
Current and Future Challenges to Energy Security

ENERGY INDUSTRY CHALLENGES TO A LOW-CARBON ECONOMY

THE GAS ROLE IN THE TRANSITION

Pierre Vergerio

Executive Vice President Gas Midstream, Energy Management & Optimization

The Role of Natural Gas

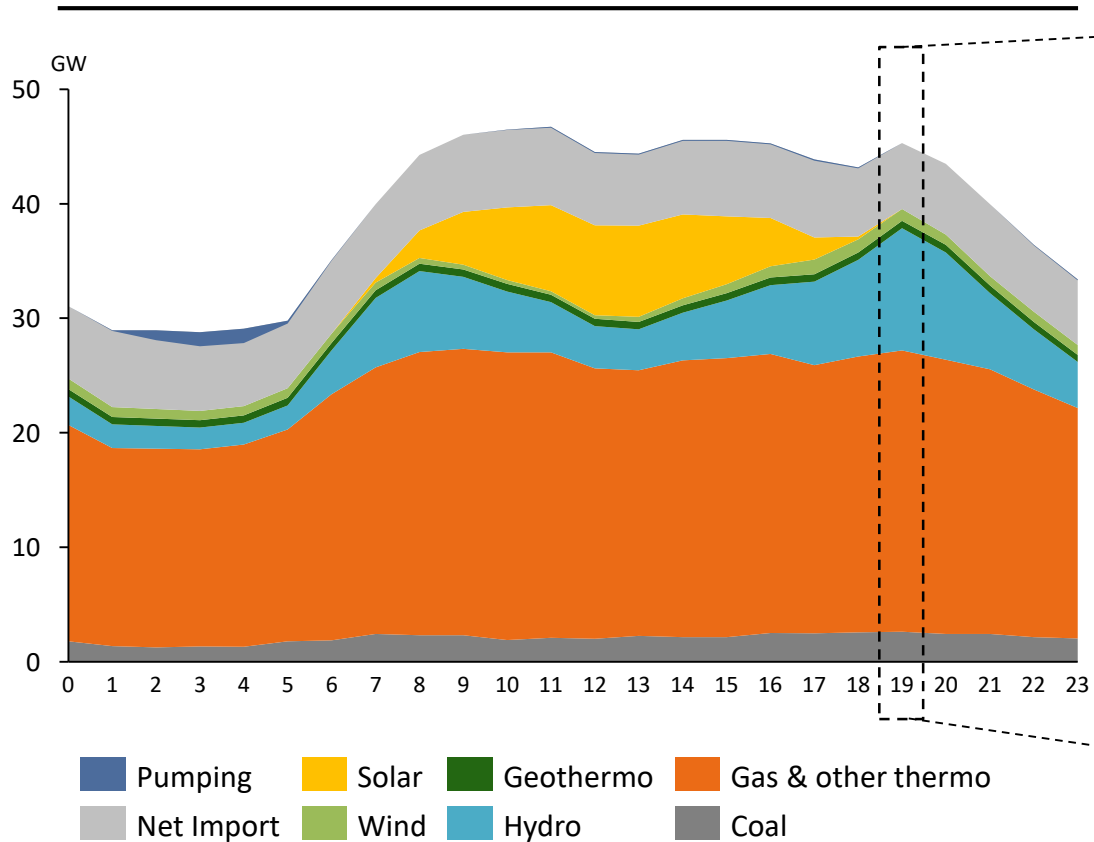
1. **ELECTRICITY ONLY WORLD IS NOT POSSIBLE**
2. **RES CANNOT «SURVIVE» ALONE**
3. **GAS TO REPLACE COAL IN FOSSIL FUEL COMPETITION**
4. **GAS NOT REPLACEABLE IN SPECIFIC INDUSTRIAL PROCESSES & RELEVANT IN HEATING AND TRANSPORT**
5. **SECURITY & RESILIENCE OF THE SYSTEM STRONGLY RELIANT ON GAS:** to be supported by proper gas infrastructure
6. **EU STILL REQUIRING GAS IN THE FUTURE:** coal phase out + nuclear issue + declining domestic sources



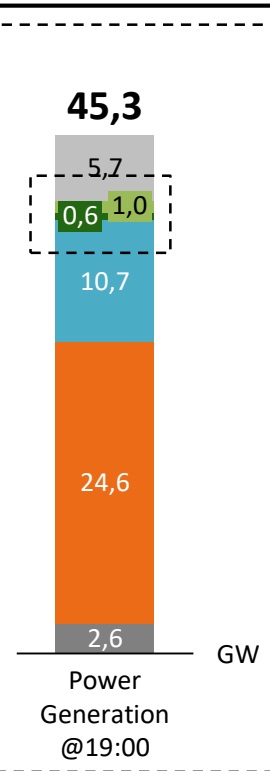
**FINALLY, THESE FACTORS BECAME INCREASINGLY
EVIDENT FOR POLICY MAKERS**

The Italian Case

Working Day – Friday 27th September



Focus on the evening generation peak at 19:00



Technology	Generation	Installed Capacity	
GW	27/09/19 @19:00	2019	2030 (PNIEC)
Wind	1,02	10,3	20
Solar	0	20,2	50

- Modulated generation to balance the absence of solar generation in evening hours.
- Wind load factor was as low as 10%, representing a marginal contribution to generation mix.

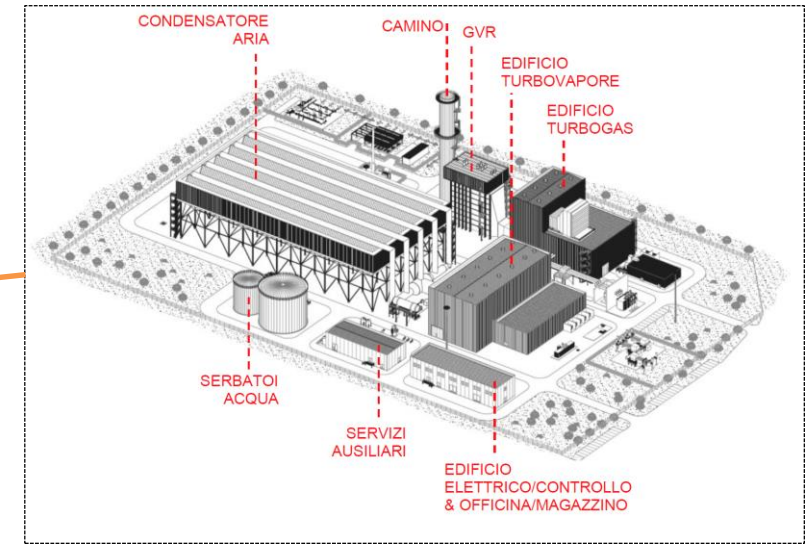
Source: elaboration on Terna and GME data

New H-class CCGTs

Marghera Levante

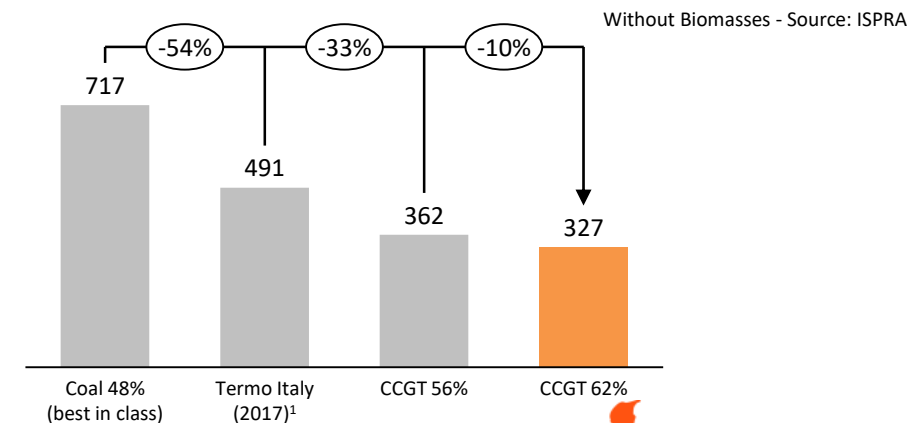


Presenzano



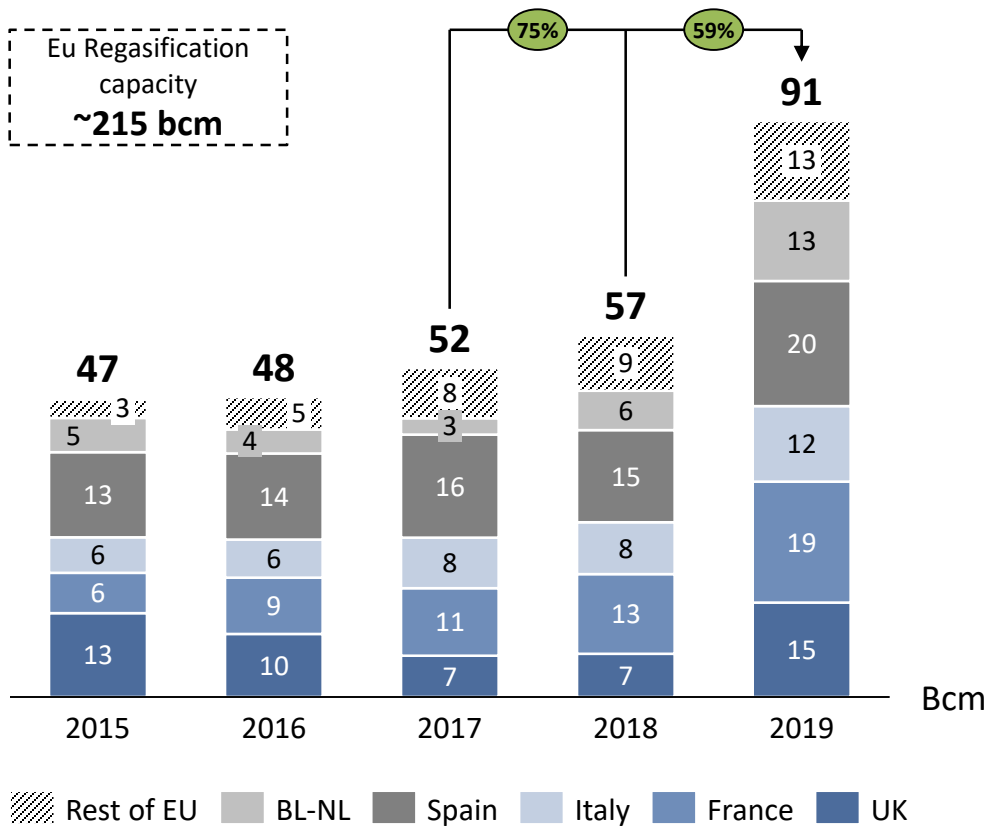
	H-class CCGT	
Net CCGT Output	760 MW	High power output, with a large operating range from minimum power to maximum power
Net Efficiency	~ 63%	~ 10% more than the average Italian thermal mix
CAPEX	~ 350 M€	
CO2 emissions	327 g/KWh	~ 40% less than the average Italian thermal mix
NOx emissions	< 10 mg/Nm3	~ 60% less than a class-F CCGT
Construction time	36 months	

CO₂ specific emissions per type of plant

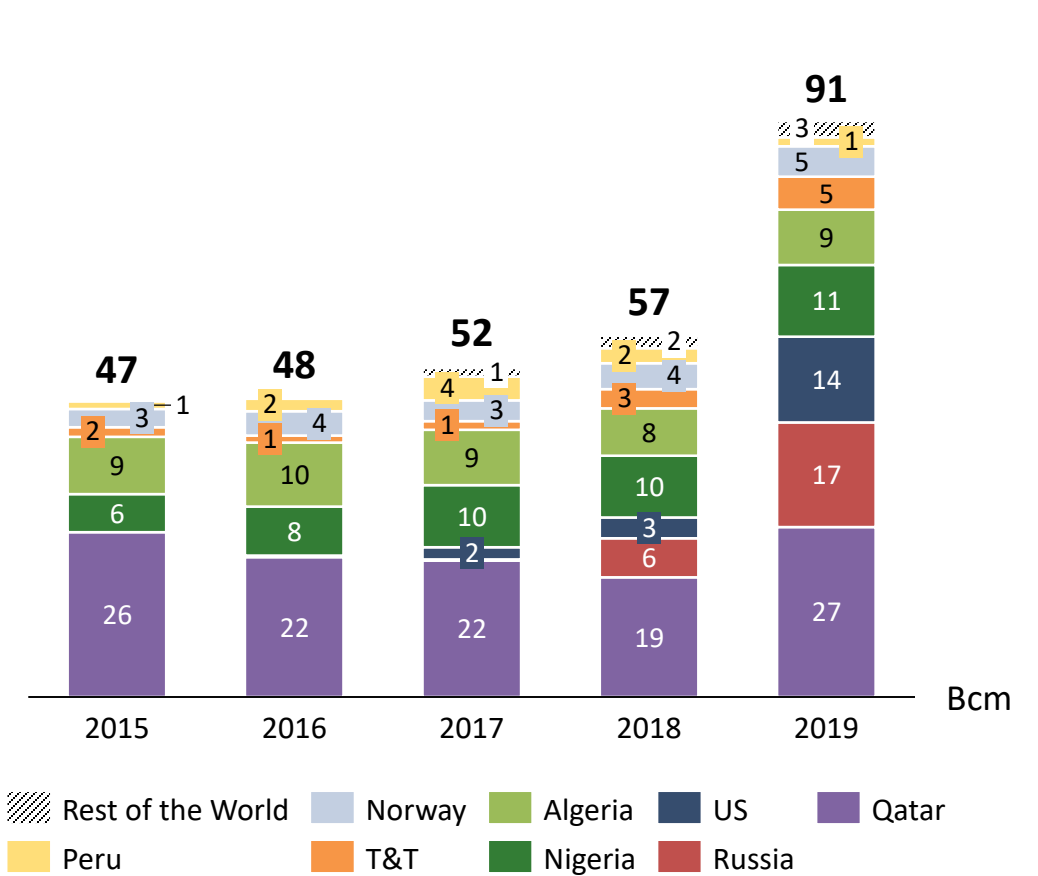


Strong Increase of LNG Volumes in EU

EU LNG Imports per Country



LNG Exports to EU per Country

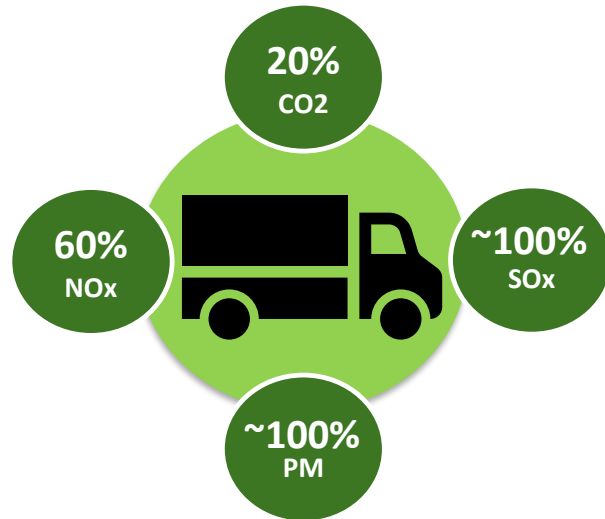


Source: Edison elaboration

Solution for Sustainable Mobility

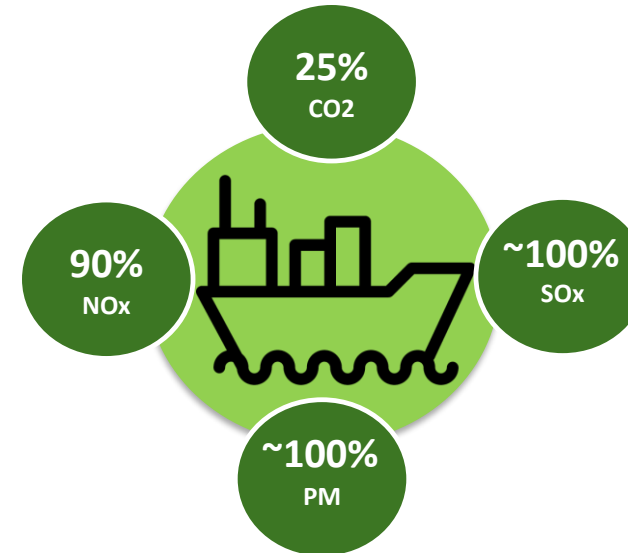
Heavy- Duty Road Transport

(% emission reduction vs diesel)



Maritime Transport

(% emission reduction vs fuel oil)



Source: JBC Energy; World Ports Climate Initiative (WPCI); IVECO; Sustainable Development - WIT Press

Building an SSLNG Logistic Chain

