

Record of Categorical Exclusion for

LongPath Technologies, Inc.
Basin Scale Continuous Emissions Abatement Network (Basin SCAN)

Description of Categorically Excluded Action:

The U.S. Department of Energy (DOE) proposed action is to provide a loan guarantee to LongPath Technologies, Inc. (hereinafter “LongPath”) as borrower for a continuous monitoring methane emissions detection system in several oil and gas basins: the Denver-Julesburg basin (Colorado), Anadarko basin (Oklahoma), Permian basin (Texas and New Mexico) and in Louisiana at a midstream compressor station. In addition, the methane monitoring systems may also be deployed at landfills, mining sites, wastewater treatment plants, livestock management sites, and biogas production and processing facilities across the U.S. LongPath has applied for a loan guarantee in response to the Title XVII Innovative Energy Loan Guarantee program. The purpose of this program is to finance projects and facilities in the U.S. that employ innovative and advanced energy technologies that avoid, reduce, or sequester air pollutants or anthropogenic emission of greenhouse gases.

LongPath’s project, Basin Scale Continuous Emissions Abatement Network (hereinafter “Basin SCAN”), is a continuous monitoring methane emissions detection system. The emissions monitoring and detection system utilizes open-path laser spectroscopy to provide continuous methane emissions monitoring with high accuracy and data reliability. The optical transceiver (laser emitter and receiver) is mounted on top of a tower or elevated location (up to 50 feet in elevation) and provides comprehensive emissions monitoring over large distances in excess of 2.5 miles. Retroreflective mirrors are strategically positioned at or near emission sources and reflect the laser signal back to the transceiver for measurement. The laser system is invisible to humans and wildlife.

The project will consist of multiple system installations located within the prescribed oil and gas basins, landfills, mining sites, wastewater treatment plants, livestock management sites, and biogas production and processing facilities. Each installation, referred to as a node, can monitor multiple facilities. A node will contain a tower, a laser and telescope, and an environmentally controlled cabinet containing the system electronics (however, the cabinet will not be used at sites with solar platforms). Each facility being monitored will consist of two or more retroreflectors (mirror arrangements). The project will involve over an estimated 1,000 nodes/systems at oil and gas sites as well as additional nodes/systems at landfills, mining sites, wastewater treatment plants, livestock management sites, and biogas production and processing facilities. The project also involves node component assembly in LongPath facilities before deployment/installation.

Due to the broad deployment, there is not complete information on project sites, ownership of or jurisdiction over the land, or site conditions. However, LongPath provided general characterizations of the deployment areas, which are previously disturbed areas on customer property. The equipment deployments will have minimal physical footprints; the largest items in the system at each installation are a 50-foot tower and an 8 by 8-foot by 1-foot-thick poured concrete pad for the transceiver locations. The reflectors are mounted on tilt poles attached to a prefabricated concrete barrier.

Each node installation varies slightly from one another. LongPath Deployment and GIS Teams are solely responsible for pre-construction design of the project. The process starts with LongPath receiving the coordinates of the target customer site(s) to be monitored. The LongPath team uploads the coordinates into a proprietary GIS algorithm, which recommends the ideal placement of the transceivers and reflector towers. To maximize efficiency and optimize system performance, LongPath completes a pre-installation site visit. The site visit confirms the ideal tower and retroreflector placement as well as any placement issues at the site that may need to be addressed.

Once pre-installation planning is complete, LongPath schedules and begins installation of the system. Major milestones of each installation include the following:

- Concrete pad - Each system utilizes an 8 by 8-foot concrete pad for securing the tower and cabinet (cabinet not needed at sites with solar platforms). Concrete is poured at the site.
- Tower Install - After completion of the concrete pad, the tower is installed. LongPath utilizes a prefabricated aluminum tower, which is attached to the concrete pad and secured via guy wiring for increased stability, and the tower installation is typically installed within the same business day as the concrete pad (one business day). Guy wires are secured to prefabbed concrete barriers; LongPath plans to eventually phase out the guy wires.
- Cabinet Install - The cabinet, which encloses the LongPath laser system, is secured to the 8 x 8-foot concrete pad via anchor. Once anchored, LongPath leverages subcontractors or customer field personnel to run power to the cabinet. The cabinet and power connections will not be used at sites with solar platforms; the solar platform is mounted to concrete blocks placed at the site. This process is typically completed on the same business day as the concrete pad installation.
- Tilt Poles/Retroreflector Subsystems - Based upon GIS analysis gathered during the pre-site visit, LongPath works with subcontractors to install tilt poles and retroreflector subsystems at designated locations surrounding customer facilities. Tilt poles arrive at pad locations pre-assembled and require securement at each individual tilt pole base to a prefabbed concrete barrier. Once tilt poles are installed, retroreflector subsystems are attached and aligned to the central tower/node. Installation of tilt poles and retroreflector subsystems typically takes 1-7 business days, depending on the number of sites monitored by a single laser.
- Data Turn Up - Once the central node, tower, cabinet and retroreflectors are installed, LongPath's data team aligns the telescope and acquires signal from all retroreflector subsystems. This process is completed remotely leveraging the telecommunications equipment within the cabinet.
- Sources of power - The only utility required is electricity for each tower location, which is provided by the customer. In situations where power is not available, LongPath can run off a generator (diesel or natural gas) but does not anticipate this need except in rare occasions. Power connections will not be used at sites with solar platforms.

LongPath towers and associated equipment have an estimated 15 to 20-year life; there are typically 3-year commitments for each tower. The decommissioning of a specific node includes removal of the tower, electronics cabinet and the reflectors located at one or more facilities. The majority of the equipment can be refurbished and redeployed at a new installation.

LongPath utilizes previously disturbed ground at customer sites for pouring the 8 by 8-foot concrete pad for the tower and cabinet installation. Otherwise, there is no ground disturbance or site clearing required. The reflectors are surface mounted to prefabricated concrete barriers that are brought to and placed at specific locations at the site, and do not require any support infrastructure.

Existing highways, county and local roads are used for transportation of the equipment to the installation sites. There is no additional infrastructure required in most cases. Since the towers are co-located on customer sites, LongPath has agreements in place for site access using the customer's location and lease roads when needed. Because these sites are frequently accessed by operators, existing access is available.

Each retractable transceiver tower is typically up to 50 feet tall. The Federal Aviation Administration (FAA) and the Federal Communications Commission (FCC) must approve all towers exceeding 200 feet (61 m) in height, so the project tower does not trigger approvals under these agencies. In addition, there are no antennas on the towers so none of the FCC licenses are applicable. If the installation of a node/system is in proximity to an airport (in a rare case), LongPath will ensure no prior approvals are required or apply for and receive permission from the local FAA authority prior to deployment of equipment (these steps are included in installation standard operating procedures).

LPO corresponded about the installations with U.S. Fish and Wildlife (USFWS) staff regarding a "no effect" determination on threatened or endangered species; the USFWS staff were in agreement with this determination. The USFWS staff also recommended reviewing the USFWS Migratory Bird Program's "Recommended Best Practices for Communication Tower Design, Siting, Construction, Operation, Maintenance, and Decommissioning." These guidelines were considered to minimize bird collisions. USFWS staff stated that the proposed project touches on items that would be of concern. The following considerations from the guidelines were outlined in the information provided to USFWS: placing installations in highly disturbed areas, restricting vegetation removal and ground disturbance, limiting the height of towers to below 199 feet (the towers are 50 feet or below), and avoiding tower lighting. LongPath is also considering utilizing visual markers on guy wires on an as needed basis but eventually plans to phase out guy wires.

LPO reviewed potential effects on historic properties and identified that the equipment requires limited ground disturbance within highly disturbed/active industrial or commercial sites; therefore, the undertaking is a type of activity that does not have the potential to cause effects on historic properties.

LongPath will request information from the customer about any needed site-specific approvals during the installation process, and LongPath will pursue those approvals if needed (which is included in the installation standard operating procedure). Typically, LongPath does not require any federal, state, or local permits, licenses or approvals in order to site, construct, implement or operate the project, including environmental authorizations or reviews.

In summary, LongPath only plans to install on previously disturbed lands that have already been approved for use by owners and operators. Therefore, LongPath does not anticipate any additional use areas beyond those areas that have already been cleared for use by the owners and operators.

Number and Title of Categorical Exclusion:

Elements of this project have a previous Categorical Exclusion Determination from DOE Advanced Research Projects Agency – Energy (ARPA-E) [dated May 7, 2021]. The DOE ARPA-E applied the following Categorical Exclusion Determinations:

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.)

B3.1 Site characterization and environmental monitoring

Site characterization and environmental monitoring (including, but not limited to, siting, construction, modification, operation, and dismantlement and removal or otherwise proper closure (such as of a well) of characterization and monitoring devices, and siting, construction, and associated operation of a small-scale laboratory building or renovation of a room in an existing building for sample analysis). Such activities would be designed in conformance with applicable requirements and use best management practices to limit the potential effects of any resultant ground disturbance. Covered activities include, but are not limited to, site characterization and environmental monitoring under CERCLA and RCRA. (This class of actions excludes activities in aquatic environments. See B3.16 of this appendix for such activities.) Specific activities include, but are not limited to:

- (a) Geological, geophysical (such as gravity, magnetic, electrical, seismic, radar, and temperature gradient), geochemical, and engineering surveys and mapping, and the establishment of survey marks. Seismic techniques would not include large-scale reflection or refraction testing;
- (b) Installation and operation of field instruments (such as stream-gauging stations or flow-measuring devices, telemetry systems, geochemical monitoring tools, and geophysical exploration tools);
- (c) Drilling of wells for sampling or monitoring of groundwater or the vadose (unsaturated) zone, well logging, and installation of water-level recording devices in wells;
- (d) Aquifer and underground reservoir response testing;
- (e) Installation and operation of ambient air monitoring equipment;
- (f) Sampling and characterization of water, soil, rock, or contaminants (such as drilling using truck- or mobile-scale equipment, and modification, use, and plugging of boreholes);

- (g) Sampling and characterization of water effluents, air emissions, or solid waste streams;
- (h) Installation and operation of meteorological towers and associated activities (such as assessment of potential wind energy resources);
- (i) Sampling of flora or fauna; and
- (j) Archeological, historic, and cultural resource identification in compliance with 36 CFR part 800 and 43 CFR part 7.

B3.11 Outdoor tests and experiments on materials and equipment components

Outdoor tests and experiments for the development, quality assurance, or reliability of materials and equipment (including, but not limited to, weapon system components) under controlled conditions. Covered actions include, but are not limited to, burn tests (such as tests of electric cable fire resistance or the combustion characteristics of fuels), impact tests (such as pneumatic ejector tests using earthen embankments or concrete slabs designated and routinely used for that purpose), or drop, puncture, water-immersion, or thermal tests. Covered actions would not involve source, special nuclear, or byproduct materials, except encapsulated sources manufactured to applicable standards that contain source, special nuclear, or byproduct materials may be used for nondestructive actions such as detector/sensor development and testing and first responder field training.

LPO concurs that the actions being proposed under this Title XVII Loan Guarantee for the Basin SCAN project are consistent with and are covered by DOE categorical exclusions under the ARPA-E Categorical Exclusions listed above (A9, B3.1, and B3.11).

In addition to A9, B3.1, and B3.11, DOE LPO identified the following additional Categorical Exclusions that would apply to the project in 10 CFR 1021, Appendix B (B1.19, B1.31, B2.2, and B5.1) because the project only involves pouring concrete pads and placing prefabricated concrete barriers in position to hold poles and reflectors as well as other electronic equipment. LPO has determined there would be no impacts to threatened or endangered species, nor would there be any adverse impacts to historic properties. No other environmental resources are expected to be impacted. The following categorical exclusions to further NEPA review apply:

B1.19 Microwave, meteorological, and radio towers

Siting, construction, modification, operation, and removal of microwave, radio communication, and meteorological towers and associated facilities, provided that the towers and associated facilities would not be in a governmentally designated scenic area (see B(4)(iv) of this appendix) unless otherwise authorized by the appropriate governmental entity.

Note: the tower associated with this project is used for environmental monitoring purposes and is not a microwave, radio communication, and meteorological tower; however, the towers associated with this project are similar in nature to those categorically excluded.

B1.31 Installation or Relocation of Machinery and Equipment

Installation or relocation and operation of machinery and equipment (including, but not limited to, laboratory equipment, electronic hardware, manufacturing machinery, maintenance equipment, and health and safety equipment), provided that uses of the installed or relocated items are consistent with the general missions of the receiving structure. Covered actions include modifications to an existing building, within or contiguous to a previously disturbed or developed area, that are necessary for equipment installation and relocation. Such modifications would not appreciably increase the footprint or height of the existing building or have the potential to cause significant changes to the type and magnitude of environmental impacts.

B2.2 Building and equipment instrumentation

Installation of, or improvements to, building and equipment instrumentation (including, but not limited to, remote control panels, remote monitoring capability, alarm and surveillance systems, control systems to provide automatic shutdown, fire detection and protection systems, water consumption monitors and flow control systems, announcement and emergency warning systems, criticality and radiation monitors and alarms, and safeguards and security equipment).

B5.1 Actions to Conserve Energy or Water

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.

Regulatory Requirements defined in 10 CFR § 1021.410 (b):

The proposed loan guarantee and related actions described above were subjected to an environmental due diligence review by DOE Loan Programs Office (LPO) staff to ensure they are consistent with the specific category of actions (categorical exclusion) contained in Appendix B of 10 CFR Part 1021 and the conditions for applying categorical exclusions specified in Section 410 of Part 1021. To ensure that the requirements of Appendix B were

met, LPO Environmental Compliance Division (ECD) staff reviewed numerous project-related documents obtained between February 2023 and January 2024, participated in several conference calls with LongPath staff to ensure a complete understanding of the activities associated with the project, and performed a site visit to a LongPath installation on April 25, 2023.

The environmental due diligence review determined that there is no controversy regarding the potential impacts of the proposed Basin SCAN project, and that the actions associated with the loan guarantee would not adversely affect any physical, biological, or socio-cultural resources at the site installations or surrounding environment.

The Comment section below is provided for any necessary clarifications concerning the findings listed above. Signature by LongPath's designated representative in the Corporate Validation section is an indication of LongPath's concurrence with the findings and determinations presented above.

Comment: _____

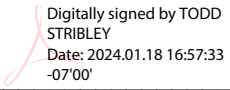
Corporate Validation:

Name and Title (Print): Sam Cummings, Chief Financial Officer

Signature:  Date: 1/18/2024

Determination:

Based on my review of information conveyed to me and in my possession concerning the actions associated with the proposed Title 17 loan guarantee described above, as NEPA Compliance Officer (as prescribed by DOE Policy Directive 451.1), I have determined that the actions involve no extraordinary circumstances and fit within the specified category of actions in Appendix B of 10 CFR 1021 described above, and are hereby categorically excluded from further review under the National Environmental Policy Act (42 USC 4321, as amended).

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Signature
Todd Stribley
NEPA Compliance Officer
Loan Programs Office

1/18/2024
Date