

DOE-ID NEPA CX DETERMINATION Idaho National Laboratory

SECTION A. Project Title: West CFA Power Infrastructure Improvements & CF-686 Buildout

SECTION B. Project Description and Purpose:

The purpose of the projects discussed in this ECP are to upgrade CFA-686 and to provide the power necessary to support future research projects.

CFA-686 Buildout:

This project is being pursued in efforts to support a future mission to provide a location with the infrastructure and capability to perform system testing and demonstration of various new energy system technologies. The intent is to use the existing CF-686 building and surrounding area to provide the necessary upgrades and buildout that will have the infrastructure and utility needs to test and operate possible large scale energy production/generation systems. The building will be used to support large-scale demonstrations of modular systems that can be brought to the site for integration and testing. In support of this purpose, the building and surrounding area may be used for the following activities and functions:

- to stage incoming equipment,
- perform preliminary startup and testing activities on a small unit scale,
- provide system control capabilities
- provide data interface and collection capabilities,
- provide personnel office space, and
- provide a parts storage and management area.

Office and Restroom Services

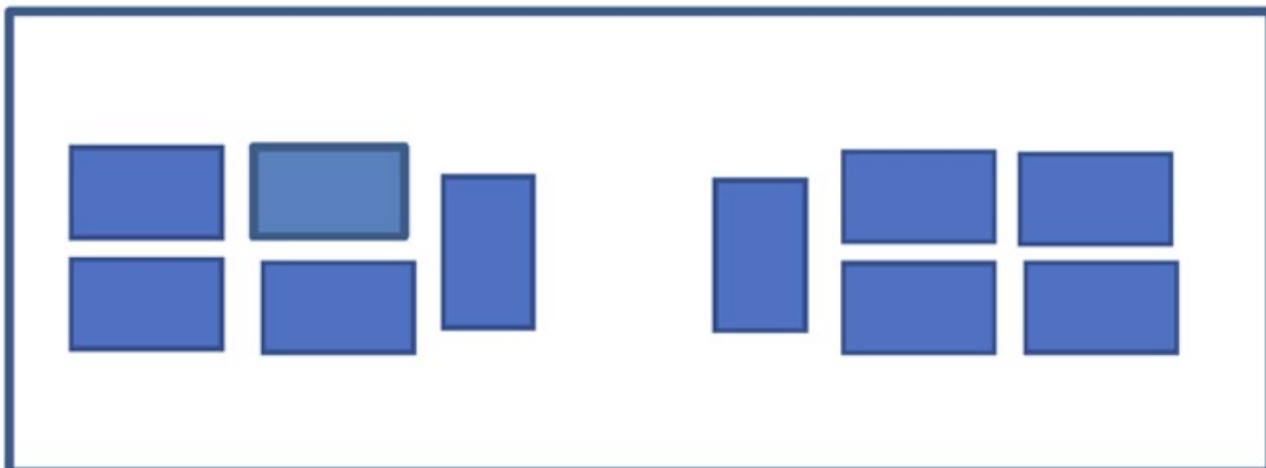
The areas located underneath the existing mezzanine shall be remodeled to provide an electrical/control area and an office area for personnel. Restroom services are also needed. It is assumed the restroom services can be provided using a modular restroom trailer placed just to the east of the building. The following architectural requirements are needed:

- Walls, doors, and ceiling to enclose the electrical room area
- Walls, doors, and ceiling to enclose the electrical the office area. The office area shall be able to support two office spaces or cubicles.
- Provide a two-room restroom trailer or modular building to provide toilet, sink and sanitary services for personnel at the building.
- Add a solid floor covering to the surface of the mezzanine

System Laydown Pads

A large laydown area is required to provide the space needed to accommodate multiple modular components that may be needed to support the energy demonstration units. It is assumed that the overall systems will come in smaller compartmented units. The laydown area shall be grouped around the four power distribution locations where the 12,470 KV power will be brought into the site for use. The areas shall be constructed using a number of concrete pads. The pads shall be capable of being placed on the north side of the building and be capable of being placed on top of the existing disturbed area where the previous building have been removed. The scope for this area shall include the compaction and preparation of the laydown area along with the construction of large concrete slab-on-grade pads. Space between the pads will be used to place and manage various power lines, and other connections that may be required. Concrete pads shall be placed using the pad layout seen in Image 1. Each pad will be 22 ft. x 60 ft, with 8 demonstration boxes and 2 power boxes per pad. This will require a total of 13 pads.

Image 1 Pad Layout



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HVAC

A Heating Ventilation and Air Conditioning System (HVAC) is needed to control the interior environment of the building. The units should be capable of providing the following capacity:

- 18 tons of Cooling (60 BTU/h/ft²)
- 128,000 BTU/h of Heating (40 BTU/h/ft²)

West CFA Power Infrastructure Improvements

Various new energy system technologies are being proposed for demonstration at the INL, some of which would be sited at CFA. The demonstration of these technologies will require modifications to the CFA Power Distribution System, to provide the levels of electrical service required by the demonstrations. In the interest of mission readiness, an area in western CFA has been identified as the preferred location for the demonstrations. A dedicated electrical distribution circuit with a capacity of 11MW will be installed to service the demonstration loads in west CFA. The existing CF-686 facility has been identified as a potential support facility for the demonstrations and is being evaluated for modifications and upgrades to support mission readiness (which are covered under a separate scope). This engineering task will upgrade the service tap to the facility, which is currently serviced by circuit 43. The service tap to CF-686 will be upgraded to supply additional loads of up to 4MW on this shared distribution circuit. See Images 2 and 3.

Functional Requirements

- Any requests for additional capacity beyond 10MW on a dedicated circuit will be addressed separately.
- CF-686 building will have electrical loads installed that surpass the capacity of the existing 150kVA transformer bank and would benefit from the replacement of the #2 12.47kV conductor to the building (rated 4MVA).
- There will be one power pole installed adjacent to each of the demonstration(s), minimizing the need for underground duct bank installation. The operators of the demonstrations will be responsible for installing the riser pole assembly and any downstream distribution equipment.
- There will be one Power Management meter that will meter all connected load for this project.
- The demonstration operator(s) will be responsible for mitigation of any power quality problems arising from their processes.

3.4 Owner Specified Technical Requirements

- To power the building loads, install a new 12.47kV/480V transformer, sized to satisfy demand (assuming 1MW at this time), including fused cutouts, lighting arresters, riser pole assemblies, transformer pedestal, etc.
- Install new meter for the CF-686 building loads, location to be determined by configuration. Preferred location is on the service entrance of the 480V service. The meter must be accessible to Power Management personnel.
- Replace the 255' of #2 ACSR with 397.5 ACSR
- Build new distribution tap from the existing circuit 42
 - Install eight 50' power poles, with cross arms and insulators
 - Install 3,300' of 397.5kcmil ACSR phase conductor (1,100' per phase) and 1,100' of #4/0 ACSR neutral conductor from existing pole 42/43-12, cross under circuits 42/43, cross over circuit 43, then run parallel to Sacramento Ave. on the east side of the road to where the demonstration operations will set up in the vacant field once occupied by CF-688/689.
- Install a new primary metering pole line unit roughly matching RUS Bulletin 1728F-804 Q4.1 Primary Metering Three Phase (4 Wire Grounded Wye) metering assembly.
 - Three lightning arresters
 - Three potential transformers (ABB VOY or equivalent), three current transformers (ABB KON-11ER or equivalent)
 - One meter, ElectroIndustries model Shark 270
 - Fused cutouts, two sets (one set for the PTs, one set for the load)
- The last three poles will be installed with fused cutouts (150A) adjacent to the remaining skid-mounted devices, once the precise locations of the demonstrations are determined.
- To maintain the current exposure to outages and same level of reliability for existing loads at CFA, a recloser will be installed on the circuit to the shooting range and EBR-I.
 - A recloser will be installed on pole 42-16, preferred model is G&W Viper w/ SEL-651R controller
 - Modify the line to transition from vertical to horizontal construction and back to vertical around pole 42-15
 - Install fiber optic cable from the fiber patch panel in CF-681 to pole 42-16

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- Use existing conduit system within the Scoville substation yard, trench from manhole outside yard to riser pole, and underbuild approximately 4000' of 48 fiber ADSS
- Leave a maintenance loop on pole 42/43-7 to accommodate the future Power Utilities Building
- Correct documentation on Power Management CFA circuits 41, 42, and 43 to reflect changes.
 - Relabeling of poles (approximately 120)
 - Dispatch map revisions
- The relay settings on the Scoville distribution substation will need to be recalculated and revised.

Image 2

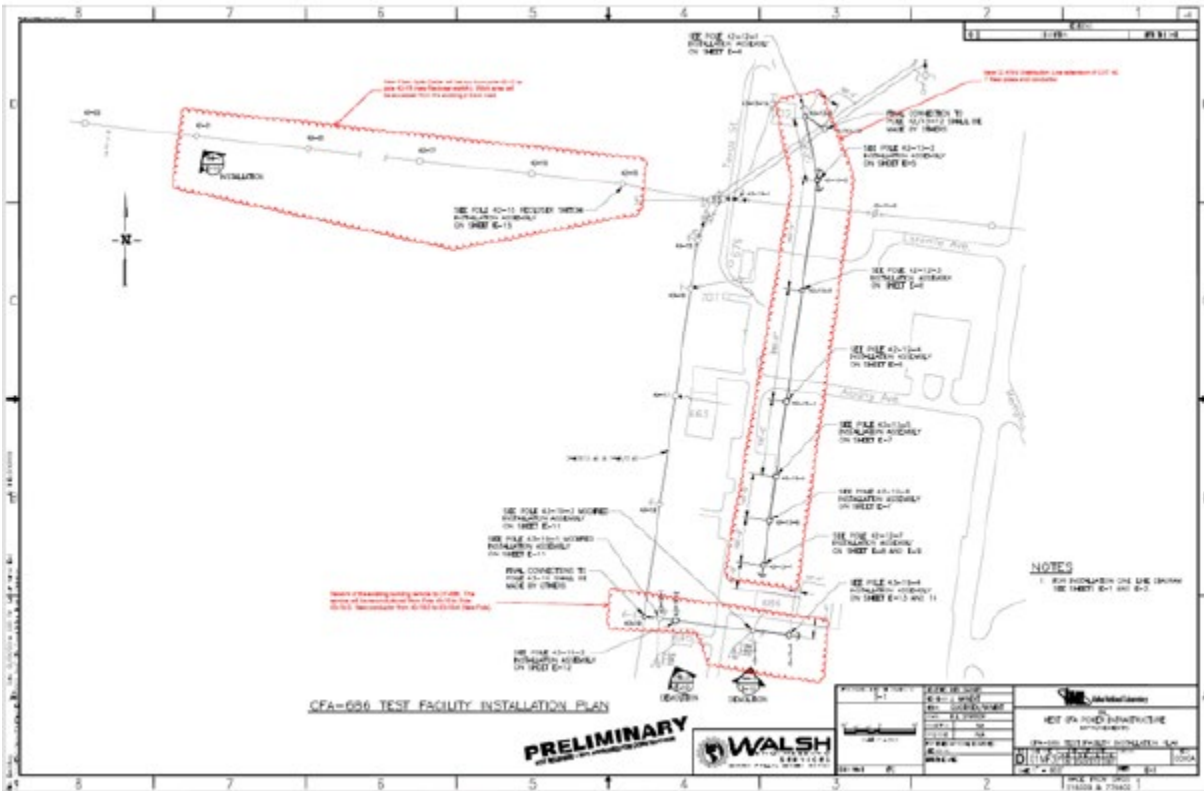
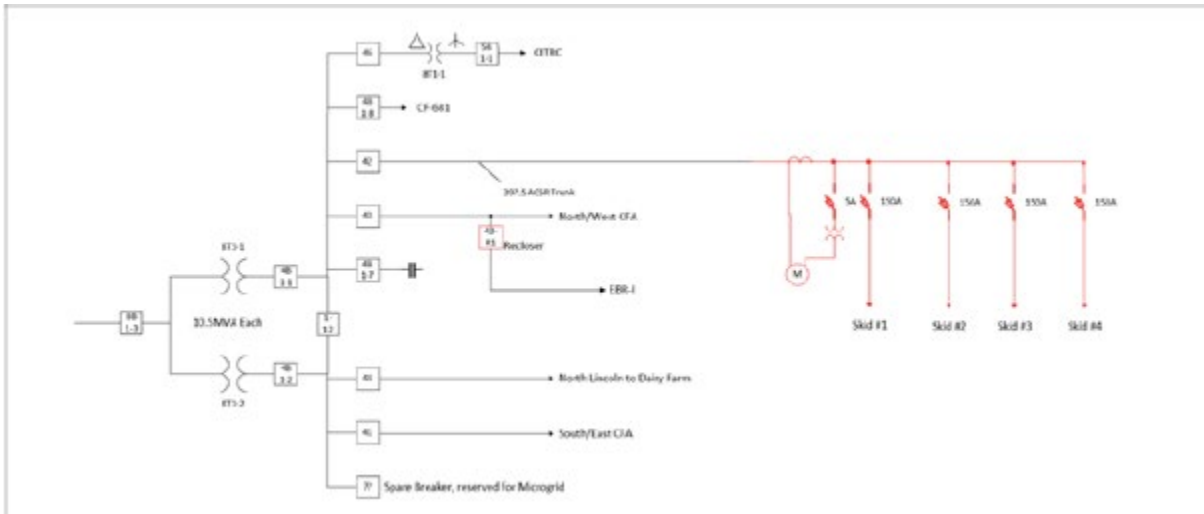


Image 3



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SECTION C. Environmental Aspects or Potential Sources of Impact:

Air Emissions

Potential for fugitive dust emissions.

Discharging to Surface-, Storm-, or Ground Water

Current plans for the restroom trailer is to connect to CFA drinking water and sewer system service connections near CF-686. Any change in plans that require main extension would require submittals and approval by Idaho DEQ.

Disturbing Cultural or Biological Resources

There is the potential for this work to impact vegetation and for project personnel to interact with various wildlife species. A Biological Resource Review will be arranged within two weeks prior to the initiation of any activities that might disturb soil or vegetation and again following completion of project activities. A nesting bird survey is included with the Biological Resource Review for actions occurring between April 1 - October 1 per compliance with the Migratory Bird Treaty Act. Bat surveys are also included with the Biological Resource Review in accordance with the INL Bat Protection Plan.

Please refer to CRR BEA-23-04 for guidance regarding cultural expectations.

Generating and Managing Waste

When wastes are generated, how they are disposed can adversely affect the environment. Managing wastes appropriately and responsibly and implementing recycling or reuse practices, where feasible, during project activities can reduce the potential impact on the environment.

Releasing Contaminants

When chemicals are used during the project there is the potential for spills that could impact the environment (air, water, soil).

Using, Reusing, and Conserving Natural Resources

Project description indicates materials will need to be purchased or used that require sourcing materials from the environment. Being conscientious about the types of materials used could reduce the impact to our natural resources.

SECTION D. Determine Recommended Level of Environmental Review, Identify Reference(s), and State Justification: Identify the applicable categorical exclusion from 10 Code of Federal Regulation (CFR) 1021, Appendix B, give the appropriate justification, and the approval date.

For Categorical Exclusions (CXs), the proposed action must not: (1) threaten a violation of applicable statutory, regulatory, or permit requirements for environmental, safety, and health, or similar requirements of Department of Energy (DOE) or Executive Orders; (2) require siting and construction or major expansion of waste storage, disposal, recovery, or treatment or facilities; (3) disturb hazardous substances, pollutants, contaminants, or Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)-excluded petroleum and natural gas products that pre-exist in the environment such that there would be uncontrolled or unpermitted releases; (4) have the potential to cause significant impacts on environmentally sensitive resources (see 10 CFR 1021). In addition, no extraordinary circumstances related to the proposal exist that would affect the significance of the action. In addition, the action is not "connected" to other action actions (40 CFR 1508.25(a)(1)) and is not related to other actions with individually insignificant but cumulatively significant impacts (40 CFR 1608.27(b)(7)).

References:

B1.15 "Support buildings"

Justification:

B1.15 Support buildings. Siting, construction or modification, and operation of support buildings and support structures (including, but not limited to, trailers and prefabricated and modular buildings) within or contiguous to an already developed area (where active utilities and currently used roads are readily accessible). Covered support buildings and structures include, but are not limited to, those for office purposes; parking; cafeteria services; education and training; visitor reception; computer and data processing services; health services or recreation activities; routine maintenance activities; storage of supplies and equipment for administrative services and routine maintenance activities; security (such as security posts); fire protection; small-scale fabrication (such as machine shop activities), assembly, and testing of non-nuclear equipment or components; and similar support purposes, but exclude facilities for nuclear weapons activities and waste storage activities, such as activities covered in B1.10, B1.29, B1.35, B2.6, B6.2, B6.4, B6.5, B6.6, and B6.10 of this appendix.

Is the project funded by the American Recovery and Reinvestment Act of 2009 (Recovery Act) Yes No

Approved by Jason L. Anderson, DOE-ID NEPA Compliance Officer on: 04/10/2023.