

# OUTLOOK 2018 / 2022

London / 21 February



IBERDROLA

Iberdrola, “utility of the future”:

**Building the foundations for growth in the next decade**

## Xabier Viteri

Renewable Business Managing Director

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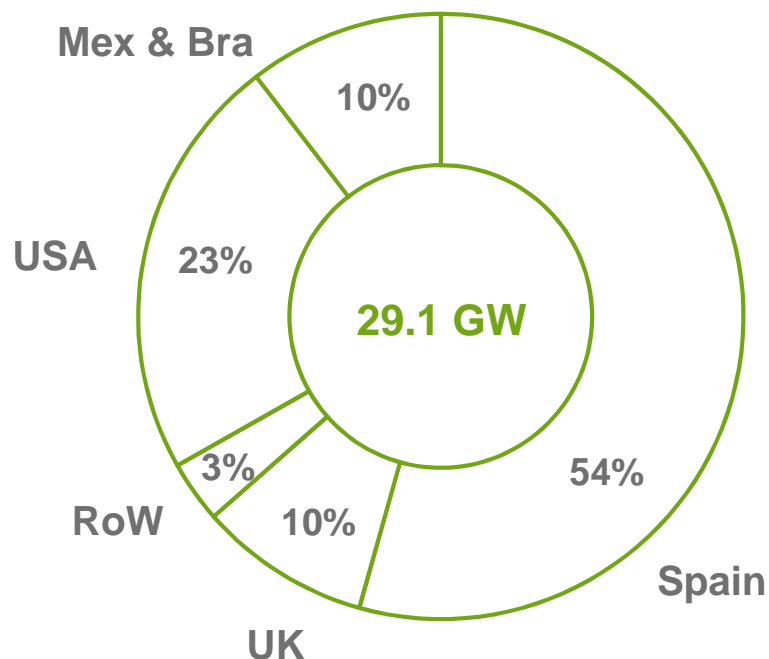
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# Overall Strategy

## Current Situation Overview

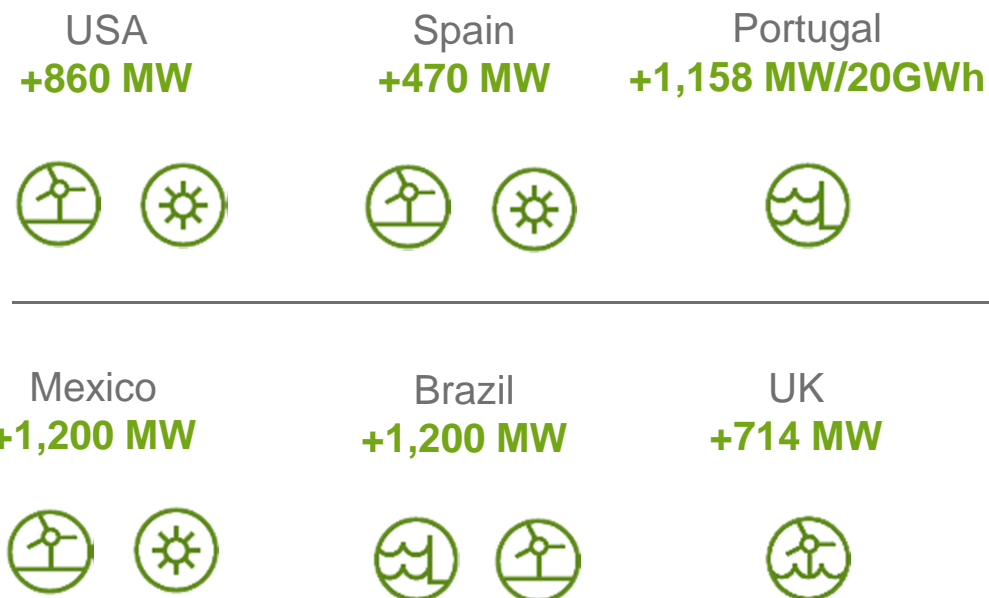
### Iberdrola: consolidated leading position in the renewable sector...

Capacity installed\*



\*Hydro 44% of total capacity

Capacity & storage under construction



...with more than **29.1 GW** installed

and over **5.6 GW** under construction

**As of today we are already 13% above the 2016-2020 growth Plan commitments**

## Strategic pillars

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### **Profitable growth**

Significant growth in core markets and expanding Iberdrola's capabilities across further geographies

### **Operational excellence**

Best in class through Iberdrola's O&M model  
Asset life cycle management through digitalization

### **Customer at the centre**

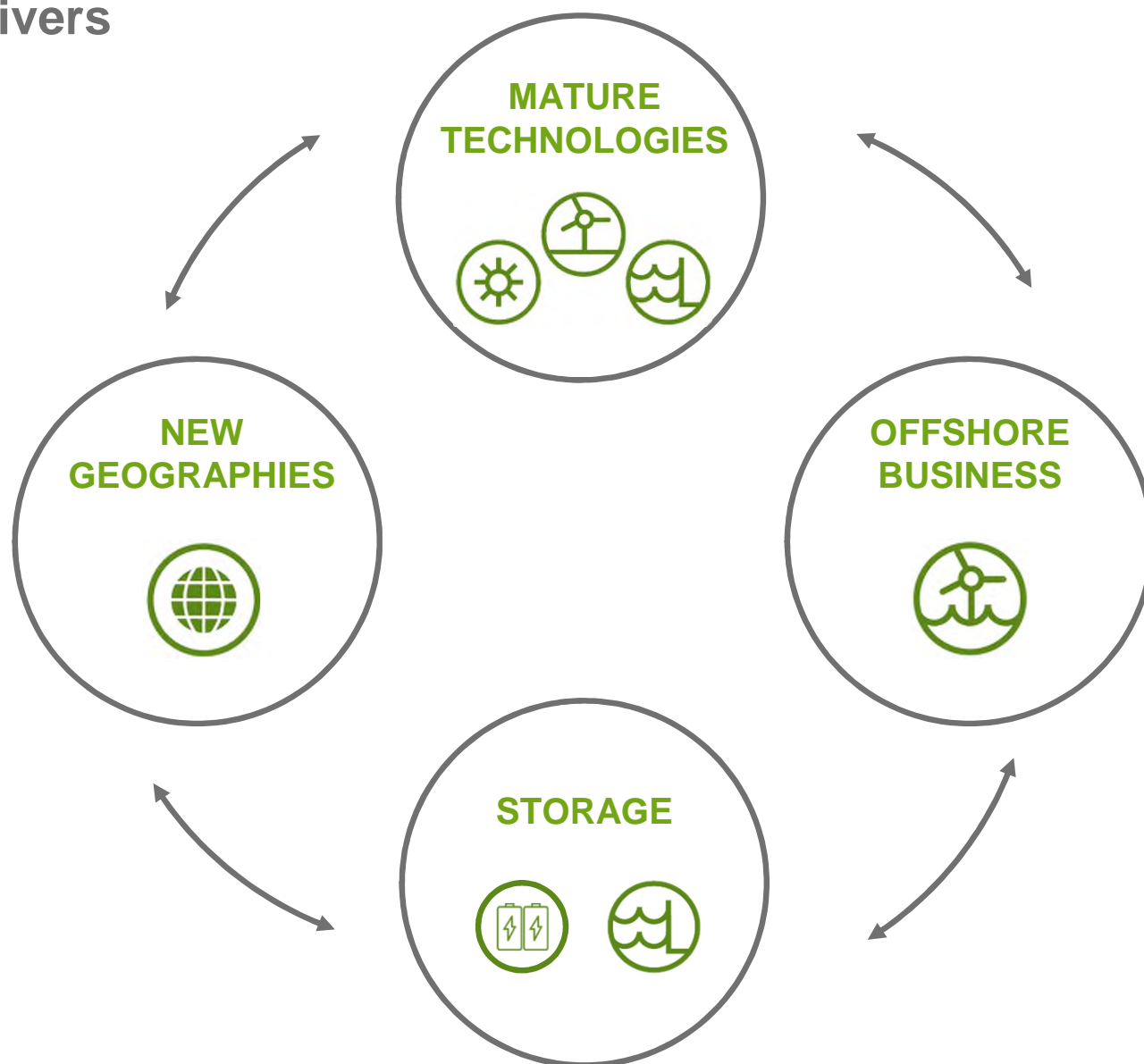
State of the art products to meet customers' needs

### **Capital Optimisation**

Opportunity to co-invest in projects to improve competitiveness

# 2018 – 2022 Plan: Profitable growth

## Growth key drivers





### Mature renewable technologies: consolidating leadership in core areas with attractive returns

Strategy focus on **auction processes** with **acceptable levels of return...**

#### **Brazil**

**295 MW** awarded in December 2017 in Leilão A-6 at the **highest price**.

...and taking advantage of **Iberdrola's capabilities** to achieve attractive IRRs when auction prices do not provide **reasonable returns**

#### **Spain Mexico Portugal**

**844 MW** of wind and solar PV and **1,158 MW** of hydro & storage being constructed under **internal schemes**.

### Wind Offshore: selective growth...

- 3 key hubs in quality areas

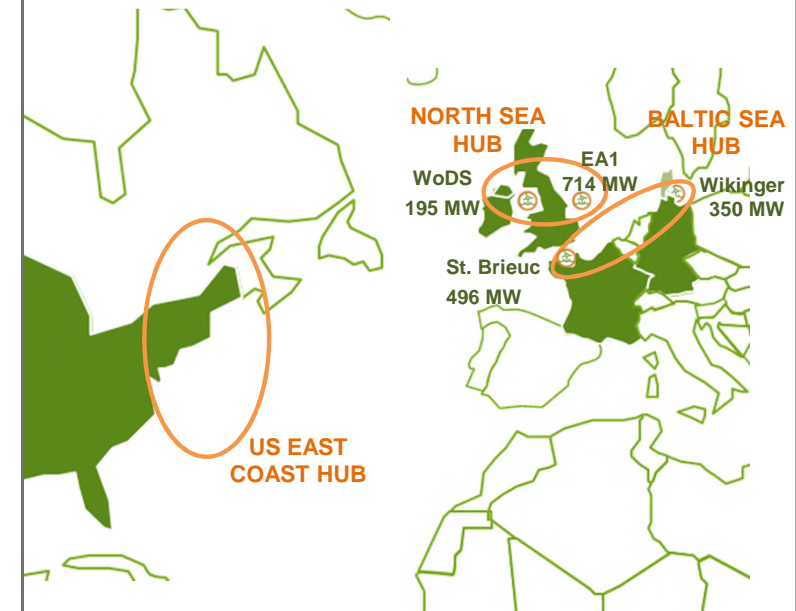
#### Project pipeline by hubs

Baltic Sea: 900 MW

North Sea: 2,800 MW

US East Coast: 4,000 MW

- Strong and extensive pipeline: over 7.5 GW



... consolidating as core business

## Profitable growth

### Successful experience in already materialized projects

### Operating wind offshore facilities with high EBITDA/MW ratio

West of Duddon Sands - 389 MW (50%IBR)

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**Location:** Irish Sea, UK

**WTG:** 108 turbines (Siemens)

**Investment:** GBP 1,250 M



WEST OF DUDDON SANDS, UK

Wikinger - 350 MW

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**Location:** Baltic Sea, Germany

**WTG:** 70 turbines (Siemens Gamesa)

**Investment:** EUR 1,400 M

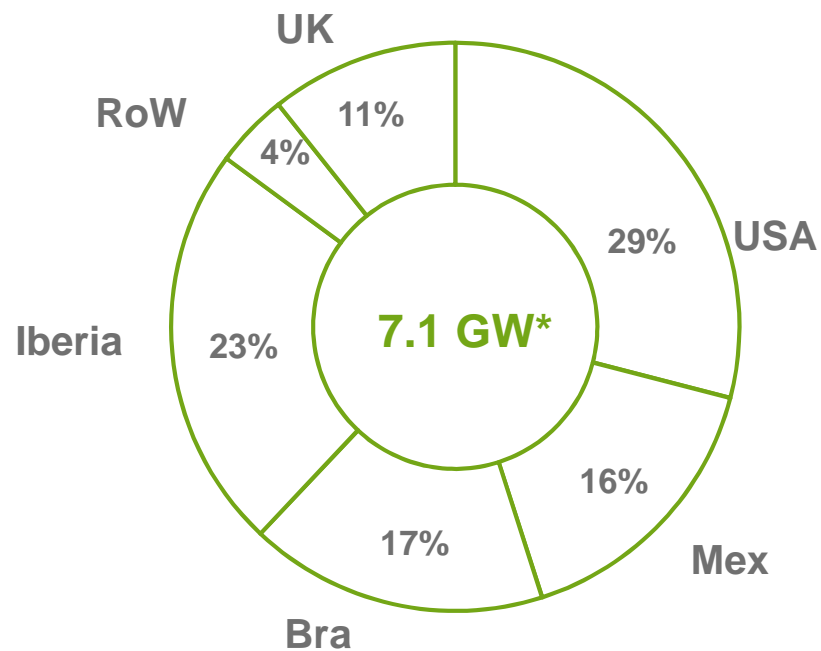


WIKINGER, Germany

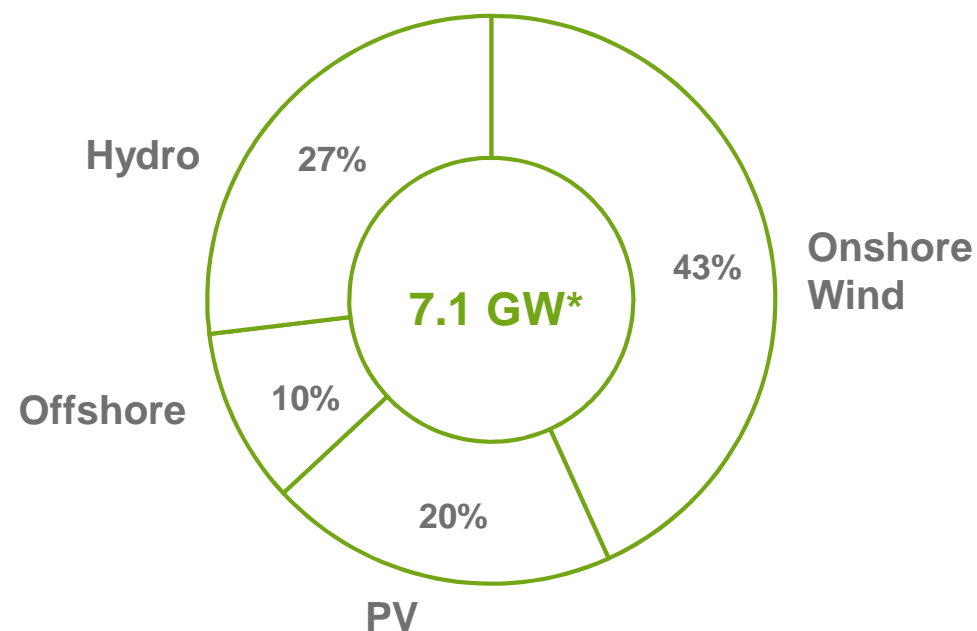
## Profitable growth

... increasing capacity by 24% to reach a total of 36.2 GW by 2022

2018-2022 Plan Capacity installed (GW) by geography



2018-2022 Plan Capacity installed (GW) by technology

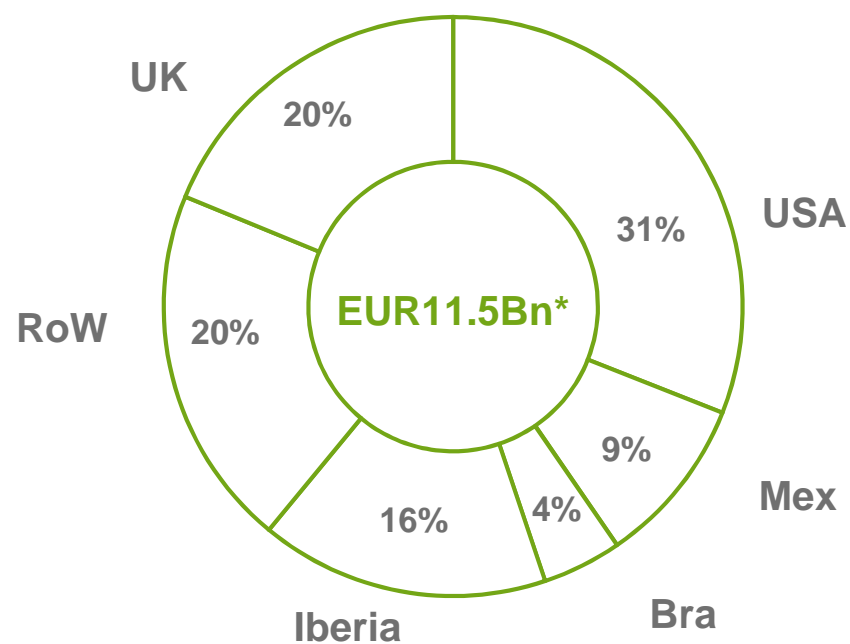


\* Includes Belo Monte, that is consolidated via the equity method

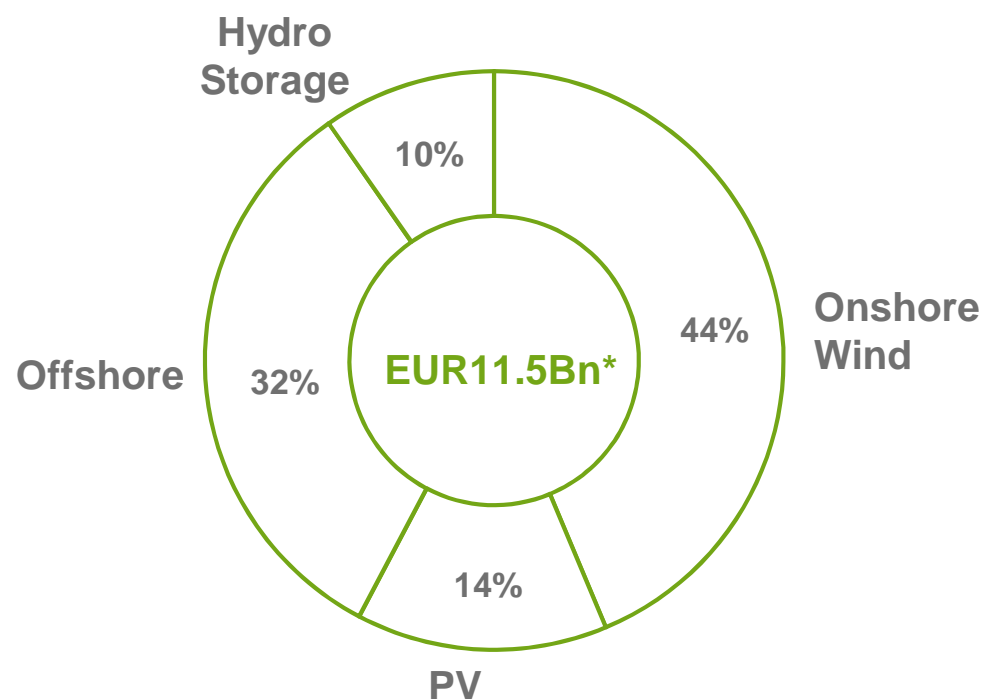
## Profitable growth

... investing EUR 11.5 Bn during the period, 90% allocated to growth

2018-2022 Investments (EUR Bn) by geography



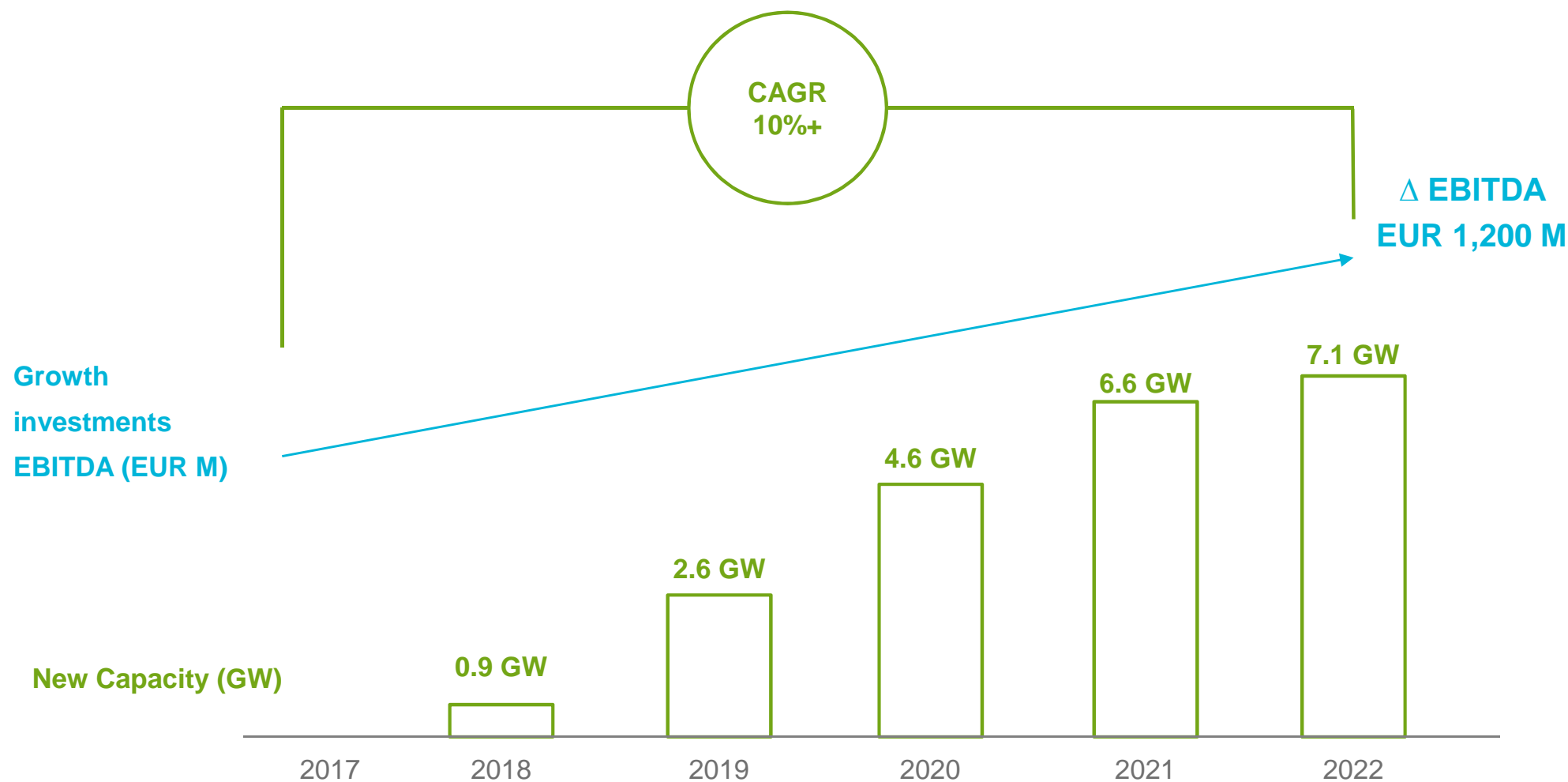
2018-2022 Investments (EUR Bn) by technology



\* EUR 10.2 Bn growth investment

## Profitable growth

... to increase EBITDA by EUR 1,200 M in 2022



# 2018 – 2022 Plan: Operational Excellence



Digital Innovation



**CAPEX OPTIMISATION**



**GROSS MARGIN IMPROVEMENT**



**O&M COSTS REDUCTION**

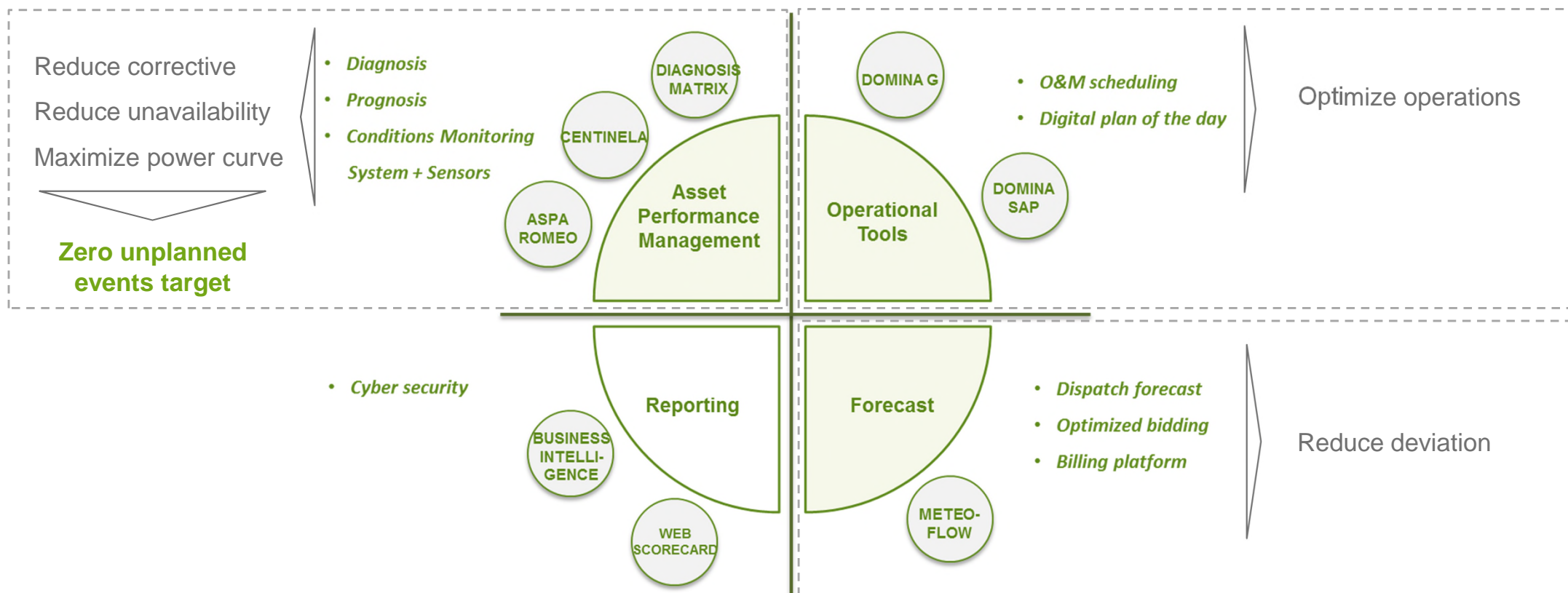


Operational efficiency





## Asset life cycle management through digitalization...



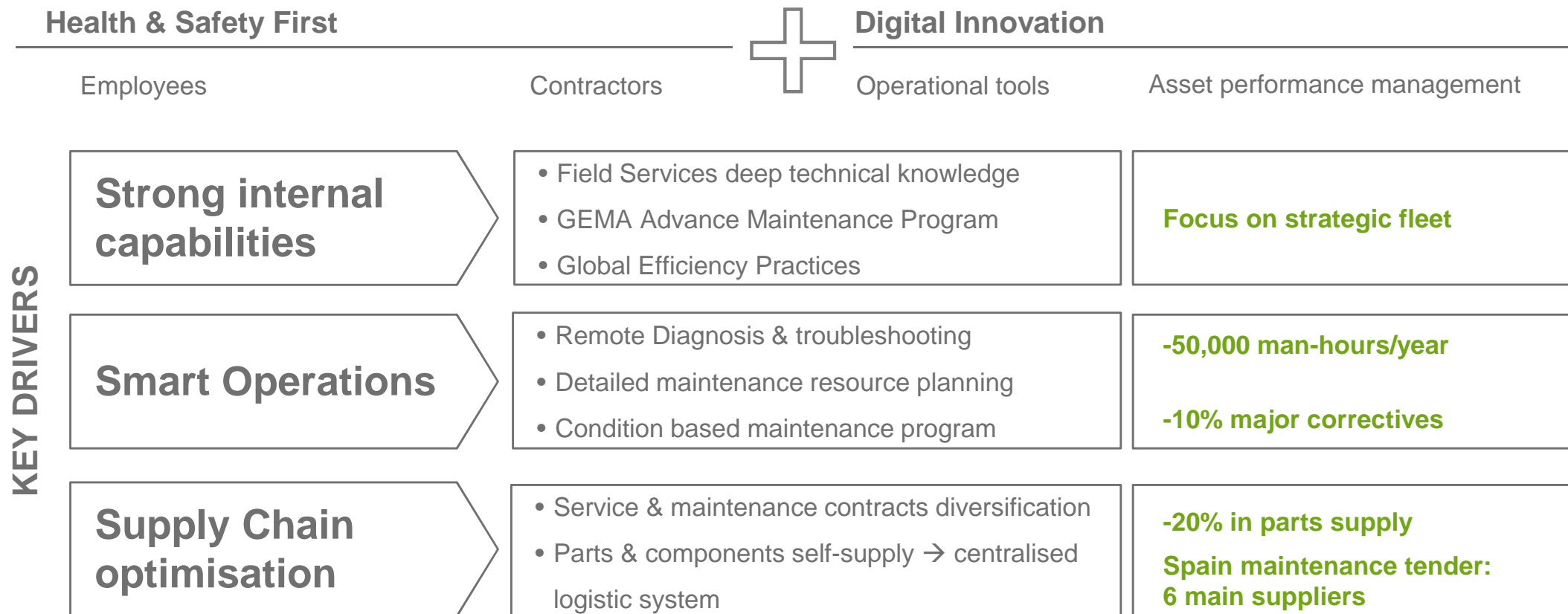
... maximizing revenues

Initiatives will allow EBITDA cumulative increase of EUR 130 M during the period



Continue being O&M best in class demands...

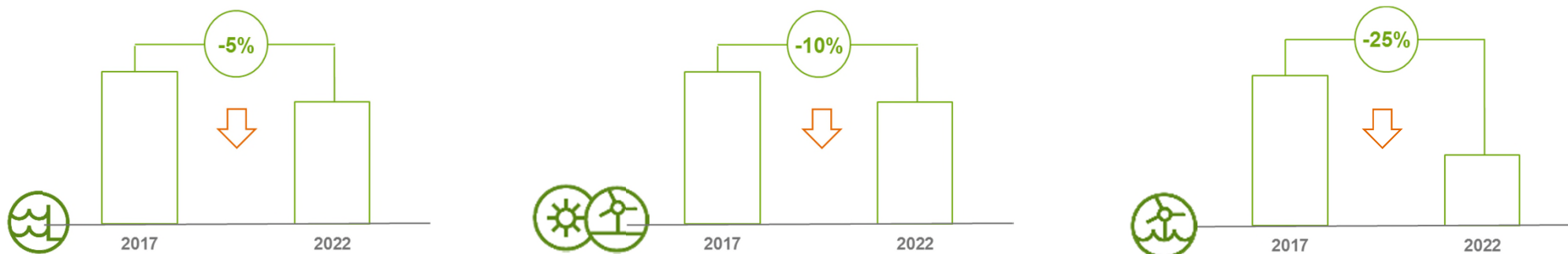
## DELIVERING an ADVANCED O&M MODEL



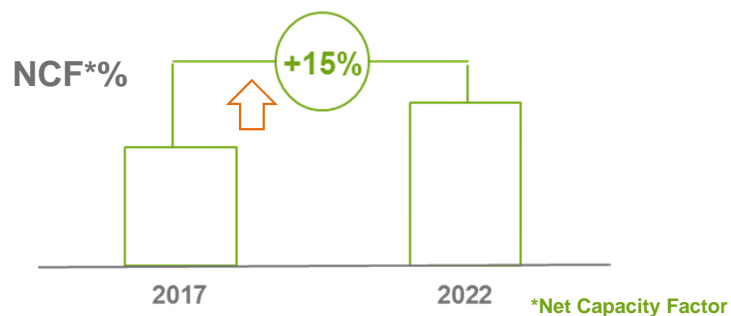
**A Global Plan that will allow EUR 70 M of cumulative savings during the period**

# Operational excellence

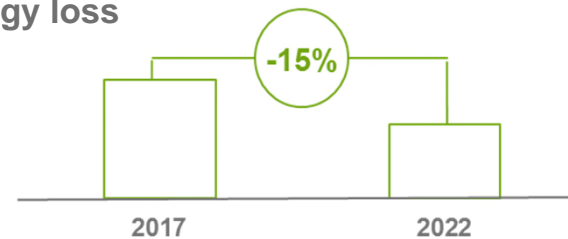
## Capex optimization



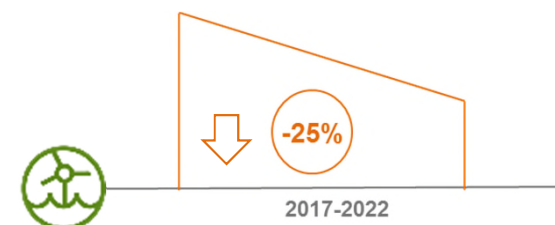
## Gross margin improvement



## Energy loss



## O&M cost reduction



**EUR 200 M\* of accumulated efficiency gains through digitalization and O&M best practices**

\*~EUR 50 M in 2022

# 2018 – 2022 Plan: Customer at the centre

## Service portfolio built-up...



**OPTIMIZING INTEGRATION**



**STORAGE & HYBRID TECHNOLOGIES**

**... around market and customer needs**



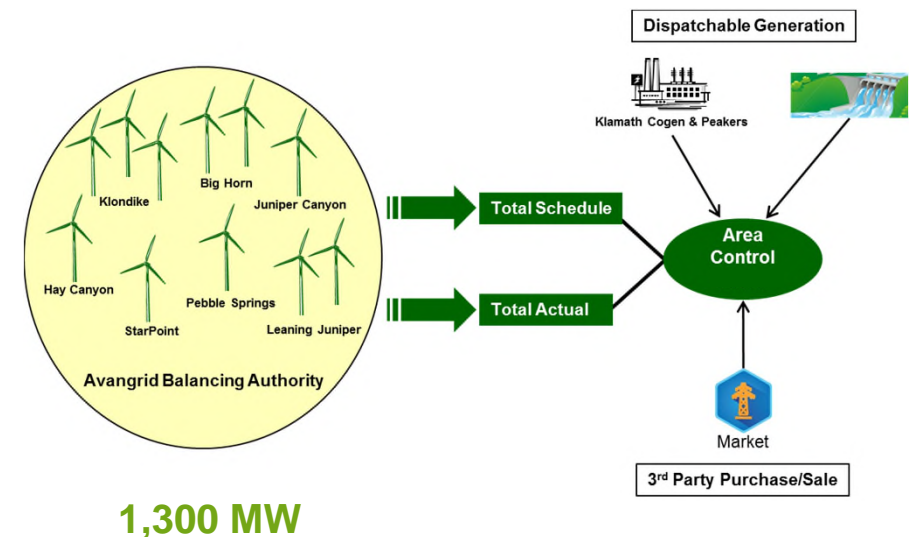
## Self Supply. Balancing Authority

### Long term certainty: time & energy

- Improved Operational Flexibility
- Long term integration cost certainty
- Services to customers, 3rd parties & load serving entities
- **1,300 MW of wind balanced**

Backed-up by:

- Owned Combined Cycle Gas
- Slice of third party Hydroelectric Power



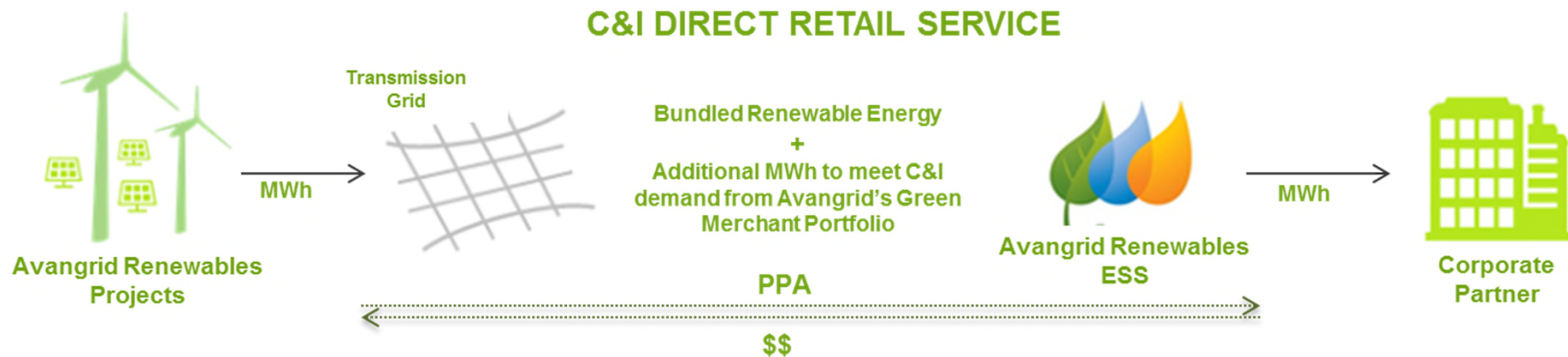


## Ancillary & Energy Services

### Ancillary Services

- Provision of synthetic inertia
- Islanding
- Black Start

### Energy Services: Customized “GREEN” solutions





## Massive storage (~24 hours)

### Hydro pumped storage

- Total installed capacity of 4.5 GW
- Cost efficient → 1/3 of battery systems' cost
- Flexible system: additional services to the grid
- Regulates excess energy



3.192 MW  
70 GWh



440 MW  
10 GWh



880 MW  
20 GWh

(COD in 2021)



Cortes la Muela / SPAIN

## Iberdrola leader with 100,000 MWh storage





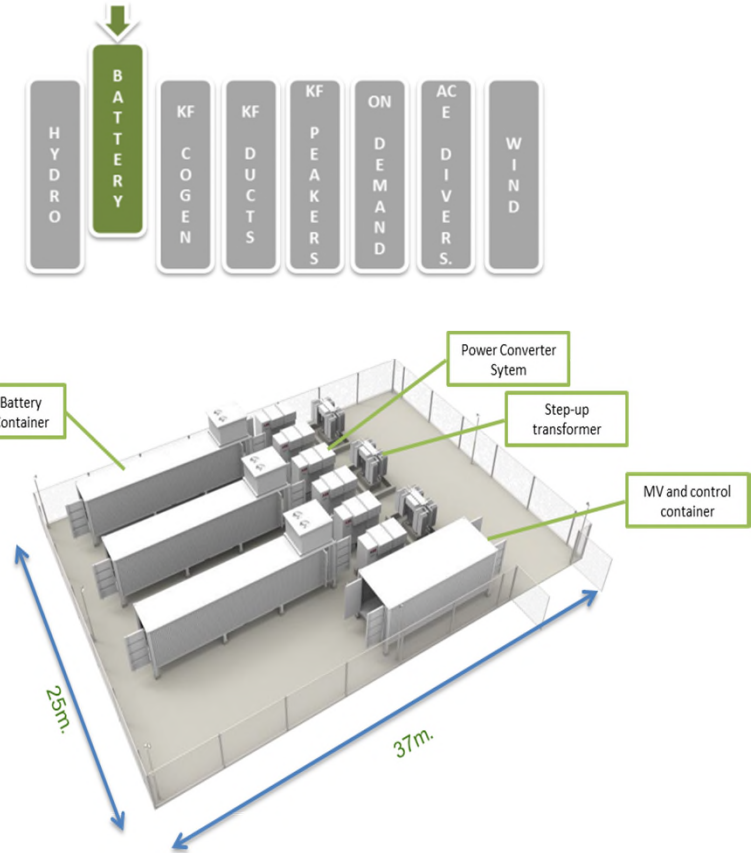
## Battery Energy Systems (<4 hours)

### Battery System within the US Balancing Authority

- Lithium-ion energy storage system operating as part of the Balancing Authority in US NW
- Replaces more expensive technologies

### 10 MW | 2-hour Battery to be implemented:

- Improves the reliability of the electrical grid
- Provides additional services to the system
- Reduces risk of non-compliance in the BA



Battery Energy Storage System design in Klamath / USA

# Customer at the centre – Reliability of services & Value added products



## Hybrid products

Firmed shaped products designed to meet the customers' needs

### Storage to optimize renewable production

- Moves solar generation to higher priced hours
- Opportunities in certain areas of the US → over 200 MW



**Incremental cost of adding batteries to a standard PV plant more than covered by PPA price**

### Combined product: wind + PV

- Firmed shaped product in growing demand
- 800 MW favourable returns**

PV plants	MW PV	Batt size (MW/MWh)
PV plant 1	44	11/44
PV plant 2	120	30/120
PV plant 3	46	5/20

Wind plants	MW Wind	MW PV
Wind farm 1	304	20
Wind farm 2	63	32
Wind farm 3	200	101
Wind farm 4	189	44
Wind farm 5	150	75

# 2018 – 2022 Plan: Capital Optimisation

# Capital Optimisation – Partnering Green

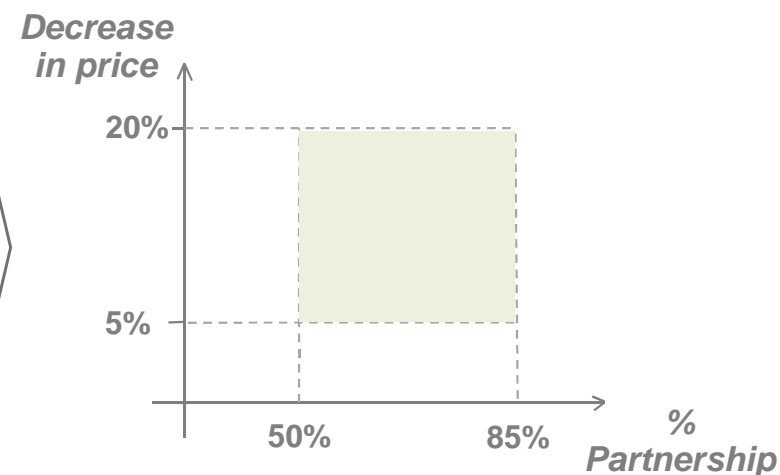
## + Experience in partnering today

Country	Capacity (MW)	% partnership
Spain	1,800	5% – 50%
US	800	50%
UK	400	50%
ROW	700	25% - 50%

## + Strong and diversified pipeline

Spain 2 GW  
US 12 GW  
UK 4 GW  
ROW 7 GW

**~25 GW**



**Partnering in selected projects increases competitiveness through access to lower cost of capital**

# 2018-2022 Plan: Flagship projects

# Flagship projects

## Alto Tâmega hydro power and storage complex



### Largest hydroelectric project in the history of Portugal

- The project will give Iberdrola a 15% market share in Portugal
- Construction of 3 reservoirs: Gouvães (880 MW), Daivões (118 MW) and Alto Tâmega (160 MW).

Location: **North Portugal**

Installed capacity: **1,158 MW**

Storage capacity: **20 GWh**

Investment: **EUR 1,500 M**



Pennstock CH Gouvães, ALTO TÁMEGA / Portugal

# Flagship projects

## East Anglia ONE offshore windfarm

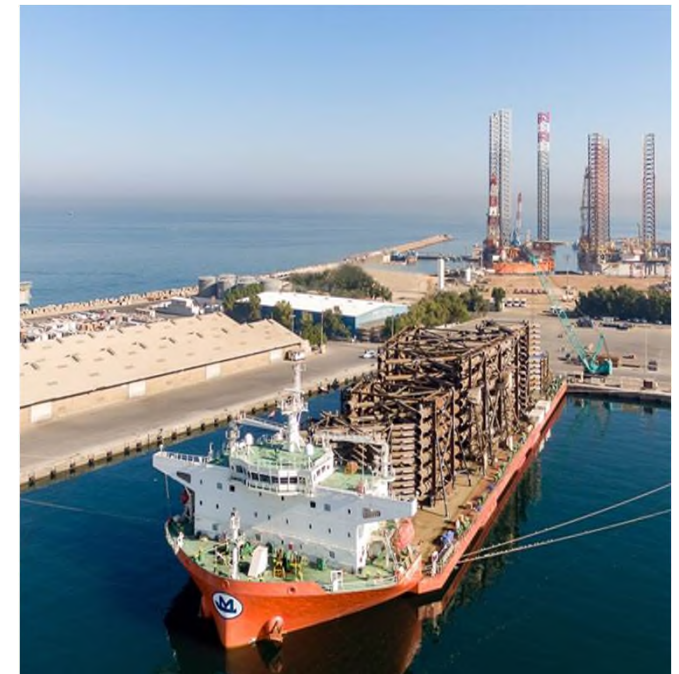
### First Round-3 Project awarded with a CfD

- Engineering work and supplier activities ongoing
- Construction on going
- First output expected during 2019

Location: **North Sea, UK**

Capacity: **714 MW - 102 x 7 MW Siemens WTG**

Investment: **GBP 2.5 Bn**



Mega Caravan Load Out / UAE



# Flagship projects

## Santiago Solar PV plant

### PV facility in Mexico coming on line in 2018

- Technology: monocrystalline module, single axis tracking

Location: **San Luis Potosí, MEXICO**

Extension: **750 hectares**

Capacity: **232 MW**







Solar plant and substation at Santiago PV / Mexico



# 2018 – 2022 Plan: Conclusions

## Conclusions

-   Leading core markets and continue developing storage capacity
-  Leveraging on internal capabilities to achieve attractive returns
-  Developing offshore business centered in 3 high quality hubs

**Growth investments of EUR 10.2 Bn to install 7.1 GW\* and 20 GWh storage, generating an additional EBITDA of EUR 1.2 Bn by 2022**

EUR 50 M of efficiencies contribution in 2022

**Reaching a total EBITDA of EUR 3.1 – 3.3 Bn at the end of the period**

\* Includes Belo Monte, that is consolidated via the equity method