

# HOW DO ENERGY MARKET ACTORS HAVE TO CHANGE TO ADAPT TO THE FUTURE NEEDS OF THE POWER SYSTEM?

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## WHO WE ARE

ACCIONA ENERGÍA IS:



**9.022 MW**

IN 14 COUNTRIES IN THE 5 CONTINENTS

**+1.000 MW UNDER CONSTRUCTION**

IN MEXICO, CHILE, USA, AUSTRALIA AND EGYPT

**PURE PLAYER: ONLY RENEWABLE GENERATION**

SOLAR PV AND WIND FOCUSED. ALSO ACTIVE IN HYDRO, BIOMASS, AND CSP

**CORPORATE SOLUTIONS**

ADAPTED TO COMPANIES THAT WANT TO REDUCE ITS CARBON FOOTPRINT

**25 YEARS EXPERIENCE**

SINCE THE VERY BEGINING OF THE RENEWABLE ELECTRICITY SECTOR.

31.12.2017 Data

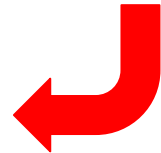
NEED TO SPEED UP THE ENERGY TRANSITION: CO<sub>2</sub> emissions should decrease by 45% with respect to 2010 in year 2030 and reach neutrality by 2050



*GOAL: Holding the increase in the global average temperature to well below 2 ° C (...) and pursuing efforts to limit the temperature increase to 1.5 ° C (...).*

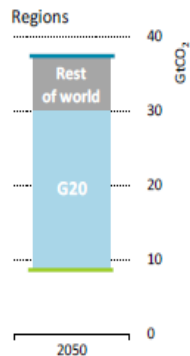
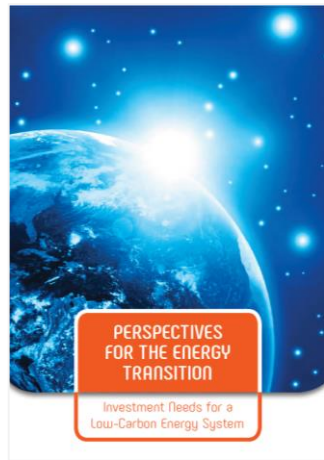
**Parties commissioned IPCC to analyze the scenario in which 1.5°C were not to be exceeded**

MONDAY, OCTOBER 8TH, 2018



- In the energy sector, the path implies:
  - a **reduction of energy consumption** and the promotion of energy efficiency,
  - a growing electrification and
  - a higher participation of low-emission generation sources: **renewables should supply around 70-85% by 2050**
- A special mention is made to the need to work on Synergies with the actions derived from the fulfillment of the **SDGs**.
- Including sub-national governments, cities, companies and civil society in the **Climate Action platform**

## IEA REPORT TO THE G20 ANALYZING THE ENERGY TRANSITION



### IEA report to the G20 analyzing the Energy Transition

By 2050:



95% Electricity Generation

70% of New Cars

100% Building Stock



Low Carbon. Mostly, RE

Electric

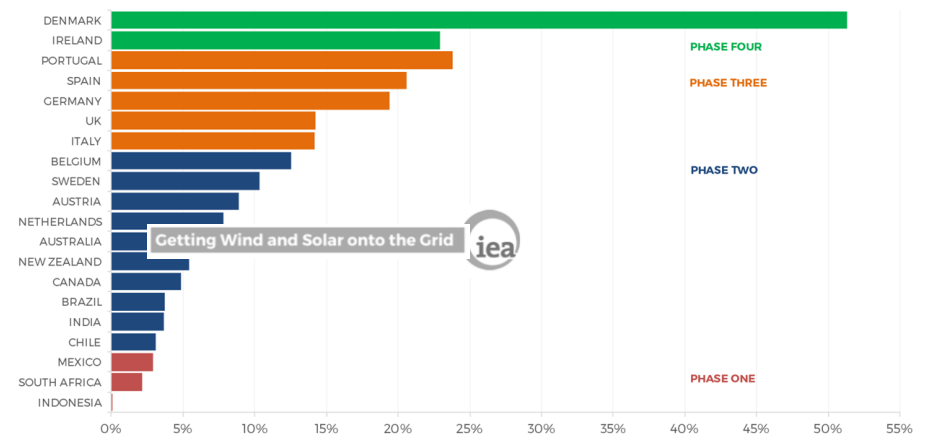
Retrofitted

- **Energy transition has to be fast**
- **Need policy intervention to support it**

### 95% Electricity Generation Low Carbon... How?

- ❖ **Fast ramp-up of all low carbon technologies** (RE, Nuclear, CCS) in all countries, mostly RE
- ❖ Rapid **phase out of fossil fuel** subsidies
- ❖ **CO2 prices rising** to high levels (up to US\$190/t)
- ❖ Stringent low carbon and **energy efficiency** mandates
- ❖ **Redesign electricity markets** to integrate large shares of variable renewables + rules & technologies to ensure flexibility

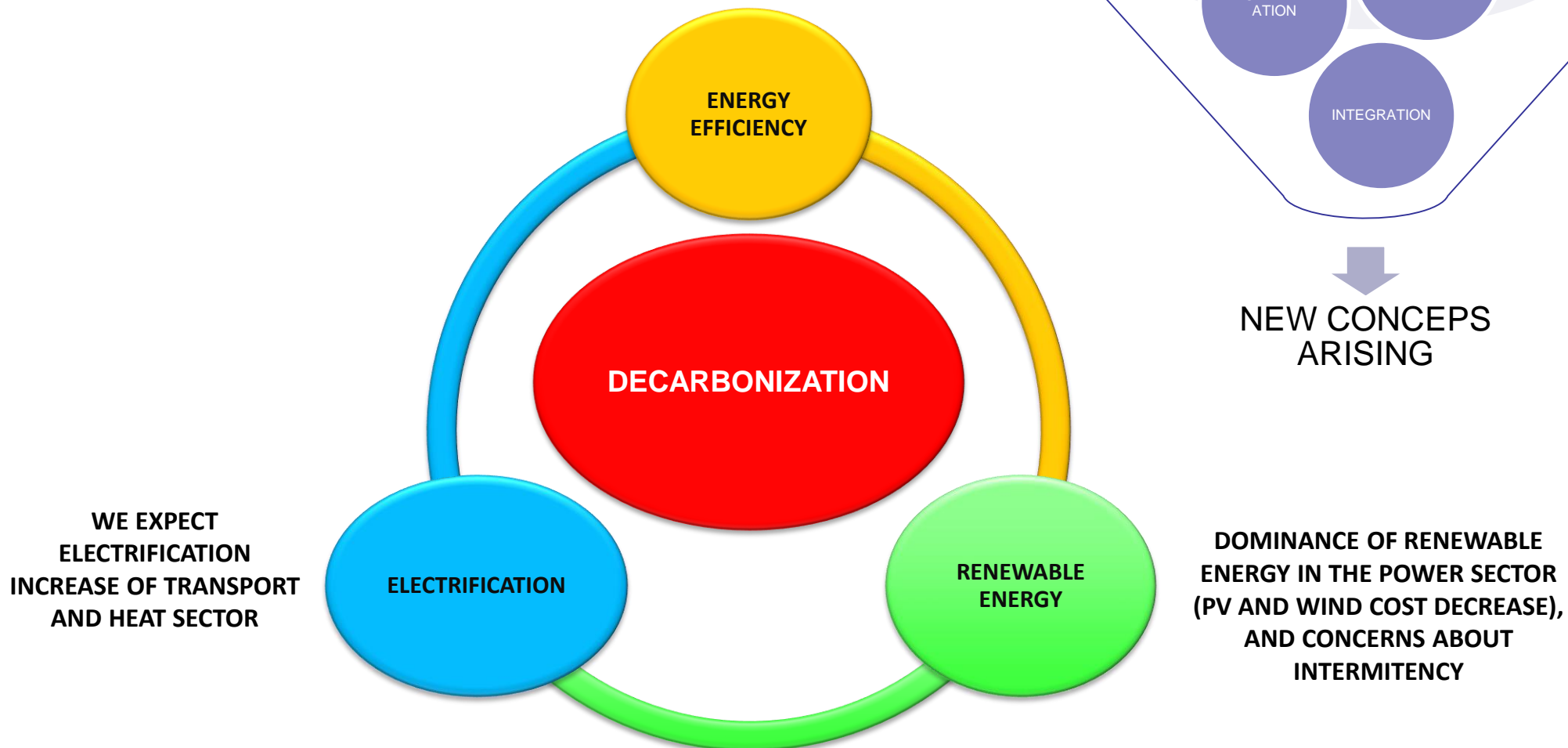
### Share of VRE generation



Source: IEA

## DECARBONIZATION

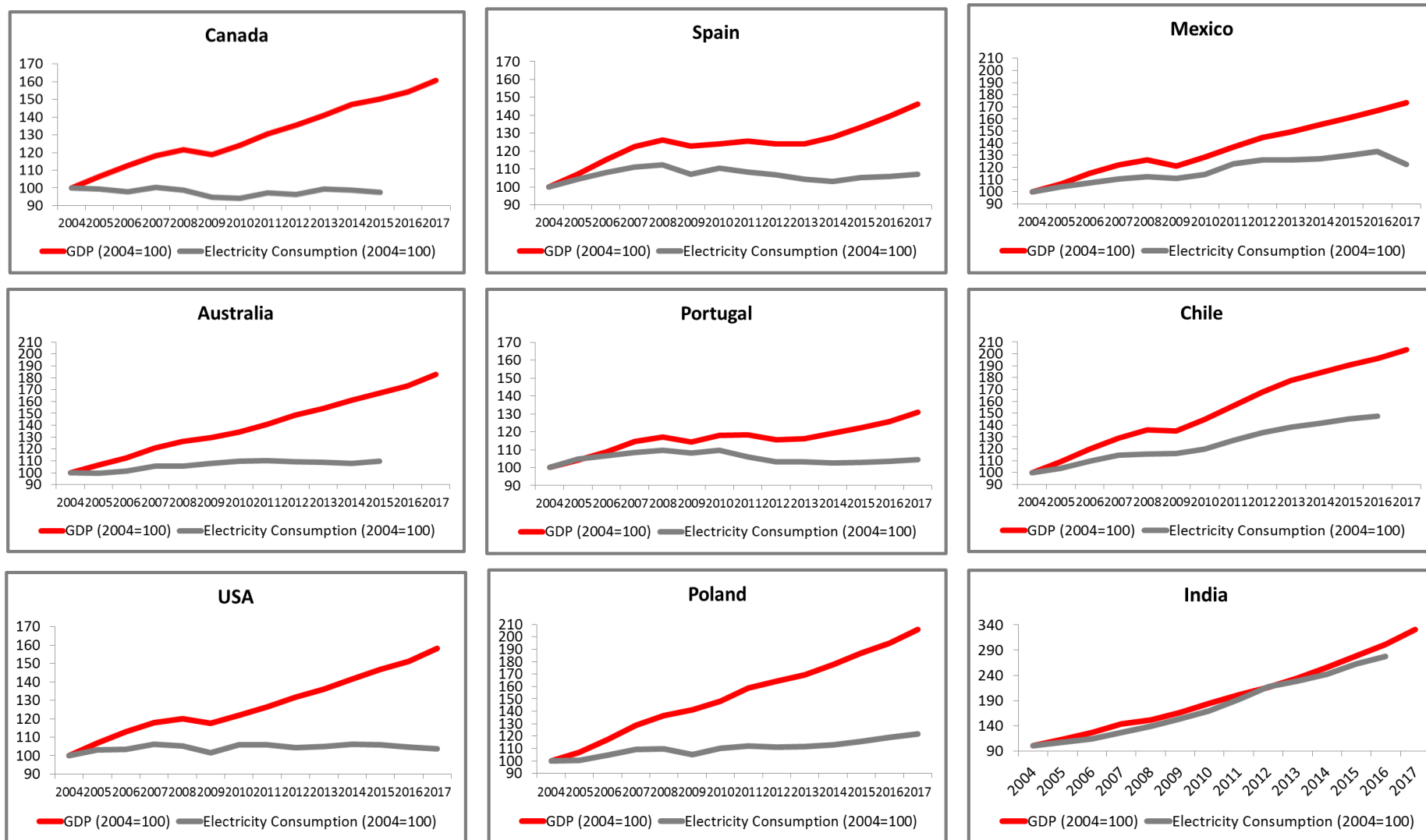
WE ARE WITNESSING THE  
DECOUPLING BETWEEN GROWTH  
AND ELECTRICITY CONSUMPTION



## DECARBONIZATION

### ENERGY EFFICIENCY

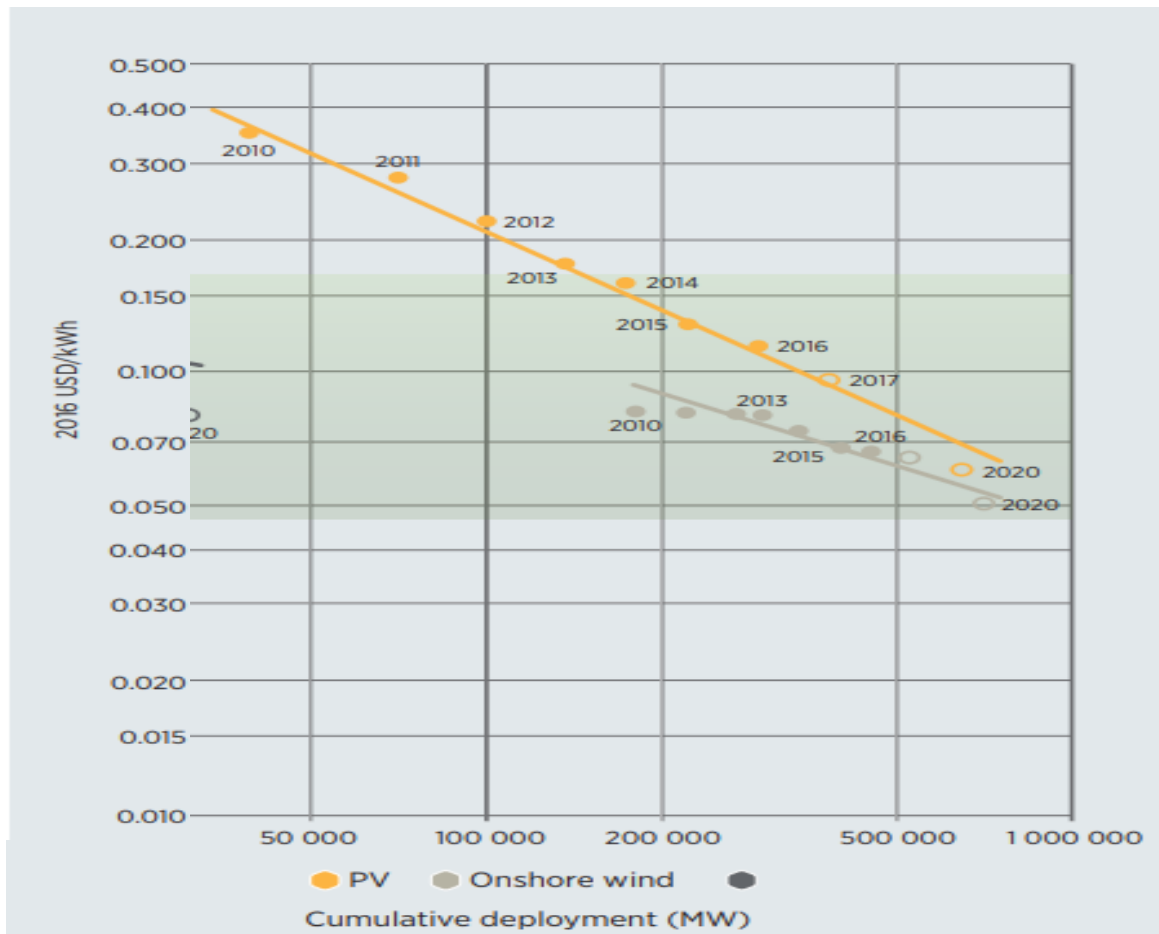
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## DECARBONIZATION

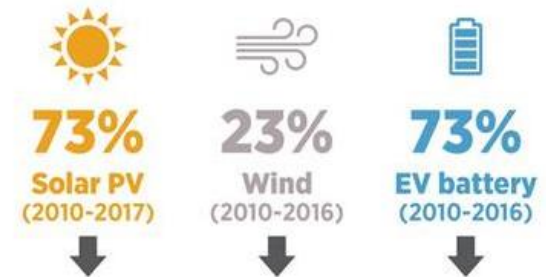
### RENEWABLE ENERGY

#### STEEP DECLINE IN COSTS FOR WIND ONSHORE AND SOLAR PV



Source: IRENA

Renewable energy has become dramatically cheaper to produce and store



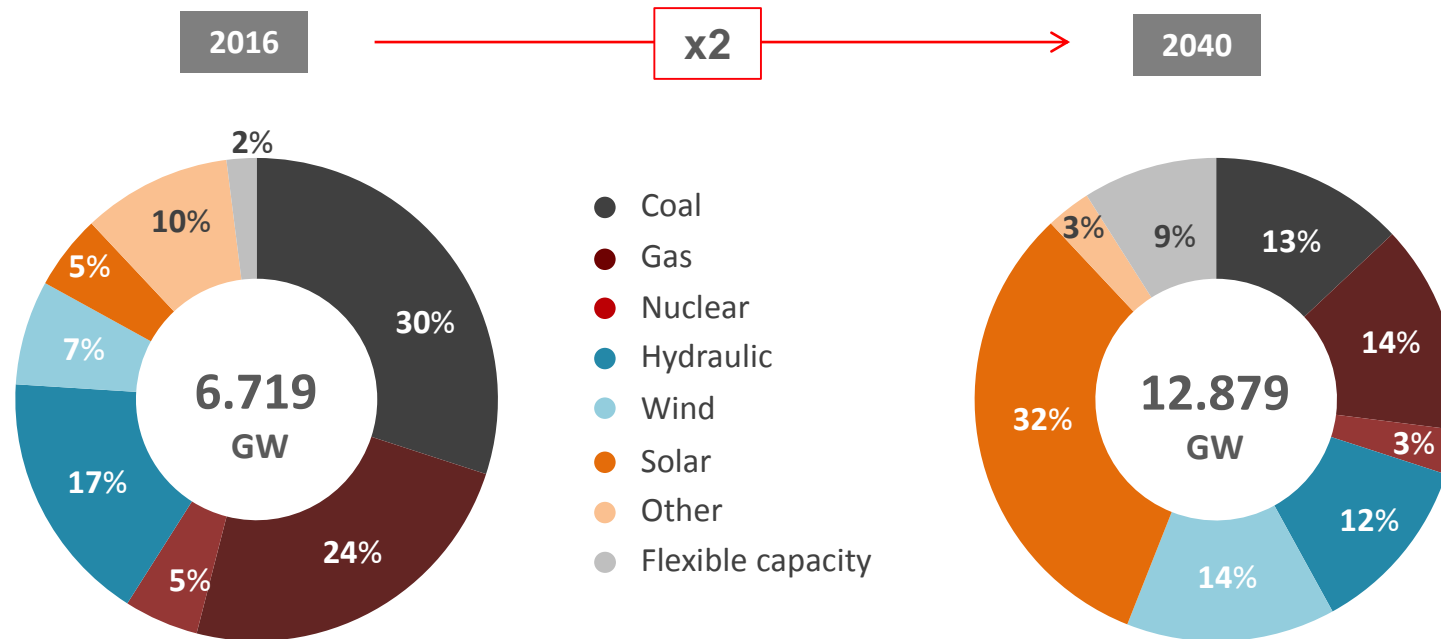
www.irena.org

IRENA

## DECARBONIZATION

### RENEWABLE ENERGY

HUGE EXPECTED INCREASE IN VOLUME WORLDWIDE



Source: Bloomberg New Energy Finance, 2017. Note: Flexible capacity includes power storage, demand response, and other potential resources.



## DECARBONIZATION

### RENEWABLE ENERGY

NEW BUSINESS MODELS: SELLING 100% RE TO FINAL CONSUMERS, SELLING ELECTRICITY IN THE WHOLESALERE MARKET

#### TENDERS

Competitive auctions almost in every country now

#### PPA WITH CORPORATE CLIENTS

Long term contracts with clients that need a competitive, guaranteed and renewable electricity supply, with which they will reduce their carbon footprint and have price certainty

#### RETAILING OF 100% RENEWABLE ELECTRICITY

Short term electricity contracts with renewable guarantee of origin, flexible, distributed delivery points.

#### WHOLESALERE MARKET

Participation in wholesale markets with renewable energy generation

Current or historic clients



## INNOVATION AND RESPONSIBILITY

STABLE COMPROMISE WITH THE COMMUNITY  
NEW TECHNOLOGY AND PROCEDURES DEVELOPMENT

### SOCIAL COMPROMISE

#### CREATION OF VALUE AT LOCAL LEVEL

Health, training, self-employment, culture and sports programs in Mexico, South Africa, Australia, etc.

#### BASIC COMMUNITY SERVICES

Photovoltaic systems for more than 46,000 users (12,000 households) in Peru and Mexico through the ACCIONA Microenergía foundation

#### EDUCATION FOR SUSTAINABILITY

Specific materials for global access through [www.sostenibilidad.com](http://www.sostenibilidad.com)

### TECHNOLOGICAL INNOVATION

Wind and Solar Storage

### INTEGRATION OF RE IN THE WHOLESALE MARKET

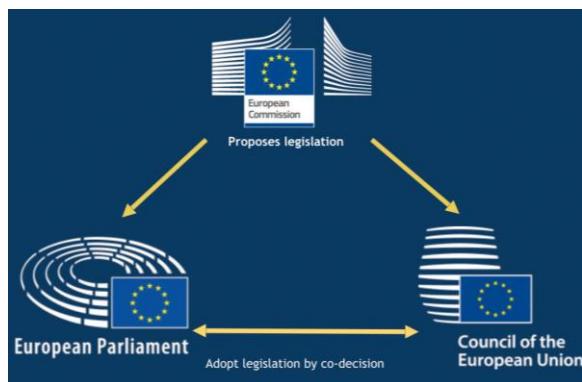
More than 4.000 MW enabled and authorized by REE to participate in ancillary services (3.737 MW wind and 700 MW hydro installations)



Storage + Wind Power

## EUROPE IS ADAPTING RULES TO FOLLOW THE PATH

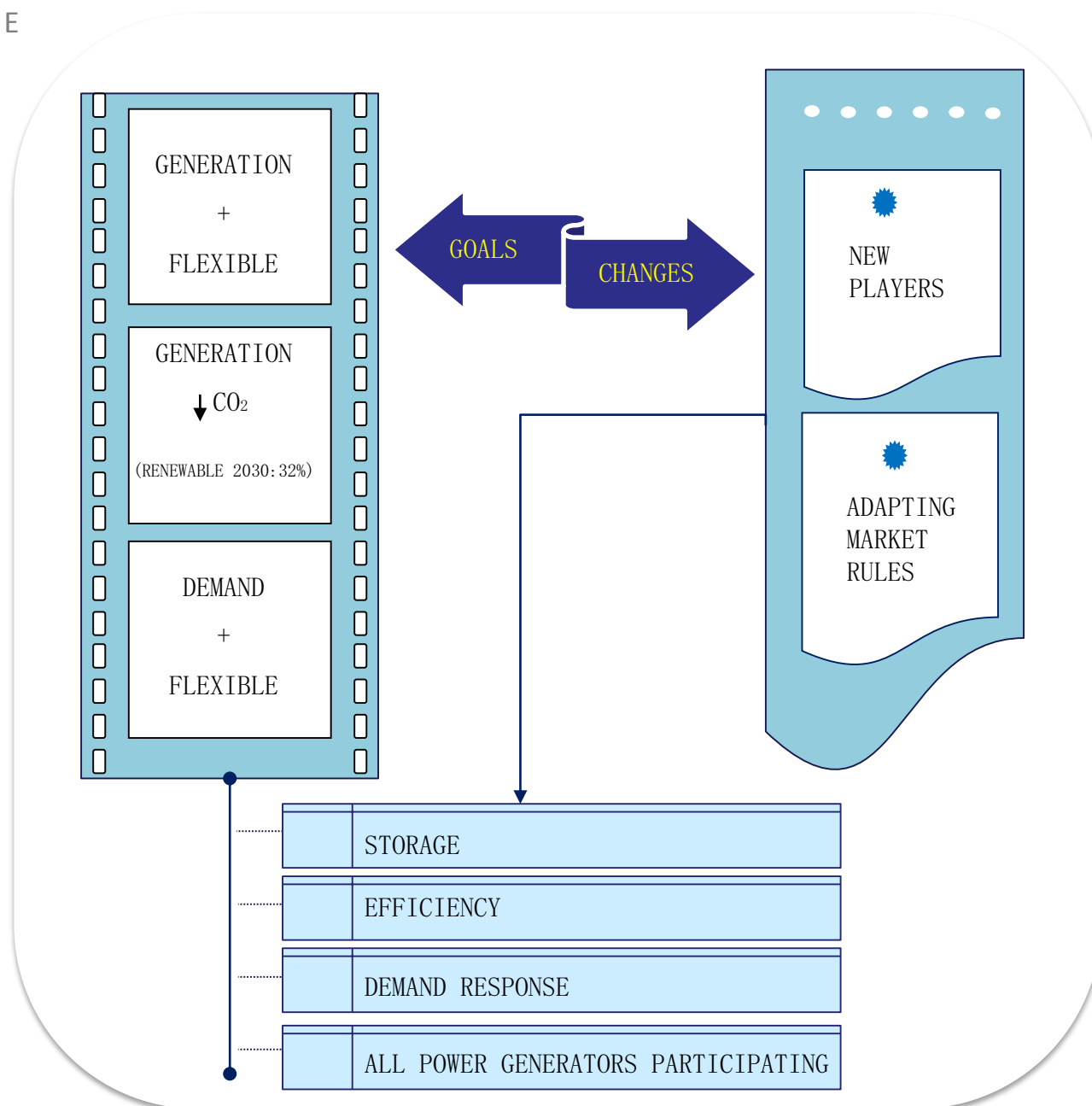
### EUROPE AND THE WINTER PACKAGE



The European Commission proposed in the Winter Package several Directives and Regulations about:

- Electricity Markets and Consumers
- Energy Efficiency
- Eco-design
- Renewable Energy
- Financing Energy
- Innovation
- Governance
- Transport...

That change the way Energy is managed



## KEY MOMENT



IPCC 1,5º REPORT  
6th October 2018

STRATEGY FOR LONG-TERM EU GREENHOUSE GAS EMISSIONS REDUCTION

COP24 KATOWICE

NATIONAL ENERGY AND CLIMATE  
PLANS  
WINTER PACKAGE DIRECTIVES AND  
REGULATION



# RENEWABLES ADAPTATION

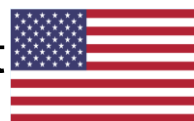
1. Opened Ancillary services to RES.



2. Opened Capacity markets to RES.



3. Storage Integration in the market



4. Demand Response integration in the market



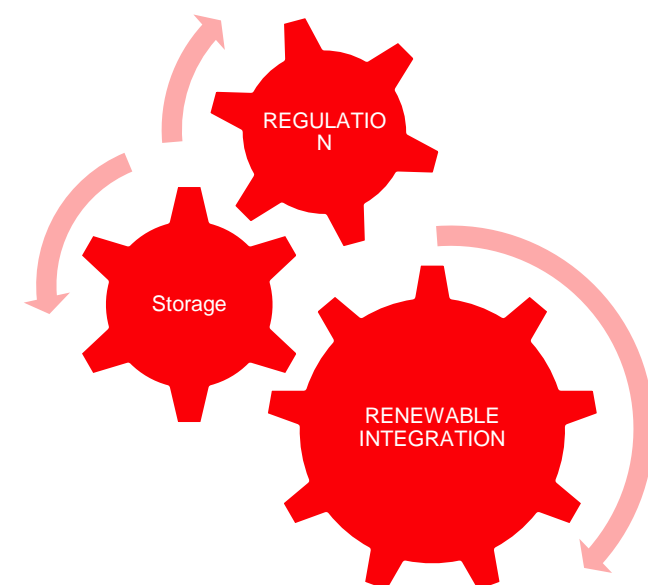
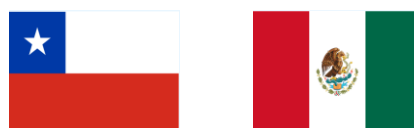
5. Distributed energy resources role in the market



6. Renewable Dispatch center.



7. Net-metering regulation.



# STORAGE



Testing Barasoain  
(Pamplona)

**EU: Winter Package. Commission proposes new rules for consumer centred clean energy transition.**  
Encourage the storage.

**US:**  
**CAPACITY:**  
2017:708 (MW) of power capacity.  
Representing 867 MWh of energy capacity, of large-scale battery storage capacity was in operation.

**REGULATION:**  
FERC Integrate Electricity Storage into Organized Markets. More effectively integrate electric storage resources and Aggregator into organized wholesale markets operated by regional TSOs and ISOs.

## Rule Changes to integrate storage:

- Flexible Ramping Product: MISO, CAISO
- Special type of reg for batteries PJM
- Fast Responding Regulation service ERCOT, CAISO, MISO
- Aggregator PJM

**Australia: Independent Review into the Future Security of the National Electricity Market. Preliminary Report..**

TeslaHornsedale Power Reserve Battery Energy System in SA.  
Lake Bonney under construction

**Rule Change:**  
**5 minutes settlement.**

**Policy Analysis to identify critical factors:**

Storage

Smart Grid

Demand response

Market Mechanism