

# Aristotelis Chantavas

Head of Europe Area



**ENEL ACTIVITIES**

**RES MARKET TRENDS**

**IDEAS FOR THE GREEK MARKET**

# Enel today

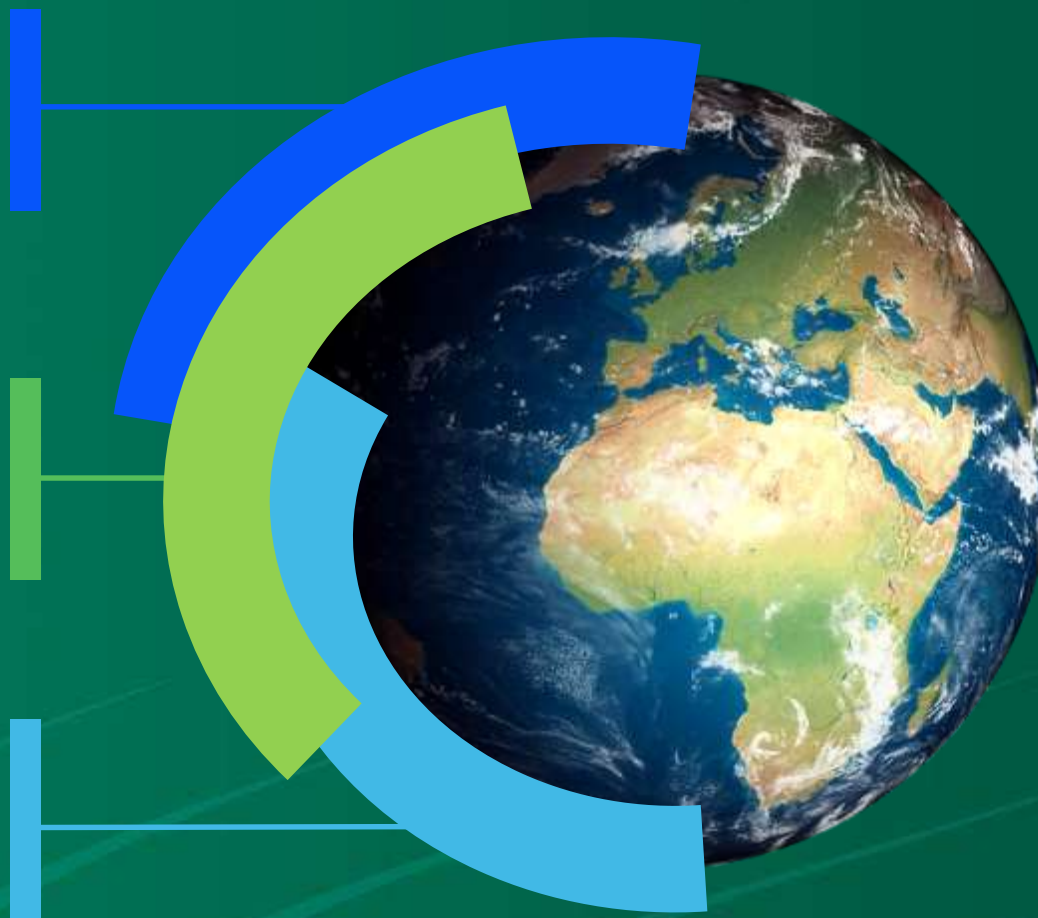
We are a global leader in the new energy world



1st **network** operator<sup>1</sup>

World's largest private player<sup>2</sup> in **renewables**

Largest retail **customer** base worldwide<sup>1</sup>



**73** mn end users



**44** GW capacity<sup>2</sup>



**46.5** GW capacity<sup>3</sup>



**5.7** GW demand response



~ **64** mn customers<sup>4</sup>

1. By number of customers. Publicly owned operators not included
2. By installed capacity. Includes managed capacity for 4.2 GW
3. It includes nuclear
4. Includes customers of free and regulated power and gas markets

# Enel in Greece

10 years and keep going...

| Technology | No. Plants | Installed Capacity (MW) |
|------------|------------|-------------------------|
| Wind       | 17         | 200                     |
| Hydro      | 5          | 19                      |
| Solar      | 28         | 88                      |
| Total      | 50         | 307                     |

*Investments of more than 500 million Euros*



Additional capacity 2019

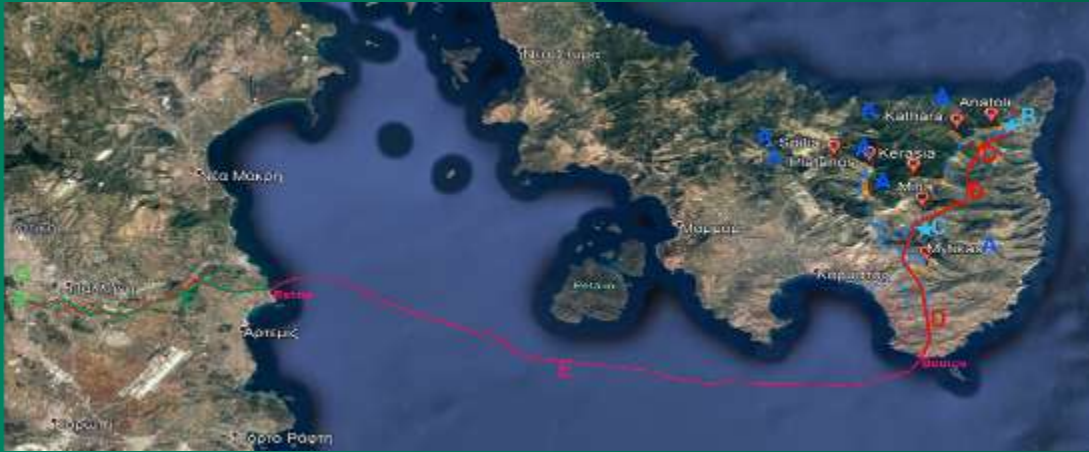
Kafireas Wind Farms  
154 MW

*New investment of more than 300 million Euros*



## The biggest wind farms' complex in Greece

## The biggest wind farms' complex in Greece



## HIGHLIGHTS

- Expected production to cover the needs of 130.000 households
- 1.5 million man-hours / Zero accidents
- 3% of revenues delivered to the local community each year
- More than 12 million Euros spent locally in sustainable initiatives



# THE PROJECT

- 7 wind farms / 67 wind turbines / 154,1 MW
- 2 substations / 25 km overhead line
- 45 km submarine cable
- 18 km underground cable

# INNOVATION

- Use of remotely operated vehicle for the trenching of the submarine cable
- Drones for installation of overhead line cables
- Bird monitoring system to start / stop the turbines automatically
- Tele-medicine at the construction site

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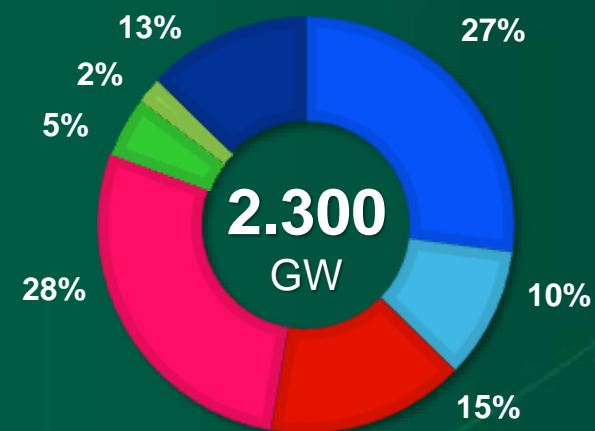
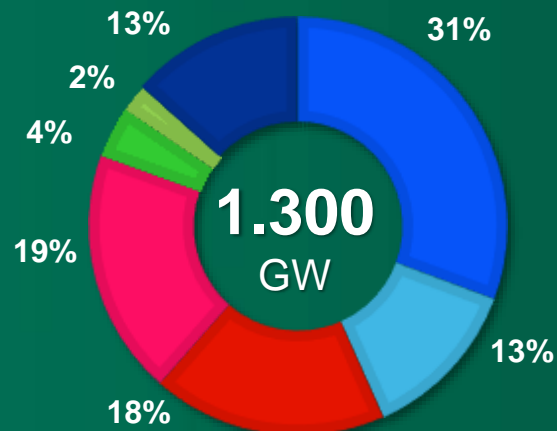
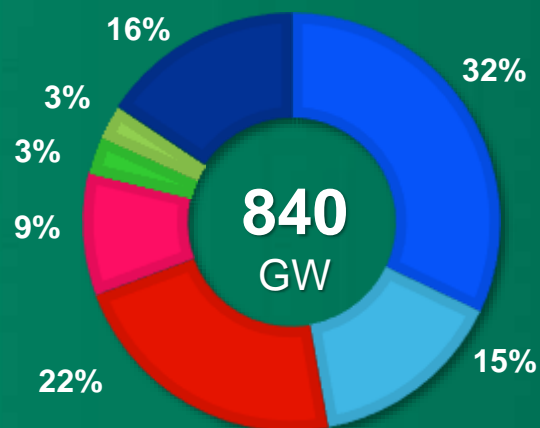
# Renewables Installed Capacity

Tripled capacity in less than 20 years

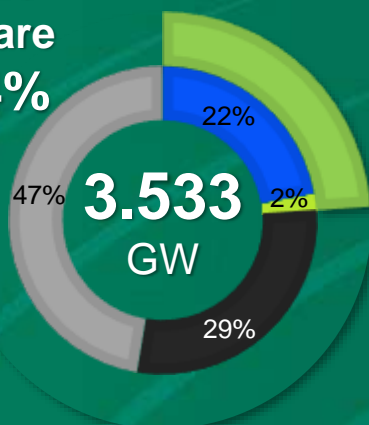
**2000**

**2010**

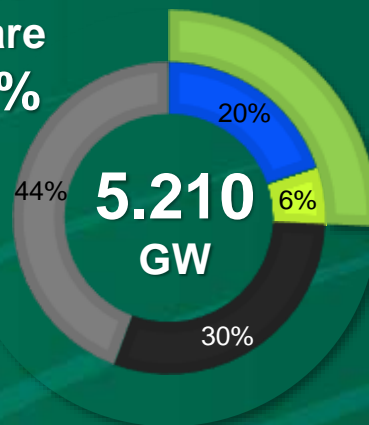
**2017**



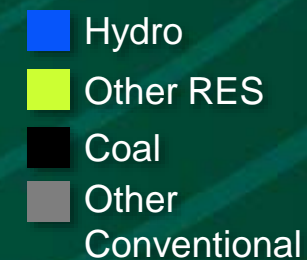
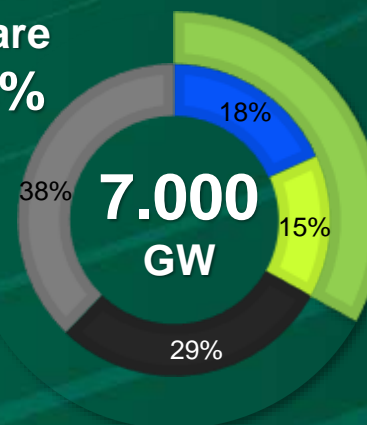
**RES  
Share  
24%**



**RES  
Share  
26%**



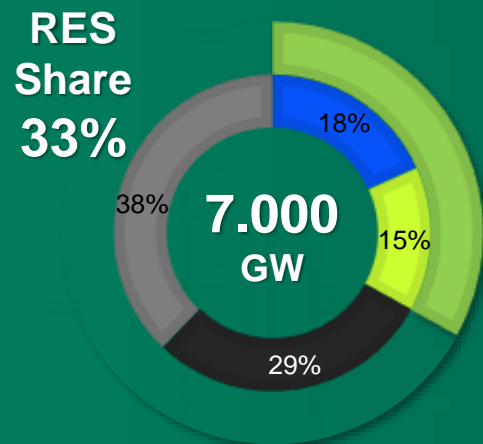
**RES  
Share  
33%**



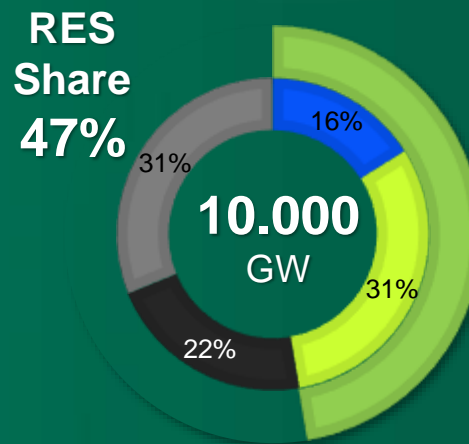
# How the installed capacity mix will look like

World Installed Capacity

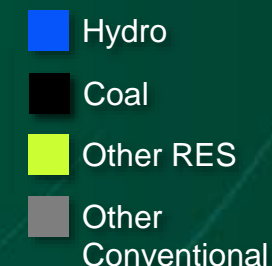
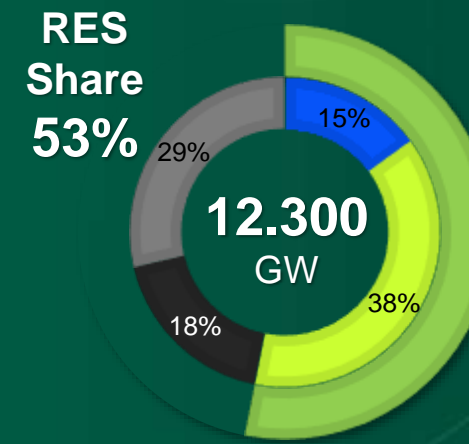
**2017**



**2030**



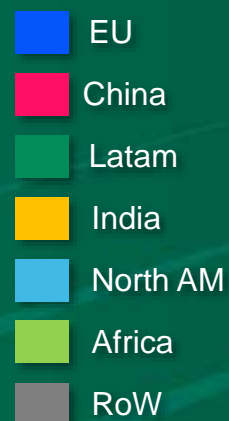
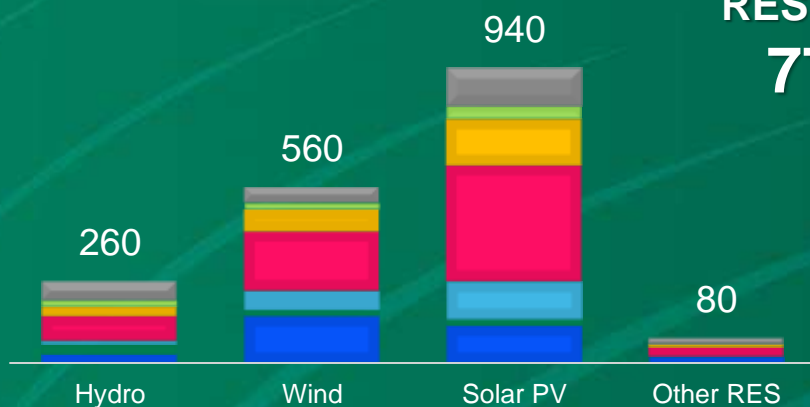
**2040**



**Additional 2020-2030**

**1.840 GW**

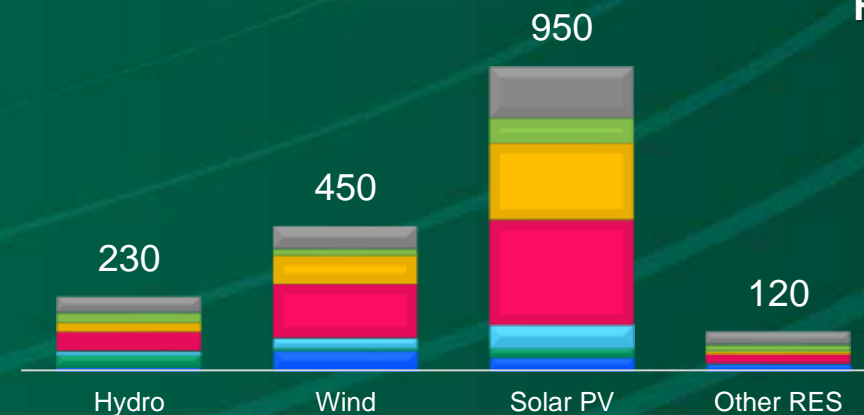
**RES Share 77%**



**Additional 2030-2040**

**1.750 GW**

**RES Share 76%**



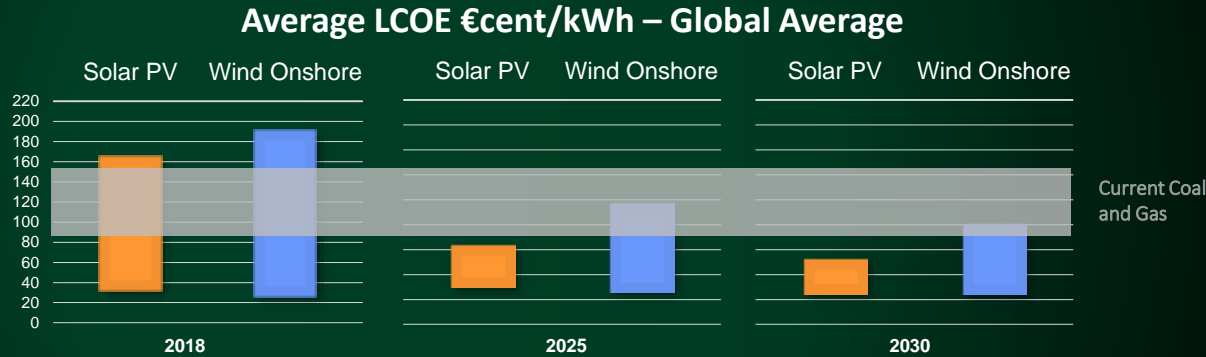


# What is behind this growth?

## RES development drivers



**Economic  
Choice**



**Easiest  
to do**



**PV & Wind**  
8 ÷ 12 months



**Coal**  
40 ÷ 60 months



**CCGT**  
16 ÷ 20 months (open cycle)  
26 ÷ 30 months (closed cycle)



**Nuclear**  
120+ months



**Necessary  
For Environment**

**EXTREME HEAT**



2°C vs 1,5°C  
**2.6x worse**

**SEA-ICE-FREE ARCTIC**



**10x worse**

**SEA LEVEL RISE**



**.06M MORE**

## Who is leading the transition



Conscious and sustainable value chain



Innovative and sustainable growth



Wise and sustainable energy strategy

# Markets will grow at different speeds

Global view

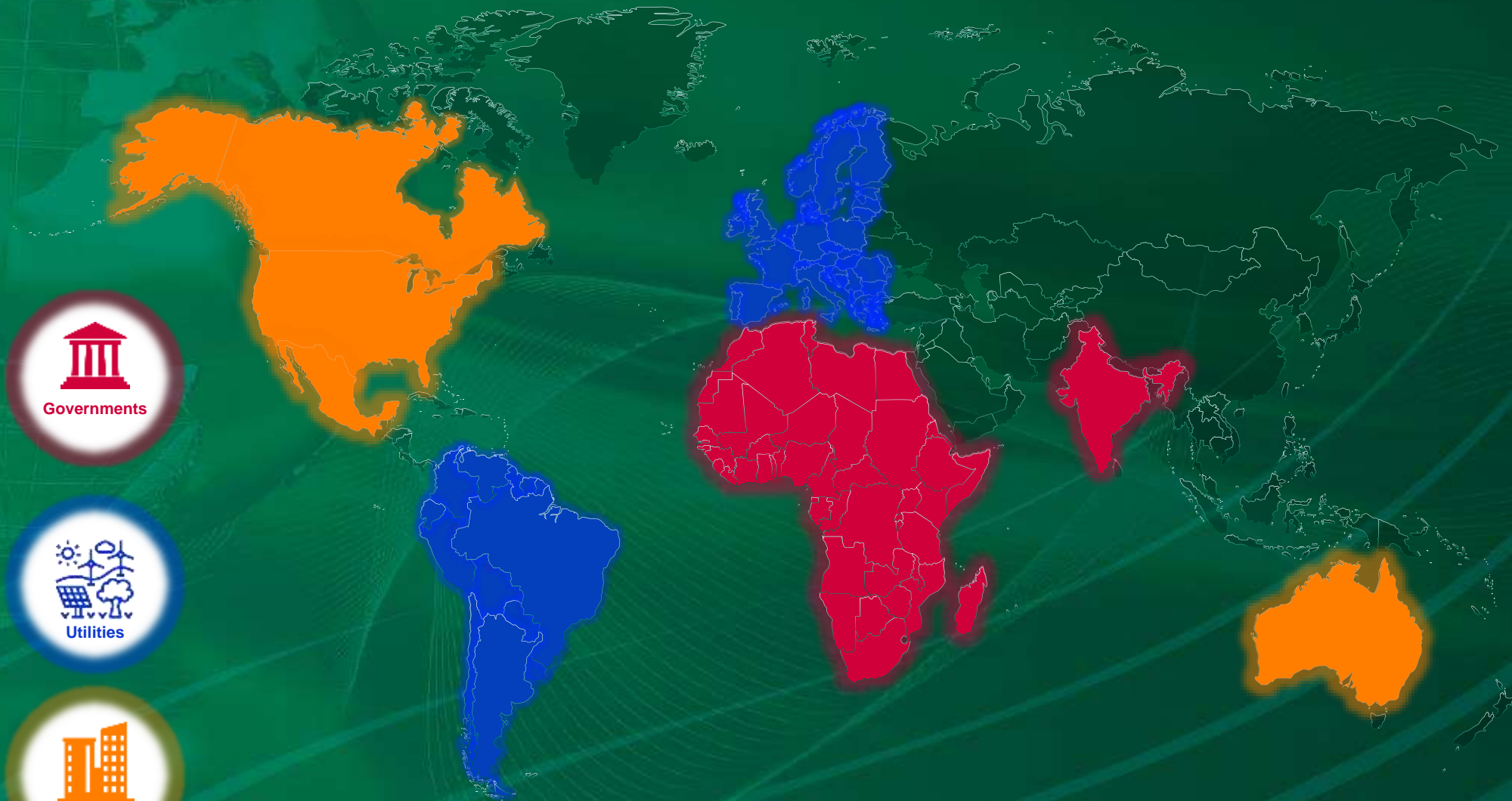
**Growth**



**Transition**



**C&I**










# Consumer's awareness for climate change is spreading worldwide



# Strong commitment to our SDGs targets



| Engaging local communities ( <i>mn beneficiaries</i> )                                |  | 2018E <sup>1</sup>  | Target 2020 <sup>1</sup> |
|---|--|---|--------------------------|
|    | High-quality, inclusive and fair education                                     | 0.9  | 0.8                      |
|    | Access to affordable and clean energy mainly in Africa, Asia and Latin America | 2.2 <sup>2</sup>  | 3.0                      |
|    | Employment and sustainable and inclusive economic growth                       | 1.8   | 3.0                      |
| Climate change  |  | 2018E   | 2020                     |
|  | Reduction of CO <sub>2</sub> specific emissions ( <i>kg/kWh<sub>eq</sub></i> ) | 0.39  | <0.35                    |

1. Cumulated figures since 2015

2. In the whole Group perimeter, 4.9 mn beneficiaries were reached



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# Ideas for the Greek market

Proposals to accelerate investments



## Regulatory

- More ambitious targets for National Energy & Climate Plans
- Immediate Implementation of the Target Model and the bilateral PPAs
- Fast-Track for large / strategic investments
- Legislative Acceleration (e.g. Repowering, Hybrids, Storage, etc.)

## Licensing

- Simplification / Acceleration of the Permitting Procedure
- Finalisation of Public Cadastre / Forest Maps / RES Land Planning
- Modernization of Production Licenses Regulation



**Thank you for your attention**

