entsog
european network
of transmission system operators
for gas

11th TYNDP/CBA Public Workshop
Initially planned 25 November 2015
POSTPONED

TYNDP 2017

Timeline and foreseen improvements

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Image Courtesy of Thyssengas

ENTSOG ambition for TYNDP 2017

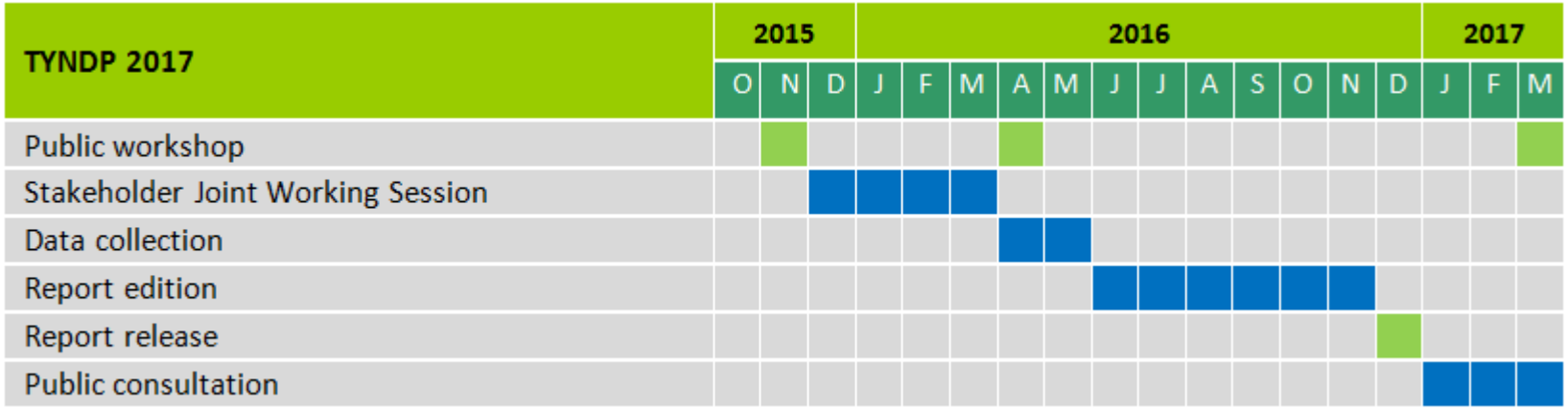
TYNDP 2015 is the first one developed under Reg. (EU) 347

- It has inaugurated the application of the **CBA methodology** approved by EC…
- … and a new role of TYNDP: being the **basis for Project-Specific CBA** of PCI candidates
- TYNDP 2015 and the CBA methodology have allowed a **fair and valuable** assessment of PCI candidates, although perceived as **too complex**
- Following the release of TYNDP 2015, and under the mandate of promoters, ENTSOG has handled the PS-CBA of more than 100 Groups of projects: it has allowed a **very deep and thorough testing** of the CBA methodology and TYNDP basis, and provides a **high-value feedback** that will be reflected in TYNDP 2017

Strengthened by this experience, ENTSOG has a high ambition for TYNDP 2017

- Improve TYNDP in a **transparent** manner, making the best possible use of the approved CBA methodology
- To deliver a **comprehensive** and yet **intelligible** TYNDP in December 2016 that will be a **reliable** basis for PCI selection

TYNDP development timeline



(Blue cells on the chart denote activity periods with green cells denoting key deliverables visible to external stakeholders.)

> First key step: the **stakeholder engagement process**
  - 5 Stakeholder Joint Working Session until March 2016
  - Stakeholder contribution will be factored in final TYNDP concept (presentation in a Public Workshop in April 2016) and therefore in the TYNDP assessement

> **Call for projects** in April and May: gate closure on **25 May**

> **TYNDP 2017 publication in December 2016**
  - The assessment will be final at this date, **to support the 3rd PCI selection process**
  - Following TYNDP release: public consultation and submission to ACER

Joint TYNDP / GRIP development

TYNDP and GRIPs 2017 will have a joint development process

- A common concept
- A common data set
- Complementary contents
- Release dates close to each other

TYNDP: a report with various objectives

TYNDP initial objective was defined by Reg. (EU) 715

> Supply adequacy outlook on a 10-year range

> Identification of possible investment gaps

Reg. (EU) 347 defines new tasks for TYNDP in relation to the PCI selection

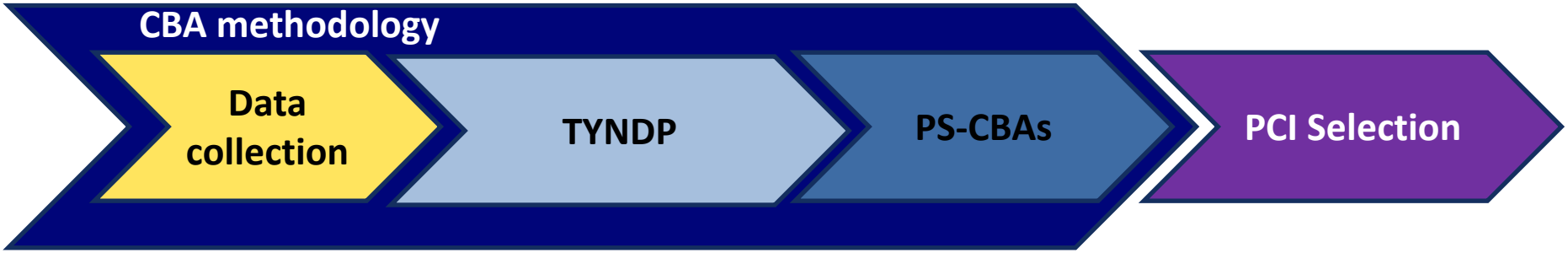
Since April 2015, a new role set by Reg. (EU) 2015/703

> Reg. (EU) 2015/703 establishes « a network on interoperability and data exchange rules »

> It requests the publication, along with TYNDP, of a 10-year range long-term gas quality monitoring outlook, which should be consistent and aligned with TYNDP

TYNDP has to answer multiple and very various expectations

TYNDP: a key element of the PCI selection



TYNDP is developed under the frame of the CBA methodology

- For TYNDP 2017: the CBA methodology approved by EC on February 2015
- It delivers the Energy-System Wide Cost Benefit Analysis on a 20-year range
- It is the basis for the project specific assessment (PS-CBA) of PCI candidates by promoters

TYNDP and PS-CBAs support the PCI selection by Regional Groups

- TYNDP gathers all possible PCI candidates
- TYNDP identifies the investment gap
- PS-CBA, developed under the CBA methodology, ensures the assessment of all candidates on common grounds

TYNDP model overview

Input data set
Data categories defined by Reg. 347

States of the world

- Demand scenarios
  - Gas demand
    - *Final*
    - *For power*
    - *Elec. data*
  - Fuel prices
    - -Gas
    - -Coal
    - -Oil
  - CO2 price
- Supply cases
  - Imports *(Supplies)*
  - *Nat. Prod*
- Infra levels: Low, High, PCI
  - Network
    - -Transmission
    - -LNG TM
    - -UGS

Data collection from different sources

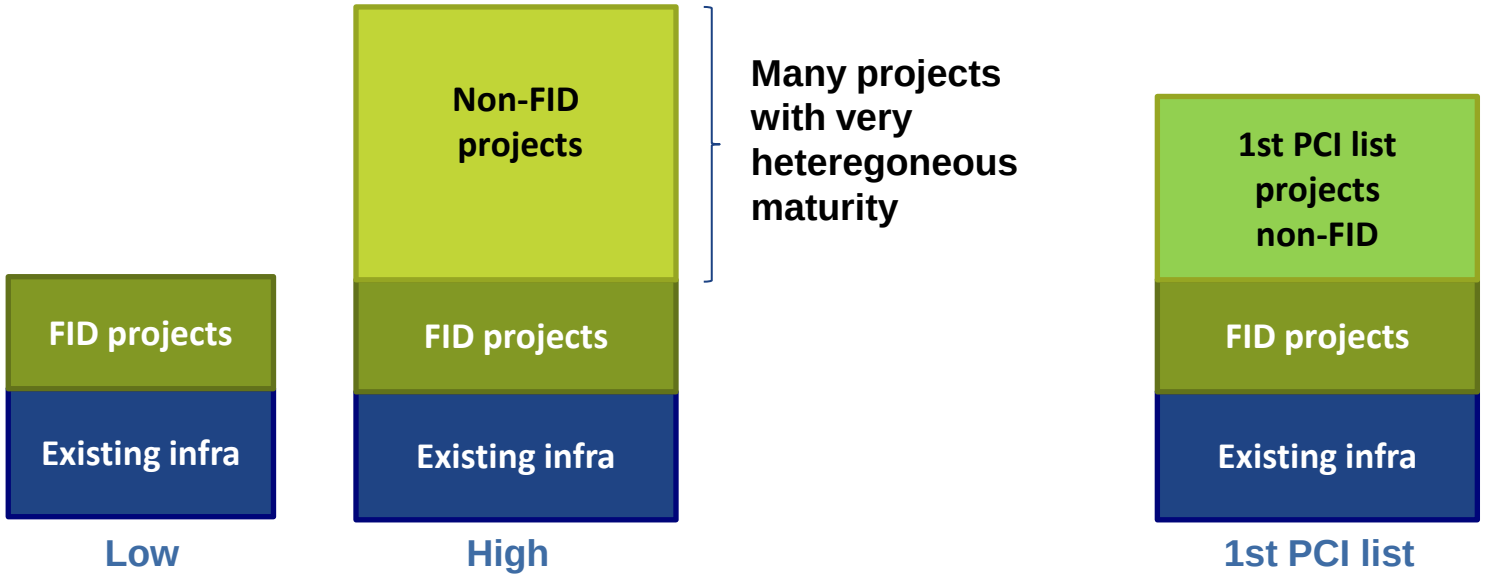
Modelling tool
described in CBA meth.

Outputs
defined by CBA meth.

- Modelled outputs
- Non modelled outputs

Infrastructure projects

Infrastructure Levels in TYNDP 2015

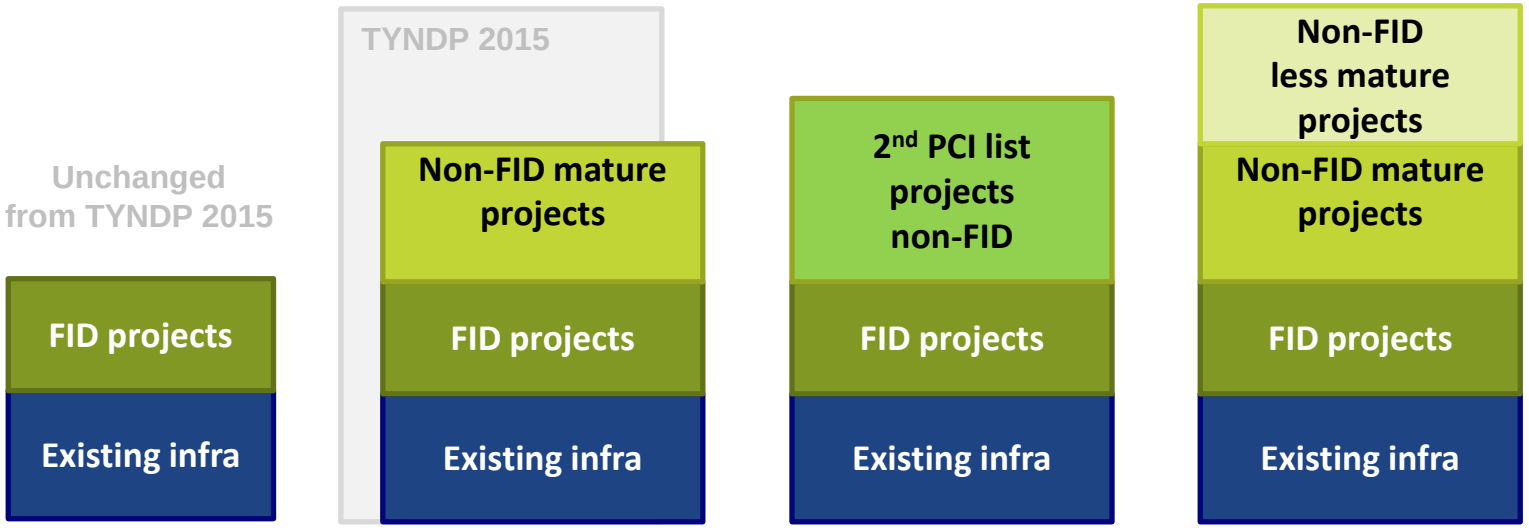


ENTSOG supports a better consideration of projects' maturity

> In TYNDP 2015, the High Infrastructure Level has appeared unrealistic and has proved inefficient for PS-CBA

For TYNDP 2017, ENTSOG recommends the introduction of a maturity criterion for non-FID projects

Infrastructure Levels in TYNDP 2017



Assessment of the infrastructure gap

Basis PS-CBA

Assessment of ESW-CBA

Basis for PS-CBA

Feedback loop of 2nd PCI selection

Less mature projects:
- **are listed in Annex A, ensuring they can be PCI candidates**
- **are not assessed in TYNDP**

A better consideration of maturity

Introduction of a maturity criterion for non-FID projects

- It would allow to define a more restrictive “New” High Infrastructure Level gathering FID and mature non-FID projects
- Less mature projects, beyond the “New” High Infrastructure level, will still be part of TYNDP (Annex A), allowing them to candidate to the PCI label
- In term of PS-CBA
  - Assessing projects against this “New” High Infra Level would enhance the information
  - Less mature projects should be assessed on top of the “New” High Infrastructure Level

ENTSOG encourages EC and ACER to make propositions on such a maturity criterion, and is ready to contribute to those propositions

ENTSOG recommends that EC issue the Guidelines referred to in Annex III(2) of Reg. (EU) 347 for gas

- Defining the maturity criterion in these Guidelines would give the necessary grounds for ENTSOG to apply it

A reviewed submission of project data supporting TYNDP improvement

Promoters will be requested to submit projects costs

- ENTSOG commits to ensure the **confidentiality** of the collected data
  - Secured storage of the information in ENTSOG IT system
  - No possible access to individual costs by ENTSOG staff apart from IT administrator
- Costs will be provided in TYNDP **at aggregated level**: for each Infrastructure Level (Low, High, PCI), sum of costs of all project of a given category (transmission, LNG, UGS)

Coordination between project promoters will be reflected as part of project submission

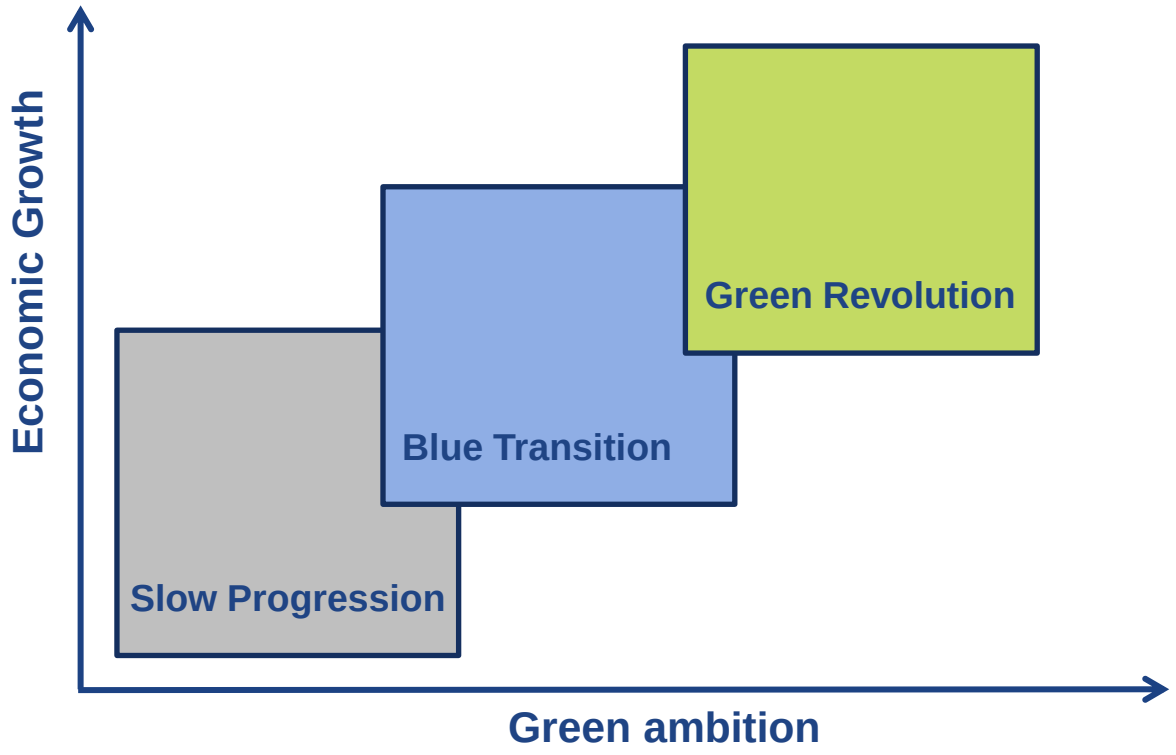
- Coordination between project promoters before project submission is essential
- Coordination is project promoters' responsibility
- Fully non-coordinated projects will not be assessed in TYNDP (lesser-of-rule)
  - Example: interconnector between countries A and B: if a project is submitted in country A, but in country B no project is submitted and there is no exiting capacity, the interconnection will not be assessed

Gas demand

Demand Scenarios

Scenarios are possible story lines for the EU energy sector in the future

> ENTSOG sees **3 scenarios**



Demand Scenarios: the story lines

TYNDP 2017 Scenarios	Slow Progression	Blue Transition	Green Revolution
Energy Policies/ Regulation	2050 targets not realistically reachable	Mainly on track with 2050 targets [closure of coal-fired power plants (regulation)]	On track with 2050 targets
Economic conditions	Limited growth	Moderate growth	Strong growth
Green ambitions	Lowest	Moderate	Highest
CO2 price	Lowest CO2 price (limited spread of carbon taxes)	Moderate CO2 price (carbon taxes mainly spreaded)	Highest CO2 price (carbon taxes well spreaded)
Fuel prices	Highest fuel prices [expected gas price>coal price]	Moderate fuel prices [expected gas price>coal price]	Lowest fuel prices [expected gas price>coal price]
Internal energy market	Well functioning, low MS cooperation	Well functioning, moderate MS cooperation	Well functioning, strong MS cooperation
Renewables develop.	Lowest	Moderate	Highest
Gas in heating sector			
Energy Efficiency	Slowest improv.	Moderate improv.	Fastest improvement
Competition with electricity	Limited gas displacement by elec. (new buildings)	Limited gas displacement by elec. (new buildings)	Gas displaced by electricity (district heating, heat pumps)
Electrific. of heating	Lowest	Moderate	Highest
Gas in power sector			
Gas vs Coal	Coal before Gas	Gas before Coal (on regulatory basis)	Gas before Coal (on regulatory basis)
Gas in transport			
Gas in transport	Lowest penetration	Highest penetration	Moderate penetrat.
Electricity in transport	Lowest penetration	Moderate penetrat.	Highest penetration
Expectations regarding EU overall gas demand	Expected to decrease	Expected to increase	Expected to decrease

Demand scenarios

Consistency between gas and electricity scenarios

- ENTSOG works in close cooperation with ENTSO-E to ensure consistency between e-TYNDP 2016 and g-TYNDP 2017 scenarios
- Gas demand for power generation will be based on ENTSO-E data

Scenarios will be challenged with stakeholders

- In January, ENTSOG will have a Stakeholder Joint Working Session dedicated to Scenarios and Input Data
- Ahead of it, ENTSOG will issue a scenario description document

Use of scenarios for the TYNDP assessment

- ENTSOG will collect country level data for all 3 scenarios
- Among them, ENTSOG will select the scenario(s) ensuring a comprehensive and intelligible TYNDP assessment

Scenarios will be benchmarked against recognised external sources

- IEA World Energy Outlook, PRIMES, Eurogas, …

Gas supply

Gas supply

Supply volume assumption: a key input data to TYNDP

- ENTSOG will update the supply volume assumptions based on public information collected from all relevant stakeholders
- LNG: a specific supply requiring specific attention
  - LNG is a world-wide market: the volume of LNG possibly reaching EU deserves close consideration
  - LNG is a multi-source supply: ENTSOG endeavours to reflect this reality in TYNDP in a as simple and intelligible way as possible

Relative supply prices

- Views regarding the future price of gas are available (IEA World Energy Outlook) and will be used in TYNDP to set a « reference gas price »
- But prices of the different supplies can evolve around this reference price, with a direct impact on the use of supply sources
- ENTSOG will ensure a **sensitivity analysis** by using **price configurations**: ENTSOG will propose a limited number of price configurations (down from last edition's 13 conf.)

Modelling

Modelling

Functioning of the modelling tool

> The functioning of the modelling tool is described in the CBA methodology

> Yet, it is sometime perceived as a black box

> ENTSOG endeavours to explain the functioning of the tool in a transparent manner

- Use of the input data in the tool
- Link between inputs and outputs

A number of improvements considered including…

> Separate modelling for the **whole year** and **high demand situations**

- Allowing differenciation between of issues

> More accurate consideration of LNG terminals and UGS in the modelling

What TYNDP delivers

Identification of the infrastructure gap

Low Infrastructure Level: the basis for the assessment of the infrastructure gap

- Low Infrastructure Level: existing infrastructures + FID projects
- It allows assessment of the gap along the whole time horizon

ENTSOG endeavours to identify the infrastructure gap more clearly, along the different criteria of the TEN-E Regulation

Additional TYNDP Infrastructure levels

- The "New High" and "PCI 2nd selection" Infrastructure Levels will allow to answer the question: as a whole, does the projects belonging to these levels close the infrastructure gap

Project-Specific CBAs

- Following the release of TYNDP, Project-Specific CBA of projects' promoters and PCI selection by Regional Group will allow to identify the individual projects best suited to close the gap

TYNDP: an Energy System Wide CBA

The Energy System Wide CBA is handled at Infrastructure Level

- Each Infrastructure Level defines a cluster of projects
- The impact is assessed for all the projects belonging to the Infrastructure Level, as a whole

Benefits

- The CBA methodology is a **multi-criteria analysis**: all types of benefits have to be considered to get the full picture of the assessment
- The CBA methodology considers monetization of some criteria
- Additional benefits might be monetised: under consideration by ENTSOG
- Quantitative benefits are as relevant for the assessment and are not meant to be monetized

Costs

- Costs will be reflected in TYNDP **at aggregated level** for each Infrastructure Level

Thank You for Your Attention

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