

PMC-EF2a

**U.S. DEPARTMENT OF ENERGY  
EERE PROJECT MANAGEMENT CENTER  
NEPA DETERMINATION**



RECIPIENT: Alcatel-Lucent USA

STATE: NJ

**PROJECT TITLE :** Advanced Refrigerant-based Cooling Technologies for Information and Communications infrastructure (ARCTIC)

<b>Funding Opportunity Announcement Number</b>	<b>Procurement Instrument Number</b>	<b>NEPA Control Number</b>	<b>CID Number</b>
DE-FOA-0000107	DE-EE0002895	GFO-10-242	0

**Based on my review of the information concerning the proposed action, as NEPA Compliance Officer (authorized under DOE Order 451.1A), I have made the following determination:**

**CX, EA, EIS APPENDIX AND NUMBER:**

Description:

- B5.1** Actions to conserve energy, demonstrate potential energy conservation, and promote energy-efficiency that do not increase the indoor concentrations of potentially harmful substances. These actions may involve financial and technical assistance to individuals (such as builders, owners, consultants, designers), organizations (such as utilities), and state and local governments. Covered actions include, but are not limited to: programmed lowering of thermostat settings, placement of timers on hot water heaters, installation of solar hot water systems, installation of efficient lighting, improvements in generator efficiency and appliance efficiency ratings, development of energy-efficient manufacturing or industrial practices, and small-scale conservation and renewable energy research and development and pilot projects. The actions could involve building renovations or new structures in commercial, residential, agricultural, or industrial sectors. These actions do not include rulemakings, standard-settings, or proposed DOE legislation.
- B3.6** Siting, construction (or modification), operation, and decommissioning of facilities for indoor bench-scale research projects and conventional laboratory operations (for example, preparation of chemical standards and sample analysis); small-scale research and development projects; and small-scale pilot projects (generally less than two years) conducted to verify a concept before demonstration actions. Construction (or modification) will be within or contiguous to an already developed area (where active utilities and currently used roads are readily accessible).
- A9** Information gathering (including, but not limited to, literature surveys, inventories, audits), data analysis (including computer modeling), document preparation (such as conceptual design or feasibility studies, analytical energy supply and demand studies), and dissemination (including, but not limited to, document mailings, publication, and distribution; and classroom training and informational programs), but not including site characterization or environmental monitoring.

**Rational for determination:**

Alcatel-Lucent USA is proposing to use ARRA funding through the DOE to develop and accelerate the commercialization of a refrigerant-based, liquid-cooling technology and achieve a substantial increase in energy efficiency and carbon footprint reduction for the nation's Information and Communications Technology (ICT) infrastructure.

Project activities will involve design, prototype fabrication, testing, and data analysis.

Prototype development (lab work) will take place in Alcatel-Lucent Murray Hill facility, and prototype testing will take place in their Murray Hill, Naperville and Plano facilities. Fabrication and manufacturing are subcontracted and will be performed by Modine and US Hose.

An R&D questionnaire has been filled out for Alcatel-Lucent laboratory facilities and Modine and US Hose fabrication facilities. These questionnaires thoroughly address all established safety protocols, hazardous material handling and waste disposal protocols applicable to project work by each company.

The project will involve "field testing" that will be performed in the following facilities: i) a Prototype Data Center (PDC) consisting of 10 equipment frames hosting a range of servers and 100 kW total power; ii) a server farm (Server Farm 1) consisting of 17 frames with approximately 400 servers of various vendor makes and models and 100 kW total power; and iii) a server farm (Server Farm 2) consisting of 22 frames with approximately 500 servers of various vendor makes and models and 130 kW total power.

This project comprises information gathering, conventional laboratory bench-scale research in established facilities and small scale energy conservation demonstration; therefore a CX A9, B3.6 and B5.1 apply.

**NEPA PROVISION**

DOE has made a final NEPA determination for this award

Insert the following language in the award:

Note to Specialist :

None Given.

**SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.**

NEPA Compliance Officer Signature:   
NEPA Compliance Officer

Date: 3/2/10

**FIELD OFFICE MANAGER DETERMINATION**

Field Office Manager review required

**NCO REQUESTS THE FIELD OFFICE MANAGER REVIEW FOR THE FOLLOWING REASON:**

- Proposed action fits within a categorical exclusion but involves a high profile or controversial issue that warrants Field Office Manager's attention.
- Proposed action falls within an EA or EIS category and therefore requires Field Office Manager's review and determination.

**BASED ON MY REVIEW I CONCUR WITH THE DETERMINATION OF THE NCO :**

Field Office Manager's Signature: \_\_\_\_\_  
Field Office Manager

Date: \_\_\_\_\_