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In the matter of:	)	Docket No. 19-ERDD-01
	)	
Request for Comments on Draft Solicitation	)	Research Idea Exchange
	)	RE: Comments on Draft Solicitation
	)	

Notice of Request for Comments on Draft Solicitation on Natural Gas Infrastructure Safety and Integrity

California Energy Commission staff is developing a competitive Grant Funding Opportunity (GFO) through the Natural Gas Research and Development (R&D) Program. The GFO is focused on research to develop and demonstrate advanced technologies, techniques, and tools that can improve the ability to assess risks to the natural gas infrastructure from seismic activity, and provide enhanced training and tools for the California Public Utilities Commission (CPUC) natural gas inspectors. Staff is seeking input from stakeholders on the draft solicitation.

The workshop will be held on:

Monday, September 17, 2018
1:00 p.m. - 3:30 p.m.
CALIFORNIA ENERGY COMMISSION
1516 Ninth Street
First Floor, Charles Imbrecht Hearing Room
Sacramento, California 95814
(Wheelchair Accessible)

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(Instructions below)

Agenda

The workshop will include invited talks from stakeholders to discuss the current efforts and further research needs to assess seismic risks and to develop advanced training and tools for natural gas inspectors. Then the draft GFO content will be introduced and discussion will be held among a broad audience of stakeholders for public comments.

GFO Background

California has 14 underground natural gas storage facilities in 12 fields with a capacity of 385.4 billion cubic feet of natural gas. There are about 350 active wells associated

with those fields. The natural gas transmission and distribution pipelines total 118,000 miles throughout the state. Since 2001, several accidents involving underground natural gas storage and pipeline infrastructure have occurred, including the San Bruno pipeline explosion and Aliso Canyon natural gas storage leak. These events have highlighted the need to assess and improve natural gas infrastructure safety and integrity. The Energy Commission has identified research needs on: (1) seismic risk assessment of the natural gas infrastructure; and (2) enhanced training and tools for CPUC natural gas inspectors.

Substantial research has been conducted on seismic risks to above-ground built infrastructure in California; however, very little research has been conducted on potential seismic risks to underground natural gas storage, and little research covers the threat of certain risks such as landslides to above-ground natural gas infrastructure. In addition, detailed analyses are time consuming and expensive, and cannot be readily conducted on all natural gas infrastructure. An advanced seismic risk analysis methodology is needed to enable more efficient and effective analysis of seismic risks to natural gas infrastructure, and to prioritize mitigation activities. These capabilities are needed by the California Department of Conservation, Division of Oil, Gas, and Geothermal Resources (DOGGR), the CPUC, Investor Owned Utilities (IOUs), and natural gas infrastructure owners and operators.

A finding from the independent review following the San Bruno natural gas explosion was that CPUC natural gas infrastructure inspectors could benefit from additional California-specific training beyond that provided by Pipeline and Hazardous Materials Safety Administration (PHMSA) required programs. While these nationally provided programs are well regarded, the CPUC inspectors could benefit from more experiential, virtual, or in-field training activities. Commercial training technology has advanced significantly with new capabilities that include high definition visualization capability, advanced pipeline infrastructure simulation, and tools to integrate existing and new technologies for field use. New approaches could be leveraged to improve the CPUC inspection process, thus improving the safety and integrity of California's natural gas infrastructure.

GFO Focus

The intent of this solicitation is to research, develop, and demonstrate advanced technologies, techniques, and tools that can improve the assessment of risks to the natural gas infrastructure from seismic activity, as well as enhance training and tools for CPUC natural gas inspectors. There is up to $6,700,000 available for grants under this GFO, with no minimum award and a maximum award of $5,000,000 for Group 1, and $1,700,000 for Group 2. Match funding is not required.

Group 1: Seismic Risk Assessment of Underground Natural Gas Storage and Pipeline Infrastructure

Projects should focus on developing a risk assessment approach, taking into account the nature and origin of earthquakes; seismic ground motion; fault rupture and displacement; site specific soil-structure interactions; current seismic risk; existing approaches to seismic risk vulnerabilities; regulatory requirements; and seismic hazard and risk guidelines in relation to various natural gas storage and pipeline facilities in California. The research includes identification and assessment of seismic hazards, development of seismic design models for pipeline and storage facilities, and derivation of mitigative or preventive measures for current or future natural gas facilities with associated costs. The research should also include an evaluation of existing models, and development and validation of more advanced deterministic or probabilistic seismic risk assessment methods and models. Current and future seismic datasets should be integrated into the model. The methods and models should be validated on one or more specific pipeline(s) and one or more storage facilities in California via site demonstration.

The research should result in a packaged, open-source application product that can be used as a tool for seismic risk assessment and operated from a desktop computer. The immediate users of the tool would be CPUC, DOGGR and IOUs in California, and the application should be released for their use by addressing their specific needs. In particular, the application tool should be tailored to different levels of analysis, complexity and functionality, so that it can accommodate customized requirements by these user groups.

Group 2: Enhanced Training and Tools for Conducting Pipeline Inspections

Projects should focus on the development of enhanced training and tools that integrate technologies to improve inspection capabilities beyond those provided by PHMSA training and are tailored to California system operations. The training and tools can include integration of existing proven technologies, or development and demonstration of new approaches or technologies. The tools should help CPUC engineers efficiently trace the features and specifications of natural gas facilities; make important decisions in real time; and enhance the capacity and productivity of facility inspection.

The tools should be combined into an open-source application product that can be used on a desktop computer or tablet. In addition, the tools should combine data from past and current inspections; incident investigations; pipeline attributes; and leak data to target inspections to areas of greatest risks. Inputs from remote sensing technologies, such as natural gas sensors and aerial drones, should be integrated into the tools to enhance analytical ability. The tools should be able to perform field verification of recently repaired leaks to ensure operator compliance. In addition, the tools can enable in-field inspectors to make important decisions based on data gathered remotely through aerial observation, infrared thermal imaging and/or pipe wall internal stress monitoring within a damaged area, and analyze at-risk areas before failures occur.

Questions

Energy Commission staff is seeking input from interested stakeholders on the above excerpts from the draft GFO and the questions below:

1. For Group 1 (seismic risk assessment), does the scope of the seismic risk assessment cover the key technical areas that should be included in the risk assessment? Are there others that should be included?

2. What are specific recommendations you can provide to improve the group descriptions of the solicitation outlined in this Request for Comments that would better improve the solutions to be developed in each group? Please explain the rationale behind the recommendations.

3. Are there concerns on the confidentiality of the data or test site, since the final products will be released to the public? If so, what approach can you suggest to validate the tools?

Natural Gas R&D Program Background

The Natural Gas R&D Program is funded by a surcharge on natural gas consumed by ratepayers of natural gas IOUs in California (see California Public Utilities Code § 890). The CPUC designated the California Energy Commission as administrator of the program in August 2004.[1] The purpose of the program is to benefit California natural gas ratepayers by funding public interest research and development activities, which the CPUC has defined as "developing science or technology, the benefits of which accrue to California citizens and are not adequately addressed by competitive or regulated entities."[2]

The California Energy Commission is committed to supporting the inclusion of a diverse group of participants from disadvantaged and underrepresented businesses and communities, including disabled veteran-, women-, LGBTQ- and minority-owned businesses.

To learn how to apply for Energy Commission R&D funding opportunities please visit: http://www.energy.ca.gov/research/.

For additional information on the Natural Gas R&D Program, please visit: http://www.energy.ca.gov/naturalgas_research/.

[1] See CPUC Decision 04-08-010, August 19, 2004, http://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/39314.PDF.

[2] *Id.* at pp. 25 and 46.

Written Comments

Comments should be submitted by **5:00 p.m. on Friday, September 28, 2018**.

Please note that your written and oral comments, attachments, and associated contact information (e.g. your address, phone number, email address) become part of the viewable public record. This information may become available via Google, Yahoo, and other search engines.

The Energy Commission encourages comments through the Energy Commission's docket system to Docket # 19-ERDD-01 (Research Idea Exchange). Please include your name and the name of the organization you represent. Comments should be in a downloadable, searchable format such as Microsoft® Word (.doc) or Adobe® Acrobat® (.pdf). Please include Request for Comments: Natural Gas Infrastructure Safety and Integrity in the title of the subject line.

Written comments may also be submitted by e-mailing them (include the docket number 19-ERDD-01 and Research Idea Exchange in the subject line) to the Docket Unit at:

docket@energy.ca.gov

If you prefer, you may send a paper copy of your comments to:

California Energy Commission
Docket Unit, MS-4
Re: Docket No. 19-ERDD-01
1516 Ninth Street, MS 43
Sacramento, CA 95814-5512

Public Adviser and Other Commission Contacts

The Energy Commission's Public Adviser's Office provides the public assistance in participating in Energy Commission proceedings. If you want information on how to participate in this forum, please contact the Public Adviser Alana Mathews, at PublicAdviser@energy.ca.gov or (916) 654-4489, or toll free at (800) 822-6228.

If you have a disability and require assistance to participate, please contact Poneh Jones at Poneh.Jones@energy.ca.gov or (916) 654-4425 at least five days in advance.

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Availability of Documents

Documents and presentations for this meeting will be available online at: http://www.energy.ca.gov/research/notices/.

September 7, 2018

Originally signed by

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Laurie ten Hope
Deputy Director

Mail Lists:
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