

# 2018 GAS OUTLOOK • CAPACITY



The region's system of natural gas pipelines and storage facilities safely and reliably delivers energy to more than 3.5 million homes and businesses across the Pacific Northwest. Unplanned infrastructure curtailments during prolonged cold weather, as experienced last winter, highlight the importance of continually evaluating the need for more infrastructure.

**TABLE C1. Regional Storage Facilities**

Facility	Owner	Type	Capacity <sup>+</sup> (MDth)	Max Withdrawal <sup>++</sup> (MDth/day)
Jackson Prairie, WA	Avista, PSE, NW Pipeline	Underground	25,448	1,196
Mist, OR <sup>+++</sup>	NW Natural	Underground*	19,172	656
<b>Underground Subtotal</b>			<b>44,620</b>	<b>1,852</b>
Plymouth, WA	NW Pipeline	Peak (LNG)	2,388	305
Tilbury, BC	FortisBC Energy	Peak (LNG)	1,634	155
Mt. Hayes, BC	FortisBC Energy	Peak (LNG)	1,530	153
Portland, OR	NW Natural	Peak (LNG)	504	132
Newport, OR	NW Natural	Peak (LNG)	980	65
Nampa, ID	Intermountain Gas	Peak (LNG)	588	60
Tacoma LNG	PSE	Peak (LNG)**	538	85
Swarr Station	PSE	Peak (LPG)***	128	30
Gig Harbor, WA	PSE	Peak (LNG)	16	3
<b>Peak Storage Subtotal</b>			<b>8,306</b>	<b>988</b>
<b>TOTAL STORAGE</b>			<b>52,926</b>	<b>2,840</b>

<sup>+</sup> Working gas capacity; gas that can be used to serve the market.

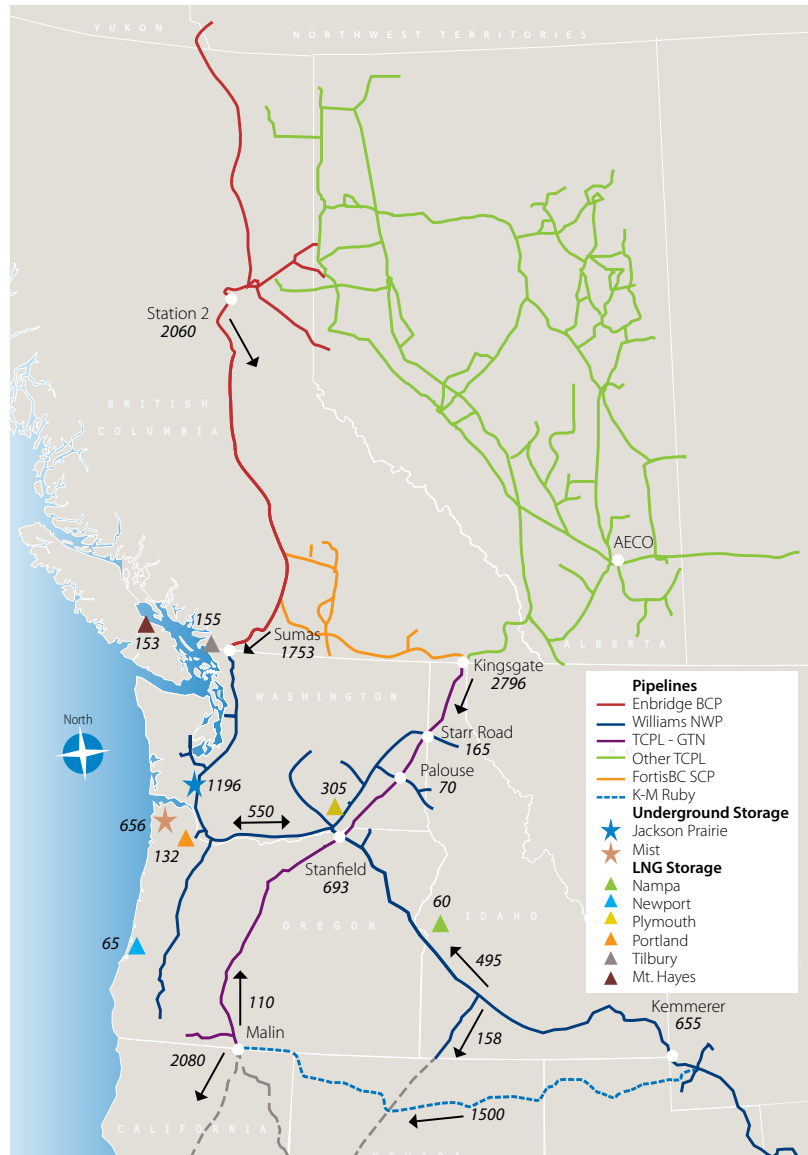
<sup>++</sup> Start of season or full rate; underground storage withdrawal rates decline as working gas volumes decline.

<sup>+++</sup> Mist capacity and deliverability include the North Mist Expansion in service May 2019.

\*\* Tacoma LNG will come into partial service in 2021, full service by 2023.

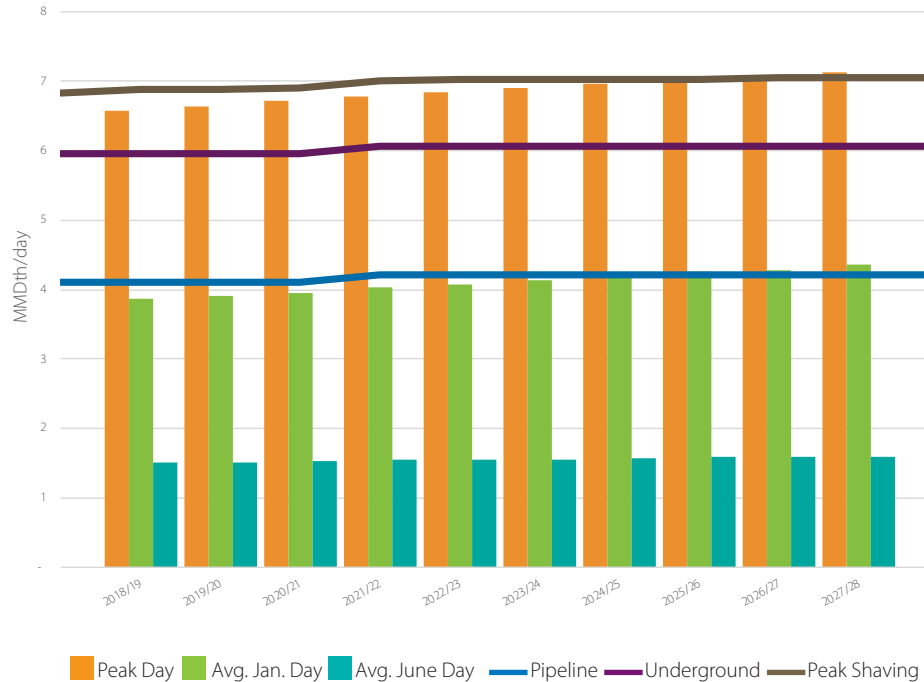
\*\*\* LPG: Liquid Propane Gas and Air mixture. Offline for upgrades. Returns to service in 2023.

**FIGURE C1. Regional Storage Facilities**



**NOTE:** Storage facilities are an essential component of the region’s delivery system, providing flexibility to serve demand when the weather gets cold. For shorter duration events, underground storage is a more cost-effective solution than building pipelines to serve seasonal, cold weather loads. Above ground storage, usually LNG, is designed to serve the last measure of demand on the very coldest days of the year.

**FIGURE C2. Peak Day Supply/Demand Balance**



**NOTES:** Natural gas utilities are obligated to serve their firm sales customers at all times, even during the coldest weather conditions. Consequently, they design their systems to accommodate extreme, but plausible, conditions called peak or design days (see Appendix B for a comparison of NWGA member company weather design standards). Figure C2 aggregates the projected design day volumes of NWGA members across the region and plots them against available capacity. The chart reflects increases in underground and peak storage capacities due to expansions on the Enbridge BC Pipeline and upgrades at the North Mist, Tacoma LNG and Swarr Station Propane Air storage facilities.

Figure C2 assumes that a peak day is occurring simultaneously throughout the region. This actually occurred in the winter of 2018-2019, when very cold weather coincidentally struck the entire region for an extended period in February. (The region also experienced prolonged region-wide cold weather during the winter of 2013-2014.) The chart also assumes that all delivery infrastructure is operating at maximum first-of-season (November) deliverability. In addition, the 2018-2019 winter demonstrated that unexpected capacity curtailments, though rare, can occur. The prolonged February cold weather combined with unplanned pipeline and underground storage curtailments provided a severe test of regional deliverability. While it endured the late-season cold weather with little disruption, the experience demonstrated how close the region is to exceeding deliverability capacity during prolonged severe weather events, especially late in the heating season.

Overall, the existing system safely and reliably serves the region. However, the experience of the 2018-19 heating season, which included constrained pipeline capacity, unscheduled maintenance, and a late season cold snap, proves that the region should continue evaluating the need for additional long-duration capacity to reliably serve current needs and future growth.

**FIGURE C3. Infrastructure Projects Proposed for the Region**



**NOTE:** Market participants weigh the risk of disruptions against the costs of various infrastructure options to make decisions about what is needed and when. In response to these market signals, several infrastructure expansions have been proposed in the Pacific Northwest. Early notice of an impending need for additional delivery capacity is especially important as the length of time to permit and build or expand energy infrastructure currently approaches five years and is growing. (See Appendix D for project descriptions.)