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PWC Energy Breakfast
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Good morning ladies and gentlemen. It is a pleasure to be here and I certainly want to thank our hosts for their kind invitation.

I moved to Alberta, with my family, close to eight years ago. I moved to Edmonton, and the University of Alberta School of Business because of the tremendous opportunities that I saw here. I have not, for a second, been disappointed.

On June 19 2000, the WTI price of crude oil was US\$31.57.

Yesterday, on June 18, 2008 the WTI price of crude oil was US\$136.11, more than a 400% increase.

Next year, on June 18, 2009, the WTI price will be

What can we say about price increases over the last eight years ?

- 1) What is in some sense more surprising, than the price change, is the things that have not changed, or at least have not changed very much.
 - a. Global oil demand has increased from 76 mb/d in 2000 to approximately 85 mb/d in 2007
 - i. Elasticity
 - ii. Supply (D=S)
 - iii. Cost of new supply
 - iv. geopolitics
 - b. Macro-economic effects: CPI April 2007-08 = 1.7%; \$100 basket of goods in April 2000 would cost \$120.11, or 2.32% increase per year
 - i. Of course broad inflation statistics don't capture the whole story (housing, energy costs, etc)
 - ii. Canadian dollar 0.68 to 0.0.98

- 2) What does the above say? Let's think of the three potentially counterintuitive facts (price increases, continuing demand increases and small macro effects)
 - a. Energy demand continues to increase
 - i. Demand is for derived goods and services (health, mobility, recreation, etc.)
 - ii. Population growth and wealth increases continue to drive demand for good services
 - iii. Some prices are subsidized
 1. direct subsidies, such as cheap fuel in many developing countries

2. our “markets” are imperfect and thus the market price, even without an explicit subsidy, does not account for all of the environmental costs
 - iv. Political volatility of energy pricing in many countries....
- 3) The contrast between the cost of oil to final consumers and quality of life is interesting. Using the US cents per liter for consumers and *The Economist* magazine’s “quality of life index” indicates that the cheapest gasoline in the world is found in places with relatively low quality of life: Turkmenistan (2) (102), Iran (9) (88), Libya (9) (70).
- 4) Unsurprisingly, and not suggesting that there is a direct correlation, the most expensive gasoline is found in jurisdictions with relatively high quality of life: Hong Kong (154) (18), Finland (154) (12), UK (156) (29), Norway (161) (3), Netherlands (162) (16) and Iceland (164) (7).
 - i.
 - b. What does the above tell us?
 - i. Energy intensity has improved a great deal, i.e. energy per output of good or service has decreased
 - ii. High prices are not, in and of themselves “bad”, and high prices do not preclude good quality of life
 - iii. Price impacts – prices work!!!
 - iv. How do prices work? Behaviour, innovation, technology
 - v. But prices are not sufficient – good regulatory, political, economic and governance regimes are necessary.

Can we bring the above lessons to the energy and environment challenges that we face?
 What do we need to keep in mind?

- a) You need a clear objective
 - a. Consumers have been sold a bill of goods – you can have your cake and eat it too – cheap energy and climate protection, someone else will pay
- b) you need good clear rules
 - a. one pb with GHG policy today is that the rules are not clear between provinces, the federal government, the US, the EU, etc What is a firm to do?
- c) prices work, but prices are only part of the decision-making calculus and the impacts of prices vary a great deal between markets, technologies, etc. In the energy intensive sectors the price elasticity, in the short term is very low
 - a. in Alberta prices are playing a role – Alberta cost increases, etc and increases in activity in BC and Sask. We can’t begrudge our neighbours for this, we benefited in much the same way for the past 20 years, etc.
- d) prices are signals, both short-term and long-term
 - a. think of current prices of oil and ask if they are sufficient to boost production, or move product out of inventory, and you have to ask what future prices will be? The analogy with natural gas storage and injection in

the summer is relevant. So what will long-term prices be on global markets? Need a political scientist.

- e) Climate change is still not a “real” problem for many
 - a. The “future” price of policy is still uncertain, thus not prompting “much” action
 - b. Prices across jurisdictions are not similar, thus prompting confusion and uncertainty
- f) So, Alberta has an opportunity to lead
 - a. We have the “energy” in every sense
 - b. We have resources, financial and human capital
 - c. We should have the incentive, as many of these problems will not be solved for us, we can be leaders, or followers