

HELLENIC TRANSMISSION SYSTEM OPERATOR (DESFA)

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WITHIN THE JURISDICTION OF THE MINISTRY OF ENVIRONMENT, ENERGY & CLIMATE CHANGE



Source of Development, Supplier of Energy



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DESFA's Profile



Introduction

- DESFA is currently a 100% subsidiary of DEPA.
- DESFA fully owns the National Natural Gas System (NNGS), with full responsibilities regarding (a) the provision of Third Party Access services under non-discriminatory terms, (b) the operation, (c) the maintenance and (d) the development of the gas system.
- DEPA and DESFA are under privatization process. The interest of investors will determine the model (ITO or OU) that will eventually be applied in transposing EU Directive 2009/73 into the Greek legislation (Law 4001/2011). The Greek State will keep 34 % of the shares of DESFA.



Financial status of DESFA in relation to investments realization

- 5-year Development Plan 2010 - 2014 approved by the Ministry after RAE's written agreement
- 10-year Business Plan 2012 - 2021
- Financial support of the main projects by the Cohesion Fund for Greece approved by the competent ministries
- Financing of new projects from European Investment Bank loans.
- Acceptable Debt to Equity ratio (Credit Ratio of DESFA AA, ICAP June 2011)
- Improving financial results and performance of DESFA (DESFA is the 17th large company in Greece in 2010 in terms of EBITDA, 27th in 2009)



Financial Statements 2009-2011, forecasts BP 2012 - 2021

In Million of Euros	Dec. 2009	Dec. 2010	Dec. 2011	Dec. 2017	Dec. 2021
Post Tax Earnings	22,5	34,8	86,0	109,1	104,4
Earnings Before Interest Taxes Depreciation and Amortization (EBITDA)	83,7	101,8	155,7	188,9	173,3
Total Equity	689,1	716,4	791,0	922,9	942,4
Total Assets	1.411	1.386	1.414	1.671	1.573
Cash and Cash Equivalent	32,2	59,8	57,1	104,0	216,4
Gearing Ratio (%) * Maximum value, 26,7 % (2013)	31,1	30,3	26,0	18,1*	11,7



National Natural Gas System (NNGS)

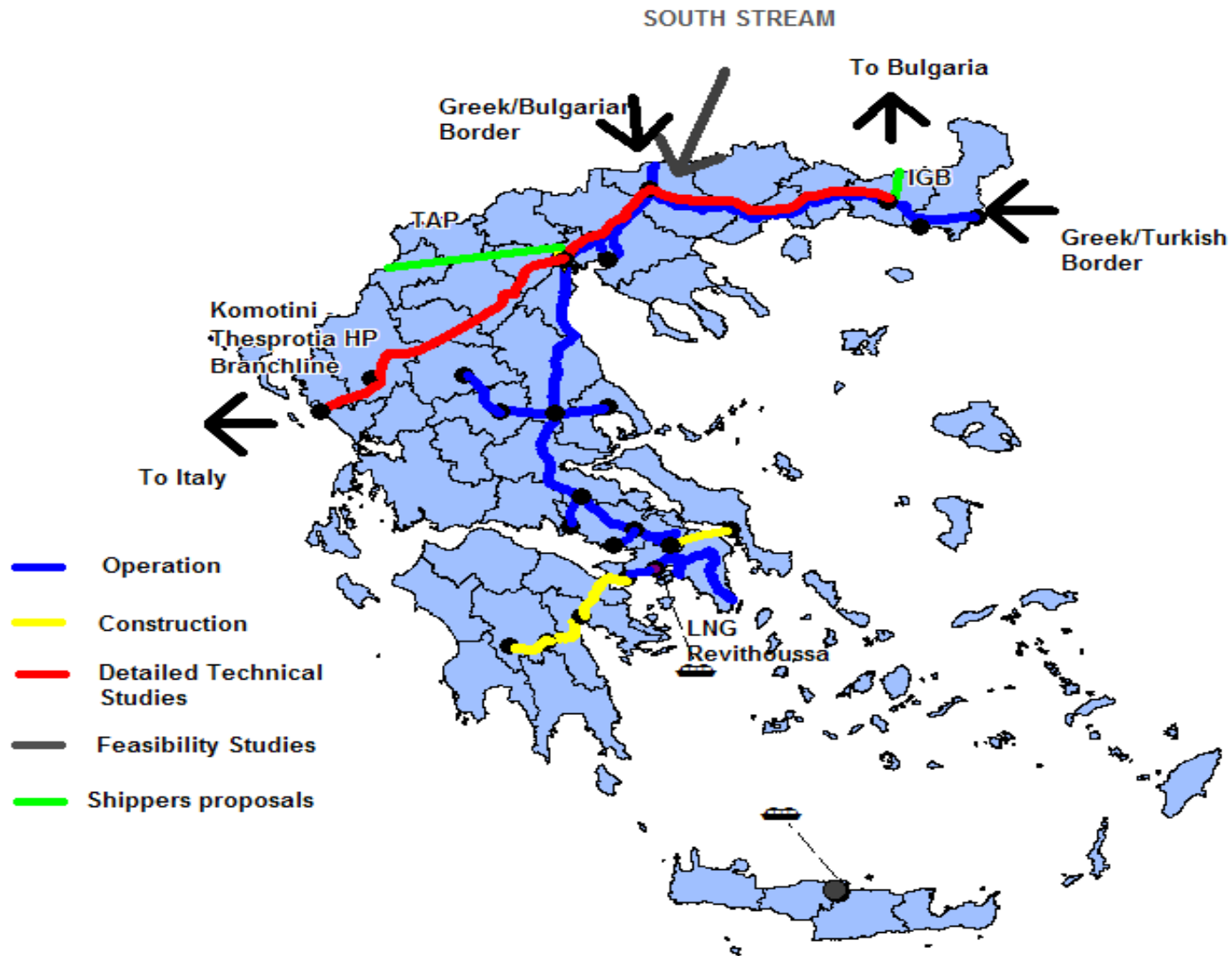


Currently, the NNGS comprises of:

- A main pipeline of app. 512 km for the transmission of natural gas through the three gas entries to the Greek territory (Greek/Bulgarian borders in the North, Greek/Turkish borders in the East and LNG terminal in the South).
- Branch pipelines of total length 717 km for the transmission of high pressure gas across the country.
- One LNG receiving terminal on Revithoussa island in the gulf of Megara with a total storage capacity of 130.000 m³ LNG. The Sustained Maximum Send out Rate (SMSR) app. 1.000 m³ LNG/hour, while the emergency hourly rate rises to 1.250 m³ LNG/hour.
- Line Valve Stations and Metering and Regulating Stations.



NNGS with its future expansions





European Energy Framework



- **Energy policy in E.U. is strongly influenced by Environmental policy**
- Long term solution for the earth-quake prone regions (i.e. Balkans):
RES + Energy Conservation + GAS
- **Gas is necessary** since RES production inherently intermittent
- Gas power plants & infrastructure will operate by addressing peaks more frequently.
- **Cost of energy will rise**



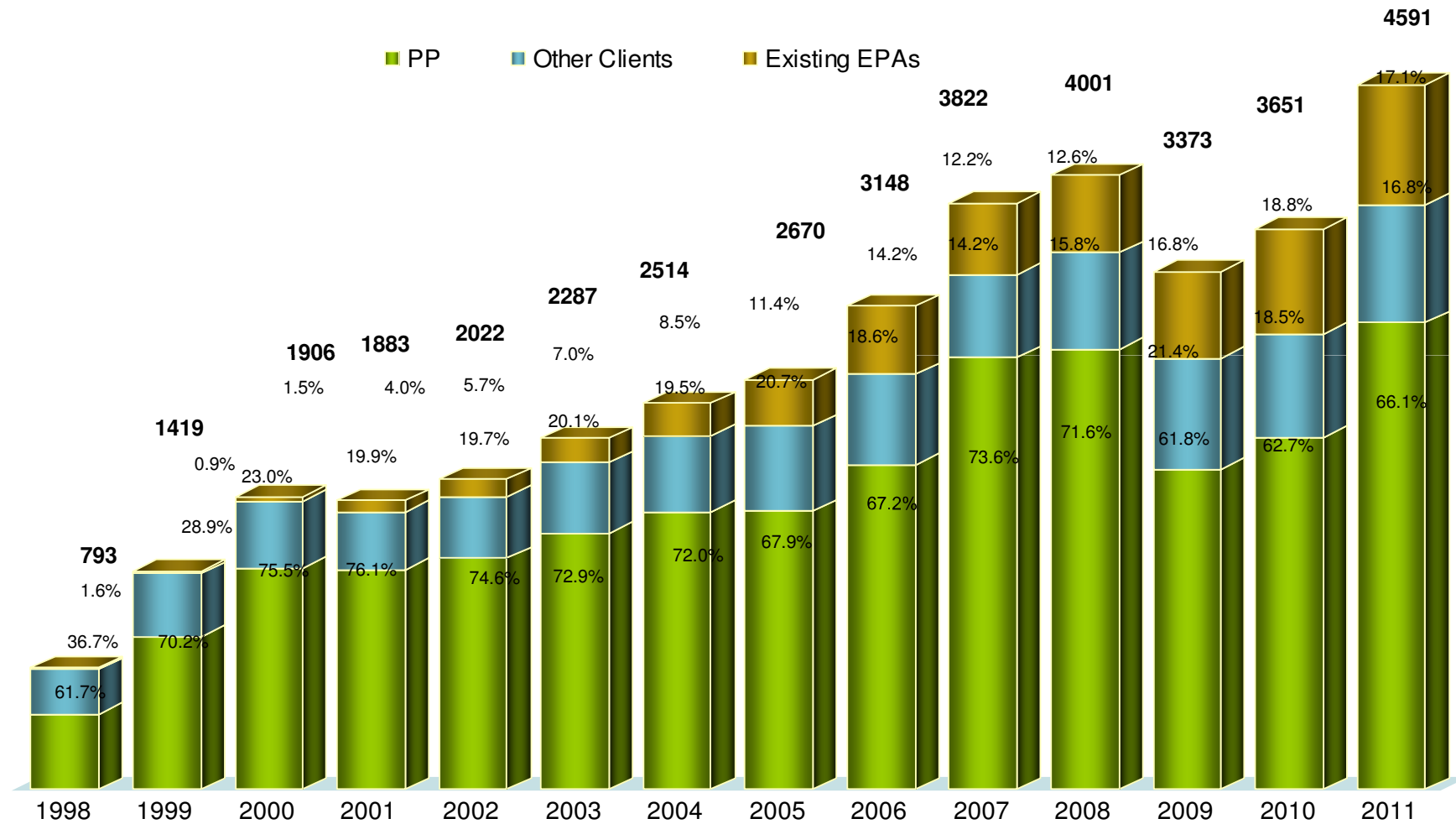
- **Gas-to-gas competition** is vital to stabilize prices. The role of LNG Terminals has been recognized
- **Security of gas supply** is also vital, as electricity security of supply will depend on that of gas. The role of gas storages and LNG terminals is important
- The transition to the new Energy System requires massive **investments in Electricity and Gas Networks and Interoperability of the networks** of the member states.
- **The role of the State /E.U.** is vital : facilitating permits, financial support of investments in infrastructure, financial support of investments in RES, security of basic regulation principles → E.U. Energy Infrastructure Package



Natural Gas Outlook in Greece

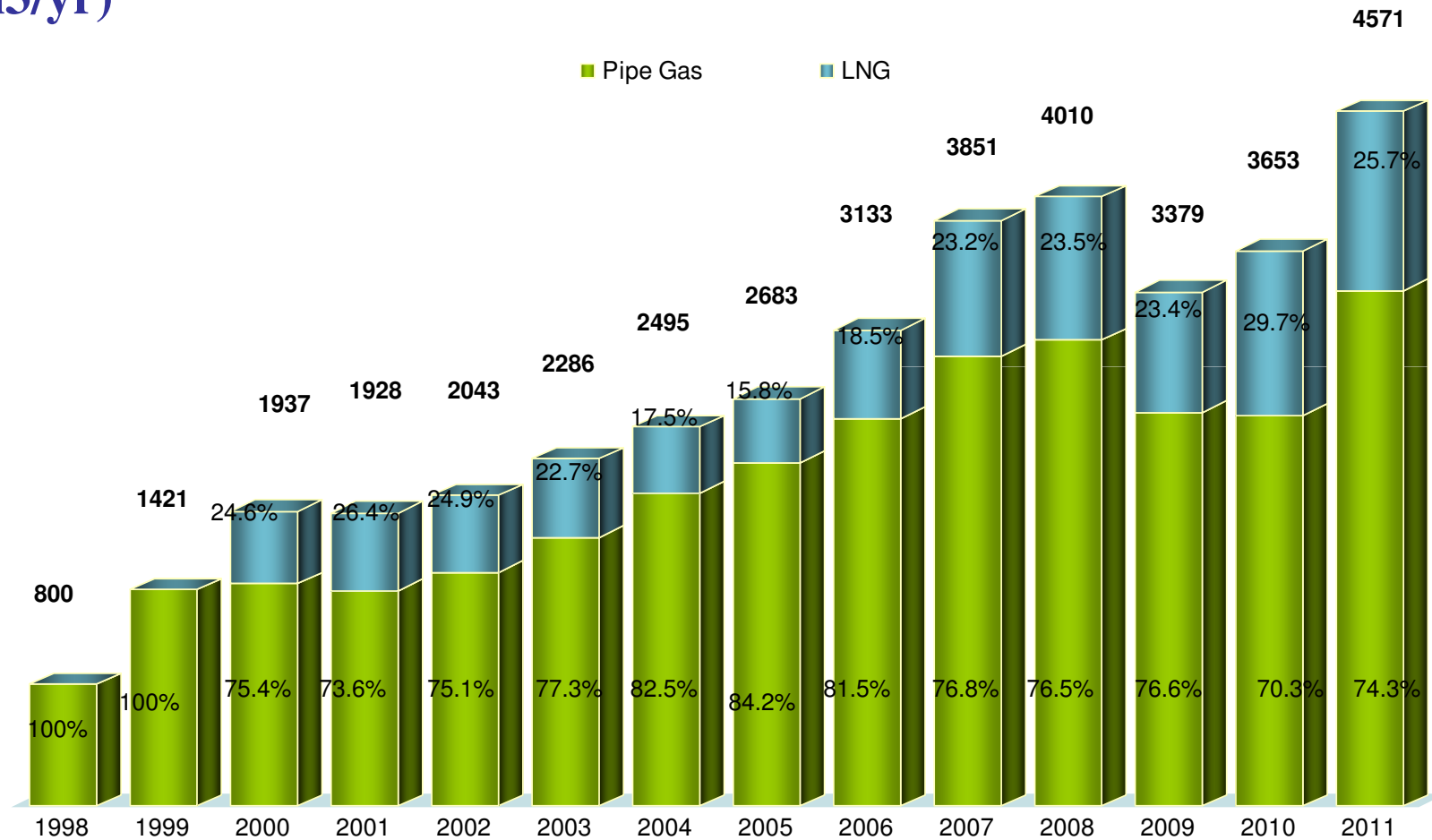


Natural Gas demand historical data (million Nm³ / yr)



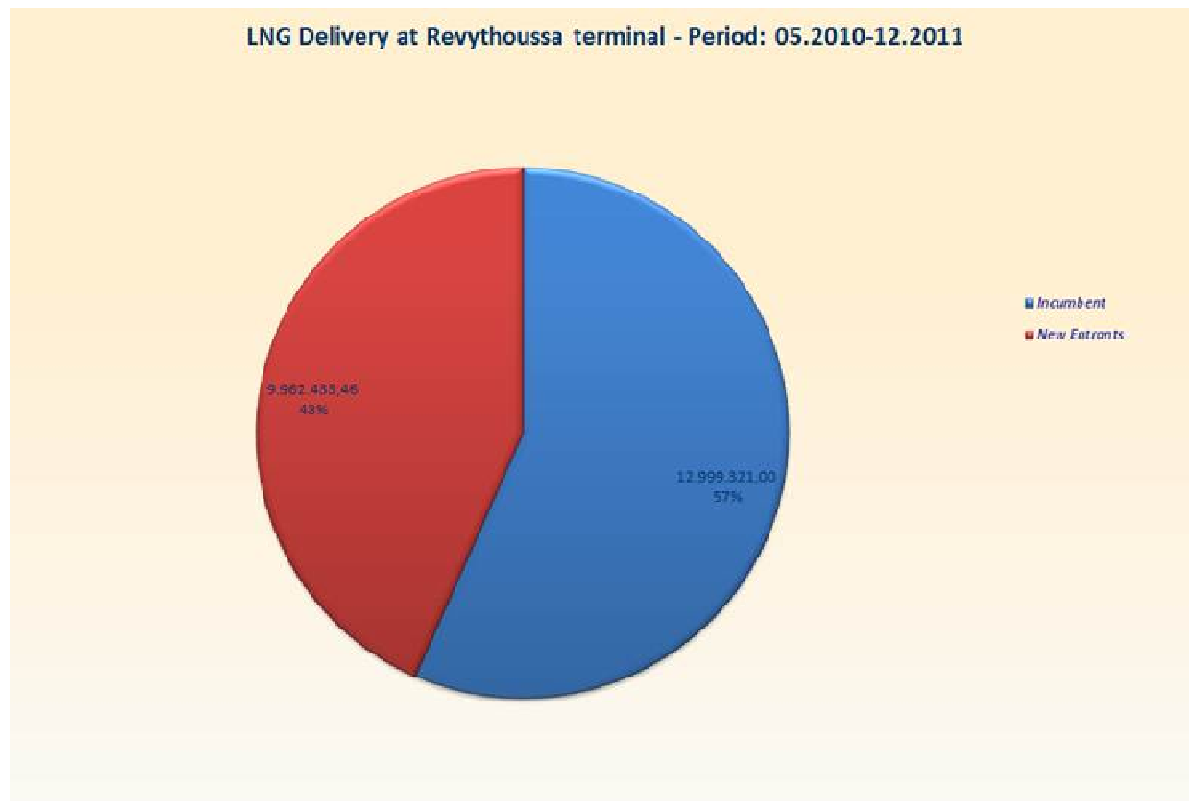


Natural Gas supply historical data in the Greek market (million Nm³/yr)



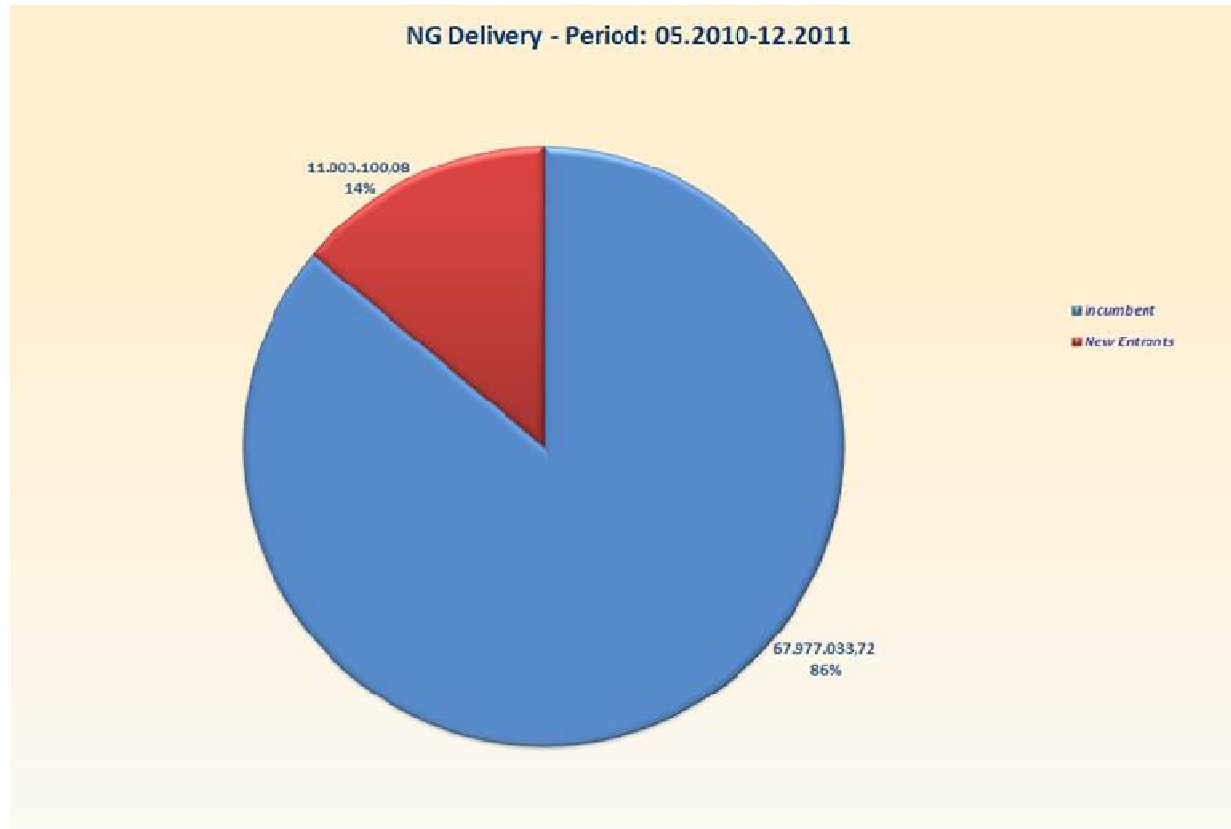


Total LNG imported (MWh): period 05.2010-12.2011





Natural Gas Delivery (MWh): Period 05.2010-12.2011





The existing and the under construction gas fired power plants for the next years are ensuring the increase of the gas demand in the Greek gas market

Gas Fired Power Plants connected to the NNGS			
Power Plant	Technology	Installed Power (MW)	Owner
Komotini	CC	495,0	PPC
Lavrio III	CC	180,0	PPC
Lavrio IV	CC	560,0	PPC
Lavrio V	CC	385,3	PPC
Ag.Georgios VIII	Conventional	160,0	PPC
Ag.Georgios IX	Conventional	200,0	PPC
ELPEDISON POWER I	CC	390,0	ELPEDISON POWER
ELPEDISON POWER II	CC	421,6	ELPEDISON POWER
ALOUMINION	CHP	334,0	ALOUMINION S.A.
IRON I	OC	147,8	IRON THERMOELECTRIKI
IRON II	CC	435,0	IRON THERMOELECTRIKI
PROTERGIA	CC	430,1	PROTERGIA S.A.
CORINTHOS POWER	CC	436,6	CORINTHOS POWER
TOTAL		4.575,4	
PPC: 43,2% IPPs: 56,8%			

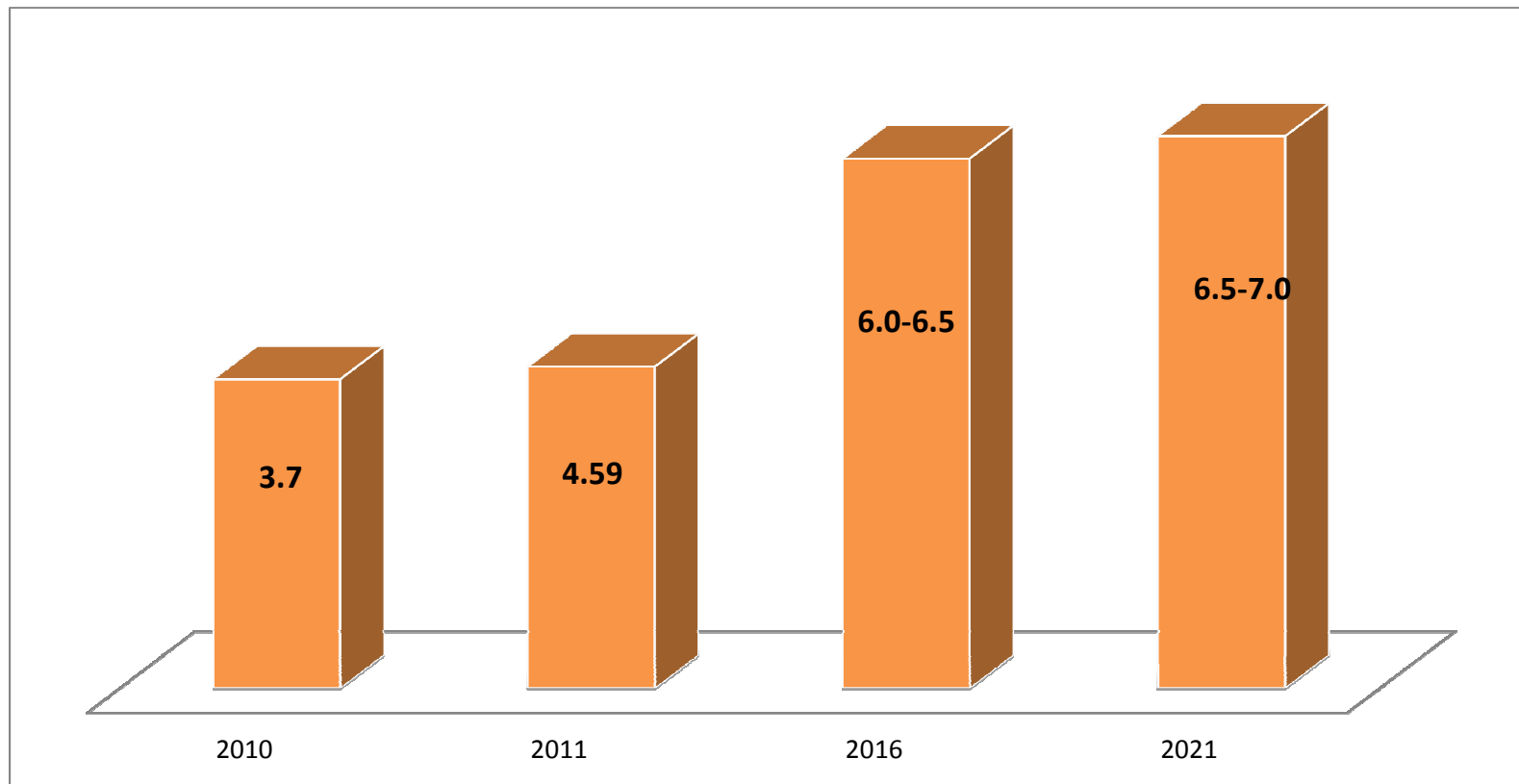


(Table cont'd)

Gas Fired Power Plants expected to be connected			
Power Plant	Technology	Installed Power (MW)	Owner
ALIVERI	CC	400	PPC
MEGALOPOLI	CC	850	PPC
TOTAL		1250	



Estimation for Gas Sales Volumes (bcm/yr)

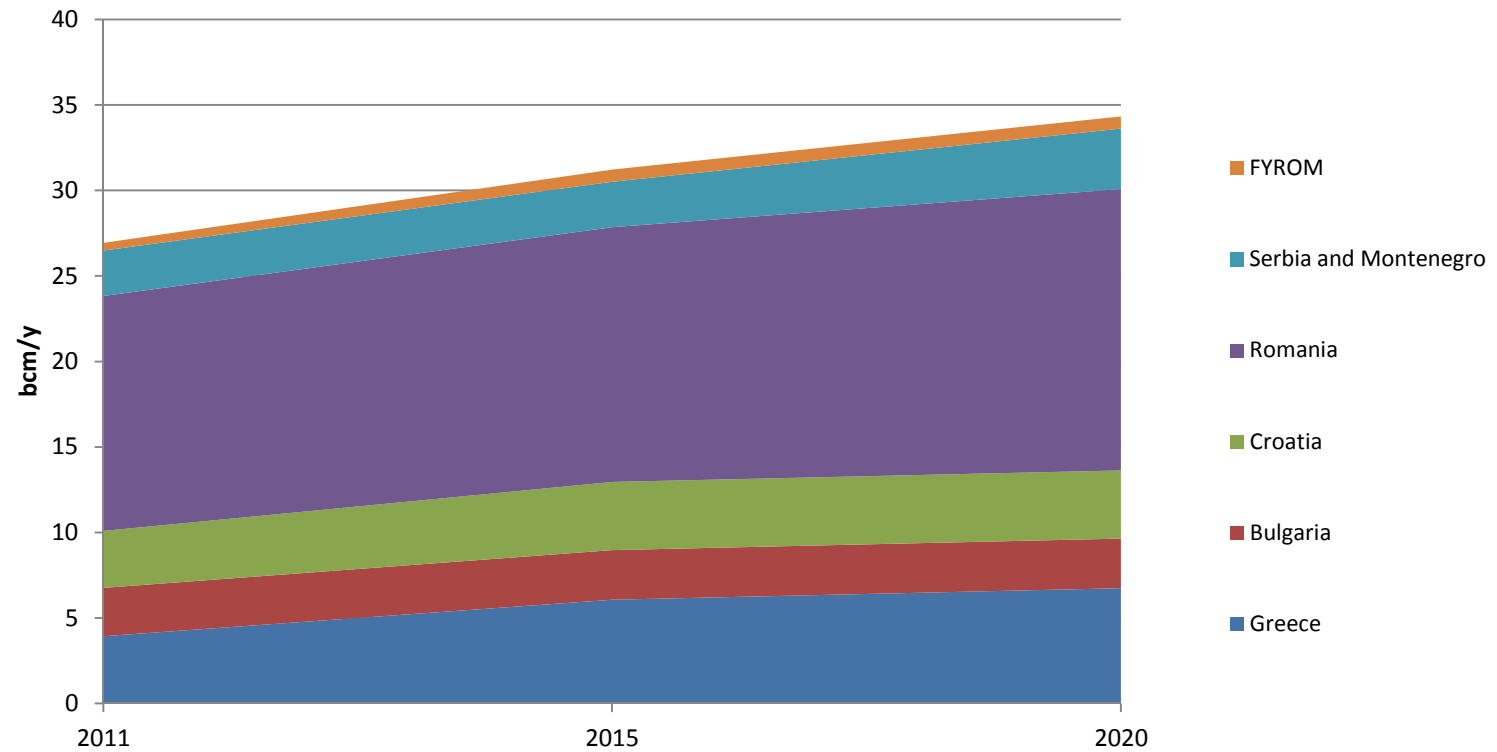




Natural Gas Outlook in the Balkan Area



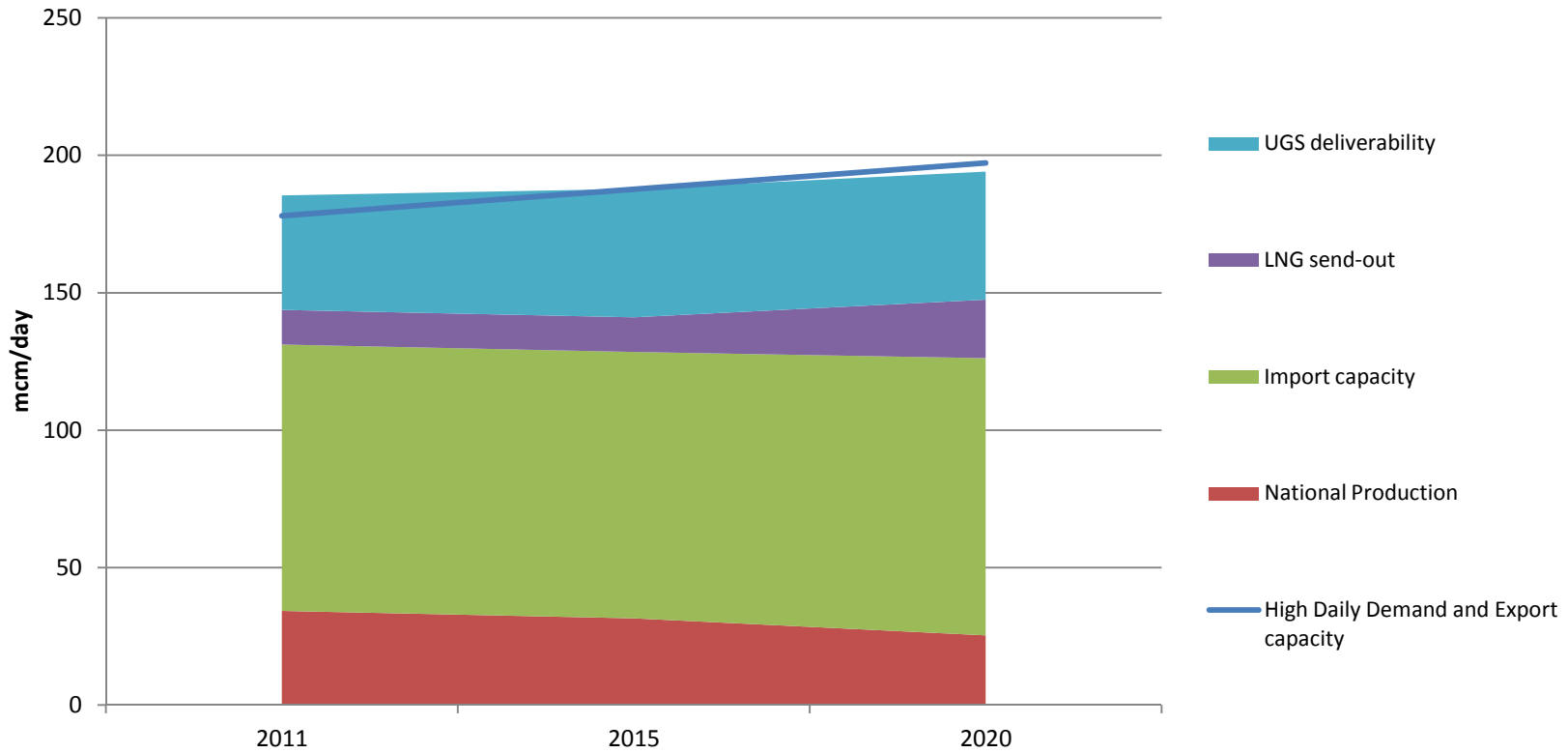
Gas demand outlook (1 in 2 conditions)



SOURCE: SOUTHERN CORRIDOR GRIP, APRIL 2012



High Daily Demand coverage (1 in 20)



SOURCE: SOUTHERN CORRIDOR GRIP, APRIL 2012



Capacity Development of NNGS

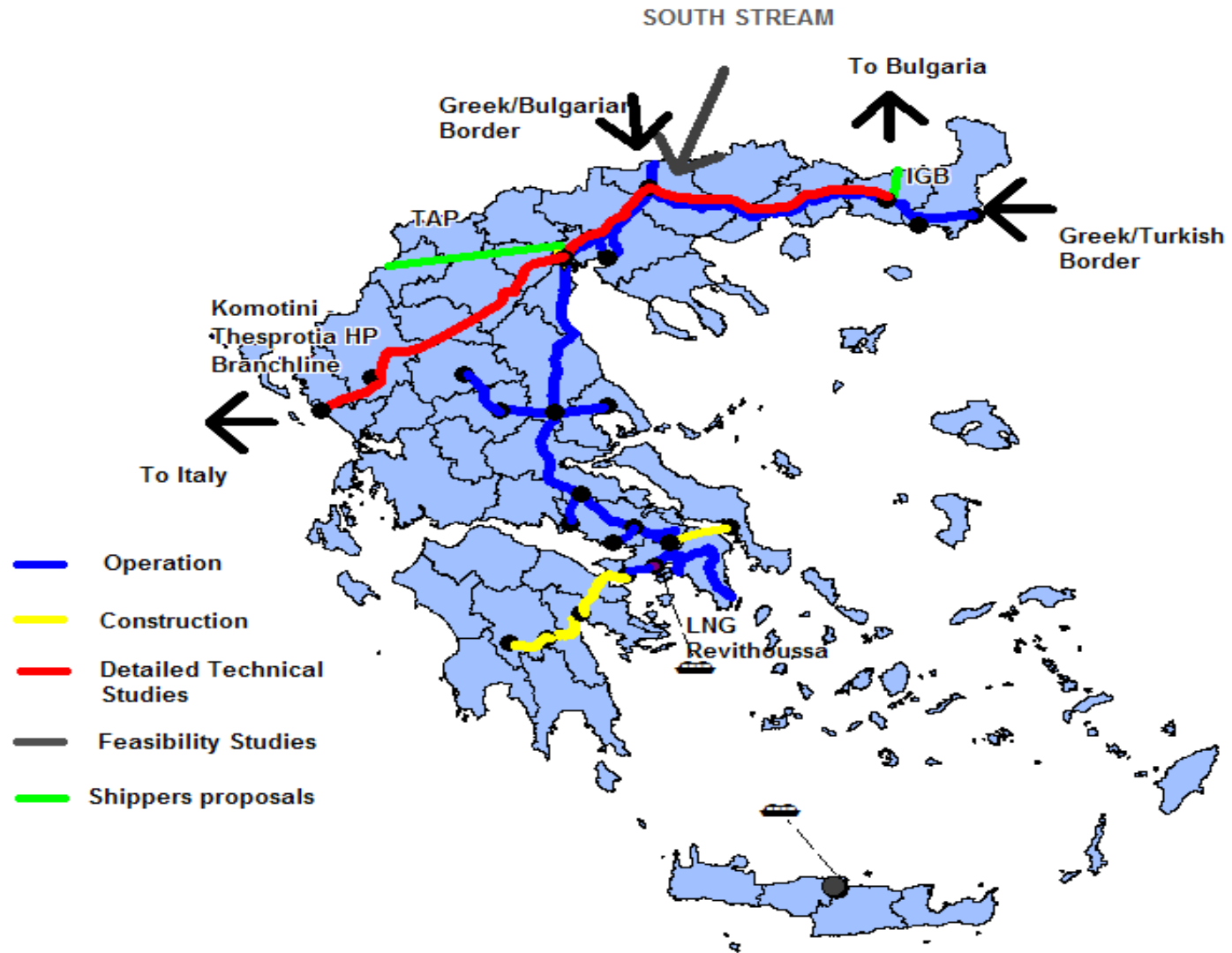


In the framework of the Greek & European Legislation, DESFA promotes, plans and develops new projects which are going

- (a) to cover the increasing natural gas demand, and
- (b) to enhance the transportation capacity of the NNGS either for Greece or for European Union and at the same time turn Greece to an energy hub in the region of South East Europe



NNGS with its future expansions





Implemented Gas Projects since the establishment of DESFA

Completion of NNGS projects started by DEPA	277 million €
Other NNGS projects since the establishment of DESFA	14 million €
Total	291 million €
NNGS Main Projects under construction	
High Pressure branch line to Aliveri (under final stage of construction)	74 million €
Compression station in Nea Mesimvria (under commissioning)	61 million €
High Pressure Branch to Megalopolis (under construction)	130 million €
2nd Expansion of Revithoussa receiving terminal <i>(included in the Development PLAN 2010 – 2014) (EPC Tendering phase)</i>	159 million €
Total	424 million €



Planned projects

- **South Stream Project.** Operation of Joint Company DESFA - GAZPROM, South Stream Greece S.A., since June 2010. Feasibility study and preliminary environmental examination have been completed for the section in Greece. GAZPROM seems to give time priority to the development of northern route (BG-RS-HU-SI-IT). The southern route (BG-GR-IT) to be decided later on.
- **NNGS Infrastructure in Northern Greece concerning transportation of Caspian gas to Europe.** Basic Engineering of the pipeline Komotini - Thesprotia has been finalized within the scope of ITGI project (Mar. 2012). Preliminary Environmental Assessment and Examination approved by the competent Ministry in Dec. 2010. Following the decision of Shah Deniz II Consortium, DESFA is evaluating the cooperation with TAP.
- **Underground Storage SOUTH KAVALA.** DESFA is following up the developments for a possible participation in, or cooperation with, the licensee scheme.
- **Interconnections with the neighboring countries.** Cooperation with Bulgarian counterparts to develop reverse flow Greece - Bulgaria
- **NNGS Infrastructure to exploit the eastern Mediterranean gas availability** (Israel, Cyprus, other Middle East).



Planned Main Projects	
Greek Part of South Stream (Feasibility phase and preliminary environmental examination completed)	640 (onshore)+840 (offshore) million €
High Pressure pipeline Komotini Thesprotia <i>(included in the Development Plan 2010 – 2014) (Technical studies phase)</i>	1150 million €
Underground Storage SOUTH KAVALA (The concession of underground reservoir under examination)	300 million €



ADEQUACY OF GAS INFRASTRUCTURE IN THE BALKAN AREA

“The existing infrastructure and the one with final investment decision cover the current capacity needs (up to 2020) but cannot meet future needs”

Source: Southern Corridor GRIP , April 2012



WHY INTERCONNECTIONS ?

- To mitigate the effect of the imbalance between aeolic & photovoltaic production and market demand in a specific member-state
- To increase security of supply of electricity and gas in the whole region
- To decrease monopolistic effects in the gas supply in a member state



BENEFIT TO ALL THE INTERCONNECTED STATES



<u>GAS INTERCONNECTIONS OF GREECE</u>		
<u>WITH</u>	<u>EXISTING</u>	<u>PLANNED</u>
BULGARIA	Karperi-Petrich (3,94 bcm/y)	Komotini-Stara Zagora (IGB) (3-5 bcm/y)
		Bi-directional flow of Karperi-Petrich (~1 bcm/y)
TURKEY	Komotini-Karacabey (1,7 bcm/y)	Expansion to 11 bcm/y
ALBANIA/ ITALY		Komotini-Albania-Brindisi (TAP) (10-20 bcm/y) or
		Komotini-Perdika –Otranto (IGI) (8-12 bcm/y) with branch to Albania

Note: - Annual capacities refer to load factor 0,9
- m3 refer to 0°C and 1 atm



GREEK GAS IMPORT POINTS UTILIZATION IN 2011

Entry Point	Technical capacity (Nm ³ /d)	Actual Volume passed (Nm ³ /Y)	Actual load factor/utilization rate with ref. to technical capacity
Greek/Bulgarian Border	9.766.700	2.656.000.000	0,75
Greek/Turkish Border	2.724.000	668.000.000	0,67
Agia Triada (LNG Terminal)	12.469.296	1.155.000.000	0,25
TOTAL	24.959.996	4.479.000.000	0,49
peak market demand	18.300.000		
total market load factor with ref. to peak demand	0,67		

Note: Nm³ refer to 0°C and 1 atm



Future Technical Capacities of Gas Entry Points of Greek Gas Network (Nm³/d)

Entry Point	Existing capacities	Step 1 After the operation of the CS at N. Messimvria (expected mid. 2012)	Step 2 After the 2 nd Upgrade of the LNG Terminal (expected in 2016)	Step 3 After installation of CS at Kipi, upgrade of the CS at N. Messimvria and upgrade of the Turkish Network	Step 4 After implementation of the transit project(s), upgrade of the CS at Kipi and upgrade of the Turkish Network
Greek/Bulgarian Border	9.766.700	12.000.000	12.000.000	12.000.000	12.000.000
Greek/Turkish Border	2.724.000	5.160.000	5.160.000	9.120.000	33.480.000
Agia Triada (LNG Terminal)	12.469.296	12.469.296	19.488.000	19.488.000	19.488.000
TOTAL	24.959.996	29.629.296	36.648.000	40.608.000	64.968.000
<u>Note:</u> Nm ³ refers to 0°C and 1 atm					



Other Major Developments in 2010 -2012



- The Greek gas market has been liberalized since May 2010, after the secondary legislation for the liberalization of the Gas Market was first issued in April 2010 (code for the management of the NNGS, Regulation of measurements of the NNGS, etc.). Updated code for the management of the NNGS was published on 12/10/2011 by RAE addressing additional issues (i.e. procedures for development of the Network, provision of services for interruptible gas flows, reverse and backhaul flows, etc)
- New Shippers were activated in the NNGS from the Entry Point Agia Triada since May 2010
- The transposition of 3rd Energy Package into the Greek Legislation (directive 09/73, etc) was completed and the new law was published on the 22/08/2011.



DESFA's prospects under the new European Energy Infrastructure Environment



- Following public consultation, decision by RAE for a new tariff system (entry – exit tariff system) is expected soon.
- Active Participation in the newly established ENTSOG (European TSOs organization) that prepares the new Network Codes on a pan-European level, according to the 3rd Energy package.
- Active Participation in the European Commission Infrastructure Initiative.

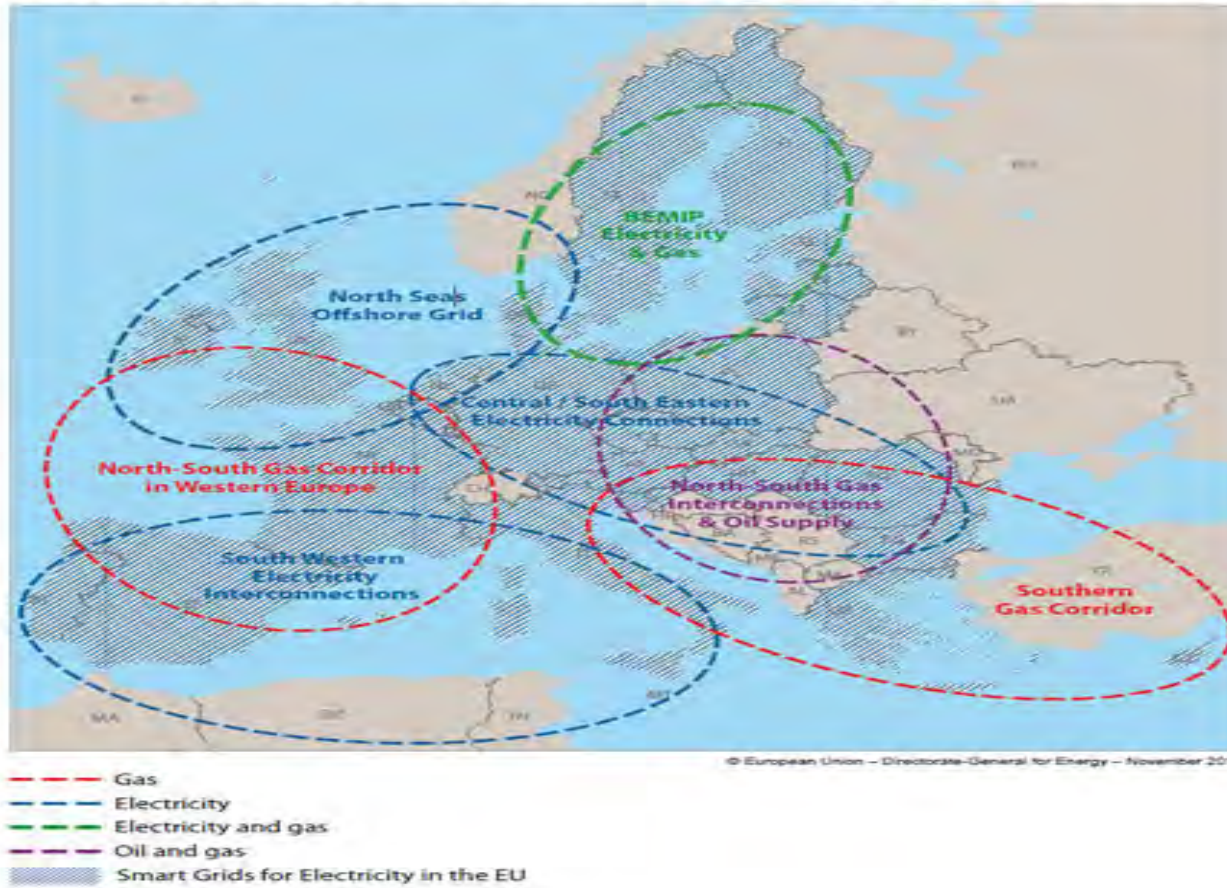


E.C. INFRASTRUCTURE INITIATIVE

- To face the delays in infrastructure implementation, in view of their importance in the future energy picture, E.C. proposed, in October 2011, a new draft Regulation for the implementation of trans European energy networks ('Infrastructure Regulation')
- This initiative identifies a limited number of trans-European priority corridors. It then aims at implementing these priorities by:
 - Streamlining permit granting procedures
 - Facilitating the regulatory treatment concerning investment recovery and return
 - Provide necessary financial support under the "Connecting Europe Facility".



Priority corridors for electricity, gas and oil



(Source: DG ENER)



PROJECTS OF COMMON INTEREST (PCI) SELECTION PROCESS

- Projects by TSOs will be included in the TYNDP (prepared every 2 years) and will be evaluated through a system-wide Cost Benefit Analysis (CBA).
- CBA methodology will be proposed by ENTSOG
- Project promoters will propose their projects together with their CBA
- The Regional Groups composed by E.C., M-Ss, NRAs, TSOs, Project promoters, ACER and ENTSOG will select a preliminary list of projects
- These projects will have to be approved by the relevant M-Ss.
- ACER will express its opinion
- Final decision on a Union-wide list of PCIs will be taken by the E.C.



Pilot PCI selection process

For the 1st application of the process, in order to save time before the adoption of the Regulation text, a pilot selection process will be followed.

- Pilot Regional Groups were established in all regions (ad-hoc Working Groups)
- Objective: to test the proposed PCI selection process and to prepare the first list of PCI projects for formalization once the Regulation is adopted
- Kick-off meetings have all taken place for all regions, with the participation of M-Ss, TSOs, NRAs, Agency, ENTSOG



PROJECTS OF COMMON INTEREST SELECTION PRINCIPLES

Gas projects:

Diversification: giving priority to diversification of **sources**, diversification of **counterparts** and diversification of **routes**

increase in **interconnection level**

reduction of market concentration

(Source: DG ENER)



Conclusions

- The coupling of the expanded Revithousa LNG terminal with the interconnection projects creates the conditions for establishing a gas hub in Greece for the SE Europe.
- This is enhanced by the possibilities of reverse or virtual reverse flow of the interconnected networks, esp. the Italian ones.
- Due to the geographical position of Greece between eastern sources of gas and North Africa ones, in the near future, the Greek Network will be even more developed into a major corridor to Europe for new gas sources



Thank you for your attention

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