

A stylized graphic of a globe is positioned on the left side of the slide. It consists of several overlapping, light blue curved lines that represent the latitude and longitude of a globe, creating a sense of depth and movement.

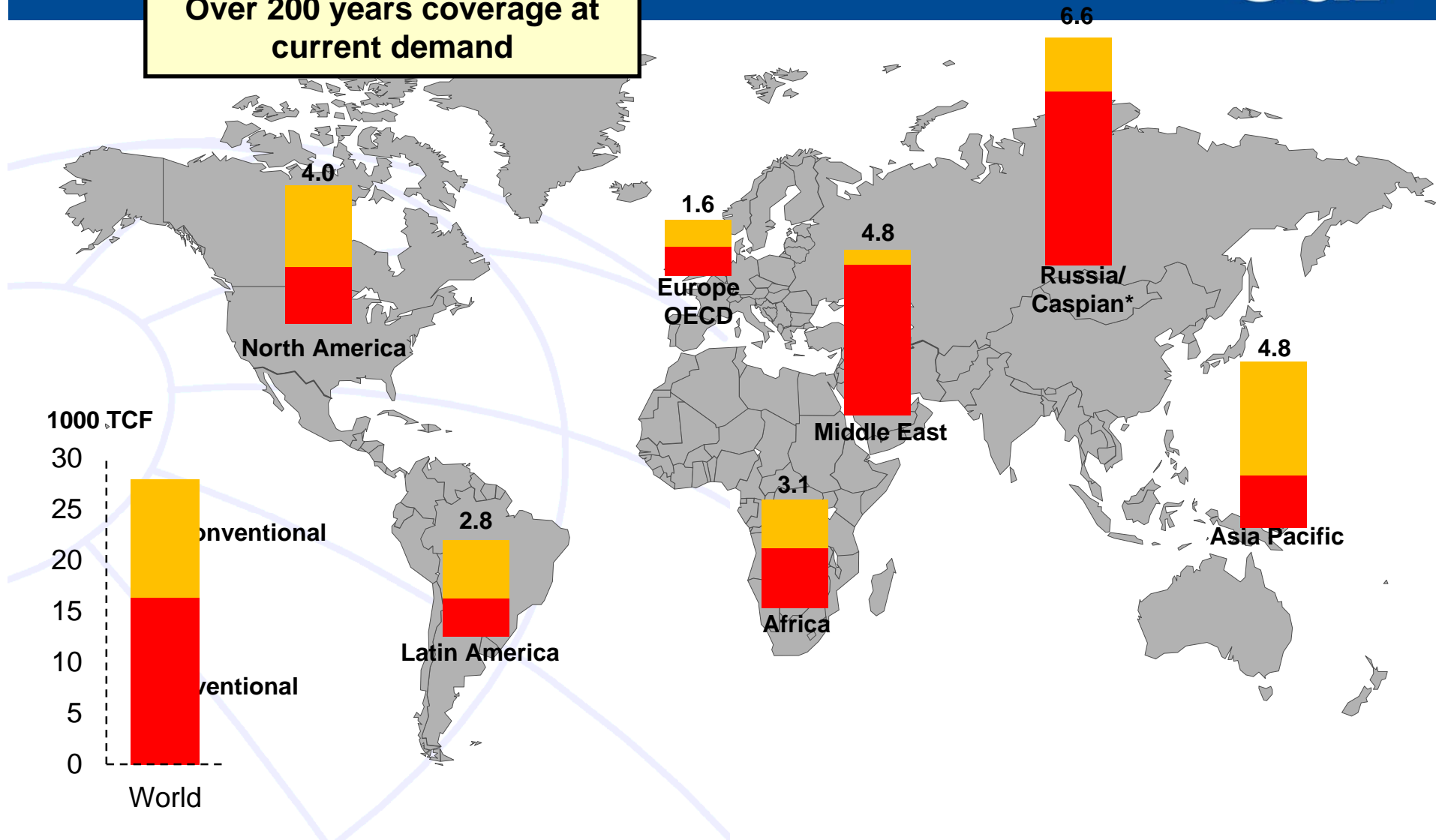
Potential economic impact of shale gas production in Europe

Nikolaas Baeckelmans
Chairman, OGP Shale Gas Task Force
Director, EU Affairs, ExxonMobil

Remaining Global Gas Resource

OGP

Over 200 years coverage at current demand

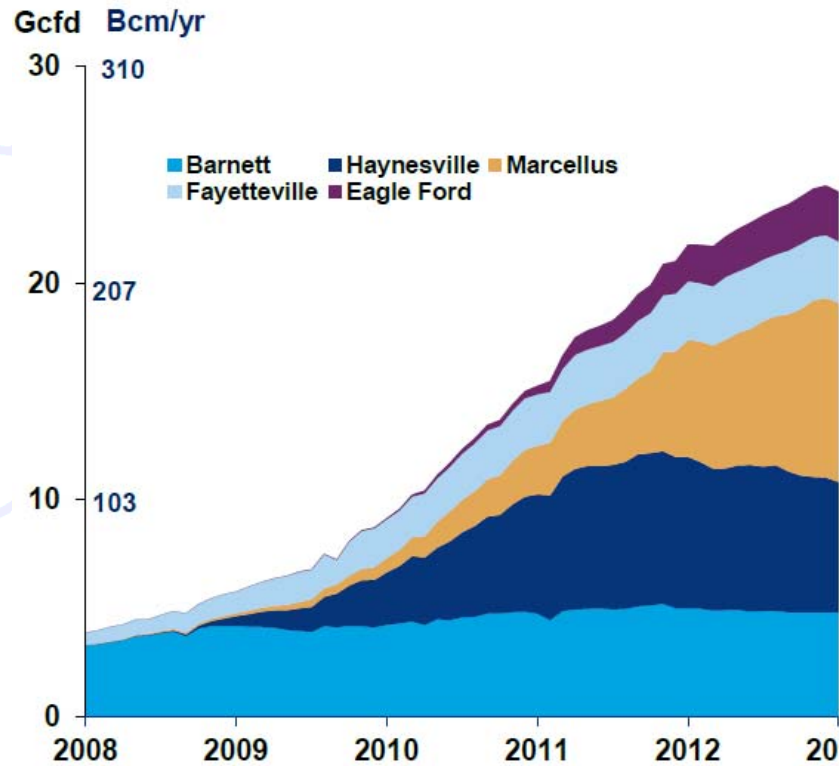


Source: IEA; *Includes Europe Non OECD

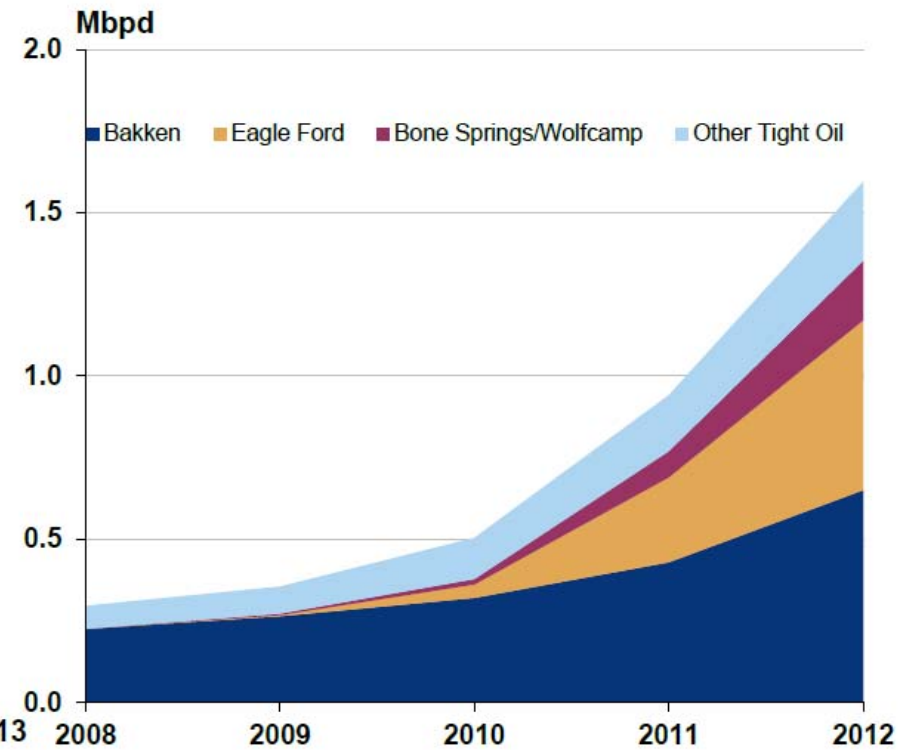
US Unconventional Production



Gas



Liquids



Source: Wood Mackenzie

European Unconventional Gas Potential

OGP



**Tight gas production has been produced in Europe for decades
Shale gas still in early exploration phase**

Source: Wood Mackenzie, IEA

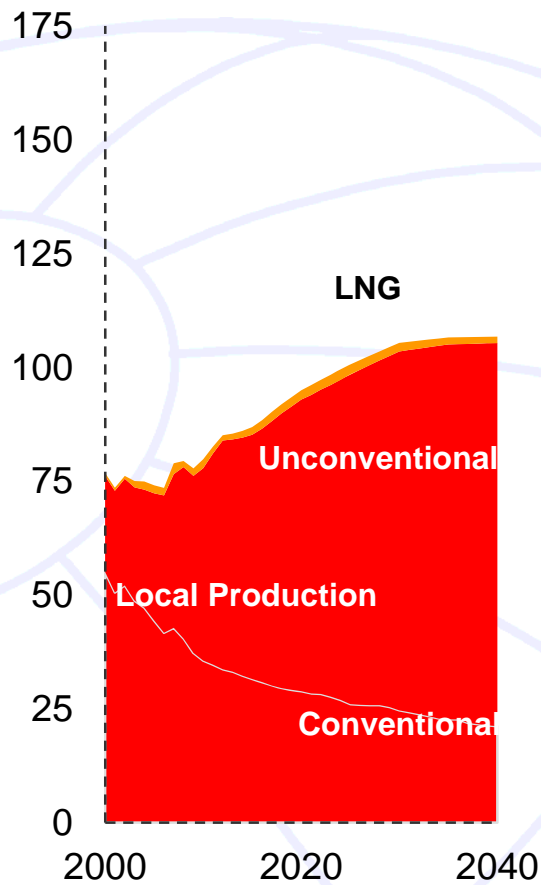
- **2012 JRC Study projects that shale gas could reduce imports to 50 to 70%**
- **At today's prices, would reduce EU import bill by 20 to 60 billion Euros / year**

Gas Demand Grows and Supply Diversifies



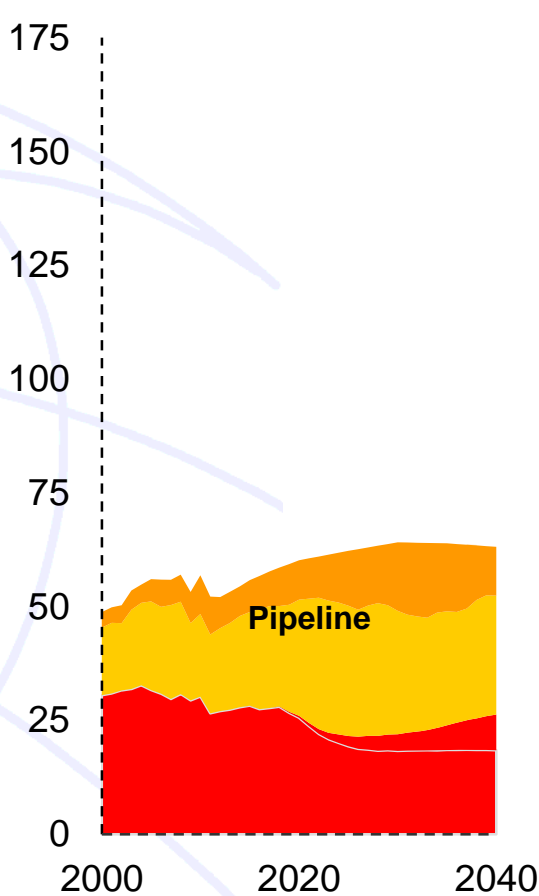
North America

BCFD



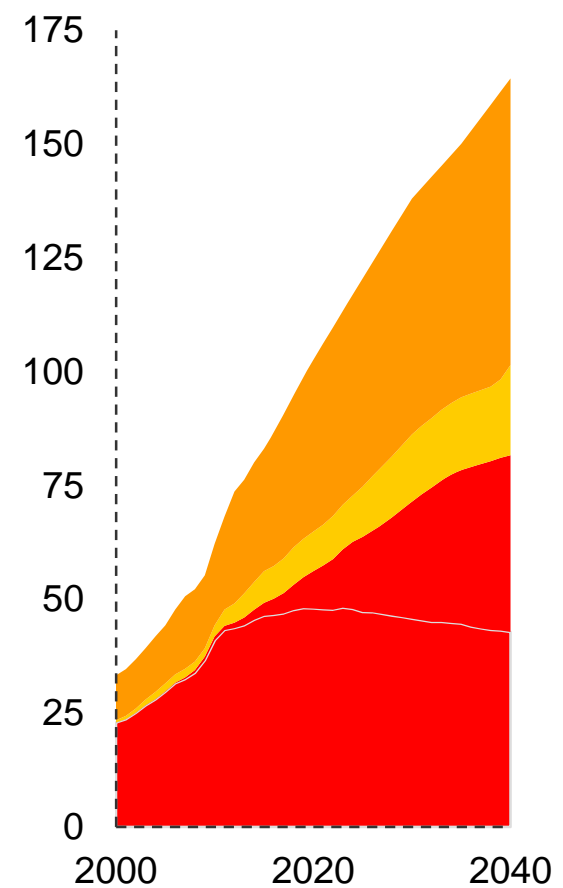
Europe

BCFD

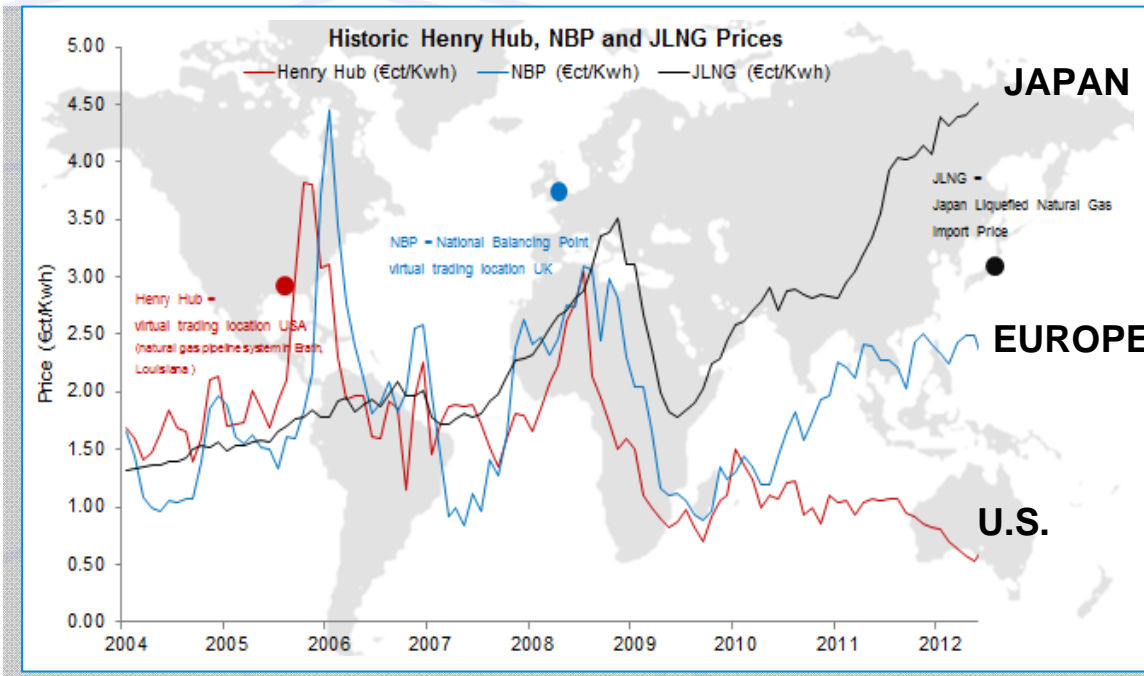


Asia Pacific

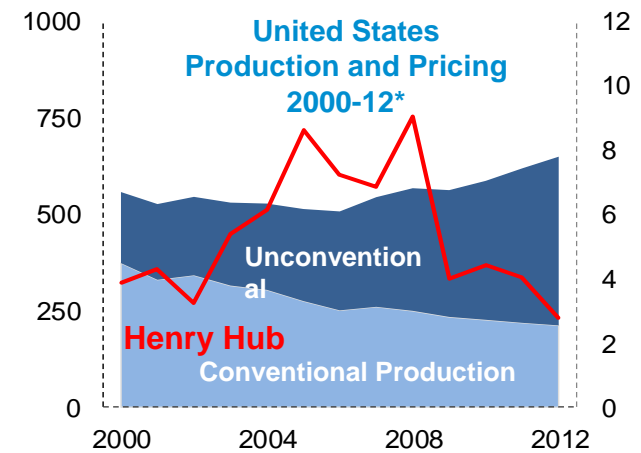
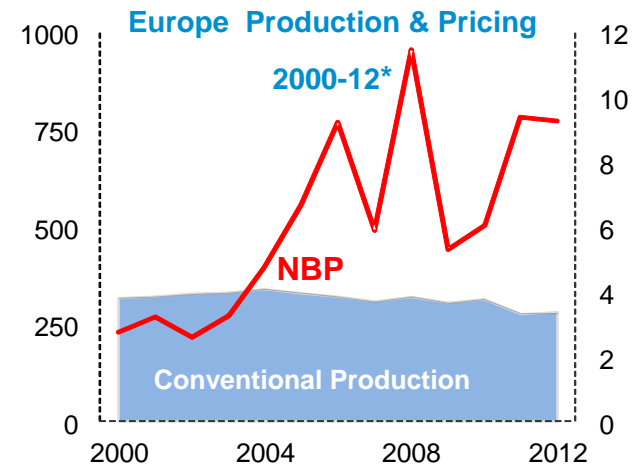
BCFD



Opportunities: Economic Benefits



BCM/YR \$/MBTU

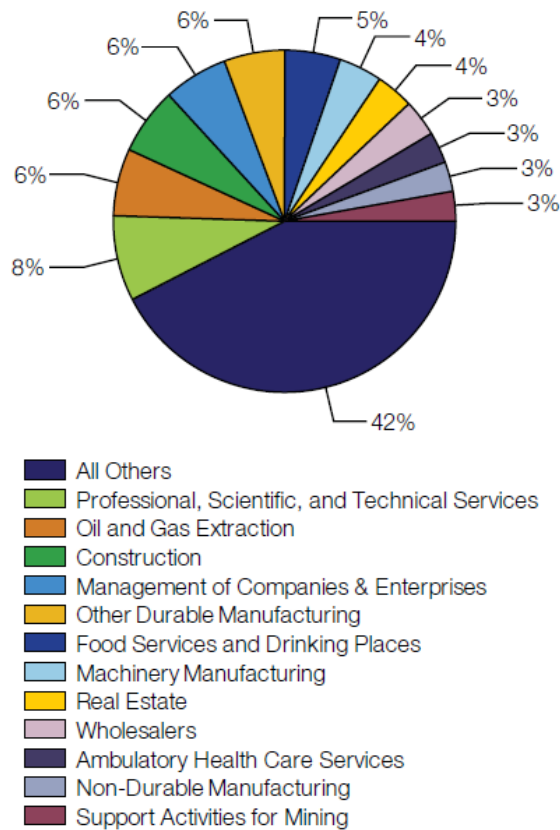


* Source: ExxonMobil Energy Outlook 2013 and Nymex and ICE Price Quotations

U.S Economic Benefits (1)

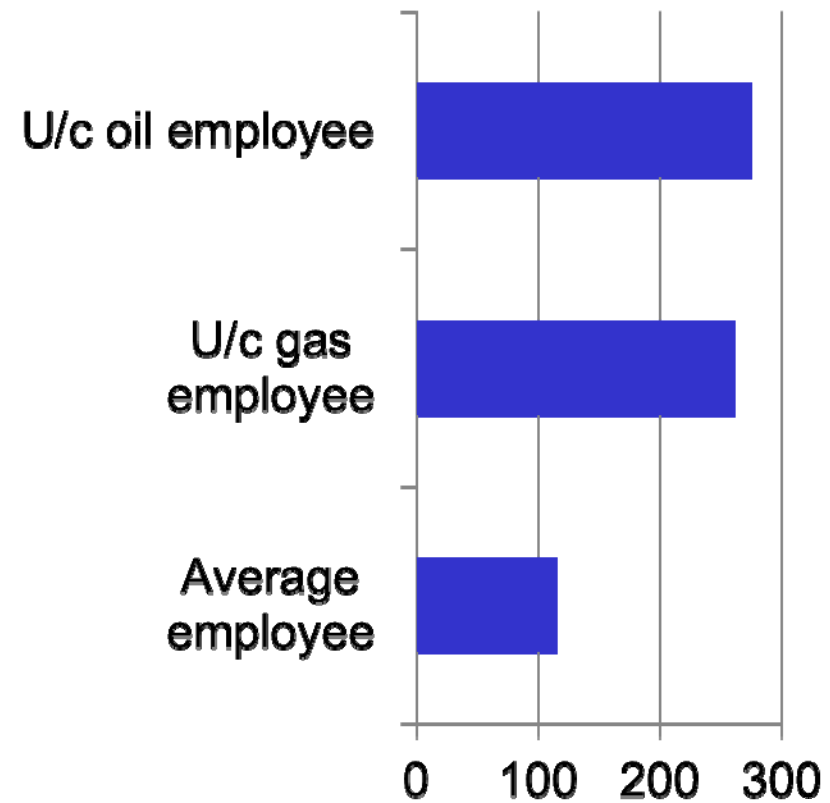


Employment by Industry, 2012



Source: IHS Global Insight

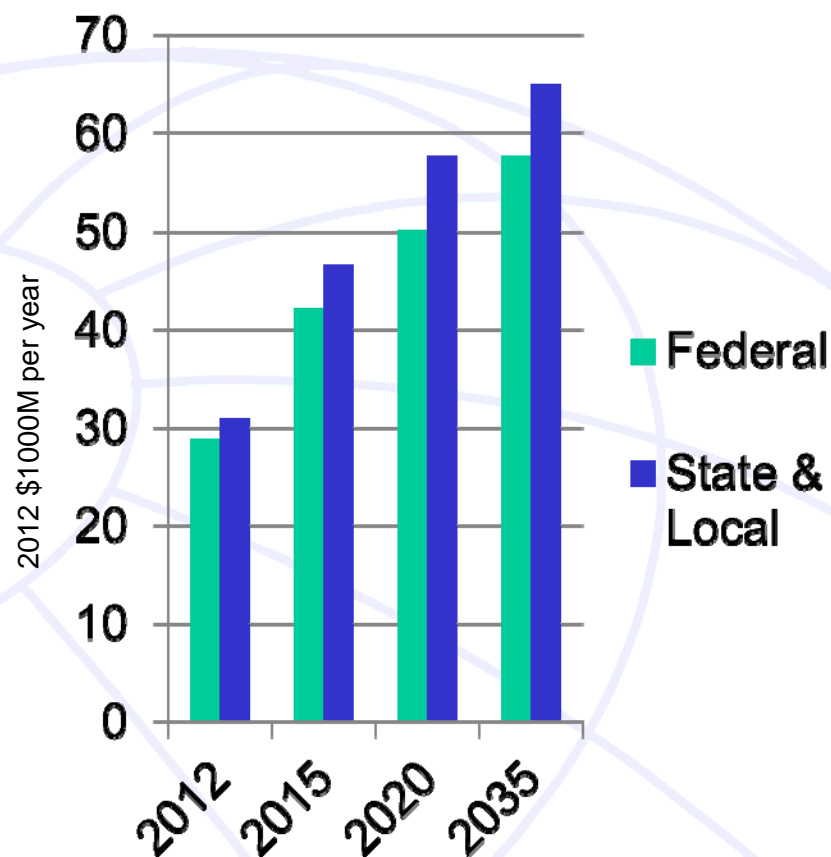
2012 employee contribution to GDP
\$1000



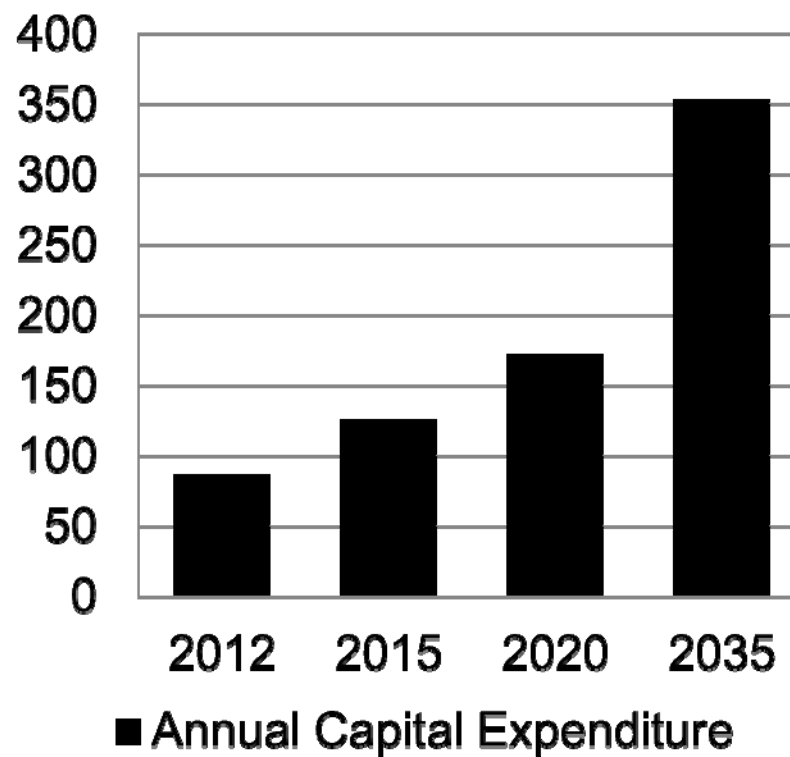
Source: America's New Energy Future, IHS, October 2012

U.S. Economic Benefits (2)

OGP



U.S. Lower 48 Total Unconventional Activity



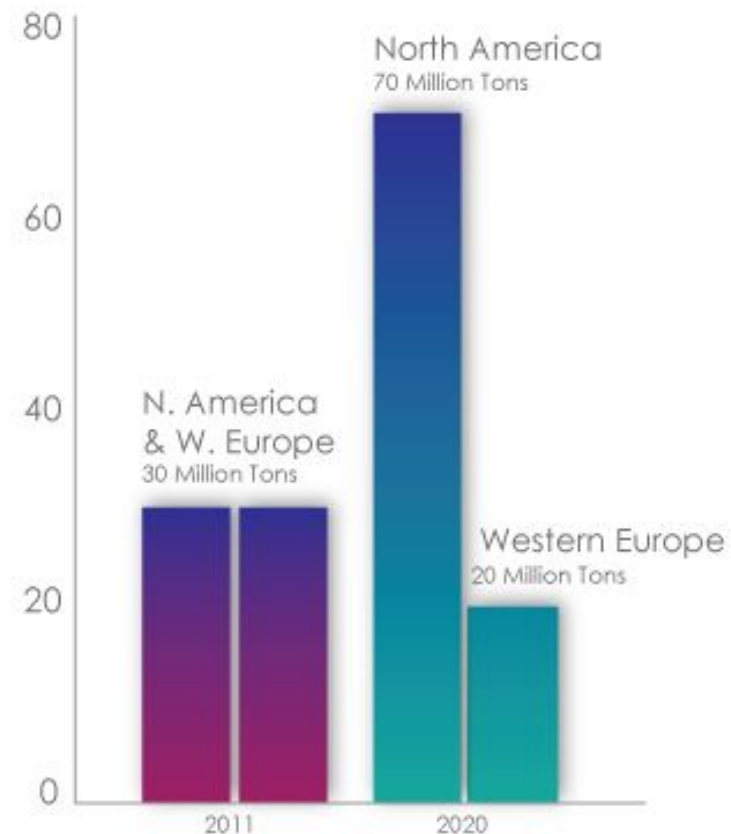
Source: America's New Energy Future, IHS, October 2012

U.S. Manufacturing Renaissance



- **U.S. shale gas delivers low-cost energy *and* liquid feedstock to U.S. petrochemical industry**
- **Global chemical demand expected to rise by 50% over next decade**
- **Surge in petrochemical investment in the U.S.**
 - 125 new projects worth >\$84 billion announced in last few years
- **“Tectonic” market shift expected in petrochemical production**

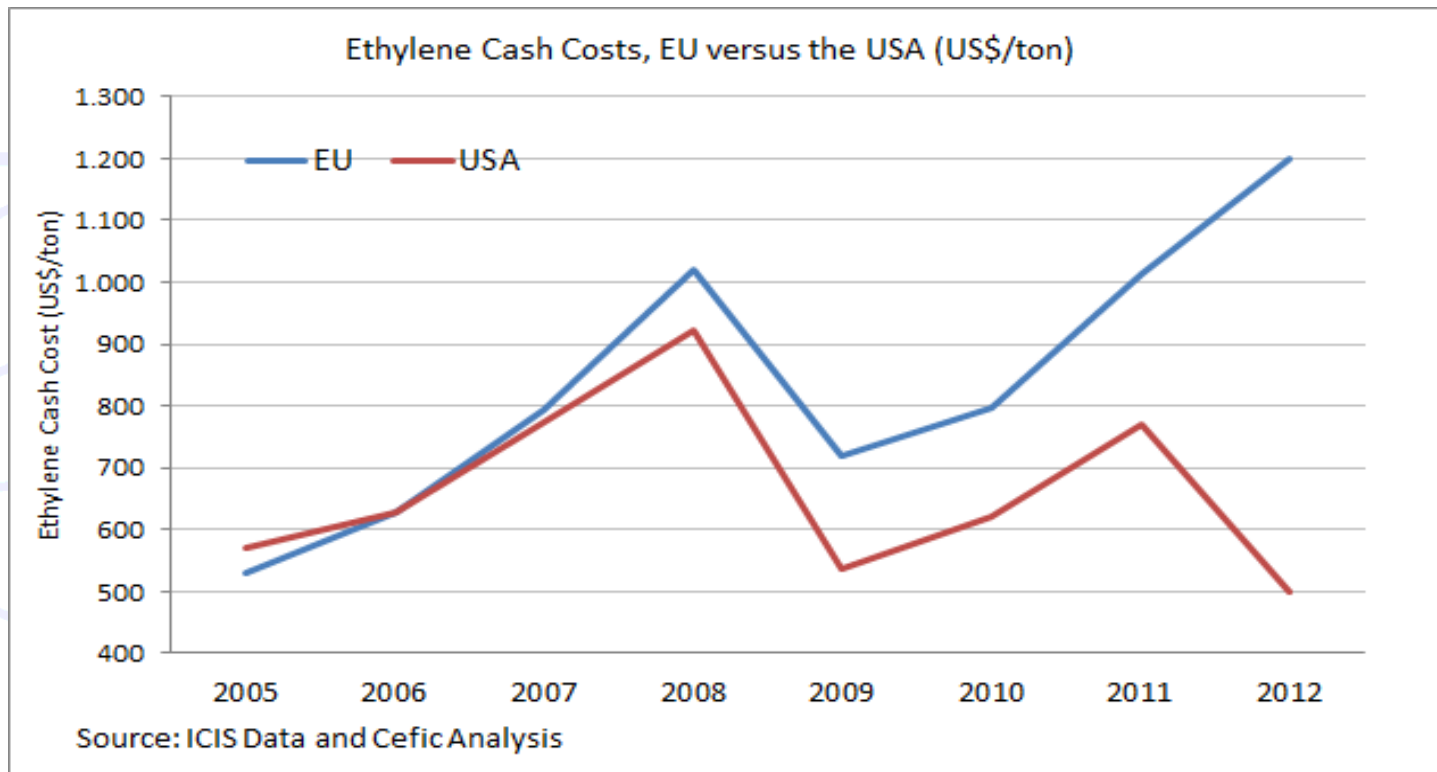
Annual chemicals & plastics production



Source - IHS State of the Industry 2013

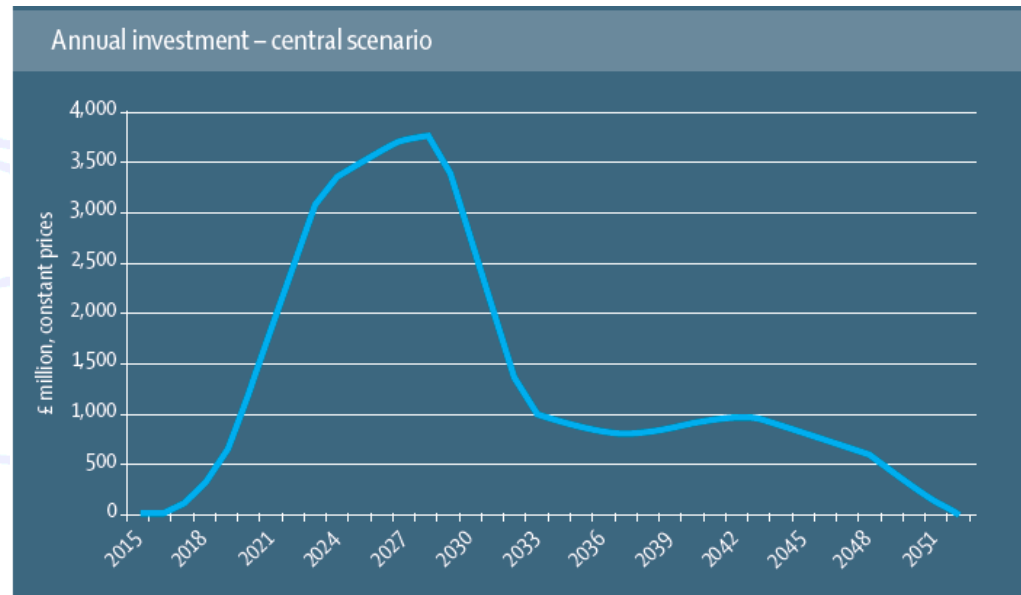
Impact on EU Manufacturing

OGP



- Ethylene is the largest basic building block for the chemical industry and largest volume organic chemical produced (~130 million tons/yr).
- New capacity: more than 38% increase in ethylene capacity in US in coming 3-5 years

Potential UK Economic Benefits (1)

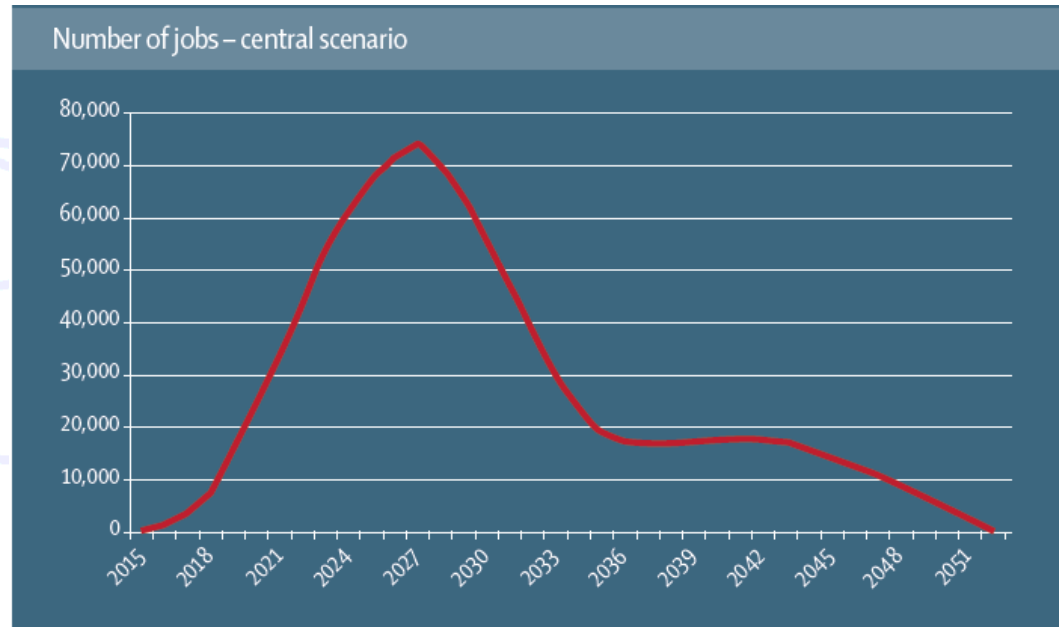


Source: IoD calculations

- **Capex and opex £3.7bn/year**
- **Mitigate estimated £15.6bn annual gas import costs by 2030**
- **Tax rates of up to 62% = offset reduced N Sea tax contributions**
- **Survey of 1000 UK businesses – supports careful, well regulated development of shale gas**

Potential UK Economic Benefits (2)

OGP



Source: IoD calculations

- **74,000 jobs – helping to close regional economic divides**
- **May protect 100,000 jobs in UK petrochemicals sector alone**
- **Reliable, secure, competitive gas for energy-intensive business**
 - **these businesses in turn employ 800,000 in UK;**
 - **and themselves pay £12 bn/year in corporate tax**



MACROECONOMIC EFFECTS OF EUROPEAN SHALE GAS PRODUCTION

A report to International Association of Oil and
Gas Producers (OGP)

November 2013

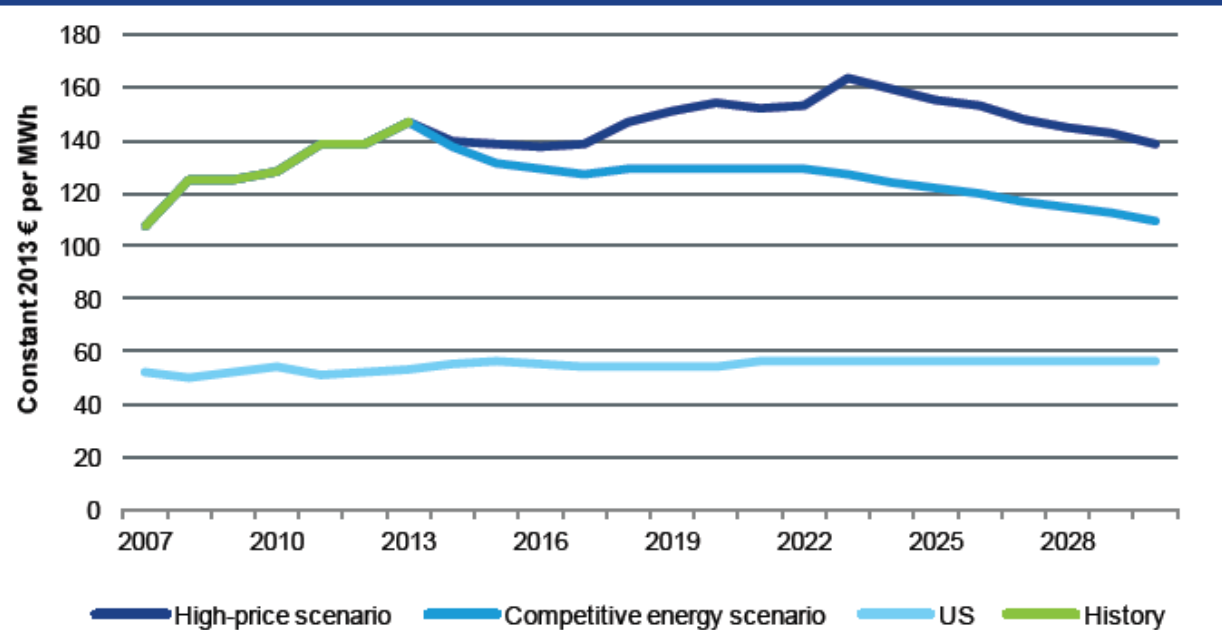
- European experience would be positive, but different
- Shale gas production can provide a significant stimulus to the European economy, but we need an accurate evaluation of the real potential
- Resources can be developed in Europe in a safe and environmentally responsible way under the existing EU legislation

Back Up

OGP



Average industrial power price evolution: Germany vs. US



Source: IHS Energy

© 2013 IHS

- Rigid and inefficiently organized energy market with rising costs puts Germany's international competitiveness and economy at risk
- Rising electricity costs a particular challenge to an export based economy
- "Investment leakage" results in disrupted supply chains
- Competitive energy scenario enhances economic growth potential – study models different impacts on GDP, incomes, jobs and annual output