PMC-EF2a
(2.04.02)

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

RECIPIENT: NREL **STATE:** CO

PROJECT TITLE : Dynamometer Building Expansion – Bldg 255 - NWTC; NREL Tracking No. 11-006

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
		NREL-11-006	GO10337

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:

DOE/EA-1378 Final Site-Wide Environmental Assessment of the National Renewable Energy Laboratory's National Wind Technology Center

Rational for determination:

This proposed project would consist of the expansion of the Dynamometer Building (Building 255) and associated infrastructure at the National Renewable Energy Laboratory's (NREL) National Wind Technology Center (NWTC), located southeast of the intersection of Colorado Highway (CO) 93 and CO-128, in the County of Jefferson, State of Colorado. The NWTC is a federally-owned facility that consists of 305 acres and is primarily utilized for wind energy research, development, and testing.

The existing dynamometer test facility at the NWTC (Building 255) consists of a 72 ft x 81 ft high bay pre-engineered metal building (PEMB) with a 22 ft x 81 ft masonry control and support building connected to the PEMB on the east side. The current concept for the building expansion would be to add a similar high bay PEMB to the southeast end of Building 255 (See attached drawing in PMC - Site Location). An additional control and support building would also be added to the existing facility. The expansion would consist of a high bay pre-engineered metal building (PEMB) no greater than 125 ft x 125 ft, and a height within +/- 5 feet of the existing building. The new PEMB would have an overhead bridge crane and drive thru access for delivery trucks. A spur road leading to the new building would also be constructed (approx. 510 ft long and 30 ft wide). The total expected disturbance would be no greater than 0.8 acres.

The project would consist of the following tasks:
Task 1 - Completion of the Building Design
Task 2 - Systems Integration
Task 3 - Construction
Task 4 - Non-Loaded Start-up and System Verification

Task 1 - Completion of the Building Design
The NWTC has performed programming and preliminary design for the project as indicated in the bridging document package uploaded to the PMC. The scope of work of this RFP would be to finalize the preliminary design and engineer all building systems. The work shall include architectural, civil, structural, mechanical, electrical, plumbing, fire detection and suppression, tele/data and required specialty engineers to complete a design that provides a fully functional Dyno. Work would include providing services to the new facility from existing site services. This scope would also include reprogramming of existing emergency, security and building management systems that would be modified by the addition of the new building.

NREL does not anticipate pursuing LEED Certification for this project. NREL does require specific energy goals be met as indicated in the enclosed bridging documents, specifically designing and constructing the facility to a 30% improvement over ASHRAE 90.1 2007, exclusive of process or research loads. The offeror who is awarded the project

would prepare a Sustainability and Energy Efficient Design and Construction Report substantiating how this goal was met.

Task 2 - Systems Integration
A key component in this project is the integration of the specialized mechanical and electrical equipment with the facility.

For this project the SI would consist of the design, furnishing and installation as indicated below and in the Scope of Work Matrix:

1. Coordination with Government-Furnished Equipment (GFE) suppliers for design of system interfaces
2. Interfaces from Building to Specialized Electrical Equipment *
3. Interfaces from Building to Specialized Mechanical Equipment *
4. Interfaces from Specialized Electrical Equipment to Specialized Mechanical Equipment *
5. Ancillary and support systems for all items above - including cooling, hydraulics
6. Infrastructure for NREL provided Data Acquisition and Controls system
7. Installation and setting of the dynamometer equipment
8. Test Article mounting stand and foundations
9. Provide installation according to manufacturers specifications and supervision
10. Dynamometer and Test Article Foundation system simulation model to include dynamic behavior (a study of modes and resonant frequencies), extreme load verification, foundation and anchoring system fatigue analysis, and vibration isolation requirements.

* Interfaces include, but are not limited to, all mechanical, electrical, structural, data and controls, etc. required for a fully functional Dyno.

The dynamometer would consist of the following components:

Specialized Electrical Equipment
- Variable Frequency Drive (VFD)
- Motor
- Motor Base/Pedestal
- Foundations

Specialized Mechanical Equipment
- High Speed Shaft
- Gearbox
- Gearbox Base/Pedestal
- Low Speed Shaft
- Non-Torque Loading System (NTL)
- Foundations

Task 3 - Construction
The construction of the Dyno would include all necessary management, systems and services required to house and provide a fully functional dynamometer and building. The expansion would consist of a high bay pre-engineered metal building (PEMB) no greater than 125 ft x 125 ft, and a height within +/- 5 feet of the existing building. A spur road leading to the new building would also be constructed (approx. 510 ft long and 30 ft wide). The total expected disturbance is no greater than 0.8 acres. Most infrastructure and all electrical improvements are already available onsite to support this project. Sewer and water hookups are also already available. Sanitary sewer effluent would be received by the expanded NWTC septic system, south and west of the project area, and new telecom and upgrades to fire protection system would be needed.

Task 4 - Non-Loaded Start-up and Systems Verification
A test article, turbine drive train, would be required to fully operate and apply design loads to the dynamometer. NREL is working with industry partners to obtain a test article for commissioning of the facility. Due to the uncertainty of availability for an appropriate test article, the offeror would include the start-up and demonstration of a fully operational dynamometer and facility under non-loaded conditions as part of this RFP. The Non-Loaded Start-up would be performed with the manufacturers of the specialty mechanical and specialty electrical equipment. Offeror would be required to support start-up operations and ensure building service connections to dynamometer are functional.

IMPACTS
The area around the existing dynamometer building is heavily disturbed and much of the area is unvegetated. Furthermore, about half of the distance of the spur road would be through a disturbed grassland area adjacent to the

existing main access road. The total building area would be no larger than 125 feet by 125 feet and the spur road is 510 feet by 30 feet. There would be several small utility pads composed of concrete around the perimeter of the building. The total disturbance will be no more than 0.8 acres. Any excavated soils which are not able to be re-used onsite would be removed following completion of construction activities, and the area revegetated in accordance with NREL Procedure 6-2.16: Stormwater Pollution Prevention for Construction Activities: NWTC. If the area of disturbance happens to be expanded to larger than one acre, then a storm water associated with construction activity Notice of Intent (NOI) under the US EPA General Construction Permit shall be filed with Region VIII USEPA. A storm water pollution prevent plan would be developed by the contractor in accordance with NREL Procedure 6-2.16 and the US EPA General Construction Permit. Fugitive dust would be controlled in accordance with land disturbance Air Pollutant Emission Notice (APEN) for the NWTC. Low impact installation techniques would be utilized to protect stormwater quality and control fugitive dust impacts. Per agency consultations conducted during the Site-Wide Environmental Assessment for the NWTC (DOE/EA-1378), no cultural resources, threatened or endangered species, wetlands, floodplains, or prime farmlands would be impacted by this proposed project. If any construction or construction-related activities (i.e., surveying, offroad vehicle traffic, trenching, etc.) occurs between March and September, a survey for ground-nesting birds would be completed by NREL's ESH&Q Office before these activities are initiated per NREL policy. While there are no known cultural resources present at the NWTC, projects involving earthwork may uncover previously unknown and undocumented cultural resources. Risks are low in areas anticipated for development, but if artifacts or other substantial resources are encountered, all work must stop and protocols set forth pursuant with the National Historic Preservation Act and its implementing regulations (36 CFR 800) would be implemented and the State Historic Preservation Officer (SHPO) would be contacted. NREL and all contractors would follow all federal, state, local safety and security regulations.

The expansion of the dynamometer test facility was analyzed as part of the proposed action in the May 2002 Final Site-Wide Environmental Assessment of National Renewable Energy Laboratory's National Wind Technology Center (DOE/EA-1378). The proposed action in this assessment also included the modification of existing facilities; infrastructure improvements; office and lab work; and upgrades of site amenities. A Finding of No Significant Impact determination for DOE/EA-1378 was issued in May 2002. As this entire scope of this proposed project was analyzed as part of the proposed action in DOE/EA-1378 and with no extraordinary circumstances identified, the May 2002 FONSI determination applies to this proposed action.

NEPA PROVISION

DOE has made a final NEPA determination for this award

Insert the following language in the award:

Insert the following language in the award:

You are required to:
If any construction or construction-related activities (i.e., surveying, offroad vehicle traffic, trenching, etc.) occurs between March and September, a survey for ground-nesting birds would be completed by NREL's ESH&Q Office before these activities are initiated per NREL policy. While there are no known cultural resources present at the NWTC, projects involving earthwork may uncover previously unknown and undocumented cultural resources. Risks are low in areas anticipated for development, but if artifacts or other substantial resources are encountered, all work must stop and protocols set forth pursuant with the National Historic Preservation Act and its implementing regulations (36 CFR 800) would be implemented and the State Historic Preservation Officer (SHPO) would be contacted.

Note to Specialist :

EF2A prepared by Rob Smith on 12/23/2010

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: Lori Plummer / Lori Plummer Date: 12/23/2010
NEPA Compliance Officer

FIELD OFFICE MANAGER DETERMINATION

☐ Field Office Manager review required

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