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EU ENERGY EXCHANGE

Balancing Security, Economy, and Climate Goals

Discussion Primer | February 2014

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Purpose and Goal

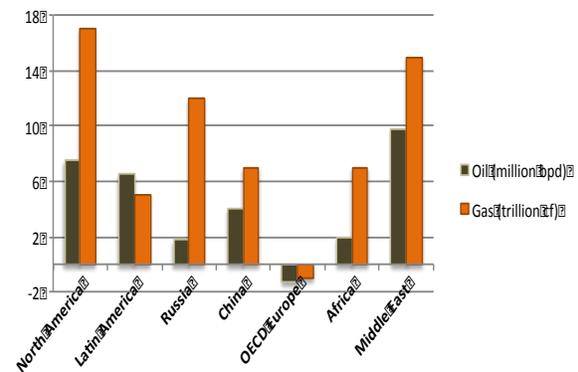
Carnegie Europe is hosting an invitation-only EU Energy Exchange to uncover the uncertainties and probe the geoeconomic and environmental impacts of global oil and gas supply shifts on the EU. Tensions clearly exist in balancing economic, environmental, and supply security, and a healthy debate on priorities is to be expected. Changing conditions must be illuminated and cross-sectoral dialogue must be fostered if the EU is to choose wisely among a diverse set of energy options, including fossil fuels, alternatives, and the infrastructure necessary to support either. The EU could serve as a bridge to a more balanced approach to future energy supplies and demand policies, infrastructure investments, and market outcomes. Alternatively, a lack of awareness or understanding of global trends could see the continent lose relevancy and competitiveness in the decades ahead. With Europe at a crossroads, the EU Energy Exchange will explore the risks and opportunities hidden behind the future evolution of policies and markets.

Background

OECD Europe stands in a unique energy position, at once vulnerable and influential. As the region's oil and gas production shrinks, supplies in North America and elsewhere are projected to significantly increase (see figure). Despite tremendous energy efficiency gains in individual countries, collectively, the EU remains a major demand center that could leverage increasingly competitive and cleaner energy markets. Western Europe, with its limited oil and gas reserves, physical compactness, strategic geographical position, and progressive policy traditions, has important energy, environmental, and economic policy and investment decisions to make.

A fossil fuel paradigm shift is occurring worldwide. Not only are more recoverable oil and gas reserves being identified over a larger global geography; energy alternatives and production techniques are also evolving. Twenty-first century oil and gas resources tend to carry a higher private and social price tag than yesterday's conventional supplies. As energy resources change, so will their historic value chains. This, in turn, will reshape economies, trade patterns, geopolitics, national security, the environment, and climate change.

Projected Oil and Gas Supply Growth
2010-2040



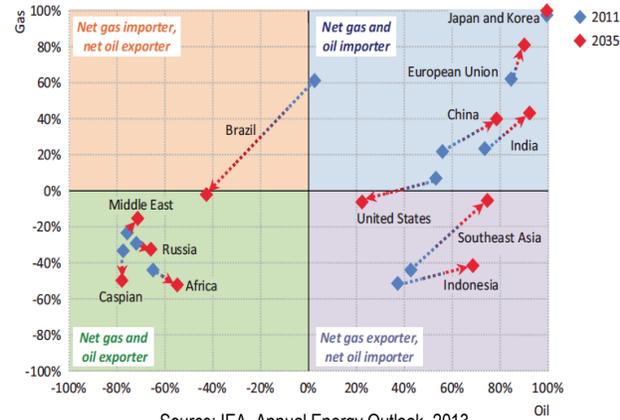
Source: U.S. Energy Information Administration, *International Energy Outlook 2013*, and www.exxonmobil.com/Corporate/files/news_pub_co.pdf

Major Issues and Questions

Geoeconomic Implications: Changing Energy Trade Patterns

The EU is 85-percent import dependent on oil, and 67-percent import dependent on natural gas. In 2012, the EU's oil and gas import bill amounted to more than €400 billion—approximately 3.1 percent of the Union's GDP. Claims of U.S. oil and gas 'independence' have created a jittery debate among European business leaders and policy makers, fearful of retaining the global competitiveness of key industrial sectors. Energy prices hitting record lows are seen by many as giving U.S. industry a competitive edge globally, perpetuating the woes of a European economy stuck in post-2008 recession. To what extent are these geoeconomic fears surrounding energy in the EU justified and backed by the data?

Net Oil and Gas Import/Export Shares, projected to 2035



Source: IEA, Annual Energy Outlook, 2013

Disposition of the EU internal energy markets

- Growing fragmentation versus integration
- Energy instability “in the neighborhood” increasing

The changing energy landscape and its influence on security

- Supply architecture in the EU
- Contraction of energy trade relations due to shifting trade patterns to the Pacific
- Deterioration of energy relations: EU-Russia
- Less resilience and increased vulnerability: decreasing domestic production, IOCs in retreat, refinery situation, strategic storages

Effects of fossil fuel prices

- Will U.S. energy prices remain low?
- Will the spread in energy prices persist across the Atlantic?
- Could lower U.S. energy prices trigger a rollback in European trade policy or lead to measures protecting domestic industry, including energy subsidies.
- What could Europe do to improve its economic competitiveness, given prospects for high fossil fuel (oil and gas) prices?
- How will the EU avoid economic friction for European consumers?

EU's reduced energy demand and competitive trade position

- Will loss in relative energy market share translate into loss of market power?
- What will the new “rules of the game” be?

Europe's role in the Middle East

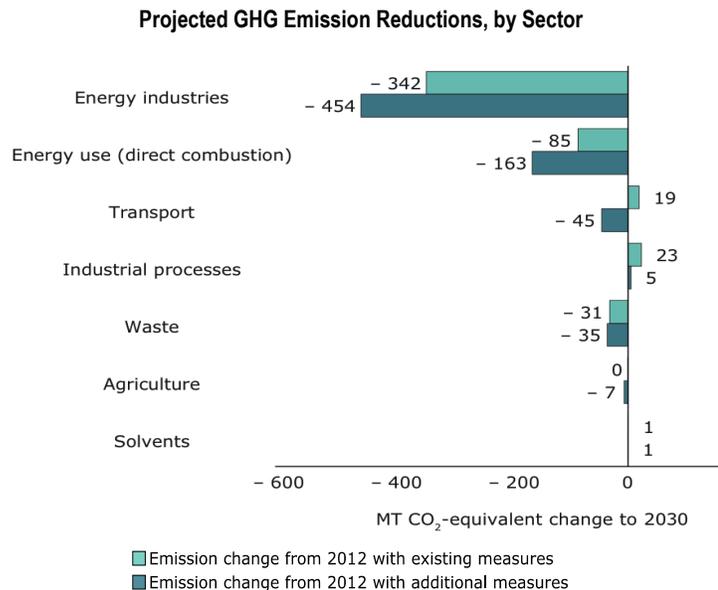
- What will Europe's role be in MENA as U.S. oil imports from the region decline?

The EU will need adequate mechanisms to address emerging challenges during the energy transition process. Yet, whilst there is opportunity in this shift, particularly with regards to the development of a truly integrated European gas market, transitions generally also tend to come with uncertainty for (market) actors.

Framing EU Tensions: Transforming Energy-Climate Security

The EU has been a global leader on climate change. In 2007, the EU made a unilateral commitment to reduce overall Greenhouse Gas Emissions (GHG) from its 27 member states by 20 percent compared to 1990 levels by 2020. Amid 45 percent economic growth in real terms since 1990, the EU is on track to meet these emission reduction targets. In winter 2014, the 2030 climate and energy framework was announced, pledging a 40 percent GHG emission reduction, endorsing an EU target of at least 27 percent renewable energy share delivered through member state individual commitments, reviewing of energy efficiency objectives, and reforming of the Emissions Trading System.

Can the EU maintain its leadership on climate change if member states are unable to invest due to the financial crisis, high fossil fuel prices and energy costs, and increasing price differentials with the Union's trade partners, including the United States?



Source: <http://www.eea.europa.eu/publications/trends-and-projections-2013>

How will the EU manage new risks of energy and climate fragmentation between member states?

- Determination of fair sharing of efforts between Member States that reflects their specific circumstances and capacities

How will the EU manage global fossil fuel abundance: oil, coal, and gas?

- Changing carbon footprints of the energy it imports and uses, whether crude or petroleum products
- Cheap coal exports from United States and elsewhere

What policy leverage will an import-dependent EU have to maintain climate security?

- Improve energy security, while delivering a low-carbon and competitive energy system, through common action, integrated markets, import diversification, sustainable development of indigenous energy sources, investment in the necessary infrastructure, end-use energy savings and supporting research and innovation

Which is the world's single largest energy/environment question mark over the next half century: India or China?

- What must be done for both countries to evolve from the world's single largest question mark to the world's single largest energy/environment solution?
- How might Europe and other OECD nations better collaborate to facilitate this transition?

Investment Opportunities and Challenges: Changing EU Energy Economics and Markets

Global energy markets are transforming. New unconventional oil and gas supplies are emerging in the Americas as energy demand builds in Asia, the Middle East, and Africa. While similar market trends are not currently underway in the EU, individual nations will be motivated by different energy capacities and ambitions in the future. This opens the door to many questions about EU energy markets, infrastructure, investments, and sustainable EU energy policies.

What is the development potential of unconventional oil and gas in Europe given the experience in the United States? Is it even desirable for European states to adopt a pro-development stance for unconventional hydrocarbons as the EC seeks to decarbonize its energy systems?

- Can the EU have an honest discussion about the risks and opportunities of technology transfer in shale gas across the Atlantic?

What is the future of EU oil and gas markets?

- Long-term gas contracts and oil-price indexation are currently giving way to new arrangements in the EU, centering more on spot market linkages.
- How will competition shape EU gas markets and will US imports compete with Russian gas?

How will the EU be affected if North America becomes an LNG-exporting region?

- Will there be an indirect impact on the European market if North American supplies go to Asia?
- There have been calls in Washington for Japan and NATO members in Europe to be given the same preferential treatment for LNG exports as countries that have an FTA with the United States. Is this a good policy in the sense that it would lead to direct U.S. LNG sales to Europe, or would market forces and prices dictate that?

What is the future of EU oil refining and petrochemical processing?

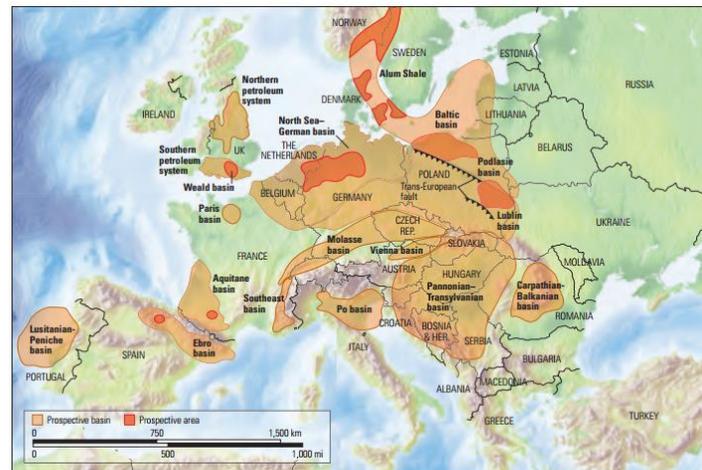
- Will the EU have to choose between crude markets and petroleum product markets?

Can the EU strike an appropriate balance in commodity financial market regulation?

How much of a role will the EU play in the developing tomorrow's energy markets?

- To what extent should European policymakers be concerned about rising oil consumption in emerging economies and also among OPEC producers themselves?
- Is it enough to rely on the prospect of long-term growth in North American fossil fuel supplies to balance this demand growth globally? Will oil markets remain relatively tight because of this, keeping oil prices high and vulnerability to supply shortages acute?

European Shale Basins



Europe shale basins. (Adapted from Kuuskraa et al, reference 6.)

Source: <http://www.adv-res.com/unconventional-resources-staff.asp#Kuuskraa>