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BEFORE THE CALIFORNIA ENERGY COMMISSION AND
CALIFORNIA PUBLIC UTILITIES COMMISSION

In the Matter of: )
) Docket No. 16-IEPR-03

IEPR Commissioner Workshop)
on Draft Environmental )
Performance Report )
__________________________)

CALIFORNIA ENERGY COMMISSION
FIRST FLOOR
ART ROSENFELD HEARING ROOM
1516 NINTH STREET
SACRAMENTO, CALIFORNIA
THURSDAY, AUGUST 4, 2016
1:00 P.M.

Reported by:
Susan Palmer
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Public Comments
David Townley, CTC Global
Rochelle Becker, Alliance for Nuclear Responsibility
John Geesman, Alliance for Nuclear Responsibility
Spencer Olonick, Pacific Gas & Electric
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PROCEEDINGS

1:00 P.M.

SACRAMENTO, CALIFORNIA, THURSDAY, AUGUST 4, 2016

MS. RAITT: Okay, good afternoon. I’ll just go ahead and get started with a few housekeeping items.

Welcome to today’s IEPR Commissioner workshop on the draft Environmental Performance Report. I’m Heather Raitt, the Project Manager for the IEPR.

There’s a snack room on the second floor. If there’s an emergency and we need to evacuate the building, please follow staff diagonal to the building to Roosevelt Park.

We are being broadcast throughout WebEx conferencing system, so parties should be aware you’re being recorded. We’ll post an audio recording on the Energy Commission’s website in a couple of days, and a written transcript in about a month.

So we’re going to have two presentations by staff today, and after the first one if folks want to make comments, please go ahead and fill out a blue card and give it to me and we’ll have an opportunity for comments at that point, and then we’ll also take public comments at the end of the
We’ll take comments first from folks in the room, and then folks on WebEx, if you’d like to make comments just use the tap function to let our WebEx coordinator know you want to make comments. And then we’ll take the phone-in only comments.

If you haven’t already, please sign in at the entrance. And all the materials for this workshop are available on our website. And we welcome written comments, which are due on August 18th, and the notice gives the process for how to submit comments.

So thank you, and with that, I’ll turn it over to the Commissioners for opening remarks.

COMMISSIONER DOUGLAS: Hi, good afternoon everyone. I’d like to welcome you to this workshop. And I’m really looking forward to the presentation on the draft Environmental Performance Report and the comments on the draft Environmental Performance Report.

As I think probably everyone here knows, there’s just been a huge amount of change and evolution of our electricity system over the past decade or so, spurred in large part by environmental policies, climate policies certainly with AB32 in
2006, and SB1368 and SB350. More recently renewable
energy policies, energy efficiency policies, and
once-through cooling and a suite of environmental
policies. And we’ve seen as a result of that some
very significant and substantial changes on the
ground.

I certainly was fascinated myself with some
of the data and information that came out of the
report and I’m very much looking forward to getting
the comments on the report and hearing more thoughts
about it. So I think those are my opening comments.
Thanks for being here.

CHAIR WEISENMILLER: I also would like to
thank everyone for their participation today and
thank staff for pulling this together.

When Commissioner Douglas talked about
framing this IEPR around the EPR, I just have to
agree, I thought that was a great theme. It’s been a
long time since we’ve done the Environmental
Performance Report so it’s time to really look back
and provide some perspective to the changes that are
going on in the energy system and to look a little
bit forward in the arc on what the future changes
will be.

So again, I’m certainly looking forward to
today’s presentations. Thank you.

COMMISSIONER SCOTT: Hello and welcome everybody. I just have been hearing, believe it or not, quite a bit around the Energy Commission about the Environmental Performance Report and am really looking forward to digging in and seeing what some of the additional details are and I thought participating in a workshop would be a great way.

So thank you, everyone, for joining us and I really look forward to hearing the presentations.

MS. RAITT: Great. So our first presentation is on the report by Jim Bartridge and Judy Grau will do a presentation.

MR. BARTRIDGE: Good afternoon. Thank you, everyone, for being here.

Thank you, Commissioners, for your comments. You’ve eliminated our first couple slides.

So I’m Jim Bartridge, I’m in the Siting Division with Judy Grau. We’re in the Transmission Planning and Corridor Designation Office, and let’s just get going.

So the purpose of today’s workshop is to present an overview of our Environmental Performance Report. We published this document on July 19th; here’s the web page it’s available on.
We’re going to take stakeholder comments after this presentation, and then we’ll do another presentation by Alana Mathews on the SB350 Barriers Report.

Governor Brown’s Climate Change Pillars:

Increase renewables standard from 33 percent to 50 percent;

Double energy efficiency savings of existing buildings;

Reduce petroleum use in the state by 50 percent;

Reduce release of methane, black carbon, and other climate pollutants;

Manage farm and rangelands, forests and wetlands for carbon storage;

And periodically update California’s climate adaptation strategy.

Clean Energy and Pollution Reduction Act was passed last year, SB 350. It meets a lot of these goals. I think the transportation didn’t quite make it. The petroleum use didn’t make it last year but there’s still a lot of talk about that.

SB 350 increases those standards;

Allows for the transformation of the ISO into a regional organization;
Increases our energy efficiency targets;

Directs the Energy Commission and the CPUC to establish resource plans, integrated resource plans by load serving entities;

And again, more on the Barriers Report you’ll see soon.

The purpose of our 2016 Draft Environmental Performance Report is:

To evaluate the effects of climate change, GHG reduction, and other energy and environmental policies over the last 10 years. So over the last decade we’ve enacted a number of legislations and policies to reduce GHG emissions and help transition toward a cleaner energy system, including most recently with SB 350.

In the report we try and describe transformative technologies and approaches that support these policies, and then hopefully provide the basis for Integrated Energy Policy Report recommendations.

So with the EPR we know where we’ve been. We wanted to take a look at the system changes, where we’ve been, where we’re at today, and where we think we’re going.

So the history of the Environmental
Performance Report.

In 2001, the first EPR provided an initial evaluation of the environmental performance of the generation system from WWII through 2000.

It noted major system improvements in the conversion from oil to natural gas in generation facilities.

Better combustion technologies, new pollution controls were added.

And it also noted that while the amount of water used by power plants was less than 1 percent or total statewide water demand, the impacts from individual power plants on limited local water supplies could be significant.

It also found that new power plants had increased their use of alternative water supplies and dry cooling technologies.

The 2003 EPR looked at the system from deregulation in 1996-2002, and we discussed the energy crisis of 2001-2002, but also noted that the energy crisis had limited environmental impact. That was more of an impact in public safety and reliability to the system.

In the 2003 EPR we noted that capacity additions were primarily natural gas combined cycle
units;

That overall system efficiency had continued to improve;

And emissions stayed relatively flat.

Fresh water supply for new power plants was a concern given many new plants had been proposed in areas of limited supply, and this carried forward into the 2003 IEPR resulting in a policy change regarding the use of fresh water for cooling at power plants.

2003 was also the first time we looked at OTC plants, once-through cooling, noting impacts to marine ecosystems as an issue of concern.

And finally, we also noted that wind power would play a large role in meeting the RPS and we highlighted bird mortality from strikes with turbines as a major issue of concern.

The 2005 EPR noted that the system overall had a small footprint compared to other parts of the country and the rest of the world.

There were continuing concerns over fresh water supply for new power plants, once-through cooling effects, and avian mortality.

It also raised concerns about environmental justice issues, climate change, and the profile of
imported power

The 2007 EPR, again the system overall had a small footprint, though environmental issues associated with renewable energy development were starting to emerge.

Between ’96 and 2003, 37 percent of new power plant capacity proposed recycled water for air cooling; that was good.

And in 2004, 69 percent of new capacity proposed recycled water for air cooling.

We also noted, then, that as we increased renewables to meet the RPS, biological resource impacts would occur due to increased solar and wind energy development.

Interestingly enough, as an aside, in 2007 is when we began talking with BLM, entering into an MOU to work on projects throughout the state, and mostly the large solar projects in the desert.

MS. GRAU: Okay. So now we are going to turn our attention to the actual draft report, and copies are available on the back table. If you haven’t had a chance to digest all 150 pages, we’re actually going to sort of walk through chapter by chapter and give the summary, so this slide just shows how we organized the topics in the report as
well as today’s presentation.

And we just want to mention that this report had a number of contributing authors across multiple divisions within the Commission and that would not have been possible without their authorship and technical expertise and review, and so we’d like to thank everyone, many of whom are in the room, for their excellent work on this project.

So these next couple of slides talk about all of the policies that -- the evolution of policies that how we got to where we are. They’re all discussed in Chapter 2 of the report, so we won’t be reading them here. And actually, Commissioner Douglas already set these up by mentioning many of these in her opening remarks, and we would encourage you to read the whole chapter in advance of any written comments. Read the whole chapter as well as the whole report.

On this page I just want to make a few notes on environmental Justice.

The federal agencies recognized environmental justice in 1994, and the Energy Commission began including environmental justice concerns and demographics as part of our power plant siting work beginning in 1995.
And then in 1999 California passed its first environmental justice law which codified the definition of environmental justice as follows:

“The fair treatment of people of all races, cultures and incomes with respect to the development, adoption, implementation and enforcement of environmental laws, regulations and policies.”

And in 2012 Senate Bill 535 by Deleon required that a portion of cap and trade dollars be set aside for investments in disadvantaged communities, and you’ll be hearing more about that Barriers Report work for SB 350 later today.

So given all of these polices, this figure more or less highlights the effects that these policies have had on the amount of renewable generation that’s been added to our electricity system from both in-state and out-of-state resources.

And so you can see that generation from renewables was relatively flat throughout the 1990’s and then increased rapidly with the passage of the first renewables portfolio standard and other environmental and greenhouse gas reduction policies and mandates and goals.
And so this information on the changes to the installed capacity over the last ten years is actually taken from Table 1 of the report, and so just a couple of highlights.

On the positive side, our coal use decreased from 595 megawatts down to 167. It was already a small number, but getting smaller.

The nuclear decrease was the two power plants, San Onofre and Diablo Canyon until San Onofre was closed in 2013.

Natural gasses increased from 38,000 megawatts to 45,000. I think the majority of that is combined cycle, so that’s the net, though, with some plants being closed, so there’s a net increase.

Solar PV increased from 2 megawatts to almost 5,55. An important point to note here is that these data are actually for in-state capacity for facilities 1 megawatt and larger. So anything smaller than 1 megawatt, which is a lot of solar PV, is not included in our numbers, which is why the increase looks so dramatic.

And then solar thermal increased from 378 to almost 1,300 megawatts.

And then finally a large increase in wind.

So now what are some of the challenges from
an evolving generation system.

We know that renewables have new and different effects compared to the conventional generation. We’ll be discussing some of those impacts one by one as we go through the presentation.

Numerous integration challenges associated with interconnecting remote renewables;

And also addressing the net load curve, also known as the duck curse. Figure 9 in the report for those of you who are not familiar with that.

And then finally, we have to modernize the natural gas fleet for several reasons:

Air quality as well as we need more flexible units to integrate all the intermittent renewable generation;

And we are also faced with the challenges of retiring our facilities that used once-through cooling;

So we see an increased role for energy storage and distributed resources, which we’re going to be talking about;

And then, of course, the shutdown now of the last two of California’s nuclear power plants with Diablo Canyon being planned for shutdown in
2024 and 2025 as they are not renewing their licenses.

So the first three bullets on this list,
Interconnection of renewables;
Integrated generation and transmission planning;
And then maintaining reliability with the closure of the OTC plants, we’ve identified and assessed these issues through several Integrated Energy Policy Report cycles and also the Strategic Transmission Investment Plan that the Energy Commission does biennially, and these have continued to be addressed by the energy agencies. There’s nothing new here for those who have been following those issues; we know about them and we’re dealing with them. So today I just want to focus on the last two bullets on this slide.

The energy imbalance market is the voluntary market to balance supply and demand in real time. Right now the existing entities are the California ISO, PacifiCorp and NV Energy.

And just recently the Cal ISO published their second quarter results for the energy imbalance market gross benefits report, and that report noted that the EIM has reduced the amount of
curtailments from renewable resources within the California ISO footprint, which is what one of the goals was.

In addition, just on Monday the Cal ISO began the testing phase with its two newest participants, Arizona Public Service and Puget Sound Energy. So over the next few weeks the California ISO will operate the EIM under real conditions but the transactions won’t be financially binding until October 1st.

And then finally, possible regionalization has been a huge issue lately. I believe it began back in April 2015 when the Cal ISO and PacifiCorp signed a memorandum of understanding to explore the feasibility, costs and benefits of PacifiCorp’s full participation in the Cal ISO through the day-ahead market.

So they had already begun through the energy imbalance market or the real time market, and now we have an MOU -- the ISO has an MOU to look at the day-ahead market.

The California Legislature recognized the potential for the benefits of an expanded regional organization and thus included provisions in Senate Bill 350 to study the benefits to California as well
as the governance changes that would be needed to create and maintain a regional system operator.

And studies conducted by the Cal ISO do show significant benefits to California rate payers, and we’ve had a number of public workshops on governance, and those governance issues are being addressed in the Energy Commission’s docket, for those who are interested, it’s 16-Reissued General Order-01.

And this slide shows that the state’s policies to reduce greenhouse gas emissions in the electric sector are working. Carbon dioxide emissions have declined from roughly 105 million tons of CO2 equivalent to 90 million tons between the year 2000 and 2014.

In-state emissions from the electric sector over the last few years have been about 20 percent below 1990 levels, which is the red line on this chart.

And so there’s a full expectation that the overall trend is that greenhouse gas emissions will continue to decline with the increase in renewable generation, increased energy efficiency, the addition of distributed renewable energy resources, modernization of the gas fleet, decline in out-of-
state coal purchases, and then transmission
additions and changes to the electricity markets.

So with that, I’m turning it back to Jim.

MR. BARTRIDGE: These are the environmental
issue areas we looked at within the Environmental
Performance Report. I won’t go through them as I’m
about to.

For air quality and public health, air
emission trends have continued to improve with the
transition to a high renewable, low carbon
electricity system as we reduce our dependence on
fossil fuels. And statewide criteria pollutant
emissions have also declined.

However, the existing fossil fuel
generation fleet is operating with frequent stops
and starts and rapid ramps up and down, and these
operating fluctuations could cause emission rates to
increase even as overall emissions continue downward
as less energy is needed from them.

In addition, given the poor air quality in
many regions of California, it can be difficult to
obtain air permits for even the cleanest facilities.

Finally, while ambient air quality in
California is improving, a growing population,
climate and geography will continue to challenge our
ability to meet the health-based ambient air quality standards in the future.

For water use and conservation, we’ll talk a little bit about the 2003 IEPR Water Policy.

In that policy in the 2003 IEPR the Energy Commission adopted a water conservation policy for power plants to limit the fresh water use for power plant cooling to only where alternative water supply sources or alternative cooling technologies are shown to be environmentally undesirable or economically unsound.

Since then, the Energy Commission has encouraged power plants to limit their use of fresh water by using recycled water and water efficient technologies such as dry cooling.

Despite the addition of many thermal power plants in the last decade, the total amount of fresh water used for cooling has not increased significantly.

The IEPR Water Policy also resulted in an electricity system that is more reliable in drought conditions.

And also, because of the once-through cooling policy, almost 2700 megawatts of OTC gas fired plants have been retired or replaced by 2015.
As alternative cooling technologies and those repowers or retirements continue, we expect the biological impacts to California’s marine ecosystems to also be eliminated.

And then finally, water use by utility scale renewable generators is highly dependent on both technology and cooling type, but nearly all new generation renewable capacity in California is from wind and solar PV, and these technologies can operate with essentially no water.

Finally, PV facilities typically do use water for panel washing, and the amount of water used during construction for all renewable types can be considerable.

This table, the land use per megawatt by fuel type, shows the average acreages which we used also for acreage planning assumptions in the Desert Renewable Energy Conservation Plan.

As renewable generation has increased, projects and acreages have increased in size and scale, which has led to new and different environmental impacts, different than conventional power plants we’ve sited in the past.

We used these acreage assumptions in the EPR to better understand the number of acres of
overall project footprints, but they do not necessarily reflect the intensity of land uses.

   In regard to wind, we assumed an average wind project required 40 acres per megawatt consistent with the DRECP, and Enrail (phonetic) assumes, however, that wind energy facilities are capable of providing one megawatt of power with roughly 24 acres, so we wanted to show a range here and calculate based on that in the EPR.

   This is the 2001 through 2015 installed capacity for in-state electric generation capacity by fuel type, and I think the big story here is the dramatic increase in renewables we’ve seen over the last ten years. This is Figure 1 in the report, and again, these facilities are 1 megawatt and larger.

   So for biological resources, the general effects associated with renewable development include Habitat loss, degradation, and alteration associated with scale and location of renewables.

   A major concern has been avian mortality at both wind and solar facilities.

   For wind, between 2005 and 2007 the Energy Commission worked closely with the California Department of Fish and Wildlife to develop the voluntary California guidelines for reducing impacts
to birds and bats from wind energy development. And
the U.S. Fish and Wildlife Service issued the land-
based wind energy guidelines.

   In our solar siting cases the Commission
also requires a variety of mitigation measures for
impacts to habitats and special status species,
including avoidance of habitats, exclusion fencing
to protect habitats, and securing replacement
habitat acreage to compensate for those removed from
development.

   Finally, the Energy Commission supports
ongoing energy related environmental research
through the EPIC program that’s looking at ways to
further reduce impacts.

   For cultural resources, as large renewable
energy projects have developed in both desert and
agricultural areas there has been a corresponding
increase in the number of cultural resources
identified on or in proximity to project sites.

   Several of the Energy Commission’s large
desert solar siting cases tribes were highly engage
through the process, including identifying
resources, consultation, expert witness testimony,
and construction monitoring.

   That engagement increased staff’s overall
knowledge and helped them develop a set of standard conditions that prioritize avoiding and minimizing impacts to cultural and archeological resources. And if that’s not possible, for the excavation, recovery and curation of those resources.

Their engagement also gave us a more thorough understanding of tribal concerns related to areas other than cultural resources, including biological resources, water, air quality, and visual impacts.

And finally, it’s been valuable engaging with tribes in various landscape planning exercises as we’ve done in the DRECP in San Joaquin solar process and are continuing to do in Redding so that we understand their perspectives early only.

There has also been new state consultation policies related to cultural resources. In September 2011 Governor’s Executive Order B1011 encouraged state agency collaboration with California tribal government and directed agencies to work with both federally recognized and non-recognized Native American tribes so they can provide meaningful input to the development of policy on matters that affect tribal communities.

As a result of the Executive Order, both
the Resources Agency and the Energy Commission developed new tribal consultation policies.

Further, AB52 amended CEQA to require lead agencies to conduct tribal consultation as well.

And finally, we expect continued and increased tribal engagement in both planning and permitting processes going forward, and we also expect the scale and cost of cultural resource mitigation to increase.

Visual resources. Compared to conventional power plants, the area within which visual impacts may occur is typically much greater for utility-scale renewable projects, and particularly for projects using solar power tower technology.

For solar, glare and reflection from mirrors and panels can be reduced with coatings and proper positioning.

Appropriate siting and design of wind turbines can help but will not fully mitigate visual impacts of wind projects.

Environmental justice, we’ve already mentioned that in a previous slide but we’ll note it again.

The majority of populations in California are minority populations. And for us, we’ve been
analyzing EJ impacts since 1995 but there are challenges identifying EJ communities in rural areas, primarily because the data from the Census Bureau is based on sample information, and our ability to obtain reliable poverty information and estimates are used from a much larger area than potentially affected areas around a project site.

So with that, continued outreach is critical as climate change impacts become more pronounced.

For nuclear decommissioning. Nuclear Regulatory Commission Decommissioning Rulemaking was opened in November 2015 to obtain input from stakeholders on the development of power reactor decommissioning draft regulatory basis to replace the current patchwork process that depends on license exemptions and/or amendments.

In March 2015 the Energy Commission submitted comments to the NRC that focused on maximizing safety while minimizing environmental and economic impacts, increased public engagement and expanded roles for the states and stakeholders.

The NRC expects to post the draft regulations in November 2016 for review, and as recommended in the 2015 IEPR, the Energy Commission
will engage in all stages of the rulemaking process.

MS. GRAU: Okay. Turning now to San Onofre and the status of its decommissioning.

Southern California Edison has stated its intent to complete the full NRC mandated decommissioning process for San Onofre within 20 years, which is significantly shorter than the allotted 60 years.

And as of June of this year, Southern California Edison has achieved the necessary site modifications for placing the plant in a “cold and dark” state, which means that the San Onofre plant is now de-energized and in a safe non-operating condition.

Islanding the spent fuel pools involves replacing the normal systems that support the spent fuel pools with standalone cooling and filtration systems, and SCE expects to complete these requirements by the third quarter of 2016.

Construction of the new independent spent fuel storage installation, ISFSI, is expected to be completed in 2017, and SCE expects to complete the transfer of spent fuel from the pool to dry cask storage in this new installation by 2019.

The spent fuel will remain in dry storage
until such time in the future that it can be transferred to a federal storage facility or repository.

California requires the plant site to be restored to its original condition in addition to the NRC’s requirements; and moreover, the environmental restoration of the San Onofre site is required as part of the U.S. Navy lease to SCE, but a final agreement between the parties has not yet been reached.

And then with Diablo Canyon, under the terms of the June 2016 Joint Proposal between PG&E and environmental and labor groups, PG&E has agreed to increase investment in energy efficiency, renewable energy, and energy storage beyond the current state mandates while phasing out production of nuclear power at Diablo Canyon, and then permanently retiring the plant by 2025. The Joint Proposal will require a number of steps before its final approval, however.

In accordance with the agreement, PG&E announced its plans to shut down Diablo Canyon at the end of the current licenses in 2024 and 2025. PG&E will pursue expedited post shut-down transfer of spent fuel to dry cask storage using San
Onofre transfer schedules as their benchmark.

And finally, PG&E will prepare a site-specific decommissioning study no later than 2018, when the Nuclear Decommissioning Cost Triennial Proceeding is filed with the CPUC.

With respect to spent fuel management, the Energy Commission supports Senator Feinstein’s bipartisan efforts to establish a Nuclear Waste Administration, a consent-based siting process for repositories and storage facilities, and a pilot program for interim spent fuel storage as identified in the Nuclear Waste Administration Act of 2015.

The expedited transfer of spent fuel from the cooling pool to dry storage is a policy supported by the Energy Commission as well as the California Public Utilities Commission and the Union of Concerned Scientists.

The Department of Energy has recently begun a consent-based process to develop solutions for the long-term sustainable management of the nation’s high level radioactive waste.

The DOE’s goal is to identify sites that have public support for the interim storage of nuclear waste from the nation’s nuclear power plants.
The Energy Commission’s comments focused on the site removal priority listing, environmental justice, infrastructure support, route planning, and early inclusion of the State as well as stakeholders.

The presence of spent nuclear fuel onsite at California’s four nuclear facilities for years or even decades means local emergency preparedness must be maintained and security measures must remain in place.

Aging and weathering are a source of concern for the onsite independent spent fuel storage installation facilities. The NRDC, industry, and national labs are currently engaged in efforts to develop aging management processes and programs for the nation’s spent fuel storage installations.

New decommissioning regulations should be based on a site specific process promoting planning levels defined by a site specific risk profile.

And the report also looked at emerging and transformative technologies, and we recognize that renewable energy technologies are becoming more efficient and the costs to develop solar photovoltaic and wind energy facilities has dropped significantly in recent years, with utility scale PV
costs falling the greatest from more than $4 a watt to less than $2 a watt.

With respect to other offshore ocean energy, including wind, wave, tidal and ocean thermal technologies, the Energy Commission held an IEPR workshop on May 25th of this year to discuss developing wind energy off the California coast, and we do plan to put an appendix in the 2016 IEPR Update that discusses that workshop.

And also, in response to requests from Governor Brown, the Bureau of Ocean Energy Management announced in May 2016 that it will establish Federal-California Marine Renewable Energy Task Force to collaborate on planning, permitting and coordination related to offshore renewable energy development.

So as noted, Distributed Energy Resources can provide an important of California’s future energy mix.

Assembly Bill 327 and the PUC’s proceedings on distributed resource plans and integrated distributed energy resources are addressing some of these challenges.

And also, the More Than Smart initiative by Cal Tech’s Resnick Sustainability Institute and the
Governor’s Office in September 2013 were established and that framework incorporated into the distribution resource plans proceeding and the vision established by that More Than Smart program lays out actions that California should take to enable higher penetrations of distributed resources. And then finally, AB 2514 directs the Public Utilities Commission to establish targets for energy storage and a program to procure energy storage. The first round of procurement resulted in more than 300 megawatts of selected storage projects by the investor owned utilities. Procurement includes in front of the meter storage such as batteries collocated with power plants, as well as behind the meter storage aggregated together to perform like a virtual power plant.

So California is investing in technologies that will continue to allow the state to meet renewable energy and greenhouse gas reduction goals, and it’s important to support research and technological advancement on both demand and supply site technologies. The Environmental Performance Report finds that emerging distributed technologies such as
rooftop PV can offer many of the same environmental benefits as utility scale solar PV with the added benefit of being installed in the built environment. However, there are a suite of market and operational barriers being addressed that require additional research.

Integrating and harmonizing new technologies together such as solar with energy storage requires the state to continue to carefully plan the next generation energy system and focus on developing technologies that seamlessly connect consumers with energy technologies.

So the report notes that the state should continue to facilitate distributed resources by ensuring research studies and pilot demonstrations are able to make it from the lab to the market. There are opportunities to build off the distribution resource plans and off of the Energy Commission’s staff studies like those performed in the southern San Joaquin Valley in Southern California Edison’s territory.

Landscape-scale planning takes into consideration a wide range of potential constraints and conflicts, including environmental sensitivity, conservation and other land uses, trial cultural
resources and more when considering future renewable energy development.

Previous Integrated Energy Policy Reports have discussed the benefits of using landscape scale approaches for renewable energy and transmission planning.

Through previous and current efforts such as the first and second RETI processes, Renewable Energy Transmission Initiatives, as well as the Joint Renewable Energy Action Team agency work on the Desert Renewable Energy Conservation Plan, and the stakeholder-led San Joaquin Valley Identification of Least Conflict study, California’s agencies, local governments, tribes and stakeholders have gained experience planning and identifying the appropriate areas for renewable energy development and associated transmission. Planning activities such as these can help the state meets its renewable energy and climate goals.

Since the formation of the original RETI and DRECP, the Energy Commission, PUC and Cal ISO have worked to align their electricity infrastructure planning and to establish the analytical link among the different infrastructure studies conducted by the different agencies.
The coordinated agency planning activities have become more critical as higher levels of renewable generation capacity are expected to be developed.

As noted in the 2015 IEPR, the California county governments are the permitting authority for most non-thermal power plants such as wind and solar PV located on private lands in California. They have permitted many of the renewable energy projects developed in California and will continue to be important partners in both permitting and planning going forward.

From 2012 to 2014 the Energy Commission established and administered the Renewable Energy and Conservation Planning Grants to help qualifying counties plan for renewable resource development consistent with the state’s long-term renewable energy, greenhouse gas reduction, and resource conservation goals. These grants support the development of renewable energy elements as part of counties’ General Plan Updates that identify areas where renewable resources are prioritized and preparation and certification of environmental impact reports can be made and the engagement of public, private and tribal partners to plan for
renewable energy development.

There are a number of transmission planning issues also discussed and addressed in the report. The Garamendi Principles or Senate Bill 2531 from 1988 recognize the value of the transmission system and the need for coordinated long-term transmission corridor planning to maximize the efficiency of the transmission right-of-way and avoid single purpose lines.

The 2015 IEPR made the following recommendation regarding transmission right-sizing, and this is as follows.

“The State should develop a set of right-sizing policies through the 2015 IEPR Update process and informed by RETI 2.0. These policies at a minimum should include a comprehensive definition of right-sizing as well as describe the process through which the costs and benefits would be analyzed.”

And so a comprehensive right-sizing policy would help ensure that when a large transmission project is built it doesn’t have to be replaced or upgraded shortly after it’s completed.

A good right-sizing policy essentially expands the analysis of large transmission facilities and looks beyond a ten-year planning
timeframe to determine whether a proposed
transmission project should be sized larger to meet
needs more than ten years out.

A right-sizing policy could be applied in
the transmission planning processes by expanding the
analysis past ten years, or in the licensing of
transmission projects by including alternatives that
are larger than the proposed projects.

We look forward to hearing any comments you
may have today or in writing on the right-sizing
concept.

To date most contracts for renewable energy
have required full deliverability of renewable
resources during peak conditions. This contractual
requirement, which is a prerequisite for obtaining
resource adequacy credit, can result in costly
transmission projects that may add little or no
additional renewable energy being delivered to the
system. Many interconnected generators are able to
deliver full output most of the time even without
additional network upgrades beyond those required
for interconnection.

As renewable generation requirements grow,
the energy agencies are exploring the value of
“energy-only” renewable resources contracts instead
of requiring full deliverability. This option has
the potential to lower costs and increase the
potential for renewable energy generation in many
areas.

Finally, transmission corridors could be
identified and designated as a result of the
landscape scale planning efforts already mentioned.

And so some of the staff draft conclusions
that we would like to offer are that the system is
cleaner, has gotten cleaner over the past ten years,
but we need to continue to improve environmental
performance to meet our energy and greenhouse gas
reduction goals.

Climate adaption is becoming increasingly
important and urgent, and we actually have a
separate sub docket as part of our 2016 IEPR
proceeding on Climate Adaptation and Resiliency. So
we would encourage you to become familiar with that
if you aren’t already.

Systems planning, design, and operation
must evolve to address the critical issues that
we’ve discussed throughout this presentation.

And finally, that new and emerging
distributed energy resources has an important role
in the future.
So that concludes our walkthrough of the report, and just to reiterate, written comments are due two weeks from today on the 18th.

We plan to publish the staff final version of the Environmental Performance Report in early September.

And then in early to mid October the Energy Commission will publish its Draft IEPR Update, which will include a chapter based on the Staff Final EPR. So hopefully you kept that all straight between draft and final and IEPR and EPR.

And then on October 24th there will be a workshop on 2016 Draft IEPR Update.

So that concludes our presentation, and so we’ll move into stakeholder response and comments.

We do have a number of technical staff in the room to answer questions as necessary if Jim and I are not able to. So we would take comments in person first and then WebEx and phone participants. But before we do that we’ll start with any questions from the dais.

CHAIR WEISENMILLER: I had just a couple.

On Slide 30 you make the statement that “Bioenergy and geothermal can help integrate solar and wind.” The question is how? I mean, these are
base load relatively inflexible resources and I’ve been hearing that for six years, but when people go to negotiate geothermal contracts, say with the utilities, they’re told they don’t really need the all peak power, they don’t really need base load power.

And indeed one of the rationales in your talk to PG&E about why they’re moving away from relicensing Diablo Canyon is that they don’t need base load power.

So again, I just don’t quite understand that. We need flexible resources but we don’t need base load, and so you have to really make sure that geothermal and bioenergy to be useful are flexible, not base load.

MS. GRAU: Okay. Maybe we misstated that, because the thought was that they can operate more flexibly, not necessarily as base load.

CHAIR WEISENMILLER: Okay, that’s good.

MS. GRAU: We stand corrected, yes.

CHAIR WEISENMILLER: Okay. Other question is we’ve done really huge changes in the system since the last one. It would be good to get a sense of whether the -- how the benefits are allocated between disadvantages communities and other
communities, you know, in terms of just, you know, we do environmental justice reviews, as you indicate in the power plant siting cases, but I guess what I’m saying, it would be good -- and I know we’re going to have Alana’s presentation next, but just in terms of looking at the massive changes, are these really proportionately helping disadvantaged communities or sort of the wealthy communities? What’s the impacts of the changes in our energy system across different types of Californians?

MR. BARTRIDGE: I think we’ll also defer to Alana on part of that, but I think the reduction in pollutants is helpful to disadvantaged communities and our most sensitive receptors in society. I think that’s what I can offer at this point.

CHAIR WEISENMILLER: I was thinking of the 350 impact studies by the ISO tended to say lower cost observed resulted in more money in California, more jobs. But also there was the part of the analysis that looked at, as you said Jim, where the environmental impacts were coming, and looking at with Enviro Screen it was certainly helping in that context. And they were also looking at it for the job implications of shifts.

And again, those were all pretty useful in
that context, but again, just trying to figure out as we go forward how to make sure we’re really thinking about the environmental justice for disadvantaged communities issues in this analysis.

MS. GRAU: Yeah, that’s a great point. The final Cal ISO SB 350 studies were just the subject of a workshop a couple weeks ago.

CHAIR WEISENMILLER: Right.

MS. GRAU: So I think that in our staff final report it would be good for us to more thoroughly bring that record in and massage it a little and figure out what the means for the future and, like you said, the impact on disadvantaged communities and all that.

We don’t have a lot in this report on any assessment or analysis of that, so we would be happy to do that.

CHAIR WEISENMILLER: Yeah. And again, certainly if people have ideas on not just that part but just the huge change in the systems, how that really affects.

Is it all the advantages of coastal communities, which are pretty wealthy, but the power plants are operating less, or is it really helping disadvantaged communities? Certainly things that
reduce air pollution in the south coast or San Joaquin have really huge impacts. Right?

MR. BARTRIDGE: I’d also offer to that that we don’t necessarily have all the recent data from the ISO, we don’t have that in this report yet.

CHAIR WEISENMILLER: Right.

MR. BARTRIDGE: What we tried to do was build off existing materials that we had, so things were in process in other forums as we were developing this report.

CHAIR WEISENMILLER: Yeah, I guess part of what I’m saying is not necessarily the ISO analysis as much as can we use similar tools here to get a sense of what the changes the last ten years have done?

So again, I’d certainly be interested in peoples’ suggestions on how we might do that. But again, the ISO studies at least give you some idea of some of the tools that might be useful in this context.

Janet.

COMMISSIONER SCOTT: I had a question about how are you considering transportation electrification and vehicle grid integration as part of the, kind of looking at the grid of the future?
As you all know, and I did a quick skim and I saw that we’ve got a page on vehicle grid integration but I haven’t had a chance to read through the full report to understand how we’re putting that in there.

I know that this report looks out over ten years, but where the state is heading is, you know, the Air Resources Board has said by 2040 90 percent of the vehicles sold -- and that’s passenger cars -- needs to be zero emission vehicles, and by 2050 the Governor put a goal out there at the talks in Paris in December about having 100 percent of the vehicles sold by 2050 be electric. And we’re also looking at electrifying our ports in the medium duty/heavy duty sector as well, and that’s a pretty big change, I think, potentially for our electric grid.

And so I’m wondering how in the short term over the ten years that this report looks out we’re thinking about and characterizing transportation electrification.

MR. BARTRIDGE: Well, let me add that we looked backward, we looked at the last ten years. And going forward the changes to the electricity system, we think the electricity system at this point is pretty clean, and recognizing that
transportation is about 40 percent of the GHG problem.

We didn’t touch on that necessarily, transportation in depth, knowing there’s other programs that do so, but we did feature and recognize that the Energy Commission has investments and we understand the Governor’s goals toward transportation.

So I think that there will be development, and as you know, through EPIC we’re working on some of these programs and vehicle to grid. This one was primarily focused on the electrical generation system.

COMMISSIONER SCOTT: Great, got it. And you know, I’m thinking about these vehicles also as the potential -- and I know that there’s a VGI chapter in there -- but the potential to be storage and also kind of help integrate the renewables into our mix.

COMMISSIONER DOUGLAS: I don’t think I have any questions. I think I’ve probably over the iteration of producing the draft exhausted my questions many times over.

I will note on Chair Weisenmiller’s comment that we did have a robust internal discussion about what it would take to look at the overall reductions
in, say, the run time of the older parts of the natural gas fleet and could we geographically quantify that in some way that we could overlay with various indicators for disadvantaged communities, and it required a granularity of analysis that wasn’t easy to get to with the statewide, generally, the statewide data that we were looking at.

And that is not to say that that kind of analysis can’t be done; it was just something that I very much wanted to see, but I think with the level of data that we were working with it was not easy to do.

CHAIR WEISENMILLER: It’s fair game to leave something for the next EPR.

COMMISSIONER DOUGLAS: I would tend to agree with that. I agree that it would be really, really useful data to have and to be able to analyze and show people.

CHAIR WEISENMILLER: Yeah. I mean, one of the tools that the ISO used was the BEAR model, which really went through the employment impacts.

And again, at some point it would be interesting to have that sense overall for the energy system changes.

And obviously they did some degree of -- on
the environmental stuff, the granularity was not
Census tracked as much as air basin, so it was
pretty interesting to see what was going on with
South Coast/San Joaquin as opposed to a statewide
number since those are really where you’d anticipate
where we had the most severe air quality issues.

COMMISSIONER DOUGLAS: Alright. I think the
questions from the dais have been more or less
exhausted, although we always could come up with a
few more.

But I have three cards in my hand for
people who might want to make public comment, or who
clearly do. If there’s anyone else who’d like to
make comments now, you’re welcome to.

And of course, the deadline for written
comments is when?

MS. GRAU: August 18th.

COMMISSIONER DOUGLAS: August 18th. Is that
on the slide? There you go. Were you about to cover
that slide?

MS. GRAU: Actually, I think we did.

COMMISSIONER DOUGLAS: Alright, perfect.

MS. GRAU: Leave that up.

COMMISSIONER DOUGLAS: Alright. So there’s
an August 18th deadline for written comments and we
are looking forward to seeing your comments.

I’ll start calling. I’ve got three cards here, as I said.

David Townley, CTC Global.

MR. TOWNLEY: Chairman, Commissioners, thank you for the opportunity to bring an important message to this Environmental Performance Report.

I’m Dave Townley, Director of Public Affairs, CTC Global Corporation. We’re headquartered in Irvine, California.

Billions of dollars have been spent on improving efficiency and creating new technologies in the power generation side. Billions of dollars have been well spent looking at energy efficiency and new high efficiency programs on the end user side. Yet the electricity moves from generators to the end user over inefficient, old conductor technology.

There are modern high performance transmission conductors commercially available that improve the efficiency of the T&D system and have been available for years. This class of modern high performance conductor was named by transmission engineers over a decade ago as high temperature, low sag conductors, and have been used across the U.S.,
across the world really to solve technical and
reliability problems related to excessive sag of
transmission and distribution systems. But other
benefits of this class of conductors have been
ignored or at best overlooked.

These modern conductors for the same
diameter wire carry twice as much current as the
older traditional conductor. And some of these
modern conductors can reduce line losses by 30
percent or more. Reduced line losses means less fuel
burned, less air emissions produced.

Connecting new renewable generation plants
to the grid with these modern conductors means that
more renewable megawatt hours are going to get
delivered to the grid and ultimately to the
consumer.

The additional capacity of these modern
conductors means more renewables can be added to the
existing right-of-way that have been reconducted
with these modern conductors.

So these modern high performance
transmission conductors should be evaluated for
every T&D project being proposed by the utilities.

We should use every opportunity that we
have to improve the efficiency of our T&D system and
to make the most of our existing right-of-ways. We can cost-effectively significantly reduce air pollutants, including CO2, by selecting modern high performance transmission conductors for our T&D projects.

Thank you for the opportunity.

COMMISSIONER DOUGLAS: Thank you for your comments.

I’ve got two more blue cards. And I will remind people that we’ll take public comment on the EPR and then we’ll have a presentation from Alana Mathews on just the status of the SB 350 Barriers Report work.

So Rochelle Becker, Alliance for Nuclear Responsibility.

MS. BECKER: Rochelle Becker, Alliance for Nuclear Responsibility. Thank you for holding this meeting today.

One of the things that came up while you were discussing the various projections for the future is the demise of San Onofre and the soon-to-be demise of Diablo Canyon.

San Onofre’s end came in an emergency situation and the entire state was reactive, but the positive part of that reaction was that the entire
state came together. Every agency that had some oversight over these nuclear power plants came together to try to figure out how we go forward.

PG&E has given us nine years to do this planning, and what I’d really like to see is a proactive agency-wide group of people starting to plan for how we begin to wean ourselves off of nuclear power in the state of California.

There will be many agencies involved in this process. There were many agencies involved in the last process. We did it as well as we could, but I don’t think anyone would say we did it well.

And so we’d like to see with the combination of the utility workers, the environmental groups, the utility, we’d like to see all the oversight agencies also weigh in, look to see where their need is, when we will need you, what we will need you for.

And then I would invite you all this fall or early next year to come to San Luis Obispo and explain to us the process of doing without a nuclear power plant, because this is a very small community very dependent on PG&E resources, and we want to see the agencies that will be involved in our community at least once to tell us what their part of the
process will be and how they’ll help it go smoother. So that’s what I ask of this Commission and will ask of all Commissions, that you talk to each other and that you plan a date that you can all come to San Luis Obispo and let us know what the process will look like before nine years is up.

Thank you.

COMMISSIONER DOUGLAS: Thank you for being here.

John Geesman, Alliance for Nuclear Responsibility, has remarks on Slide 27.

MR. GEESMAN: Thank you, Madam Chair. Before I get to Slide 27 let me commend the Commission for reviving this report after ten years, and also congratulate Jim and Judy for project managing an excellent draft.

My recollection is it’s pretty hard to get staff resources to work on this report given competing demands from siting cases and other environmentally related work, but I think you’ve got a fine work product in front of you and I look forward to seeing the final.

I have two points to raise with respect to Slide 27.

The first is the first bullet, “SCE plans
to complete decommissioning within 20 years.”

I think you need to be very careful about your word choice here. Decommissioning will not be completed until all of the spent fuel is removed and the ISFSI itself is decommissioned. Southern California Edison currently projects that for 2051, which is substantially longer than 20 years.

And even that projection is premised on what my client considers the unrealistic assumption that the federal government will begin accepting spent nuclear fuel for permanent disposal in 2024.

The other point that I would like to make relates to the last bullet where it says, “Additional environmental restoration and remediation likely necessary to meet Navy lease terms.”

I don’t think that word ‘likely’ should be in there. The Navy lease is unique among the nuclear fleet nationally. It’s on public land and it does require the full removal of all subsurface structures.

Now, your IEPR adopted earlier this year and this draft report does make some mention of state requirements for full remediation. I would strongly encourage you to expand on that.
Two years ago Southern California Edison declared that decommissioning was fully funded and that they had set aside adequate funds to fully remove all subsurface structures consistent with the Navy lease.

I think the decommissioning standards that your siting process imposes on plants that have received a license from this Commission would not allow for any welching or renegotiation of a solemn commitment made to a public agency such as the Navy regarding public land, and I think you should clearly enunciate what state policy should expect in this circumstance.

Rate payers paid into the decommissioning fund for several decades, since 1988, with the expectation that the Navy lease would be complied with and all subsurface structures removed. You should see to it that that happens.

Thank you very much for the opportunity to address you.

COMMISSIONER DOUGLAS: Thank you for being here today.

I’ve got one more card, Spencer...I see you. I’m sorry.

MR. OLONICK: (inaudible)
COMMISSIONER DOUGLAS:  PG&E.

MR. OLONICK:  Spencer Olonick, State Agency Relations with Pacific Gas & Electric. I want to echo those thanks to staff for an impressive comprehensive report.

That being said, we have some concerns about transparency in process to date and stakeholder engagement thus far. And also, I guess between now and September’s publication we’ll be submitting written comments, of course.

Two quick points.

As always, we like to see technology neutral recommendations in the report, and to the extent possible with an eye toward RETI 2.0, LTPP, TPP, etcetera. Like to avoid duplicative planning effort. Thank you.

COMMISSIONER DOUGLAS:  Thank you, and we’ll look forward to getting your comments.

Very good, I think we’re through the comments. Should we check the phone lines?

Anyone on the phone or WebEx?

Okay, let’s go on to Alana Mathews’ presentation then.

MS. GRAU:  Before we do that I just want to say that actually Melissa Jones and Eli Harland are
the other two primary authors of this report. Even though they didn’t speak today, they did a lot of work on this report, probably more than me, and I don't know about Jim but so we just want to acknowledge them, too. Thank you.

COMMISSIONER DOUGLAS: Thanks for saying that, Judy, that’s absolutely right.

MS. MATHEWS: Good afternoon. First I just want to say to the Chair, Commissioner Douglas and Commissioner Scott, thanks for the opportunity to participate in today’s workshop. The discussion of environmental justice in this EPR report reflects a larger priority of the Energy Commission to really look at how our energy policies and programs affect California’s most vulnerable populations.

So that priority is also reflected in our efforts to prepare a Barriers Study pursuant to Senate Bill 350, and that’s what my presentation will cover, basically a five-point major update that will cover the requirements, the scope, the components, our schedule, and lastly, our public engagement.

So very quickly, Senate Bill 350 Barriers Study has approximately four requirements.

Generally, it’s mandating us to look at
barriers to and opportunities for solar photovoltaic energy generation and other renewable energy by low-income customers, including those in disadvantaged areas, as well as to look at barriers to contracting opportunities for small businesses in disadvantaged communities.

It’s very important that we not only bring cleaner technology to disadvantaged communities but we bring it in a way that they can benefit, so that’s the purpose of this particular requirement.

And then lastly, to look at the barriers for low-income customers to energy efficiency and weatherization investments.

And the last part of the report is a requirement to come up with recommendations on how we can increase access for those different types of investments.

The scope of the study, which we outlined in our June 3rd workshop, includes:

Looking at low-income housing characteristics;

Setting goals, metrics, and reporting requirements for clean energy programs;

Looking at the various low-income customer programs; federal programs that are administered
here in California as well as state programs;
   Defining what those barriers are;
   Looking at solutions and opportunities;
   And again that second component, making sure we’re ensuring economic benefits as we look at recommendations for bringing clean energy into disadvantaged communities.

There are pretty much four components of the Barriers Study we’re preparing. And by components, I mean what the Barriers Study will actually reflect.

   It will reflect the exhaustive literature review that we conducted earlier this year, which is a series of over more than a hundred articles, studies that have already been done that looked at barriers, identifies them as well as identified potential solutions and opportunities to increase those types of technologies.

   After we did the literature review, the writing team looked at -- they performed a gap analysis, which basically looked at data gaps to say we can’t put forth a very robust recommendation because there’s just not enough information out there, so that gap analysis produced questions and targeted areas of where we need to look.
And so that gap analysis informed the next phase that will be reflected in the study is our public engagement, so we can say, well, this is where the data gaps are. Perhaps implementers, community residents could give us more information to fill that out. And then it also identifies the areas where we won’t be able to give as robust recommendations because there’s just not enough data, and perhaps give an incentive to do more research in that area.

The third phase is the public engagement, that’s where we are now, and we have a kind of three-step approach to that.

We are having the public workshop, which includes the scoping workshop we had June 3rd. We’re going to have a more technical workshop on August 12th where we’ll be inviting different agencies, stakeholders, program implementers, environmental justice groups to come and look at the barriers and give us feedback. Most importantly, give us recommendations and solutions and opportunities that they’ve identified in their work.

And lastly, we will have a draft workshop, another public workshop September 13th.

Then we also will engage in seven community
meetings throughout the state with community stakeholders who are hosting the meetings so we have an opportunity to meet with community members, people who benefit from these programs or have the ability to participate, to identify any barriers, solutions and recommendations.

And then lastly, all of that information will be reflected in the ultimate recommendations that will be a part of the Barriers Study.

The schedule, which some of it has reflected what I’ve just shared with you.

We had our kickoff workshop on June 3rd. Comments on that were due June 20th.

July through September, that’s when we’re having our public as well as stakeholder community meetings.

September we’ll have the draft study posted for review.

And the rest of the schedule is reflected at the end of the year.

In December would like to have and we’re aiming to have the final study presented for adoption at the December 14th business meeting.

So there are opportunities for members of the public to be able to comment not only at the
August 12th workshop but the September draft study workshop that we’ll have, and then again October, and there’ll be another opportunity in November.

And by the mandate of 350, it is supposed to be published and submitted to the Legislature by January 1, 2017.

As I mentioned earlier, in tying this to the priority that the Energy Commission has put forth of engaging environmental justice communities, I think that our public engagement really reflects that while we have reached out to a lot of groups that have a relationship with and work with environmental justice communities on these issues in the areas of Los Angeles, Fresno, San Bernardino, Oakland, South Lake Tahoe, and Ukiah.

So the South Lake Tahoe community engagement will really reflect the Sierra communities, so Truckee and areas where there’s not a lot of density such as the urban areas, but that will reflect the environmental justice communities in that area.

And then Ukiah is a meeting that’s going to reflect engagement with tribal communities. And so those are special environmental justice communities that we want to make sure we pay attention to and...
not just the urban areas that are traditionally reflected in such as Cal Enviro Screen.

And with that, I will open it up for any questions.

CHAIR WEISENMILLER: I think all of us thank you for coming today to do the presentation. I think what we were trying to make sure, obviously the 350 process that we had been in various business meetings bringing together everyone since this cuts across I think all of our programs, certainly all the Commissioners’ interests.

And at the same time we wanted to make sure that the IEPR participants were aware of the process and understood the timeline here for the Barriers Report, the workshop, the draft and the final.

Certainly we would like to have actionable recommendations. Some of those may or may not involve some of the PUC programs. We anticipate they’re certainly very interested in this, particularly Commissioner Peterman, and very interested in whether there might be any enhancement in some of the weatherization or low income programs.

So certainly it’s a good opportunity for the utilities who have ideas in those areas to
contribute those into this process.

   Along with it’s pretty wide ranging, not just energy efficiency but how to make renewables more generally accessible and also both residential and small business.

   So again, certainly encourage folks to look at this and help us as we go forward.

COMMISSIONER DOUGLAS: Alright. Well, thank you very much, Alana.

Are there any additional public comments in the room? Heather, do you want to check on the phone?

MS. RAITT: Yeah, if we could just open up the phone lines if you want to make comments on the phone we’ll open up the lines now. If you’re on the phone and don’t want to make comments please mute your line.

Hearing none, I think we’re done with public comments.

COMMISSIONER DOUGLAS: Alright. Thank you, Heather. I think that means we are done with today’s workshop. Thanks again, everybody, for being here with us today.

(Adjourned at 2:22 p.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 certified electronic court reporter 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.

IN WITNESS WHEREOF, I have hereunto set my hand this 2nd day of September, 2016.

Susan Palmer
Certified Reporter
CERT 00124
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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.

______________________________
MARTHA L. NELSON, CERT**367

September 2, 2016