

June 12, 2017

The Honorable City Council  
c/o Office of the City Clerk  
Room 395, City Hall  
Mail Stop 160

Attention: Councilmember Nury Martinez  
Chair, Energy and Environment Committee

Honorable Members:

Subject: Council File No. 17-0155 – Options to Reduce City of Los Angeles' Reliance on Natural Gas Use and Storage Near Local Communities

This correspondence is in response to the February 8, 2017, Energy and Environment Committee Motion (Englander-Bonin) requesting the Los Angeles Department of Water and Power (LADWP) to review options for reducing the City of Los Angeles' (City) reliance on natural gas use and storage near local communities in light of the gas leak incident that occurred in 2015 at the Aliso Canyon Natural Gas Storage Facility. The Los Angeles City Council Motion directs LADWP to include in its report options for:

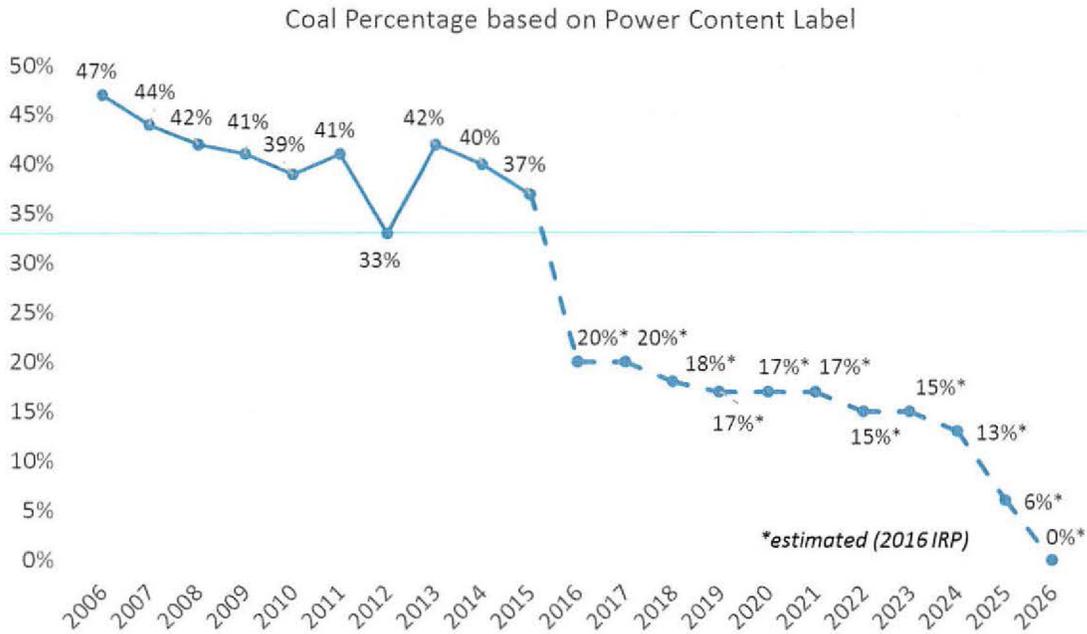
- Purchasing excess power from other areas of the State (of California).
- Energy storage options including batteries for storing excess power from renewable sources.
- Acceleration of reliance on renewable sources of energy in an effort to achieve 100 Percent Renewable Portfolio Standard (RPS).
- Formulation and development of an aggressive natural gas reduction/elimination plan in conjunction with local utilities, the California Public Utilities Commission (CPUC), and the California's Division of Oil, Gas, and Geothermal Resources (DOGGR).

#### Background

Over the last ten years, LADWP has aggressively worked to address the threat of climate change by curbing pollution and other greenhouse gases (GHG) through initiatives that eliminate the use of coal as a generation resource, improve generation system efficiencies, and establish targets and programs for greater reliance on renewable energy. LADWP is transforming its power supply portfolio from a primarily fossil-fuel, coal-based source to one that uses cleaner, natural gas generation as a bridge fuel that is necessary to maintain local in-basin system reliability and help integrate a predominantly renewable and lower GHG emitting

portfolio. LADWP is studying the required infrastructure upgrade that ensures grid reliability and investigating proven technologies that will enable a transition to a 100 percent RPS.

The following table illustrates historic and projected coal based resources used to supply the City's power needs.



Options for Reducing Reliance on Natural Gas

LADWP will continue to expand and consider the following options to reduce its reliance on natural gas in the long term:

1. **Purchase of Excess Power from Other Areas:** A key element of LADWP's renewable energy program is the development of local and utility-scale solar energy projects. Such projects have assisted LADWP in meeting its renewable energy targets and reducing its carbon footprint created by fossil fuel burning power plants while serving as vital catalysts for creating local jobs and stimulating the green economy within the greater Los Angeles area.
  - *Participation in Wholesale Energy Markets:* LADWP has historically purchased and continues to purchase energy on a wholesale basis when such purchases can be made below LADWP's energy production costs.
  - *Participation in California Independent System Operator's (CAISO) Energy Market:* To improve the integration of renewable energy and assist the City in meeting its renewable energy targets in a reliable and cost-effective manner, LADWP will participate in the CAISO Energy Imbalance Market (EIM). The EIM is a voluntary,

- real-time energy market for balancing electricity supply and demand. Participating in the EIM helps the State and LADWP:
- Minimize over-generation.
  - Maintain power reliability.
  - Reduce GHG emissions.
  - Increase the use of renewable energy resources.
  - Providing significant ratepayer benefits.
- *Utilize Sylmar Switching Station for Energy Markets:* LADWP plans to use Sylmar Switching Station as a scheduling interface and transaction point for increased purchase and delivery of wholesale energy from or to neighboring control areas. Such transactions can assist LADWP purchase low cost excess renewable energy from other markets and reduce its reliance on natural gas fired plants.
  - *Amendment of City Administrative Code:* To increase the import capability of renewable power, manage excess generation, and reduce its reliance on natural gas-fired plants, LADWP is planning to request the Los Angeles City Council to amend Section 23.135 of the Los Angeles City Administrative Code to provide its wholesale energy group the flexibility to participate in larger volumes of energy transactions that will maximize the purchase and sale of surplus wholesale energy.
  - *Building New and Upgrading Existing Transmission Lines:* In order to consistently increase its import and export capability of energy transactions from other regions, while maintaining regulatory system reliability standards, LADWP will need to invest in building new intra- and inter-State high-voltage transmission lines and upgrading existing transmission assets. This long-term solution realistically requires a minimum of 15 years; however, the planning studies for this effort have begun.

## **2. Energy Storage Options:**

- *Energy Storage Projects:* In 2014, LADWP committed to implement 178 megawatts (MW) of cost-effective energy storage by 2021. Due to the Aliso Canyon challenge, LADWP is accelerating deployment 50 MW of energy storage at the Barren Ridge Renewable Transmission Project that will improve reliability of those facilities to better integrate and import variable energy resources. In addition, LADWP is planning to increase its energy storage targets to 404 MW by 2025. LADWP is also analyzing energy storage projects at its local Generating Stations in order to reduce its reliance on gas-fired plants and mitigate the effects of over-generation.

Potential challenges with energy storage include:

- Battery technology is not mature and is still evolving.
- Pricing significantly exceeds conventional generation.
- Batteries life significantly less than conventional generation.
- How to dispose of hazardous waste.
- Requires a large footprint.

- Siting may be in transmission constrained areas.
  - Generally provides for a four hour battery — far less than what is required to mitigate resource intermittency or significant weather events.
  - Batteries require charging and become another load and may be located in areas already constrained by transmission limitations.
- *Compressed Air Energy Storage (CAES):* LADWP is exploring the potential deployment of CAES capacity near an existing power plant to help integrate renewable resources and provide ancillary services needed for an efficient and reliable electricity grid. As peak loads grow and more variable resources come online, diverse energy storage technologies such as CAES will play a pivotal and indispensable role in balancing resources and loads.
  - *Exploring Emerging Technologies:* LADWP is exploring advanced emerging technologies that can be used as alternatives to natural gas such as Hydrogen Turbines and Bio-fuel technologies. In addition, LADWP is analyzing technologies for coupling energy storage systems with gas-fired generation (such as the recently commissioned Battery-Gas Turbine Hybrid technology) as well as large solar and wind farms to increase grid reliability.

**3. Acceleration of Reliance on Renewable Energy Resources:**

- *100 Percent Clean Energy Study:* On September 16, 2016, the Los Angeles City Council passed a Motion directing the LADWP to implement research partnerships with appropriate entities and to determine what investments are needed to achieve a 100 percent clean energy portfolio. LADWP will begin this stakeholder engagement outreach process in spring 2017, as well as targeted research in the areas of system reliability, energy storage, transmission constraints, and expansion of demand-side measures.
- *Accelerating the Deployment of Renewable Energy Resources:* LADWP will continue to be a leader by setting renewable energy targets that exceed the State’s RPS mandates. The following table shows LADWP’s historic and forecasted RPS compared with the State’s RPS targets. Since 2006, LADWP has increased its renewable supply portfolio by 19 percent, and expects to further increase that by 40 percent in 2036.

Year	2006	2010	2016	2020	2025	2030	2036
California RPS	-	20%	25%	33%	45%	50%	-
LADWP RPS Target	7%	20%	25%	39%	50%	55%	65%

These targets and achievements demonstrate LADWP’s commitment to clean energy and reduction of GHG emissions and reliance on fossil fuels.

- *Expand Local Renewable Energy and Demand-side Resources:* LADWP is expanding its Energy Efficiency, Demand Response, and solar programs (Solar Net Metering, Feed-in-Tariff, Community Solar, and Utility-Built Solar) in a cost-effective manner that advances the implementation of local renewable resources, grid resiliency, and overall reduction of LADWP's GHG emissions.

The following chart shows LADWP's progress of adding 1599 MW of utility-scale renewable power resources to its generation portfolio through 2016.



- *Deployment of other Clean and Renewable Energy Resources:* LADWP currently deploys clean, renewable, and zero GHG emitting energy resources that currently do not meet the State's current RPS definition. Such resources include existing conventional hydro-electric plants, a pumped-storage plant, and behind the meter customer sited solar facilities. As of 2016, LADWP's service territory has 1763 MW of clean energy resources not meeting the State's RPS criteria including 27,449 installed solar systems on customer facilities.
- *Mitigation Plans:* In response to the Aliso Canyon gas storage facility incident, LADWP will continue to implement mitigation measures to reduce the risk of service interruptions and its overall reliance on natural gas. Such mitigation measures include:
  - Halting the sales of excess energy to other market participants.

- Curtailing physical hedging of gas supply to avoid being locked into commitments.
- Curtailing block energy and forward capacity sales to retain flexibility.
- Maximizing the use of other energy resources including renewable energy.
- Offering Energy Saving Program for large commercial customers.
- Calling on all customers to voluntarily reduce their energy use during peak hours through a widespread communications strategy across multiple media channels, including a robust “Flex Alert” outreach campaign.

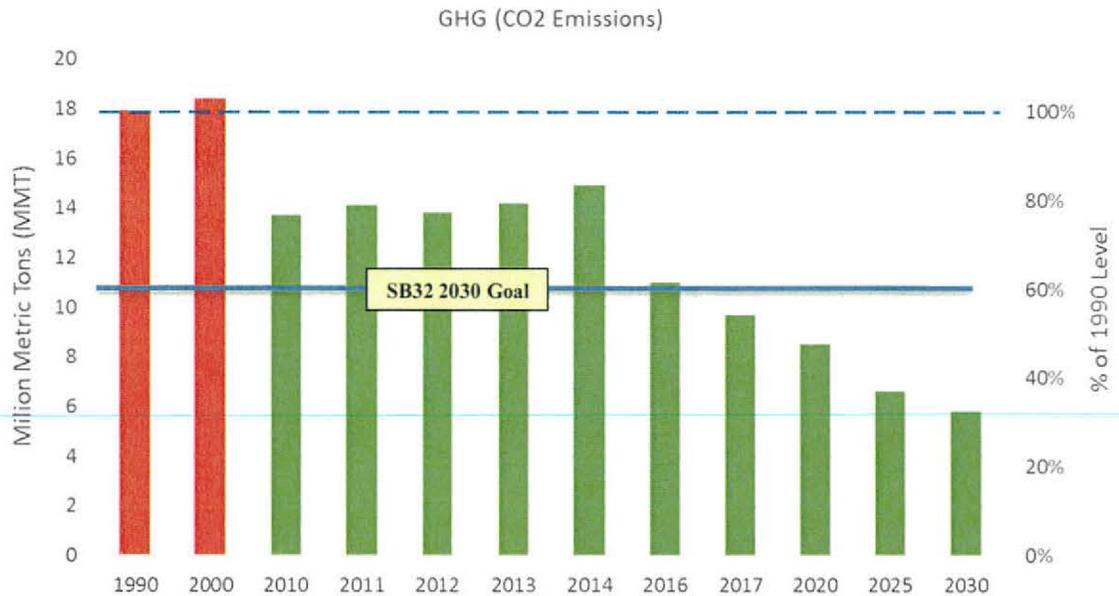
#### 4. Natural Gas Reduction Plan in Conjunction with Local and State Entities:

- *Collaboration with Local Utilities and Entities:* LADWP will continue to join forces with local utilities and entities such as the Southern California Public Power Authority (SCPPA) for the joint purchase of renewable energy resources and transmission capacity in order to advance the deployment of clean energy resources.
- *Working with CPUC, DOGGR, and California Energy Commission (CEC):* In response to the Aliso Canyon incident, LADWP is working jointly with CPUC, CAISO, and CEC to identify near-term gas and electricity reliability risks to the Los Angeles Basin and to develop an action plan and near-term mitigation measures.

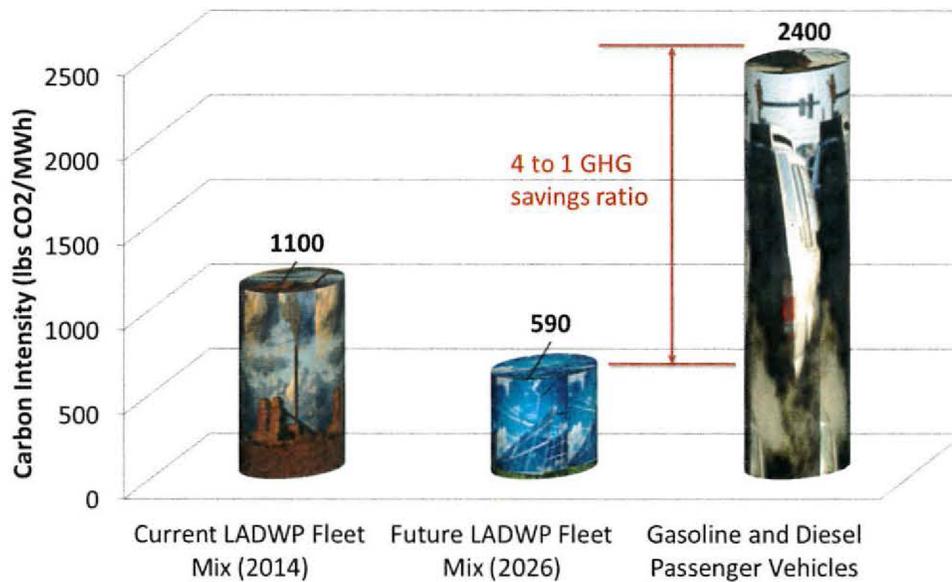
#### 5. Reduction of GHG Emissions:

- *Committed to GHG Reduction:* Senate Bill 32 requires the State to reduce its GHG levels to 40 percent below the 1990 levels by 2030. LADWP is expected to achieve 40 percent reduction in GHG emissions below 1990 levels by 2018 — a full 12 years in advance of the current state mandate. LADWP is proactively committed to meet or exceed GHG emission reduction targets set by the City’s Sustainability pLAN and the State.
- *Improving Generation System Efficiency:* To help reduce its overall reliance on natural gas and lower GHG emissions, LADWP plans to rehabilitate its less reliable and inefficient gas-fired generation stations. Such measures will include efficient technologies that will enable LADWP to maintain system reliability, accelerate the integration of renewable energy, meet system demands in the event of system failure, and comply with federal reliability standards. For example, the repowering of conventional units 3 and 4 with combined cycle units 8, 9, and 10 at Haynes Generating Station with more efficient, best available technology, provided increased ramping and turn down capability to integrate intermittent resources, while also **reducing emissions by 41 percent on a per MW-hour basis**, thereby also improving air quality in the surrounding communities.

The following chart shows LADWPs historic and projected GHG emission levels as well as the State’s overall goal.



- Transportation Electrification:* Increased electrification of the transportation sector is expected to substantially reduce overall GHG emissions in the Los Angeles Basin, since gasoline fuel is four times as polluting as clean electricity. The following chart demonstrates the significance of transportation electrification and LADWP's proposed progress over the next 10 years.



LADWP is well positioned to meet and exceed the State's current policy initiatives to reduce GHG emissions, increase energy storage, and renewable portfolio standard targets.

Conclusion

Climate change is a major environmental concern that warrants focused attention. LADWP is committed foremost to maintaining electric system reliability, and reducing its GHG emissions to minimize adverse impacts on the environment, while considering rate impacts to LADWP communities. As a responsible municipal utility, LADWP will base its recommendations and actions on sound scientific studies and principles. In addition, LADWP will continue to make unprecedented investments to transform its power supply with new and innovative clean energy resources that reduce its reliance on natural gas while maintaining superior reliability and competitive rates for its customers.

If you have any questions or if additional information is required, please contact me at (213) 367-1338, or you may have your staff contact Ms. Winifred J. Yancy, Director of Legislative and Intergovernmental Affairs, at (213) 367-0025.

Sincerely,



David H. Wright  
General Manager

RAK/SZ:ps

c: Councilmember Bob Blumenfield, Vice Chair, Energy and Environment Committee  
Councilmember Gilbert A. Cedillo, Member, Energy and Environment Committee  
Councilmember Paul Koretz, Member, Energy and Environment Committee  
Councilmember Mitch O'Farrell, Member, Energy and Environment Committee  
Councilmember Mitchell Englander, President Pro Tempore, Twelfth District  
Councilmember Mike Bonin, Eleventh District  
Ms. Zina Cheng, Legislative Assistant, Energy and Environment Committee  
Dr. Frederick H. Pickel, Office of Public Accountability  
Board of Water and Power Commissioners  
Ms. Winifred J. Yancy

## MOTION

## ENERGY & ENVIRONMENT

The Department of Conservation's Division of Oil, Gas, and Geothermal Resources (DOGGR) and the California Public Utilities Commission (CPUC) recently conducted public meetings in Woodland Hills regarding the Aliso Canyon Storage Facility and the natural gas leak which occurred in 2015. The purpose of these meetings was to obtain public comments regarding the safety of the Storage Facility, its operations and potential impacts on local communities.

For those who have lived through the largest gas leak in U.S. history, were removed from their homes for months, sickened with nausea, nosebleeds, headaches or worse and for those whose children were forced to attend alternative schools or whose businesses failed – there is no acceptable option but a permanent closure of this facility. Beyond that, the responsible path forward would be to reduce and eliminate the need for all such facilities in communities by ending our dependence on natural gas.

DOGGR and the CPUC are slated to review safety studies and public comments to determine if the Aliso Canyon Storage Facility should be allowed to operate. The Southern California Gas Company, which owns the Facility, is claiming the Facility is safe to operate. During these meetings, local residents expressed strong concerns about resuming Facility operations and the impact on their health and welfare.

Simultaneously, the Los Angeles Times reported that California is experiencing a glut of excess power which state residents are paying for. According to the article, during the last decade the CPUC approved the construction of numerous power plants throughout the state despite declining energy demand.

The Department of Water and Power (DWP) and local utilities rely, in part, on natural gas supplied by the Southern California Gas Company to run their power systems. Given health and safety concerns regarding the operation of the Aliso Canyon Storage Facility, the City should look at ways to reduce its reliance on natural gas; and eliminate its use and storage near communities.

To achieve this objective, the City should look at a variety of options such as obtaining excess power from other areas of the state and storage options for excess power from renewables. In addition, the City should accelerate implementation of and reliance on renewable energy sources; and seek to achieve a 100% Renewable Portfolio Standard (RPS) in the near term.

These approaches, and others, can be critical to reducing and eliminating the City's reliance on natural gas and storage near communities. This way, the health and welfare of local communities and the environment can be preserved.

I THEREFORE MOVE that the Department of Water and Power (DWP) report to the City Council in 30 days on options to reduce the City's reliance on natural gas use and storage near local communities; reviewed options should include the following:

- The purchase of excess power from other areas of the state;
- Storage options including batteries for excess power from renewable sources;
- The acceleration of renewable energy source reliance in an effort to achieve 100% RPS;
- The formulation of an aggressive natural gas reduction/elimination plan for the City and region developed in conjunction with local utilities and the California Public Utilities Commission (CPUC) and the Division of Oil, Gas, and Geothermal Resources (DOGGR).

I FURTHER MOVE that the City and DWP communicate to the CPUC and DOGGR, their review of the Aliso Canyon Storage Facility matter, and that the City's report consider the state's established policy to maximize de-carbonization of energy sources in order to preserve the health and welfare of state residents and the environment.

PRESENTED BY: \_\_\_\_\_

  
MITCHELL ENGLANDER

Councilmember, 12<sup>th</sup> District

SECONDED BY: \_\_\_\_\_

FEB 08 2017