

Energy Options for Fairbanks

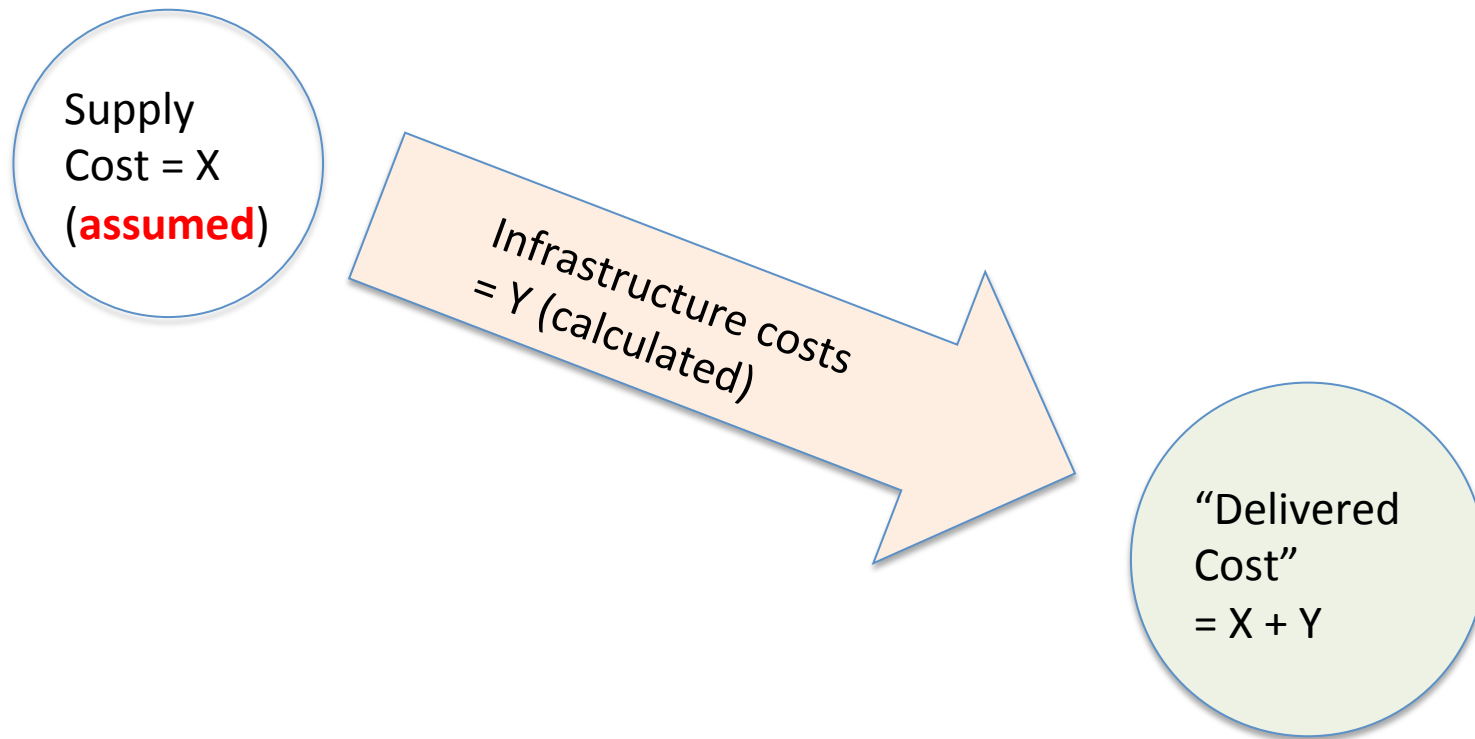
Research by Alaska Center for Energy
and Power and Antony Scott (UAF)

1/16/2013

What's Unique about the Study

- First to compare, on an apples to apples basis, alternatives for reducing Fairbanks energy costs
 - Trucking LNG off North Slope
 - ASAP project(s) (500MMcf, but also 250MMcf and 1Bcf)
 - Spur line off a Major Gas Sale (LNG to Asia)
 - 12", fit-for-purpose pipeline from North Slope to Interior
 - Beluga to Fairbanks pipeline
 - Susitna-Watana
 - HVDC (heat and power for Fairbanks)
 - Coal to liquids

A Usual Way of Modeling Projects: “Assumed Net-forward pricing”



- Focuses on the “easy” part of engineering costs, utility rate making

Simplified, Data-driven view of Alaska Commodity Markets

- “Stranded” ANS gas generally priced off DNR Gas Royalty Settlement Agreement

$$\textit{Price/MMBtu} = .0464 * (\textit{ANS WC \$/Bbl})$$

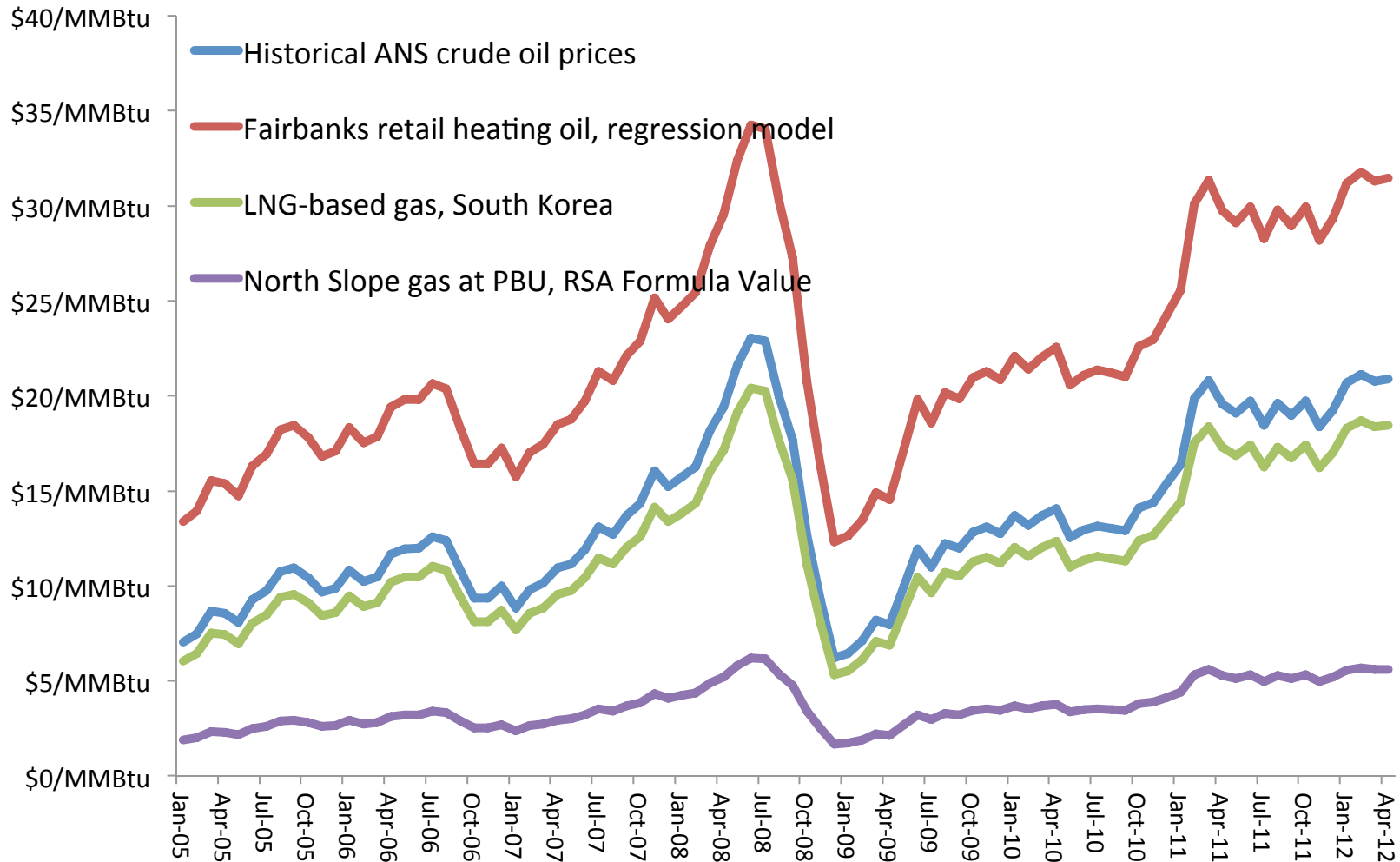
- Gas from long term contracts placed in Asian Pacific LNG market priced off oil, roughly:

$$\textit{Price/MMBtu} = .90 + .1485 * (\textit{ANS WC \$/Bbl})$$

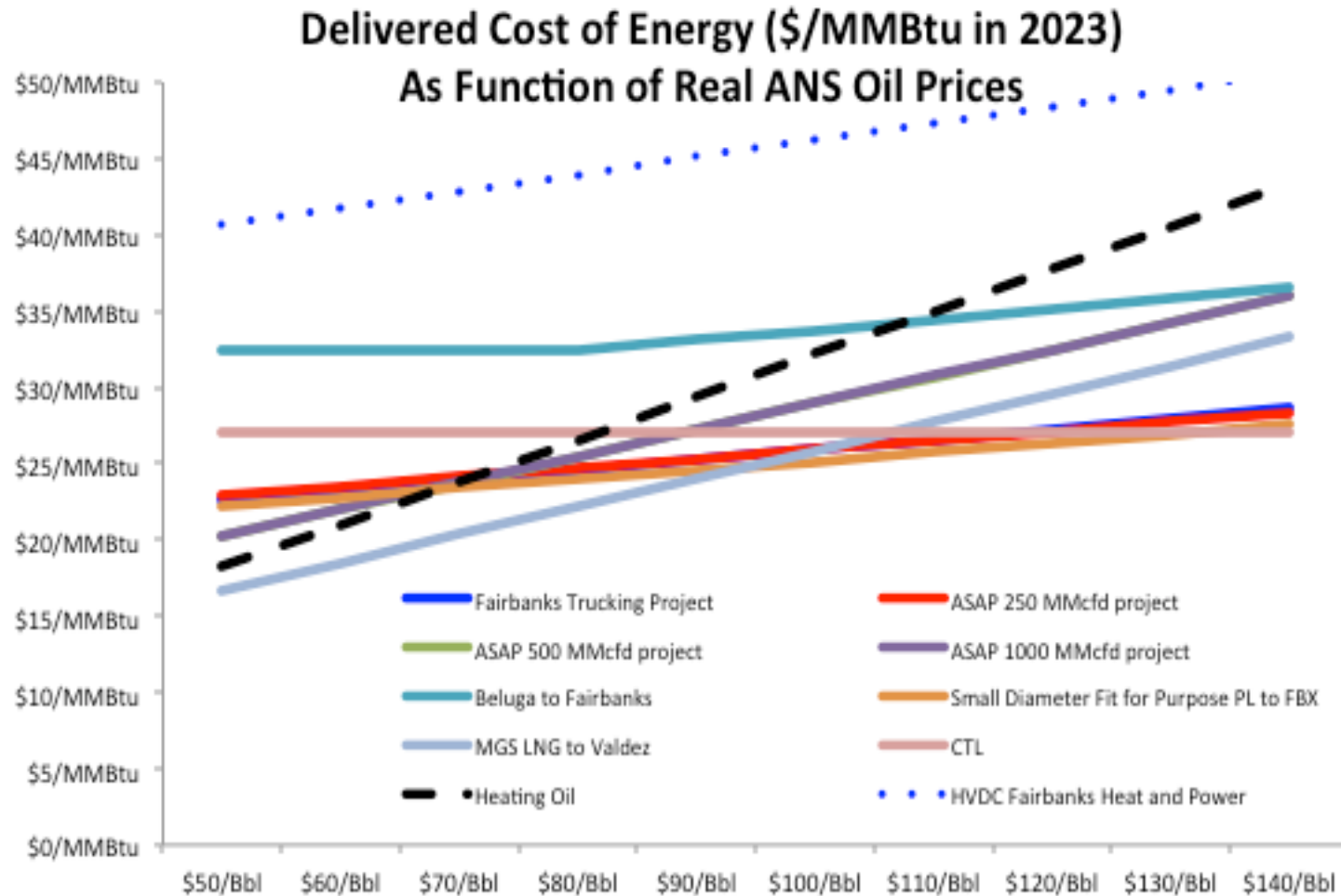
- FBX Heating oil

$$\textit{Price/MMBtu} = 4.20 + .225 * (\textit{ANS WC \$/Bbl})$$

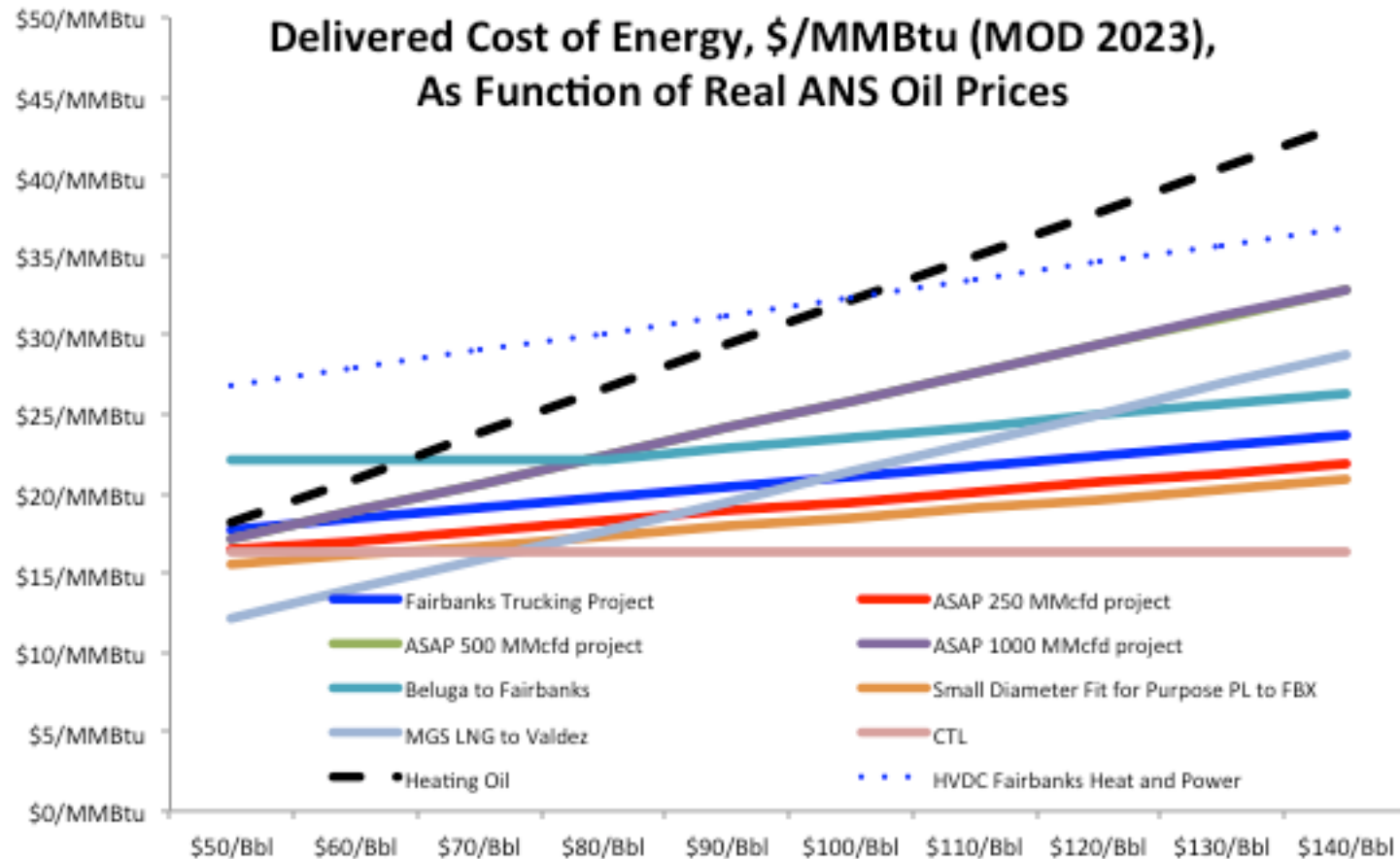
Illustrative Commodity Price Volatility as Function of Historical ANS Crude Prices



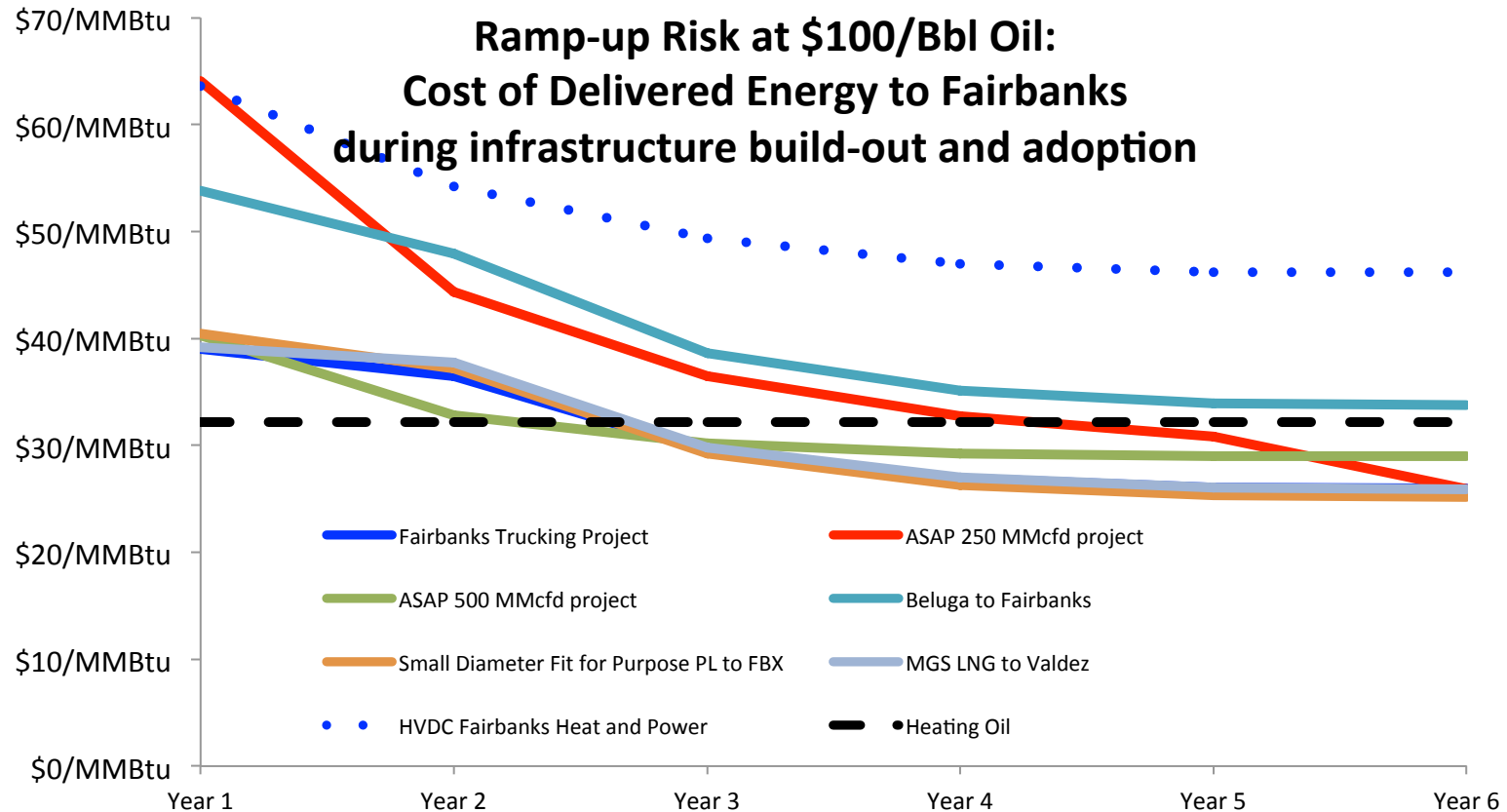
Private Ownership, Full Projects



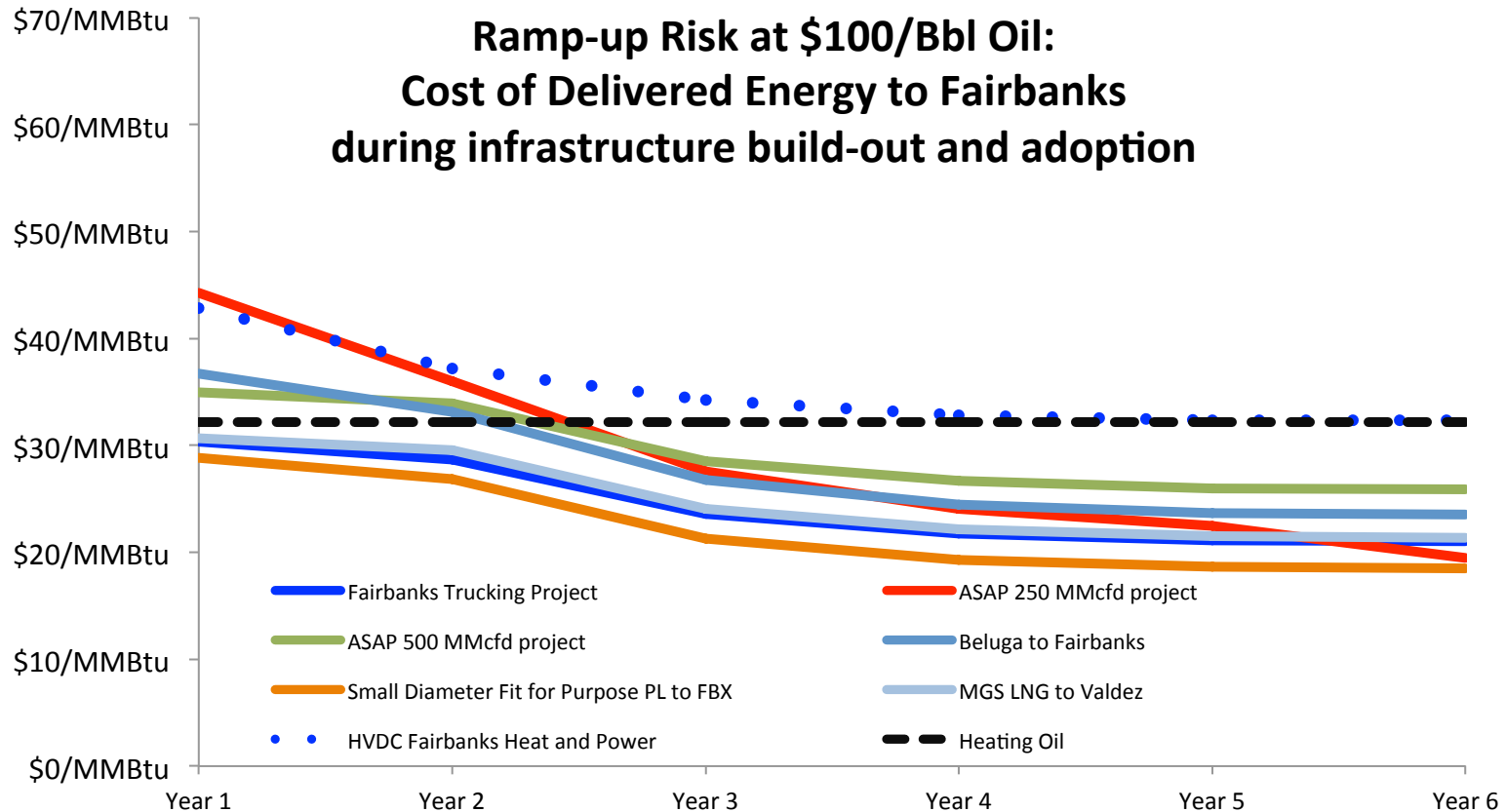
State Ownership, Full Projects



Private Ownership, Ramp-up Risk

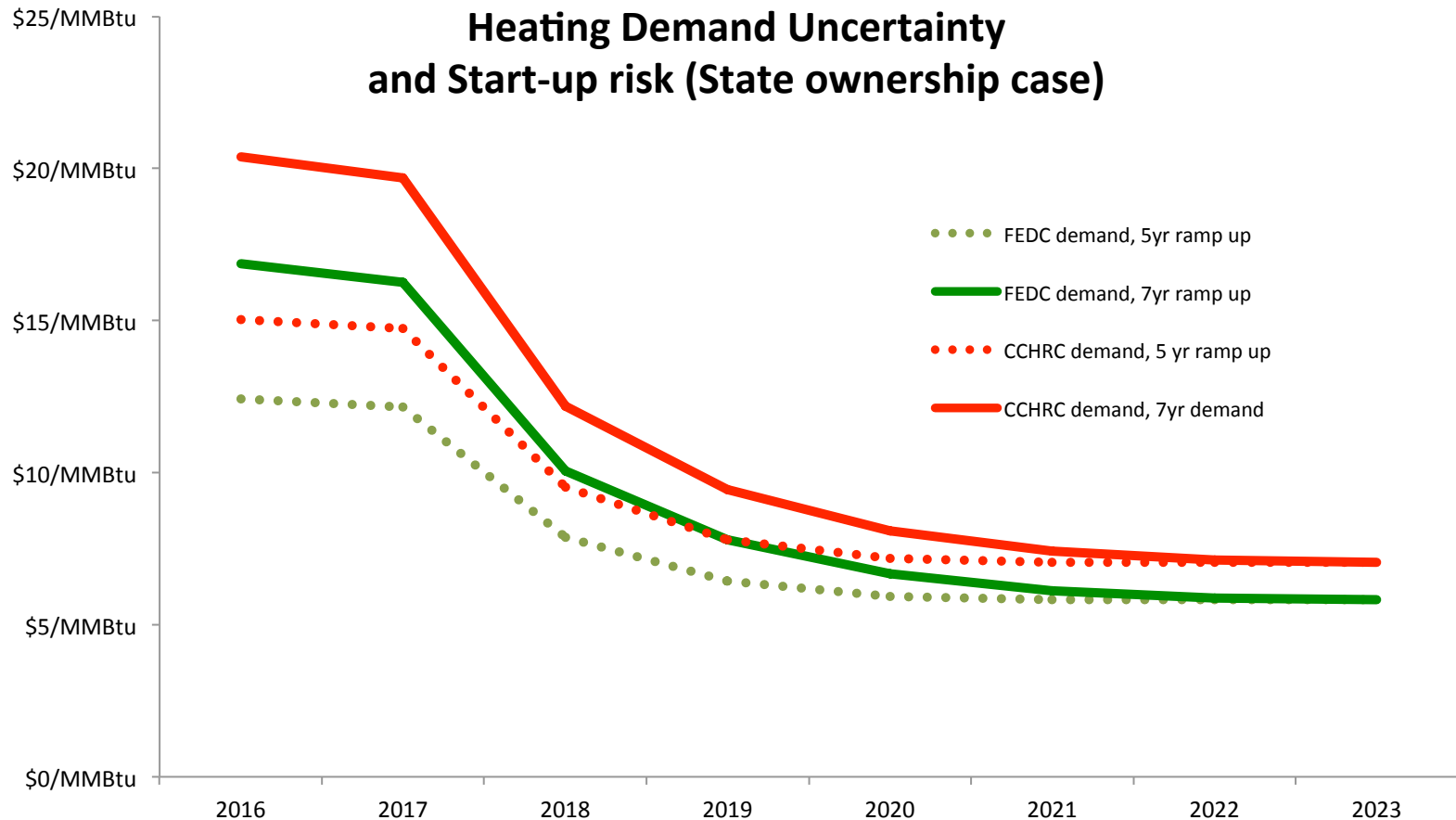


State Ownership, Ramp-up Risk

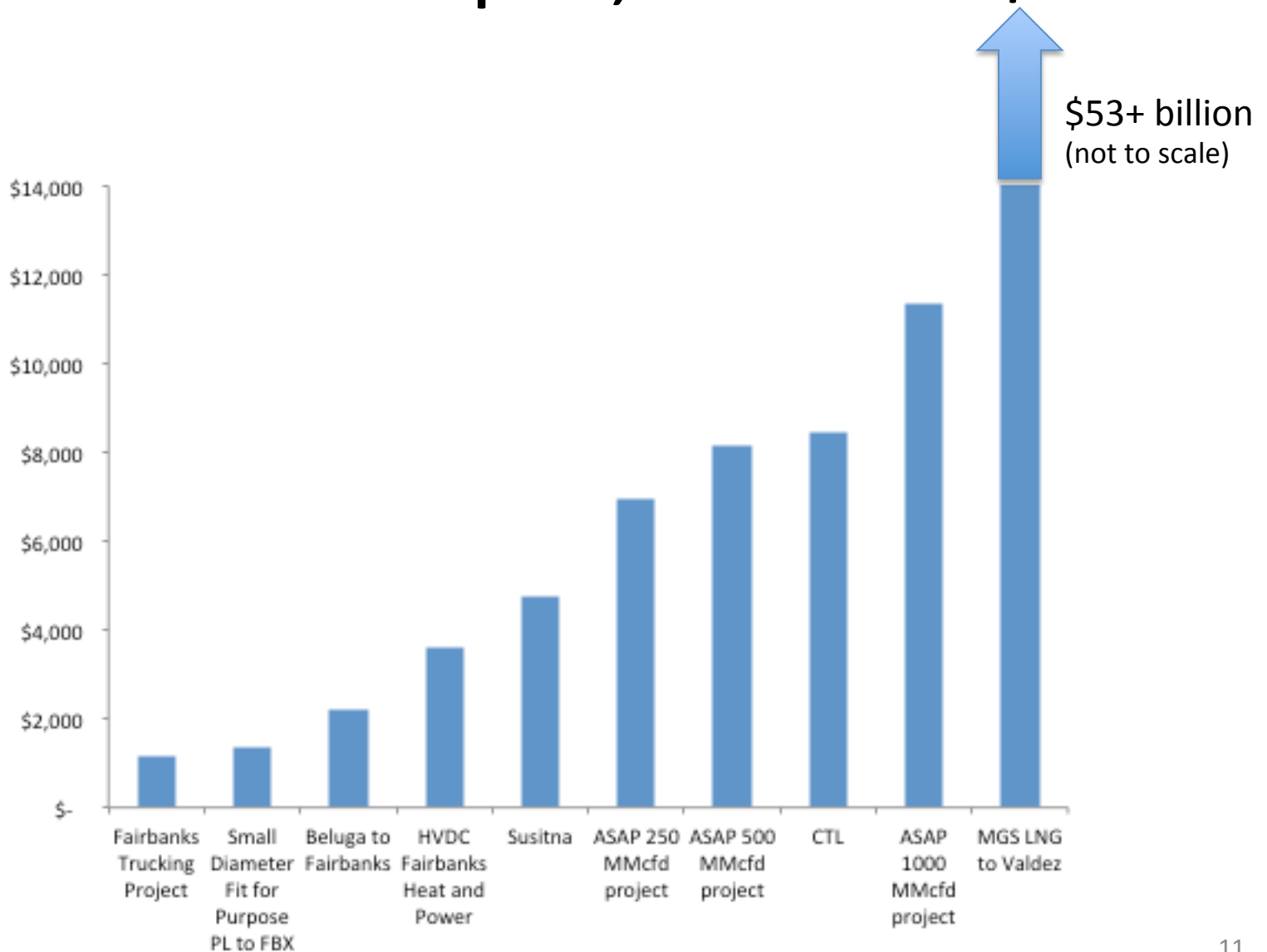


Effect of FBX Demand Uncertainty

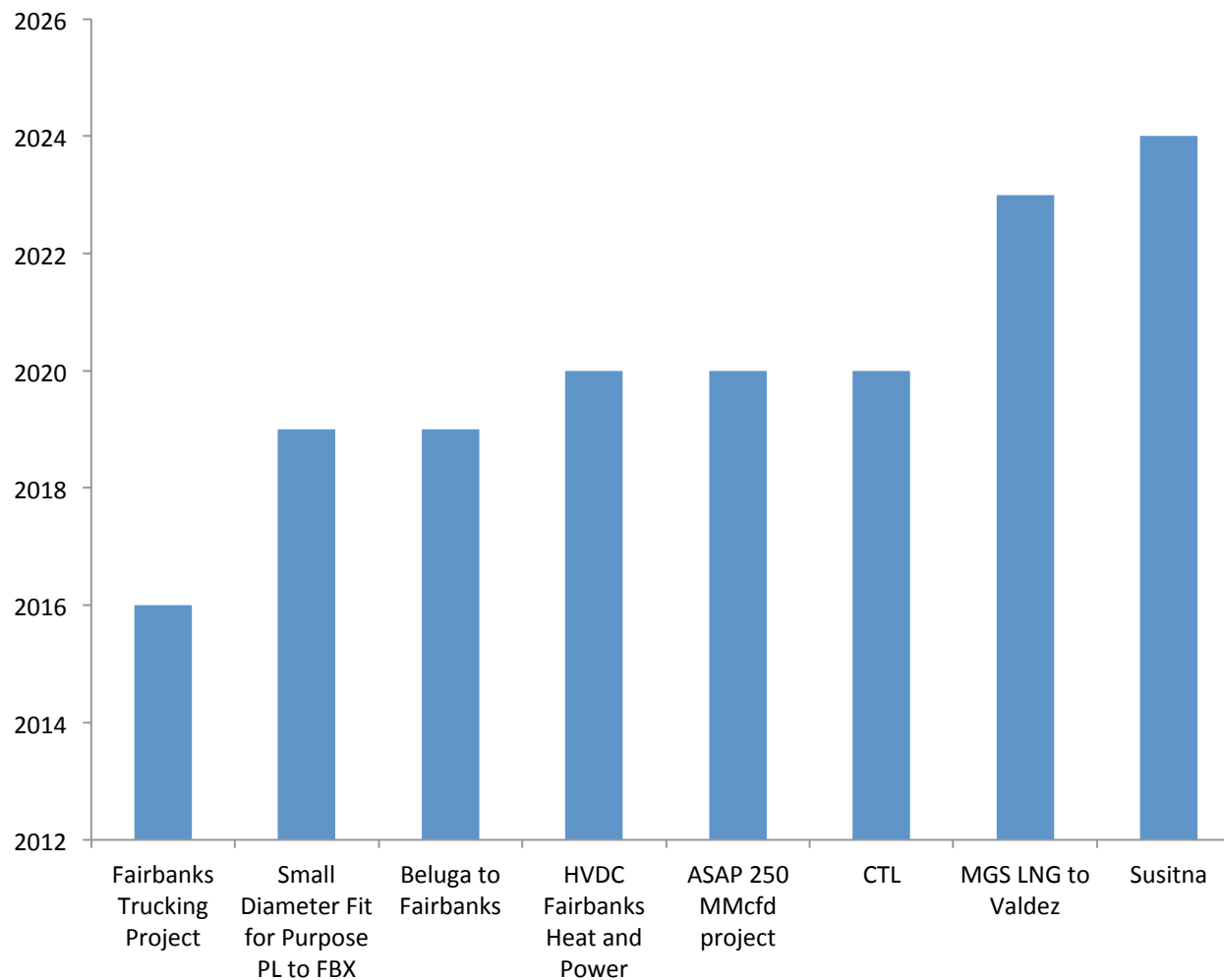
Local Distribution Infrastructure Costs



Project Total CapEx, Millions \$2012



Project Start Dates (no hiccups)



Summary

- Analysis focuses on dimensions of project risk
- Key drivers of results:
 - Focus both on commodity prices
 - Prices to Alaskans will be market driven, not “fair”
 - Almost all non-fuel costs assumed to be fixed
 - *No project optimized, all stylized*
- Focus on transportation capacity customers, gas supply contract terms