

To: Office of Planning and Research
 PO Box 3044
 1400 Tenth Street, Room 113
 Sacramento, CA 95812-3044

From: California Energy Commission
 715 P Street
 Sacramento, CA 95814

Project Applicant: Electric Power Research Institute, Inc.

Project Title: Efficient and Flexible Natural Refrigerant based 120v HPWH with Immersed Condenser

Project Location – Specific: Laboratory Testing Site: 6060 N Irwindale Ave, TTC Bldg. 6060 Suite O

Project Location – City: Irwindale **Project Location – County:** Los Angeles

Project Location – Specific: Residential Demonstration Sites: TBD

Project Location – City: TBD **Project Location – County:** TBD

Description of Nature, Purpose and Beneficiaries of Project:

Under grant agreement, EPC-25-050, the California Energy Commission will provide funding for the project. This project will develop, test and demonstrate an ultra-low GWP R-290 refrigerant-based heat pump water heater system with an immersed condenser operating on a 120V circuit that incorporates demand flexibility capabilities via communication standard such as CTA-2045 B. The innovation in heat exchanger design should provide a technological solution for maximizing capacity for the limited 120V electrical input.

Name of Public Agency Approving Project: California Energy Commission

Name of Person or Agency Carrying Out Project: Electric Power Research Institute, Inc.

Exempt Status: *(check one)*

- Ministerial Exemption (Pub. Resources Code § 21080(b)(1); Cal. Code Regs., tit. 14, § 15268);
- Declared Emergency (Pub. Resources Code § 21080(b)(3); Cal. Code Regs., tit. 14, § 15269(a));
- Emergency Project (Pub. Resources Code § 21080(b)(4); Cal. Code Regs., tit. 14, § 15269(b)(c));
- Categorical Exemption. State type and section number
Cal. Code Regs., tit. 14, § 15301, § 15306
- Statutory Exemptions. State code number.
- Common Sense Exemption. (Cal. Code Regs., tit. 14, §15061(b)(3))

Reasons why project is exempt:

This project involves development of a prototype 120V heat pump water heater system using R-290 propane as its primary refrigerant with immersed condenser in a laboratory setting. The prototype water heater will then be installed in a residential demonstration site for field testing. The prototype water heater will be decommissioned and a conventional water heater reinstalled after research testing and data collection is completed.

Authority cited: Sections 21083 and 21110, Public Resources Code. Reference: Sections 21108, 21152, and 21152.1, Public Resources Code.
 Electric Power Research Institute, Inc.

For the residential demonstration, the local government Agency Having Jurisdiction, may apply requirements (e.g., Building Code, Fire Code) to the demonstration heat pump water heater equipment. Although propane refrigerant is hazardous, current restrictions for its use in heat pumps mean that the grant pilot heat pump can only have 114 grams of propane refrigerant charge per device. To explain further UL Solutions (Underwriters Laboratories) standard 60335-2-40 lists several safety requirements applicable to various electrical appliances, including air conditioners and heat pumps. In particular, the standard outlines requirements for protection against hazards of various types (fire, electrical, mechanical), refrigerant leak detection, ignition source mitigation, and charge limits. All heat pumps installed in the U.S. must comply with this standard per mechanical codes, making it a de facto federal standard. For propane (R-290), UL 60335-2-40 sets a charge limit of 114 grams. This limit is based on propane's lower flammability limit and its classification. Based on this small amount, the demonstrations in residential buildings will be a less-than-significant health, safety, and environmental hazard under CEQA.

Cal. Code Regs., tit. 14, 15301, Existing Facilities, provides an exemption from CEQA for the operation, repair, maintenance, permitting, leasing, licensing, or minor alteration of existing structures, facilities, mechanical equipment or topographical features involving negligible or no expansion of use beyond that existing. This project will conduct research, development, and manufacturing within already existing facilities with only minor interior alterations through the addition of small-scale fabrication equipment. There will be negligible or no expansion of existing use. Therefore, the project falls within section 15301 and will not have a significant effect on the environment.

Cal. Code Regs., tit. 14, Section 15306, Information Collection, exempts from CEQA projects that consist of basic data collection, research, experimental management, and resource evaluation activities which do not result in a serious or major disturbance to an environmental resource. The proposed project activities fall within these categories. For these reasons, the proposed project will have no significant effect on the environment and is categorically exempt under section 15306.

This project does not involve impacts on any particularly sensitive environment; any cumulative impacts of successive projects of the same type in the same place that might be considered significant; does not involve unusual circumstances that might have a significant effect on the environment; will not result in damage to scenic resources within a highway officially designated as a state scenic highway; the project sites are not included on any list compiled pursuant to Government Code section 65962.5, and the project will not cause a substantial adverse change in the significance of a historical resource. Therefore, none of the exceptions to categorical exemptions listed in CEQA Guidelines section 15300.2 apply to this project, and this project will not have a significant effect on the environment.

Public Agency

Contact Person: Amir Ehyai **Area code/Telephone/Ext:** 916-776-0752

If filed by applicant:

1. Attach certified document of exemption finding.
2. Has a Notice of Exemption been filed by the public agency approving the project? Yes No

Signature:  **Date:** 03/27/2026 **Title:** Energy Commission Specialist

Signed by Public Agency

Signed by Applicant

Date received for filing at OPR: _____