New facts require course correction

IFIEC Energy Forum 5 June 2013

Peter Botschek, Cefic Director Energy & HSE

cefic

Energy Matters for Chemicals Sector

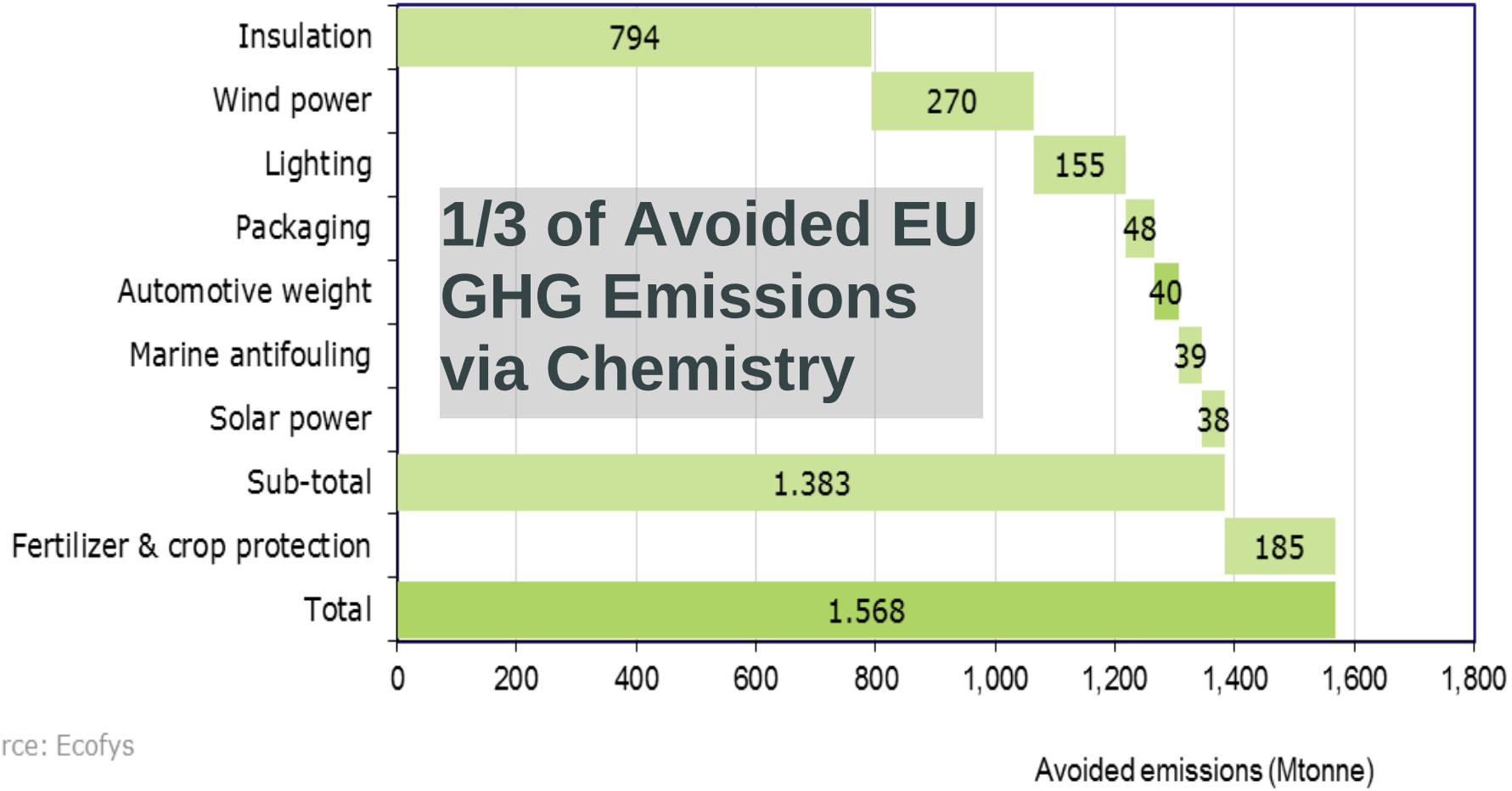
- **Used as feedstock AND to power plants**
  - Global energy demand 42 EJ/yr (two thirds feedstock)
  - 10% of global (30% of industrial) demand
  - Fastest growing industrial consumer

- **18 chemical building blocks account for 80% of energy demand**
  - Average energy costs about 50%, but key building blocks have cost impact of up to 85%

- **95% of manufacturing require chemistry inputs**
  - "Competitive Energy" biggest sector concern & growing issue for EU economy's broader manufacturing base

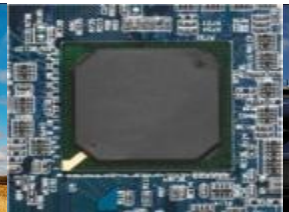
Chemicals Matter for EU Economy

Sustainable Future = MORE High Performance Materials



Source: Ecofys

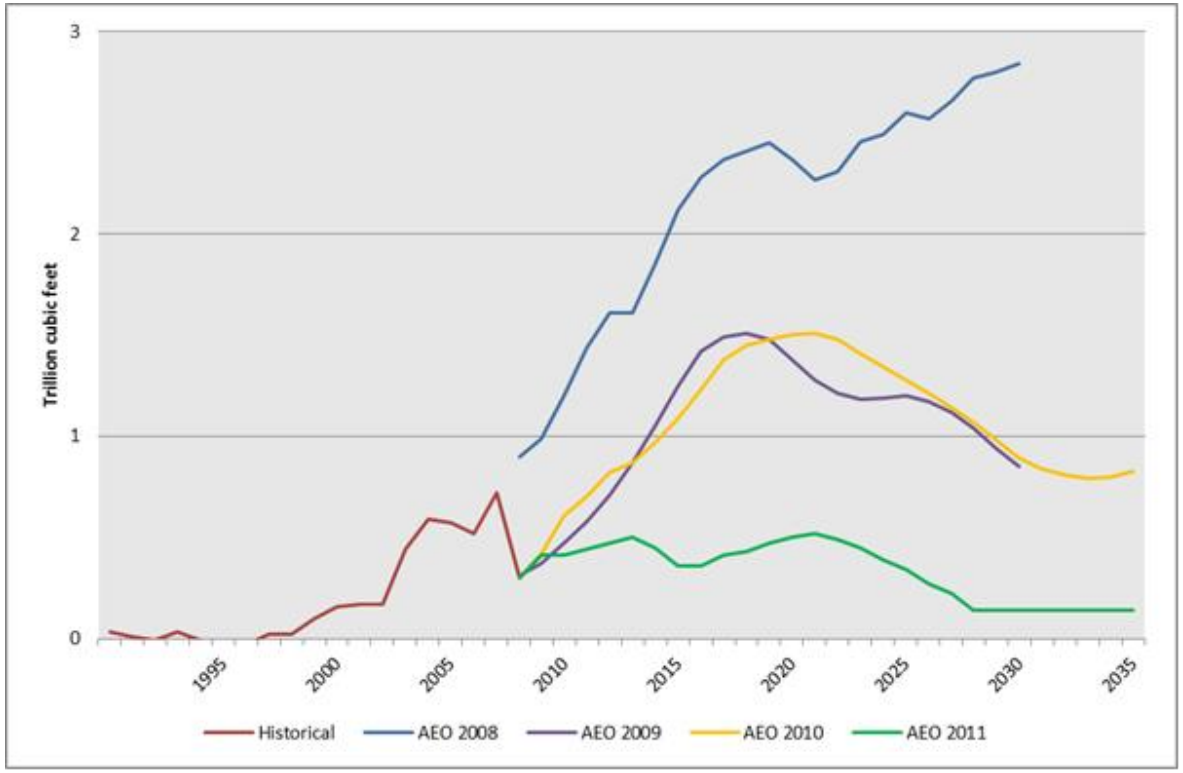






Impact of US 'Shale Revolution'

Historical and projected net US LNG imports

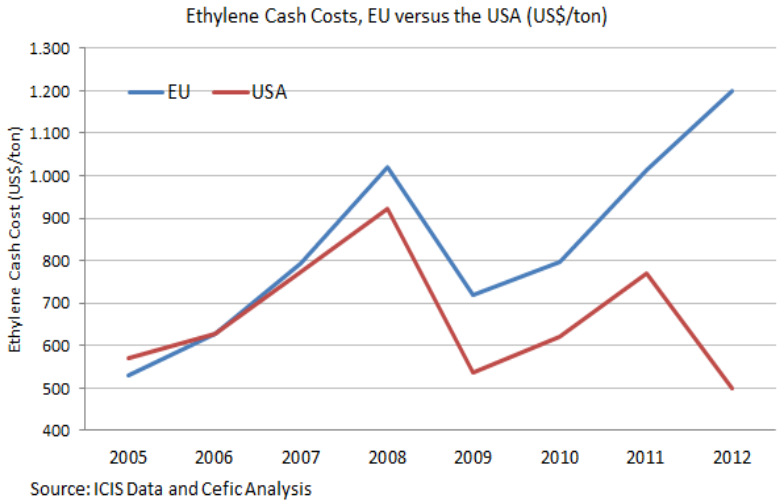


US Energy Information Administration, 'Various American Energy Outlooks'

- **US gas production now similar to Russian levels**
- **US only uses 10% of its LNG import capacity**
- **More LNG available for Europe → Pressure on prices**

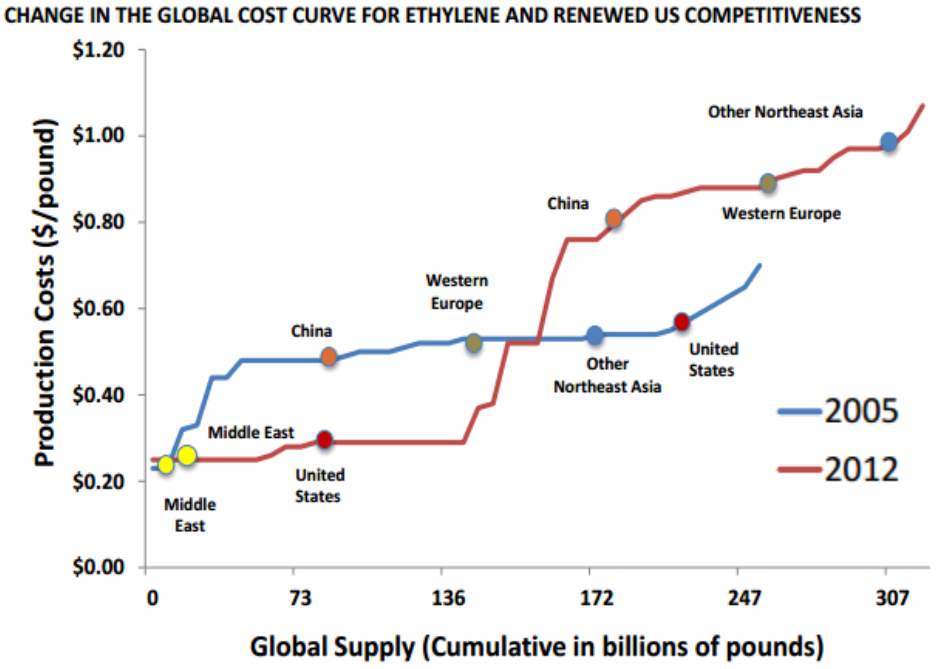
Low Ethylene Costs in the US means big Cost advantage for US Petrochemistry

- Seven years ago Europe was in a comparable cost situation to the United States for the production of ethylene.
- The availability of natural gas as a low-cost energy source has resulted in lower-cost ethane and ethylene. This natural gas price has affected the price of ethylene in the US massively.
- In 2012, the cost difference between the two regions has become 700 $/ton. On a European market of 20 million tons, this represents a cost advantage for the US of 14 billion USD per year.



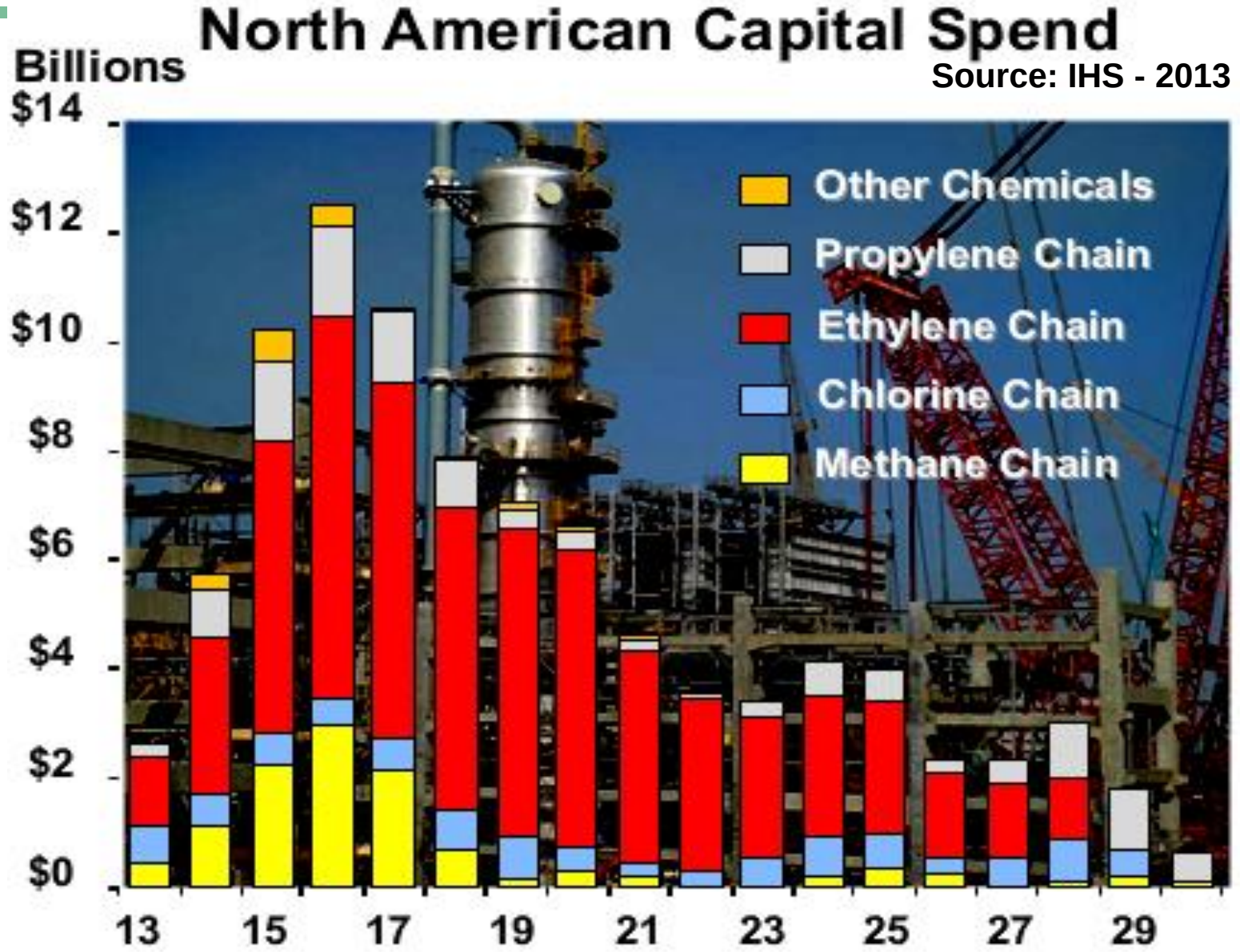
Low Ethane Costs in the US make US Crackers more competitive

- The cost curve is built on the cumulative petrochemical capacity from the lowest cost producers (in the Middle East) to the highest cost producers (in Northeast Asia).
- US ethane-based ethylene producers have moved to the lower end of the global cost curve, after only the Middle East and Canada.
- Due to cheap ethane there are currently record margins for US producers.
- By comparison, naphtha-based ethylene producers in Europe and Asia are at a competitive disadvantage.
- As recently as 2005, the United States ranked behind Western Europe.



Source: ACC: Shale Gas Study, May 2013

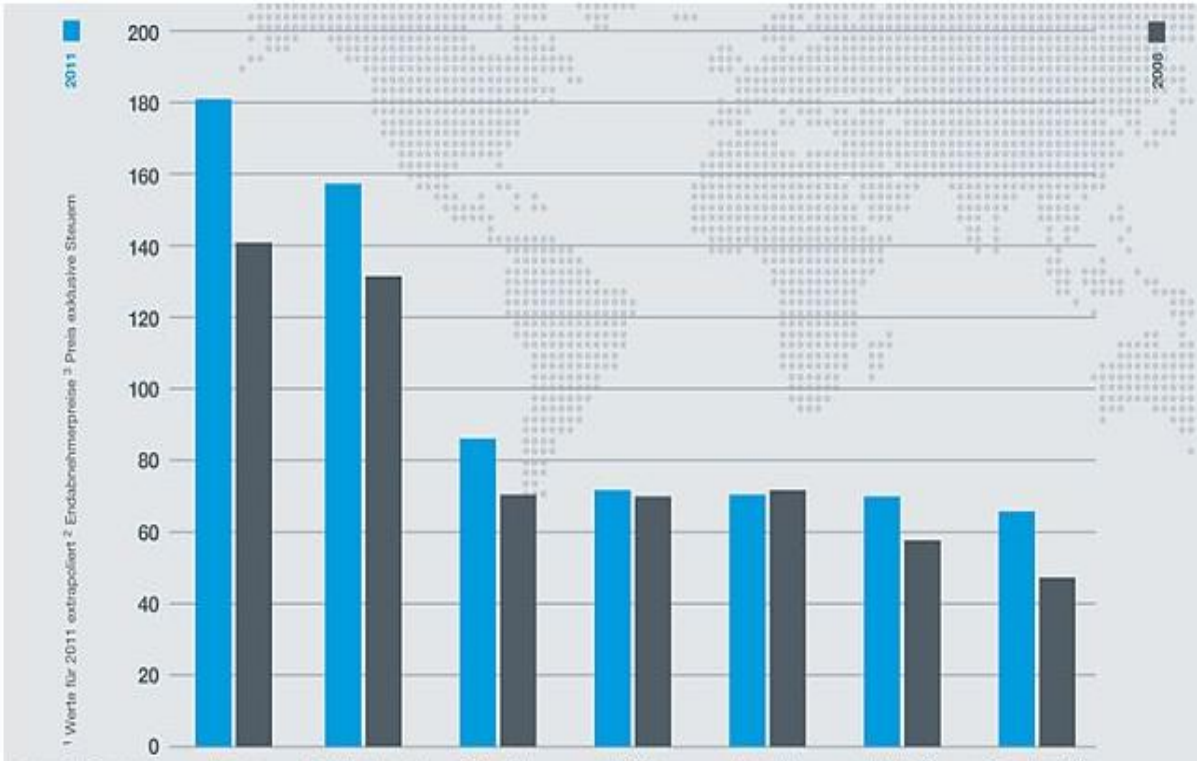
Game Changer for US Manufacturing



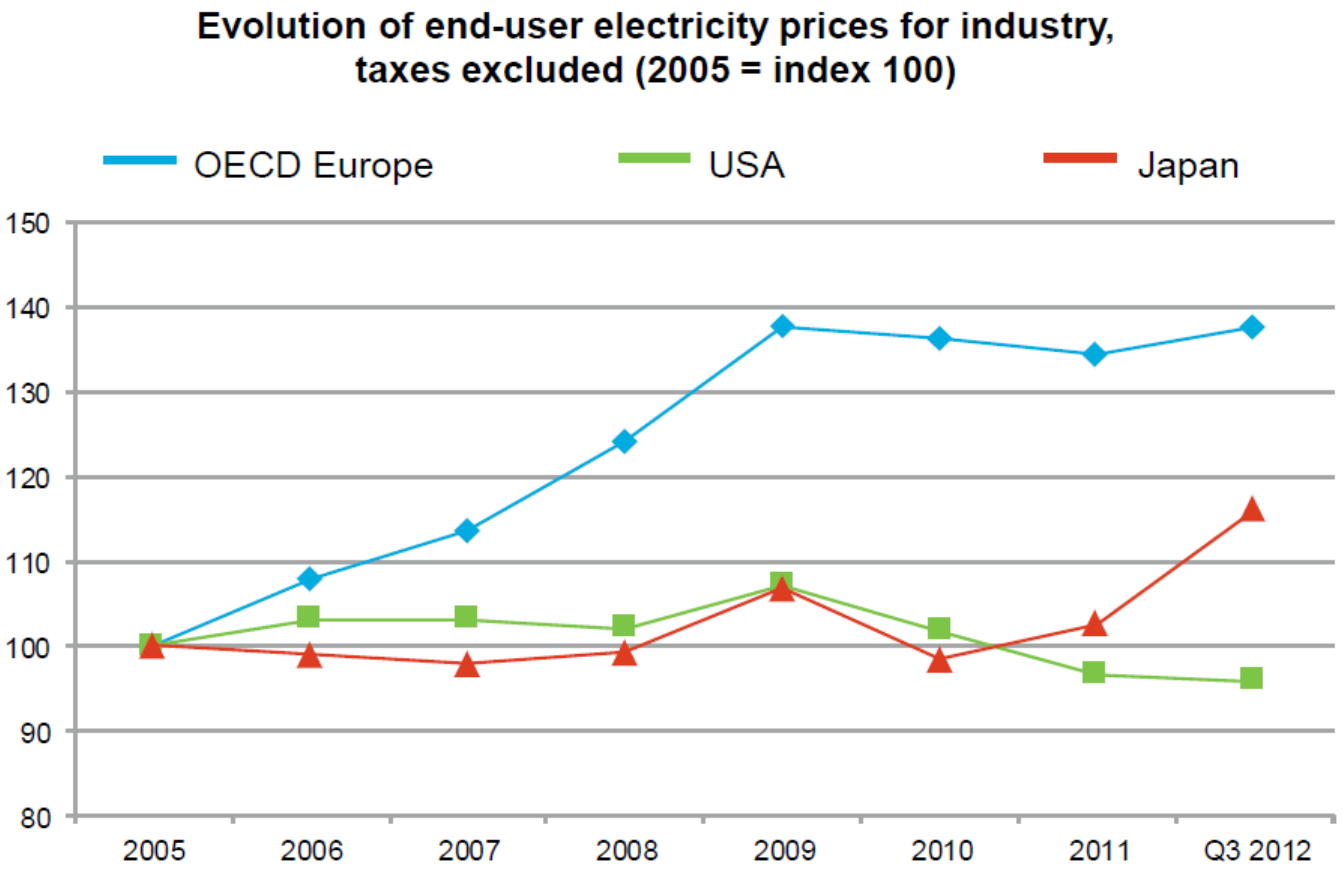
Comparing Global Electricity Prices

Cost Advantages for US Industry

Average electricity price for industry in $ per Mwh (Source: BDI)



Energy Prices and Competitiveness

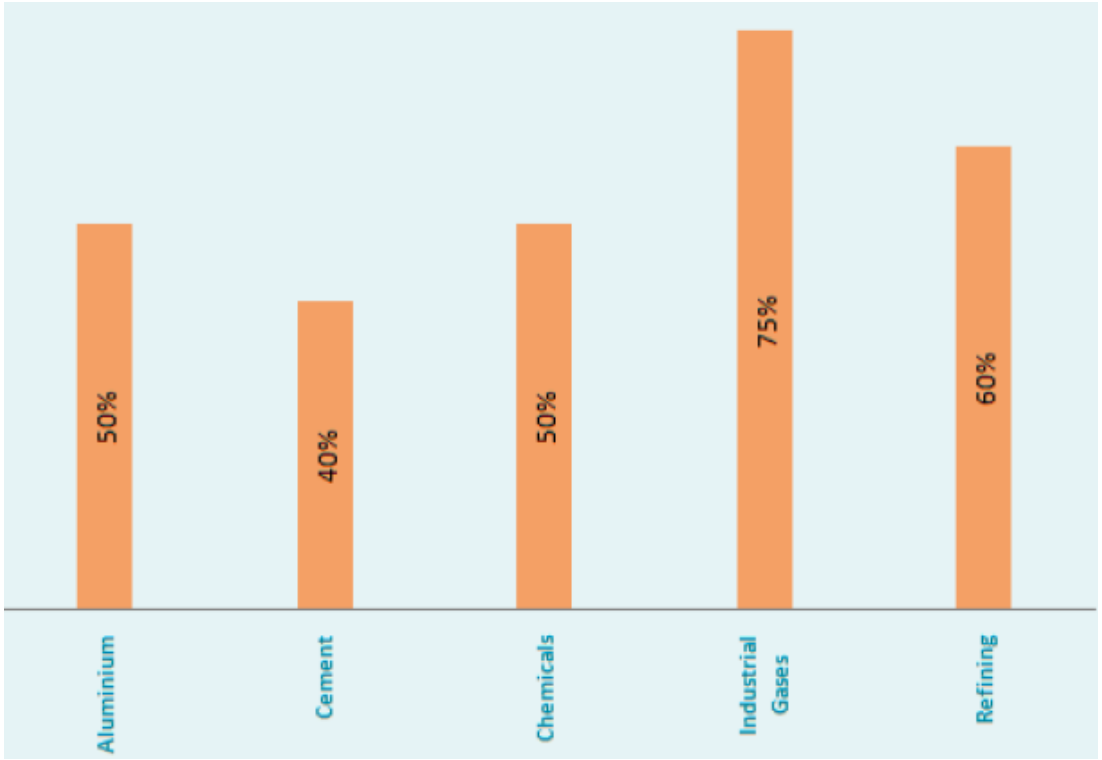


Source: International Energy Agency

Cost Advantages for US Industry

Negative Impact for EU Energy intensive Sectors

Energy cost as % of production costs in energy-intensive industries



- In the chemicals sector, competition with the U.S., with relatively equivalent labour costs, is intensifying due to significant differences in energy prices.
- According to US EIA the industries which are affected mostly by lower gas prices are bulk chemicals and primary metals.

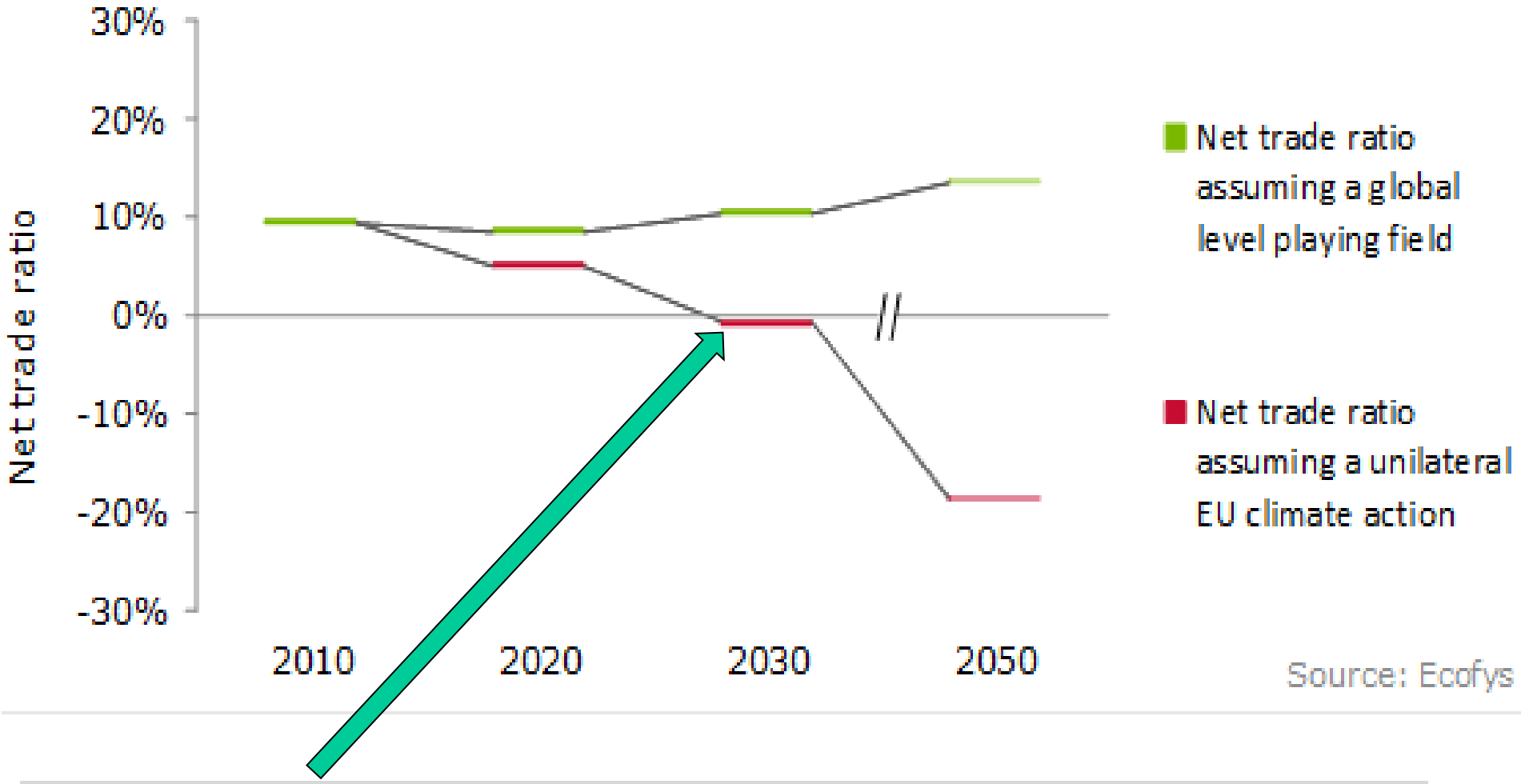
Low electricity prices for industry will have an impact on future investment decisions.

Source: ERT

Impacts and implications

- US Shale Gas boom challenging European petrochemical industry, especially companies with a strong focus on ethylene and corresponding down stream products.
- Small positive impact for European chemical companies with focus on naphtha by-products (propylene, butadiene).
- Resulting low US electricity prices impact on future investment decisions in energy intensive industry sectors.
- Hope: US re-industrialization could create new markets for European industry.
- Current EU figures regarding EU shale gas reserves imply that an EU shale gas production will not have similar potential as the US exploration.
- Implications for EU energy sourcing, market opening, energy and trade policies.

Policy Choice: Where to Manufacture for this Demand



Consequences of Unilateral Action:

Exporting Production & Increasing Global GHGs

Summary – Policy Choices – Dialogue Items

Higher Energy Costs = Lower GDP

- Adding **Costs & Policy Burdens** relative to other Major Regions proven **Counterproductive**
  - Chemistry building block investments **early indicator** of manufacturing **decline or revival**

Chemistry impacts 95% Value Chain

- **Manufacturing creates**
  - **Jobs (25%)**
  - **R&D (80%)**
  - **Exports (75%)**
- **Uncompetitive building blocks undermine full manufacturing chain**

Summary – Policy Choices – Dialogue Items

Sustainable Future (Efficiency & Energy Alternatives) needs more Higher Performance Materials

- 1/3 of Growing EU Consumption **Emissions avoided via Chemistry**
- **Policies influence** what will be future **EU Production** share

Multiple Workable Alternatives

- **Global Actions** precondition for further **Climate Commitments**
- Transition to predictable **opportunity driven policy,** maintain exemptions while burdens reduced & investments return
- **No exclusions** for effective energy solutions & focus innovations on tackling **cost effectiveness for global leadership**

The world changes, EU policy fundamentals outdated…

2007	2013
Economic growth	Economic crisis: EU competence ?
Global agreement by 2009	Fragmented climate policies
Climate Change=EU ‘Leadership’	EU marginalised
Depleting fossil energies: surging prices	US shale gas revolution, investment
Liberalising EU Energy market	Regulated Energy markets ?
MS funding RES and efficiency	Energy poverty and loss of competitiveness
Rolling out CCS	No CCS ?
Nuclear energy	Post Fukushima – less/no nuclear ?
ETS as ‘flagship’ policy tool to achieve target at low cost	ETS backloading, EED, RED, IED = EU / national policy potpourri ?

Facts have changed since 2020 policy package was made: **EU must adapt strategy!**

World changes, EU policy framework to match:

2013	Course correction towards 2030
Economic crisis: EU competence ?	Embracing EU economic growth, jobs
Fragmented climate policies	Priority: major emitting economies
EU marginalised	EU co-leader: in global competition
US shale gas revolution, investment	Competitive energy markets, diversified
Regulated Energy markets ?	Temporary support only, competition, connecting cross-border
Energy poverty and loss of competitiveness	Affordable energy and competitive costs for industry and consumers
No CCS ?	CCS or other tools after 2030?
Post Fukushima – less/no nuclear ?	Use all sources, avoid costly exclusions
ETS backloading, EED, RED, IED = EU / national policy potpourri ?	Keep ETS as low-cost tool, no more multitude of overlapping targets

No more ‘high cost policies’ to ‘drive’ EU economy:
EU super tanker needs competitive course correction!

Thank you for your attention!

Peter Botschek
Director Energy, Health, Safety & Environment
European Chemical Industry Council (Cefic)

E-mail: pbo@cefic.be