



Propane Supply and Infrastructure

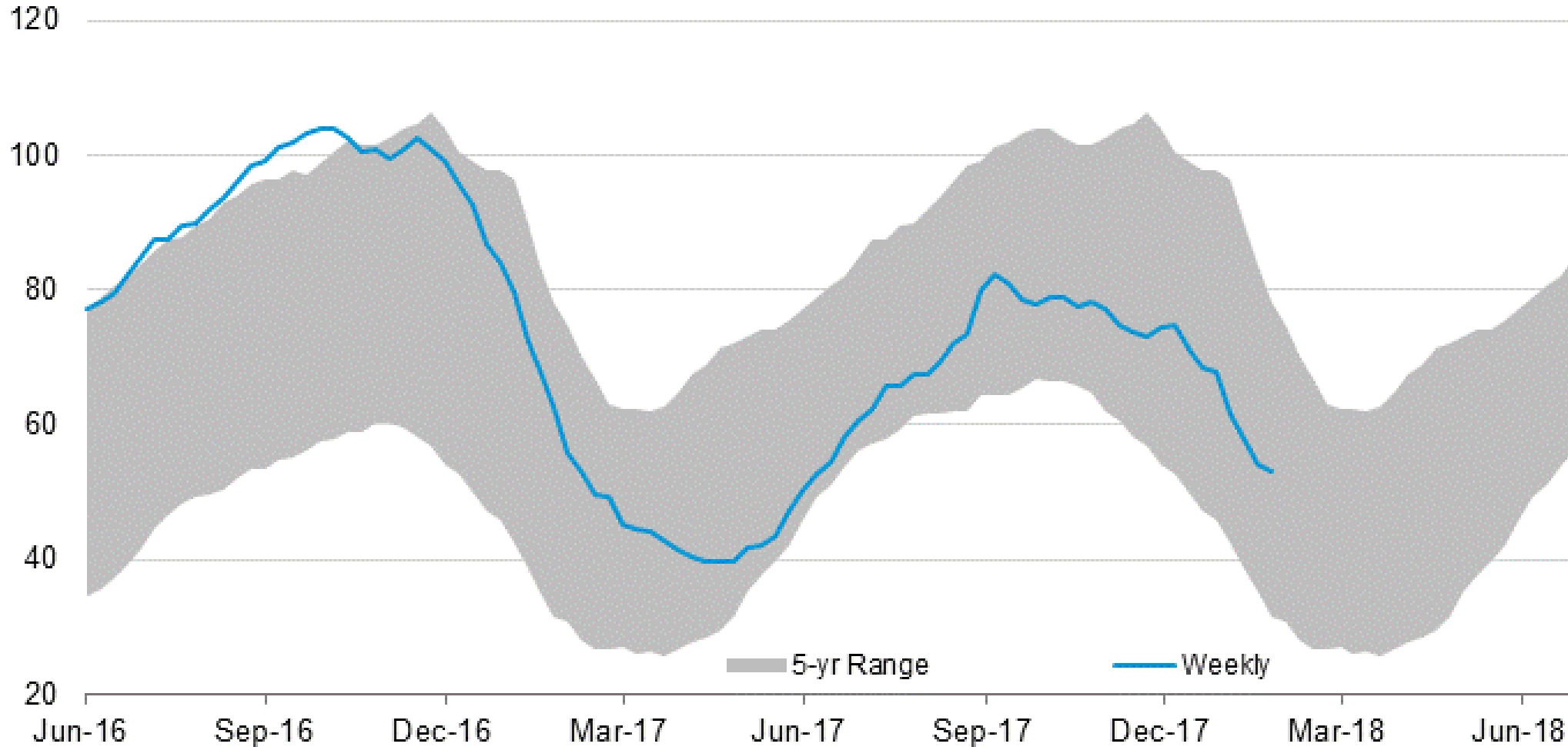
WEDNESDAY, FEBRUARY 7, 2018

Key Points

- ▶ Current Propane Supply
- ▶ Recent Supply History
 - ▶ Past 10 years
- ▶ Changes in Production
- ▶ Changes in Infrastructure

Supply

U.S. propane stocks
million barrels



Source: U.S. Energy Information Administration

SUPPLY

Supply Compared to Previous Years – PADD II (Conway, KS) and US Total

Last Week of Jan	Conway	US Total
2018	14.7	53.0
2017	16.3	62.6
2016	20.6	83.7
2015	22.4	69.3
2014	8.7	31.6
2013	17.8	57.4
2012	20.7	48.9
2011	16.1	37.9
2010	14.9	36.9
2009	14.4	47.4

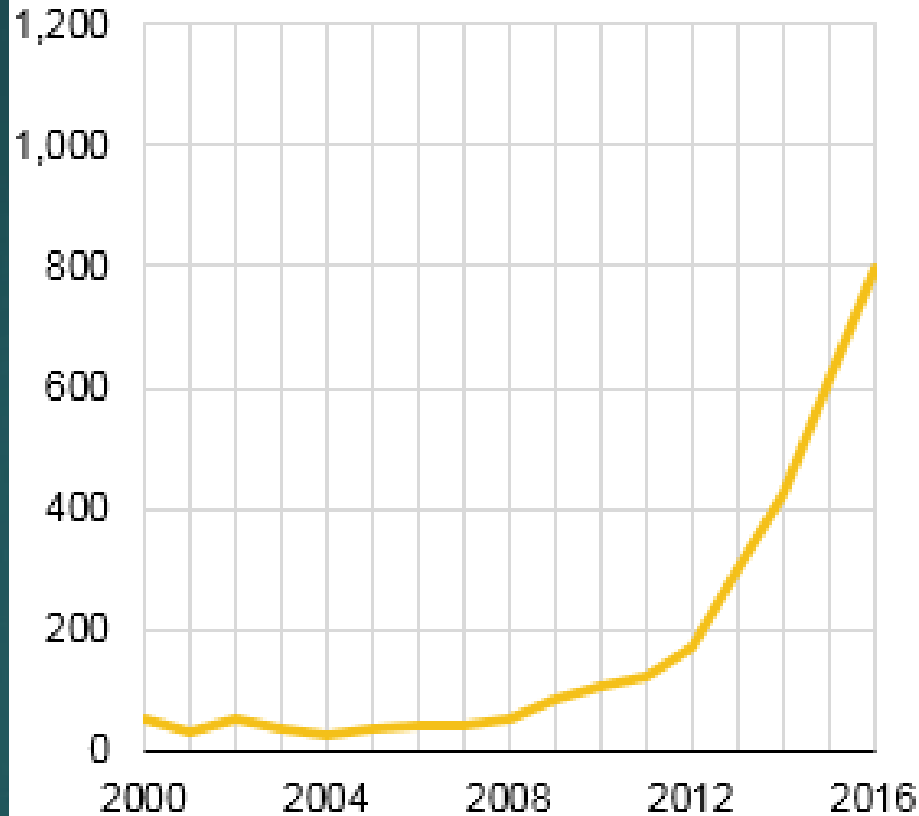
It is estimated that 60% of the propane used in Minnesota comes from Canada, by Rail, the remainder comes from Conway, KS by pipeline or is produced locally at Pine Bend or in Superior, WI.

Propane Availability

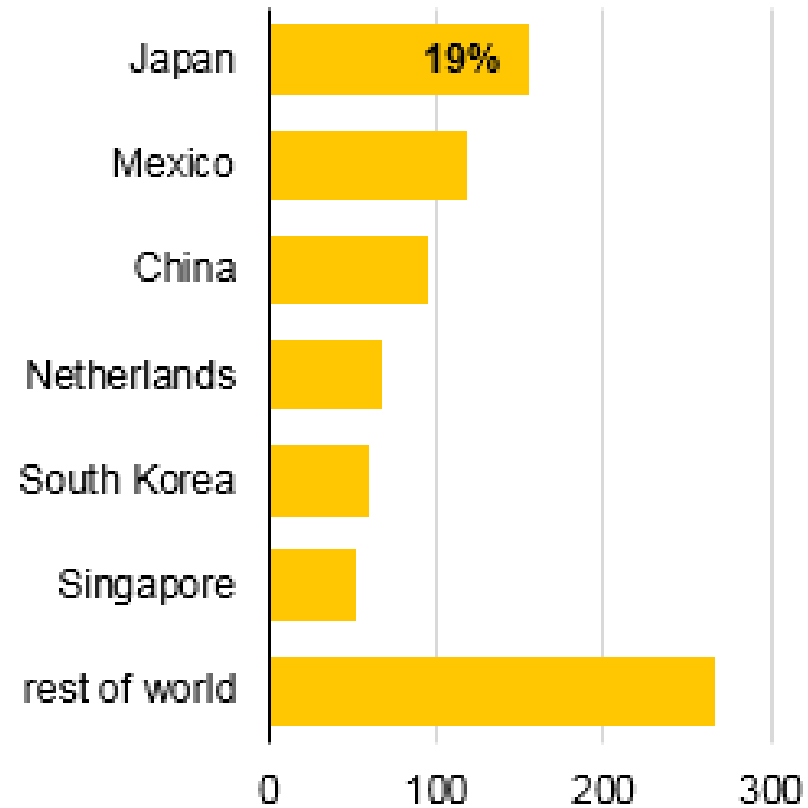
- **Propane industry changes**
 - U.S. is net exporter of propane – largest propane producer & exporter in the world
 - Growth of propane production has resulted in increased international demand
 - Asia is major destination – especially China & Japan
 - US supply has displaced essentially all of Latin America's propane imports from the Middle East & Europe
 - Growing export demand of both natural gas and propane fuels increased production here in the US

Propane Availability

U.S. propane exports (2000-2016)
thousand barrels per day



Export destinations (2016)
thousand barrels per day





Very Large Gas Transport

VLGT



Propane Availability

Shift in propane transportation

- Cochin Pipeline closed (reversed) in May 2014
- Carried 35-40% of the propane used in MN
- Rail has replaced the Cochin pipeline load
- Rail is more difficult to manage – reliability and logistics
- Propane is at a competitive disadvantage to bigger and more predictable commodities like grain, coal, oil;
- Rail is cheaper to develop & terminals can be closer to customers
- Loss of pipeline service necessitates increased storage capacity at marketer and consumer levels

Changes in our Infrastructure

Winter of 2014-Cochin Pipeline System



Transportation and Storage

– What has changed?

- ▶ More Rail Facilities around the state
 - ▶ Glenwood, Rockville, Benson, Proctor, Rush City
 - ▶ Many other private systems expanded
- ▶ Storage facilities have expanded
 - ▶ Many Marketers increased plant storage – many doubled
 - ▶ Large storage at many of the rail facilities
 - ▶ Large farmers and businesses increased storage
 - ▶ Marketers increase home user storage
- ▶ Note: 100 transport loads = 1 million gallons

More Issues

- ▶ Nationwide shortage of drivers
- ▶ Less Random Assets Available
- ▶ Rail Delivery Dependability
- ▶ We still must compete for pipeline space
- ▶ Crop drying frequently overlaps with start of heating season
- ▶ Natural gas interruptible customers
 - ▶ When service is interrupted the backup is usually propane
 - ▶ Spikes demand for propane and maintenance from dealers
- ▶ Rail transportation in extreme cold
 - ▶ Train length restrictions go into effect around -20 degrees (e.g. 100 cars down to 50)
 - ▶ Trains reduce speed

A Closer Look at Storage



Minnesota has about 450 propane marketer bulk plants:

If they average 40,000 gallons in usable storage, it equals **18,000,000 gallons**

4 to 6 days of storage!

A Closer Look at Storage

In Minnesota, 233,000 Homes, Farms and Businesses use Propane (13.5% of MN homes heated with Propane)



If each installation has 400 gallons of usable storage!
The total end user storage is
93,000,000 Gallons

We need to continue to encourage consumers to work on the top half of their supply

Review

- ▶ Propane exports, spur greater production, increasing and stabilizing the overall supply
- ▶ Propane marketers need to continually evaluate their supply, transportation and delivery plans.
- ▶ Crop Drying, is hard to plan for. The need is not often clear until late September or early October.
- ▶ Encouraging residential consumers to utilize summer fill, pre-buy and scheduled delivery programs is essential.
- ▶ Dealing with the wild card of interruptible natural gas systems will always be difficult.
- ▶ Asking for and receiving rail priority during peak season is important.



Minnesota Propane Association

Promoting smart energy