

Sustainability Credentials of Gas



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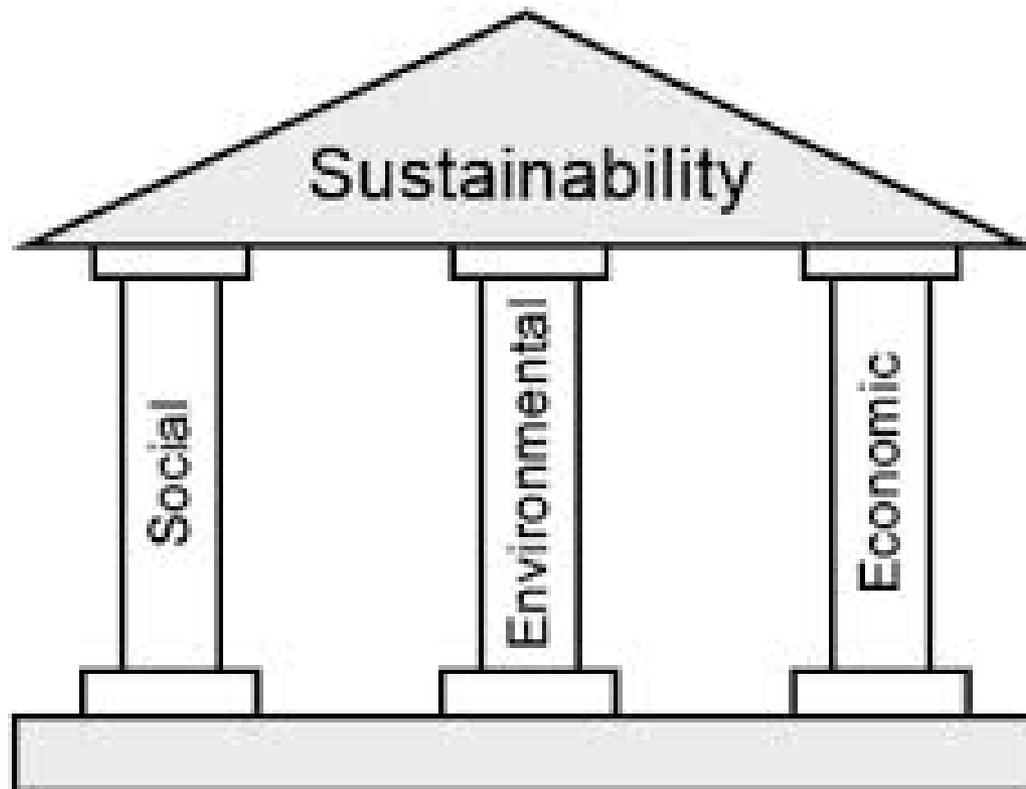
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What is UNECE?



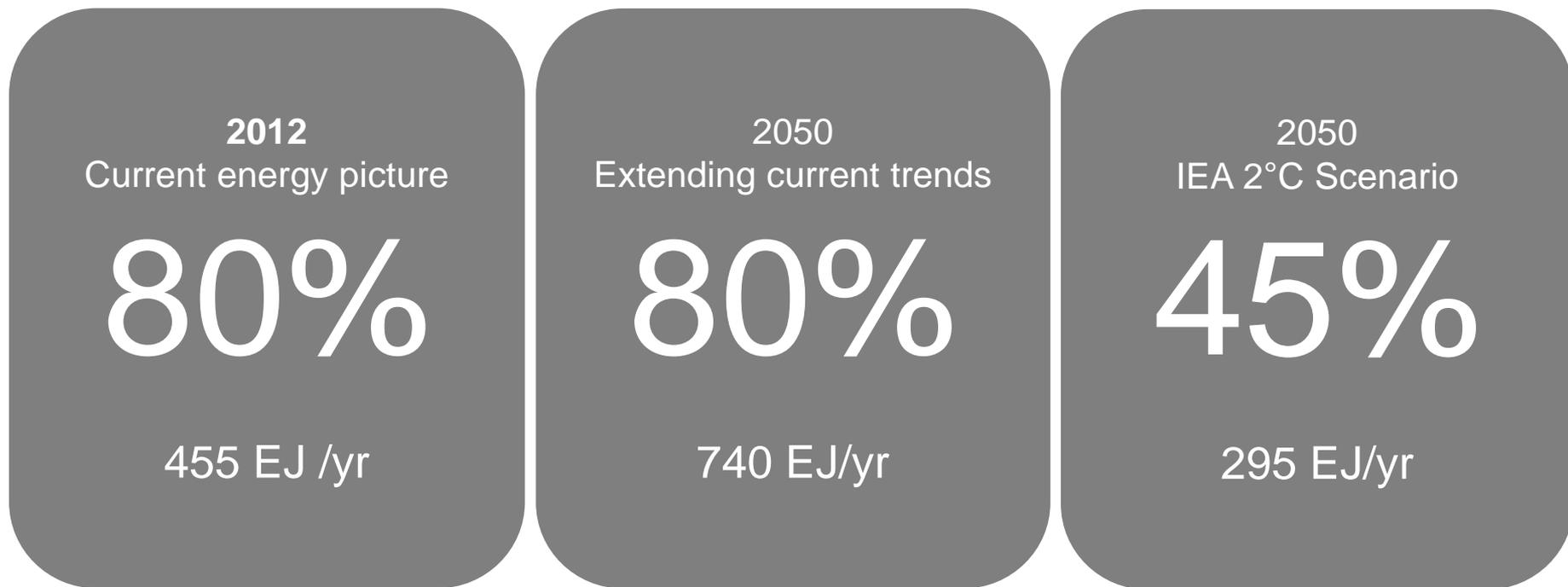
- 56 countries in N.A, Europe, FSU, Central Asia, Israel and Turkey;
- Produce 40% of the worlds energy, consume 45%;
- Home to important energy industries;
- Produce nearly 50% of the global economic output;
- Dominant in the worlds financial infrastructure;
- Fossil fuels are 60% of primary fuel in the UNECE region;
- UNECE region accounts for half of global emissions;
- The region is diverse. Comprised of high and low income countries, countries that are energy rich and energy poor and countries that are in economic transition.

What is Sustainability



UNECE work areas demonstrate a holistic view on sustainability

Fossils are relevant in all scenarios



How much gas in the system?

Pick your scenario...

CAAGR* (%) 2013-2040			
	<i>CPS</i>	<i>NPS</i>	<i>450</i>
TPED**	1.4	1	0.4
Coal	1.3	0.4	-1.7
Oil	0.9	0.4	-0.8
Gas	1.7	1.4	0.5
Nuclear	1.8	2.3	3.5
Hydro	1.7	1.8	2.2
Bioenergy	1.1	1.2	2
Other renewable	5.6	6.7	8.5

CAAGR* (%) 2013-2040			
	<i>CPS</i>	<i>NPS</i>	<i>450</i>
Power Sector	1.8	1.4	0.8
Coal	1.7	0.4	-3.1
Oil	-2.1	-2.5	-4.4
Gas	1.8	1.3	-0.3
Nuclear	1.8	2.3	3.5
Hydro	1.7	1.8	2.2
Bioenergy	3.3	3.8	5.1
Other Renewables	5.9	7.1	8.9

* CAAGR: Compounded Average Annual Growth Rate

** TPED: Total Primary Energy Demand

The future role of gas is not perfectly clear

The challenge

The truth, the mistruth and everything in between



Mark Carney
Governor
Bank of England

"The vast majority of reserves are unburnable"



Not everyone likes fossil fuels – including natural gas

The competitive advantage of Gas

Environmental:

- Cleaner than coal....but methane leakage.
- Without CCS, natural gas power generation moves from low-C to High-C
- Support RE through flexibility...but so can coal, hydro, DR and interconnections



Cost:

- Prices are low now...but what will they be in the future?
- Big investments to use gas – LNG, pipeline infrastructure...
- Coal has a lower LCOE than gas in power....but Gas has lower Capex



Social

- Social license to frack?
- Coal industry workers? Renewable Energy jobs?
- Is supply secure?



***Advantages of gas are under pressure from all sides -
could limit infrastructure investment***

Looking forward (1)

Improving gas's sustainability “credibility” will increase infrastructure investment

Clearly articulate the long term pathway with gas:

- Gas with CCS
- Pathway to Bio-gas and hydrogen economies
- Plan to address methane leakage – third party validation
- Improving energy access



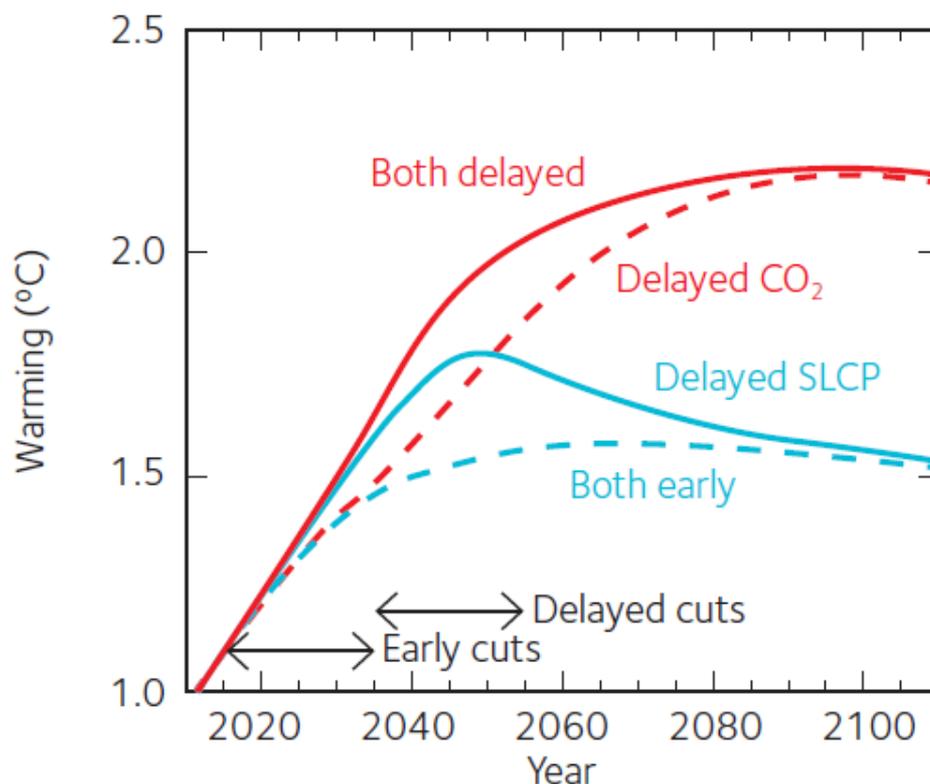
Near term:

- Ramp up efforts to understand and mitigate methane leakage low-hanging fruit
- Demonstrate the industry as an honest broker by investing in solutions
- Don't vilify coal – little value in this
- Engaged more with sustainability actors – RE, efficiency
- Leverage clean air benefits of gas



Looking forward (2)

The science of the impact of delayed emission cut



***An either/or approach to CO₂ and SLCP's does not work
– parallel action is needed***

Our Work on Natural Gas

Upstream



Midstream



Power



Industrial



Transport



Commercial



Residential

Thank you!

Upcoming meetings

Group of Experts on Gas meeting
21 - 22 April 2016



CMM meeting and CMM/GMI workshop
27 - 28 October 2016



Cleaner Production of Electricity from Fossil Fuels
meeting and workshop
29 - 30 October 2016



UNECE SED

Sustainable Energy Division

Committee on Sustainable Energy - Energy for Sustainable Development:

- Assist countries in implementing the Hammamet declaration
- Develop normative instruments (best practices / standards / regulations) that will enable needed investments
- Provide countries with a platform to compare notes: what works / what doesn't work

Expert Groups:

- On Energy Efficiency
- On Renewables
- On UNFC and Resource Classification
- On Cleaner Electricity Production from Fossil Fuels
- On Natural Gas
- On Coal Mine Methane



Group of Experts on Gas (GEG)

Multi-stakeholder dialogue on ways to promote the sustainable and clean production, distribution, and consumption of natural gas in the UNECE region

An exchange of experiences among UNECE member States on the role of natural gas in the global energy mix and on the relation between natural gas and the environment are the Group's principal areas of work

Areas of focus:

- Best practice guidance in reducing gas leaks along the gas value chain
- Best practice guidance on the role of natural gas in increasing the uptake of renewable energy
- Best practice guidance for liquefied natural gas
- Recommendations on removing barriers to the use of natural gas as a transportation fuel



Group of Experts on CMM

Disseminate the Best Practice Guidance for Effective Methane Drainage and Recovery in Coal Mines

- First Published in 2010 in partnership with GMI – update efforts ongoing
- Primary intent:
 - Improve mine safety at underground coal mines and
 - Encourage the use of coal mine methane, as a way of reducing greenhouse gas emissions

Launch and support the work of the International Centre of Excellence on Coal Mine Methane

- Training and increased depth of research
- Increased engagement with the wider coal mining community, including the civil society, mining associations, and decision-makers

Collect and disseminate case studies on the application of best practice guidance in specific coal mines in different regions of the world

