Horn Rapids Solar, Storage, & Training Project

October 13, 2017
Robin Rego
Generation Project Development Manager
Horn Rapids Solar, Storage, & Training

Project Overview

• Utility scale photovoltaic solar coupled with a battery energy storage system
• Largest utility scale solar in WA
• First utility scale solar-storage project in WA
• Utilized to train solar and battery storage technicians
Horn Rapids Solar, Storage, & Training

Project Partners

• Energy Northwest
• Potelco/Quanta
• Regional Education and Training Center (RETC)
• IBEW Local 77
• PNNL
• University of Washington's Clean Energy Institute
Horn Rapids Solar, Storage, & Training

Energy Northwest

• Joint Operating Agency in Washington State
  – Formed in 1957
    • Generation aggregator for Public Power
  – 27 Members
    • 22 Public Utility Districts
    • 5 Municipal Utilities
• Owner/operator of electrical generation facilities
Horn Rapids Solar, Storage, & Training

Energy Northwest

• White Bluffs Solar Station (38.7 kW_{DC})
Horn Rapids Solar, Storage, & Training

Energy Northwest

- Packwood Lake Hydroelectric (27.5MW)
Horn Rapids Solar, Storage, & Training

Energy Northwest

• Nine Canyon Wind Project (95.9MW)
Horn Rapids Solar, Storage, & Training

Energy Northwest

- Columbia Generating Station (1190MW)
Horn Rapids Solar, Storage, & Training

Energy Northwest

• Energy Services and Development
  – Member services
  – Operate and maintain Energy Northwest’s non-nuclear assets
  – O&M services for other entities
    • Mason PUD 3 Olympic View Combustion Turbine
    • Tieton Hydroelectric Project
    • City of Portland Hydroelectric Facilities (2)
Horn Rapids Solar, Storage, & Training

Energy Northwest

- Energy Services and Development (cont.)
  - Advanced Technology
    - Demand Side Management
    - Energy Storage
    - Demand Voltage Reduction
  - Generation Project Development
    - Neoen 20MW solar project – marketing and development assistance
    - Electric Vehicle Infrastructure Transportation Alliance (EVITA)
Horn Rapids Solar, Storage, & Training

Energy Northwest

• Generation Project Development (cont.)
  – Horn Rapids Solar, Storage, and Training Project
    • Primary development/project management
    • Owner/operator of battery energy storage system
    • Project interconnection
Horn Rapids Solar, Storage, & Training

Potelco

• A Quanta Services, Inc. company
  – Over 350 MW of solar projects in United States
  – Full engineering, procurement, and construction of entire systems

• Horn Rapids Solar, Storage, and Training Project Partner
  – Developer of PV solar generation
Horn Rapids Solar, Storage, & Training

Project Details

- 4 MW\text{DC} Solar
- 1 MW/4MWh Battery
- Solar will charge battery and provide power to local loads
- Interconnected with the City of Richland distribution system
Horn Rapids Solar, Storage, & Training

Project Details (cont.)

• Located in north Richland on IBEW property leased to the Regional Education Training Center (RETC)
• Vanadium Flow Battery Storage
Horn Rapids Solar, Storage, & Training

Vanadium Flow Battery

• Advantages
  – 20 Year Life
    • Available lifetime maintenance and warranty
    • End of life disposal included
  – Unlimited cycle life
  – No capacity reduction
  – Passive cooling
Horn Rapids Solar, Storage, & Training

Funding

• Energy Northwest awarded $3M WA Clean Energy Fund 2 grant
  – One of five utilities awarded a grant
  – Up to 50% of battery storage portion will be paid by WA Department of Commerce
  – Emphasis on the integration of solar and storage; workforce training
Horn Rapids Solar, Storage, & Training

Project Purpose

• Combination of solar and storage will provide a predictable renewable generation resource

• Extended duration of the storage will provide benefits to the offtaker such as demand response, load shaping, energy time shifting, and peak demand reduction

• Facility will be utilized in training curriculum administered by Regional Education Training Center (RETC) to train solar and battery storage technicians
Horn Rapids Solar, Storage, & Training

Project Purpose (cont.)

- Pacific Northwest National Laboratory (PNNL) will analyze the operation of the energy storage system to determine its optimum use
- Data collected from the project will be analyzed and published by PNNL and University of Washington's Clean Energy Institute (UW CEI)
Horn Rapids Solar, Storage, & Training

I-937

- Washington State’s Energy Independence Act
- Some utilities required to use eligible renewable resources to meet annual targets
- Project will qualify for double renewable energy certificates for off-takers
- Qualifies for additional 20% renewable energy certificates when developer uses approved apprenticeship programs during construction
Horn Rapids Solar, Storage, & Training

Timeline

- Construction to start 2018
- Energization in 2019
- Data analytics 2019-20
- Commercial operation 2019-2038
• Questions