

### Alaska's Role in World Energy Supplies

Meet Alaska 2012

Marianne Kah January 6, 2012





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Oil and Natural Gas Outlook

Alaska's Role in Supplying Energy

Investment Challenges in Alaska





## **Crude Oil Outlook**



#### **Short-Term**

- Looser oil balance than at start of 2011
  - Slowing global economic and oil demand growth
  - Libyan production returning

#### Long-Term

- Moderate pace of global demand growth
  - Uncertain rate of global economic growth
  - Peak oil demand in OECD
  - Significant growth in developing countries
- Uncertainty about whether supply increases will keep pace with global demand growth
  - Constrained resource access for conventional oil
  - Geopolitical impacts on supply (e.g., Arab Spring, U.S. troops leaving Iraq)
  - BUT: Increased availability of unconventional and other frontier supplies
- Cost increases maintaining higher-than-historical oil price

#### Long-Term World Oil Demand Outlook IEA Benchmark "New Policies" Scenario





## OECD demand has peaked but significant growth is projected in developing countries

Source: International Energy Agency, "2011 World Energy Outlook" \*Other includes other developing countries and international marine bunker fuel

### The Earth's Oil Endowment





**Enormous unconventional resource potential** 

Source: IEA World Energy Outlook 2008

## **Future Oil Supply Needs**





#### Significant capacity additions required

Source: Based on IEA World Energy Outlook 2011 Assumes 4.6% decline (3.5% between 2010 and 2020 and 5.5% between 2020 and 2035)

### Long-Term Oil Supply Costs by Source



#### **Production cost\* (\$2010 Dollars per Barrel)**



**Resources (billion barrels)** 

#### Unconventional resources are more accessible but may have higher costs

Source: IEA World Energy Outlook 2008

\* Pre-tax full-cycle cost, including 10% return; excludes biofuels

### **Predicting Crude Prices is Daunting**

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Source: U.S. Department of Energy, EIA Annual Energy Outlook, 1982, 1984, 1991, 2004, 2008 and 2011; NYMEX for futures as of 12/15/11



# Natural Gas Outlook

### **Global Energy Demand By Fuel**





Oil losing market share with small gain for natural gas

Source: U.S. Department of Energy, International Energy Outlook 2011 & BP Statistical Review

### **Gas Share of Primary Energy Demand**





Gas penetration still very low in developing nations

Source: International Energy Agency, 2011 World Energy Outlook, 2009 data

## **Global Natural Gas Endowment**





**Over 300 years of technically recoverable reserves & resources** 

Source: IEA World Energy Outlook 2009; IEA Golden Age of Natural Gas 2011

### **U.S. Natural Gas Reserves and Resources**



#### Sharp increase in shale gas resource estimates in recent years

"Proven" = SEC proven reserves; all other categories shown are technically recoverable resources

DOE = Data from U.S. Department of Energy, Energy Information Agency "Annual Energy Outlook"; data are as of January 1 of year indicated; 2007 data published in 2009 report

Tight Gas is included in Conventional Resource estimates for all years

ConocoPhillips

#### Gas Production Outlook from Key North American Shale Gas Plays





#### Large increase in North American shale gas production through 2020

Source: Wood Mackenzie

## **Cost of North American Resource Plays**



#### Cost of service (\$/MMbtu)



**Attractive economics for North American resource plays** 

Sources: Ross Smith & ConocoPhillips

### **Natural Gas Price Outlook**





#### **Crude-to-Gas Price Ratio\***

#### U.S. natural gas prices are expected to remain disconnected from oil prices

Sources: Futures is NYMEX settle on 12/15/2011; DOE is 2011 Annual Energy Outlook

\* WTI (\$/bbl) divided by Henry Hub (\$/mmbtu)



# ALASKA'S ROLE IN SUPPLYING ENERGY



### **U.S. Crude Oil Production**





Source: PIRA Energy Group

#### **Comparison of Oil Production** A Tale of Two States





#### Production declining in Alaska vs. strong growth in North Dakota

Source: U.S. Department of Energy – State Oil Production indexed to 2007 = 100 2011 through July

#### **Comparison of GDP Growth** A Tale of Two States





Source: U.S. Department of Commerce, Bureau of Economic Analysis – Real State GDP (Real 2005\$) indexed to 2007 = 100

#### **Comparison of Job Growth Rate** A Tale of Two States





Source: U.S. Department of Commerce, Bureau of Economic Analysis – Total Non-Farm payroll data indexed to 2007 = 100 2011 YTD through October

### **U.S. Natural Gas Supply Sources**

#### Wood Mackenzie View





#### Shale growth challenging competitiveness of Alaska gas

Source: Wood Mackenzie

\* Observed decline rate, including reinvestment



# INVESTMENT CHALLENGES IN ALASKA

### **Investment Criteria**





### **Investment Criteria: How Alaska Ranks**



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# Average Commercial Discovery Size (2000-2009)



#### Lower prospectivity in Alaska

Source: Wood Mackenzie

The average discovery size is calculated as: total commercial reserves discovered (2000-2009) / total number of commercial fields discovered (2000-2009).



## **Costs in COP Portfolio**

ConocoPhillips



- Alaska costs are increasing at greater rate than other areas
  - Aging infrastructure concerns and increasing well work
  - Market forces
  - Regulations
  - Smaller, more complex field developments

#### Alaska has highest cost structure in COP portfolio

Source: ConocoPhillips 2010 10K report; Results from Consolidated operations; Costs include production costs, excluding taxes, and transportation costs.

### Alaska's Progressivity – Least Attractive Among OECD Countries at Current Prices



#### **Marginal Government Take**



Source: PFC Energy

# ... And Its Marginal Take is One of the Highest Globally





Other OECD marginal government take significantly below Alaska's take

Source: PFC Energy

### Summary



- "Tight oil" and shale gas driving production renaissance in the United States, and eventually globally
- Sustained period of natural gas oversupply in the United States
- Alaska's role in supplying energy is diminishing
- Alaska is competitively challenged vs. other producing states and countries
  - Lower prospectivity
  - Higher cost
- Fiscal policy in Alaska is further diminishing its role
  - Current tax structure takes away the upside flat earnings profile
  - High progressivity hurts project economics even in a high price environment
- High tax rate is limiting investment & production in Alaska