Points for Discussion

Will there be LNG available this winter for the NE region if needed?
• Are the pricing signals appropriate and sufficient?

Global LNG/Natural Gas Highlights – Fundamentally Changing
• Demand pull – Supply Push
• Innovation and technological advancements in each part of the chain
• Is the “glut” finally here?

Future LNG needs for New England market
• State policies, and rate of decarbonization
• Challenges
  • Power markets continue to present largest challenge

Conclusions
While LNG demand will grow at 3.6% per year in 2019-35 globally, supply-capacity additions will create a “long” market.

Demand growth should balance the excess LNG capacity in the current market by 2025/2027
• China major driver of LNG-demand growth, as its domestic supply and pipeline flows will be insufficient to meet rising demand
• Similarly Bangladesh, Pakistan and South Asia will rely on LNG for fertilizers to meet the needs of growing populations.

In near term Europe will be looked to, to balance market.

The United States leads global growth in natural gas supply and exports.

LNG investment is increasing…FID decisions are due on a large number of projects.
Is the “glut” finally here?

Up to the end of 2020, supply growth is expected to exceed demand growth, but thereafter the growth in export capacity is projected to stall, enabling demand growth to start eating away at the excess capacity.
Globally An Additional 40 MTPA of Liquefaction Capacity On Line In 2019 (5.2 BCF/d) - 150% Increase

Source: Platts S&P Global
In the mean time … good to be a Buyer

It’s bargain time in the liquefied natural gas market
Prices plunge to their lowest on record for this time of year.

**Asian LNG Rollercoaster**

*JKM spot prices may have found its floor as traders foresee recovery*

Source: S&P Global Platts
CANAPORT™ LNG

Reliably Supplying the Northeast market

✓ The New England market consumes ~5 Bcf of natural gas on a peak winter day.
✓ Supply on average 25 BCF of LNG to New England Markets annually
✓ Repsol operates the Canaport™ LNG (“Canaport”) receiving and regasification terminal in Saint John, New Brunswick and holds a 75% equity interest in the facility.
✓ Repsol holds 100% of the regasification (1.2 Bcf/d) and storage (10 Bcf) capacity.
✓ Celebrating its 10th year of operations this year
✓ Featured in the recent ISO NE fuel study as a critical asset needed to ensure reliability
LNG is Vital for Power System Operations and Energy Affordability Goals

To keep lights on, region needs LNG for 78 days, peaking at ~2 Bcf of LNG Capacity

Net reduction in CO2 by 11.5 MMT annually
Industry transition is under way, and meeting states’ CO₂ goals requires some combination of:
• Retirements
• Electrification of heating and transportation
• Increase in renewable generation

One can model different stages of the transition; in all cases, LNG is vital to keep the lights on on cold winter days (and beyond):
• Reviews combinations of oil/coal retirements, electrification, addition of renewables

Continued need for LNG is driven by:
• Limited/no pipeline infrastructure additions
• Loss of oil/coal generation in the winter
• Increased peak demands (particularly in the winter) due to electrification
• Uncertainty in variable renewable production

One example:
• Retire Pilgrim, all coal/oil
• Increase electricity demand for electrification of 25 percent of building/heating and transportation sectors
• …reduction in CO₂ emissions by almost 20 million metric tons annually

⇒ LNG remains vital for almost 80 days per winter
LNG is Vital for Power System Operations even with Major Renewables Growth (5,000 MW)

New England Natural Gas Demand Scenarios

Top 90 Gas Consumption Days (Assuming Pilgrim Retired, Remaining Oil and Coal Retired, 5 GW of Renewables Added, 25% of Heating and Transportation Electrified)

Sources:
[2] EPA/EIA.
Nothing yet has any meaningful or even discernible positive impact on market incentives for generators to contract forward for LNG supply

- Only the out-of-market winter program and Mystic RMR have included LNG incentives, but they are both extremely counterproductive for non-Everett LNG sale opportunities by:
  - Reducing winter LNG need by paying for oil tank inventory, in tandem with ISO oil unit posturing
  - Administrative assignment of most winter LNG sales to Everett through cost of service (COS) recovery

Most market programs and operational practices have instead had de-minimus to negative impact on incentives for forward contracting of LNG

- Oil storage and dual-fuel are favored in design of opportunity costs and interim compensation
- Market designs focused on performance (via fuel security) during scarcity are too weak to create sufficient incentives for forward fuel contracting
- Posturing of oil units, Mystic RMR, and fuel security reliability review all uneconomically increase oil capacity retention and operational output, artificially suppressing gas demand and prices – particularly during seasonal market conditions where LNG is active

There is a major timing issue – even perfect design of forward reserves & multi-DAM, and full-rate PFP increase incentives for seasonal LNG purchase, it will be too late

- Earliest it would affect seasonal purchase decisions is in the 2025 timeframe
### Less LNG in Total – More Supplies on Pipes

<table>
<thead>
<tr>
<th></th>
<th>Everett - Mystic</th>
<th>Everett into Pipes</th>
<th>Canaport</th>
<th>Northeast Gateway</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2017-2018</strong></td>
<td>29,721,691</td>
<td>6,246,307</td>
<td>15,142,668</td>
<td>0</td>
<td>51,110,666</td>
</tr>
</tbody>
</table>

Source: Genscape, Repsol and Pipeline EBBs,
CONFIDENTIAL - FOR DISCUSSION PURPOSES ONLY
Established New High Send Out for Any One Day

Source: Genscape and Platts
Conclusions
LNG in transition: From Uncertainty to Uncertainty

For NE – LNG is needed to balance the market, meet annual consumption requirements and to support operations with vastly greater net load variability.

Are markets the right way?
- Signals continue to be eroded by out of market solutions
- Are we asking competitive wholesale markets to solve something that they are not meant to do?

Growing recognition of the role of gas and LNG as the world tackles poor air quality and climate change.

The competitiveness of new LNG projects is very robust for JKTC markets.

The outlook for competitive LNG supply provides confidence of a bright future for gas and supply availability in NE.

The real challenge to future of natural gas is more directly linked with energy policy formulation, market programs that incentivize gas generators to enter into fuel commitments over a longer term and the speed of global decarbonization.
- Unburnable before it becomes unaffordable
GRACIAS