

AN INTEGRATED GRID FOR ENABLING THE ENERGY TRANSITION IN THE MEDITERRANEAN

Mediterranean Project 2 Closing Conference

28 October 2020

OVERVIEW OF THE 2030 MEDITERRANEAN POWER SYSTEMS PRESENTATION OF THE MED-TSO 2030 SCENARIOS

Emmanuel BUÉ – RTE – Chairman of the WG Economic Studies & Scenarios

Scenarios development investigating the energy landscape in 2030

These Med-TSO 2030 Reference scenarios explore **possible future situations** of load and generation, interacting with the Mediterranean Power system.

The Mediterranean region is characterized by **wide contrasts** and complementarity in terms of load growth and of RES development.

- Contrasts in the dynamics of the evolution of electricity demand
- Contrast in national energy and environmental policies
- Contrasts in the way of organizing electricity exchanges between countries

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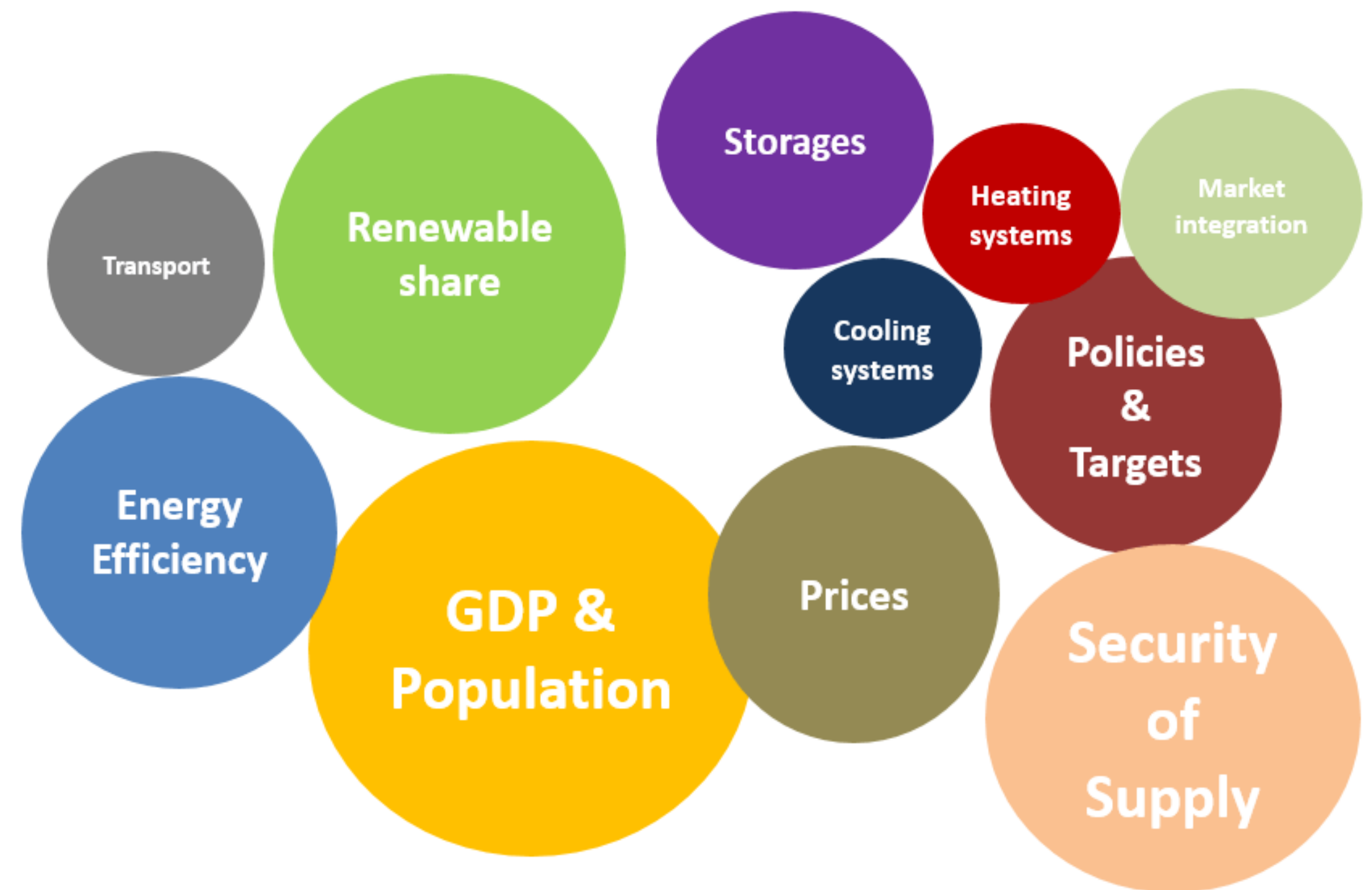
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Three scenarios to address the Mediterranean power system in 2030

On the basis of the most essential parameters in the context of the Mediterranean electricity system, the definition of three different long-term scenarios, as following :

➤ National Development scenario

➤ Green Development scenario

➤ Mediterranean Evolution scenario

Drivers	Criteria	National Development	Green Development	Mediterranean Evolution
Macro-Economic Trends	GDP/Population	+	++	+++
New demand and energy efficiency	Energy efficiency	+	++	++
	New demand	+	++	+++
Generation, RES development and GHG emission reduction	RES/GHG reduction target achieved	++	+++	+++

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The need for a set of common technical parameters and principles, to ensure the coherency on market studies:

- **Efficient day-ahead markets or mechanisms**
- **Similar fossil fuel prices across all Mediterranean countries**
- **An economic value for CO2 emissions common to all Mediterranean countries**

Power system modelling aims to represent **all the interconnected countries**

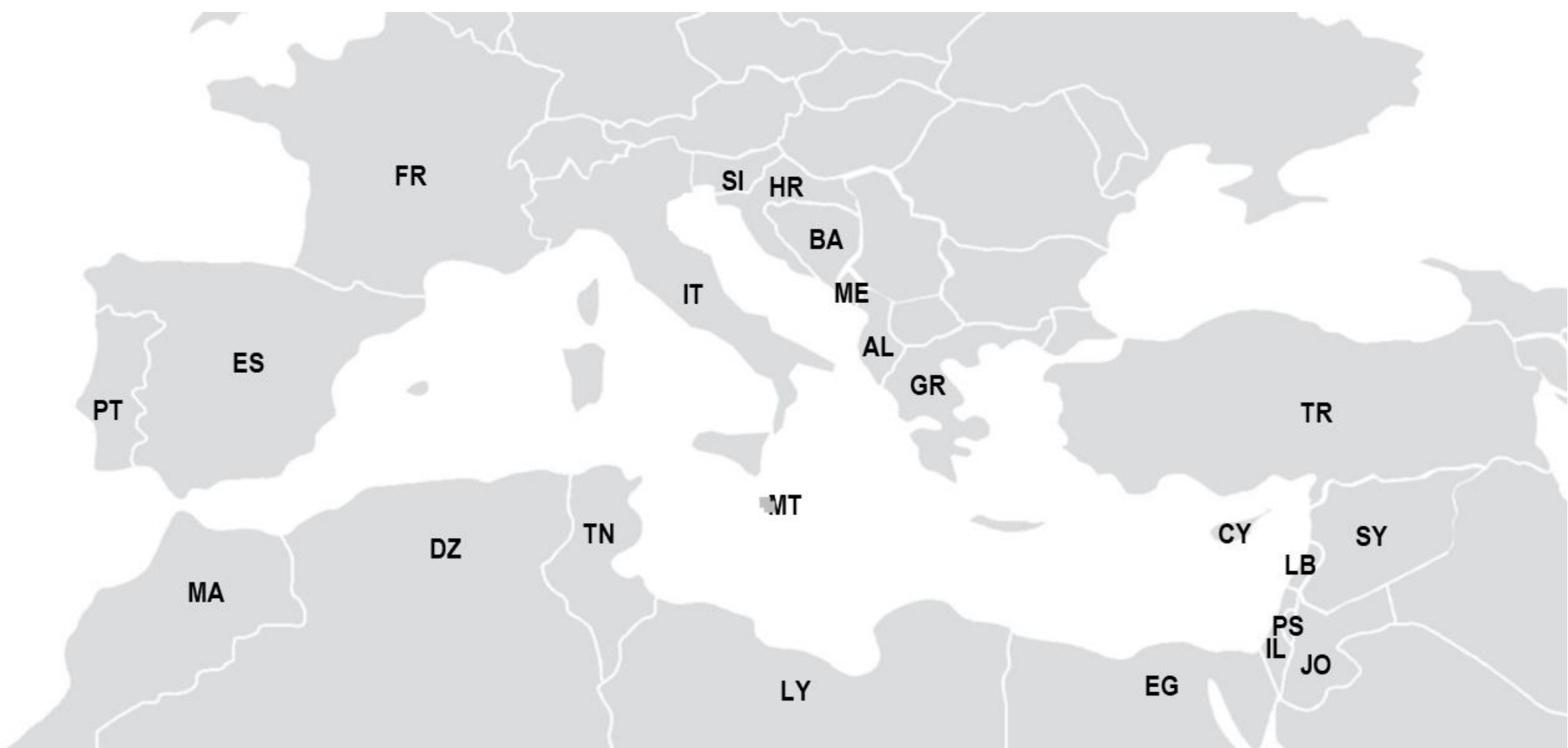
- **ENTSO-E TYNDP2020** for the European countries

Med-TSO 2030 Mediterranean Scenarios	ENTSO-E TYNDP2020 Scenarios
National Development	National Trends
Green Development	Distributed Energy
Mediterranean Evolution	Global Ambition

Scenario	National Development	Green Development	Mediterranean Evolution
CO2 price for UE- regulated countries	28 €/t CO2	53 €/t CO2	35 €/t CO2
CO2 price for non UE- regulated countries	28 €/t CO2	28 €/t CO2	35 €/t CO2

Electricity consumption evolution for 2030

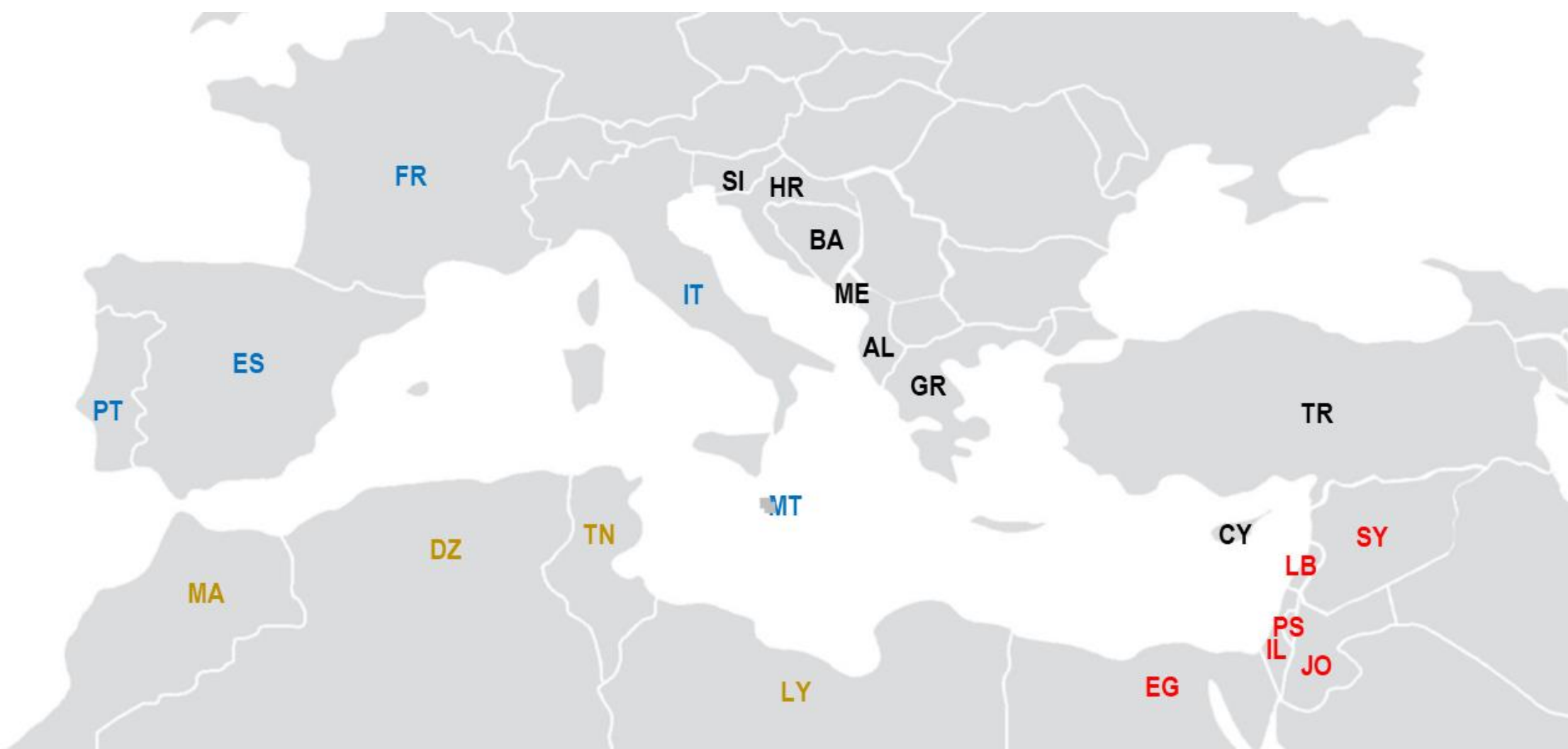
➤ Electricity consumption evolution for 2030 remains dynamic, mainly driven by economic and demographic growth : **+25% to +33 %** in 12 years



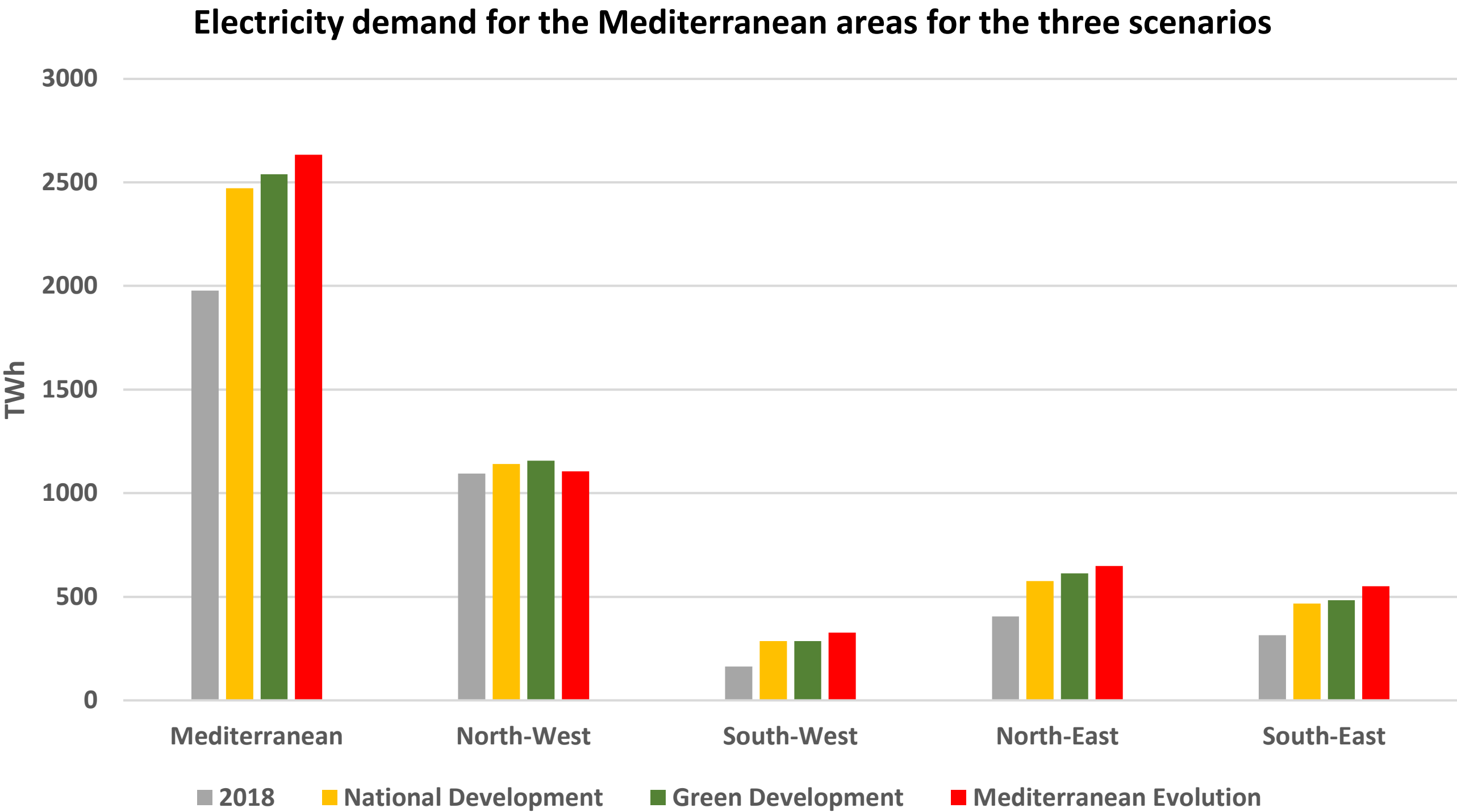
	2018	2030		
	Mediterranean countries	National Development	Green Development	Mediterranean Evolution
Electricity Demand (TWh)	1980	2470	2540	2630
Demand increase (12 years)	-	+ 25%	+ 28%	+ 33%
Compound annual growth rate (CAGR)	-	+ 1.9%	+ 2.1%	+ 2.4%

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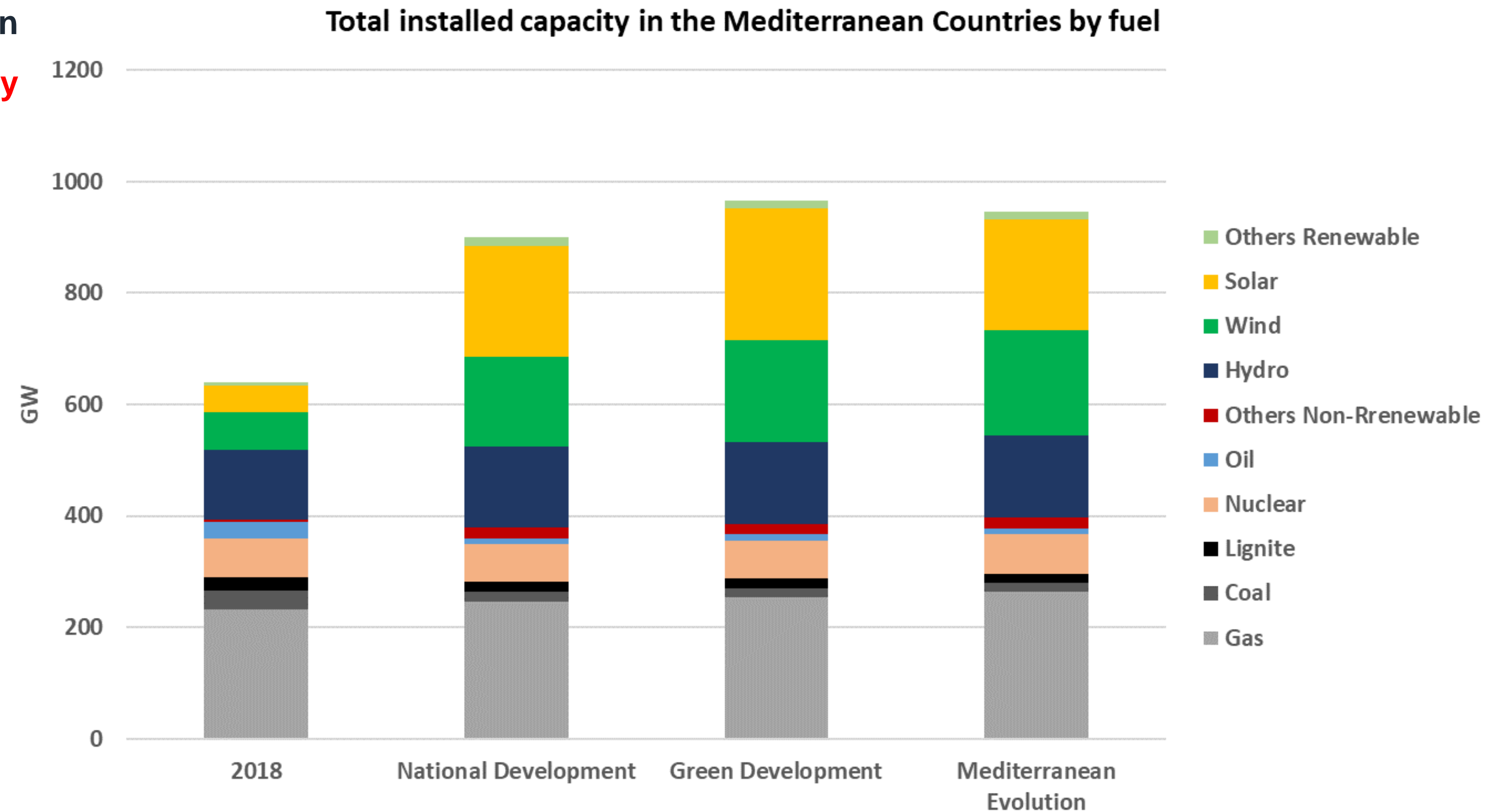


South-West		North-West		South-East		North-East	
MA	Morocco	IT	Italy	EG	Egypt	TR	Turkey
DZ	Algeria	MT	Malta	JO	Jordan	CY	Cyprus
TN	Tunisia	FR	France	PS	Palestine	GR	Greece
LY	Libya	ES	Spain	IL	Israel	AL	Albania
		PT	Portugal	SY	Syria	ME	Montenegro
				LB	Lebanon	BA	Bosnia and Herzegovina
						HR	Croatia
						SI	Slovenia



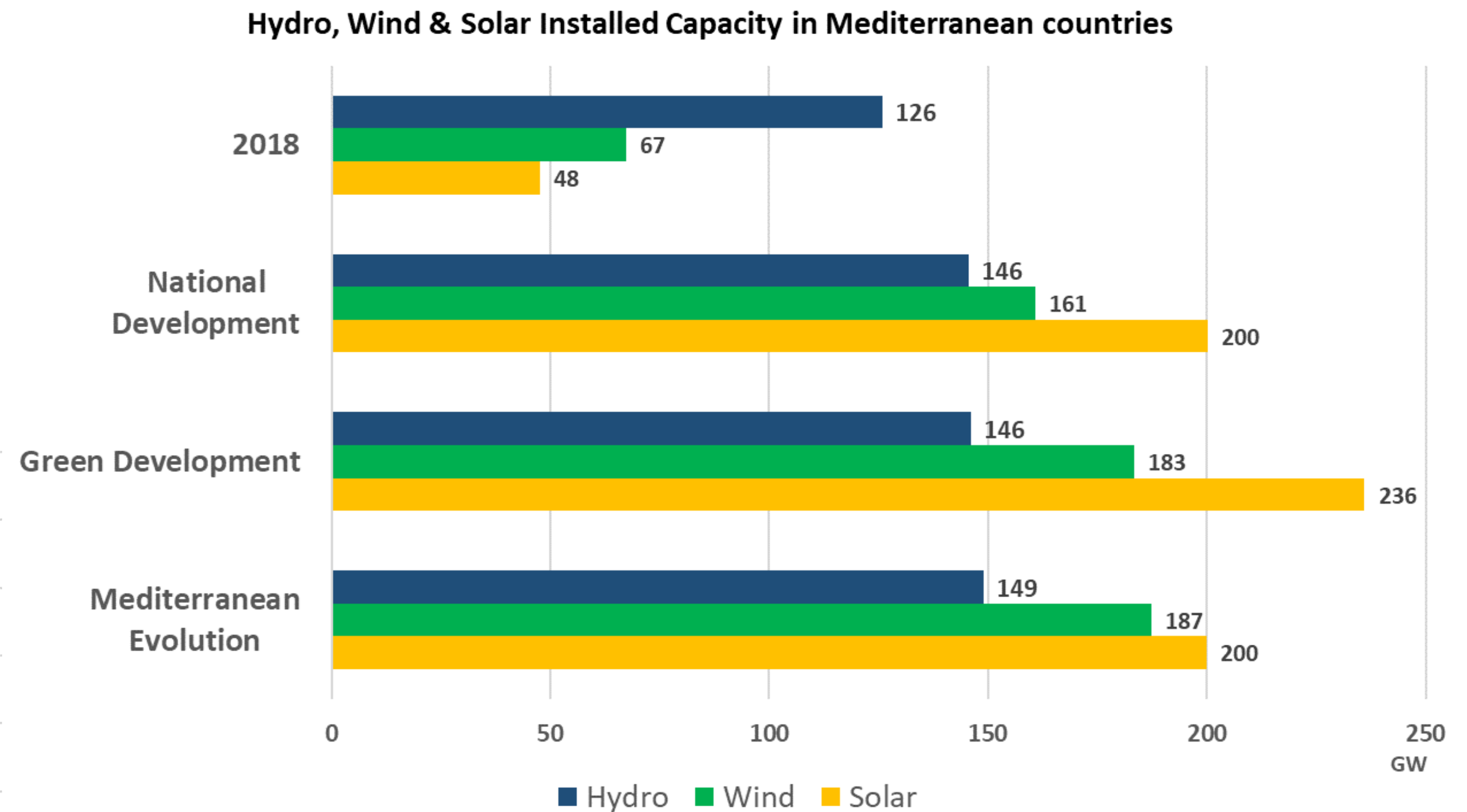
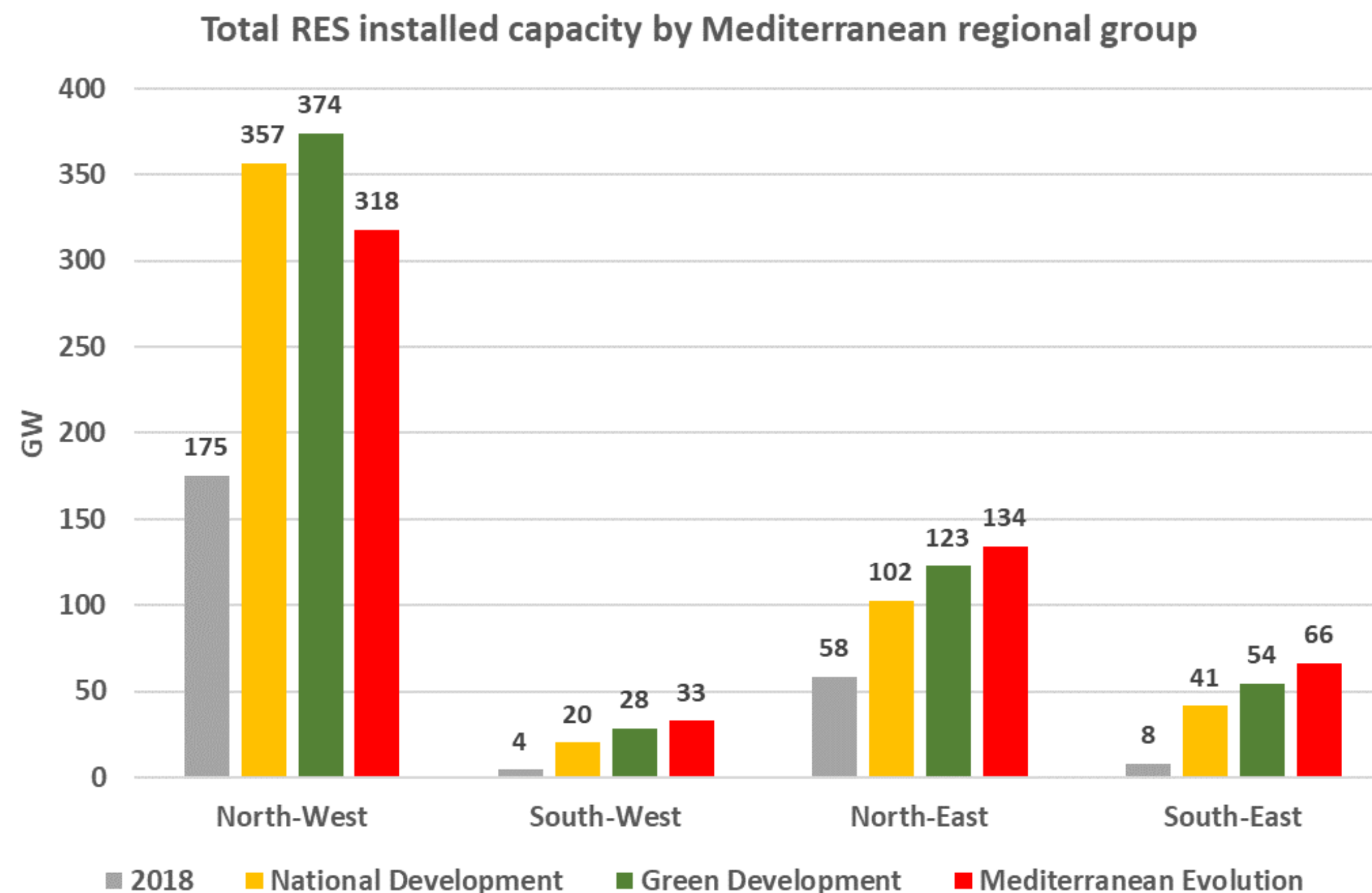
Development of generation capacity that responds to multiple challenges

- Mediterranean region is seeing increased production capacity to face the **challenges of security of supply and decarbonization of generation.**



Development of generation capacity that responds to multiple challenges

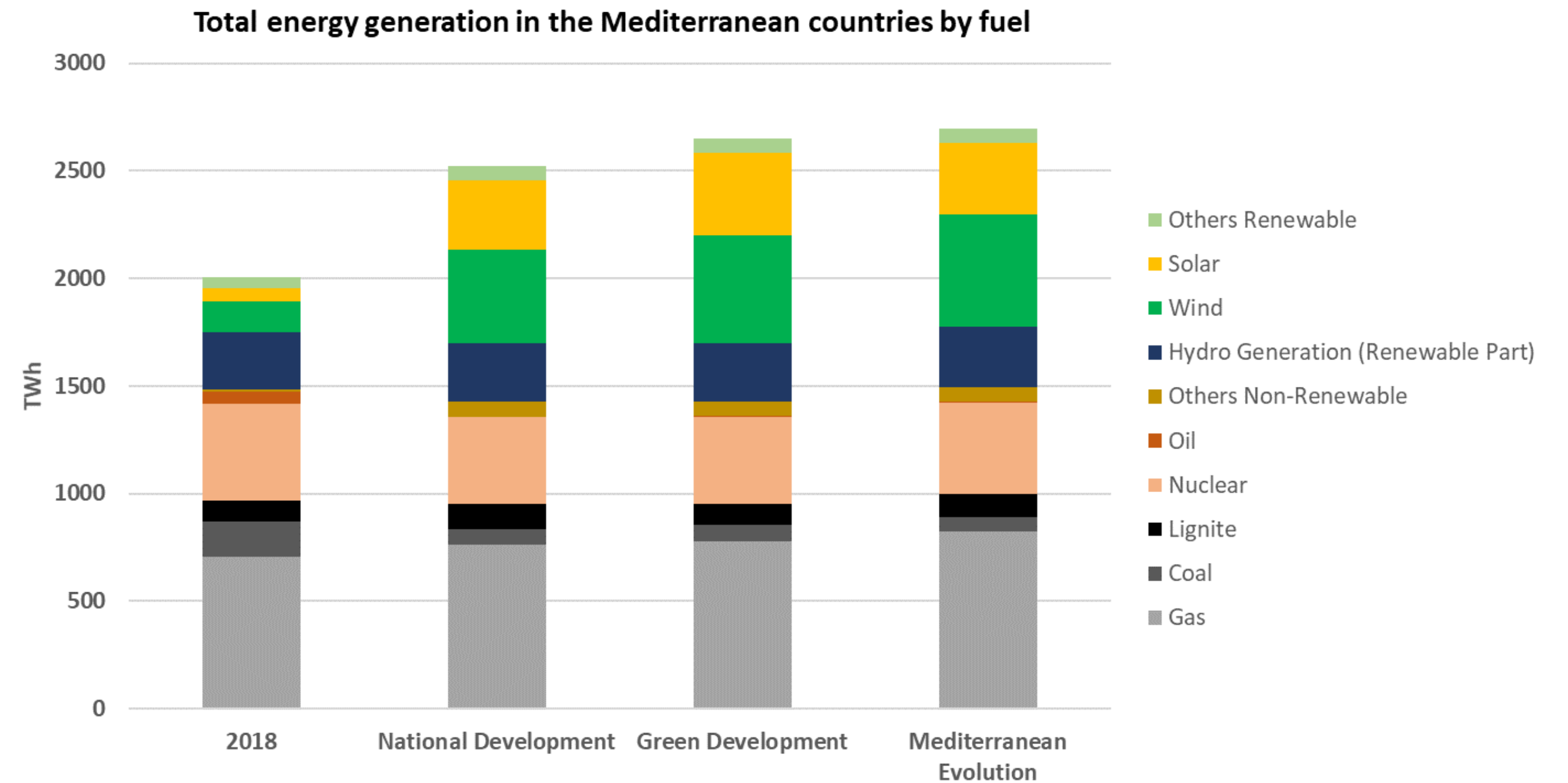
- Mediterranean region is seeing increased production capacity to face the **challenges of security of supply and decarbonization of generation**.
- But the most remarkable is the development of solar and wind capacity in **all Mediterranean countries**.



- **WIND : x 3 in 12 years**
- **SOLAR x 4-5 in 12 years**

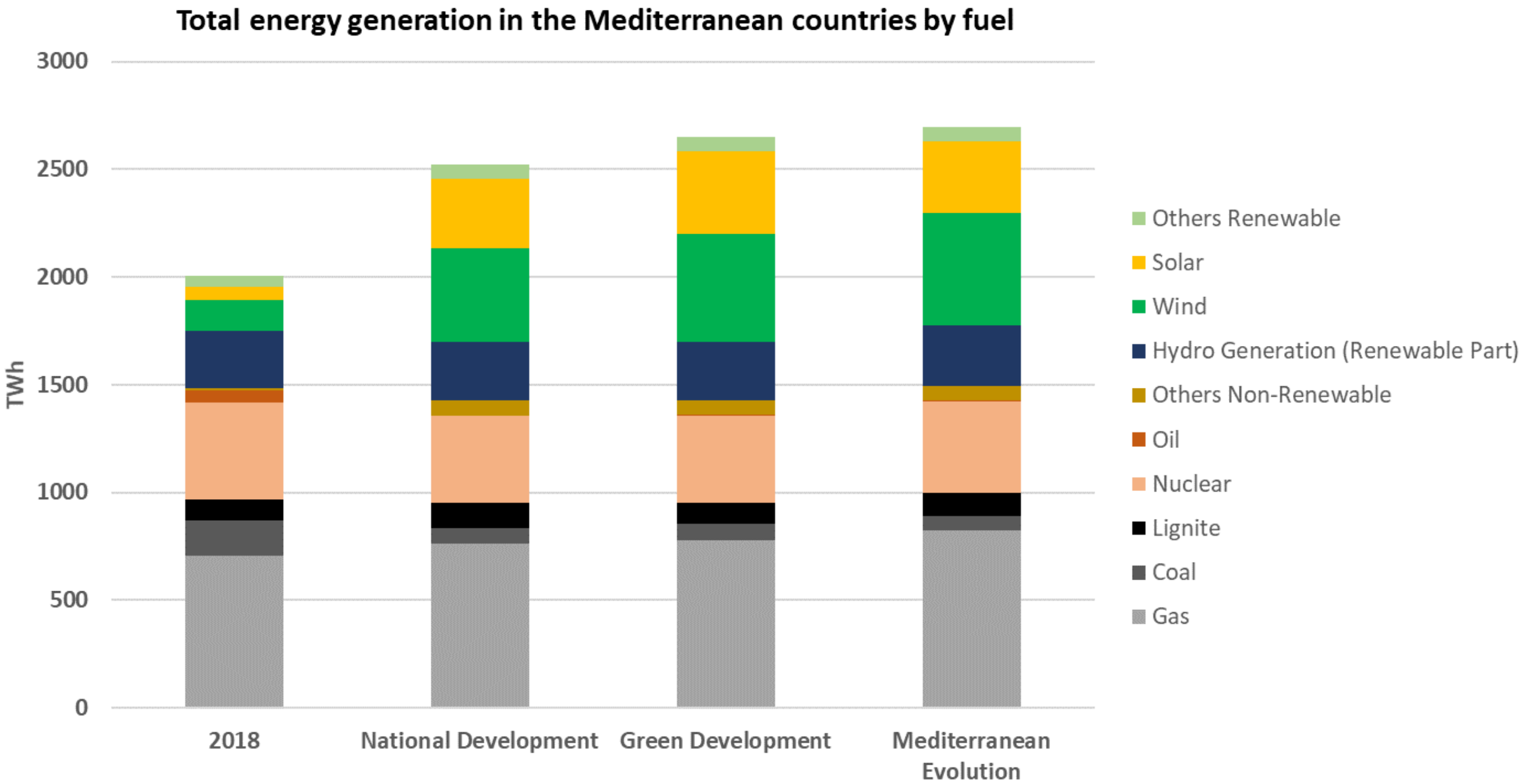
New RES to meet the increase in electricity demand

- While electricity consumption is expected to increase by 25 to 33% by 2030 for the entire Mediterranean region, this **additional consumption is fully satisfied by the increase in production from renewable sources.**



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- For the Green Development scenario, nearly **half (47.5%) of consumption is covered by renewable generation**



	2018	2030		
	Mediterranean countries	National Development	Green Development	Mediterranean Evolution
Consumption covered by RES	26.3%	44%	47.5%	45%
From which Wind generation	7.2%	17.7%	19.7%	19.7%
From which Solar generation	3.2%	13%	15.2%	12.8%
From which Hydro generation*	13.3%	11%	10.7%	10.6%

*renewable part

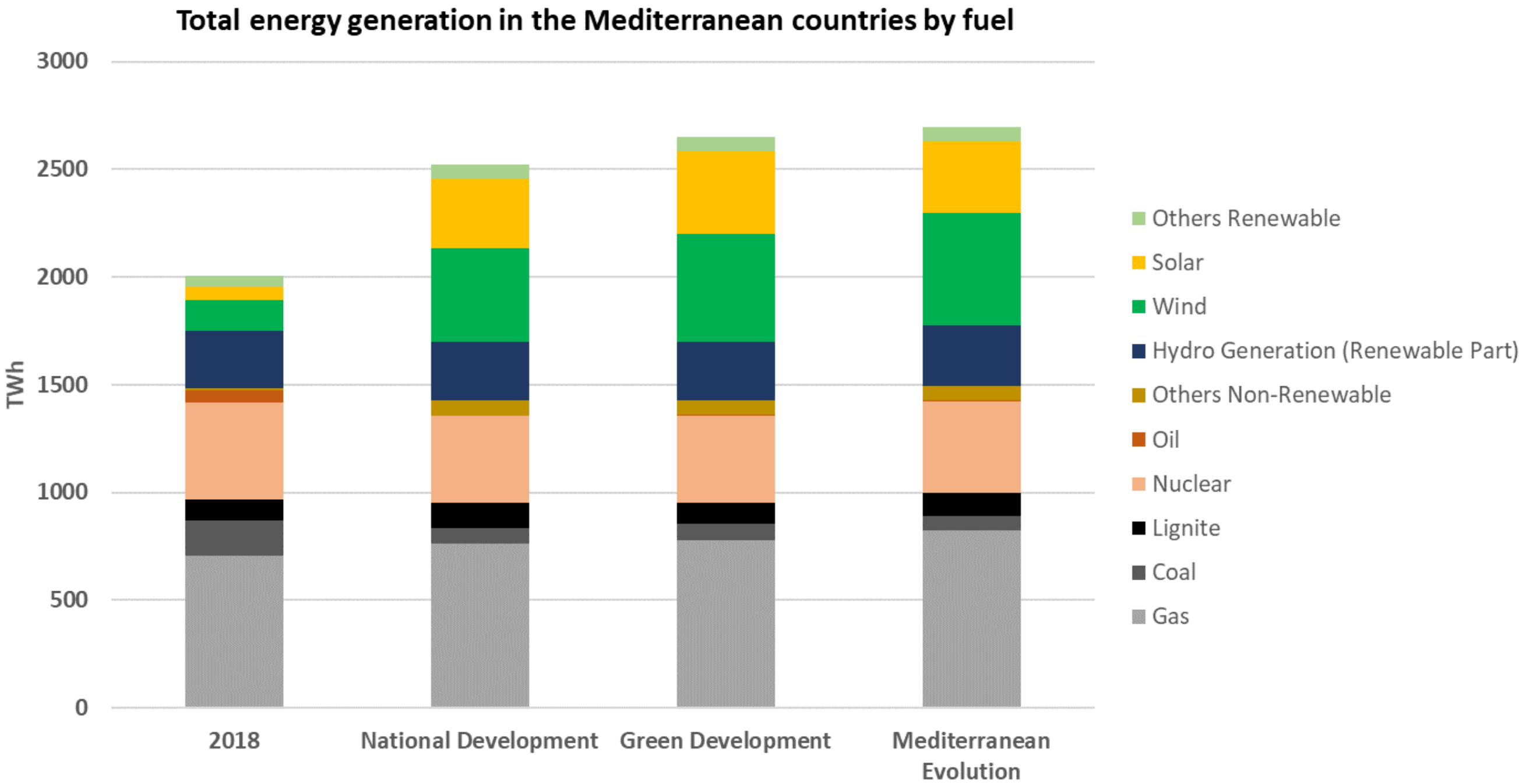
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... toward a more carbon-free power system

- **A decrease about 100 MtCO2 per year in 2030 compared with 2018**

	2018 Mediterranean countries	2030		
		National Development	Green Development	Mediterranean Evolution
Reduction of CO ₂ emissions (Mt)	(590)	- 17%	- 20%	- 16%
CO ₂ content of electricity (gCO ₂ /kWh)	298	197	186	188



THANK YOU!