

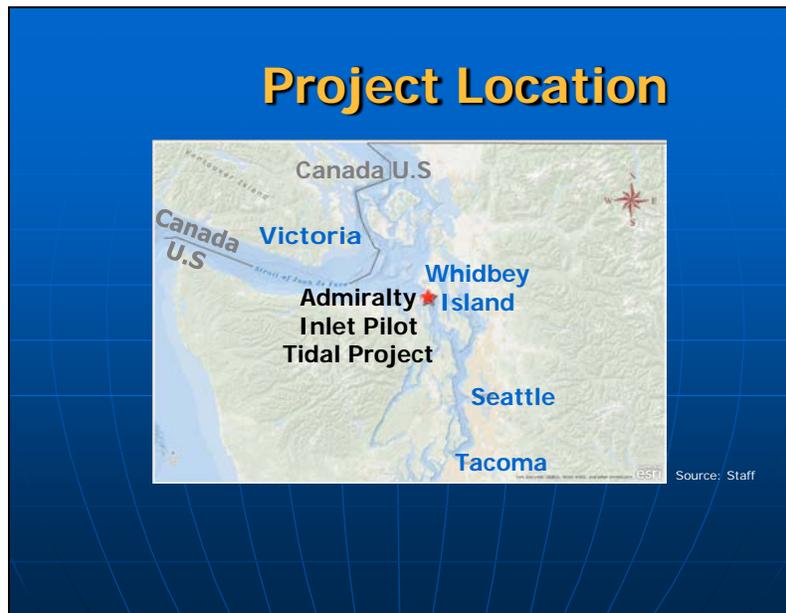
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**Admiralty Inlet  
Pilot Tidal Project**

Item No: H-1  
March 20, 2014

[Tyler] Good morning Madam Chairman and Commissioners. Before you is a draft order issuing a license to the Public Utility District #1 of Snohomish County, Washington to construct and operate the Admiralty Inlet Pilot Tidal Project for a period of 10 years.



[Tyler] The project will be located in Admiralty Inlet, which is in the northwest portion of Puget Sound between the Olympic Peninsula and Whidbey Island where Puget Sound meets the Strait of Juan de Fuca.



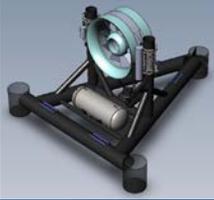
[Tyler] The two turbines will be placed about half a mile from the Whidbey Island shoreline at a water depth of approximately 190 feet.

The purpose of this pilot project is to investigate the tidal energy potential of Puget Sound, Washington, and evaluate the performance, cost, and environmental effects of tapping this energy source using the OpenHydro tidal turbine, which we will describe further in a minute.

Snohomish PUD filed an application for a license for the pilot project on March 1, 2012. In reviewing the application, Commission staff held three technical conferences to discuss issues associated with project installation and operation and issued draft and final Environmental Assessments on January 15 and August 9, 2013 respectively. The Environmental Assessment considered the potential effects of this developing technology on various resources including endangered marine mammals and fish, navigation, ocean uses, and recreation.

## Project Description

- Two 19-foot-tall, 300-kW tidal turbines
- Two 7,000-foot-long, 4-kV trunk cables
- Onshore facilities
- Blades spin 70% of the time on both tides
- Deployed and removed by specialized barge



Source:  
Snohomish  
PUD



Source:  
Snohomish  
PUD

[Tyler] The two, 19-foot-tall OpenHydro System turbines are designed to convert the kinetic energy of water flowing at velocities of 2.3 feet per second to nearly 11 feet per second into electricity. Each turbine is designed to generate 300 kW. The turbines are expected to rotate about 70 percent of the time, producing 244,000 kW hours of energy annually.

Electricity produced by the project will be transmitted to shore through two approximately 7,000-foot-long, four-kilovolt (kV) trunk cables. On-shore facilities will include a control building, a transformer, and other land-based transmission components.

The system will be monitored 24 hours a day, seven days a week by Snohomish PUD.

Installing the turbines will require a specialized barge and multiple support vessels. The turbine installation barge will be towed to the site by a tugboat and installed during the slack tide and under calm sea conditions. Once the turbine installation barge is centered over the installation site, winches onboard will slowly lower the turbine to the seafloor. A submersible, remotely operated vehicle will monitor the placement of the turbine on the sea floor. The installation process is expected to take less than one hour.

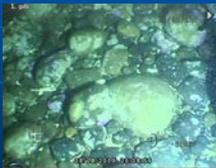
Now, Stephen Bowler will discuss the environmental monitoring and safeguard plans that are required by this draft license.

## Monitoring Plans

- Acoustic
- Benthic
- Near-Turbine
- Marine Mammal



Source: Snohomish PUD



Source: Snohomish PUD

[Stephen] The project's design will minimize adverse effects on the natural resources of Puget Sound. In addition, Snohomish PUD, in consultation with resource agencies and tribes, developed a suite of post-license monitoring plans to ensure that environmental effects are minor.

The most significant environmental monitoring plans that the draft license requires Snohomish PUD to implement include an Acoustic Monitoring Plan, Benthic, or sea floor, Monitoring Plan, Near Turbine Monitoring Plan, and Marine Mammal Monitoring Plan.

The Acoustic Monitoring Plan requires Snohomish PUD to measure noise radiating from the project, determine if noise is occurring at levels that may adversely affect marine mammals and fish, and take corrective actions if needed.

The Benthic Monitoring Plan requires Snohomish PUD to periodically inspect the turbine and cable route using a submersible, remotely operated vehicle, like the one shown above, to monitor for changes in the local benthic community as well as any sediment accumulation or scour.

The Near-Turbine Monitoring Plan requires Snohomish PUD to use optical and acoustic imaging to monitor interactions of fish and marine mammals with the turbines and take corrective action if needed.

The Marine Mammal Monitoring Plan requires Snohomish PUD to use a combination of shore-based and acoustic-based observations to monitor for project-related changes in marine mammal behavior and inlet use, and take corrective action if needed.

## Ocean Use and Safety Plans

- Project and Public Safety
- Navigation Safety
- Emergency Shutdown
- Project Removal
- Hazard Identification and Risk Assessment



Source: Snohomish PUD

[Stephen] A number of safeguard plans, in combination with the environmental monitoring will ensure that the project is operated and maintained in a safe manner, that the potential for harm to the public or the other ocean users in the project area is minimized, and that a trans-Pacific fiber optic telecommunication cable is protected.

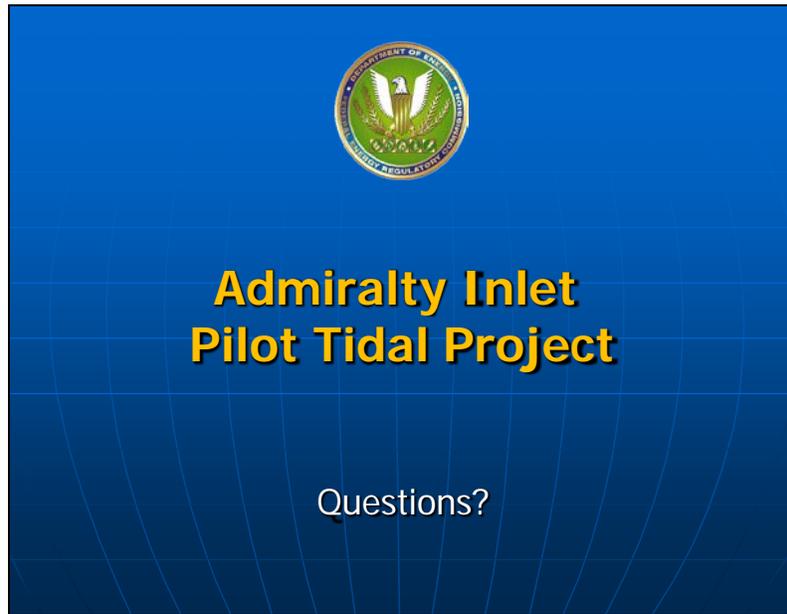
This draft license requires Snohomish PUD to implement a Project and Public Safety Plan, which includes measures for identifying and responding to emergencies at the project; a Navigation Safety Plan, which includes consultation and notification protocols with the U.S. Coast Guard to protect navigation; an Emergency Shutdown Plan, which includes procedures to shut down the project's turbines in response to emergencies at the project; and a Project Removal Plan, which includes procedures to remove project works and restore the affected area at the end of the license unless Snohomish PUD seeks a new license.

To protect the fiber optic cable, this draft license also requires Snohomish PUD to develop and implement a Hazard Identification and Risk Assessment which will define procedures for conducting project-related marine operations without the use of anchors, define the safe weather conditions required for marine operations, establish a port of refuge for any emergencies associated with marine operations, and define the notification and reporting procedures for marine operations.

With these plans and procedures in place, the Admiralty Inlet Pilot Tidal Project will provide valuable information for the marine hydrokinetic industry, while being a safe and environmentally responsible project.



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[Stephen]  
This concludes our presentation and we are happy to answer any questions.