcellus-and-Utica-sourced natural gas  
14 to markets in the Midwest, the Northeast, and the Southeast.

15 New pipeline capacity additions are also serving  
16 export markets with links to LNG terminals and pipeline  
17 exports to Mexico. Some of the significant projects that  
18 entered service in 2018 were Columbia Gas' 2.7 Bcfd  
19 Mountaineer Xpress project which transports gas to pooling  
20 points on its system and to Columbia Gulf in Kentucky;  
21 Columbia Gas' 1.3 Bcfd bi-directional West Virginia to  
22 Virginia WB Xpress project; and the 1.5 Bcfd NEXUS Gas  
23 Transmission project which transports Marcellus and Utica  
24 sourced gas from Ohio through Michigan.

25 New England saw no capacity increases in 2018,

1 while New York had two separate projects go in service on  
2 Millennium Pipeline for a combined capacity increase of  
3 350 Mmcfd.

4           The Commission certificated 44 new projects in  
5 2018, representing approximately 9.3 Bcfd and 676 miles of  
6 new pipeline capacity. Like the pipeline capacity that  
7 entered service in 2018, the majority of these newly  
8 certificated projects are planed to serve markets in the  
9 Midwest, Northeast, and the Southeast.

10           In 2017, the U.S. became a net exporter of  
11 natural gas for the first time in more than 60 years, and  
12 net exports grew to nearly 2 Bcfd in 2018 as new  
13 border-crossing pipeline and LNG projects provided  
14 additional capacity.

15           The Cove Point LNG facility in Maryland began  
16 commercial service in March, while Sabine Pass LNG in  
17 Louisiana expanded its capacity in October. Total exports  
18 of LNG averaged nearly 3 Bcfd for the year in 2018, up from  
19 about 2 cfd in 2017, and peaked at 5.3 Bcfd on a single day  
20 in December.

21           For pipeline exports, cross-border flows to  
22 Mexico set a new high in 2018 of 4.6 Bcfd, up nearly 0.5  
23 Bcfd from the previous year. Daily export flows to Mexico  
24 also set a new single-day record of 5.2 Bcfd in November.  
25 Pipeline exports to Mexico have grown continuously since

1 2010, as new pipeline infrastructure has been built in both  
2 Mexico and in the U.S. Several critical links in Mexico's  
3 national pipeline grid were completed in 2018 and in early  
4 2019.

5           Tho9ugh the volume of natural gas imports into  
6 the U.S. has continued to fall as domestic production has  
7 risen, some ports of entry continue to see critical  
8 deliveries of pipeline gas from Canada and LNG tankers from  
9 global markets.

10           Although Canadian pipeline imports fell below 8  
11 Bcfd on average for 2018,. Those supplies serve key markets  
12 in the Northeast, Midwest, and West Coast. LNG imports,  
13 particularly those into the Everett terminal near Boston,  
14 continue to offload tankers and provide necessary supply to  
15 the New England market during periods of high demand.

16           Looking forward, LNG exports are expected to  
17 increase substantially in 2019. By the end of this year, as  
18 much of 4 Bcfd of new export capacity could be added, more  
19 than double that of 2018.

20           New construction at Cameron, Corpus Christi, Elba  
21 Island, and Freeport LNG facilities are expected to be in  
22 service and another expansion at Sabine Pass is also  
23 expected to be operational.

24           And at this point I'll turn it over to my  
25 colleague, Hillary.



1 MS. HUFFER: Thank you, Adam--

2 (Protester is heard, microphones are turned off.)

3 MS. HUFFER: In 2018, mean day-ahead on-peak  
4 locational marginal prices increased on average as compared  
5 to 2017, nearly 25 percent at pricing nodes throughout the  
6 national RTO/ISO footprint. SPP, MISO, and CAISO  
7 experienced moderate increases in average day-ahead on-peak  
8 LNP with increases less than 15 percent relative to 2017  
9 levels.

10 PJM and NISO saw slightly higher increases in  
11 prices of approximately 20 percent, while ISO New England  
12 and ERCOT had the largest increases of 33 percent and 44  
13 percent respectively.

14 The pins on the map show 2018 RTO/ISO and  
15 non-RTO/ISO power trading hub average prices, and percentage  
16 changes from 2017. Trading hubs experienced price increases  
17 comparable to the average nodal LNP increases with the  
18 exception of SPP South hub whose average day-ahead on-peak  
19 LNPs held steady from the previous year.

20 However, despite two years of increases and  
21 average power prices, prices at hubs throughout the United  
22 States remained below the high level experienced in 2014.  
23 ISO New England's internal hub experienced the highest  
24 average price in 2018 of approximately \$50 per megawatt  
25 hour, while ERCOT's North Hub saw the largest

1 year-over-year increase of more than \$15 per megawatt hour.

2 Mid-Columbia day-ahead power prices increased  
3 substantially more than other non-RTO/ISO hubs because of  
4 the lower overall hydropower output in the Pacific Northwest  
5 last year, following unusually high hydropower output in  
6 2017.

7 In 2018, generation capacity additions and  
8 retirements in RTO/ISO regions paralleled the trend from the  
9 previous years, with the largest shares of additions coming  
10 from renewable and natural gas resources, and most of the  
11 retirements coming from coal resources.

12 PJM added 11.5 gigawatts of gas-fired generating  
13 capacity, mostly in the form of combined cycle units. The  
14 Oyster Creek Nuclear Power Plant in PJM retired in September  
15 2018 pursuant to an agreement between its operator and state  
16 environmental regulators.

17 ISO New England experienced a net increase of 1.8  
18 gigawatts in generating capacity, with 1.7 gigawatts of  
19 gas-fired generation additions. SPP added 1.9 gigawatts in  
20 wind capacity, while 745 megawatts of natural gas-fired  
21 generating capacity retired. CAISO experienced a net  
22 decrease of 487 megawatts in generating capacity as roughly  
23 1.7 gigawatts of gas-fired generating capacity retired,  
24 while 992 megawatts of solar capacity and 182 megawatts of  
25 wind capacity were added.

1 MISO added approximately 1.9 gigawatts of  
2 renewable resources. Outside the jurisdictional ISOs, the  
3 renewable resource additions also mainly came from solar and  
4 wind resources. In non-RTO/ISO regions, capacity additions  
5 and retirements also followed the trends of preceding years.

6 In particular, over 7.7 gigawatts of coal-fired  
7 capacity retired in non-RTO/ISO regions, and nearly 5  
8 gigawatts of gas-fired capacity came online, while 5  
9 gigawatts of combined wind and solar capacity were also  
10 added to non-RTO/ISO regions.

11 In 2018, the Western Energy Imbalance Market  
12 added two participating entities, Idaho Power Corporation  
13 and POWERX. POWERX is a wholly owned subsidiary of BC  
14 Hydro, Canada's third largest utility. The Sacramento  
15 Municipal Utilities District also began participating in  
16 April 2019, and more entities are scheduled to join the EIM  
17 in 2020 and 2021.

18 Currently the EIM serves 55 percent of the energy  
19 imbalance demand in the Western Interconnection. The  
20 addition of Idaho Power and POWERX, add to the hydropower  
21 resources that participate in the EIM. Based on CAISO  
22 estimates, the EIM produced over \$500 million in gross  
23 benefits to its members between its inception in November  
24 2014 and the end of 2018 in the form of reduced overall  
25 costs from fewer renewables curtailment, and lower reserve

1 requirements.

2           During the third quarter of 2018, CAISO estimated  
3 that the EIM generated over \$100 million in gross benefits  
4 for its members, the most of any quarter since the EIM  
5 began, largely by integrating renewables during periods of  
6 high natural gas prices.

7           The full version of this report contains  
8 additional material on natural gas and electric markets, and  
9 will be posted on the Commission's website. The online  
10 version includes information on natural gas storage levels,  
11 natural gas demand, the liquidity of reported natural gas  
12 index volumes, and several major pipeline outages that  
13 caused elevated prices for natural gas and electricity in  
14 California and the Pacific Northwest.

15           The online report also discusses capacity price  
16 trends, electricity demand, and the volumes of daily and  
17 hourly energy sales in booked out power in the non-RTO/ISO  
18 bilateral markets.

19           This concludes staff's prepared comments. We  
20 would be happy to answer any questions you may have. Thank  
21 you.

22           CHAIRMAN CHATTERJEE: Thank you so much to the  
23 team here at the table, and also to the broader staff team  
24 for that thorough and informative presentation. I just have  
25 a couple of questions for the team.

1           First, you reported that the U.S. was once again  
2 a net exporter of natural gas in 2018. As I've said many  
3 times, I believe that this is a historic American moment,  
4 and it's important that we process pipeline certificate and  
5 LNG terminal applications in an efficient and legally  
6 durable manner.

7           Can you just give us a sense of the current  
8 outlook for U.S. natural gas exports?

9           MR. BENNETT: Yes. Thank you for the question,  
10 Mr. Chairman. The U.S. should continue to be a net exporter  
11 of natural gas in 2019 and beyond, as we see it. By the end  
12 of this year, there should be six fully operational LNG  
13 export terminals here in the U.S. And this year alone,  
14 domestic export capability is likely to double. And  
15 pipeline exports to Mexico are also likely to grow as a new  
16 2.6 Bcfd pipeline linking south Texas to northern Mexico is  
17 looking to come into service in June.

18           Beyond 2019, continued global demand--the outlook  
19 for continued global demand should drive U.S. exports even  
20 higher. As we mentioned in the report, Mexico has several  
21 large pipeline projects that are looking to integrate their  
22 system, which should drive demand there, and likely drive  
23 demand for U.S. exports down to Mexico. And, globally,  
24 persistent growth for LNG in general has signaled the need  
25 for additional export capacity, and U.S. developers have

1 been keen to jump on that and have continued to propose new  
2 LNG export projects.

3           Most recently we have had two projects that have  
4 made financial investment decisions or the corporate  
5 decision to go ahead with development. That's the Golden  
6 Pass and Calcashu Pass Projects. Together, once they  
7 complete construction, that provides about an additional 3.5  
8 Bcfd of additional capacity.

9           CHAIRMAN CHATTERJEE: Thank you for sharing that  
10 insight. Just one more question from me. I want to pick  
11 up on your report that the Permian Basin has seen some of  
12 the largest increases in natural gas production. It had  
13 some of the lowest prices in the Nation. For me,. This  
14 underscores that the natural gas revolution that we've seen  
15 in America has led to an abundant supply, but it also has  
16 created some new challenges.

17           What are the biggest factors contributing to low  
18 natural gas prices in that region? And how does this issue  
19 relate to pipeline infrastructure?

20           MR. BENNETT: Yeah, constrained natural gas  
21 pipelines are really generally responsible for the low  
22 pricing conditions that we're seeing in the Permian region  
23 right now. The Permian is really different from a lot of  
24 the other gas plays in that it's an oil play and natural gas  
25 is derived as a byproduct, or a secondary product, because

1 the drillers are focused on oil recovery.

2           So as oil production has grown in the Permian,  
3 there's been a commensurate gain in natural gas production,  
4 regardless of what the local demand conditions have been.  
5 This has really been acutely seen in regional pricing hubs.  
6 WAHA, which is the pricing hub in West Texas, has actually  
7 traded at negative prices numerous times over the past  
8 couple of months. It may not be that weak, but weak prices  
9 are expected to persist at least for the near term here and  
10 into the fall.

11           There is a new pipeline, a 2 Bcfd pipeline called  
12 Gulf Coast Express that is scheduled to be online in  
13 October. So that should alleviate some of the issue. And  
14 there are several other projects that have been proposed  
15 that are under development. But most of those are  
16 intrastate pipelines within Texas and are not under the  
17 Commission's jurisdiction.

18           CHAIRMAN CHATTERJEE: Thank you for that very  
19 helpful explanation, and as well to the team for this  
20 fantastic presentation. I appreciate it, and turn it over  
21 to my colleagues.

22           COMMISSIONER LaFLEUR: Well thank you very much  
23 for that presentation and the excellent report, which I  
24 enjoy every year. I know it takes a lot of work from  
25 everyone in DEMO, and I strongly recommend the full Web

1 version to everyone who does business in FERC regulated  
2 markets. There's a lot of information on every chart.

3 I am always particularly interested in the chart  
4 which I think was slide 7, to see resource additions and  
5 closures, which I think is in one chart, a snapshot of the  
6 ongoing transformation in the Nation's energy mix.

7 I also think it's worth noting the continued  
8 progress of the CAISO energy imbalance market shown on slide  
9 8. It's remarkable that more than half of the Western  
10 Interconnection is now in that market, and it's still  
11 growing, and we're starting to see so much public power come  
12 in. And I think it is clearly not unrelated to the chart  
13 before that shows the high wind and solar in the Western  
14 Region of the country that's really powering the imbalance  
15 market.

16 I know it's not being driven by FERC--that's  
17 probably why it's been so successful--it's being driven  
18 organically in the West by companies who think it's in the  
19 best interests of their customers.

20 I have two questions. On slide 2 you talk about  
21 a cold snap on the East Coast that led to high natural gas  
22 prices in New York and New England. In past years, in fact  
23 in almost every cold snap, usually the highest prices are in  
24 Boston because it's at the end of the pipeline. And it  
25 seems like this year New York experienced considerably



1 higher prices and the prices in Boston were more moderated  
2 in that January snap.

3 Can you explain what drove that anomaly?

4 MR. BENNETT: Yeah. You rightly pointed out that  
5 typically Boston or New England prices are higher than that  
6 of New York during these cold snaps. When we looked into  
7 this, weather and supply availability I think were the major  
8 determinants in the price disparity, or the flip from what  
9 we generally see there.

10 On that particular day, the high temperature in  
11 New York City was less than 20 degrees. And it was about 5  
12 or so degrees warmer in Boston. And natural gas demand is  
13 highly responsive to that type of cold.

14 In addition to that, there was an issue with  
15 supply availability. There was actually an LNG cargo  
16 docking and unloading at Everett at that time, which implies  
17 that there's a greater level of supply to balance that  
18 market in and around Boston when that event happened.

19 COMMISSIONER LaFLEUR: Thank you. Worst pricing  
20 is not one of the championships I want Boston to win, even  
21 though it usually does.

22 (Laughter.)

23 COMMISSIONER LaFLEUR: I also had a question on  
24 the fifth slide, which was the bar chart of imports and  
25 exports. In most cases, you know, we're either importing or

1 exporting to a country, but Canada was interested because we  
2 have a lot of exports to Canada growing, but also still  
3 imports. Could you unpack that a little? Is that  
4 different geography? What explains that kind of weird  
5 pattern?

6 MR. BENNETT: Yeah, absolutely. Yeah, it is  
7 regionally variable, and it depends on a lot of the  
8 interplay between the U.S. and Canada. There are many  
9 different natural gas flow points along the border there.

10 By and large in the Western U.S. which is very  
11 close to the Alberta Supply Fields in Canada, it's mainly  
12 Canadian exports coming down into the U.S.

13 Further east into the Midwest, the Northeast, and  
14 New England, it's a little bit of a mix. There's a lot of  
15 synergy between the Canadian pipeline network and the U.S.  
16 pipeline network. For example, both the States of Michigan  
17 and New York are heavy exporters to Canada, mainly owing to  
18 the fact that there's a lot of storage right over the border  
19 in Canada, and there's also demand centers that that gas is  
20 feeding in Canada.

21 In Vermont and New Hampshire, they are almost  
22 exclusively importers of Canadian gas. In a State like  
23 Maine, basically exports as much as it imports.

24 COMMISSIONER LaFLEUR: Interesting. I think in  
25 some cases we see Marcellus gas go up, get held in Canada,

1 and come down because the pipelines can't get there more  
2 directly. So it's very interesting.

3 Thank you very much to everyone.

4 COMMISSIONER GLICK: Thank you for the  
5 presentation and the report, it was very interesting. And I  
6 want to associate myself with something Commissioner McNamee  
7 said earlier who pointed out, rightly so, that these markets  
8 aren't really free markets and not really competitive  
9 markets like you think of in terms of free market, but  
10 they're really organized, regulated markets.

11 And because of that, as he referenced, the  
12 tariffs and the tariffs that are piled high is exactly  
13 right. And a lot of times here at the Commission we get  
14 bogged down in the weeds of little tariff changes or curve  
15 changes, or whatever it is, and sometimes it's really  
16 helpful to have these type of reports to let us look on a  
17 more macro level what's really happening out there and it  
18 allows us to do our jobs better.

19 I just wanted--I had really just one question.  
20 You kind of addressed it already, but I just wanted to  
21 elaborate on it a little bit. You know, the report notes  
22 that even with the record year in natural gas production,  
23 gas demand growth still outpaced production growth, and I  
24 was wondering if you could comment on the role, or maybe  
25 expand a little bit on the role that increased LNG

1 production has had in terms of causing demand to exceed  
2 production.

3 MR. BENNETT: Yeah, as we said in here, 2018 was  
4 a growth year for feed gas in the U.S. LNG exports. I think  
5 it was on the order of about 2 Bcfd for the year. And in  
6 total, domestic consumption grew by somewhere in the order  
7 of 7 Bcfd. But when you add on LNG exports on top of that,  
8 it pushes it slightly beyond what the growth in domestic  
9 production was, which was about somewhere in the  
10 neighborhood of 8 Bcfd.

11 COMMISSIONER GLICK: Thank you.

12 COMMISSIONER McNAMEE: Following up on that  
13 question, you noted that in some parts of Texas there was  
14 actually a negative price for natural gas, just because  
15 there's not enough pipeline capacity to get it.

16 So in terms of the role of having pipeline access  
17 to get gas from where it is, whether it's in the Permian  
18 Basin, Barnett, whether it's up in Marcellus-Utica, that  
19 supply and demand is also driven by the ability to not just  
20 produce the natural gas but it's also driven by whether you  
21 can get the gas to where it's needed. Is that correct?

22 So pipeline development is very important in  
23 driving price?

24 MR. BENNETT: That is correct. And I think  
25 that's evidenced by the fact that there's, as I said,

1 several developers that are looking at building additional  
2 pipeline capacity in the Permian as they're eyeing these  
3 negative prices, or very low prices.

4 COMMISSIONER McNAMEE: Great. Thank you very  
5 much for the hard work. This was fascinating data, so thank  
6 you.

7 SECRETARY BOSE: There's nothing more on the  
8 agenda today, Mr. Chairman.

9 CHAIRMAN CHATTERJEE: Thank you, Madam Secretary.

10 Before I conclude, I just, very briefly, want to  
11 reach out to Dan and see if you enjoyed the meeting, first  
12 one in nine years. Appreciate that you got the opportunity  
13 to come and see what your mother gets to do. She's very  
14 impressive. And while I think the five of us would agree--  
15 four of us, that we have a very important role, I can  
16 honestly say that as the father of three young children, the  
17 job that you perform is far more important, educating the  
18 next generation. So thank you for what you do. Thank you  
19 for spending some of your Spring break with us, and thank  
20 you for having a great mom, Commissioner LaFleur.

21 (Laughter.)

22 COMMISSIONER LaFLEUR: Thank you very much for  
23 those kind comments.

24 CHAIRMAN CHATTERJEE: Alright, with that we are  
25 adjourned. Thank you.

1                   (Whereupon, at 11:18 a.m., Thursday, April 18,  
2 2019, the open meeting of the Commissioners of the United  
3 States Federal Energy Regulatory Commission was adjourned.)

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## 1 CERTIFICATE OF OFFICIAL REPORTER

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3 This is to certify that the attached proceeding

4 before the FEDERAL ENERGY REGULATORY COMMISSION in the

5 Matter of:

6 Name of Proceeding:

7 1054th Commission Meeting

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15 Docket No.:

16 Place: Washington, DC

17 Date: Thursday, April 18, 2019

18 were held as herein appears, and that this is the original

19 transcript thereof for the file of the Federal Energy

20 Regulatory Commission, and is a full correct transcription

21 of the proceedings.

22

23

24 Larry Flowers

25 Official Reporter