



Gas exchange development in Greece - Update

16th Energy Community Gas Forum

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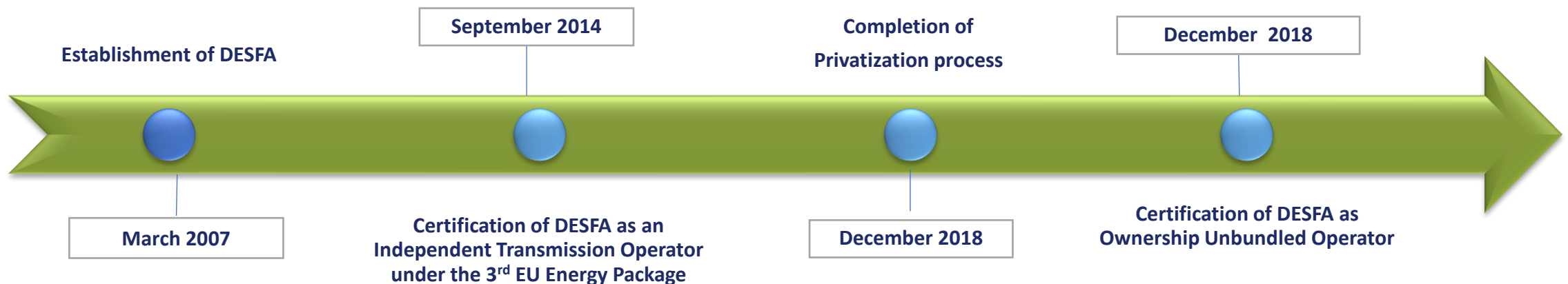
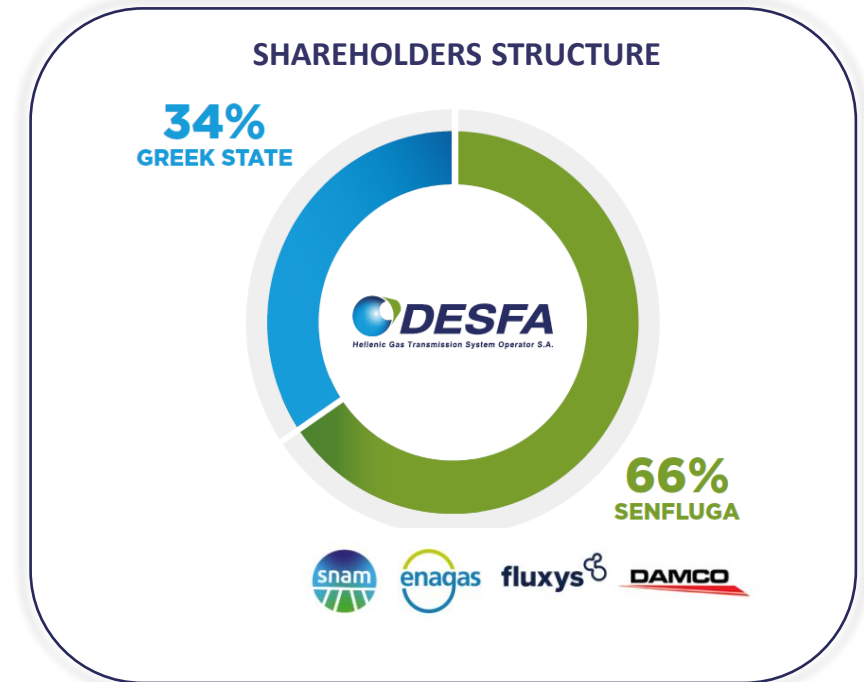
23/9/2021



The role of a “gas TSO” in the future energy landscape

DESFA counts 14 years of successful operation

- Established in March 2007, DESFA owns & operates the **Greek Natural Gas System (NNGS)**, which consists of the **National Natural Gas Transmission System** & the **LNG Terminal** in the islet of Revithoussa.
- DESFA has been certified as an **Ownership Unbundled Operator** under the **3rd EU Energy Package**, following the completion of a privatization process on December 20th of 2018.
- DESFA operates, maintains & develops the Greek Natural Gas System in a **safe, reliable and economically efficient way**, offering:
 - 1) **Regulated Third Party Access services** in a transparent and non-discriminatory way &
 - 2) **A range of highly specialized services** to a number of national and international clients



The National Natural Gas System

The NNGS

1,466 km

*High-pressure
pipelines*

1

*LNG storage &
regasification terminal*

4

Interconnections

53

*Metering & Regulation
Stations*

2

*Dispatch
Centres*

6

*Operation &
Maintenance Centres*

1

Compressor station

22

*Exit points connected to
distr. systems*

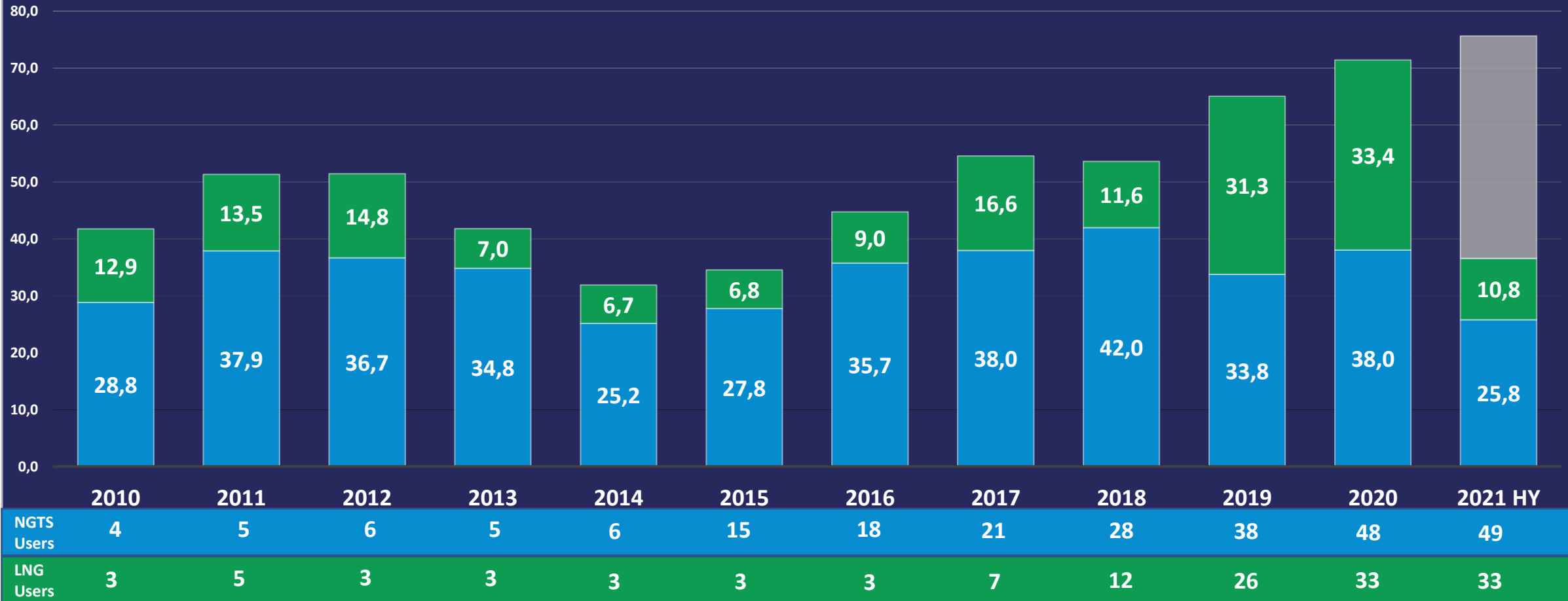


The Greek NNGS is a “new”, high quality network which continues to develop in order to reach new areas and users, as well as to establish new interconnections with other Systems.

The growth and liberalization of the Greek natural gas market

Evolution of NG Imports (2010 – 2021 HY) [TWh]

■ Pipeline Gas ■ LNG Cargoes ■ 2021 2HY Projection



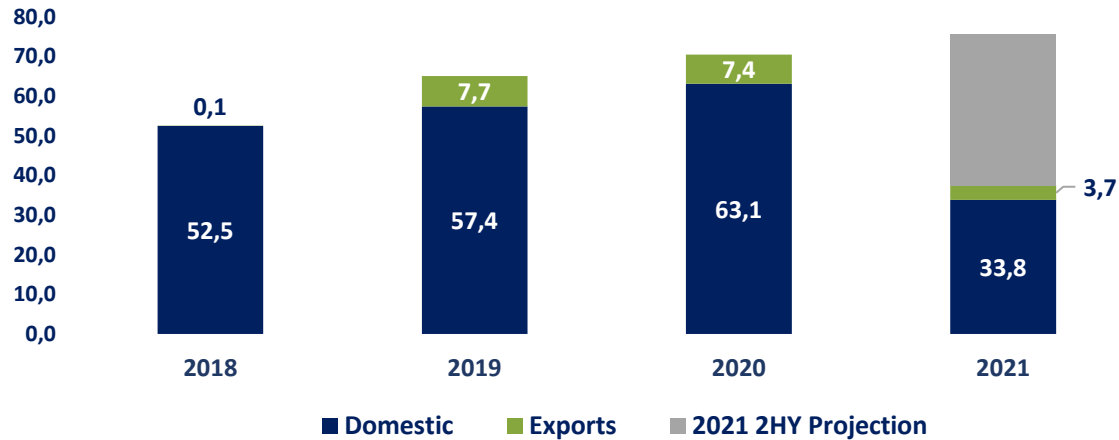
The volume of NG imports and number of Users have been steadily increasing in recent years

DESFA's customers include: Wholesale Suppliers | Power Producers | Big Industrial Consumers | Retailers | NG Traders

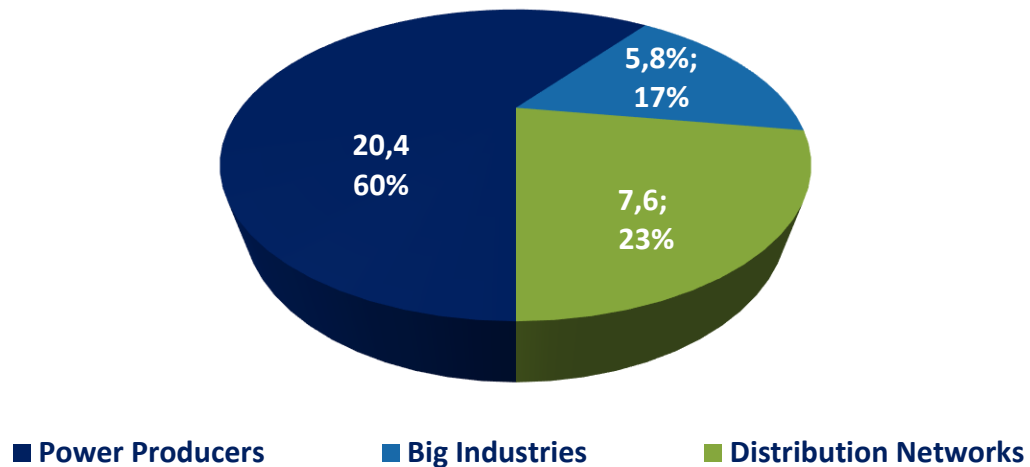
Greek natural gas market evolution

Increasing Natural Gas Demand

Natural Gas Demand Evolution 2018-21 [TWh]

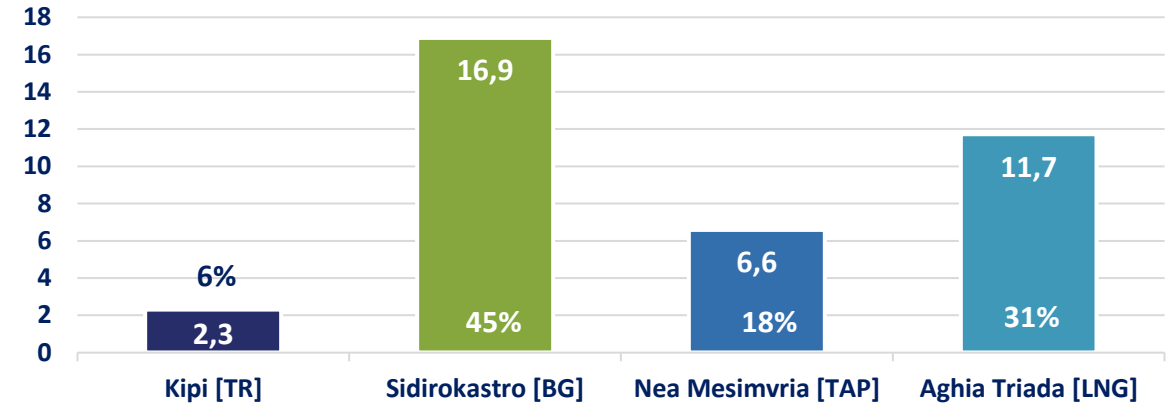


NG Domestic Demand Breakdown 2021 [TWh & %]



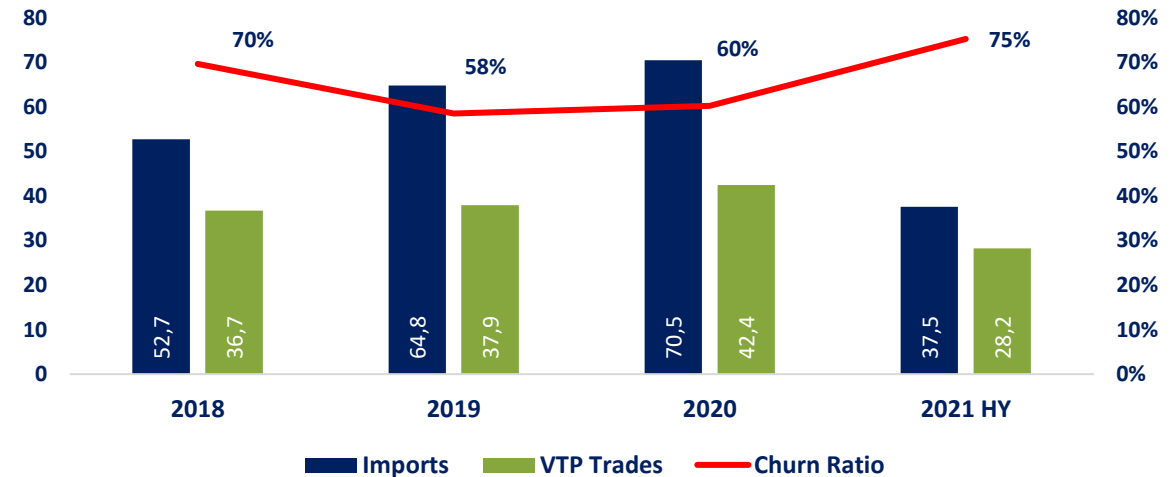
Diversity of Supply Sources

2021 HY Supply Sources



Increasing Market Liquidity at the VTP

VTP Trades vs Imports [TWh]



DESFA's Ten-Year Development Plan 2021-2030



48 projects of high added value



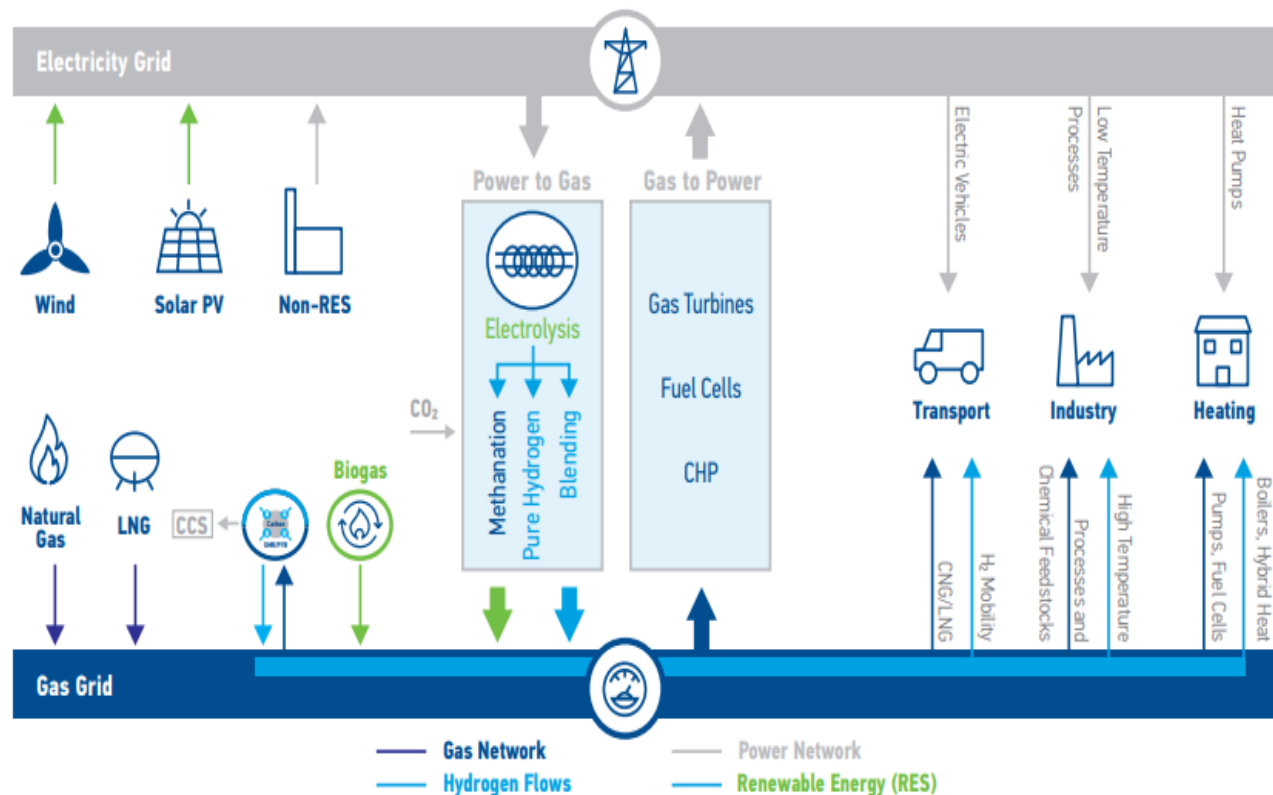
€540 million total budget



Large scale investments which confirm the **key role of natural gas infrastructure** in the energy transition, contributing to the implementation of the **National Plan for Energy and Climate** & the **Just Transition Development Plan of lignite areas**

Energy Transition will be based on green power and decarbonized gases

DESFA aims to become an essential driver of tomorrow's energy systems, promoting renewable gases and power and gas sector coupling



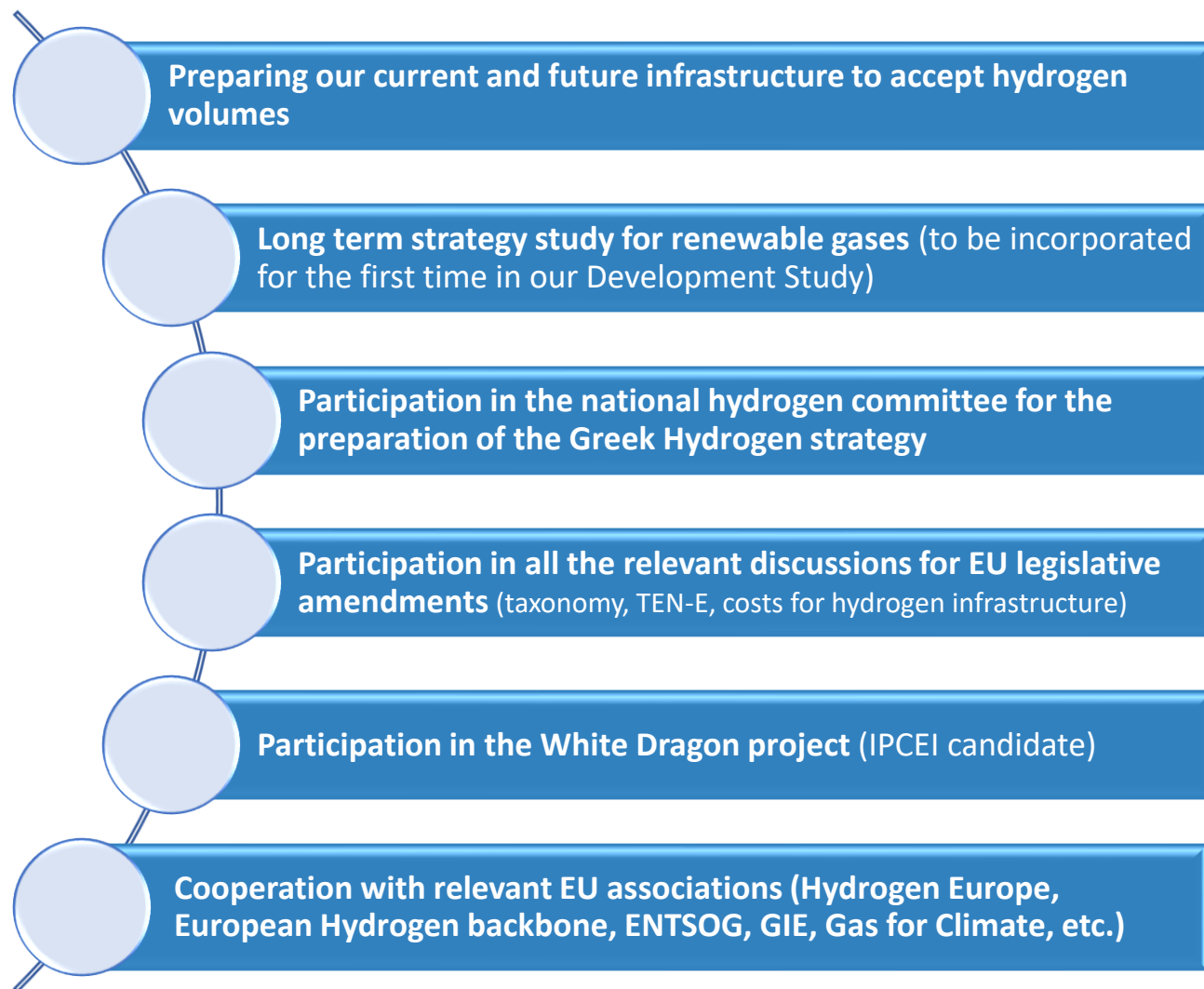
Source:

Figure 5: Hybrid Energy System, ENTSOG, 2019.

EU Green Deal: net zero by 2050

- The pathway to **net zero** requires **fast and sustainable development of both clean power production and new renewable gases technology** to gradually substitute today's fossil fuels.
- Decarbonization of the electricity supply remains a key element towards a carbon-free system, however, **molecules will still be needed for different parts of the value chain** (e.g. balancing and storage, intensive industry, long-distance transportation, residential thermal needs).
- **Hydrogen** will stand as a key renewable gas (along with **biomethane** and synfuels) and play an important role in the energy transition, as it is a valuable energy source that can be **produced sustainably and distributed widely**.

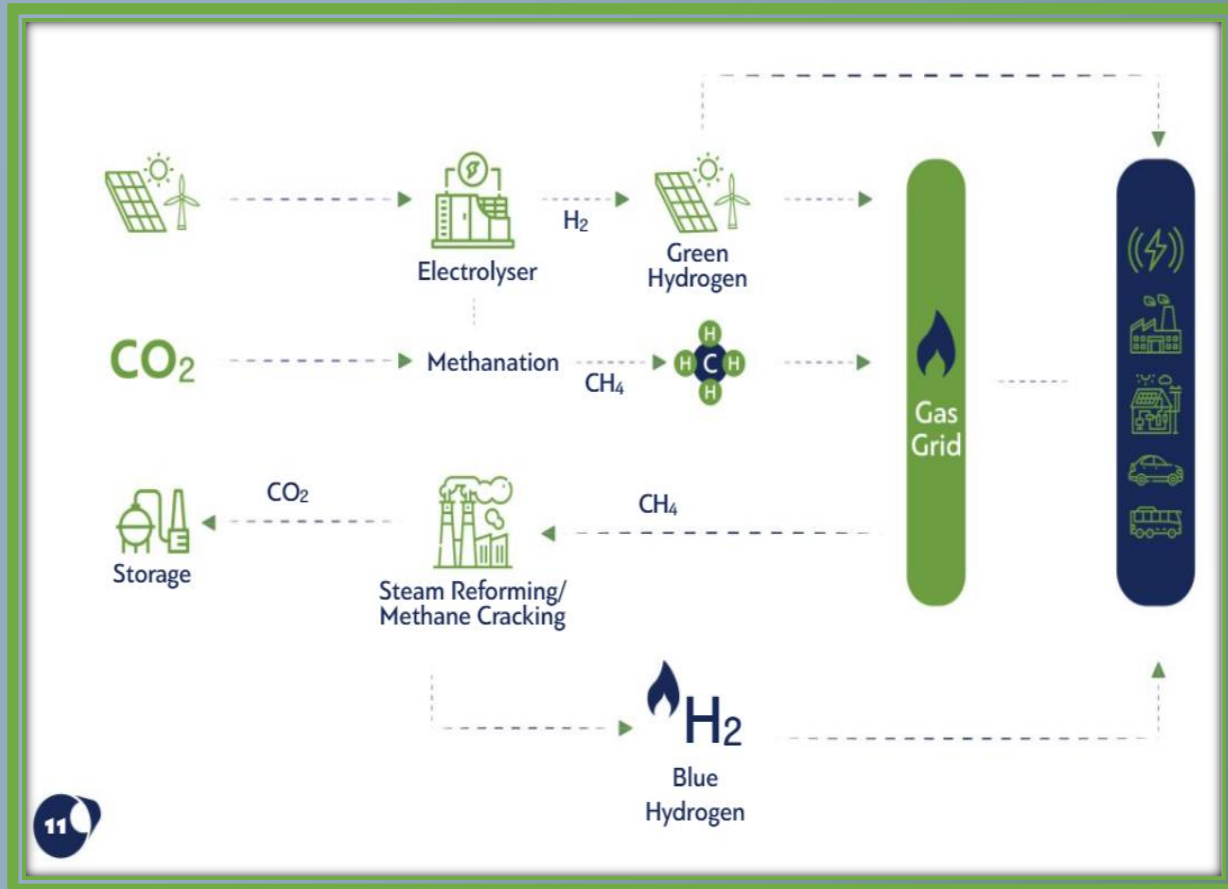
Energy Transition: DESFA driving towards a decarbonized future for the Greek energy market



Through this initiatives, we aim to:

1. Contribute to the design of national H2 strategy and engage in the discussion regarding the ongoing developments on an EU level
2. Define and promote DESFA role in the context of the European and Greek Hydrogen strategy
3. Assess the readiness of our system's capability to accept hydrogen volumes
4. Identify and prioritize business opportunities over the next years
5. Identify and prepare pilot hydrogen and biomethane projects

DESFA's focus on renewable gases



- Participation in IPCEI proposal for the **White Dragon** cluster project
- Developing **cooperation with the main energy companies for H2 projects**
- **Assessment of the current network regarding H2 readiness**
- **Updating our specifications for the expansions of the network (H2 fully compatible)**
- **Training Center (N. Mesimvria) to be used as an R&D center for hydrogen facilities testing**
- Participation in a R&D for pyrolysis (with CERTH)



Wholesale gas market development

DESFA at a crossroad of new routes and initiatives: Regional demand patterns & strategic geographical location

DESFA's 10YDP - €500 M within the next 5-year period

1 **HP Pipeline to Western Macedonia**
Shareholders: DESFA

2 **HP Pipeline to Western Greece**
Shareholders: DESFA

3 **Interconnector Greece – North Macedonia**
Shareholders: DESFA

4 **Small Scale LNG Jetty & Truck Loading Station**



5 **FSRU Alexandroupolis:**
Shareholders: Gastrade

6 **Dioriga Gas**
Shareholders: Motor Oil 100%

7 **Interconnector Greece – Bulgaria (IGB):**
Shareholders: DEPA, Edison, BEH

8 **Trans Adriatic Pipeline (TAP)**
Shareholders: BP, Socar, Snam, Fluxys, Enagás, Axpo

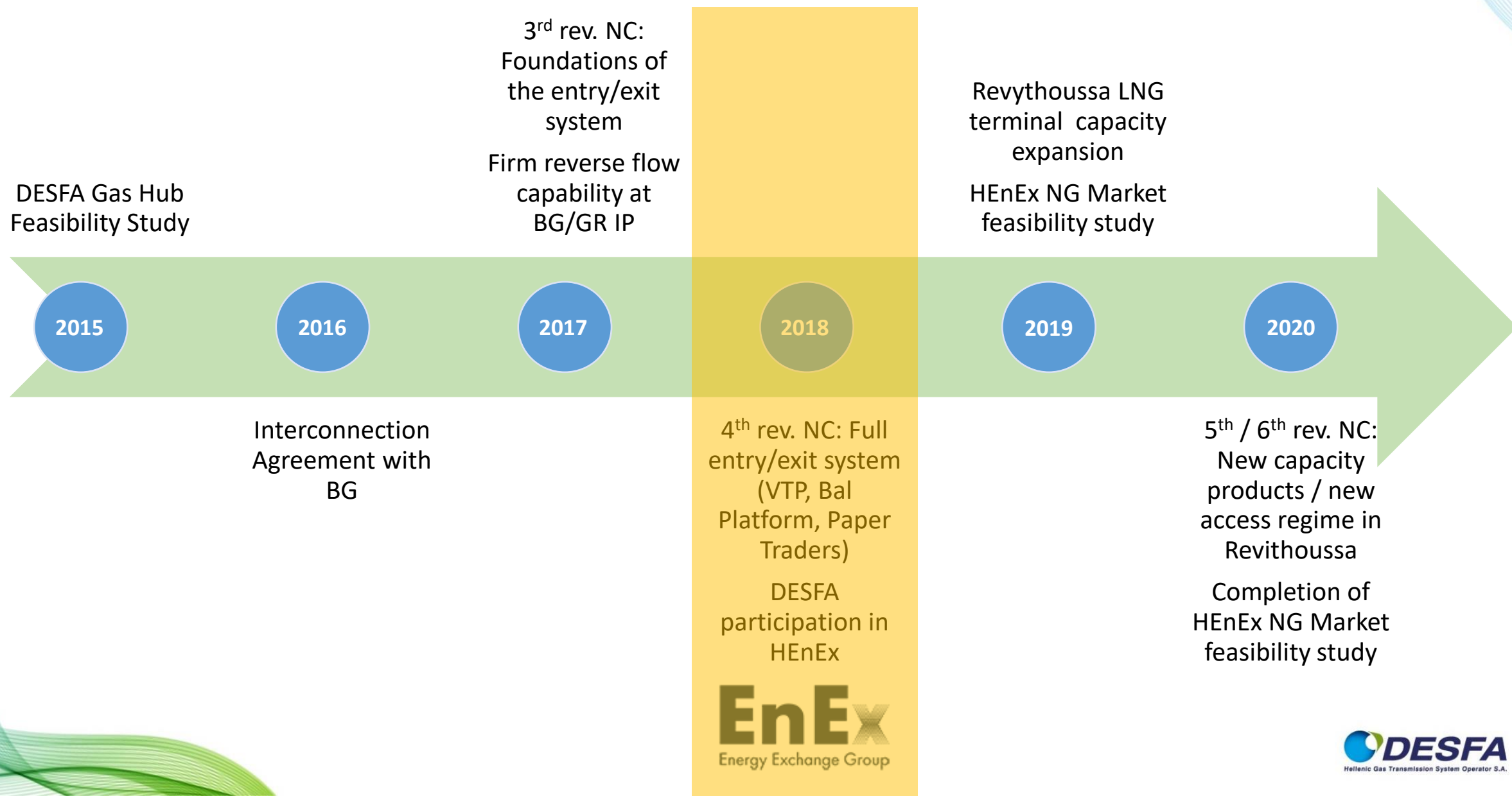
9 **UGS South Kavala**
Expression of interest to participate in the tender

Participations

Other developers

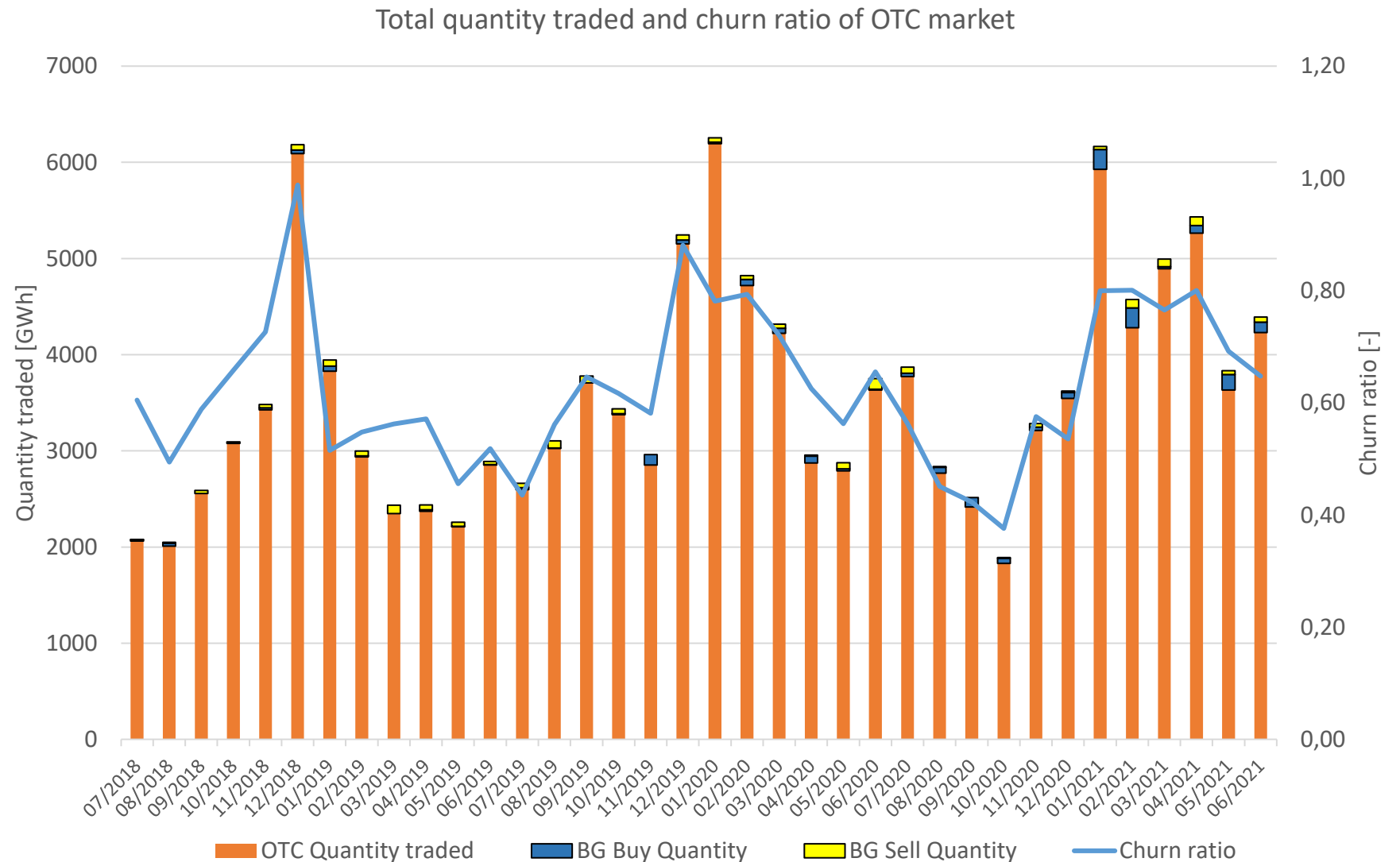
Tender

Regulatory reforms, infrastructure developments, business initiatives



VTP over-the-counter and balancing trades

- 65% (3-year average) of the quantities entering the system are traded before exiting
- Traded quantities for operational balancing represent a very small percentage of the total trading volume (in line with mature trading/balancing systems at EU level)



Next step: A spot gas market by DESFA and Hellenic Energy Exchange

○ **Products:**

- Within-day (D) and day-ahead (D+1, D+2, D+3)

○ **Trading mechanisms:**

- Auctions, continuous trading + registration of OTC trades

○ **Clearing mechanism:**

- Central Counter Party (CCP) through EnExClear

○ **Entities allowed:**

- Physical and paper traders (having a contract with DESFA - Users of the NNGTS)

○ **Prices:**

- Within-day spot index
- Day-ahead spot index
- Balancing gas marginal prices

○ **Actions completed:**

- Full documentation sent to NRA Mid-June 2021
- 1st stakeholder workshop 12 July 2021
- End of public consultation 21 Sep 2021

○ **Next steps Q4 2021**

- Approval of regulatory documents
- Users' training/certification/workshops
- Dry-runs
- Go-live



Thank you for your attention!



www.desfa.gr