The Critical Role of Natural Gas in Transforming the Greek Energy Markets



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The Era of Energy Transition

Energy Transition has been triggered by the <u>need to stop the increase in global</u> <u>temperature caused by the CO2 emissions</u>

Tools:

- Development of RES
- Increase of energy efficiency
- Replacement of fossil fuels in uses

Policies:

- Emission Trading System
- Carbon Tax on products (?)
- Administrative prohibitions (fuel bans/ emission restrictions)
- Incentives for use of green energy
- Financial assistance for research/pilot projects on green energy
- Financial assistance for building of electricity

infrastructure



The Era of Energy Transition : Targets and Progress

	GHG emissions reduction compared to 1990 levels	share of renewable energy in final energy consumption	primary energy consumption (in Mtoe)
EU 2020 target ⁽¹⁾	20%	20%	20% reduction ⁽²⁾ = 1483 Mtoe
EU 2016 actual ⁽³⁾	22,4%	17%	1543
GR 2020 target	4%	18%	24,7
GR 2016 actual ⁽³⁾	10,3%	15,2%	23,50
EU 2030 target	40%	27 → 32%	27% → 30% → 32,5%
EU 2050 target	80-95%		

(1) https://ec.europa.eu/eurostat/documents/4411192/4411431/Europe 2020_Targets.pdf

(2) 20% reduction compared to projections made in 2007 for 2020 primary energy demand consumption

(3) https://ec.europa.eu/eurostat/cache/Euro_2020/E2020_EN.html#



Towards Energy Transition: Huge challenges <u>Challenges:</u>

- > Cost of transition is huge:
 - Financial assistance still needed for much of RES
 - Technology of electricity storage not mature/economical yet
 - Tenths of trillion \$ required in electricity infrastructure
- > CO2 is a global problem and cannot be solved by a part of the world:
 - Oil demand globally is estimated to flatten around 2040
 - China emits as much GHGs as E.U. and North America together
- > Social implications due to the phasing out of conventional fuels and the cost of transition
- Up to what limit of cost can the economy/society afford the transition? And how the cost will be allocated between countries and consumers/taxpayers?



Towards Energy Transition: Duration

Energy Transition has started

Duration of Transition: <u>certainly long</u>, not known with accuracy depending on:

- Research results
- Economic and social implications
- Global cooperation



Towards Energy Transition: Role of gas

Role of gas critical in the transition period

- Least polluting fossil fuel
- Mostly existing transmission and distribution network
- Can cover the intermittency problem of RES due to fast start-up
- Economic energy storage means
- According to BP outlook up to 2040, gas will be the 2nd fastest growing energy after RES, and is projected to double globally by 2040 with 40% of that expansion occurring over the next 5 years, while demand in Europe around 2040 is projected to flatten at current levels



NNGS Development Study 2019-2028

Key assumptions:

- Increase of RES
- Island interconnections
- Gradual phase-out of lignite (price of CO2 emissions to foster such objective)
- Oil price to support competitiveness of gas
- Operation of a new gas-fired generating unit
- Increase of urban connections of natural gas
- GDP according to IMF projections







NNGS Development Study 2019-2028



*not including the RES of the islands which will be interconnected with the system. The RES production of the islands was deducted from the demand of the islands.





Development Study 2019-2028 results





Thank you for your attention!





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