The Secretary of Energy
Washington, DC 20585

June 1, 2010

MEMORANDUM FOR HEADS OF DEPARTMENTAL ELEMENTS

FROM: STEVEN CHU

SUBJECT: Installation of Cool Roofs on Department of Energy Buildings

The Federal Government is the largest consumer of energy in the Nation. In Executive Order (E.O.) 13514, the President called on the Federal Government to set the example for the Nation on sustainability. As I wrote you in my March 31, 2010 memorandum implementing the E.O., the Department of Energy must set the example in energy and greenhouse gas (GHG) stewardship for the rest of Government.

Energy efficiency is one of the lowest cost options for reducing GHG emissions. Buildings account for 40 percent of U.S. energy use – and about 35 percent of the Nation's GHGs. An effective method for reducing building energy use is installation of a cool roof[1], which reflects sunlight and reduces heat gain. By reducing heat gain, a cool roof lowers the need for air-conditioning and saves energy. Yet, cool roofs do even more. In an urban or campus setting, they reduce the "heat island effect," lowering ambient air temperature and improving air quality.

Because cool roofs provide significant energy savings and environmental benefits, they should be used whenever practicable. Accordingly, effective immediately, unless determined uneconomical by a life-cycle cost analysis, roof replacements and roofs for new construction shall be cool roofs (unless the project already has CD-2 approval). Moreover, to enhance overall building thermal performance, new roofs shall have a thermal resistance of at least R-30.[2] I have directed the Office of Management to add appropriate data elements to the Facilities Information Management System to track the Department's performance in this area and the Federal Energy Management Program to codify this direction within the update of DOE Order 430.2B "*Departmental Energy, Renewable Energy and Transportation Management*."

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[1] To be considered cool, a low-sloped roof (pitch less than or equal to 2:12) must be designed and installed with a minimum 3-year aged solar reflectance of 0.55 and a minimum 3-year aged thermal emittance of 0.75 in accordance with the Cool Roof Rating Council program, or with a minimum 3-year aged solar reflectance index (SRI) of 64 in accordance with ASTM Standard E1980-01. Steep-sloped roofs (pitch exceeding 2:12) must have a 3-year aged SRI of 29 or higher.

[2] R-30 = 30 hr ft^2 °F/BTU. Refer to ASHRAE 90.1 "*Energy Standard for Buildings Except Low-Rise Residential Buildings.*"

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The National Nuclear Security Administration's (NNSA) Roof Asset Management Program (RAMP) may be a helpful resource in the implementation of this direction. The RAMP contract provides the NNSA complex a holistic, life-cycle based roof management system integrating best-in-class inspection, installation and management services. By aggregating roof management into a single contract, the NNSA achieved significant economies of scale. All departmental programs may wish to use RAMP's evaluation and prioritization procedures as a guide for their roof management activities.

Questions regarding implementation may be directed to Ms. Ingrid Kolb, Director of Management. Questions on cool roof installation and economics may be directed to Mr. Richard Kidd, Director of the Federal Energy Management Program.