

## **New Sources of Ethane – The North?**

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## Outline

- Who is Aux Sable?
- Current ethane market overview
- Outlook for demand
- Expansion potential
  - ◆ Existing sources
  - ◆ Mackenzie gas
  - ◆ Alaskan gas
- EEP
- Conclusions

## **Aux Sable Liquid Products and Aux Sable Canada (collectively Aux Sable)**

- Aux Sable Liquid Products (ASLP: Channahon)
  - ◆ A US\$400 million (C\$550 million), world-scale natural gas liquids (NGL) extraction and fractionation facility
  - ◆ Capacity of 2.1 billion cubic feet of natural gas per day, 70,000 barrels per day of NGL (ethane, propane, normal butane, iso-butane and natural gasoline)
- Aux Sable Canada (ASC: Calgary)
  - ◆ Heartland Offgas Project
  - ◆ Other Canadian business development activities
- Owners are: Enbridge Inc. 42.7%, Fort Chicago Energy Partners LP 42.7% , The Williams Companies 14.6%

# ASLP Channahon Facilities

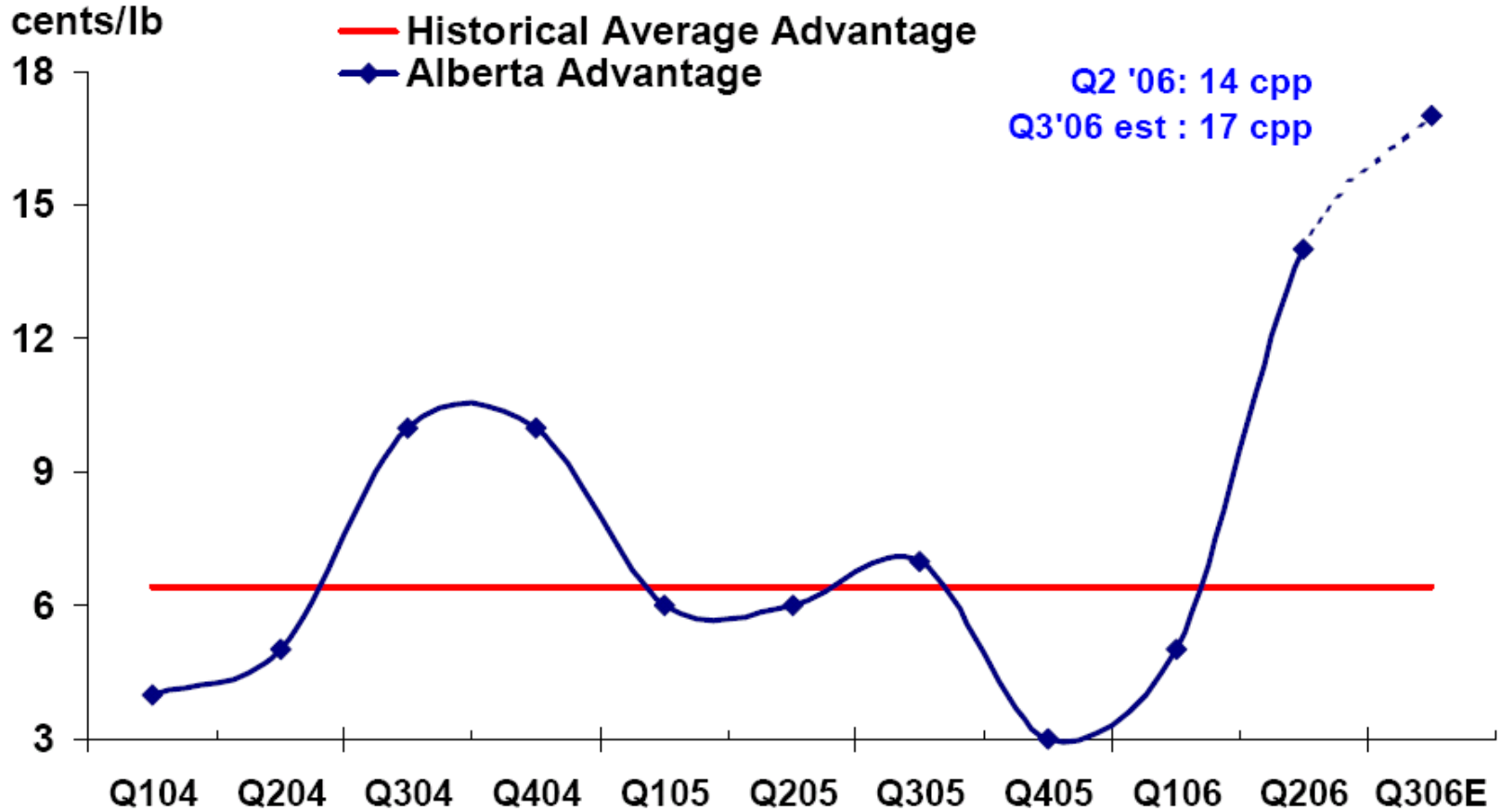


# Alberta Ethane Market

- Supply
  - ◆ Straddle plants on NGTL at Empress, Cochrane
  - ◆ Field plants via AEGS
  - ◆ Field plants via pipeline to Dow and Provident fractionators
- Consumers
  - ◆ Dow Fort Saskatchewan ethylene plant
  - ◆ Nova Chemicals/Dow Joffre ethylene plants
  - ◆ Small volumes on Cochin to Imperial in Sarnia
  - ◆ Small volumes for EOR operations near Judy Creek
- Typically ethylene producers are supply constrained
  - ◆ Declines in gas flows past straddle plants
  - ◆ Declining ethane content resulting from CBM, etc.
  - ◆ Increased intra-Alberta gas demand

# Alberta Advantage

## USGC Cost of Ethylene vs Alberta



Source: Nova Chemicals

## Outlook for Ethane Demand

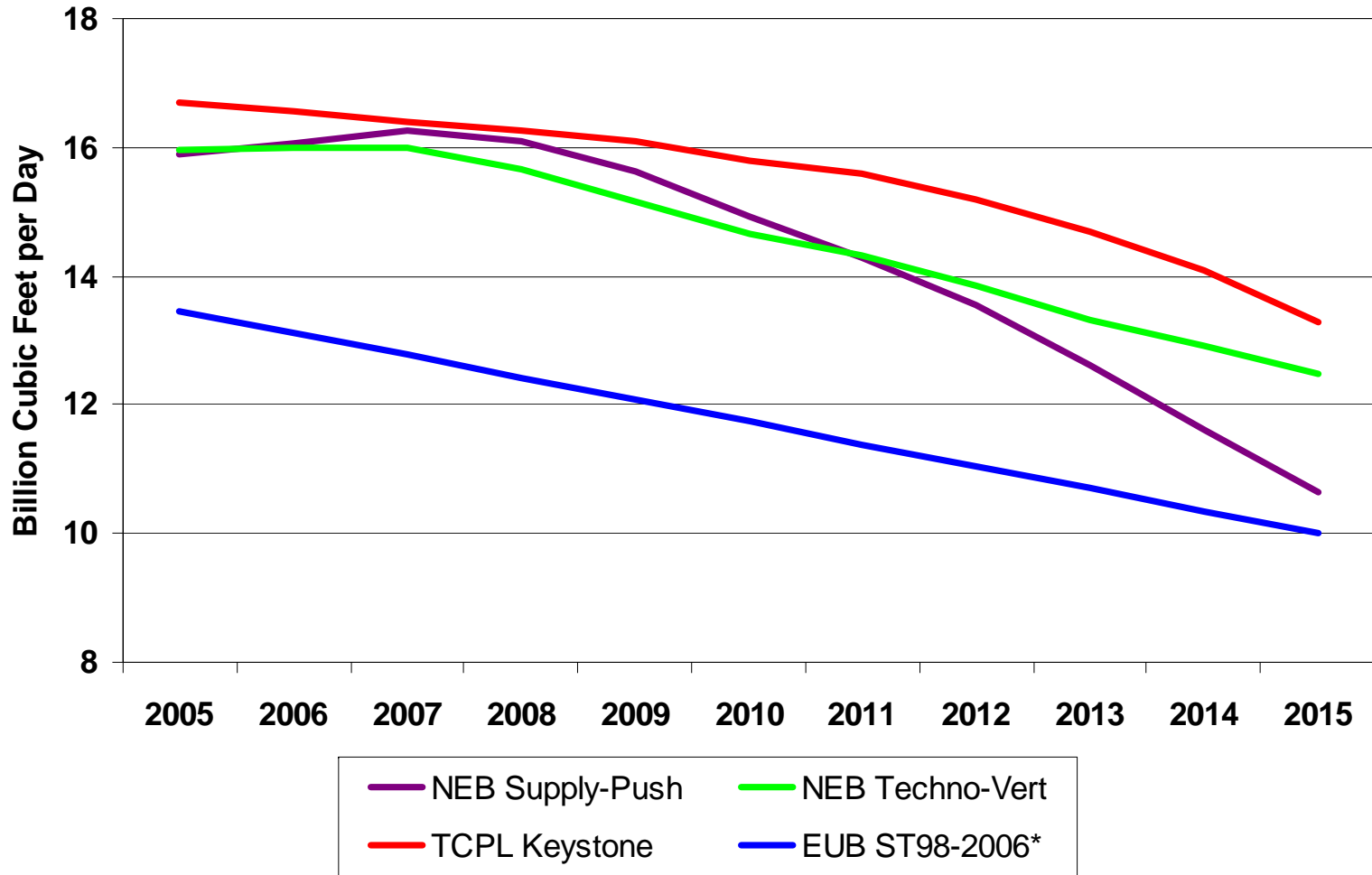
- Current ethane consumption ~ 230,000 bbl/d
- Current excess capacity ~ 25,000 bbl/d
- Total cracking capacity ~ 300,000 bbl/d
  - ◆ debottleneck existing facilities
  - ◆ adding derivative capacity
- Nova recent announcement of expansion to polyethylene facilities in Alberta
- Dow recent announcement to close EDC facilities

# WCSB Ethane Supply Potential

- Existing supply in decline
  - ◆ Conventional gas declines
  - ◆ CBM leaning our gas stream
  - ◆ Export gas flow declines due to increased local demand
- Potential supplies
  - ◆ Deepcuts
    - IPF CERP project, Taylor Harmattan project
    - IPF Empress V deep-cut
  - ◆ Unprocessed export gas
    - Straddle plant on Alliance in Alberta
  - ◆ Bitumen offgas processing
    - Depends on level of bitumen upgrading and technology used
  - ◆ Mackenzie gas
    - Rich gas into TCPL system, partial flow to existing plants
    - Depends on Northern Corridor pipeline
  - ◆ Alaskan gas
    - How much, where, when?

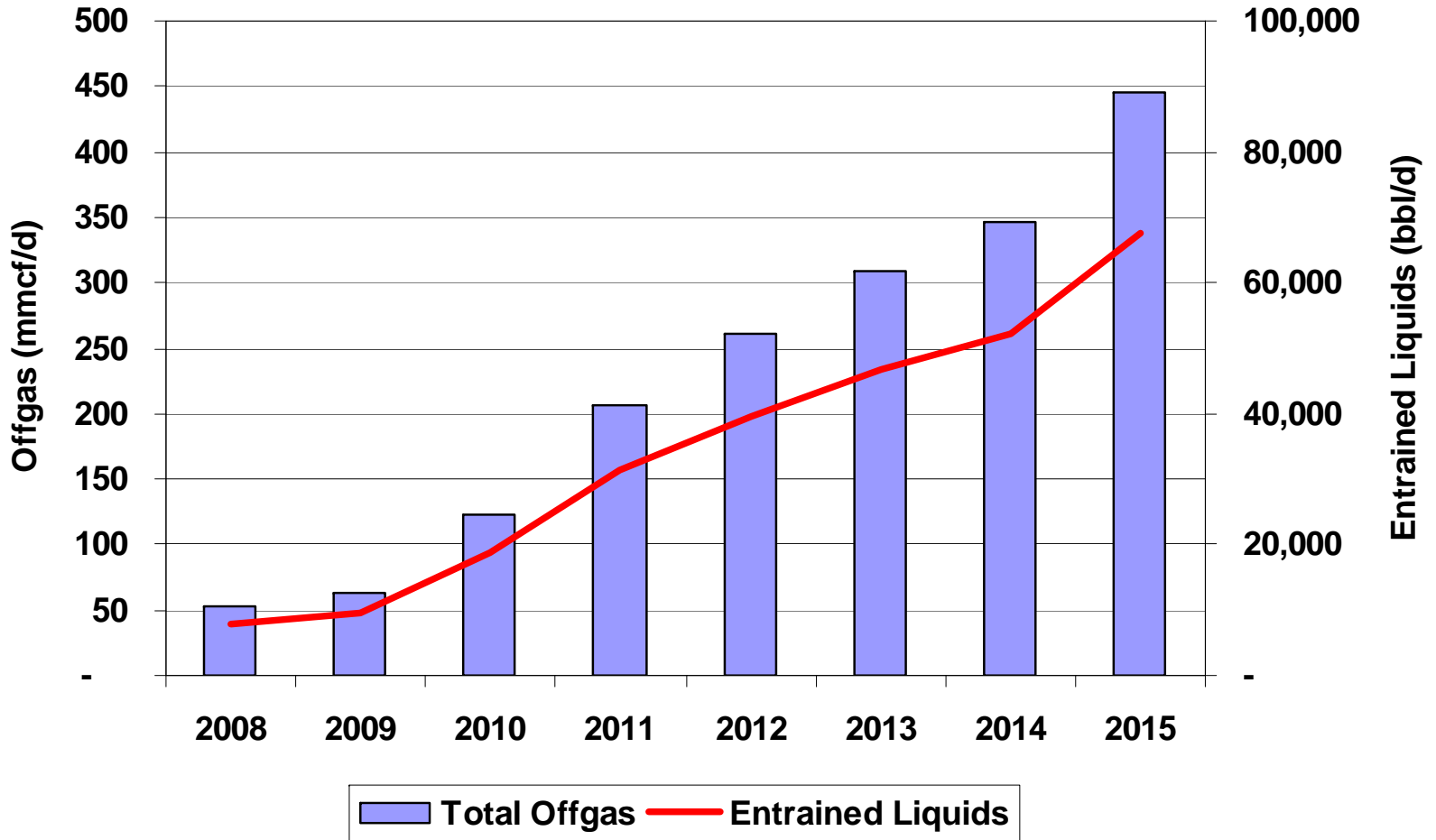


# WCSB Conventional Gas Supply Forecast



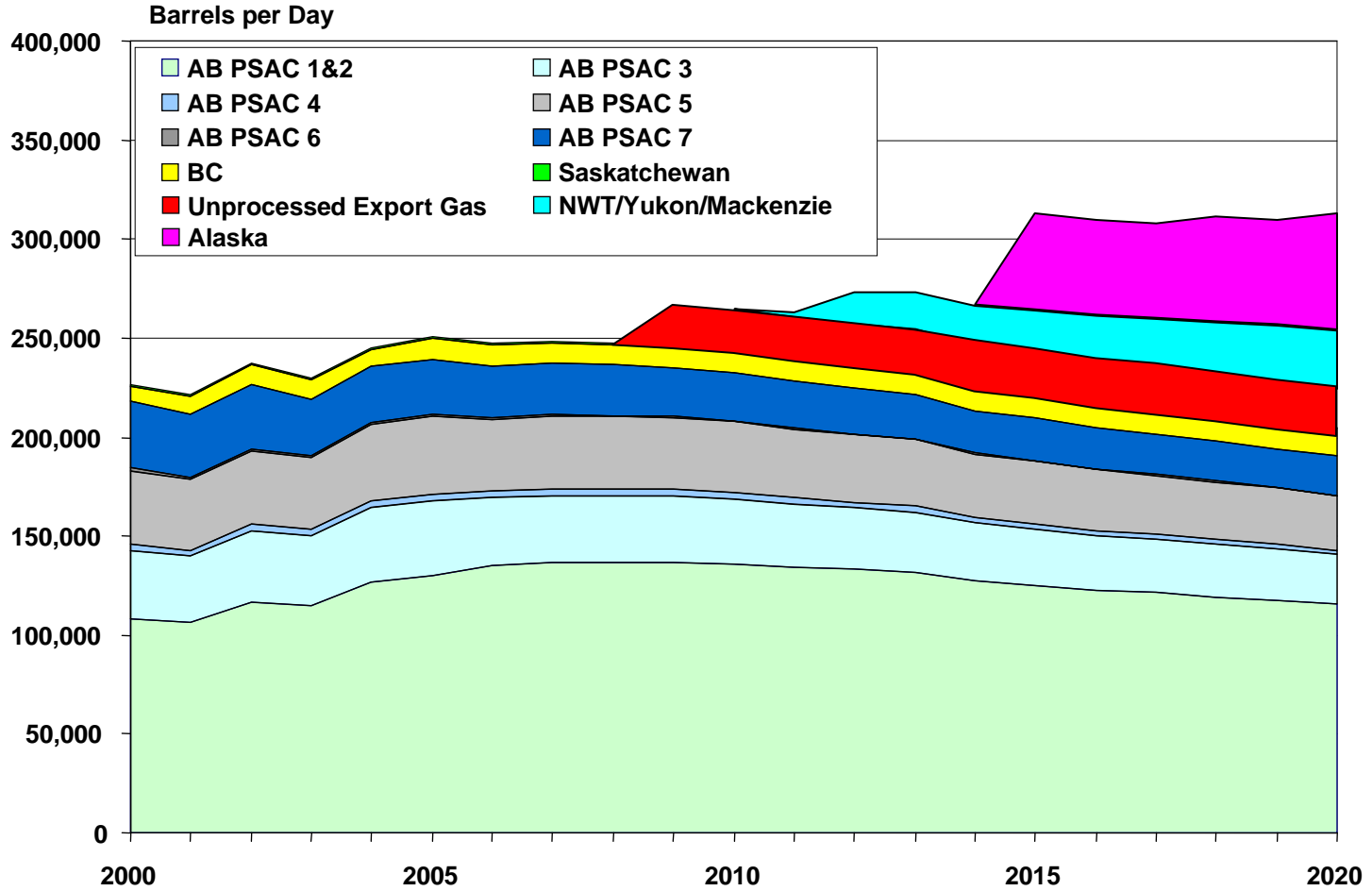
\*Alberta Gas Only

# Offgas Potential



\* Roughly half of the entrained liquids will likely be ethane/ethylene

# Ethane Supply Forecast



Source: Purvin & Gertz

## Reality Check

- Mackenzie gas
  - ◆ C3+ extracted in Norman Wells
  - ◆ Residue gas containing ethane is likely to flow unprocessed to oilsands users
- Alaskan gas
  - ◆ Timing 2016 at the earliest
  - ◆ Processing in Alaskan?
  - ◆ Into TCPL or Alliance or both?

## Conclusions

- Significant potential for incremental ethane supplies
  - ◆ Debottleneck existing deepcuts
  - ◆ New extraction capacity (e.g. ASC extraction of C2 from Alliance gas, etc)
  - ◆ Upgrader Offgas (e.g. Heartland Offgas Project, etc.)
  - ◆ Mackenzie, Alaska
- Incremental supply will be capital intensive
- Investments supported by
  - ◆ Alberta Advantage
  - ◆ Government Programs – EEP