Topics of Discussion

1. Washington Expansion Project
2. Kalama Lateral Project
3. Safety and Operations
Washington Expansion Project (WEP) Overview

> Expansion of Northwest’s system from Sumas to Woodland, Washington to serve LNG Development Company’s (Oregon LNG) liquefied natural gas (LNG) terminal capable of liquefying 1.25 Bcf/d
  - 140 miles of 36-inch diameter pipeline looping; and
  - ~90,000 incremental horsepower installed at existing compressor stations along the I-5 corridor

> Provides 750,000 Dekatherms per day (Dth/d) of firm transportation to:
  - An interconnect with the proposed Oregon Pipeline located near Woodland, Washington which will deliver natural gas to the Oregon LNG terminal located in Warrenton, Oregon
    - Approximately 500,000 Dth/d of operationally available capacity has been available for deliveries to Woodland, Washington

> Estimated fully loaded capital of $1.1 Billion
  - $0.56 Dth/d on a levelized basis

> Target in-service date is November 2018 per the Federal Energy Regulatory Commission (FERC) application

> Design allows for a scaled down project if a smaller market comes in earlier than the proposed in-service

> Under the jurisdiction of the FERC
WEP Design

> Fills in un-looped sections of Northwest’s existing 36-inch pipeline loop creating a continuous 36-inch pipeline loop along side a 30-inch pipeline in the I-5 corridor between Sumas and Woodland
  - 10 loops traversing 8 counties

> Includes incremental compression at five existing compressor stations in the I-5 corridor

> Provides an opportunity to other potential customers in the region to utilize the work product for a smaller project
WEP Project Timeline

> Entered FERC’s pre-filing environmental review process in July 2012
  – WEP is a considered a connected action with the LNG terminal and the Oregon Pipeline
  – FERC required Oregon LNG to obtain upstream capacity to serve its load
    • Oregon LNG is taking the risk on the secondary market

> Filed FERC certificate June 2013
  – FERC will review Oregon LNG (CP09-6), Oregon Pipeline (CP09-7) and WEP (CP13-507) as a connected action
    • One Draft Environmental Impact Statement (EIS)
    • One Final EIS
    • One certificate order

> Draft EIS was issued August 5, 2015
  – Comments on the Draft EIS are due October 6, 2015
  – Six FERC sponsored public meetings to take comments on the Draft EIS are scheduled September 14-24, 2015

> Final EIS is scheduled to issue February 12, 2016
> Certificate order is anticipated to be issued mid-late 2016
Kalama Lateral Project

> 3.1-mile, 24-inch diameter pipeline extending from Northwest’s mainline to the Port of Kalama in Cowlitz County, Washington
Kalama Lateral Project Overview

- Project is under FERC jurisdiction

- Provides up to 320,000 Dth/d of firm transportation capacity to Northwest Innovation Work’s (NWIW) proposed methanol plant at the Port of Kalama
  - NWIW proposes to construct a 2-phase methanol facility requiring approximately 160,000 Dth/d per phase

- Target in-service of methanol plant is late 2018
Kalama Lateral Project Background

- Lateral was previously filed with the FERC for a proposed power plant in 2012

- FERC certificate filing was withdrawn after a significant amount of review when the customer cancelled its project in 2012
  - DEIS was near issuance

- 13 alternative routes were evaluated. The current project route, the Timber Rock Route, was deemed the preferred route in the previous certificate.

- Pre-construction agreement was executed with NWIW in July 2014 authorizing all work required to re-file and obtain a FERC certificate for the lateral
Kalama Lateral Project Timeline

> Filed FERC certificate October 27, 2014
  – Preferred route - Timber Rock Route

> Environmental Assessment was issued on July 13, 2015
  – FERC staff concluded that approval of the proposed project, with appropriate mitigating measures would not constitute a major federal action significantly affecting the quality of human life
  – Comment period ended on August 12, 2015

> Certificate order anticipated - October 2015

> In-service date of methanol plant is late 2018
Kalama Lateral Project - State Environmental Policy Act (SEPA)

> SEPA was enacted by the Washington Legislature in 1971 to assist the state and local agencies in identifying environmental impacts that could result from governmental decisions when:
  – Issuing permits for private and public facilities, and
  – Issuing new regulations, policies or plans

> Information collected during the SEPA review process helps agency decision-makers, applicants and the public understand how a proposal will affect the environment
  – Information may be used to change a proposal to reduce likely environmental impacts
  – Information may be used to apply conditions or deny a proposal if adverse environmental impacts exist

> SEPA is reviewing the methanol terminal, dock and pipeline as a single project under SEPA
  – The Port of Kalama and Cowlitz County are acting as co-leads for the SEPA process
  – The SEPA process is required for the Kalama Lateral Project to receive state and local permits
  – The pipeline remains under the jurisdiction of FERC
Natural Gas Pipeline Safety - Overview

> Safety is built into our pipelines
- Routed in locations where a pipeline can be safely operated and constructed – minimizes impacts to communities where possible
- Constructed by welding high-strength pipe (substantial wall-thickness)
- 100% of the welds are x-rayed
- Buried with a minimum of 36 inches of cover
- Tested before going in-service at pressures higher than allowable operating pressures

> Interstate pipelines are regulated
- Pipelines are regulated by the U.S. DOT – Pipeline and Hazardous Materials Safety Administration (PHMSA)
- PHMSA administers safety regulations, conducts audits, and tracks pipeline incidents
- Pipeline operators are required to administer the following programs:
  - Maintain an Operations and Maintenance Manual
  - Operator Qualification Program
  - Public Outreach Program
  - Emergency Response Program
  - Integrity Management Program
Natural Gas Pipeline Safety - Design

> Pipeline design will meet or exceed all PHMSA requirements
  - Radiographic inspection: 100% vs 10% minimum required
  - Pressure testing: 125% vs 110% minimum required
  - Burial depth: 36” vs 24” minimum required

> Wall thickness determination – governed by PHMSA; criteria based on class location:
  - Class I – DF 0.72
  - Class II – DF 0.60
  - Class III – DF 0.50
  - Class IV – DF 0.40

> Block valve spacing – governed by PHMSA; criteria based on class location. Each point within a pipeline class must be located within the following distances of a block valve:
  - Class I – 10 Miles
  - Class II – 7 ½ Miles
  - Class III – 4 Miles
  - Class IV – 2 ½ Miles
Natural Gas Pipeline Safety - Routing

> Pipeline routing
  – Ensure safe construction and operation is feasible
  – Accessibility
  – Hazard avoidance
  – Pipeline stability (avoiding geohazards, side hill slopes and maximizing ridgeline alignments where possible)
    • If not possible, obtain geotechnical analysis of potential landslide areas to assure it is safe to construct and operate

> Geologic hazards evaluation
  – Phase 1 – initial office review identifies existing landslides and areas susceptible to landslides within ¼ mile of proposed pipeline alignment by reviewing published maps and aerial photographs
  – Phase 2 – aerial reconnaissance of potential moderate or high risk areas identified during Phase 1 process
  – Phase 3 – surface reconnaissance review of moderate or high risk areas identified during Phase 1 & 2 processes
  – Phase 4 – LiDAR data review aids identification of terrains with possible landslide morphology, initiating additional surface reconnaissance of moderate to high risk areas
Questions/Contacts

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