08/06/2021

Gas Markets in Transition in SE Europe”

IENE Webinar

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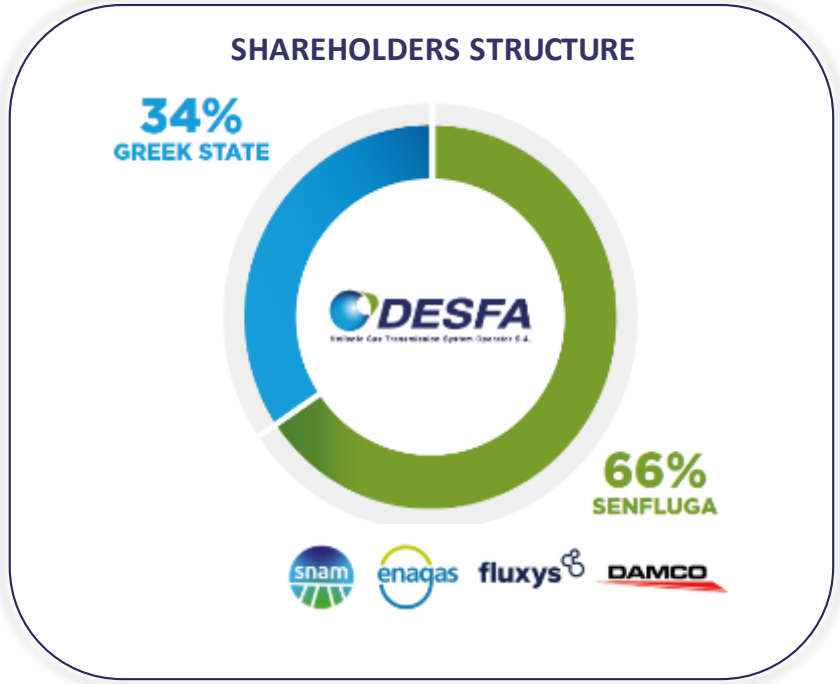
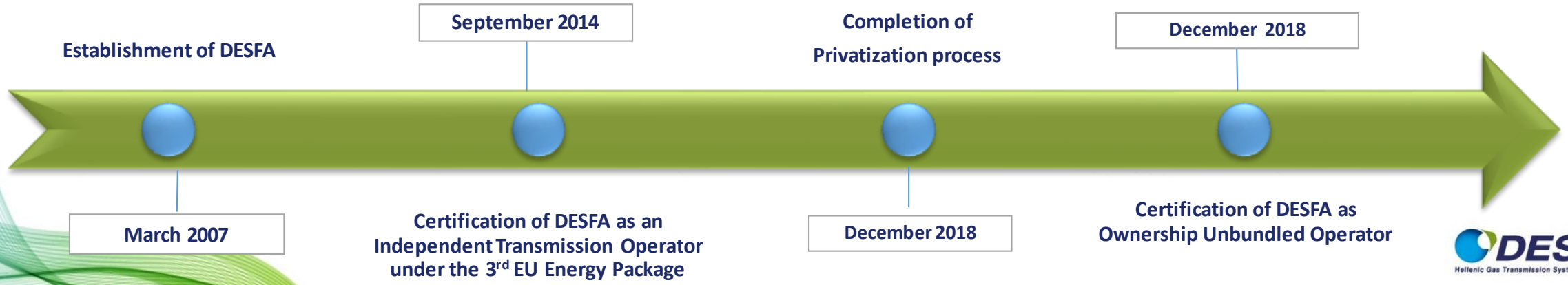
DESFA counts 14 years of successful operation

- 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 non-regulated services** to a number of national and international clients





…having been established as reliable partner in the framework of the ongoing international energy projects in SEE Europe and beyond

- Contributing decisively to the **security of supply** and the **diversification of supply sources of the wider region**, DESFA also facilitates the **development of competition in the Greek energy market**, while systematically striving for the **reduction of greenhouse gas emissions**.

- Possessing **extensive experience** and a **highly skilled personnel**, DESFA has been established **a reliable partner in the framework of the ongoing international energy projects in Southeastern Europe and beyond**.

470 people

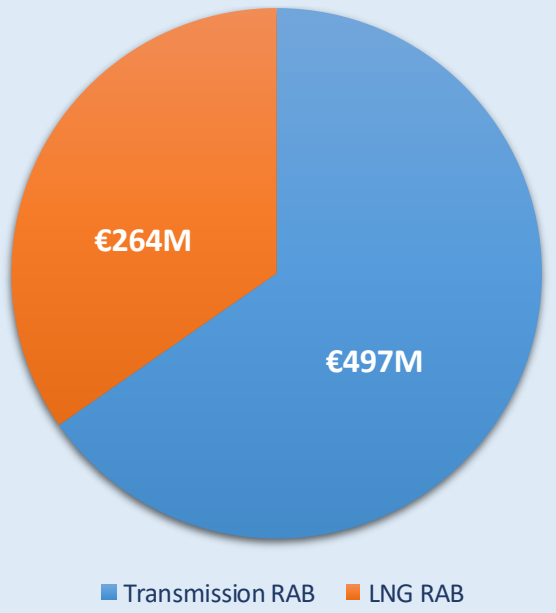
Personnel

€217M

2019 Regulated Revenues

€761M

Regulated Asset Base



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The Greek NNGS at a glance

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.

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The Revithoussa LNG Terminal | A Driver of Development

Truck Loading Station
€6.5M | Dec 2021

ssLNG Jetty
LNG Vessels 1000m3-20.000m3
€20.4M | End 2022

Opening the ssLNG Market

The LNG Terminal at a glance

225.000 m3 LNG of storage space
11 Bcm Annual sustained send-out capacity
Q-Max size LNG Carriers
13MW/90% H&P efficiency CHP Unit

Year	Bcm	LNG Tankers
2016	0.74	13
2017	1.35	18
2018	0.90	30
2019	2.67	50
2020	*+35%*	*49*

DESFA stands at a crossroad of new routes and initiatives: Regional demand & strategic geographic location allows it to play a key role in the region, promoting Greece as an energy hub

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

HP Pipeline to Western Macedonia
1
Investment: **€110 M**
Shareholders: DESFA

HP Pipeline to Western Greece
2
Investment: **€85 M**
Shareholders: DESFA

Interconnector Greece – North Macedonia
3
Investment: **€51.4 M**
Shareholders: DESFA

SSLNG & Truck Loading Station
4
SSLNG Jetty: **€20.4 M**
Truck Loading: **€6.5 M**

Participations

FSRU Alexandroupolis:
5
Shareholders: Gastrade

HEnEx (Hellenic Energy Exchange)
6
Shareholders: DESFA 7%

Other developers

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

Trans Adriatic Pipeline (TAP)
8
Investment: **€4,500 M (Completed)**
Shareholders: BP, Socar, Snam, Fluxys, Enagás, Axpo

Tender

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

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Leveraging on a growing natural gas market

NATURAL GAS DATA 2020

63.1 TWh
N.G. Domestic Consuption

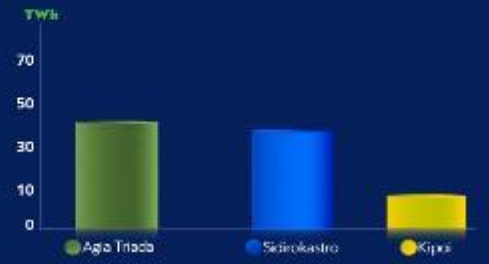
70.6 TWh
N.G. Imports

7.3 TWh
N.G. Exports
*(from Sidirokastro Entry/Exit Point)

Natural Gas Entry Points

Agia Triada	Sidirokastro	Kipoi
32.6 TWh	31.8 TWh	6.1 TWh

*On 31/12/2020, the TAP-DESFA interconnection point in Nea Mesimvria was put into commercial operation, with a total of 648 MWh entering within 2020



LNG VESSELS

Total number of vessels: 49

COUNTRY	TWh
USA	16.1
Qatar	7.5
Nigeria	3.1
Algeria	2.9
France	1
Netherlands	1
Norway	0.9
Egypt	0.8
TOTAL	33,3 TWh

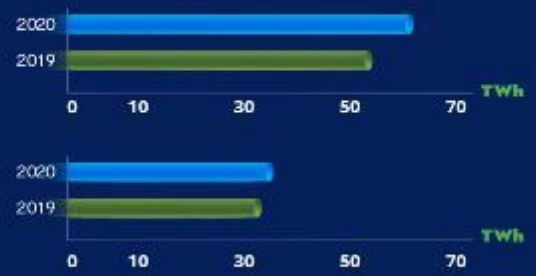
ANNUAL NATURAL GAS DATA

Domestic Consumption

63,1 TWh (2020) | **57,4** TWh (2019)

LNG Gasification

32,6 TWh (2020) | **31,4** TWh (2019)



CUSTOMER CATEGORIES	TWh	Bn Nm³
Electricity Producers	41	3.6
Distribution Networks	11.7	1
Industries & CNG	10.3	0.9
TOTAL	63	5.5

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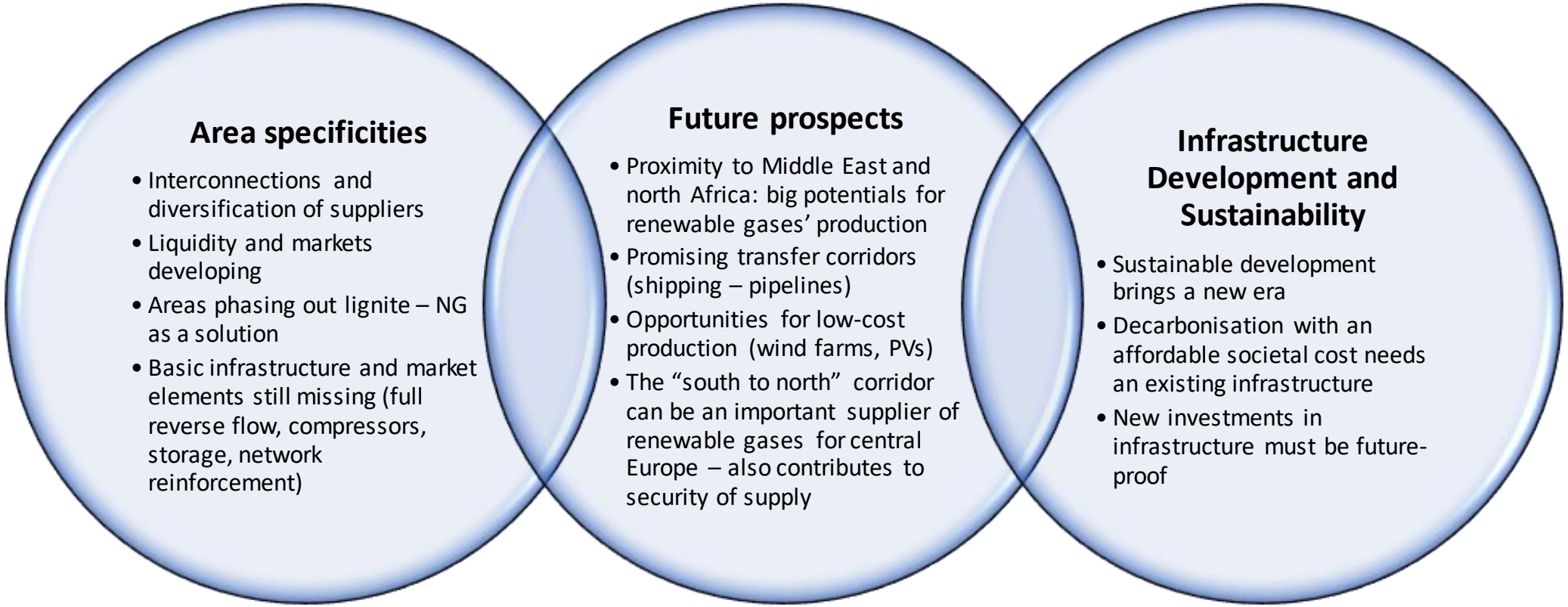
The Regional Challenges towards Energy Transition



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Energy Transition will be stepwise

De-carbonization per sector

	2025	2030	2040	2050
Transportation	LNG			Bio-LNG / e-fuels / H2
Industry	H2			
Residential	biogas			e-fuels / H2
Power generation	NG			H2

The role of gas grids

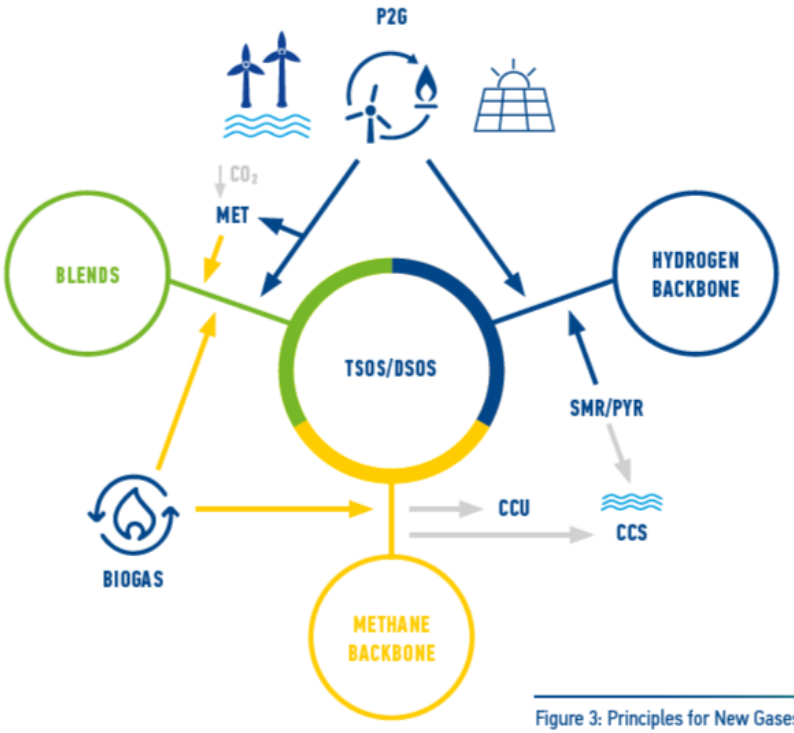

Figure 3: Principles for New Gases Transportation, ENTSOG, 2019.

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Preparing the grids for the future

1. Current network ready to accommodate biogas production and hydrogen blends

- Assessments, studies, gap analysis and adaptations

2. **All network expansions must be future-proof**

- Based on development study
- Discussions with industrial consumers
- European standards (currently under revision) to be incorporated in Technical Specification updates in order to achieve compatibility of new networks for higher H2 content up to 100%
- Construction methods and works, equipment and materials, certifications etc.

3. De-carbonization Projects & Studies

- Submission of an IPCEI proposal (within White Dragon cluster project)
- Pilot projects (pyrolysis)
- Long-term strategy study towards renewable gases
- Testing facilities development
- Participation in various groups and associations' activities

Networks for the future always have to develop in technically sound and economically efficient way, in order to best serve its Users with safety, reliability and adequacy

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THANK YOU

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