TYNDP 2017 Presentation

23 January 2017 - Brussels
TYNDP 2017 Presentation

1. Role of TYNDP
2. Gas in the EU – today and tomorrow
3. EU gas infrastructure - further needs?
4. Achieving the internal gas market is at hand
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3rd Package regulatory framework for Gas

- Directive 2009/73/EC
- Regulation EC No 715/2009 (or “Gas Regulation”)
- Regulation EC No 714/2009

Unbundling – separation of transmission from supply to customers

ENTSOG
European Network of Transmission Operators for Gas

ACER
Agency for the Co-operation of European Energy Regulators
TYNDP: an ENTSOG regulatory task

TYNDP is developed bi-annually

> The task is defined by Reg. (EU) 715, Reg. (EU) 347 and Reg. (EU) 2015/703

> The European Commission approved the Cost-Benefit Analysis Methodology applied to TYNDP

> ACER monitors TYNDP and issues a formal Opinion on TYNDP
Role of TYNDP

Third Package

TYNDP

Assess the infrastructure for secure, competitive and sustainable gas supply to EU consumers: Further infra needs?

Assess projects as a whole: Do they mitigate the infrastructure needs?

Frame possible futures

Stakeholder engagement

ACER and European Commission
Thorough stakeholder involvement

TYNDP is a highly inclusive and transparent process
TYNDP it’s...

An EU-wide perspective

An in-depth assessment of the gas infrastructure along the Union core energy policy objectives
TYNDP in the wider TEN-E framework

TYNDP submits Projects to TYNDP

Every 2 years

- TYNDP is an input to the process for selecting Projects of Common Interest (PCI)...
- ...and just the starting point for projects
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EU Energy consumption Today...

Gas provides >20% EU Energy Consumption

Heating and cooling is 50% EU Energy demand, significantly covered by Gas

EU28 Energy Consumption – EC PRIMES data
EU energy consumption
... and tomorrow

Multiple paths to EU targets 2030

EU28 Energy consumption – EC PRIMES data
Gas consumption

Demand during cold spells does not follow annual volume trends. The gas infrastructure is designed to cope with peak demand situations.

* January 2017 up to 18th January
Gas consumption

**Gas covers higher and more volatile energy demand than electricity.**

Peak demand for which the infrastructure is prepared

Peak demand is a major driver for designing the gas infrastructure.
Scenarios set the range of possible futures needed to test the infrastructure.

...not forecasts, not visions
Scenarios frame the possible futures

*Stakeholder feedback supported a range of demand scenarios*

- Slow Progression
- Blue Transition
- Green Evolution
- EU Green Revolution
**Scenarios Characteristics**

**Slow Progression:** Little stimulus to change the energy sector radically from what is seen today. Coal is above gas in the merit order for power generation and the economy cannot support effective decarbonisation.

**Blue Transition:** Gas focussed solutions to the EU energy transition, making use of existing infrastructure. Gas substitutes coal in the power sector, develops rapidly for mobility and continues to dominate the heating sector.

**Green Evolution:** Favourable economic conditions enable national decarbonisation plans to progress. Gas supports RES development, green gases contribute to the reduction of CO2 and efficient devices reduce demand.

**EU Green Revolution:** Goes beyond the national plans to takes a coordinated European perspective on the energy transition, provided through global climate agreements, accelerating the characteristics seen in Green Evolution.

Frame the future
Scenario Characteristics

- Slow Progression
- Blue Transition
- Green Evolution
- EU Green Revolution

- Economic Conditions
  - High
  - Low
- CO2 Reduction
- Gas displacing Coal in Power
- Gas Mobility
- Gas Demand
- Green Gases
- Green Ambition
- RES-E Development

Frame the future
Gas demand – historic and scenarios

Scenarios set the range of possible futures

Scenario data is country specific and builds on national expertise
ENTSOG Scenarios compare to other scenario sources

ENTSOG Scenarios retained for assessment

Gas Demand – Scenarios 2030
**CO2 savings**

*Gas displacing coal for power generation strongly impacts on CO2 savings*

*CO2 savings in 2030 – overall power sector and gas end-user demand*

*EU CO2 targets = 40% reductions*
Renewables

Renewables gases

> A potential still to be explored

Renewables generation

> TYNDP scenarios align with ENTSO-E TYNDP 2016

> **45 to 60%** renewable share
Multiple energy mixes achieve the EU Energy efficiency target

The target can be met with both...

...decreasing gas demand
- Better efficiency of gas heating
- Electrification of heating

...increasing gas demand
- More efficient gas-fired generation replacing coal generation
- Gas mobility displacing oil demand

Energy Efficiency
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The existing infrastructure

- Diversified pipeline imports
- A well-developed transmission network
- LNG terminals
- Underground storages in most EU countries
Highly resilient existing gas infrastructure

- **High import capacities**: 850 GW
- **High cross-border capacities**: >100% of EU demand: 1,000 GW
- **High storage capacity**: 1,100 TWh, 20% of the annual demand
- **High deliverability**: Key asset to cover winter demand and to provide flexibility
TYNDP assesses the gas infrastructure against the Union energy policies

Are they achieved with the existing infrastructure and FID projects?

Yes

No further infrastructure needs

No

TYNDP assesses further infrastructure development

> FID projects + advanced projects
> FID projects + 2nd PCI list projects
Sustainability

Developing and integrating **renewable sources of energy** is key for a low-carbon future

> It will challenge the power system

> Today’s EU gas infrastructure - with existing power plants - is already able to complement renewable generation and integrate renewable gases.

*It is fundamental to take a holistic approach to the energy system*
Market integration

While the overall infrastructure is well developed...

pipe and LNG import capacities, transits, interconnections

...the situation remains very contrasted from one country to the next
Security of supply

Already achieved:
- Resilience to extreme temperature
- Resilience to disruption of Algerian, Libyan and Norwegian supply sources

Further infrastructure needs:
- To mitigate Belarus route disruption risk in North-East Europe
- To mitigate Ukrainian route disruption in South-East Europe
- To mitigate largest national infrastructure unavailability (N-1 risk) in specific countries
Security of supply

Resilience to supply disruption

LNG

Norway

Russia

Algeria

Libya

Assess needs
Security of supply
Case of Ukraine route disruption

South-East Europe would face demand curtailment

- 2017
- 2020 - FID projects
- 2030 - FID + 2nd PCI list projects

FID projects significantly mitigate the situation by 2020

Further mitigation requires projects from the 2nd PCI list
Security of supply

N-1 case: unavailability of largest national infra

Countries with N-1 < 100% would face demand curtailment

FID and Advanced projects partly mitigate the situation by 2020

Further mitigation requires projects from the 2nd PCI list
Already achieved

Most of Europe can access diversified supply sources
Hub price convergence actually observed most of the time, especially in Western Europe

Further infrastructure needs

To ensure more diversified access to supply sources – in the Baltics, South-East Europe and Iberian Peninsula
To lift high dependence to a specific supply source
Competition
EU supply needs

EU current indigenous production is declining, leading to increased supply needs for 2 out of the 3 scenarios

Access to new supply sources would contribute to maintain supply diversification
Several areas have a significant access to only 1 or 2 supply sources

FID and Advanced projects ensure access to at least 3 supply sources in Baltics and South-East EU

For Iberian peninsula 2\textsuperscript{nd} PCI list projects allow further diversification
Supply diversification

Irreducible dependence to Russian supply

Finland and Eastern Europe have limited alternatives to Russian supply

Advanced projects improve access to other sources by 2020

Situation could deteriorate post-2020 if Lithuania Klaipeda LNG terminal would cease operating

2nd PCI list projects ensure homogenous situation across EU countries
Supply diversification

Irreducible dependence to LNG supply

Iberian peninsula and south of France have limited alternatives to LNG supply

FID projects improve the situation by 2020

2nd PCI list projects would further improve the situation post-2020
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When will projects materialise?

The necessary projects are to be commissioned in the coming years.
At which costs?

BEMIP

Southern Gas Corridor (SGC)

Cost of projects

- EU
- BEMIP
- NSI East
- NSI West
- SGC

bn €

Total cost: 45 bn€ (FID and Advanced)
Including large-scale import projects (TANAP, TAP and Nord Stream 2): 24 bn€, based on publicly available data.
BEMIP: Baltic Energy Market Interconnection Plan
NSI West / East: North South interconnections West / East

Large-scale import projects
The gas infrastructure is already well developed
- It is close to achieve the EU internal gas market
- It is ready to support a low-carbon future

Assessing if further infrastructure is needed requires energy scenarios covering a range of possible futures

The energy situation is not the same all over Europe
- In specific areas, further infrastructure is still needed
- The necessary projects are to be commissioned in the coming years

And still:
- Stakeholder are welcome to take part to the TYNDP public consultation (until 3 February): http://www.entsog.eu/events/entsog-tyndp-2017-public-consultation#welcome
Thank You for Your Attention

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