

**PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA**

ENERGY DIVISION

**RESOLUTION G-3507**  
**June 25, 2015**

**RESOLUTION**

Resolution G-3507. The California Energy Commission (CEC) requests approval of its 2015-2016 natural gas research budget.

PROPOSED OUTCOME:

- Approve the CEC’s proposed R&D plan and budget for Fiscal Year 2015-2016 in its *Natural Gas Research, Development, and Demonstration Program, Proposed Program Plan and Funding Request for Fiscal Year 2015–16* with a budget of \$24 million, pursuant to California Public Utilities Commission Decision 04-08-010.

SAFETY CONSIDERATIONS:

- This resolution approves and prioritizes the implementation of the CEC’s proposed budget of \$1 million to assess the current status and future research needs of the technologies for natural gas pipeline safety and integrity assessment and risk management. Successful assessments of these safety needs will support continued safe pipeline operation.

ESTIMATED COST:

- Approves \$24 million for Fiscal Year 2015-2016, as previously authorized by D.04-08-010.
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**SUMMARY**

**This Resolution approves the CEC’s *Natural Gas Research, Development, and Demonstration Program, Proposed Program Plan and Funding Request for Fiscal Year 2015-16*. The Program was established pursuant to D.04-08-010. The CPUC approves the CEC’s proposed \$24 million budget for Fiscal Year 2015-2016.**

**BACKGROUND**

**D.04-08-010 (the Decision) implemented Assembly Bill (AB) 1002, establishing a natural gas surcharge to fund gas public purpose programs, including public interest research and development (R&D).**

The CPUC instituted Rulemaking 02-10-001 to implement AB 1002. In this proceeding the Commission addressed various issues related to the design and implementation of a surcharge to fund gas public purpose programs, resulting in D.04-08-010.

**D.04-08-010 established certain criteria for gas R&D projects to be approved under this program.**

The Decision defines public interest gas R&D activities as those which “are directed towards developing science or technology, 1) the benefits of which accrue to California citizens and 2) are not adequately addressed by competitive or regulated entities.”<sup>1</sup>

The CPUC established the following criteria for public interest gas R&D projects:

- 1) Focus on energy efficiency, renewable technologies, conservation and environmental issues,
- 2) Support State Energy policy,
- 3) Offer a reasonable probability of providing benefits to the general public, and
- 4) Consider opportunities for collaboration and co-funding opportunities with other entities.

**D.04-08-010 designated the CEC as administrator of the R&D program.**

The CEC administers various public interest research programs and is publicly accountable, being subject to the Bagley-Keene Open Meeting Act and the

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<sup>1</sup> D.04-08-010 at 25.

Public Records Act.<sup>2</sup> CEC selects funding areas, which the CPUC then reviews and approves.

**D.04-08-010 reserved ultimate oversight for the CPUC.**

The CPUC is responsible for adopting the R&D program, and for setting the surcharge to fund the R&D program. The Decision made it clear that the CPUC has final responsibility to “approve and resolve administration, funding, project approval, or other matters, and make a final decision.”<sup>3</sup> The Decision further designated the CPUC’s Energy Division to serve as this Commission’s advisor.

**CPUC has approved the CEC’s R&D program plans and budgets from 2005 to FY 2014-2015.**

D.04-08-010 established a zero-based budget for the Gas R&D program, starting at \$12 million for 2005, with maximum annual increases of up to \$3 million per year, subject to CPUC approval, up to \$24 million per year.<sup>4</sup> Historically, each year the CEC has requested, and the CPUC has approved, the maximum budget increase over the previous year. Thus the budget ceiling reached \$24 million in FY2009-2010. CPUC has approved a \$24 million budget since FY 2010-2011.

**The CEC has submitted its Proposed Program Plan and Funding Request for Fiscal Year 2014-2015.**

In addition to providing its research plan and budget for FY2014-2015, the CEC also provided information on prior program activities and expenditures.

**DISCUSSION**

**D.04-08-010 provides that the Commission “will assess the reasonableness of the funding level, and the overall R&D program” after four years.**

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<sup>2</sup> D.04-08-010 at 31.

<sup>3</sup> D.04-08-010 at 32.

<sup>4</sup> D.04-08-010 at 38.

D.04-08-010 provided for CPUC review of the “reasonableness of the funding level, and the overall R&D program” after four years, i.e., sometime after FY2009-2010. The CPUC has not yet developed a firm timeline for such a review but is in the process of gathering information leading up to such a review.

**Pending an assessment of the reasonableness of the overall R&D program, it is reasonable to keep the maximum limit for program funding at \$24 million.**

In the interim, we elect to maintain the same administrator (the CEC) and maximum funding level at \$24 million per year. We approve the CEC’s proposed budget of \$24 million for FY2015-2016. This funding level has no precedential value regarding the overall program review or funding levels beyond FY2015-2016, as the CEC is required to propose a zero-based budget for each fiscal year.

**Consistent with D.04-08-010, the CEC’s Public Interest Energy Research Program for Natural Gas focuses on research and development directed towards maximizing energy efficiency and renewable technologies, mitigating environmental effects of gas consumption, improving natural gas vehicle performance, and enhancing natural gas pipeline safety.**

Consistent with the state’s Energy Action Plan loading order, the CEC’s proposed budget for FY2015-2016 allocates the \$24 million budget to the following research areas: Energy Efficiency (\$7.1 million), Renewable Energy and Advanced Generation (\$5.8 million), Energy Infrastructure (\$4.3 million), and natural gas Transportation (\$4.4 million). The CEC also allocates \$2.4 million to program administration, including technical support. The CEC’s proposed budget allocations are delineated in Appendix A of this resolution.

The following is a breakdown of specific areas within the four major categories:

**1. Energy Efficiency (\$7.1 million)**

- a. Buildings End-Use Energy Efficiency
  - i. Water Heating and Distribution
  - ii. Commercial Cooking and Food Service Equipment and Systems
  - iii. Advanced HVAC and Building Envelopes
  - iv. Integrated Natural Gas Systems to achieve Zero Net Energy or High Efficiency Buildings/Systems
  - v. Indoor Environmental Quality for Zero Net Energy or Low Energy Use Buildings

**2. Renewable Energy and Advanced Generation (\$5.8 million)**

- a. Advancing Small-Scale Combined Power, Thermally Driven Cooling, and Heating Technologies
- b. Advanced Carbon Dioxide Capture and Utilization for Cost-Effective and Clean Natural Gas Power Generation

**3. Energy Infrastructure (\$4.3 million)**

- a. Natural Gas Pipeline Integrity (Safety)
  - i. Natural Gas Pipeline Safety and Integrity Assessment
- b. Energy-Related Environmental Research
  - i. Identification and Quantification of Methane Leaks
  - ii. Characterization of N<sub>2</sub>O Emissions from Natural Gas Combustion Units Using Modern Air Pollution Control Devices
  - iii. Natural Gas Market Scenarios

**4. Natural Gas-Related Transportation (\$4.4 million)**

- a. Development and Demonstration of Off-road Natural Gas Applications

**CEC's continued efficient use of program R&D and administrative funds is appropriate.**

The CEC's request for administrative expenses (\$2.4 million, or 10 percent of the total proposed budget) is appropriate and in line with historical program administration costs. We encourage the CEC to continue to keep such expenses at 10 percent or less.

**In the interest of transparency, Resolution G-3495 directed the CEC's FY 2015-16 proposed budget to include an account, by research area, of then-current unspent funds in the PIER Natural Gas R&D program, including encumbrances and expiration dates.**

The CEC has two years to encumber PIER Natural Gas R&D funds with projects and an additional four years before such funds expire. Beginning with the Fiscal Year 2014-2015 proposed budget, the CEC has included in its proposed budget an account of then-current, unspent funds in the PIER Natural Gas R&D program, including encumbrances and expiration dates. The intent of this requirement is to show that the CEC has spent its cumulative authorized budgets in the areas in which the money was authorized and to provide an accounting of the status of cumulative unspent funds. This requirement shall remain in place for each fiscal year's proposed budget, until otherwise directed by the CPUC.

In its FY2015-16 proposal, the CEC identifies \$3.6 million in unspent accumulated funds that may be applied towards future budget cycles, to reduce costs to ratepayers. The CEC requests guidance on the appropriate treatment of these accumulated unspent funds.

**The CEC's proposed budget was filed before several high-priority climate and energy state policy directives were issued. Accordingly, we emphasize and amend several areas of the proposed plan to ensure it reflects these priorities.**

We acknowledge several relevant policy directives and priority areas here. First, on April 1, 2015, the Governor issued Executive Order B-29-15, which sets new

goals and strategies for responding to California's current historic drought.<sup>5</sup> The order created water restrictions and other measures, but most importantly here, it directed the CEC to create a new water-energy nexus R&D program, called the Water Energy Technology (WET) program that will invest in technologies that provide water, energy, and greenhouse gas reductions.

Second, on April 29, 2015 Governor Brown issued Executive Order B-30-15 expanding the state's carbon emission reduction and climate change adaptation goals.<sup>6</sup> With an overall goal of reducing greenhouse gas emissions to 40 percent below 1990 levels by 2030, the order specifically addresses the electricity, efficiency, and transportation sectors, among others.

Both of these executive orders represent historic commitments by the state, the first including the first mandatory water reductions in California's history, and the second being the most aggressive climate target in North America.

The proposed FY 2015-2016 Budget Plan does include efforts that align with these executive orders, including the natural gas market scenarios project that will research the implications of climate change on natural gas demand, and the project addressing methane leaks. The research plan also addresses climate change through greenhouse gas reduction projects in energy efficiency, solar thermal generation, and low emission transportation for heavy duty applications.

We recognize that the executive orders' broad energy and climate directives cannot be fully addressed within the budget and limited time frame of the natural gas research plan approved herein. We also recognize that, as noted within its plan, the CEC adjusted various investment areas and budget levels for administrative reasons. However, we fully expect that the overall goals of these directives shall be supported by the plan. This Resolution therefore additionally requires the following:

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<sup>5</sup> Available online at <http://gov.ca.gov/news.php?id=18913>

<sup>6</sup> Available online at <http://gov.ca.gov/news.php?id=18938>

- The CEC shall in its implementation of the FY 2015-2016 Budget Plan prioritize the R&D activities that most support the areas addressed in the Climate Change and Drought Executive Orders such that these are *executed first or early as possible* in FY 2015-2016.
- The CEC shall focus on activities that are designed to support these priority areas in its proposed FY 2016-2017 Budget Plan, to the greatest extent administratively feasible.
- The FY 2016-2017 Budget Plan shall also identify how the activities proposed therein will be coordinated with the CEC's other research programs, the Electric Program Investment Charge and the WET program.

Finally, we must emphasize the importance of natural gas pipeline safety and integrity. As the Commission and California's natural gas utilities continue to identify and pursue necessary gas safety improvements, it is critical for this program to support those goals and remain on the technological frontier for gas safety. Therefore, this Resolution additionally requires:

- The CEC shall in its implementation of the FY 2015-2016 Budget Plan prioritize the R&D activities that most support pipeline safety and current pipeline safety concerns, such that these are *executed first or early as possible* in FY 2015-2016.
- The CEC shall seek opportunities to expand the R&D associated with the natural gas infrastructure and natural gas pipeline safety elements of this and future plans. Based on the current and proposed efforts, the Commission expects the FY 2016-2017 Budget Plan to include a larger and broader set of pipeline safety efforts than was proposed this year.

**Given the urgency of these recent climate change and drought directives and safety needs, we find it appropriate for the CEC to submit an additional plan for investing unspent funding in these areas.**

As previously mentioned, the CEC identified \$3.6 million in previously-collected, unspent program funds. Due to the urgency of the recent executive orders and their release after the submission of the plan approved herein, combined with the ongoing importance of pipeline safety improvements, we find it appropriate for



these funds to be treated as follows: The CEC shall prepare, and submit within 90 days of the effective date of this Resolution, a supplementary Climate, Drought, and Safety Natural Gas Budget Plan identifying specific areas where its unspent funds would be used to address R&D areas supporting pipeline safety and the actions defined in the Governor's Executive Orders B-29-15 and B-40-15. Specifically, the plan should allocate unspent funding to new efforts to address 1) natural gas pipeline safety, building upon current and proposed efforts, 2) impacts at the nexus of climate change, drought, and natural gas infrastructure, such as the pipeline safety impacts of subsidence from the excessive use and loss of ground water, and 3) long term strategic view of the use of natural gas in a carbon-constrained, water-efficient environment. This plan shall contain the same level of detail and information as contained in the CEC's proposed R&D plan and budget for Fiscal Year 2015-2016. The plan is subject to the other applicable requirements, and will be subject to the same review process at the Commission, as the CEC's other annual program plans. We find this treatment of unspent funds to be the most prudent use of funds to benefit ratepayers, and it does not represent a precedential increase or changes to the CEC's annual \$24 million program budget. Future program budget plans shall continue to report upon accumulation of unspent funds as previously directed by this Commission.

***The CEC's Proposed Program Plan and Funding Request for Fiscal Year 2015-2016 is approved.***

In accordance with D.04-08-010, CEC provided the annual proposed R&D program for FY2015-2016 to the Energy Division. The CEC has solicited R&D project proposal abstracts and incorporated them into the development of its plan. The Energy Division has reviewed the CEC report and found it to be submitted properly in compliance with D.04-08-010. The basic program areas meet the criteria for public interest gas R&D projects laid out in the Decision, the CEC reasonably selected gas R&D program areas, and the CEC reasonably allocated the program's budget to the different program areas. We authorize the CEC's proposed \$24 million budget as described in its *Natural Gas Research, Development, and Demonstration Program, Proposed Program Plan and Funding Request for Fiscal Year 2015-16*.

**COMMENTS**

Public Utilities Code section 311(g)(1) provides that this resolution must be served on all parties and subject to at least 30 days public review and comment prior to a vote of the Commission. Section 311(g)(2) provides that this 30-day period may be reduced or waived upon the stipulation of all parties in the proceeding.

The 30-day comment period for the draft of this resolution was neither waived nor reduced. Accordingly, this draft resolution was mailed to parties for comments on May 22, 2015. No comments were filed.

**FINDINGS**

1. The CEC filed its Fiscal Year 2015-2016 public interest gas R&D budget and program plan, per D.04-08-010.
2. The CEC's proposed R&D project areas meet the criteria set forth in D.04-08-010.
3. The CEC reasonably selected gas R&D project areas, and reasonably allocated the Fiscal Year 2015-2016 R&D budget to the different project areas.
4. Recent state policy directives should be reflected in this plan, and this Resolution guides the plan's priorities and the CEC's treatment of unspent funds accordingly.
5. The CEC's proposed R&D plan and budget for Fiscal Year 2015-2016 in its *Natural Gas Research, Development, and Demonstration Program, Proposed Program Plan and Funding Request for Fiscal Year 2015-16* should be adopted for a maximum budget of \$24 million.
6. The CEC should submit a Budget Plan for the use of previous-cycle unspent amount funds in the amount of \$3.6 million within 90 days of the effective date of this Resolution.
7. The Commission has not yet determined the reasonableness of the overall PIER Natural Gas R&D Program or of the funding level beyond FY2015-2016.

**THEREFORE IT IS ORDERED THAT:**

1. The CEC remains the program administrator for the PIER Natural Gas R&D program for FY2015-2016.
2. The maximum PIER Natural Gas R&D program funding level for FY 2015-2016 is \$24 million.
3. The CEC shall include in its Fiscal Year 2016-2017 proposed budget an account of then-current unspent funds in the PIER Natural Gas R&D program, including encumbrances and expiration dates.
4. In its implementation of the FY 2015-16 Natural Gas R&D Budget, the CEC shall reflect the urgency and priority of recent State policy directives by prioritizing the climate change, drought, and natural gas safety initiatives approved herein, and executing those efforts first or as soon as possible.
5. The CEC shall submit a budget plan for the investment of the cumulative previous-cycle unspent amount of \$3.6 million no later than 90 days after the effective date of this Resolution. This plan shall propose to invest these funds as directed in the body of this Resolution.
6. The CEC's proposed R&D plan and budget for Fiscal Year 2015-2016 in its *Natural Gas Research, Development, and Demonstration Program, Proposed Program Plan and Funding Request for Fiscal Year 2015-16* is approved for a budget of \$24 million.

This Resolution is effective today.

I certify that the foregoing resolution was duly introduced, passed and adopted at a conference of the Public Utilities Commission of the State of California held on June 25, 2015; the following Commissioners voting favorably thereon:

/s/ TIMOTHY J. SULLIVAN  
TIMOTHY J. SULLIVAN  
Executive Director

MICHAEL PICKER  
President

MICHEL PETER FLORIO  
CATHERINE J.K. SANDOVAL  
CARLA J. PETERMAN  
LIANE M. RANDOLPH  
Commissioners

## Appendix A

**Table 1: CEC's FY 2015-16 Natural Gas Research Budget**

Program Areas	Proposed Budget
<b>Energy Efficiency</b>	<b>\$7,100,000</b>
Buildings End-Use Energy Efficiency	\$7,100,000
Industrial, Agriculture, and Water Efficiency <sup>7</sup>	\$0
<b>Renewable Energy and Advanced Generation</b>	<b>\$5,800,000</b>
<b>Energy Infrastructure</b>	<b>\$4,300,000</b>
Natural Gas Pipeline Integrity	\$1,000,000
Energy-Related Environmental Research	\$3,300,000
<b>Natural Gas-Related Transportation</b>	<b>\$4,400,000</b>
<b>Program Administration Labor</b>	<b>\$2,400,000</b>
<b>TOTAL</b>	<b>\$24,000,000</b>

Source: California Energy Commission *Proposed Program Plan and Funding Request for Fiscal Year 2015-2016*

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<sup>7</sup> Energy Efficiency Program areas will alternate funding each year between building efficiency and industrial efficiency research. For FY 2015-2016, the natural gas research funds will focus on building end use efficiency. In FY 2016-2017, the focus will be on the industrial, agriculture and water efficiency sector. This approach will allow the funding of multiple projects in each research area.