What happened to the golden age of gas in Europe?

*Gas Advocacy: What can the natural gas industry do?*

**UNECE Group of Experts on Gas,**

21 January 2015

Thierry Deschuyteneer, Vice-Chairman GasNaturally
GasNaturally: A Unified Voice for Natural Gas

GASNATURALLY: ONE VOICE FOR GAS

6 ASSOCIATIONS
275 ENTITIES INCLUDING 150 COMPANIES

RESEARCH & DEVELOPMENT

TECHNICAL LEGISLATION & STANDARDISATION

EXPLORATION & PRODUCTION

TRANSMISSION, STORAGE AND LNG REGASIFICATION

RETAIL AND DISTRIBUTION
The European Objectives
Our goals

- Competitiveness
- Security of supply
- Sustainability

Why a 2030 framework now?

- Predictability for policy-makers and investors
- Need for cost-effective and joint solutions
- Speaking with one voice

Europe’s priorities
Europe on its way to meeting its 2020 targets?

- Reduce greenhouse gas levels by 20%: Estimate in 2020: -24%
- Increase share of renewables to 20%: Estimate in 2020: 21%
- Reduce energy consumption by 20%: Estimate in 2020: -17%

Source: European Commission

Presentation of J.M. Barroso to the European Council, 20-21 March 2014
A renewed ambition for 2030

2020
- 20% greenhouse gas reduction
- 20% renewable energy
- 20% energy savings

2030
- 27% renewable energy
- 40% greenhouse gas reduction

With MS targets
EU Targets only
Energy efficiency: 27% Indicative

Political agreement on the 2030 framework by European Council on 23-24 October 2014
Reality Check
How is Gas doing?
2011/2013: Europe goes **Black and Green**

- **-28%**
  - Natural Gas in power generation!
  - Summer 2011 – Summer 2013

- **+27%**
  - Coal in power generation
  - Summer 2011 – Summer 2013

Source: ENTSOG Summer Supply Outlook, April 2014, p.23

- **Today, a new “coal + renewables” paradox in Europe**
- **And what about tomorrow?**
Gas in EU Power Generation

In 2012-2013, 20 GW* of gas-fired capacity was mothballed or about to be in the EU. Out of which 9 GW was built in the last ten years, and even some in 2012 and 2013.

What are the causes?

- Flattening or decreasing electricity demand
- Massive increase of support schemes to RES
- Low coal price

Consequence: Collapse of wholesale electricity market

- Low ETS CO₂ price
- CCGTs last in the merit order

* Source: University of Oxford, 2014
And now, the Heating Sector

The European Commission encourages Member States to “Accelerate [the] fuel switch in the heating sector to renewable heating technologies” in order to “displace significant amounts of imported fuels”.

(source: Communication of the Commission on Energy Security, 2014)

➢ After being squeezed out from the power generation sector, gas is now threatened in the heating sector
From the 3 pillars... to the EU “trilemma”? 

- Competitiveness
- Security of Supply
- Sustainability
Competitiveness?
Industrial competitiveness under threat

- Putting at risk EU industry competitiveness
- And this is just the beginning...

**US and EU27 industrial electricity prices**

- EU27
- United States

**EU 28 industrial electricity prices**

- 2008:
  - Network: 10.6 cts/kWh
  - Energy: 10.6 cts/kWh
  - Taxes & Levies: +127%

- 2012:
  - Network: 12.4 cts/kWh
  - Energy: 12.4 cts/kWh

Source: IEA, IHS Energy

© 2013 IHS

Source: The European House – Ambrosetti re-elaboration of European Commission data, 2014
A heavy burden for domestic customers

EU 28 households’ electricity prices

(€ cts/kWh)

25

20

15

10

5

0

2008

2012

16,6

+36%

19,6

Taxes & Levies

Network

Energy

Taxes & Levies

Network

Energy

Source: The European House – Ambrosetti
re-elaboration of European Commission data, 2014

➢ Public acceptance in the long run?
Sustainability?
US coal-based power generation fell by 24% and gas-based power generation rose by 63%.

By switching all coal power plants to gas CCGTs, CO₂ emissions would decrease by 400 million tons in the EU.

In addition, air quality benefits! SOₓ, NOₓ, particulates...

The EU could also make such easy wins.
Security of Supply?
Reliance on gas imports is depicted by the Commission as a danger for EU’s Energy Security, although:

- IEA estimates that recoverable natural gas resources amount to 233 years of current production and still to an impressive 61 years for proven reserves!
- 30 countries are currently supplying gas to the EU
- The EU is within economic reach of 70% of the world’s gas reserves

Energy Security should not be confused with Energy Independence
Gas & Renewables: THE solution in power generation
Gas and Renewables partnership in Power Generation

Natural Gas:
- The cleanest dispatchable source of energy (can meet demand at any time)
- The most flexible back-up to RES
- Can store excess electricity produced by RES (Power-to-Gas)

Renewables:
- Intermittency challenge: Need access to flexibility / balancing capacity

“Gas+RES” partnership: THE ideal formula to achieve Energy Security
This vision needs now to be translated into concrete policy proposals
Gas Naturally’s vision for 2030

**SUPPLY**
Europe enjoys varied supplies of gas, with a majority coming from European countries (including Norway). Europe will continue to diversify its gas supplies via new significant sources such as the United States, and in the long-term, African, East Africa, Eastern Mediterranean, etc. Developing underused domestic gas resources will reduce Europe’s import dependency. Europe’s potential to diversify its natural gas supplies will further be realised through deliveries of liquefied natural gas (LNG) from all over the world.

**DOMESTIC GAS PRODUCTION**

**GAS + SOLAR**

**COMBINED CYCLE GAS TURBINE**

**INDUSTRIAL PLANT**

**GAS & RENEWABLES**

Gas-fired power generation is well suited to provide flexible generation to complement variable renewable energy sources. It is capable of rapid response to changes in demand. If the necessary market conditions and policies are in place, the increased use of natural gas for power generation will help the EU achieve considerable emissions reductions by 2030. In such a scenario, gas and renewables will grow together, displacing coal from the fuel mix for power generation.

**GAS AT THE CENTRE OF OUR ENERGY SYSTEM IN 2030**

**INFRASTRUCTURE**

**INNOVATION**

The priority use of renewable energy in the future will require a very flexible storage of excess electricity to form a constant balance between electricity production and consumption, which is technologically needed. The ideal way would be Power-to-Gas, which allows for the storage of renewable electricity in the natural gas grid. Electricity can be converted to hydrogen (H2) via electrolysis, using renewable energy. The H2 produced from power generation or industry can either be stored underground or converted into the gas system as synthetic methane, using Power-to-Gas facilities. End-user technologies such as conditioning systems, gas, heat pumps, micro-CHP, and fuel cells in space heating & cooling are continuously improved. Methane and all make gas use even more efficient in the future.

**GAS IN TRANSPORT**

In the future, natural gas has the potential to play a greater role in transport, in light of lower CO2 and other emissions. According to industry estimates, LNG heavy-duty vehicles could reach more than 50,000 units per year by 2020. By then, they could represent 10 to 15% of the market. Today, there are however only 38 filling stations for LNG for heavy-duty vehicles in the EU, indicating infrastructure needs to be developed to allow the technology to grow. There are also interesting prospects for LNG in road transport, with a clear environmental benefit of 25% lower CO2 emissions and very substantial reductions in emissions of sulphur, nitrogen oxide and particulate matter.

**LNG TERMINAL**

**LNG-FUELED SHIP**

**POWER-TO-GAS**

**CARBON CAPTURE & STORAGE**

**CO2**

**GAS STORAGE**

**BIOGAS PLANT**

**GAS STORAGE**

**BIOGAS PLANT**

**BIOMASS**

**POWER-TO-GAS**

**CARBON CAPTURE & STORAGE**

**CO2**

**GAS AT THE CENTRE OF OUR ENERGY SYSTEM IN 2030**

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Reducing emissions, cleaning the air

Power Generation

Gross Electricity Generation
EU-27 by fuel, 2010

- Nuclear: 4%
- Coal (Solid fuels): 27%
- Crude Oil & Petroleum Products: 24%
- Natural Gas: 12%
- Hydro: 4%
- Wind: 1%
- Biomass & Renewable Wastes: 3%
- Solar: 4%

Natural gas in power generation emits up to...

- NOx: -80%
- Particulate Matter: -99.9%

... less than coal.

Gas: The cleanest fossil fuel

Emission by fuel type

- CO2 (g/kWh)
  - Lignite-fueled power: 120
  - Coal-fueled power: 33
  - Gas-fueled CCGT: 19

Transport

Compressed Natural Gas (CNG) vehicles reduce emissions by up to:

- CO: -97%
- CO2: -25%
- NOx: -60%
- Non-methane hydrocarbon: -75%

CNG could increasingly be used in urban fleets of buses, utility trucks and taxis.

Liquified natural gas (LNG) is the alternative shipping fuel, reducing emissions by up to:

- SOx: 100%
- NOx: 80%
- CO2: 25%

... and emits few particulates.

Competitive technologies ensure natural gas for power generation is more EFFICIENT and FLEXIBLE

Coal Plant

Energy efficiency: 33-45% of primary energy is transferred into electrical power

Flexibility: Start-up time from cold: 6 hrs for hard coal-fired power generation, 10 hrs for lignite-fired power generation

Combined-Cycle Gas Turbine (CCGT)

Energy efficiency: 55-60% of primary energy is transferred into electrical power

Flexibility: Start-up time from cold: Less than 2 hrs

Switching from coal- and oil-fired power plants to the most modern gas-fired plants could reduce EU power sector CO2 emissions by almost 60% relative to 1990 levels.
GasNaturally’s activities in 2014

2030 Advocacy
- Media relations around the European Council Summit

Letter to European Council (17 March)
- Single GHG target
- ETS
- Gas + RES

20 March - 21 March

Gas Member State Forum
- In cooperation with the Greek Presidency
- East-Med Gas & 2030

9 April

Letter to European Council (21 Oct)
- Single GHG target
- Gas + RES
- More gas production
- Support R&D

On going

Site Visits
- 4 site visits to be organised by GN members throughout the year

18-20 Nov & 25-26 Nov

Gas Week
- European Parliament
- Brussels & Strasbourg
- Public hearing, Themed events, Assistants briefings, cocktail, exhibition & dinner
Member States’ Gas Forum & Dinner

Forum
112 Participants
19 Member States

Dinner
45 Participants
12 Member States

MS representation
LV - SI - EE - RO - PT
HU - SK - GR - CY
PL - SE - DK - IT - HR
IE - BE - LU - MT - DE
Gas Week 2014: European Parliament

6 events, in Brussels and Strasbourg

More than 400 participants

One brand-new exhibition

18-20 November
Brussels

GASWEEK 2014

25-26 November
Strasbourg

25 speakers

Director-General DG Energy
Dominique Ristori

Energy & Climate Commissioner
Miguel Arias Cañete

6 MEP speakers

Showcasing expertise of 10 industry speakers
Gas Week 2014: Addressing industry topics

Gas Exploration & Production in the EU

Gas Infrastructure for Security of Supply

Gas: Helping Europe deliver its 2030 targets

Reducing emissions with Gas and Carbon Capture and Storage
Gas Week Exhibition & Videos

Gas for Security of Supply

Gas for a Clean Energy Future

Gas for Competitiveness
Recent developments in energy policy

Security of Supply:
- 2011-2013: Not a prominent issue
- 2014: Topping the agenda because of Russia/Ukraine crisis
  The policy debate is becoming more fact-based and rational

Framework 2030: “A workable package”
  - Single binding GHG in line with GN’s policy positions:

State Aid Guidelines
  - Integration of renewables into the market
2015 : A new context, a shift in focus

Policy...

2014
2030 Climate & Energy Framework
Institutional reshuffle
General 2030 activities & introduction to new policymakers

2015
Energy Union
Looking for inspiration
Specific focus areas & finding new champions

... Makers

GasNaturally focus
2015 : GasNaturally Campaign

“Making a Clean Future Real”

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<td>Promote gas as a fast solution to energy efficiency</td>
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### Campaign Heartbeat

**Activities and events:**
- Emphasise benefits of gas, and address horizontal issues such as innovation
- Rebut criticisms on subsidies, affordability, methane leakage, security of supply
2015 : Draft timeline of activities

- **In blue: events**
- **In green: site visits**
- **In grey: materials**

**January (JAN)**
- MEP Survey

**February (FEB)**
- Gas Week

**March (MAR)**
- Heating workshop
- Member States Gas Forum
- Site visit

**April (APR)**
- MEP Survey

**May (MAY)**
- MEP Survey

**June (JUNE)**
- MEP Survey

**July (JULY)**
- MEP Survey

**August (AUG)**
- MEP Survey

**September (SEPT)**
- MEP Survey

**October (OCT)**
- MEP Survey

**November (NOV)**
- MEP Survey

**December (DEC)**
- MEP Survey

**2015**
- Update messaging, policy point of view and website
- Rebuttals on sensitive issues
- Twitter campaign
- Speaking opportunities
GasNaturally: “Making a Clean Future Real”
Any questions?