

Village Fuel Oil Price and Price Volatility

Policy Implications?

10/25/2014

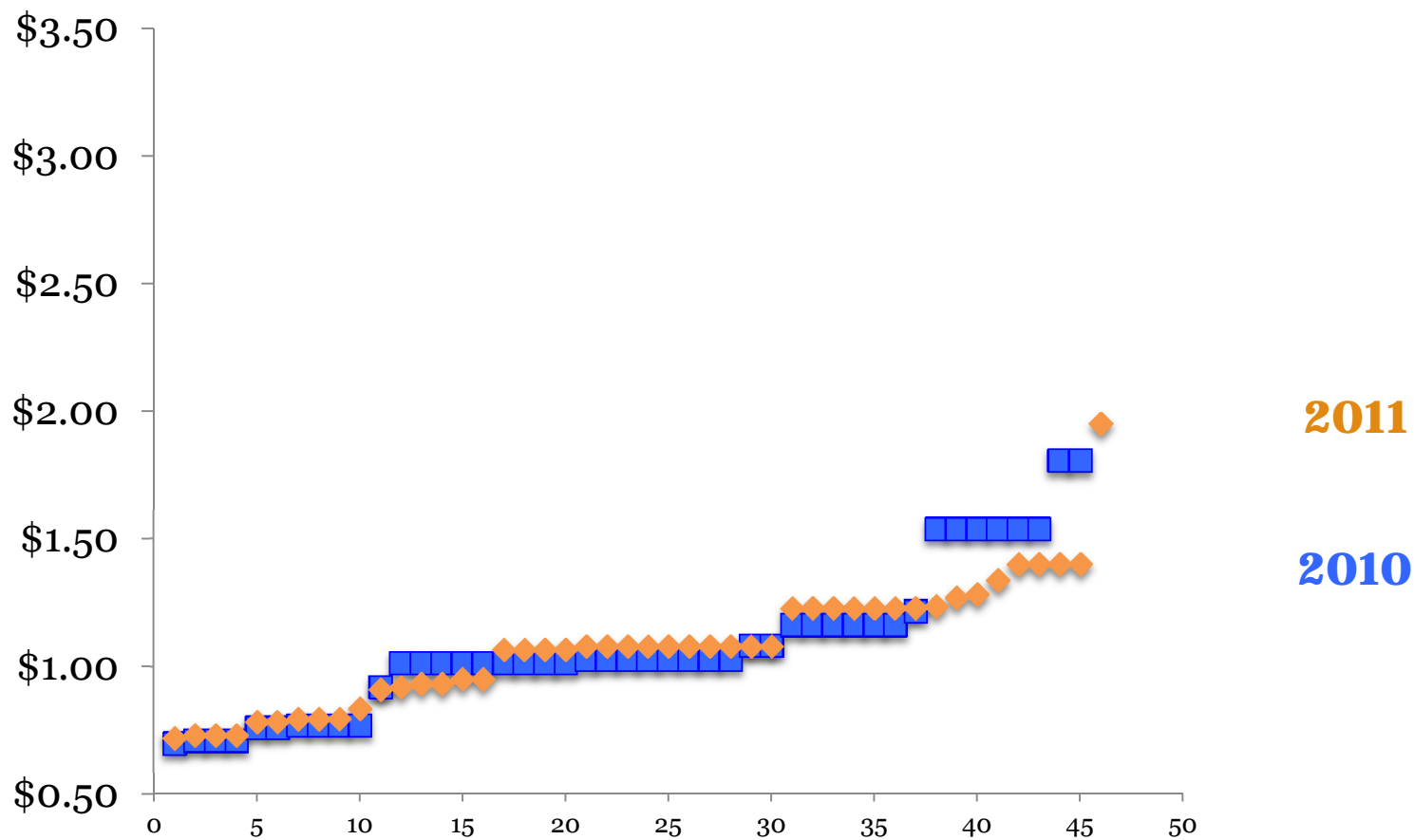


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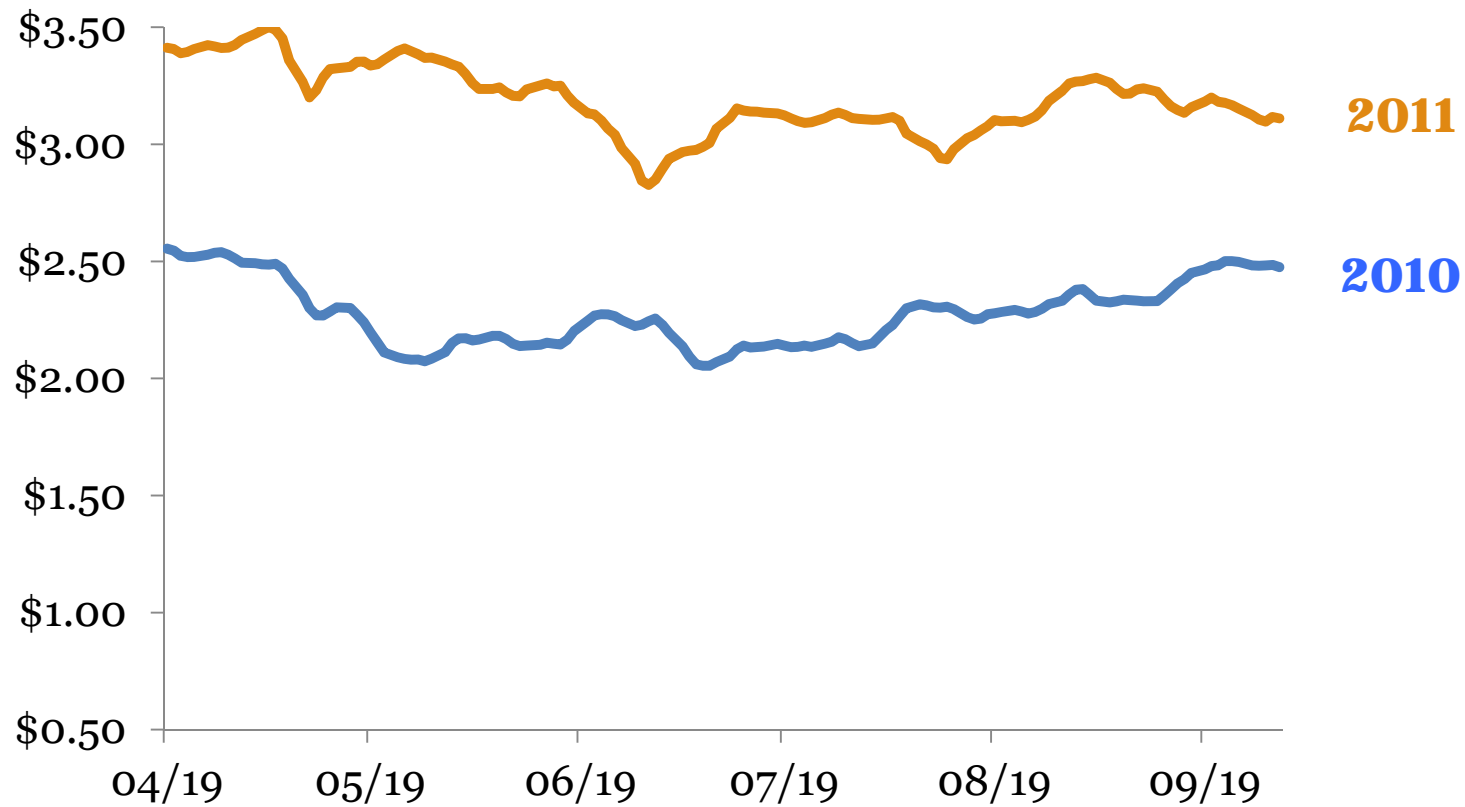
Components of Diesel Fuel Pricing

- The cost of diesel at the refinery
 - In general, distributors will not take fuel price risk
- Everything else:
 - Fixed costs of owning a barge (say) for the season
 - Fixed costs of operating a barge for the season
 - Variable costs of operating the barge
 - Profits
- Fuel price contracts reflect this:
 - $\text{Price/gallon} = \text{Refinery diesel price} + \text{“Adder”}$

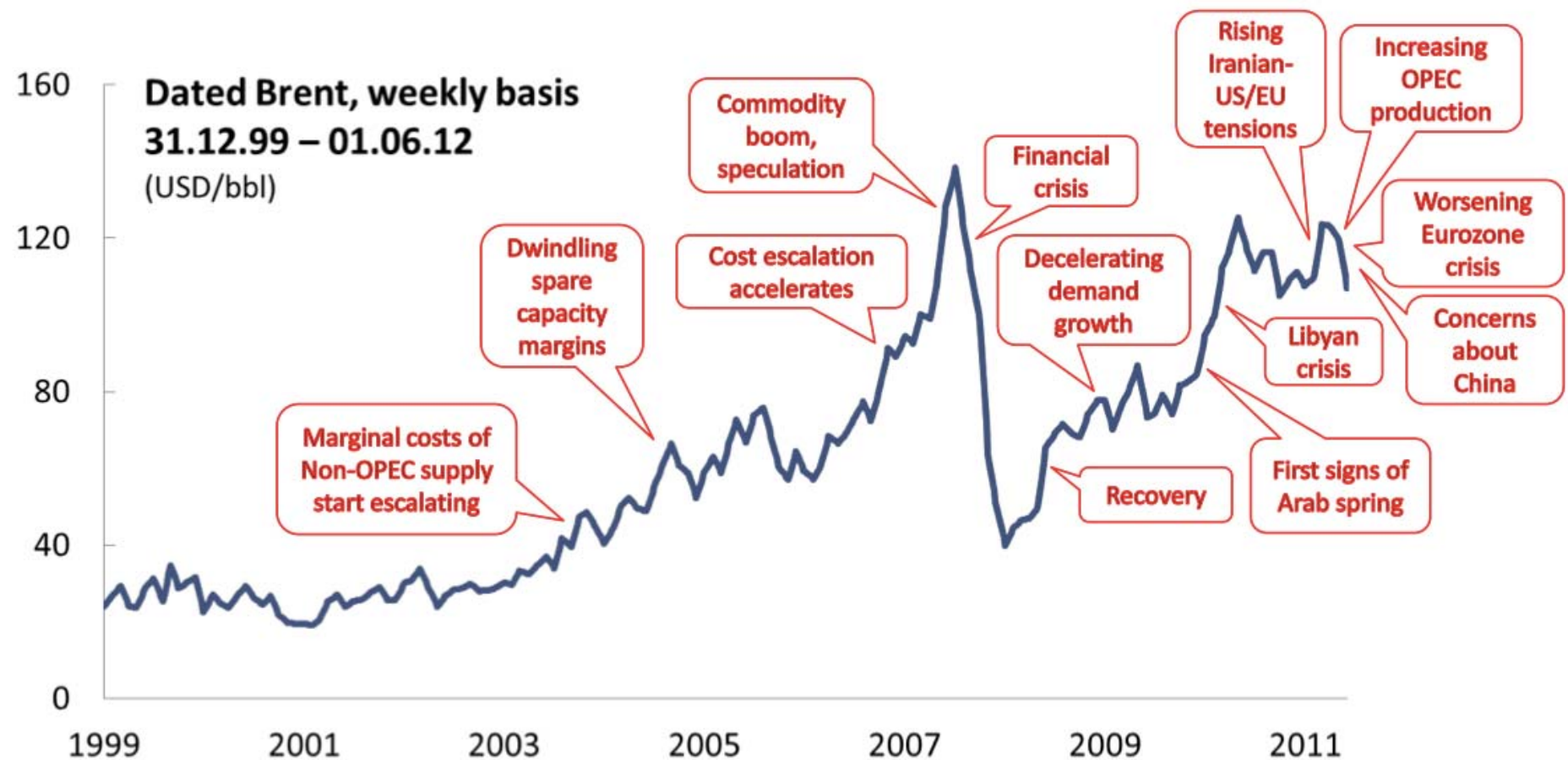
“Freight Adder” Portion of Fuel Prices Sample Communities in Western Alaska



Diesel Portion of Fuel Prices (Refinery) 2010 and 2011 Seasons



Oil prices on a rollercoaster since the mid 2000s



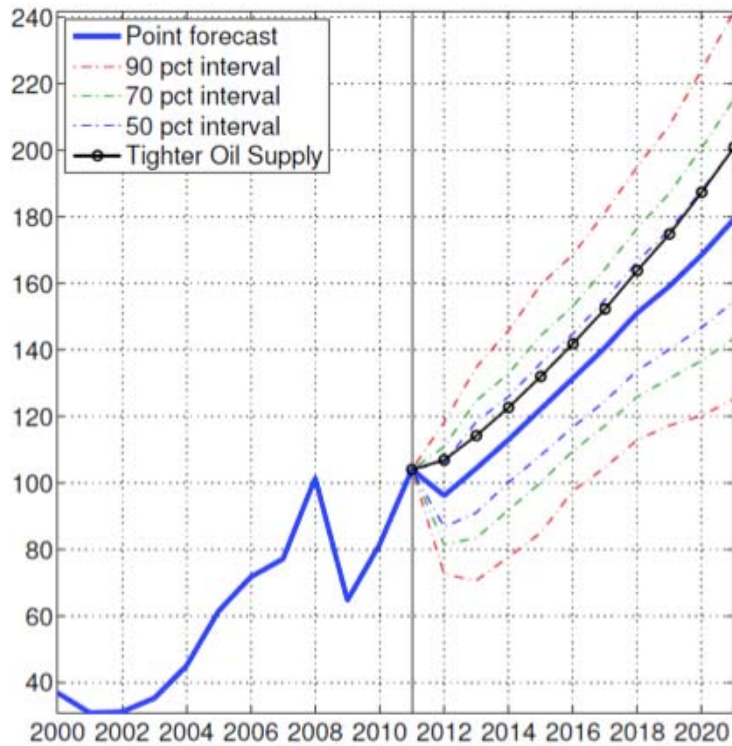
Source: Reuters EcoWin

What Will Diesel Prices Be?

*Prediction is very difficult,
especially if it's about the future*

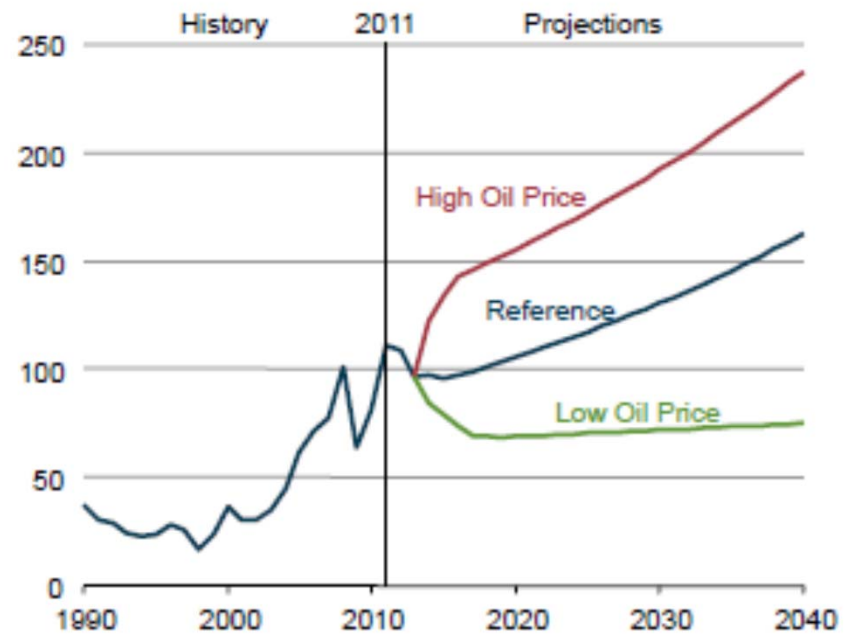
Niels Bohr, Nobel laureate

Professional views of future oil prices



Source: IMF Working Paper 12/109: The future of Oil: Geology versus Technology (May 2012)

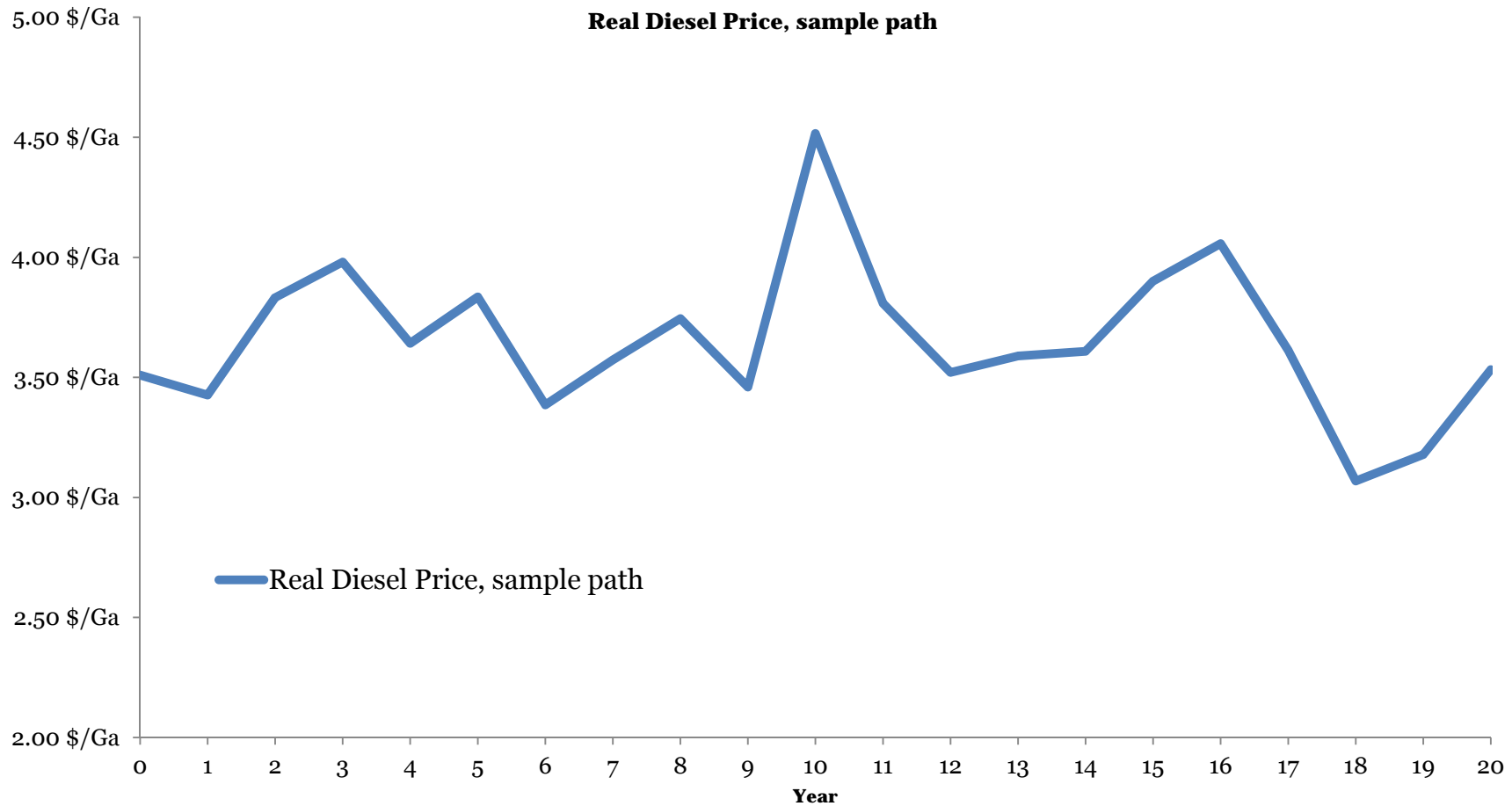
Figure 49. Brent crude oil spot prices in three cases, 1990-2040 (2011 dollars per barrel)



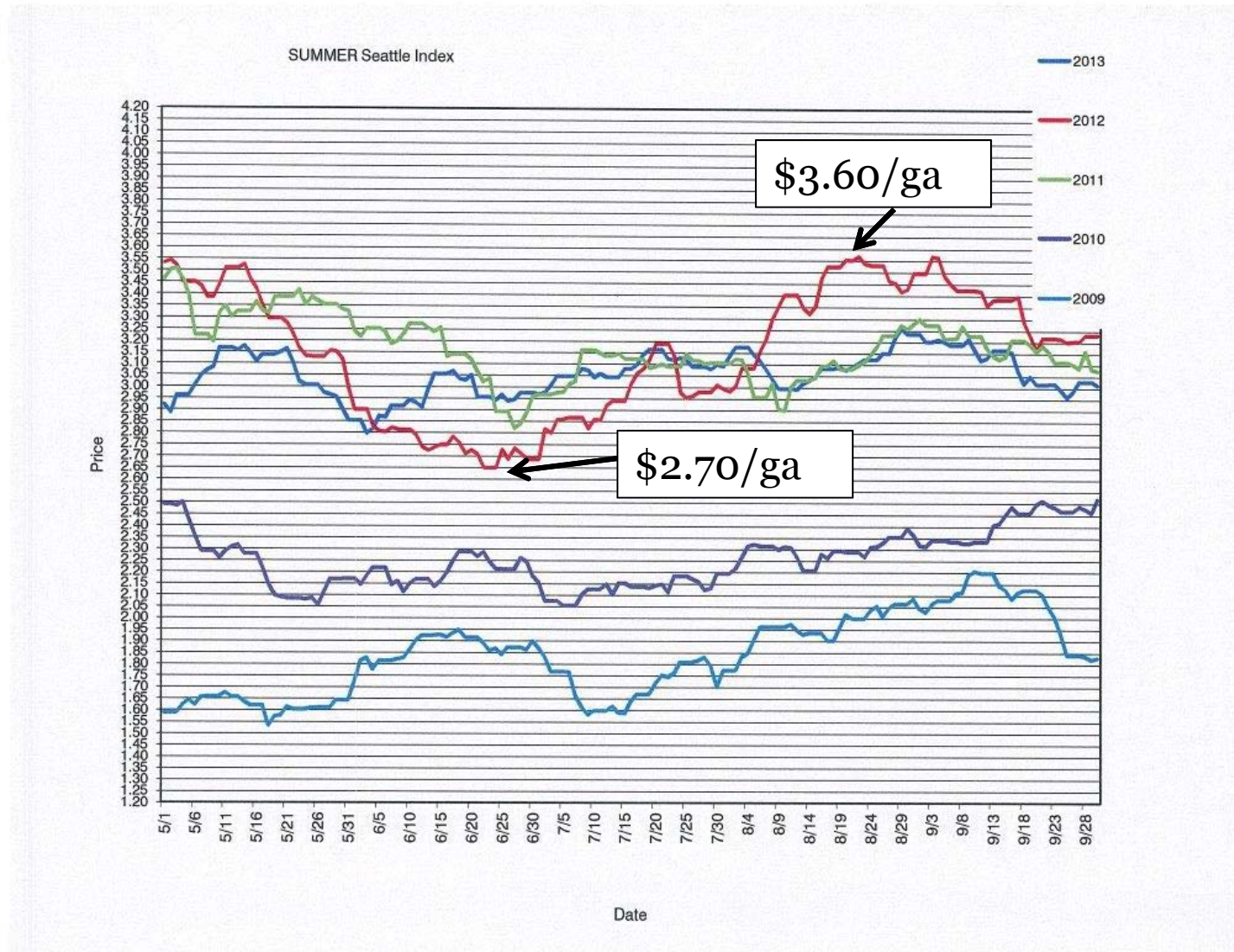
Fuel Volatility Should Affect Energy Investments and Decision Making

- *Price Volatility Affects Welfare*
 - “Don’t put all your eggs in one basket”
 - If we have investments we’re told to invest in a diversified portfolio
 - We buy insurance:
 - Car
 - Health
 - House
- Volatile prices have effects on household budgets

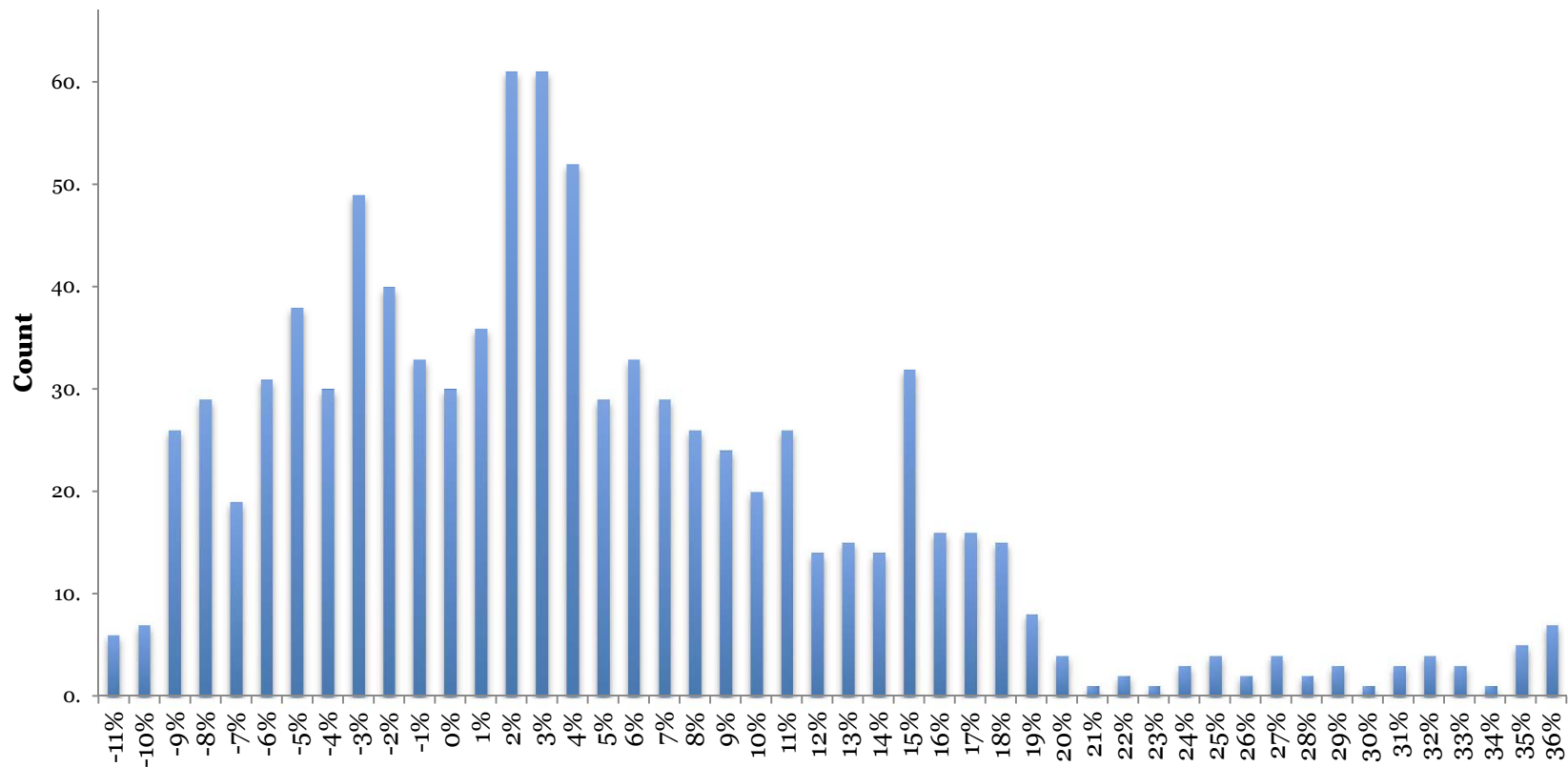
Simulated Diesel Volatility In Nome, Based on ANS Crude Volatility Model



Lift Date Uncertainty Adds Volatility



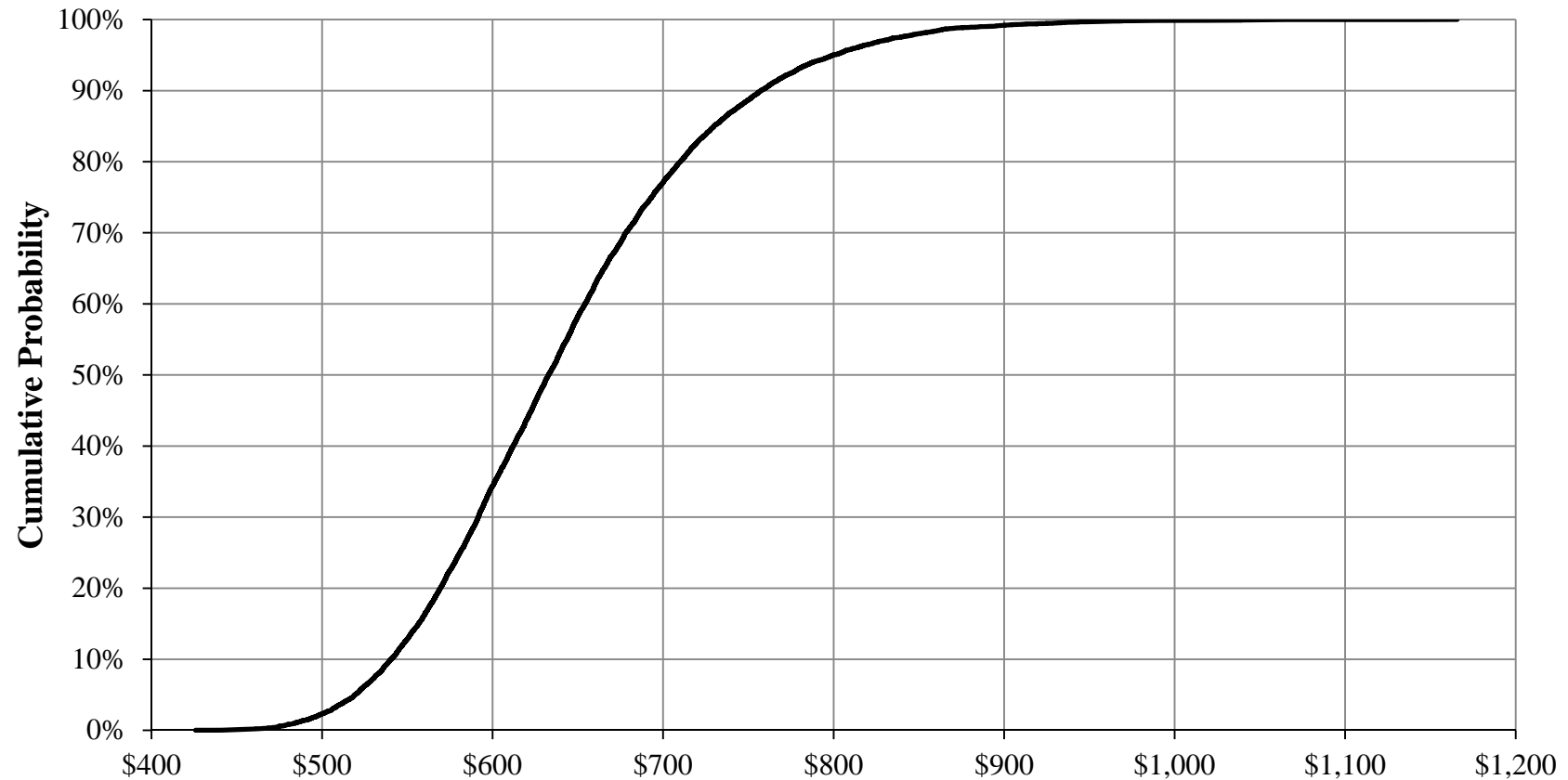
Percent price differences, 3-day avg ANS WC from yearly means, 2003-2013



Simulated effect of Nome's date-lift exposure



Annual Household Exposure to *Diesel* Portion of Electricity Costs (Nome)



Conclusions

- Costs of diesel at the refinery are by far the largest portion of overall fuel costs
- Costs of diesel at the refinery are very volatile, year on year and within the season
- The volatility can be more meaningfully modeled than future prices
- The volatility affects welfare
- Energy investment decisions should endeavor to explicitly capture the value of reducing exposure to volatility

Questions?

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