Macquarie’s Canadian Energy Platform
Commodities and Global Markets

Global presence across key energy centers with financial and physical commodity capabilities

Group Overview

Cargill Acquisition
- Cargill acquisition provides greater access to Eastern Canadian end-user’s and utilities
- Increased egress strategies on Alliance and TransCanada Pipelines
- Large storage presence for Eastern Canadian natural gas storage
- Dedicated structuring analyst to combine corporate finance solutions with hedging of underlying commodity exposure

Leadership

Oliver Trpcic
Managing Director, Co-Head, Canadian Gas and Power Trading

Darren Slater
Managing Director, Canadian Oil Trading

Craig Fisher
Managing Director, Co-Head, Canadian Gas and Power Trading

Dylan Johnson
Senior Vice President, Canadian Oil Trading

Key Stats

2ND LARGEST MARKETER OF NATURAL GAS IN NORTH AMERICA
ACQUIRED CARGILL’S NORTH AMERICA POWER & GAS BUSINESS IN 2017
100 Kbbl/d MARKETED CRUDE CANADA

Services

Physical crude and product marketing and trading
- Crude oils, diesel, gasoline, jet fuel, fuel oil
- Financial options and derivatives:
  - Crude oil basis hedging (WTI, Brent, Dubai)
  - Crude differentials (WT, Mtd/Cush, LLS, Mars, WCC, WCS)

Physical natural gas marketing and trading
- Henry Hub & UK NBP
- Basis locations
- Financial options and derivatives:
  - Henry Hub & NBP
  - Most N.A. basis points
- Optimization of storage and pipeline capacity

Physical and financial natural gas liquids marketing and trading
- Mont Belvieu/Conway
- Ethane, propane, butanes, natural gasoline
- Out to 48 months

Top North American Gas Marketers: Q4 2017
By Wholesale Physical Volumes Sold (in Bcf/d)

<table>
<thead>
<tr>
<th>Company</th>
<th>Bcf/d</th>
</tr>
</thead>
<tbody>
<tr>
<td>BP</td>
<td>21.2</td>
</tr>
<tr>
<td>Macquarie Energy</td>
<td>13.2*</td>
</tr>
<tr>
<td>Shell</td>
<td>10.0</td>
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<tr>
<td>Tenaska</td>
<td>9.8</td>
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<tr>
<td>ConocoPhillips</td>
<td>8.3</td>
</tr>
</tbody>
</table>

* Macquarie Estimates

(1) Platts Q4 2017.
The Search for Equilibrium

In any commodity, the intersection of supply and demand is always trying to find equilibrium.
The Search For Equilibrium

Equilibrium manifests itself in volatility of price movements

Annualized 90 Day equal weighted price volatility

Source: Macquarie Energy LLC

Aeco Vol

0%  1000%  2000%  3000%  4000%  5000%  6000%


Source: Macquarie Energy LLC
The Search For Equilibrium

Equilibrium manifests itself in volatility of price movements

Annualized 90 Day equal weighted price volatility

Source: Macquarie Energy LLC
The Search For Equilibrium

Equilibrium manifests itself in volatility of price movements

*Annualized 90 Day equal weighted price volatility*

Source: Macquarie Energy LLC
The Search For Equilibrium

Equilibrium manifests itself in volatility of price movements

Annualized 90 Day equal weighted price volatility

Sumas Vol

Source: Macquarie Energy LLC

Westcoast Pipeline explosion
The Search For Equilibrium

Equilibrium manifests itself in volatility of price movements

Annualized 90 Day equal weighted price volatility

Source: Macquarie Energy LLC
The Search For Equilibrium

Equilibrium manifests itself in volatility of price movements

Annualized 90 Day equal weighted price volatility

SoCal Vol

Aliso Canyon storage leak

Source: Macquarie Energy LLC
The Search For Equilibrium

Equilibrium manifests itself in volatility of price movements

Annualized 90 Day equal weighted price volatility

- SoCal Vol
- Aliso Canyon storage leak
- SoCal pipeline issues (needles)

Source: Macquarie Energy LLC
The Search For Equilibrium

Equilibrium manifests itself in volatility of price movements

Annualized 90 Day equal weighted price volatility

Source: Macquarie Energy LLC
The Search For Equilibrium

Equilibrium manifests itself in volatility of price movements

Annualized 90 Day equal weighted price volatility

Production growth

Source: EIA, Macquarie Energy LLC
The Search For Equilibrium

Equilibrium manifests itself in volatility of price movements

Annualized 90 Day equal weighted price volatility

Waha Vol

Source: Macquarie Energy LLC
The Search For Equilibrium

Equilibrium manifests itself in volatility of price movements

Annualized 90 Day equal weighted price volatility

Waha Vol

Source: EIA, Macquarie Energy LLC
The Search for Equilibrium of Instability

Storage capacity relative to size of supply & demand is shrinking…

Source: EIA, Macquarie Energy LLC

Both supply and demand have grown by ~25% since 2013, but storage capacity has actually fallen.
The Search for Equilibrium of Instability

Transportation bottlenecks
The Search For Equilibrium

Average traded AECO Monthly Index volumes have collapsed

The trade community is stepping away...

Source: Macquarie Energy LLC
The Search for Equilibrium

New dynamics of gas market going forward

• More frequent short-term price swings when storage limits are reached

• Basis dislocations to come more suddenly – plenty of transport capacity…until there isn’t

• Global gas supply/demand balances will matter – 100% utilization of export facilities is not a sure thing

• Aging infrastructure needs to be replaced/new infrastructure needs to be built

• Realized volatility is mis-priced, however the available pricing mechanisms are also limited

• Who can hold the Value @ Risk?