

## DOCKETED

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**Comments of the Natural Resources Defense Council (NRDC) on the 2015 Integrated Energy Policy Report (IEPR) Scope**

*Additional submitted attachment is included below.*

**Comments of the Natural Resources Defense Council (NRDC) on the  
2015 Integrated Energy Policy Report (IEPR) Scope**

Docket Number 15-IEPR-01

February 6, 2015

Submitted by: Christa Heavey, Sierra Martinez, Pierre Delforge

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**I. Introduction**

The Natural Resources Defense Council (NRDC) appreciates the opportunity to offer these comments on the California Energy Commission's (the Commission) *2015 Integrated Energy Policy Report* (IEPR) scope. NRDC is a non-profit membership organization with nearly 80,000 California members who have an interest in receiving affordable energy services while reducing the environmental impact of California's energy consumption.

**II. Discussion**

NRDC appreciates the effort of the Commission staff during the 2015 IEPR effort to address many important energy issues. We respectfully submit the following comments on the 2015 IEPR Scope.

**A. Electricity**

**NRDC applauds the Commission's inclusion of locational impacts of energy efficiency in the scope of the energy demand forecast.**

NRDC commends the Commission for considering locational impacts of energy efficiency in the 2015 IEPR demand forecast. Greater detail of efficiency savings by location can allow the forecast to better predict the demand in specific locations. By using more detailed locational data, the Commission can confidently rely on all of the reasonably expected to occur additional achievable energy efficiency (AAEE) in the forecast for local procurement processes, instead of the present use of low estimates of AAEE for local planning purposes. Increasing this granularity will improve the accuracy of the forecast.

**NRDC recommends that the Commission also work to improve temporal aspects of energy efficiency savings in the forecast, in order to improve renewable curtailment and flexible capacity studies.**

While including locational data of efficiency is an important step, NRDC recommends that the Commission also work to improve energy efficiency temporal data, like estimated aggregate daily load shapes of projected savings and peak capacity savings forecasts that vary by month and season. Energy efficiency measures save energy at different times of the day and at different

times of the year. It is important to account for these variations because as more variable renewable energy resources come online, new efforts and policies will be needed to integrate them all into the grid. Including this temporal information in the forecast will make net load curves more accurate, which brings greater confidence to procurement planning and increases the reliability of the electric system.

**NRDC recommends that the Commission include the contributions of energy efficiency savings from publicly-owned utilities (POUs) in this cycle's demand forecast.**

We recommend the Commission include additional achievable energy efficiency savings from publicly-owned utility programs in the scope of the 2015 IEPR demand forecast. In previous years, the contributions from POU efficiency programs have been omitted from projections of future demand (and we have recommended how to correct that omission<sup>1,2,3</sup>). California's POU's are saving energy at aggressive levels<sup>4</sup> and have set ten-year targets, which are reasonably expected to occur. These projections should be included along with the investor-owned utilities' contributions to additional achievable energy efficiency. Therefore, we recommend including it within the scope of the 2015 IEPR demand forecast.

**NRDC recommends that the Commission prioritize analysis of how preferred resources can meet needs from retirements of SONGS and OTC plants.**

NRDC appreciates that the demand forecast will continue to address the retirements of San Onofre Nuclear Generating Station (SONGS) and once-through-cooling (OTC) plants. We recommend that the 2015 IEPR demand forecast focus on how preferred resources can account for the loss of these plants. While the CPUC decisions from the most recent long term procurement proceeding plan to rely primarily on energy efficiency and other preferred resources

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<sup>1</sup> NRDC, *Comments of the Natural Resources Defense Council (NRDC) on the Revised California Energy Demand Forecast 2012-2022 (Revised Forecast)* (March 2012). Available at: [http://www.energy.ca.gov/2012\\_energypolicy/documents/2012-02-23\\_workshop/comments/Natural\\_Resources\\_Defense\\_Council\\_2012-03-01\\_TN-63902.pdf](http://www.energy.ca.gov/2012_energypolicy/documents/2012-02-23_workshop/comments/Natural_Resources_Defense_Council_2012-03-01_TN-63902.pdf).

<sup>2</sup> NRDC, *Comments of the Natural Resources Defense Council on the Lead Commissioner Workshop on Revised Electricity and Natural Gas Demand Forecasts 2014-2024* (October 2013). Available at: [http://www.energy.ca.gov/2013\\_energypolicy/documents/2013-10-01\\_workshop/comments/Natural\\_Resources\\_defense\\_Council\\_Comments\\_2013-10-15\\_TN-72082.pdf](http://www.energy.ca.gov/2013_energypolicy/documents/2013-10-01_workshop/comments/Natural_Resources_defense_Council_Comments_2013-10-15_TN-72082.pdf).

<sup>3</sup> NRDC/Sierra Club, *Comments of the Natural Resources Defense Council and Sierra Club on the California Energy Demand 2014 – 2024 Final Forecast* (December 2013). Available at: [http://www.energy.ca.gov/2013\\_energypolicy/documents/2013-12-11\\_business\\_meeting/comments/NRDC\\_Comments\\_2013-12-11\\_TN-72402.pdf](http://www.energy.ca.gov/2013_energypolicy/documents/2013-12-11_business_meeting/comments/NRDC_Comments_2013-12-11_TN-72402.pdf)

<sup>4</sup> NRDC Blog, "Public Power Reaches New Heights in Saving Californians Energy" (October 2014). Available at: [http://switchboard.nrdc.org/blogs/smartinez/public\\_power\\_reaches\\_new\\_heigh.html](http://switchboard.nrdc.org/blogs/smartinez/public_power_reaches_new_heigh.html)

to fill the hole left by SONGS,<sup>5</sup> this IEPR will update its previous examination of reliability in Southern California. In that analysis, we recommend that the Commission prioritize analyzing how preferred resources can provide grid reliability services in its overall assessment.

## **B. Water-Energy Nexus**

**We commend the Commission for including water policy impacts on electricity in the scope of the 2015 IEPR electricity demand forecast, and recommend that the Commission expand this item to include selected updates to the Commission’s previous water-energy nexus study from 2005/2006.<sup>6</sup>**

Given the imperatives of climate change, including addressing hotter temperatures, extreme weather events, and drought, this Commission has a clear opportunity in this IEPR cycle to help the state deal with these impacts from climate change. Given that 2014 was the hottest year on record – and Sacramento already having the driest January on record in 2015 – these real-world implications of a changing climate require swift and effective agency action. Therefore, we recommend that the Commission take an updated and deeper dive into selected aspects of the water-energy nexus, beyond just impacts to the forecast.

We recommend that the Commission conduct an update to select parts of its 2005 (and 2006) evaluation of the water-energy nexus. We recommend that the update be restricted to only those portions that would likely identify new opportunities to save water, save energy, and –a new development—improve grid reliability (by avoiding renewable energy curtailments and avoid the building of additional flexible electrical resources). The Commission last studied the water-energy nexus in 2005 and 2006, which was based on 2001 data. That report has been a foundation for understanding the linkages between these two systems, but is now ripe for updating. As that report found, nearly one-fifth of our state’s electricity is consumed to satisfy our need for water services. The timing of this electric consumption has broad implications for future curtailments due to overgeneration, and avoiding some need to build flexible electrical capacity. Therefore, we recommend this study predominantly focus on this new opportunity (and challenge) of the water-energy nexus: how to help integrate the growing volume of variable renewable energy on the system.

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<sup>5</sup> NRDC Blog, “It’s Official: Efficiency, Clean Energy to Help Fill California’s Nuclear Generation Gap” (March 2014). Available at: [http://switchboard.nrdc.org/blogs/smartinez/its\\_official\\_efficiency\\_clean\\_energy.html](http://switchboard.nrdc.org/blogs/smartinez/its_official_efficiency_clean_energy.html)

<sup>6</sup> CEC, *California’s Water – Energy Relationship*, Final Staff Report (November 2005). Available at: <http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF>. And CEC, *Refining Estimates Of Water Related Energy Use In California* PIER Final Project Report (December 2006). Available at: <http://www.energy.ca.gov/2006publications/CEC-500-2006-118/CEC-500-2006-118.PDF>.

In particular, we recommend that the Commission update key facts about where and when electricity is generally consumed in the state and which policies are working or could be improved to work toward the three part goal of: saving water, saving energy, and increasing grid reliability. With this new third objective, we recommend focusing on the “Water Supply and Treatment” and “Wastewater Treatment” categories of electricity use as those (initially, at least) look most promising to shift the timing of consumption to align with the electric needs of the grid. In particular, we recommend updating the energy intensities for the water use cycle segments found in Table 1-2 in the 2005 report. We also recommend conducting the following research topics in the Appendix under “Suggested Research Topics”: “Seasonal Demand Shifting” and “Conveyance-Related Peak Demand Reduction.” These are initial recommendations that we would be happy to work together with the Commission on refining if the Commission does in fact expand the scope of water’s impact on the electric system.

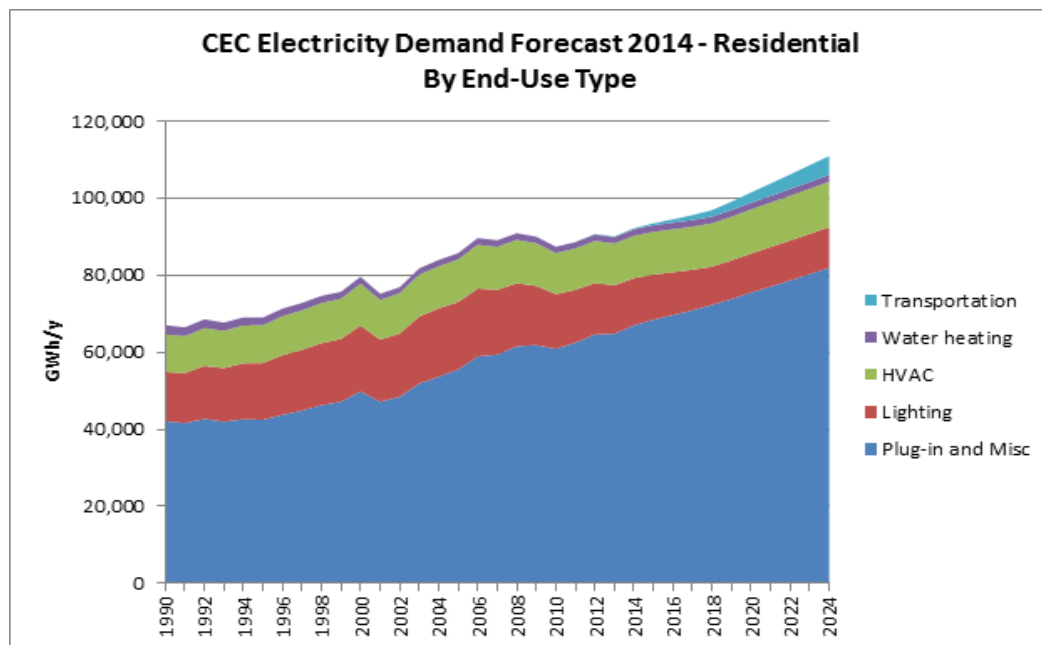
In conclusion, we recommend that the Commission include in the scope of the 2015 IEPR a specific update to the water-energy nexus study, which focuses on the role that the water system can play in improving grid reliability – which would be answering a real call to leadership given the state’s drought and changing power mix.

### **C. Energy Efficiency**

**NRDC recommends that the IEPR include a greater focus on reducing plug loads and miscellaneous loads.**

Plug loads and miscellaneous loads represent 73 percent of residential electricity demand, and 77 percent of demand growth between 2015 and 2024, according to the Commission’s 2014-2024 electricity demand forecast (see Figure 1). With such a large share of residential demand, and likely a significant share of commercial demand too, plug loads and miscellaneous loads warrant greater consideration in the 2015 IEPR. Increasing the energy efficiency in plug loads and miscellaneous loads should be a top priority strategy for the state and addressed in the IEPR as such.

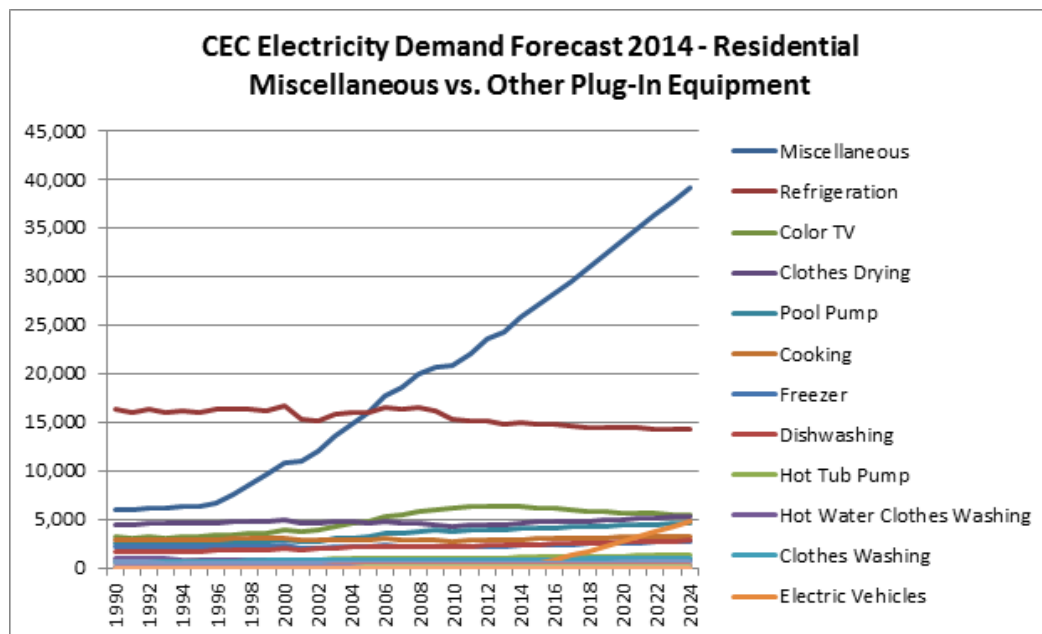
Figure 1.<sup>7</sup>



Furthermore, the rapid increase in demand of plug loads and miscellaneous loads should receive greater attention in the 2015 IEPR demand forecast. Miscellaneous residential loads, which represent more than 40 percent of all plug-in equipment, are forecasted to grow 45 percent between 2015 and 2024, much more rapidly than other plug-in equipment (see Figure 2). Collectively, plug-in equipment and miscellaneous loads are forecasted to grow by nearly 20 percent by 2024. Given the large share of residential electricity demand, and the very rapid growth, this category warrants a more in-depth analysis and discussion of efficiency strategies.

<sup>7</sup> Graph created with data compiled from CEC's California Energy Demand 2014-2024 Final Forecast, Volume 2: Electricity Use by Utility Planning Area for residential energy use. Available at: [http://energyalmanac.ca.gov/electricity/electricity\\_stats/index.html](http://energyalmanac.ca.gov/electricity/electricity_stats/index.html).

Figure 2.<sup>8</sup>



**NRDC recommends that the Commission include appliance electrification in the 2015 IEPR scope, as well as in the IEPR demand forecast.**

The IEPR should examine the potential for source energy savings and greenhouse gas reductions from the electrification of water heating, space heating, and clothes drying using heat pump and grid-interactive technology. Heat pump technology exists and is already used at scale in other regions of the United States and abroad. Grid control of consumer appliances such as water heaters has been widely demonstrated, delivering low-cost energy storage and has the potential to provide additional ancillary services. The potential of appliance electrification for high efficiency, low greenhouse gas emissions, and grid storage and operating benefits in a low-carbon grid future makes it an essential element of a strategy to meet the state's 2050 greenhouse gas reduction goals. The impact of appliance electrification should also be addressed in the 2015 IEPR demand forecast.

<sup>8</sup> Graph created with data compiled from CEC's California Energy Demand 2014-2024 Final Forecast, Volume 2: Electricity Use by Utility Planning Area for residential plug-in equipment. Available at: [http://energyalmanac.ca.gov/electricity/electricity\\_stats/index.html](http://energyalmanac.ca.gov/electricity/electricity_stats/index.html).



### **III. Conclusion**

Thank you for the opportunity to comment on the 2015 IEPR Scope and for the Commission's work to address many important issues in the report. We look forward to working with the Commission and stakeholders on the 2015 IEPR.

Respectfully submitted,

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