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September 13, 2017

MEMORANDUM

TO: Council members

FROM: Stacy Horton, Policy Analyst/Biologist, Washington staff

SUBJECT: Innovative Water Projects

BACKGROUND:

Presenters: **Guy J. Gregory**, Technical Unit Supervisor, Water Resources Program, Eastern Regional Office, Washington Department of Ecology; and **JT Steenkamp**, Project Manager, Pearl Hill Project, Shell Energy

Summary: Guy Gregory from the Washington Department of Ecology will present information on Aquifer Storage and Recovery in Washington and the Columbia River Aquifer Storage Project.

JT Steenkamp will present information on the Pearl Hill Hydro Battery Project.

Relevance: Water availability is limited, so how to sustain additional water demands and uses, given current water practices and water conditions? These presenters will highlight a couple of innovative ideas for tackling an imperfect water supply.

More Info:

Climate Change Impacts on Columbia River Basin Fish and Wildlife (ISAB 2007-2)
https://www.nwcouncil.org/media/31247/isab2007_2.pdf

Aquifer Storage and Recovery (ASR) and Shallow Aquifer Recharge (SAR): tools to supplement water supply
<http://www.ecy.wa.gov/programs/wr/asr/asr-home.html>

Pearl Hill Project

Notice of Preliminary Permit Application Accepted for Filing and Soliciting Comments, Motions To Intervene, and Competing Applications; Shell Energy North America (US), L.P.

A Notice by the [Federal Energy Regulatory Commission](#) on 08/11/2016

<https://www.federalregister.gov/documents/2016/08/11/2016-19070/notice-of-preliminary-permit-application-accepted-for-filing-and-soliciting-comments-motions-to>

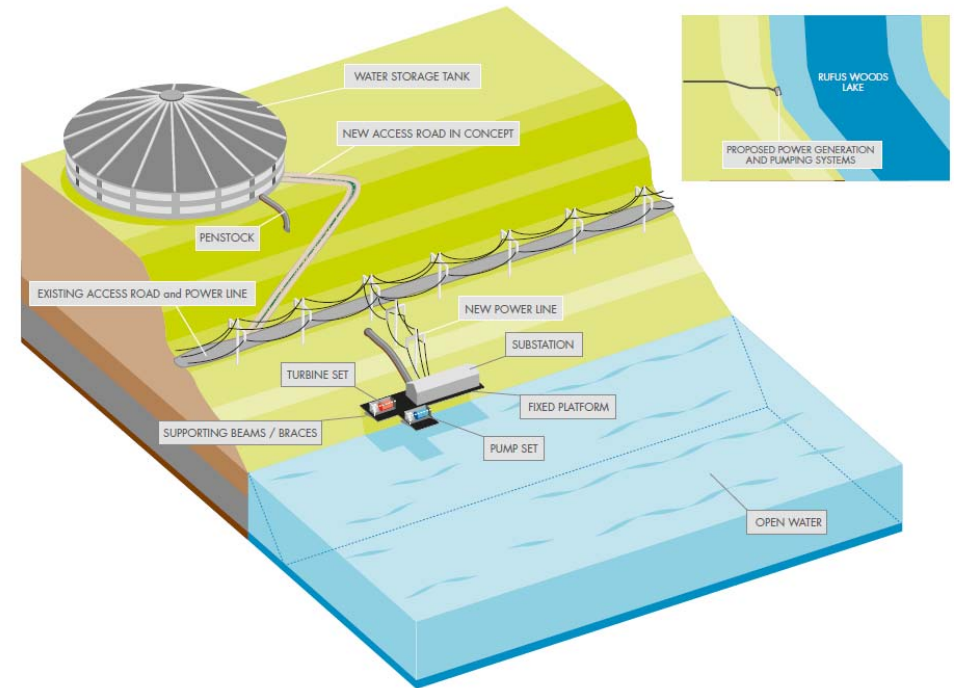
Shell Oil proposes hydro project near Bridgeport

August 23rd, 2016

<http://fwee.org/shell-oil-proposes-hydro-project-near-bridgeport/>



SHELL ENERGY NORTH AMERICA

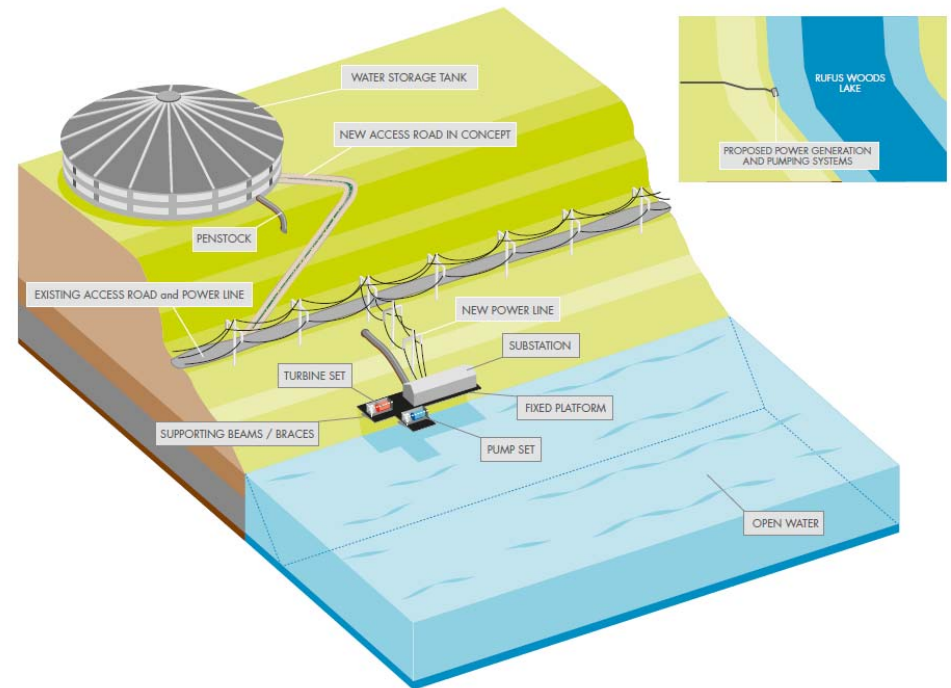


HYDRO BATTERY PEARL HILL

13 Sep 2017
JT Steenkamp, PM



FEATURES

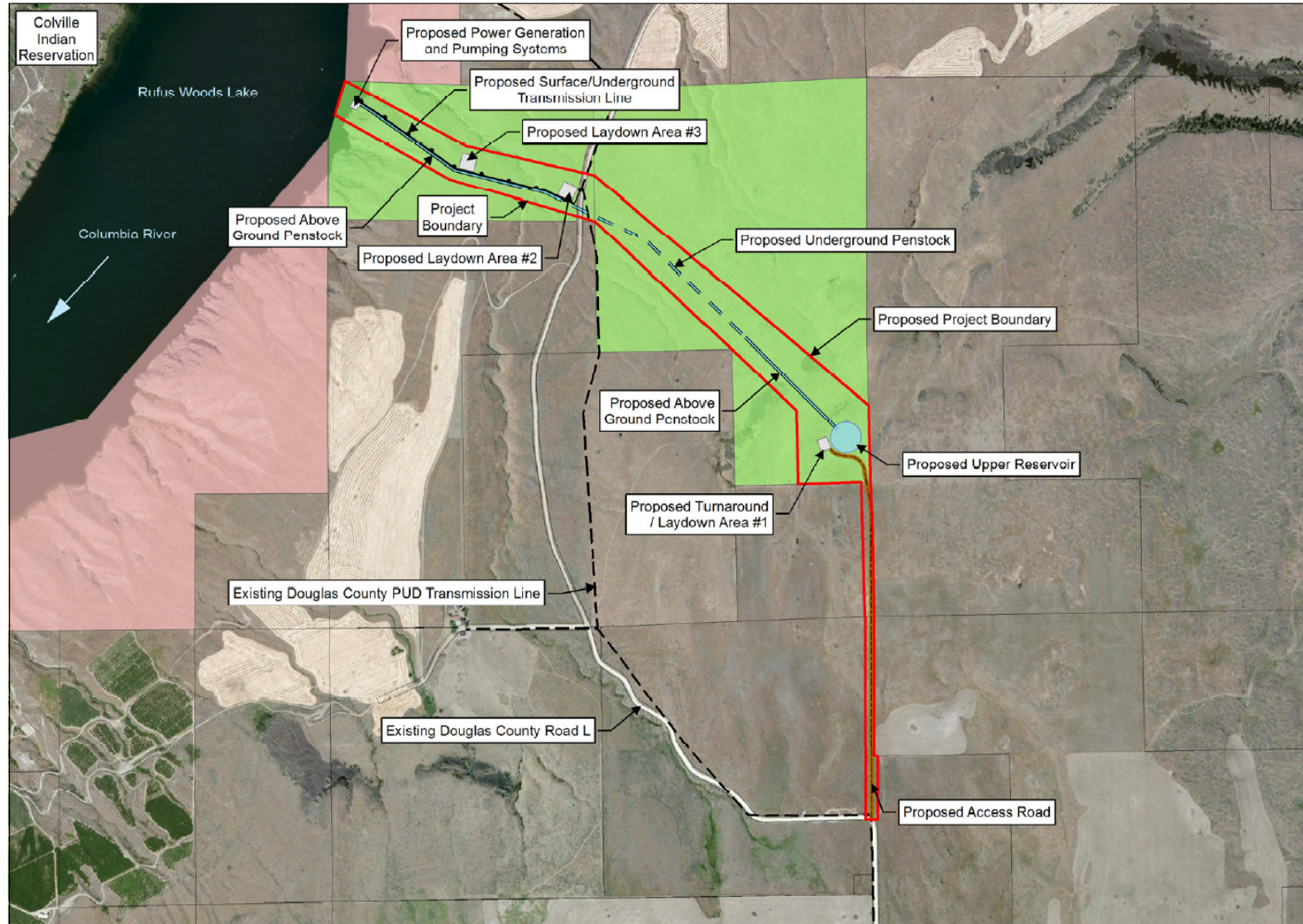
- Regional renewables integration using modular methods and technologies from O&G
- Stockwater & firewater conveyance
- PM&Es proposed: habitat enhancements, Chief Joseph anadromous fish passage feasibility study support
- Smallest FERC pumped storage project
 - 5MW Generation, 9MW (60 cfs) Pumping
 - 25 AF storage (30 MWh)
 - 1400ft Lift
- Distributed replications if successful



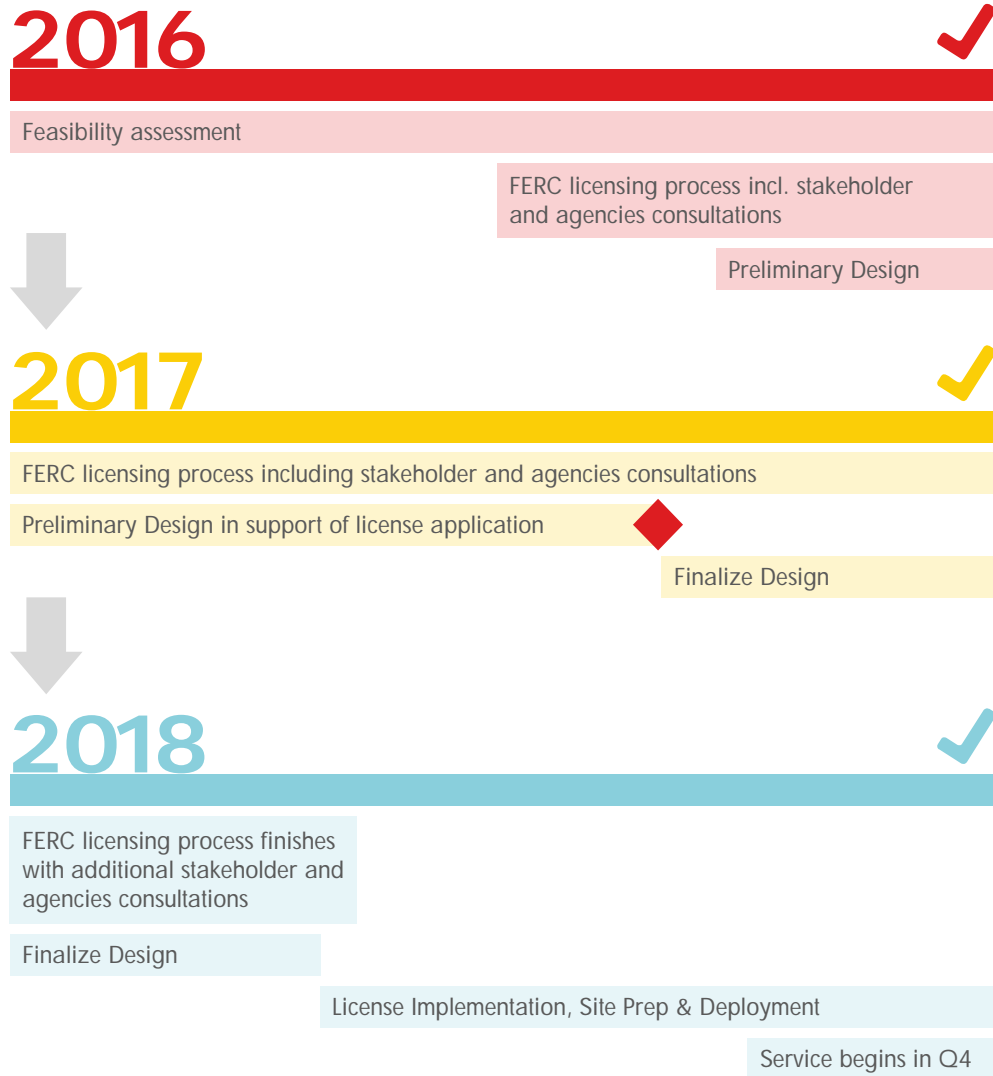
SITE MAP

Legend

-  Proposed Project Boundary
 -  Above Ground Penstock
 -  New Access Roads
 -  Existing Access Roads
 -  New Transmission Line
 -  Existing Transmission Lines
- Land Ownership**
-  State of Washington
 -  USA
 -  Private Parcels



TIMELINE



THEMES

Rethinking Machines

Be present when the power marketer and the ecologist conceive of their machines



Rethinking Machines

The Energy-Water Nexus



Rethinking Partnerships

Public-Private Partnerships



