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April 25, 2014

Mr. Michael Tollstrup, Chief, Project Assessment Branch Stationary Source Division California Air Resources Board 1001 I Street Sacramento, CA 95814

Dear Mr. Tollstrup:

Subject: Los Angeles Department of Water and Power (LADWP)
Proposed First Update to the AB 32 Climate Change Scoping Plan
(Scoping Plan)

The LADWP appreciates the opportunity to submit the following comments on California Air Resources Board's (CARB) proposed first update to its Scoping Plan.

Serving approximately 1.4 million residential and business customers, LADWP is the largest municipal electric utility in the nation, and the third largest utility in California. LADWP is vertically integrated, owning and operating a large portfolio of generation, transmission, and distribution assets spanning several states. LADWP is making unprecedented investments to replace its coal resources, develop and implement renewable energy, demand side management and energy efficiency programs and modernize its power plants in the Los Angeles basin that are resulting in significant CO<sub>2</sub> emissions reductions on a LADWP system-wide basis:

Over the past decade, LADWP's efforts to address climate change have resulted in a downward trajectory in its power generation portfolio CO<sub>2</sub> emissions and CO<sub>2</sub> emissions intensity since 2000. Between 1990 and 2012, LADWP's CO<sub>2</sub> emissions have been reduced by 22 percent and its emissions intensity has decreased by 29 percent.

1. <u>Status of Initial Scoping Plan Measures and Scoping Plan Update Should Include a</u> Quantitative Analysis

The Status of Initial Scoping Plan Measures document contains information on the status of development and implementation of control measures to date but

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does not include a quantitative analysis of the measures' progress to date in terms of meeting their GHG reduction targets. The Scoping Plan Update describes a portfolio of measures that could be adopted in the future but also does not include a quantitative analysis of them. If ARB is taking an incremental approach to developing and prioritizing control measures for its Scoping Plan, the Scoping Plan Update should outline the schedule for next steps in completing the following important evaluations:

- Quantitative analysis of the GHG reductions and associated costs of control measures contained in the Initial Scoping Plan. Also, LADWP recommends that the Initial Scoping Plan's Table 2: Recommended Greenhouse Gas Reduction Measures and Figure 3: California Greenhouse Gas Emissions in 2020 and Recommended Reduction Measures be updated to include emission reduction and cost data. If there are gaps in the data needed to determine whether California is meeting its AB 32 goals, LADWP recommends that CARB identify those gaps in the Scoping Plan and place high priority in developing protocols with interested stakeholders to measure the GHG emissions reductions and cost-effectiveness associated with each of its initial Scoping Plan measures.
- Economic assessment of proposed control measures which will aid in identifying the relative cost-effectiveness of proposed control measures in the Scoping Plan Update and will help in prioritizing implementation of the measures.
- Discussion of the technological feasibility of proposed control measures and associated next steps to address technically infeasible control technologies.

# 2. <u>LADWP Supports CARB's Approach to Rely on Science and Foundational Research to Address Climate Change</u>

It is admirable that CARB is taking such a proactive approach to climate change policy, through integrated policy and planning that "will build a higher-quality, resilient economy while continually reducing GHG emissions." LADWP urges CARB to continue its efforts to reach out to other states and countries so that California is not alone in its commitment to reduce GHG emissions.

LADWP also supports CARB's approach to "rely on science and foundational research" and agrees with CARB's assessment that it will need to rely on strong research to build on its climate policy framework and to justify its key recommendations.

Mr. Michael Tollstrup Page 3 April 25, 2014

3. Emissions Reporting Protocols to Determine California's Progress

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Both reporting of GHG emissions under the Mandatory Reporting Regulation (MRR) and the statewide GHG emissions inventory should reflect actual emissions as they are the foundation for the AB 32 program. The GHG emissions reported under the MRR are the basis for paying AB 32 Cost of Implementation Fees and compliance with the cap-and-trade regulation which represent real costs to California consumers. The statewide GHG emissions inventory will be used to determine whether the state achieves its AB 32 GHG 2020 emission reduction goal. ARB should identify and address inconsistencies in accounting of GHG emissions to ensure that they reflect actual emissions.

In ARB's statewide GHG emissions inventory, imported electricity supplied by Asset Controlling Suppliers (ACS) (e.g. Bonneville Power Administration) has been treated as low-GHG electricity since 1990 and previous to 2014, the MRR required that imported electricity where an ACS was the first Purchasing/Settling Entity on the NERC e-tag (at the source) be reported as specified. The MRR's latest amendment now requires that source contract documentation be required in order to apply a lower GHG emission factor to ACS power; ACS power without this documentation must be reported as unspecified power and the higher default emission factor must be applied (even though a NERC e-tag can identify the source as ACS power). The default emissions factor has been over 15 times greater than the ACS emissions factor.

Thus, this new MRR provision could result in a programmatic inconsistency, not reflect actual emissions and force California customers to pay more for power than they would have paid in previous years. AB 32 states that the regulations should "Ensure rigorous and *consistent* [emphasis added] accounting of emissions, and provide reporting tools and formats to ensure collection of necessary data." Reporting imported electricity supplied by ACS as unspecified would be inconsistent with previously submitted GHG emissions reports and with the statewide GHG emissions inventory.

4. <u>Energy Sector - Key Recommended Action to Develop GHG Requirements for the State's Electric Utilities</u>

The Scoping Plan recommends that State agencies develop comprehensive and enforceable GHG emission reduction requirements for the State's electric and energy utilities to achieve near-zero GHG emissions by 2050 with program development to be completed by the end of 2016. This timeframe to develop such a long-term program is very optimistic given the complexity of such issues

as grid reliability, cost-effectiveness, technical feasibility of measures such as carbon capture and sequestration, and measurement and verification of energy efficiency measures. As a next step, LADWP recommends a collaborative effort amongst State energy agencies, CARB, and electric utilities to develop a clean energy policy that considers low carbon measures such as renewable energy, energy efficiency, and electric transportation in a holistic manner such that the mix of resources is cost-effective, technologically feasible and which addresses electric grid reliability issues.

5. <u>Carbon Capture and Storage as an Option to Reduce GHG Emissions from the Electricity Sector Should Be Explored in Greater Detail</u>

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The Scoping Plan Update states that "Carbon capture and sequestration (CCS) is another option to reduce emissions from electricity generation and industrial emitters." The Electricity and Natural Gas Working Paper also states that by 2050, the state should only use natural gas to integrate renewable resources when it is coupled with CCS and that new commercial-scale projects "must be added annually over the next several decades to reduce GHG emissions to 80 million metric tons or less by 2050." Since application of CCS at natural gas-fired power plants has never been demonstrated on a commercial-scale, the feasibility of CCS in California at natural gas-fired power plants is an area of research that needs to be explored in greater detail, especially due to the complexity of the CCS process. Thus, in addition to CARB's development of quantification methodologies, LADWP recommends that CARB also address the following issues:

- Power plants that capture their CO2 emissions will consume more water than
  power plants that vent the CO2 to the atmosphere. The additional water
  requirements would be for the capture, dehydration, or compression
  processes. According to DOE, the addition of CCS would increase water
  consumption by an estimated 76% for a natural gas combined cycle plant.<sup>1</sup>
  Increased water requirements as a result of CCS addition should not
  exacerbate efforts of the water sector to enhance water supply.
- As EPA states in the preamble to its proposed rule Standards of Performance for Greenhouse Gas Emissions from New Stationary Sources: Electric Utility Generating Units, with respect to the use of CCS on natural gas turbines, "It is unclear how part-load operation and frequent startup and shutdown events would impact the efficiency and reliability of CCS. We are not aware that any of the pilot-scale CCS projects have operated in a cycling mode."<sup>2</sup>

<sup>2</sup> 79 Fed. Reg. 1485 (Jan. 8, 2014)

<sup>&</sup>lt;sup>1</sup> Water requirements for existing and emerging thermoelectric plant technologies: U.S. Department of Energy National Energy Technology Laboratory Report 402/080108, Morgantown, West Virginia.

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- It is unknown what amount of chemicals must be used to separate the CO2 from the flue gas to provide a steady state CO2 stream for injection.
- The amount of land that is required to install a commercial sized CCS system at a power plant would likely be substantial (e.g. several acres) and thus there could be existing power plants that would not be able to install a CCS system.
- The parasitic load energy requirements for separating CO2 are significant (about 30% for a coal-fired power plant). It is unknown what the parasitic load impact would be for a natural gas-fired power plant.
- It is unknown to what extent *high pressure pipelines* would be required to be constructed and the time required to construct those pipelines.
- The 2012 (First) Edition of the North American Carbon Storage Atlas states, "It is important that a regionally extensive confining zone (often referred to as caprock) overlies the porous rock layer and that no major faults exist." [emphasis added] The International Energy Agency, in its CCS Technology Roadmap states that "it typically takes five to ten years from the initial site identification to qualify a new saline formation for CO2 storage, and in some cases longer."

#### 6. Combined Heat and Power (CHP) Challenges

The *Electricity and Natural Gas Working Paper* states that challenges to CHP project viability include CHP developer payment of non-bypassable charges to its local utility and costs of complying with local NOx emission standards, state GHG standards, and cap-and-trade. LADWP believes that the availability of Emission Reduction Credits (ERCs) is an additional challenge with respect to CHP penetration.

In areas that are in nonattainment of the National Ambient Air Quality Standards (NAAQS), major new emission sources are required to undergo the New Source Review pre-construction permitting process in order to obtain construction and operating permits. As part of the New Source Review process, these sources are required to offset any increases in emissions not in attainment of the NAAQS.

The ability of these affected sources to procure the required offsets, or ERCs, of certain pollutants in the open market has/could be been a challenge for certain air basins in California. LADWP recommends that ARB work with the California air districts to determine ERC system issues and as appropriate, explore ways to improve ERC system which could include changes that will allow for the more efficient use of ERCs, reducing the time it takes to issue new ERCs and evaluating alternatives that would result in new ERCs.

#### 7. Energy Efficiency Evaluation Activities

The Scoping Plan Update states that the CPUC's evaluation activities of IOU energy efficiency programs have focused on verifying utility savings claims and improving savings estimates via field-based research. The Plan further states that similar progress and initiatives should be made in publicly-owned utilities territories. LADWP agrees with the Plan's assessment and is currently conducting evaluation, measurement and verification on its entire energy efficiency portfolio. For more detailed information about LADWP's energy efficiency programs, see <a href="https://www.ladwp.com/energyefficiency">www.ladwp.com/energyefficiency</a>.

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### 8. Renewable Energy Integration Challenges

The *Electricity and Natural Gas Working Paper* states that studies of "a higher renewable energy portfolio should analyze operational issues, costs and GHG savings." LADWP supports such efforts especially with respect to renewable energy integration. LADWP believes that overgeneration is potentially the largest integration issue.

Overgeneration occurs when "must-run" generation that is needed for grid stability is greater than loads plus exports. A recent study<sup>3</sup> found that overgeneration is pervasive at RPS levels above 33%, particularly when the renewable portfolio is dominated by solar resources. This overgeneration situation occurs even after thermal generation is reduced to the minimum levels necessary to maintain reliable operations. Thus, additional research in the areas of energy storage, electric vehicle charging, flexible loads that can increase energy demand during daylight hours and development of diverse renewable energy portfolios would be beneficial in addressing the challenges of overgeneration.

## 9. <u>Demand Response as a Renewable Integration Resource Warrants Further Analysis</u>

In the Energy Sector section of the Scoping Plan's Accomplishment and Next Steps, it states that Demand Response as "a renewable integration resource carries significant implications for GHG reduction goals." The discussion further states that "If demand response can provide the needed reliability for variable renewable resources, the State will have less need for quick-start fossil-fuel generation plants." Given the complexity of controlling the electrical system within NERC reliability standards, LADWP is unaware of any demand response program that can substitute for quick-start combustion turbines at this time. LADWP believes that the interaction between demand response programs and use of quick-start combustion turbines warrants further investigation and analysis. Any demand response program designed to provide reliability for variable renewable resources would be a long-term goal.

<sup>&</sup>lt;sup>3</sup> Investigating a Higher Renewables Portfolio Standard in California, January 2014, Energy and Environmental Economics, Inc.,

Mr. Michael Tollstrup Page 7 April 25, 2014

10. <u>LADWP Recommends Establishment of a State Clearinghouse of Options to Streamline Interconnection of Distributed Generation (DG)</u>

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The Scoping Plan recommends that the CEC explore a process similar to the CPUC which streamlines state jurisdictional interconnection processes to create a ministerial low-cost interconnection process for DG. LADWP does see the merits of streamlining the interconnection process and has a streamlined interconnection process for projects less than 10 kw. LADWP does believe that participation in a state-wide group to find ways to streamline this process could only prove beneficial. However, LADWP is concerned that in participating in a state-wide effort, it would lead to state-wide regulations which would be a one-size-fits-all process which would not properly incentivize where the best connections would be for its ratepayers. In addition, LADWP is bound by its Los Angeles City Charter requirements, rates, labor agreements, and Department of Building and Safety procedures. Thus, LADWP believes that establishment of a state clearinghouse of options to help inform POUs how to streamline their DG interconnection processes would be more beneficial than a regulatory process.

#### Conclusion

LADWP appreciates this opportunity to comment and looks forward to working with CARB staff on these important issues. If you have any questions or require additional information, please contact me at (213) 367-0403 or Ms. Jodean Giese at (213) 367-0409.

Sincerely,

Mark J. Sedlacek

Director of Environment and Efficiency

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JMG:dms

c: Ms. Jodean Giese