

PMC-ND

(1.08.09.13)

**U.S. DEPARTMENT OF ENERGY  
OFFICE OF ENERGY EFFICIENCY AND RENEWABLE ENERGY  
NEPA DETERMINATION**



RECIPIENT: City of Ruby

STATE: AK

PROJECT  
TITLE: Energy Efficiency for the Gem of the Yukon

|  |                                      |                            |                   |
|--|--------------------------------------|----------------------------|-------------------|
| <b>Funding Opportunity Announcement Number</b> | <b>Procurement Instrument Number</b> | <b>NEPA Control Number</b> | <b>CID Number</b> |
| DE-FOA-0001567                                 | DE-EE0007855                         | GFO-0007855-002            | G07855            |

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

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

Description:

- A9 Information gathering, analysis, and dissemination** Information gathering (including, but not limited to, literature surveys, inventories, site visits, and audits), data analysis (including, but not limited to, computer modeling), document preparation (including, but not limited to, conceptual design, feasibility studies, and analytical energy supply and demand studies), and information dissemination (including, but not limited to, document publication and distribution, and classroom training and informational programs), but not including site characterization or environmental monitoring. (See also B3.1 of appendix B to this subpart.)
- B5.1 Actions to conserve energy or water** (a) Actions to conserve energy or water, demonstrate potential energy or water conservation, and promote energy efficiency that would not have the potential to cause significant changes in the indoor or outdoor concentrations of potentially harmful substances. These actions may involve financial and technical assistance to individuals (such as builders, owners, consultants, manufacturers, and designers), organizations (such as utilities), and governments (such as state, local, and tribal). Covered actions include, but are not limited to weatherization (such as insulation and replacing windows and doors); programmed lowering of thermostat settings; placement of timers on hot water heaters; installation or replacement of energy efficient lighting, low-flow plumbing fixtures (such as faucets, toilets, and showerheads), heating, ventilation, and air conditioning systems, and appliances; installation of drip-irrigation systems; improvements in generator efficiency and appliance efficiency ratings; efficiency improvements for vehicles and transportation (such as fleet changeout); power storage (such as flywheels and batteries, generally less than 10 megawatt equivalent); transportation management systems (such as traffic signal control systems, car navigation, speed cameras, and automatic plate number recognition); development of energy-efficient manufacturing, industrial, or building practices; and small-scale energy efficiency and conservation research and development and small-scale pilot projects. Covered actions include building renovations or new structures, provided that they occur in a previously disturbed or developed area. Covered actions could involve commercial, residential, agricultural, academic, institutional, or industrial sectors. Covered actions do not include rulemakings, standard-settings, or proposed DOE legislation, except for those actions listed in B5.1(b) of this appendix. (b) Covered actions include rulemakings that establish energy conservation standards for consumer products and industrial equipment, provided that the actions would not: (1) have the potential to cause a significant change in manufacturing infrastructure (such as construction of new manufacturing plants with considerable associated ground disturbance); (2) involve significant unresolved conflicts concerning alternative uses of available resources (such as rare or limited raw materials); (3) have the potential to result in a significant increase in the disposal of materials posing significant risks to human health and the environment (such as RCRA hazardous wastes); or (4) have the potential to cause a significant increase in energy consumption in a state or region.
- B5.16 Solar photovoltaic systems** The installation, modification, operation, and removal of commercially available solar photovoltaic systems located on a building or other structure (such as rooftop, parking lot or facility, and mounted to signage, lighting, gates, or fences), or if located on land, generally comprising less than 10 acres within a previously disturbed or developed area. Covered actions would be in accordance with applicable requirements (such as local land use and zoning requirements) in the proposed project area and would incorporate appropriate control technologies and best management practices.
- B5.19 Ground source heat pumps** The installation, modification, operation, and removal of commercially available smallscale ground source heat pumps to support operations in single facilities (such as a school or community center) or contiguous facilities (such as an office complex) (1) only where (a) major associated activities (such as drilling and discharge) are regulated, and (b) appropriate leakage and contaminant control measures would be in place (including for cross-contamination between aquifers); (2) that would not have the potential to cause significant changes in subsurface temperature; and (3) would be located within a previously disturbed or developed area. Covered actions would be in accordance with applicable requirements (such as local land use and zoning requirements) in the proposed project area and would incorporate appropriate control technologies and best management practices.

**Rationale for determination:**

The U.S. Department of Energy (DOE) is proposing to provide funding to the City of Ruby for energy efficiency and retrofitting activities in Ruby, Alaska. These activities include light-emitting diode (LED) lighting upgrades for private residences, businesses, and streetlights in Ruby as well as a refrigerator/freezer appliance exchange program for community residents. Originally the project planned for the installation of a grid-tied 20 kilowatt (kW) solar photovoltaic (PV) system at the newly constructed Ruby Tribal Council Office building using both roof and ground mounted arrays. The original scope of the project was reviewed by GFO-0007855-001 in February 2017. Since that review the project scope has changed to reduce the PV component of the project to a smaller roof mounted system only. Additionally, both a 7.5 kWh grid-tied battery for the PV system to load shift from daytime to evening to reduce disruptions on the grid and a four to six ton vertical closed-loop Ground Source Heat Pump (GSHP) system have been added to the scope of the project.

The LED lighting upgrades and appliance exchange would require no modifications to the buildings involved and would not require any ground disturbing activities. There would be no change in the use, mission, or operations of existing facilities. No new permits are required for the proposed activities. The solar PV system would include a nine kW array of roof mounted panels on the Ruby Tribal Council Office building pointed due south at an approximate 65 degree tilt. The battery storage would be a 7.5 kWh lithium-ion battery that would be recycled per manufacturer's instructions at the end of its useful life of 10-15 years when it would be shipped in accordance with DOT practices into Fairbanks and be disposed of with a recycling company in accordance with appropriate lithium ion recycling practices. The vertical wells for the GSHP system would be drilled behind the Tribal Council Office and connected to a buried manifold then trenched from the manifold to the heat pump which would be placed in the mechanical room of the building. The GSHP system would involve drilling up to six, five inch diameter vertical wells approximately 200 feet deep with two runs of three quarter inch HDPE inside the middle of each well. The wells would be spaced on a grid 18 to 20 feet apart and each loop would be connected to a buried manifold. From the manifold there would be two runs of two inch insulated HDPE pipe (approximately 100 to 200 feet in length) buried four to eight feet below ground that would run to the Tribal Office mechanical building and be hooked up to the heat exchanger inside the mechanical room. Total surface disturbance for installation of the GSHP system would be less than one-tenth of an acre. The working fluid within the GSHP system would be either water or food grade polypropylene glycol.

All waste associated with the proposed activities (bulbs, refrigerators/freezers, gasses, etc.) would be handled and disposed of properly. Florescent tubes would be shipped out of the community and recycled appropriately. Refrigerants inside of the refrigerators/freezers would be evacuated into canisters by trained personnel, shipped out of Ruby, and disposed of properly. All backhaul metal, plastic and other components of the refrigerators/freezers would be shipped out of the community and disposed of with recycling companies.

The LED lighting upgrades for existing Ruby homes, businesses, and streetlights as well as the appliance exchange program would not have the potential to cause effects on historic properties. Only one property in Ruby (Ruby Roadhouse; Ref# 82004898) is listed on the National Register of Historic Places and that building is located approximately a quarter of a mile north-northwest of the Tribal Council Office building and would not be within view of the PV installation. Although no historic resources are known to occur at or near where the GSHP system installation would occur, DOE will require the following as part of best management practices for the project: If during project activities the recipient or their staff encounters any archaeological remains, all activities must cease in the vicinity of the discovery immediately. The recipient must inform the DOE Project Officer of the discovery so that an evaluation of the discovery can be completed prior to continuing work.

To ensure that the proposed project would not result in an impact on aviation safety as a result of the potential for glare and ocular impacts, a glare and ocular impact analysis was completed in accordance with Federal Aviation Administration (FAA) guidelines and policy for the roof mounted PV array near the Ruby Airport. Glare and ocular impacts were assessed for incoming aircraft to Runways 3 and 21 (Ruby Airport does not have an Air Traffic Control Tower). The conclusion of the analysis was that the PV installation would not cause glare to incoming aircraft on final approach at an intensity above a "low potential for temporary after-image." This level of glare meets the FAA standard for no objection to construction of the project. Based on this analysis, DOE does not anticipate any adverse impacts to incoming aircraft as a result of project activities.

Based on the locations, types, scope, and scale of the proposed activities, DOE does not anticipate impacts to integral elements/resources of concern as a result of project activities.

**NEPA PROVISION**

DOE has made a final NEPA determination.

Include the following condition in the financial assistance agreement:

If during project activities the Recipient or their staff encounters any archaeological remains, the Recipient must cease all activities in the vicinity of the discovery immediately. The Recipient must inform the DOE Project Officer of the discovery so that an evaluation of the discovery can be completed prior to continuing work.

Notes:

This NEPA determination requires a tailored NEPA provision.

#### FOR CATEGORICAL EXCLUSION DETERMINATIONS

The proposed action (or the part of the proposal defined in the Rationale above) fits within a class of actions that is listed in Appendix A or B to 10 CFR Part 1021, Subpart D. To fit within the classes of actions listed in 10 CFR Part 1021, Subpart D, Appendix B, a proposal must be one that would not: (1) threaten a violation of applicable statutory, regulatory, or permit requirements for environment, safety, and health, or similar requirements of DOE or Executive Orders; (2) require siting and construction or major expansion of waste storage, disposal, recovery, or treatment facilities (including incinerators), but the proposal may include categorically excluded waste storage, disposal, recovery, or treatment actions or facilities; (3) disturb hazardous substances, pollutants, contaminants, or CERCLA-excluded petroleum and natural gas products that preexist in the environment such that there would be uncontrolled or unpermitted releases; (4) have the potential to cause significant impacts on environmentally sensitive resources, including, but not limited to, those listed in paragraph B(4) of 10 CFR Part 1021, Subpart D, Appendix B; (5) involve genetically engineered organisms, synthetic biology, governmentally designated noxious weeds, or invasive species, unless the proposed activity would be contained or confined in a manner designed and operated to prevent unauthorized release into the environment and conducted in accordance with applicable requirements, such as those listed in paragraph B(5) of 10 CFR Part 1021, Subpart D, Appendix B.

There are no extraordinary circumstances related to the proposed action that may affect the significance of the environmental effects of the proposal.

The proposed action has not been segmented to meet the definition of a categorical exclusion. This proposal is not connected to other actions with potentially significant impacts (40 CFR 1508.25(a)(1)), is not related to other actions with individually insignificant but cumulatively significant impacts (40 CFR 1508.27(b)(7)), and is not precluded by 40 CFR 1506.1 or 10 CFR 1021.211 concerning limitations on actions during preparation of an environmental impact statement.

The proposed action is categorically excluded from further NEPA review.

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

NEPA Compliance Officer Signature:

 Electronically Signed By: **Casey Strickland**  
NEPA Compliance Officer

Date: 6/17/2019

#### FIELD OFFICE MANAGER DETERMINATION

- Field Office Manager review not required  
 Field Office Manager review required

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

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

Field Office Manager

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