

“A bet for hope: A green economy for sustainable development”

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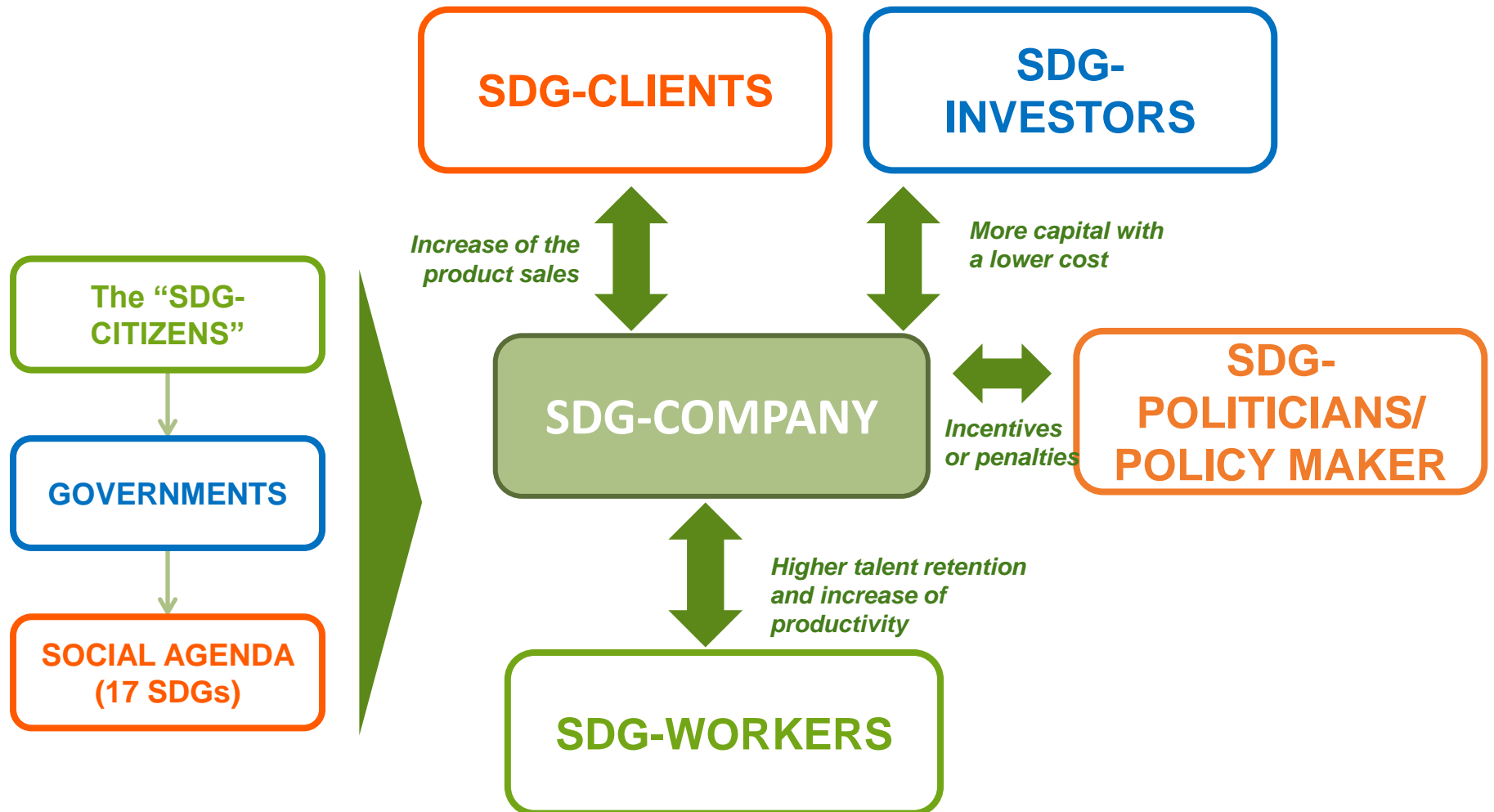
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1 Going beyond philanthropy . Michael Porter: *“Why business is needed to solve human problems?”*

2 Ordinary activity of the companies.
“Social Dividend” provides “Real/monetary Dividends”

The “SDG Company”: More revenues and less costs



Being a sustainable corporation makes (...among other good things...) economic sense

NEEDS for having successful “SDG-companies”

1

Efficient, coherent and predictable policies. Sharing the existence of the problem, the existence of solutions and the final point.
For instance,...a Global Law for environment!

External

2

Social awareness. Citizens well informed that introduce pressure to Administration and Companies

3

STEPS:

- a) Focus;
- b) Knowing the problem;
- c) Internalizing and converting its solution in the strategy as an opportunity;
- d) Public Commitments
- e) Disclosure for credibility
- f) Actions for commitments (investing, operating...)
- g) Helping in the awareness raising

Internal

1

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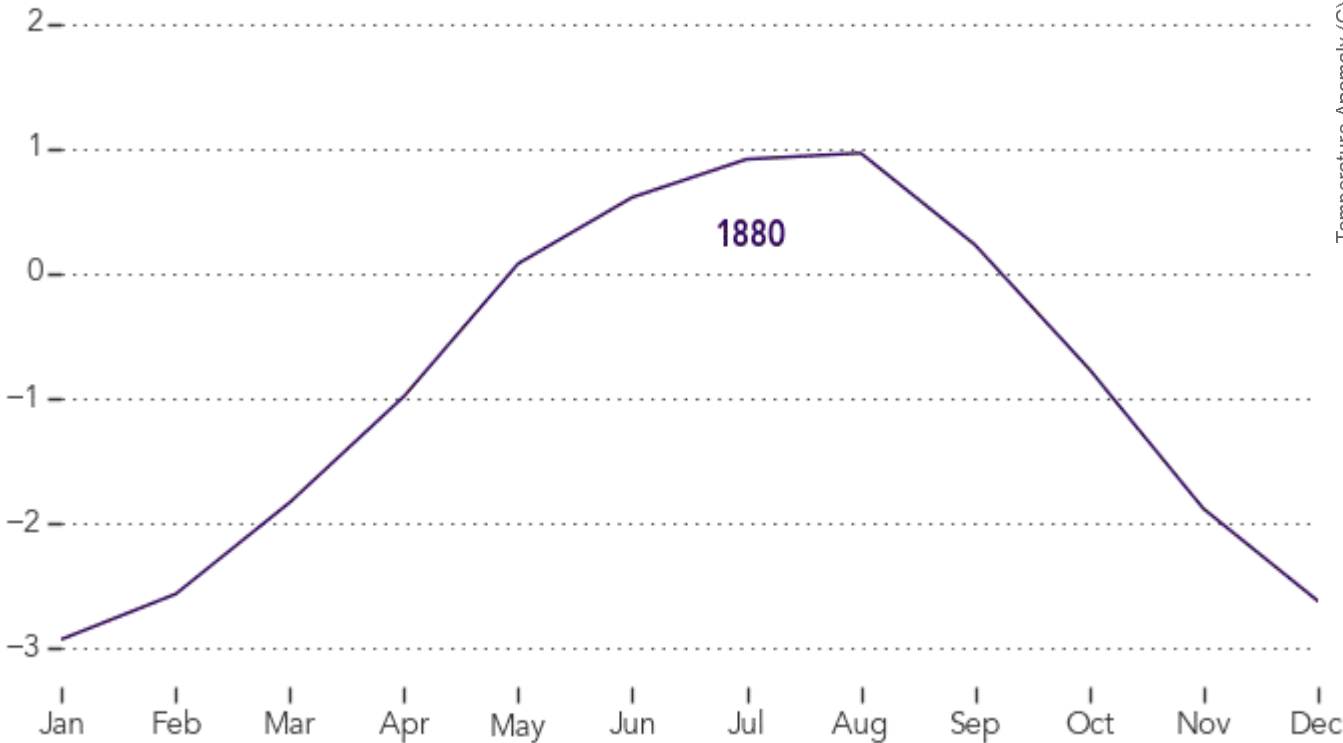
Let's see an example centered in Climate Change



Sharing the current situation: We really have a problem...

Temperature Anomaly (°C)

(Difference from 1880-2015 annual mean)

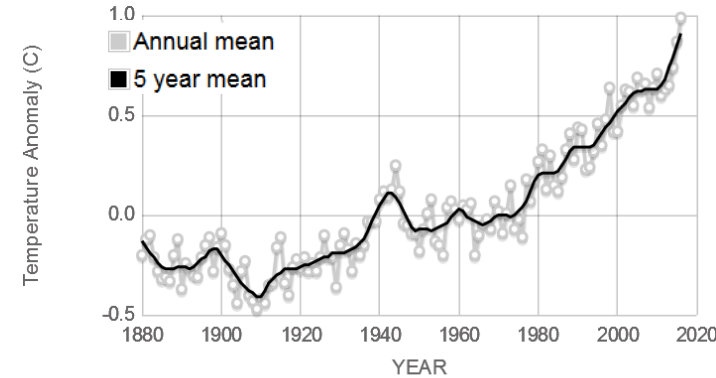


Source: NASA Earth Observatory chart by Joshua Stevens, based on data from the [NASA Goddard Institute for Space Studies](https://www.nasa.gov/goddard).

GLOBAL LAND-OCEAN TEMPERATURE INDEX

Data source: NASA's Goddard Institute for Space Studies (GISS).

Credit: NASA/GISS



Source: climate.nasa.gov

Climate Change is a reality that does not admit any doubt:

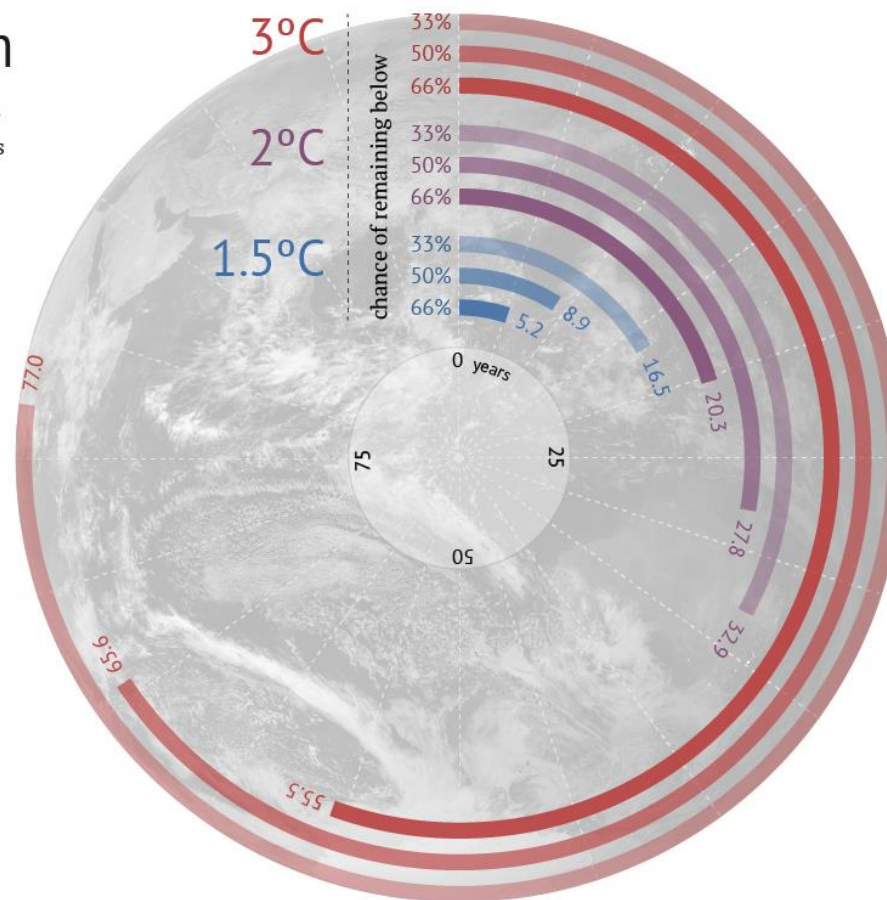
- IPCC and NASA reports
- Increase of natural disasters

...and is the impact of humans on climate change

The current model is not sustainable...and we need urgent measures

Carbon Countdown

How many years of current emissions would use up the IPCC's carbon budgets for different levels of warming?



CarbonBrief
CLEAR ON CLIMATE

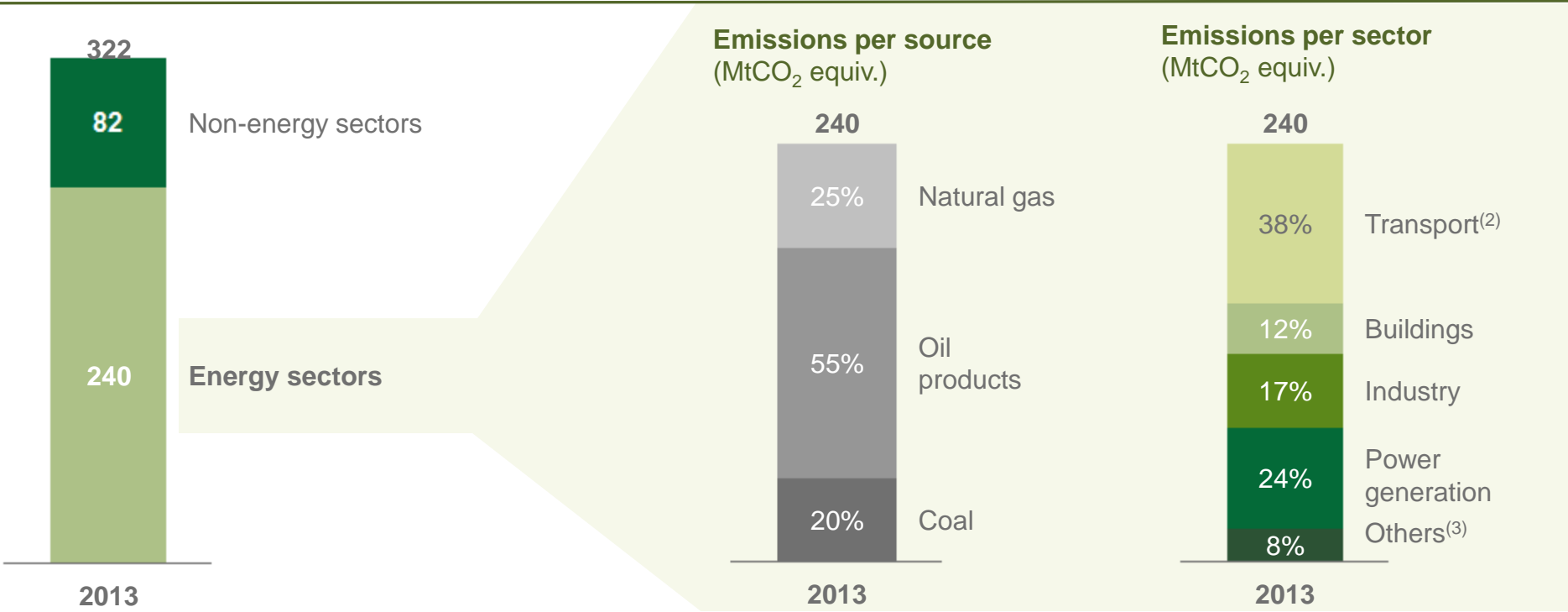
Photo credit: NASA Goddard Space Flight Center
Stopwatch icon: T-Kot/Shutterstock.com

Under current model and specific scenarios, we only have a little above 5 years to surpass 1.5°C and 20 years to surpass 2°C

An example: Spain has to meet Paris Agreement and EU climate goals.

Energy production and consumption in Spain represents more than 75% of the total emissions

GHG emissions in Spain 2013 by energy sector and energy source
(MtCO₂ equiv.)

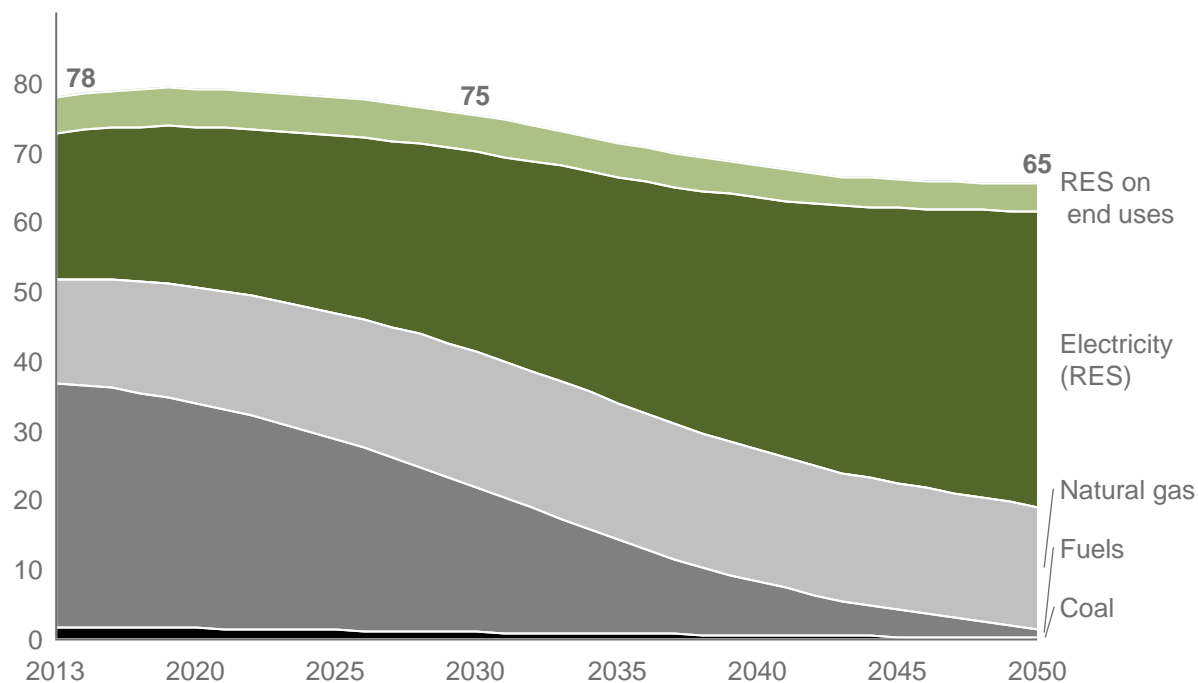


Change of production and consumption model.
Is this possible? Risk and opportunities? What is the alternative?

An scenario that fulfils climate goals should improve **energy efficiency**, substitute fossil fuels by **RES** in generation and by electric appliances in consumption...

Final energy consumption by energy source in a “Sustainable Scenario” that meets EU goals

(Mtoe)



Consumption: Efficiency

SUBSTITUTION OF FOSSIL FUEL BY ELECTRIFICATION

Transport: Electrification
~100% of light vehicle fleet and harbors and increase of rail and electric trucks in freight transport (~85%) by 2050.

Heating & Cooling in Buildings

Industrial processes

Production

POWER GENERATION WITH RENEWABLES

Near 100%

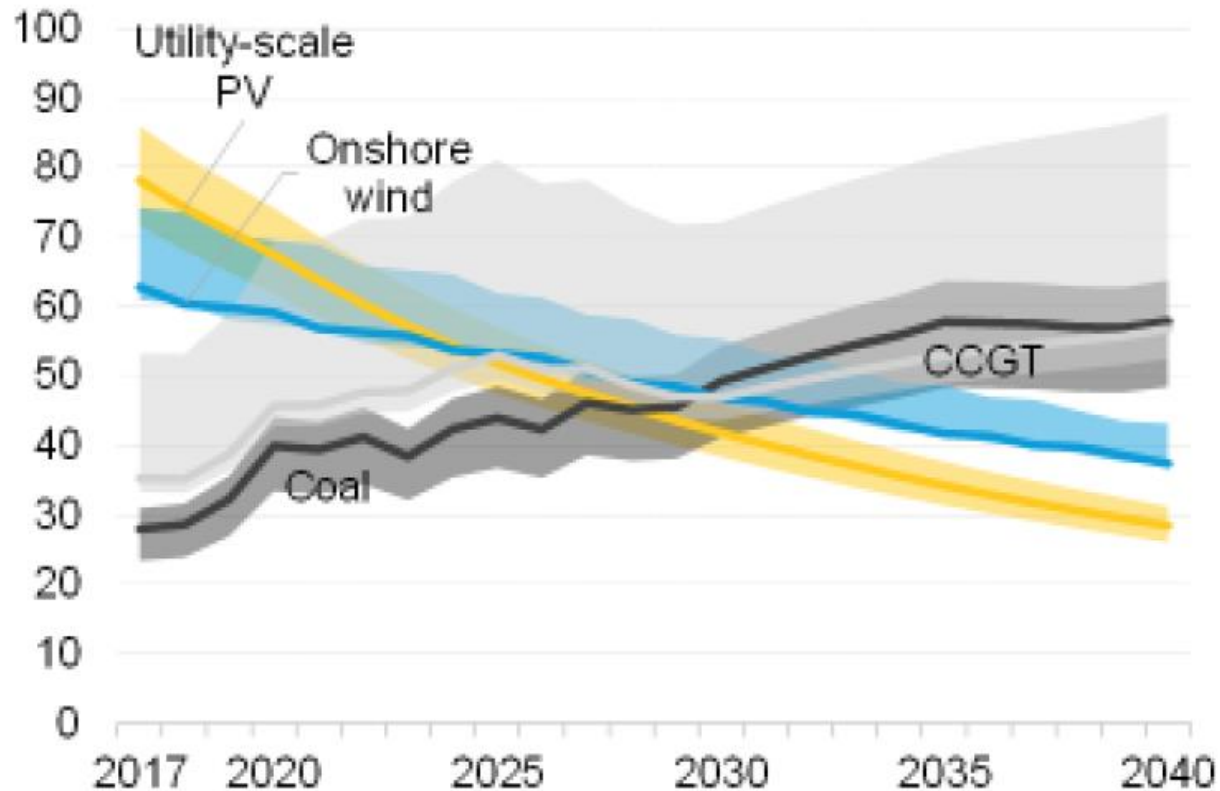
Emissions (MtCO₂)	~322	~310	~250	~88
Fulfilment of EU goals (↓ 80% 2050 vs 2005)		✓	✓	

90 **This scenario is feasible and brings many opportunities...**

Good news!!! We are in a technology breakthrough!

Germany solar PV and onshore wind LCOE vs. Gas marginal cost of generation

\$/MWh (real 2016)

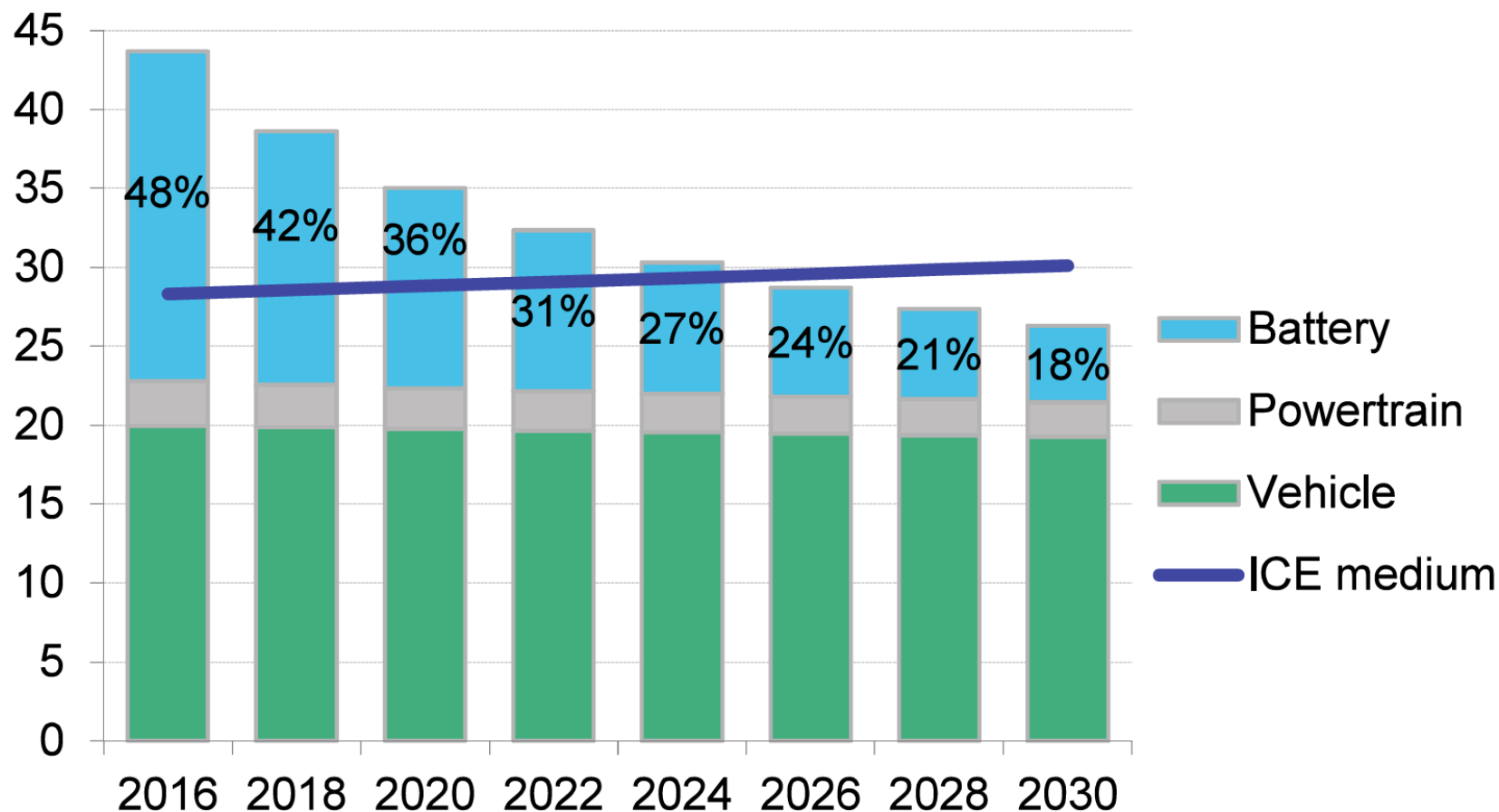


Source: Bloomberg New Energy Finance

Solar and Wind total costs are lower than fossil fuel variable cost

Cost comparison between electric and internal combustion vehicles, 2016 – 2030

US medium BEV price breakdown, ICE price and share of battery costs, 2016-30 (thousand 2016 \$ and %)

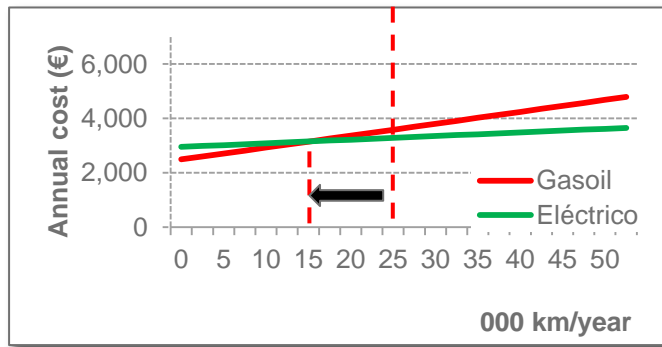
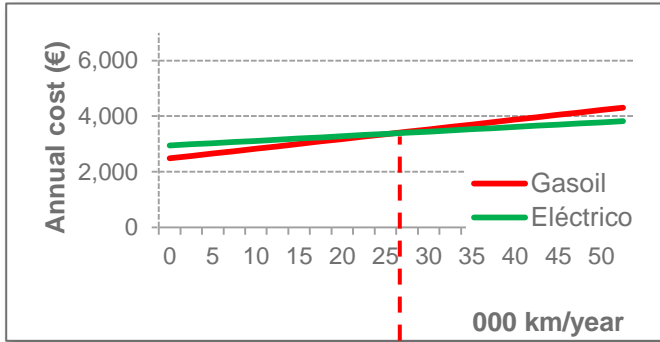


Source: Bloomberg New Energy Finance Note: Estimated pre-tax retail prices

BUT...it is not only a cost issue. The importance of policies

An example: scenarios of penetration of Electric Vehicles

Current situation
After policies reform



Electric Vehicle

Electricity tariff:

- Remove policy costs
- Environmental costs
- RES quota

Combustion Vehicle

- Environmental costs
- RES quota

Both

- 30 €/t CO2

EV competitiveness (and penetration) highly improves with a correct allocation of environmental costs

Sharing the final point: Positive Implications of a "Sustainable Scenario" to meet EU goals

Economy

No additional investments compared to alternative scenarios.

Investments in **modern and sustainable** assets

Positive impact on GDP and employment

The **average electricity tariff** would experience a **reduction**

Security of supply

RES Integration in the electricity system by 2030/2050: already possible with some backup support, use of interconnections, pumping units. In the **future** with **batteries, Demand Side Response**, and other technological advances

Energy dependence in Spain will be reduce to **40%** by 2050 (currently it is over 70%)

Reduction of vulnerability to price fuel shocks

Environment

GHG emissions reduction

Improvement of Energy Efficiency

Other pollutants: Substantial **improvements** in air **quality ...**

Reduction of health spending due to health and productivity increases

Sharing the final point: Positive Implications of a "Sustainable Scenario" to meet EU goals

An scenario of decarbonization is feasible

It brings a lot of opportunities. We need political will

Other alternative proposals must present the same checklist

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Internal

Let's see an example centered in climate change and in Iberdrola

SUSTAINABLE DEVELOPMENT GOALS



Focus mainly goals 7 and 13 (...not forgetting the remaining goals...)

7+13=17



SUSTAINABLE DEVELOPMENT GOAL 7

Ensure access to affordable, reliable, sustainable and modern energy for all



IBERDROLA INSTRUMENTS:

- Business activity (smart grids, energy efficiency, renewable energy resources...).
- “Electricity for all” program. Three action lines
 - **Social action and philanthropic activities**
 - **Projects launched by governments**
 - Supporting **innovative business initiatives** at the base of the pyramid.

Commitments: IBERDROLA's target is to bring by the year 2020 electricity to 4.000.000 people without access to this source of energy in emerging and developing countries.

SUSTAINABLE DEVELOPMENT GOAL 13

Take urgent action to combat climate change and its impacts*



IBERDROLA INSTRUMENTS:

- Business activity (smart grids, energy efficiency, renewable energy resources...).

IBERDROLA's target: to reduce its specific worldwide CO₂ emissions from 2007 a 30% in 2020, 50% in 2030 and to reach a carbon-neutral electricity supply by the year 2050.

Actions: Leaders in clean energies

Iberdrola, **leader in renewable energies** with an installed capacity of **28,300 MW¹** and **1st wind energy producer worldwide**

Large investor in renewable energies worldwide: USD 32 Bn in renewable assets and close to additional USD 12 Bn planned to 2020



Manzana wind farm, US

Wind energy Ranking

... # 1 Worldwide

... # 1 Europe

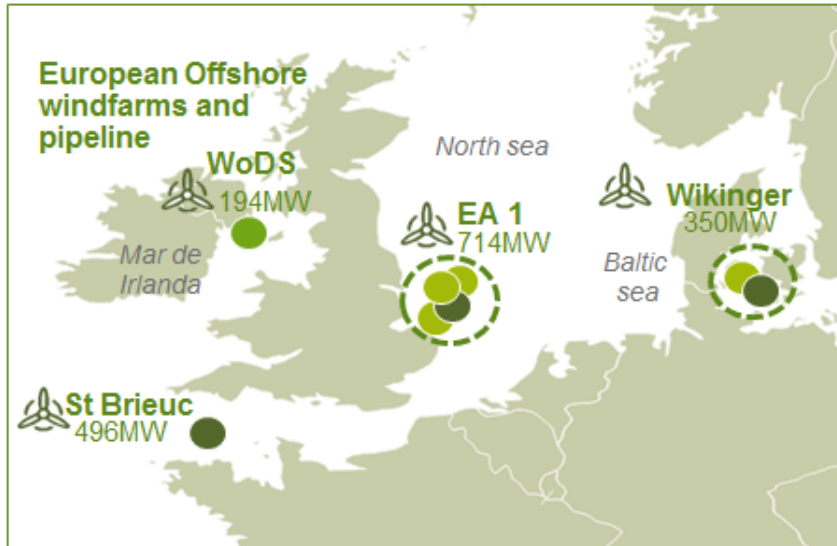
... # 1 United Kingdom

... # 1 Spain

... # 3 US

1. Including hydro

Strong expansion in offshore wind



West of Duddon Sands, United Kingdom



Wikingen, Germany

New opportunities in US:

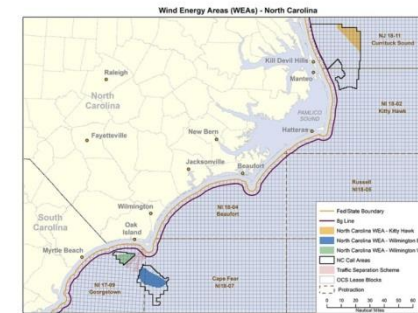
Vineyard (Massachusetts): up to 1,600 MW
Kitty Hawk (North Carolina): up to 2,500 MW

● In operation (359 MW)

● Future Projects: Until 3.6GW

● Under construction (1,359 MW)

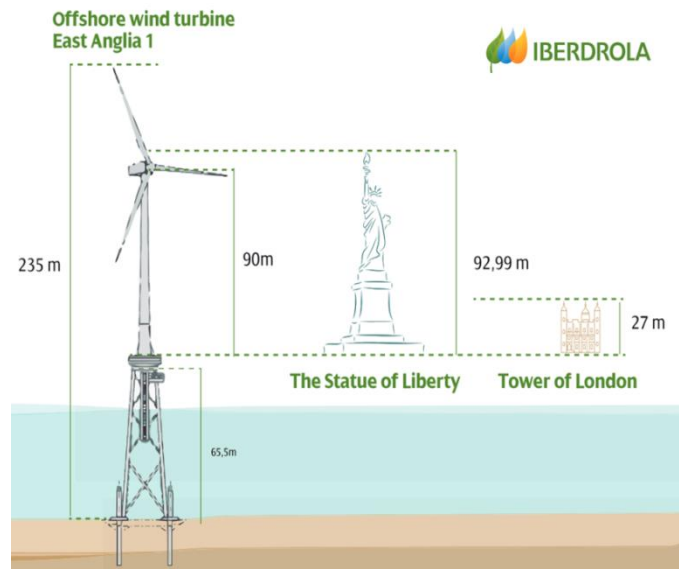
Installed capacity in Europe:
1,260 MW by 2020
1,754 MW by 2022



Kitty Hawk, North Carolina (US)

Over 1,750 MW by 2022 in Europe and developing further projects in US

Actions: Helping others to transit to the green economy



Wikinger



Torre Eiffel

Peso total: 2.300 tn

Molino eólico marino - Wikinger

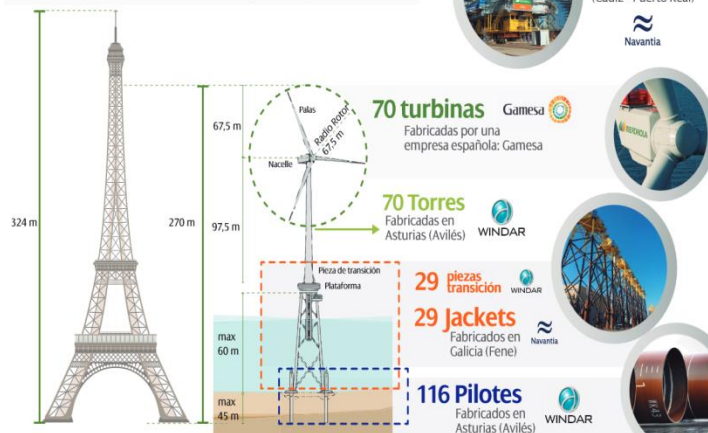
Peso total: 2.000 tn

560 tn (palotes) + 690 tn (jackets) + 750 tn (turbina)

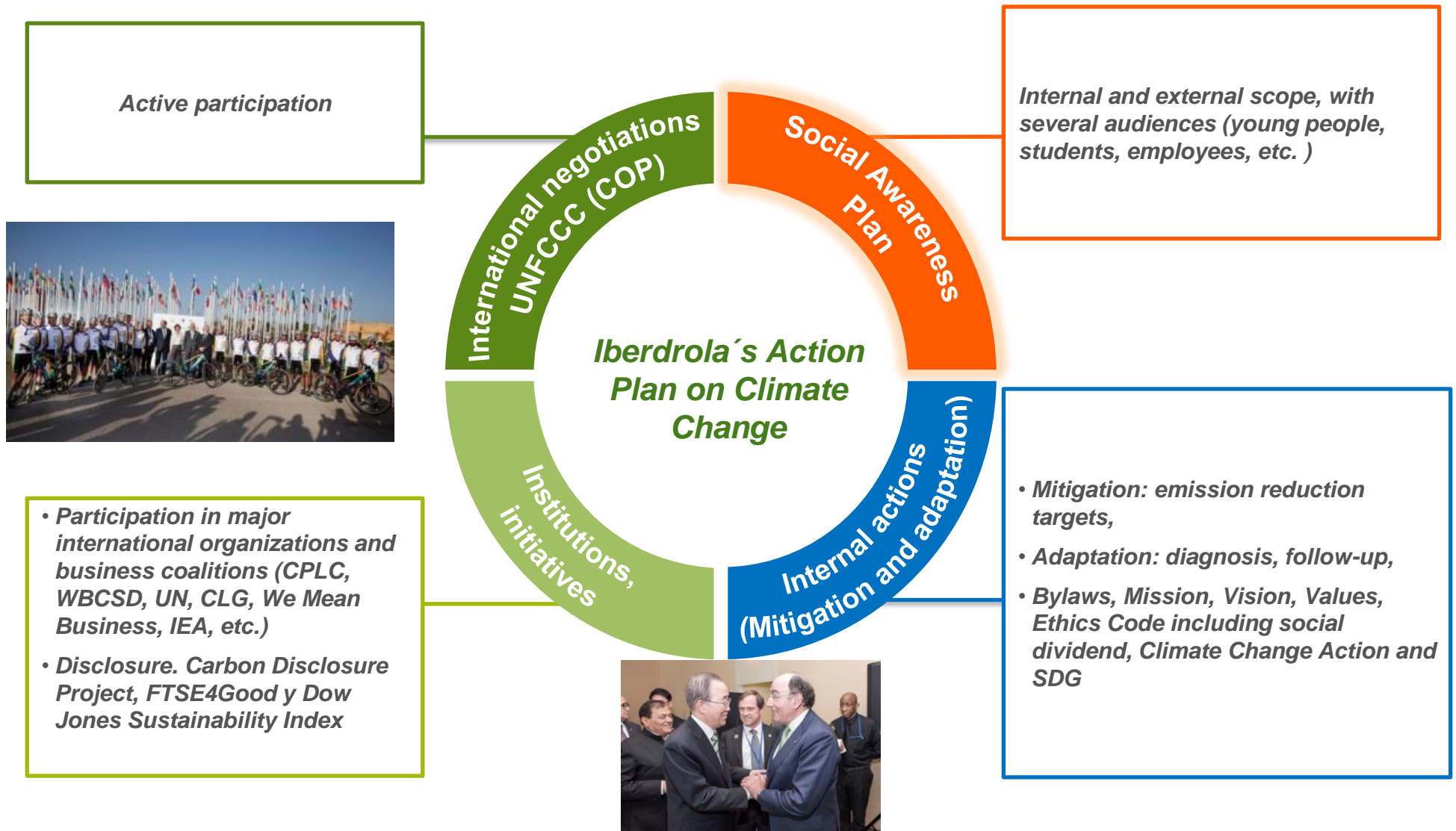


Subestación

Fabricada en Andalucía (Cádiz - Puerto Real)

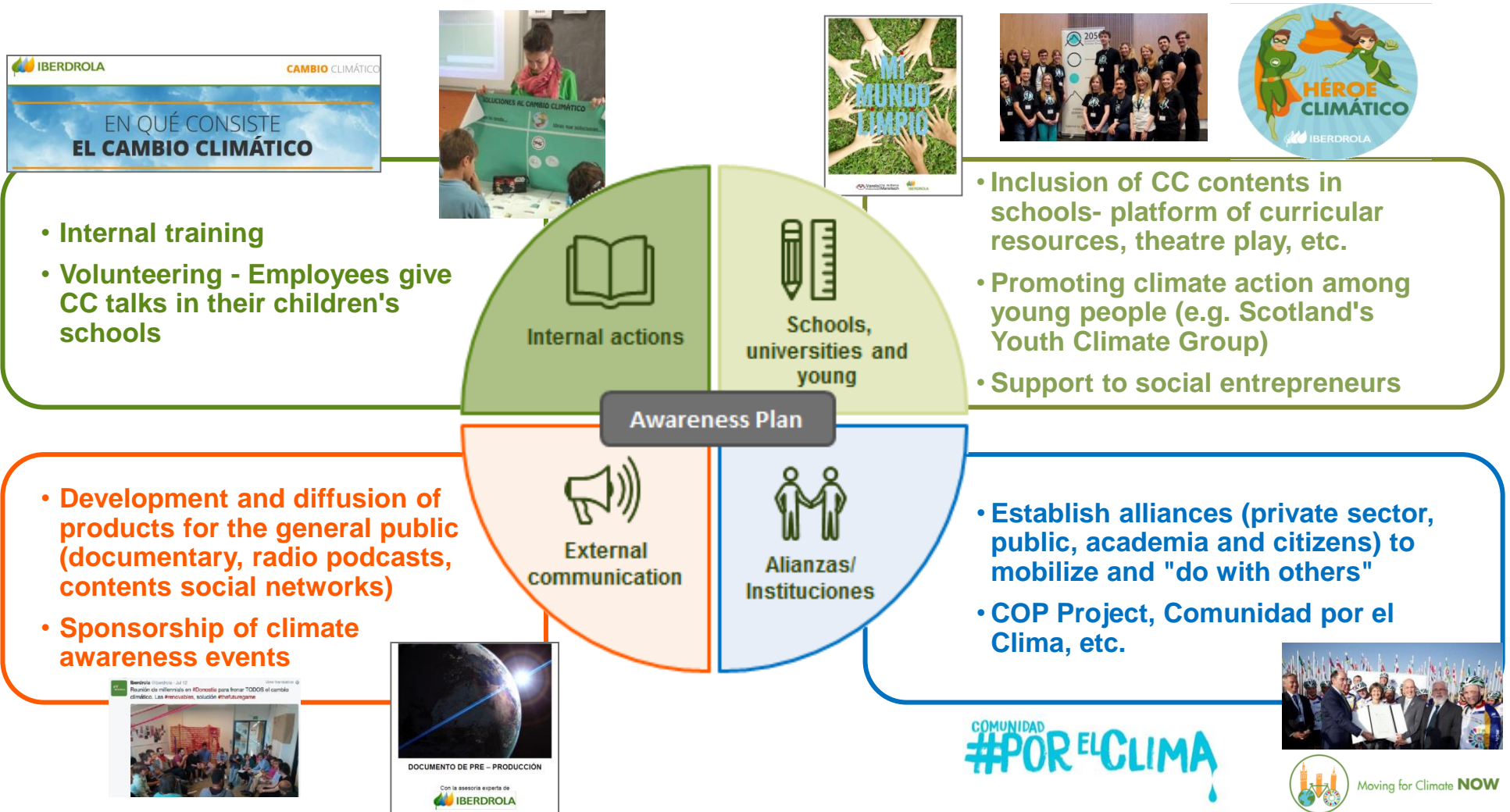


Helping in transparency and in the Awareness Raising: Action Plan on Climate Change

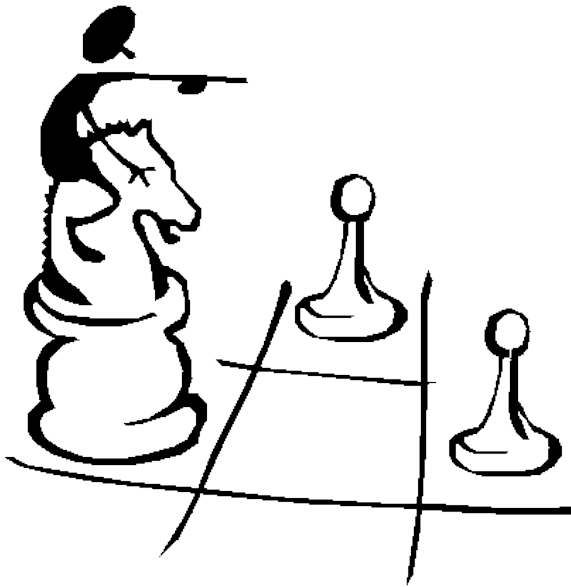


Social Awareness Plan on Climate Change

We have defined 4 lines of action:



Updating the strategy taken 16 years ago



The decision making process from a long term investor perspective

Paris Agreement

Almost 200 countries implementing climate policies

Clean and competitive technology available

CO₂ signal

"Polluter pays" principle

IPCC results reinforced by unprecedented climate events



Financial sector

Assessment of decarbonization strategies (mitigation and adaptation), stranded assets, disclosure...

Involvement of civil society

(Religions, social agents, citizens...)

Involvement of cities, regions, international organizations, corporations...

Well below 2°C

Technology transfer and funding sources to vulnerable collectives

*Business and social positioning.
Social dividend*

Air quality as additional leverage

Local authorities agility

We update and maintain the strategy of fighting against climate change as main driver of the company and source of opportunities

As with decarbonization, and regarding general environment protection, we need to promote SDG companies through...

...an efficient and predictable legal framework at different levels, with clear signals (“non-correct environmental behaviour pays”)

...SDG citizens as the needed engine to change our production and consumption model

A Global Pact for the Environment it's a great idea!

The problem is huge. We need ALL stakeholders, with ALL the levers and with ALL the ambition



Thank you very much!

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