

World Energy Outlook 2016

**UNECE Group of Experts on Gas
Geneva, Switzerland
27 March 2017**

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Fuel focus on natural gas in 2017

World Energy Outlook

■ Different strands of analysis coming together in an in-depth WEO focus

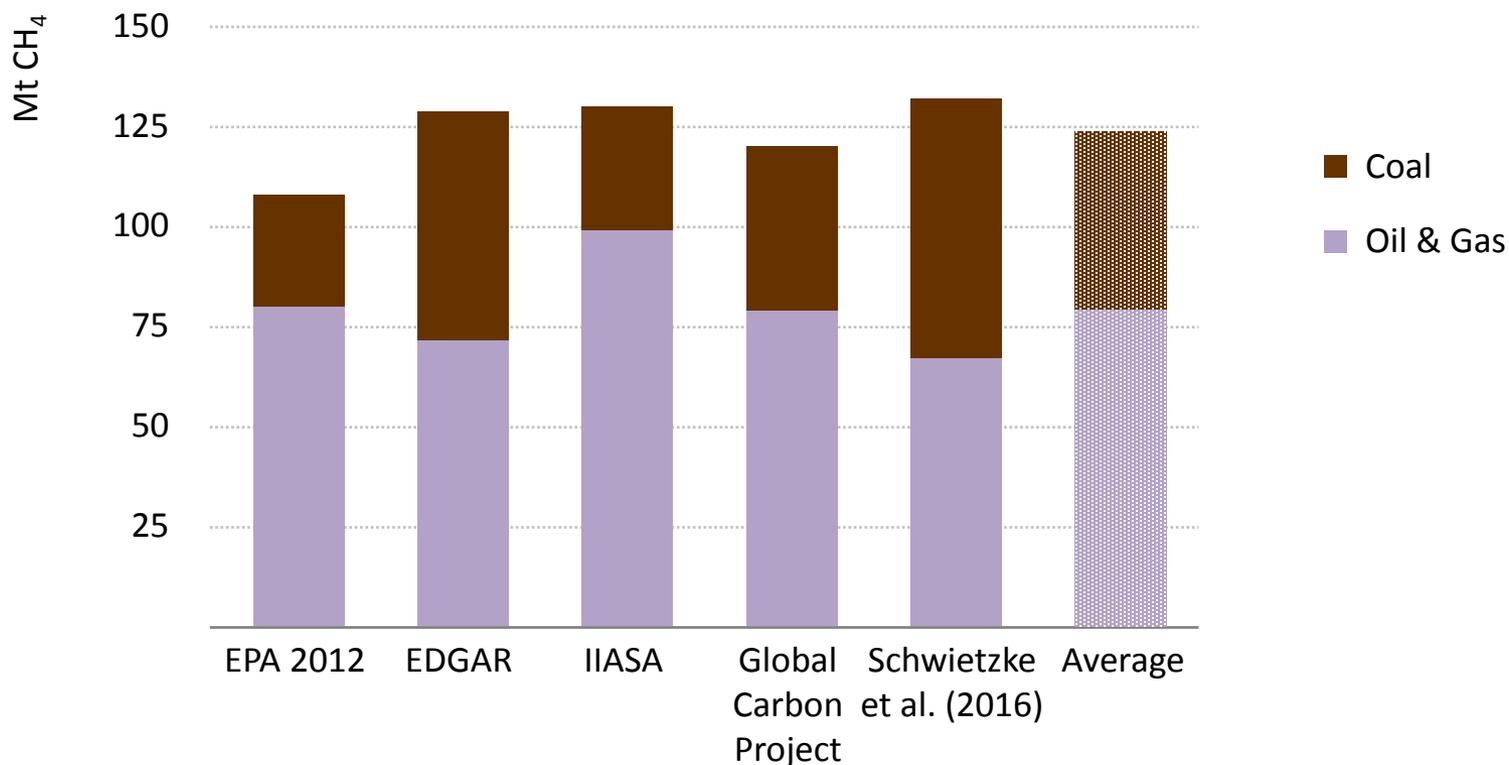
- Opportunities & competition for gas (vs. renewables, coal, efficiency, storage) in different markets & demand sectors
- The impact of the 'LNG revolution' on gas pricing & contracting structures
- Potential upside for US shale & the implications of any upswing in US production for the domestic mix, North American gas balances & global market dynamics
- Evolving domestic & international risks to gas security & means to mitigate them
- What is the role for gas in a decarbonising energy system?
- Requirement for new capital-intensive gas infrastructure investment under different scenarios
- Supply technologies & costs, role of unconventional gas outside North America, FSRUs; innovation (including power-to-gas, 'green' gas, hydrogen)
- Co-benefits and risks: major focus on the issue of methane emissions along the value chain

Methane emissions: a key theme of WEO 2017 focus on gas

- **Key deliverable is a roadmap to help policymakers & industry make informed decisions and take meaningful action to reduce methane emissions**
- **Focus of chapter is on fugitive and vented methane emissions from oil and gas production, processing and transportation. Key issues to be addressed include:**
 - *What are the key gaps in the existing knowledge of methane emissions and what is the uncertainty in future emissions levels from oil & gas operations?*
 - *What are the associated economics and investment requirements for different levels of abatement and what are the technology options available?*
 - *What policies and measures are required for the upstream oil and gas sectors to manage the issue of methane emissions? What are the potential barriers to policy implementation and how can these be overcome?*
 - *By how much would methane abatement from upstream sectors help mitigate future temperature rises from climate change?*

Why focus on methane emissions from oil and gas industry?

Current global methane emissions from oil, gas and coal activities



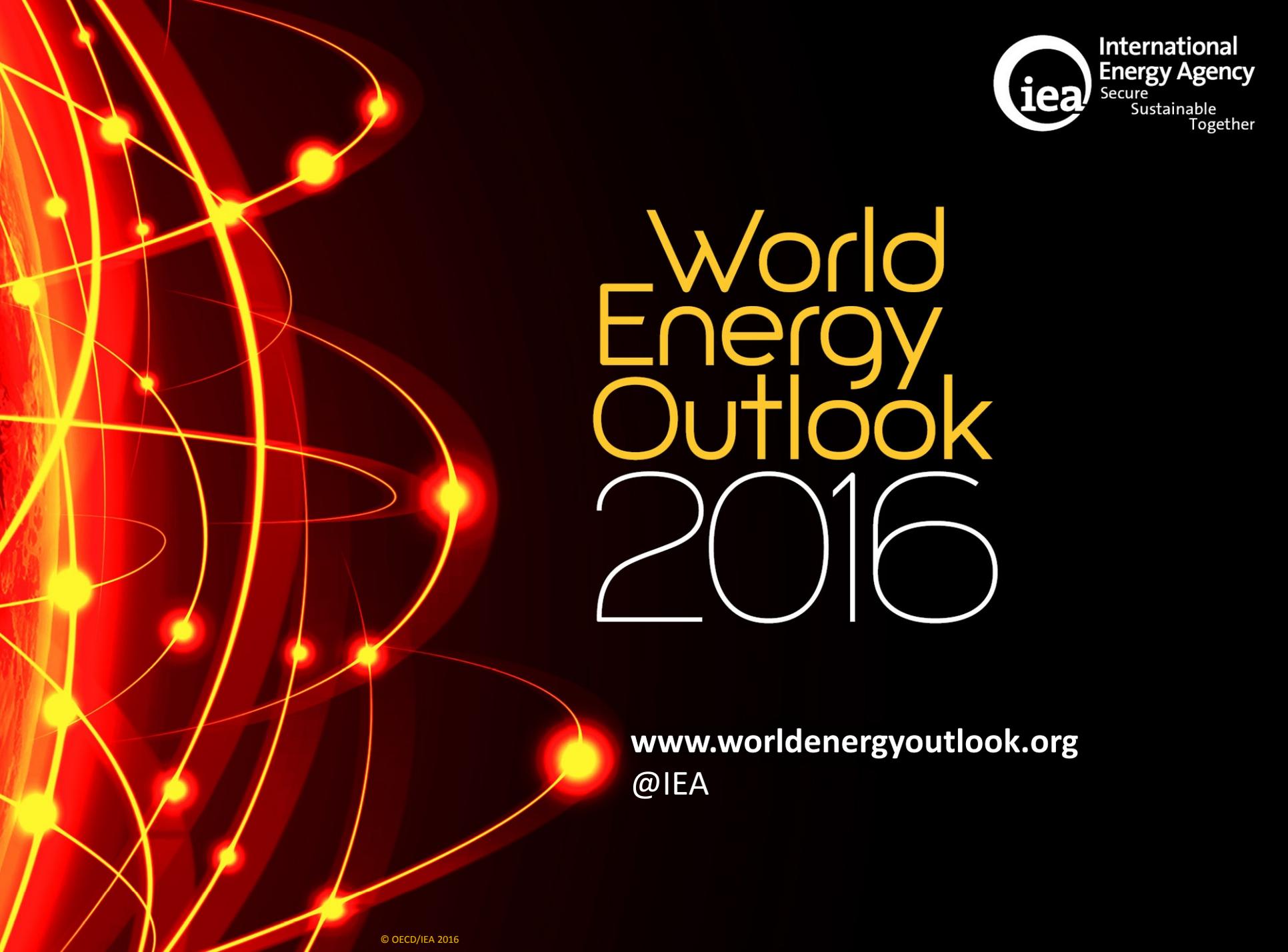
There are few studies that assess methane emissions globally but they are largely aligned. However a large gap exists between top-down and bottom-up estimates of emissions

Emerging findings on monitoring and abatement

- **Uncertainty in emissions levels is high – emissions often estimated with insufficient measurements taking place across the value chain**
- **There are multiple anthropogenic sources of methane emissions but technical potential for reduction is likely highest for oil and gas**
- **Key problem is a relatively small number of emission sources (super-emitters), which can be intermittent and transient, and can change from day to day**
- **Technological innovation to reduce the cost of measurement and monitoring will be important but should not preclude policy action**
- **Industry has demonstrated that leak detection and repair (LDAR) can be highly effective to reduce emissions with positive returns on investment**

Emerging findings on policy and regulation

- **Few countries have explicit emissions reduction policies for oil and gas but regulations are more common given concerns over air quality and safety**
- **Progress has been made in lowering the emissions intensity of fossil fuel production; the challenge is how to accelerate future reductions**
- **Regulation should not prescribe the use of specific abatement or measurement technologies but aim to be flexible and promote innovation**
- **Regulation and measures in support of policies need to address:**
 - *The scope and standards for measuring, monitoring and reporting*
 - *Transparency and sharing of best practices within industry and across regions*
 - *How to ensure flexibility to revise measures on basis of new data that emerges to ensure consistency with long-term policy goals*
 - *How to ensure transparency and credibility, and incentivise collaboration between government, civil society and industry*



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