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U.S. DEPARTMENT OF ENERGY - NETL

CATEGORICAL EXCLUSION (CX) DESIGNATION FORM

ARRA ☐ CDP ☐ Project No.: DE-FE0024064
DOE Sponsoring Org. (FE, OE, EE, etc.): FE
NETL Sponsoring Org.: SCC/AESD
NETL Contact: Robin Ames (304) 285-0978

Recipient Name: Oregon State University
Sub-recipient Name: University of California - Davis
FY/Performance Period: 10/01/2014-09/30/2016
Project Location: Davis, CA (UC Davis)

Brief Title of Proposed Action:
Design, Fabricate and Characterize High Temp and Pressure Microchannel HX for SCO2 Power Cycles

Brief Description of Proposed Action:
Design and experimentally characterize two high temperature and high pressure heat exchangers for SCO2 power cycle. Fabrication of the microlaminated heat exchanger will mainly be done by external vendors.

THE PROPOSED ACTION FALLS WITHIN THE FOLLOWING CATEGORICAL EXCLUSION(S) FROM APPENDICES A AND B OF DOE NEPA IMPLEMENTING PROCEDURE:

General Administration/Management
- ☐ A1 – Routine business actions
- ☐ A8 – Award of technical support/M&O/personal service contracts
- ☐ A9 – Info gathering, analysis, documentation, dissemination, and training
- ☐ A11 – Technical advice and planning assistance

Facility Operations
- ☐ B1.2 – Training exercises and simulation
- ☐ B1.3 – Routine maintenance and custodial services
- ☐ B1.4 – Air conditioning installation for existing structures
- ☐ B1.7 – Communication system and data processing equipment acquisition, installation, operation, removal
- ☐ B1.13 – On-site pathway or short access road construction/acquisition
- ☐ B1.15 – Support building or structure, non-waste storage, construction/operation
- ☐ B1.16 – Removal of asbestos in accordance with regulations
- ☐ B1.22 – Building relocation to developed area/demolition/disposal
- ☐ B1.23 – Demolition/disposal of buildings, equipment, and structures
- ☐ B1.24 – Transfer, disposition, or acquisition of uncontaminated structures or equipment, environmental quality maintained
- ☐ B1.29 – Small on-site const/demolition waste disposal facility const/oper
- ☐ B1.31 – Relocation/operation of machinery or equipment, similar use
- ☐ B1.32 – Traffic flow adjustments, existing roads
- ☐ B1.33 – Stormwater runoff control

Safety and Health
- ☐ B2.1 – Modifications to enhance workplace habitability
- ☐ B2.2 – Installation/improvement of building/equipment instrumentation
- ☐ B2.3 – Installation of equipment for personnel safety and health
- ☐ B2.5 – Facility safety and environmental improvements, replacement or upgrade of facility components, no change in useful life

General Research
- ☐ B3.1 – Site characterization/environmental monitoring
- ☒ B3.6 – R&D or pilot facility construction/operation/decommissioning
- ☐ B3.7 – New infill exploratory, experimental oil/gas/geothermal well construction and/or operation
- ☐ B3.9 – Certain CCT demonstration activities, emissions unchanged
- ☐ B3.11 – Outdoor tests, experiments on materials and equipment components

Electrical Power and Transmission
- ☐ B4.4 – Power management activities (storage, load shaping, and balancing)
- ☐ B4.6 – Transmission support addition/modifications at developed facility site
- ☐ B4.7 – Fiber optic cable (within existing rights-of-way)
- ☐ B4.11 – Construction of power substations and interconnection facilities
- ☐ B4.12 – Construction of power lines
- ☐ B4.13 – Upgrading and rebuilding existing power lines (< 20 miles)

Conservation, Fossil, and Renewable Energy Activities
- ☐ B5.1 – Actions to conserve energy, no indoor air quality degradation
- ☐ B5.2 – Modification to pumps and piping
- ☐ B5.3 – Modification/abandonment of wells
- ☐ B5.4 – Repair/replacement and minor relocations of pipeline sections
- ☐ B5.5 – Short crude oil/gas/steam/geothermal/carbon dioxide pipeline const/oper within an existing right-of-way (< 20 miles) between existing facilities
- ☐ B5.13 – Experimental wells for injection of small quantities of carbon dioxide (< 500,000 tons)
- ☐ B5.14 – Combined heat and power or cogeneration systems
- ☐ B5.15 – Small scale renewable energy research/development/pilot projects
- ☐ B5.16 – Solar photovoltaic systems
- ☐ B5.17 – Solar thermal systems
- ☐ B5.18 – Wind turbines
- ☐ B5.19 – Ground source heat pumps
- ☐ B5.20 – Biomass power plants
- ☐ B5.21 – Methane gas recovery and utilization systems
- ☐ B5.22 – Alternative fuel vehicle fueling stations
- ☐ B5.23 – Electric vehicle charging stations

Environmental Restoration/Waste Minimization
- ☐ B6.1 – Cleanup actions: small-scale, short-term (< $5M and 5 years)
- ☐ B6.3 – Improvements to environmental control systems

Other
- ☐ Specify category: _____

This action would not (1) violate applicable ES&H requirements, (2) require siting of waste TSD or recovery facilities, (3) disturb hazardous substances (excluding substances that are naturally occurring in the project area), or (4) adversely affect environmentally sensitive resources. Furthermore, this action (1) would not present any extraordinary circumstances such that the action might have a significant impact upon the human environment; (2) is not connected to other actions with potentially significant impacts; (3) is not related to other actions with cumulatively significant impacts; and (4) and is not inconsistent with 10 CFR 1021.211 or 40 CFR 1506.1. Therefore, the proposed action may be categorically excluded from further NEPA review.

DOE Initiator Signature: Robin W. Ames — Digitally signed by Robin W. Ames DN: cn=Robin W. Ames, o=NETL, ou=Advanced Energy Systems, email=robin.ames@netl.doe.gov, c=US Date: 2015.04.17 15:50:52 -04'00' — Date: 04 / 17 / 2015 (month day year)

NEPA Compliance Officer: MARK LUSK — Digitally signed by MARK LUSK DN: c=US, o=U.S. Government, ou=Department of Energy, cn=MARK LUSK, 0.9.2342.19200300.100.1.1=89001000766002 Date: 2015.04.30 14:08:09 -04'00' — Date: 04 / 30 / 2015 (month day year)

NEPA Compliance Officer's Comment: