

# ENCAVIS

**Virtual site visit and status update of the Spanish solar parks Talayuela and La Cabrera including the impact of CoVid-19 epidemic on the progress of construction**

Encavis AG, Online Capital Markets Day 2020, [www.encavis.de](http://www.encavis.de), April 22, 2020

THE Pan-European platform  
for renewables . . .





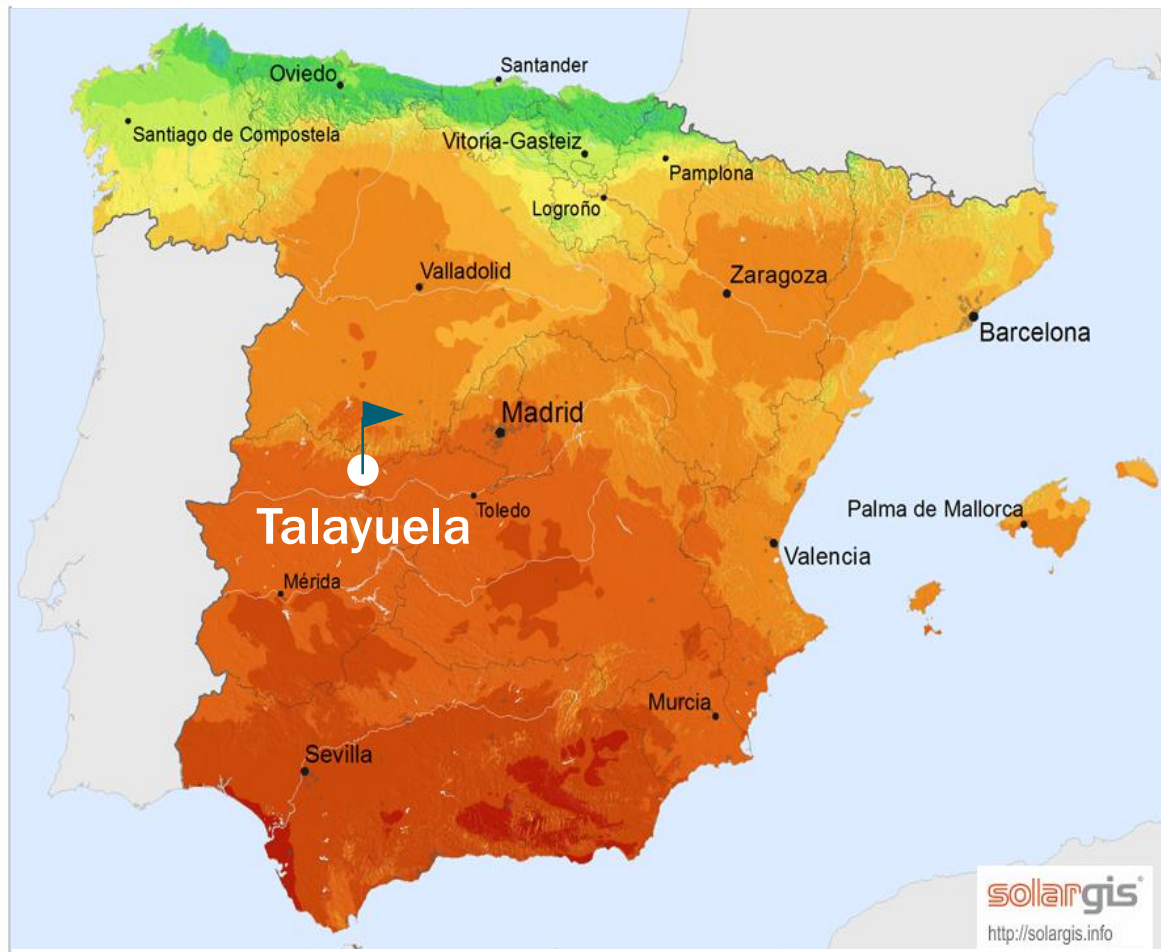
Virtual site visit  
at Talayuela  
and La Cabrera

... definitely focussed:

Progress of construction  
and status update at  
Talayuela and La Cabrera



## Market entry in Spanish PPA market with 300 MW PV park “Talayuela” in realization



### Highlights:

- > Generation capacity: 300 MW
- > Total investment volume in EUR: ~225 m
- > Equity/project debt finance level: 43:57
- > Full loan repayment within PPA runtime of 10 years
- > Co-investor: Solarcentury with ~20%
- > Long-term PPA contract with fixed price for 10 years
- > Revenues 1<sup>st</sup> year of full operation in EUR: ~25 m
- > Post-tax IRR: >8%
- > Connected to the grid late 2020

## High voltage section of the PV plant at Talayuela (end of February 2020)



Concrete foundation of a pylon



Substation area

## Ramming activities



## Status of the construction of the PV plant as of March 25<sup>th</sup>, 2020

27% of the entire plant is completed

Civil works and site preparation:

- a) 100% of compound areas & facilities
- b) 80% of roads (approx.)

18% of the High Voltage section (substation and transmission line) is built up

29% of the ramming task (approx.) of the photovoltaic section is completed across the entire plant

Main components and products delivered to site as of April 17<sup>th</sup>, 2020:

- a) 29% of PV modules (additional 26% are on vessels and 7% are in EU)
- b) 35% of trackers
- c) 40% of cables (approx.)
- d) 81% of inverters

Planned Key Dates	Required as per EPC contract
Grid Connection	11/23/2020
Date for Commissioning	11/30/2020
Date for Completion	01/25/2021

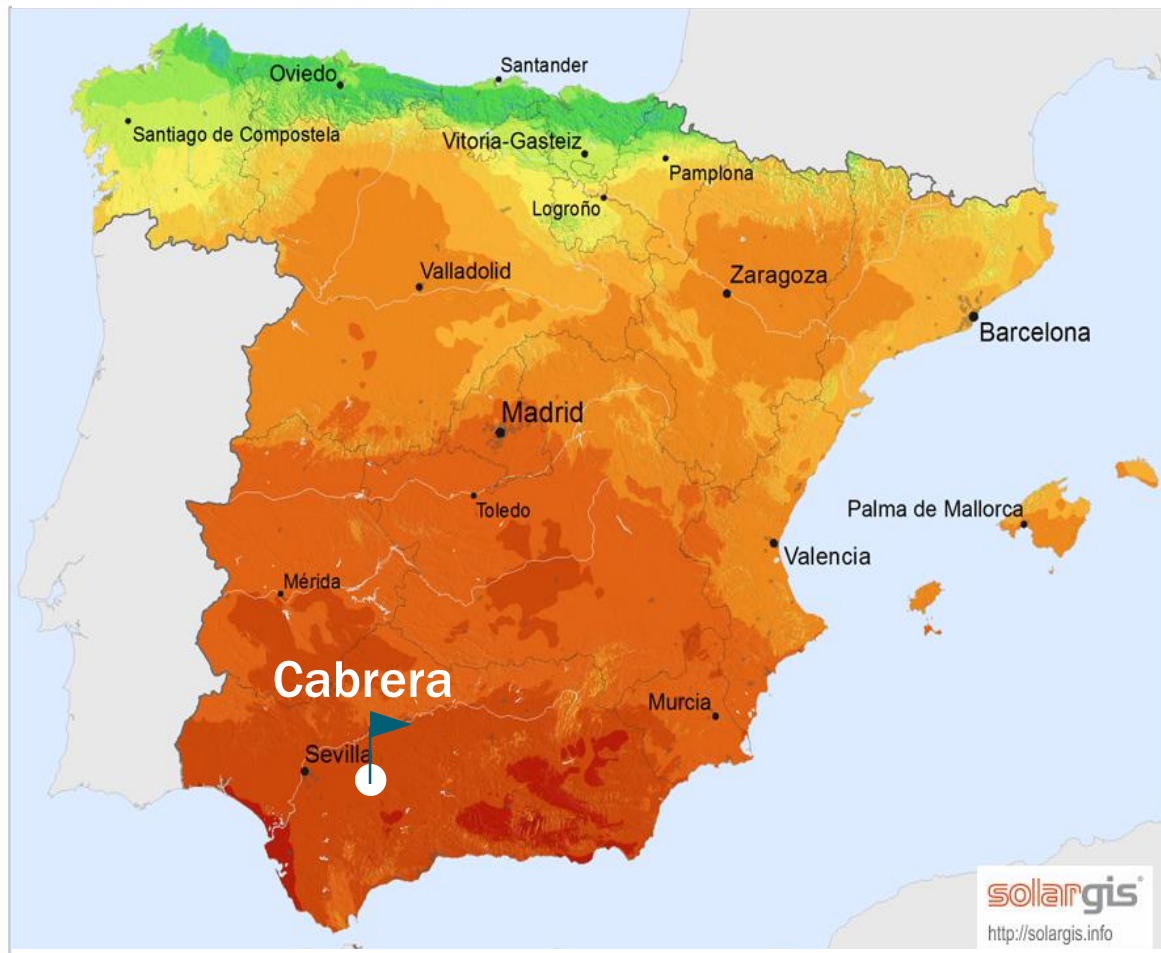
Expected delay due to CoVid-19 outbreak: 78 calendar days

Expected extra costs/day:  
 EUR 18,000 resulting in  
 EUR 1.4 million of total extra costs





## Entering the Spanish Corporate PPA market with 200 MW PV park “Cabrera” in realization



### Highlights:

- > Generation capacity: ~200 MW
- > Total investment volume in EUR: ~158 m
- Equity/project debt finance level: ca. 50:50
- Full loan repayment within PPA runtime of 10 years
- > Co-investor: Solarcentury with ~10%
- > Long-term PPA contract (149 MW) with Amazon with fixed price for 10 years
- > Revenues 1st year of full operation in EUR: ~16.4 m
- > Post-tax IRR: ~ 8%
- > Connected to the grid late 2020

## High voltage section of the PV plant (as of February 27<sup>th</sup>, 2020)



Tower #35



Substation

## High voltage section of the PV plant (as of March 30<sup>th</sup>, 2020)



Substation

## La Cabrera (as of February 27<sup>th</sup>, 2020)



Pre-assembly workshop



Trackers

## Cerrado Cabrera (as of February 27<sup>th</sup>, 2020)



Low voltage/medium voltage transformation platform



Medium voltage switchgears

## Status of the construction of the PV plant as of March 31<sup>st</sup>, 2020

61% of the entire plant is completed

80% of the High Voltage section (substation and transmission line) is built up

88% of the ramming task (approx.) is completed across the entire plant and 36% of the trackers have been fully installed or pre-assembled of the photovoltaic section

Main components and products delivered to site already:


- a) 82% of PV modules (the remaining 18% arrived in EU as of April 20<sup>th</sup>)
- b) 100% of trackers
- c) 100% of cables
- d) 100% of inverters
- e) 45% of Low/Medium Voltage transformers

Planned Key Dates	Required as per EPC contract
Grid Connection	8/18/2020
Date for Commissioning	8/25/2020
Date for Completion	10/20/2020

Expected delay due to CoVid-19 outbreak: 90 calendar days

Expected extra costs/day:  
 EUR 27,370 resulting in  
 EUR 2.5 million of total extra costs

(No) Impact of  
CoVid-19 epidemic  
on the progress  
of construction  
and on other solar projects

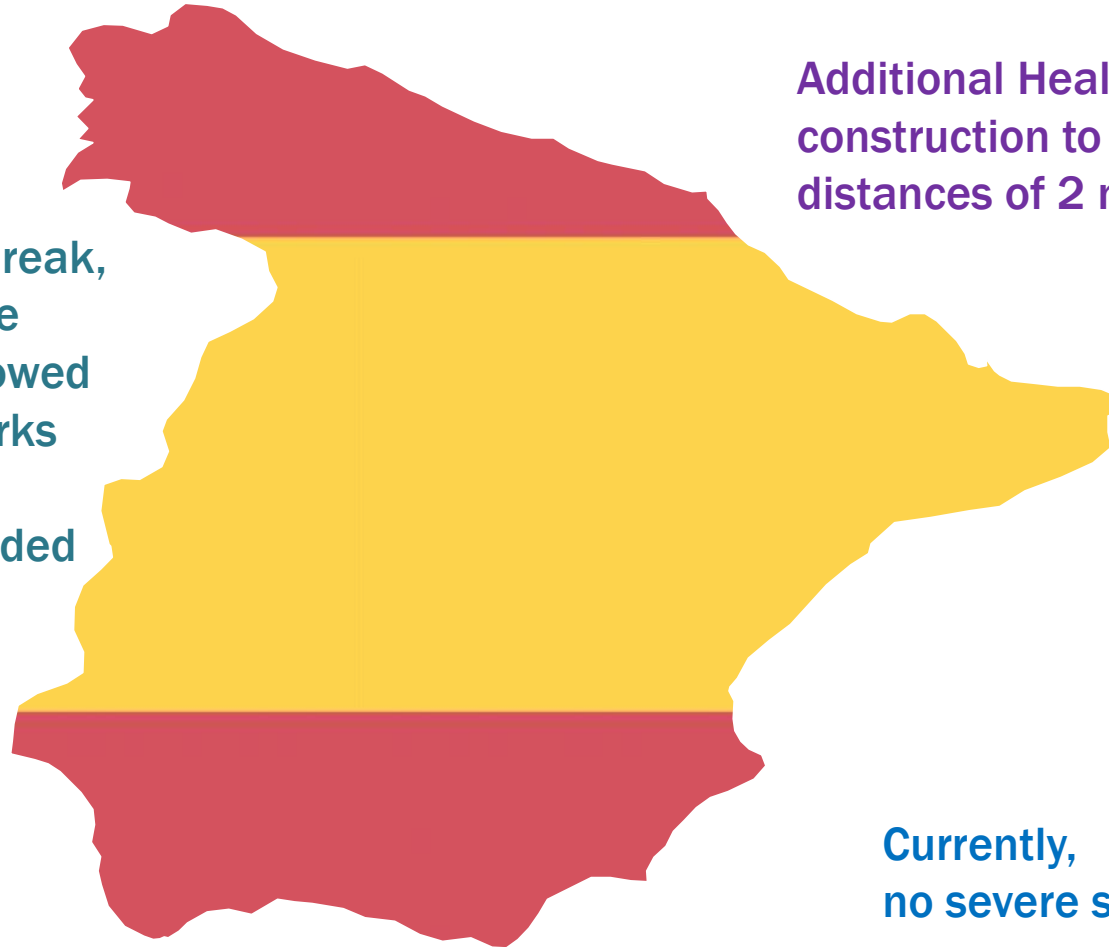


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## Corona impact on our spanish construction sites (500 MW)

In response to the virus outbreak, the Royal Decree 10/2020 disallowed construction works to continue, but has been softened since April 10th



Additional Health & Safety regulations allow construction to continue @ increased working distances of 2 metres

We are working with local authorities to mitigate the impact of the 2 metres rule in order to allow for as many activities to continue – with the workers' safety in focus

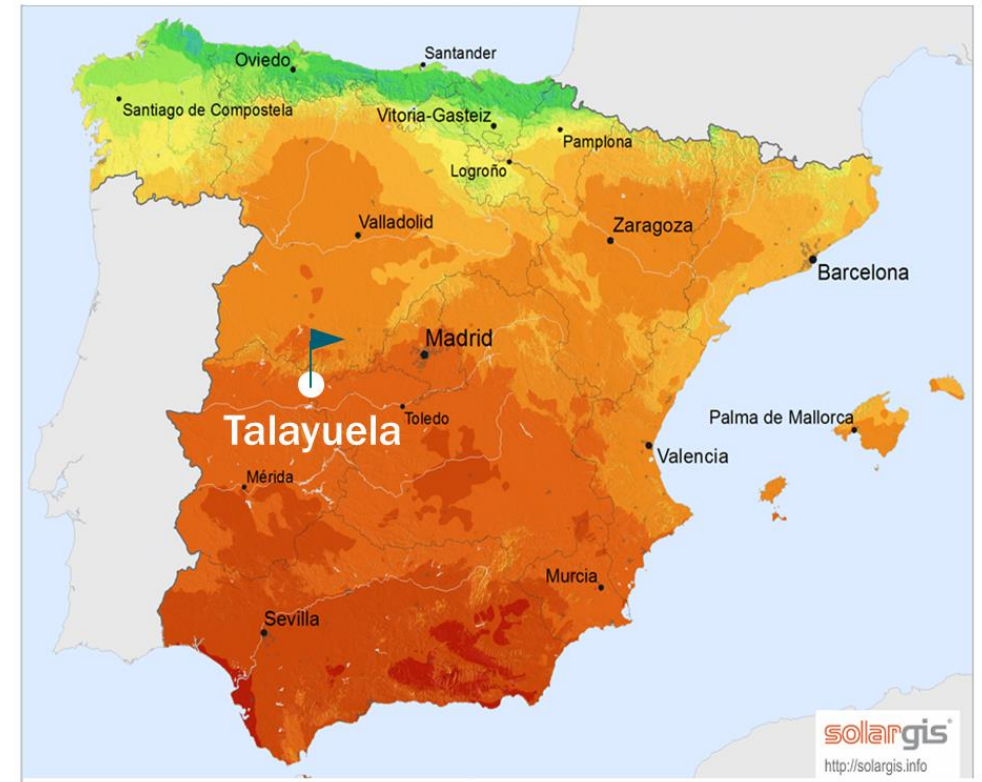
Currently, no severe supply chain bottlenecks are observable



## Talayuela EPC – Delay Damages in case of Force Majeure vs. not based on Force Majeure

In case the EPC Contractor could ask for an **extension** of the construction time **because of a Force Majeure Event** the SPV would not be able to claim for delay damages

In case of a **delay** in construction **not based on Force Majeure** the SPV would be entitled to claim delay damages in an amount of up to ~ EUR 17 million



## Talayuela PPA – Impact on Term in case of Force Majeure

The Talayuela PPA is a **pure financial power hedge** based on the ISDA Master Agreement. The **term of the PPA** for Talayuela is **ten (10) years**, starting from **January 1, 2021**

In case of a Force Majeure Event, which hinders the ability of the project to generate/or feed-in electricity (**Project Force Majeure**), leads to a later COD, the **term of the PPA** for Talayuela **would still be ten (10) years**, starting from **January 1, 2021**

During a **Project Force Majeure Event** the project company would be allowed to suspend any payment(s) for up to six months, provided that the project company has provided the off-taker with an additional bank guarantee. Generation would be assumed to happen on the agreed theoretical profile of the plant

### Sensitivity analysis:

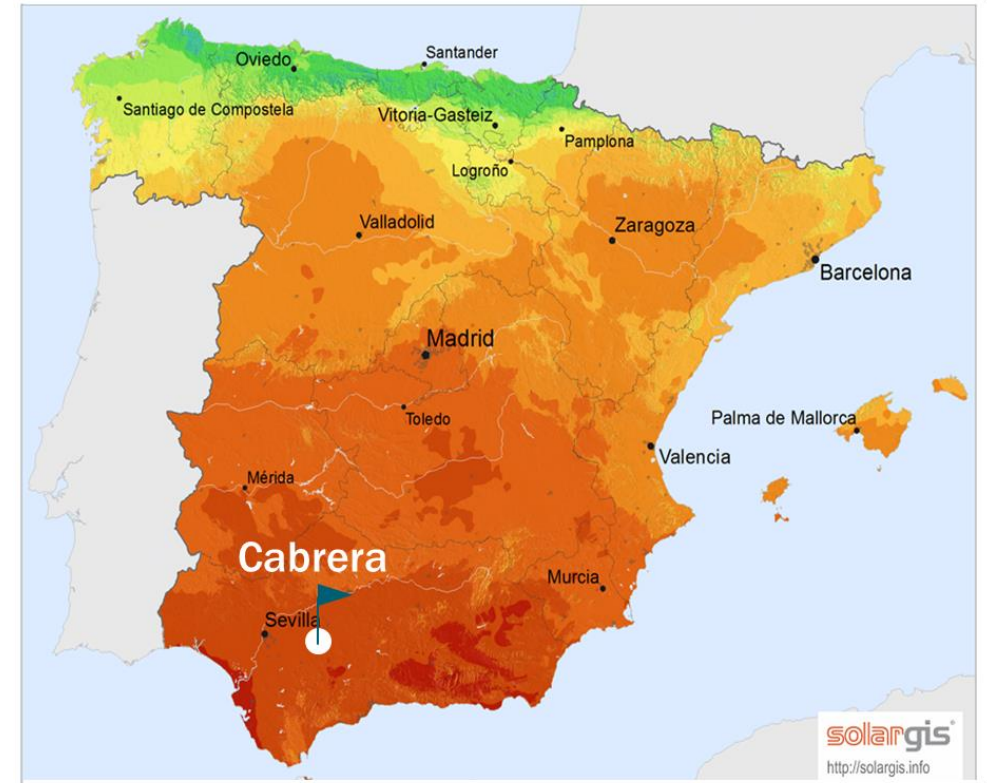
Delayed COD by **one quarter** would result in additional costs of ~ EUR 0.8 million, that ...

Delayed COD by **another quarter (two quarters in total)** would result in additional costs of ~ EUR 1.5 million (EUR 2.3 million in total), that **could be reduced significantly** by an **additional hedging strategy**.

## La Cabrera EPC – Delay Damages in case of Force Majeure vs. not based on Force Majeure

In case the EPC Contractor could ask for an **extension** of the construction time **because of a Force Majeure Event** the SPV would not be able to claim for delay damages

In case of a **delay** in construction **not based on Force Majeure** the SPV would be entitled to claim delay damages in an amount of up to ~ EUR 11 million



## La Cabrera PPA – Impact on Term in case of Force Majeure

The **term of the PPA** for La Cabrera is always **ten (10) years**, beginning with actual COD of the project

In case the COD of the project is after the Expected COD, delay damages, capped at EUR 9 million, would have to be paid to the off-taker until COD happens. This would not apply if the Expected COD can be shifted due to a Force Majeure Event:

*The **Expected Commercial Operation Date** and **Guaranteed Commercial Operation Date**, and related damages provisions and termination rights, will be extended by the number of days equal to the duration of*

*(i) any Force Majeure Event, up to a maximum of 180 days and*

*(ii) any Grid Delay Event, up to a maximum of 180 days.*

In such case **the term of the PPA** for La Cabrera would still be **ten (10) years**, beginning with actual COD of the project

## Speaker

Dr. Dierk Paskert  
Chief Executive Officer

CEO since Sep 2017  
Reappointed until Aug 2025



CEO Rohstoffallianz GmbH  
Member of the Management Board of E.ON-Energie AG  
SVP Corporate Development of E.ON AG  
Member of the Management Board of Schenker AG

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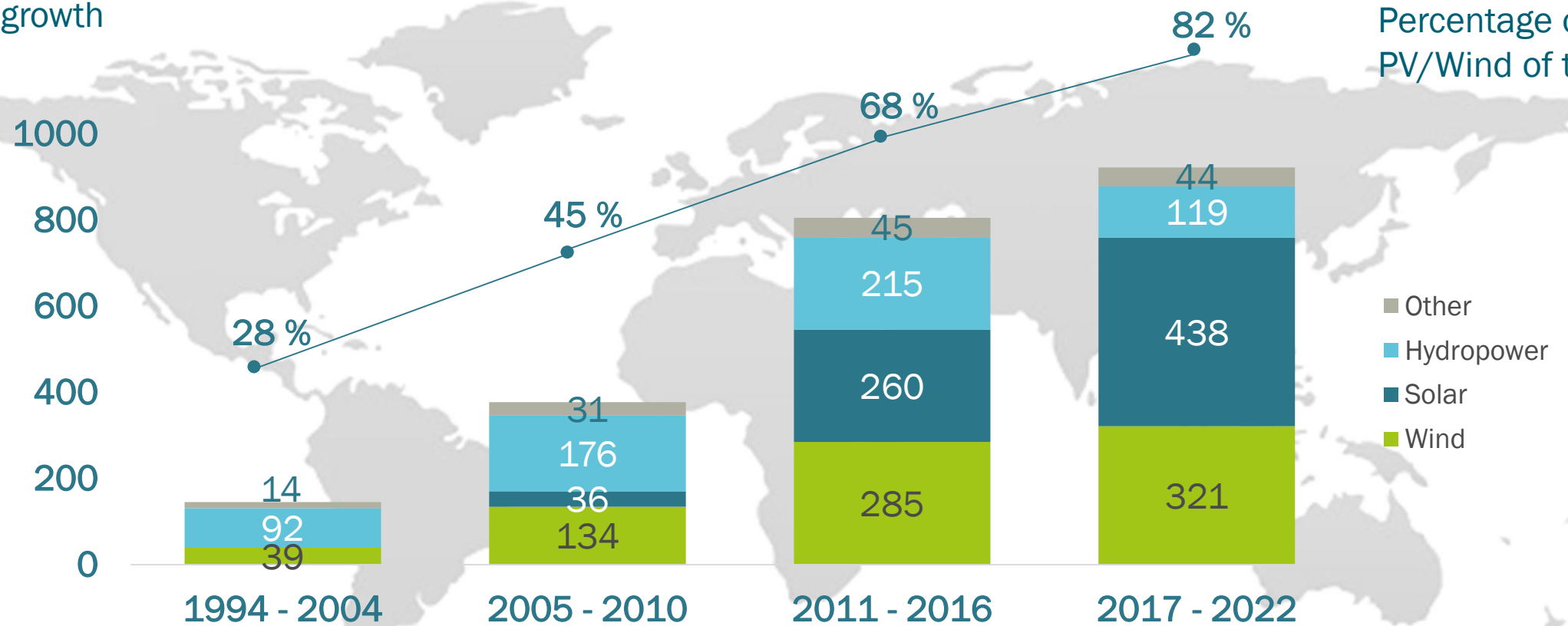


Appendix:

## Worldwide growth in generating capacity of renewables by technology

Capacity growth  
in GW

Percentage of  
PV/Wind of total



Source: International Energy Agency 2017

## Demand for power from renewables from two strong players: public & private sector



### Public Sector: Goal to limit global warming

- COP 21 Paris: 196 countries united to limit global warming below 2 °C
- Europe 20-20-20 targets
- China: largest installed renewables fleets
- Denuclearization in Germany and Japan
- Creation of low-carb economies

→ Demand via FIT-schemes and competitive auctions

### Private sector: Sustainability goals and long-term supply security

- Private companies create global initiatives in order to take action on climate change.
- Multinational companies such as Google, Facebook and Microsoft go ahead with ambitious targets
- 100% renewable targets help to create a positive brand awareness
- Furthermore, direct Power Purchase Agreements between companies and power producers from renewable energy resources offer long-term supply at fixed rates

→ Demand via PPAs and purchase of green certificates





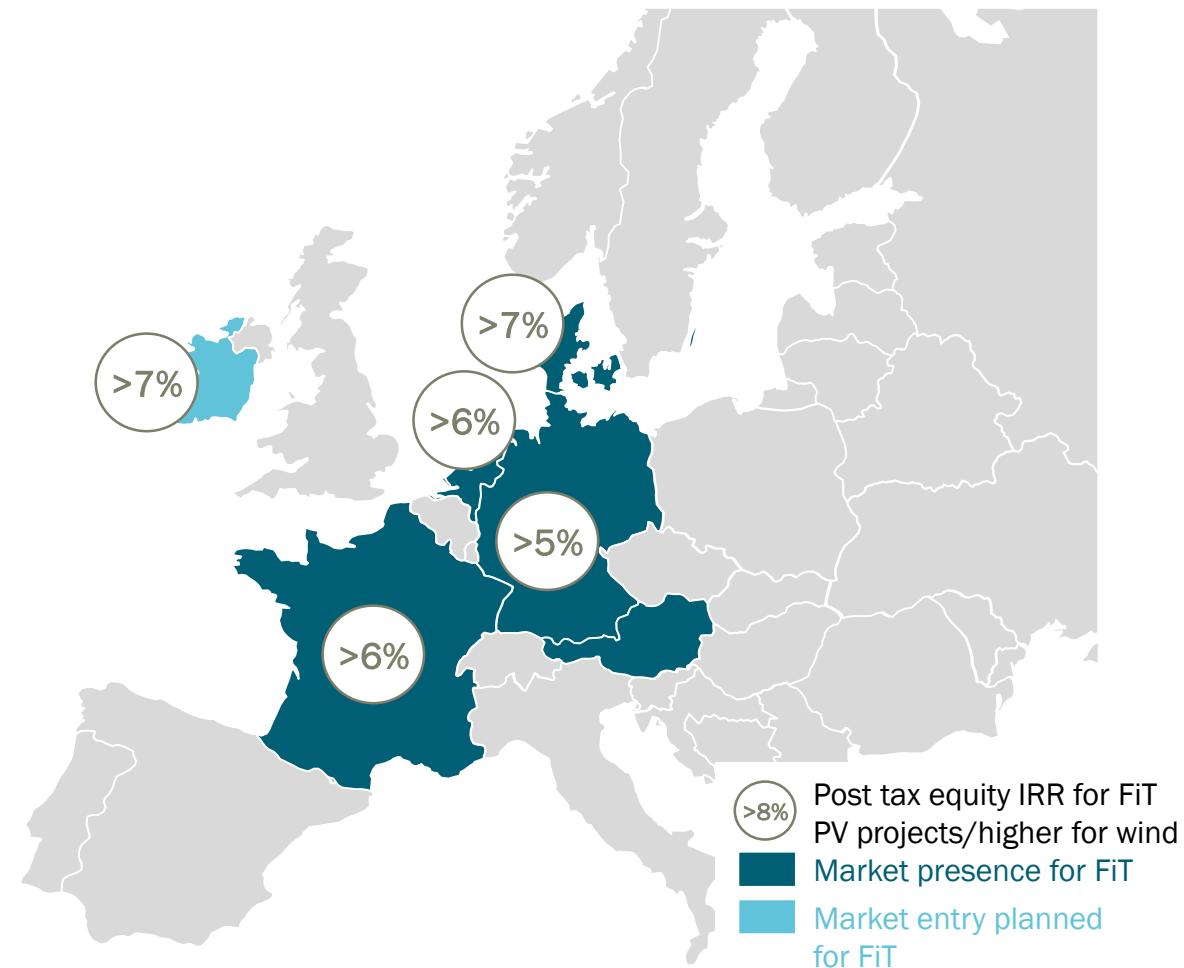
Conservative acquisition strategy for markets with FiT (Feed-in-Tariffs) will be pursued as in the past

We acquire ready-to-build, turnkey-projects or existing parks with Feed-in-Tariffs and operate them over their technical and commercial life time

>10 years of experience in these markets still allow for numerous acquisition opportunities in established markets with satisfying IRRs

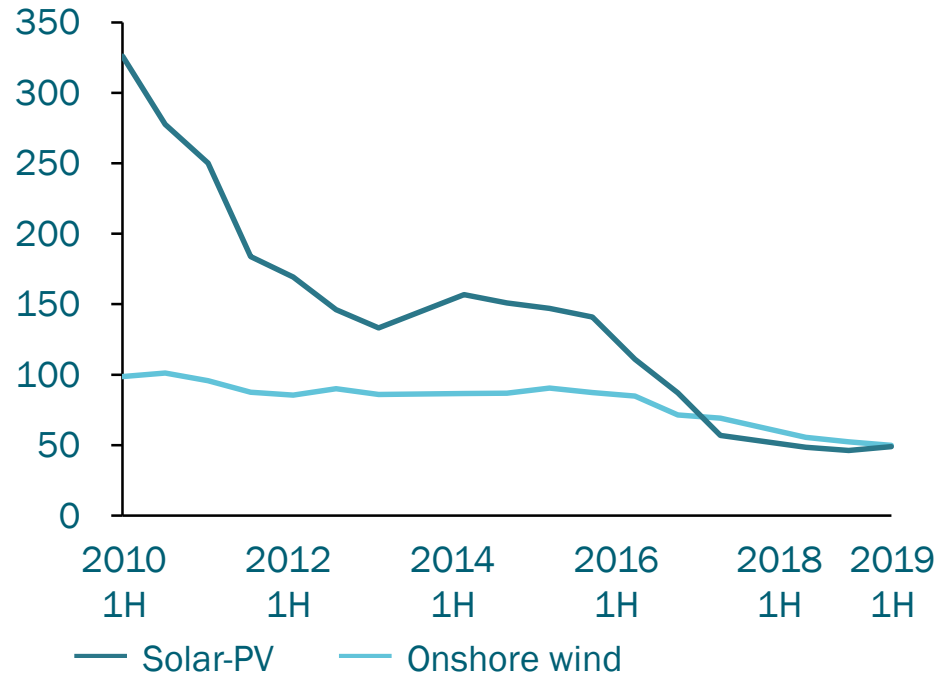
Falling interest rates create an increasing competition for FiT projects

However, Encavis reiterates its commitment to stated IRR expectations

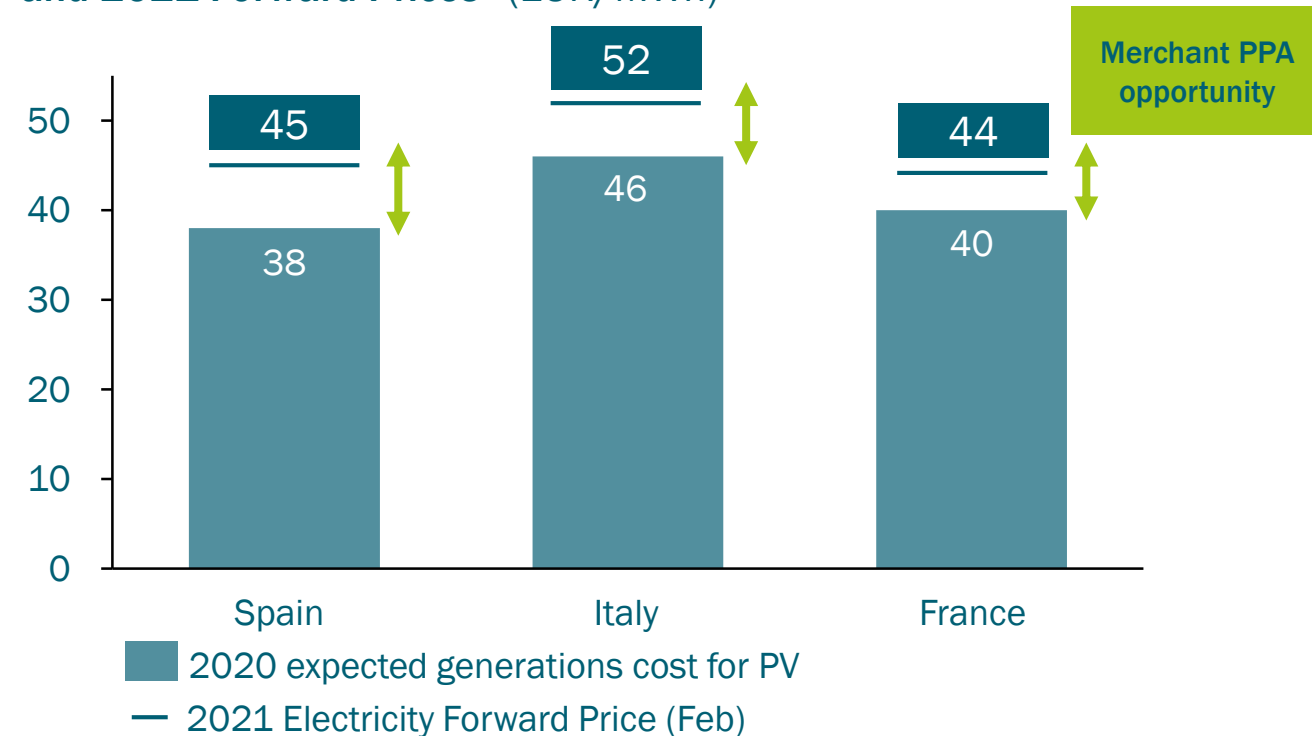


## Competitive generation costs of PV & wind projects opens new business opportunities

Development of global levelized costs of electricity (USD real 2018 /MWh)



Forecasted generation costs for large-scale PV and 2021 Forward Prices<sup>1</sup> (EUR/MWh)



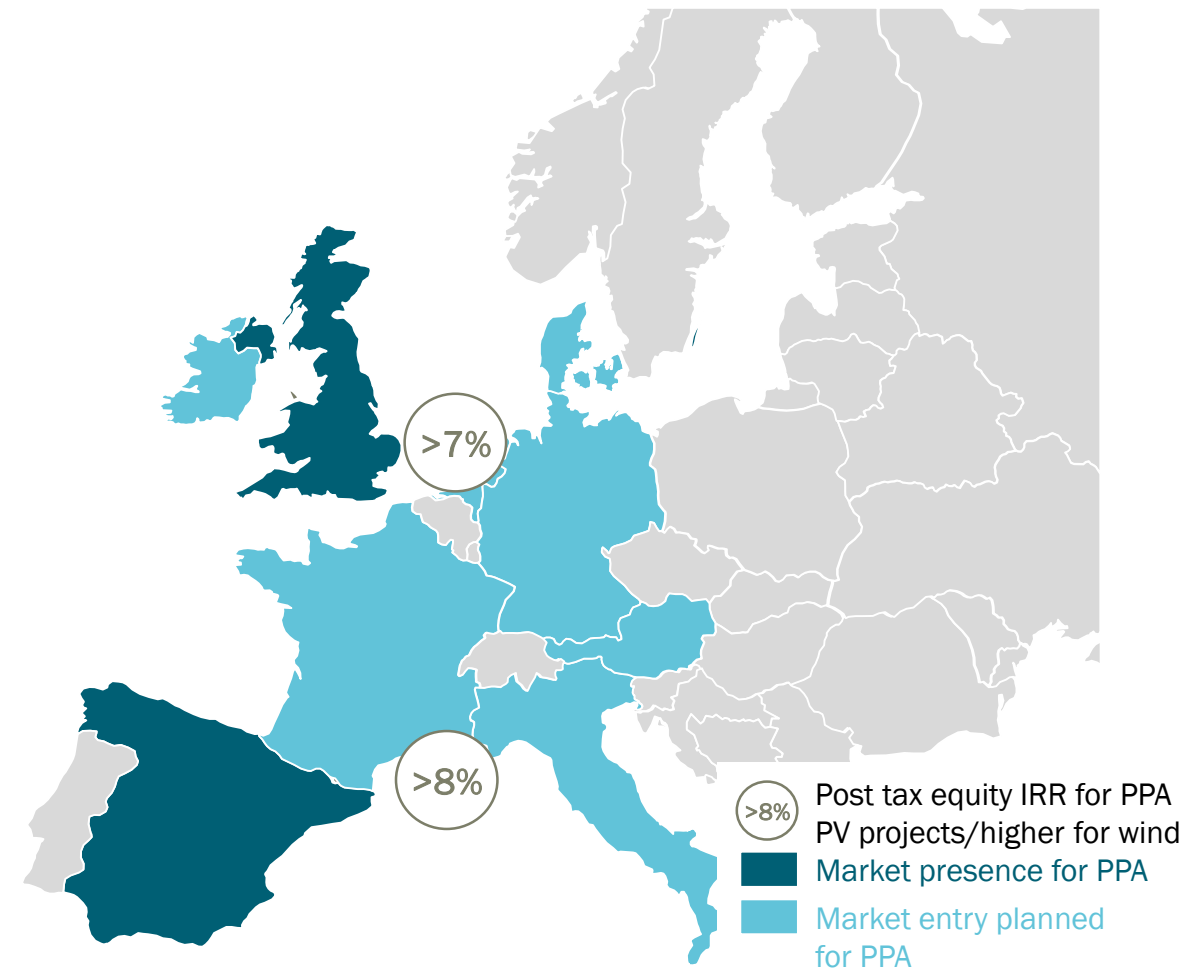
**In Southern-European markets the generation costs of renewables are already below prices of 2019 Electricity Forwards. This boosts PPA-Markets in countries such as Spain and Italy.**

## Conservative acquisition strategy for markets with PPA projects with increasing importance

We acquire ready-to-build, turnkey-projects or existing parks and negotiate Power Purchase Agreements with companies with very good ratings and operate them over their technical and commercial life time

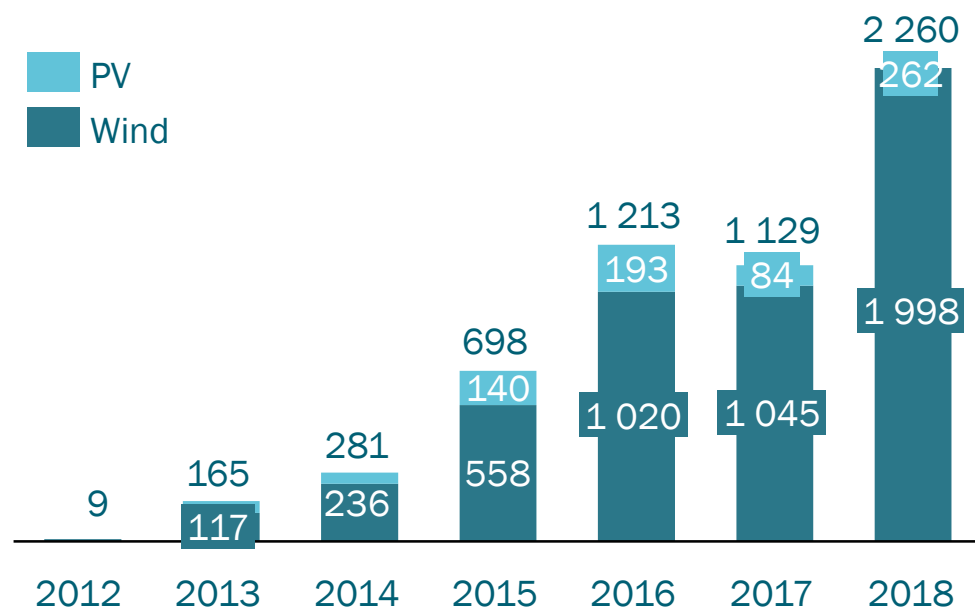
Our experience from PPA negotiations in Spain (500 MW PV) and UK (40 MW PV) enables Encavis to move to emerging PPA markets like Italy and – in time to come – Germany and France

IRR minimum requirement depends more on risk distribution and rating of the off-taker, to a lesser extent on regulatory risk



Strong growing PPA-markets – ENCAVIS is a European first mover in solar

## Annual capacity additions through PPAs in EMEA (MW)<sup>1</sup>



## Three pillars of the Encavis PPA Strategy

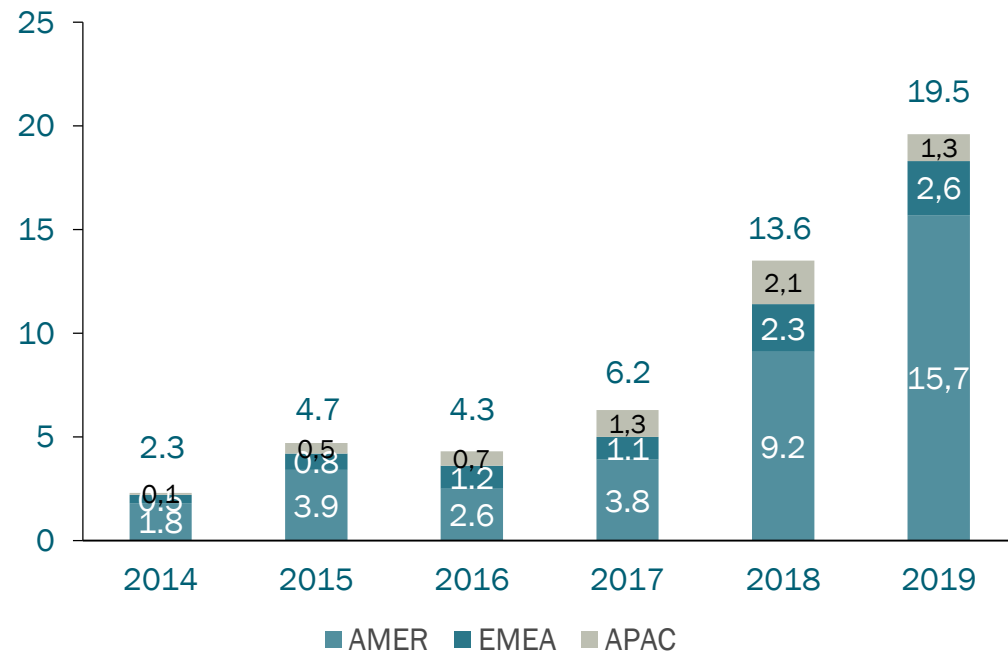
- 1 Encavis has secured preferred access to dedicated IP for PPA related risks by investing in market leading competence platform
- 2 Founding investor in a newly created fund, targeting to satisfy the demand of leading global corporates for green energy through customized Wind- and PV-projects and attractive PPAs
- 3 Leveraging our knowledge and network as experienced investor with various potential offtakers

Source: IEA, BNEF; 1: 11.02.2019; signing date estimated by Bloomberg

## Steadily growing volume of globally signed corporate PPAs

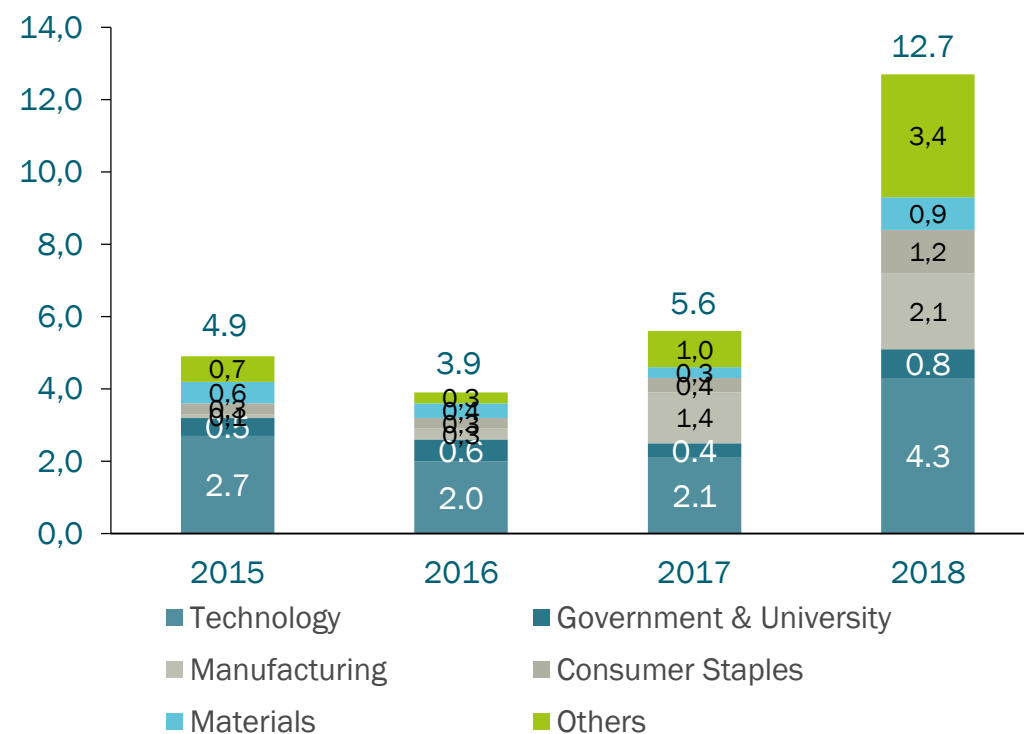
### Global corporate PPA volumes

Annual volume in GW



### PPA capacity by offtaker type

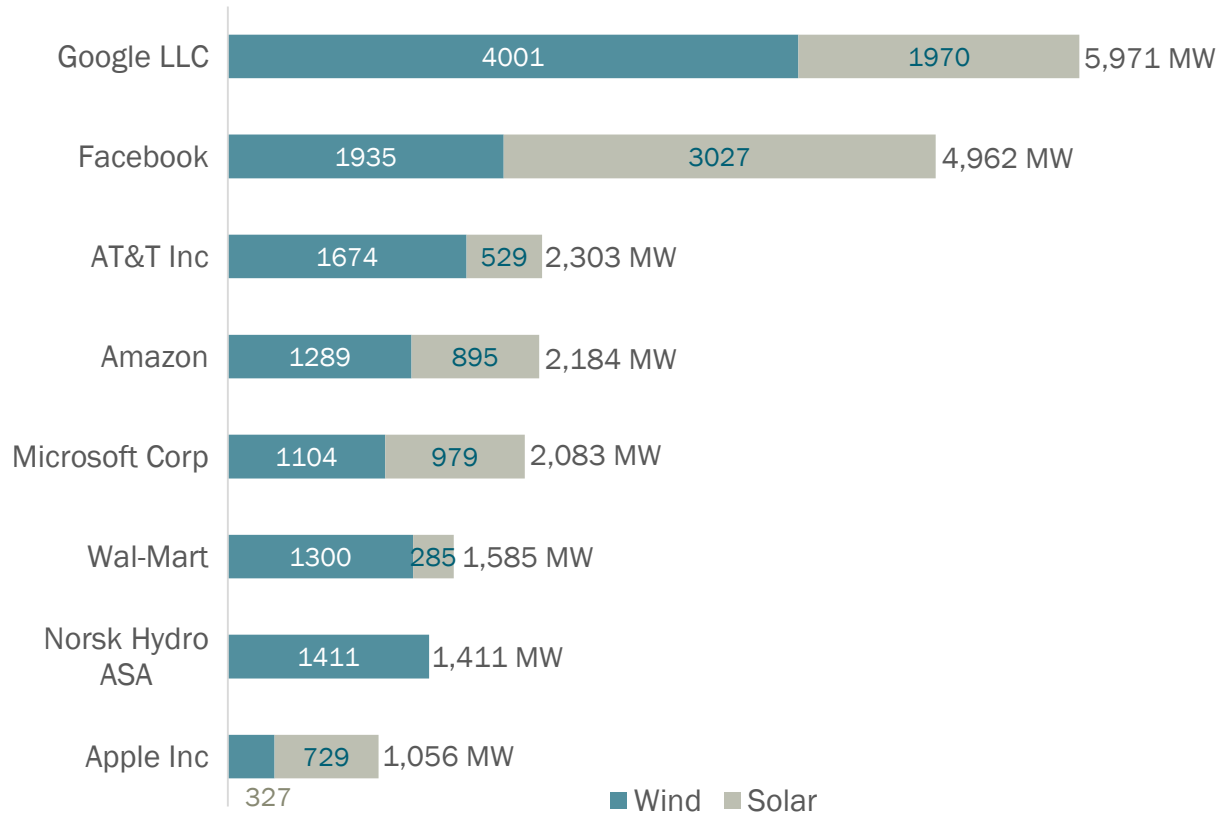
Annual volume in GW



Source: BNEF

## The need for green energy supply is driving PPA markets

### Top oftakers by capacity and source



Source: Bloomberg NEF, 2020

### Market developments

North American market with pioneering role

US companies search partners for PPAs in Europe

ENCAVIS registers increasing demand for PPAs also in Europe (Nordics, Spain, Italy, Ireland, Germany)

Major PPA deal in Europe in 2017:

Norsk Hydro signed PPA until 2039 for 650 MW wind park in Sweden

PPAs are contracted for time periods from 6 – 20 years

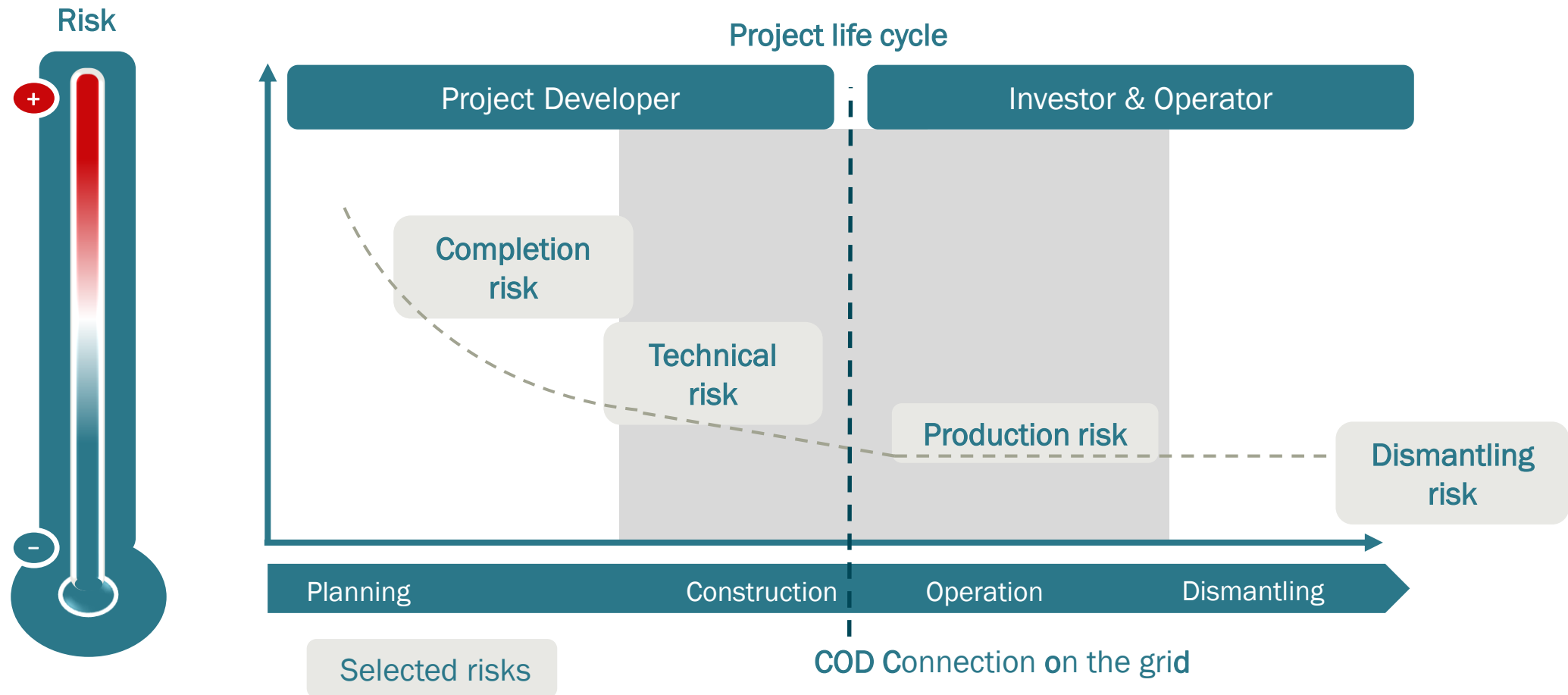
Strong growing PPA-markets – ENCAVIS is a European first mover in solar

## Pillars of the Encavis Growth Strategy >> Fast Forward 2025

- > Encavis has secured preferred access to know-how for PPA by establishing a dedicated in-house competence team and by investing in market leading competence platform Pexapark (CH).
- > Leveraging knowledge and network as experienced investor based on recently signed PPAs with a leading European Utility and Amazon for in total 500 MW of Spanish solar parks.
- > Strong Balance Sheet with equity ratio > 24% giving corporates adequate comfort to handle risks from long-term PPA contracts.
- > Access to early stage projects without taking direct development risk by signing numerous partnership agreements with exclusive rights in Italy, France, Spain, Netherlands, Denmark and Germany.

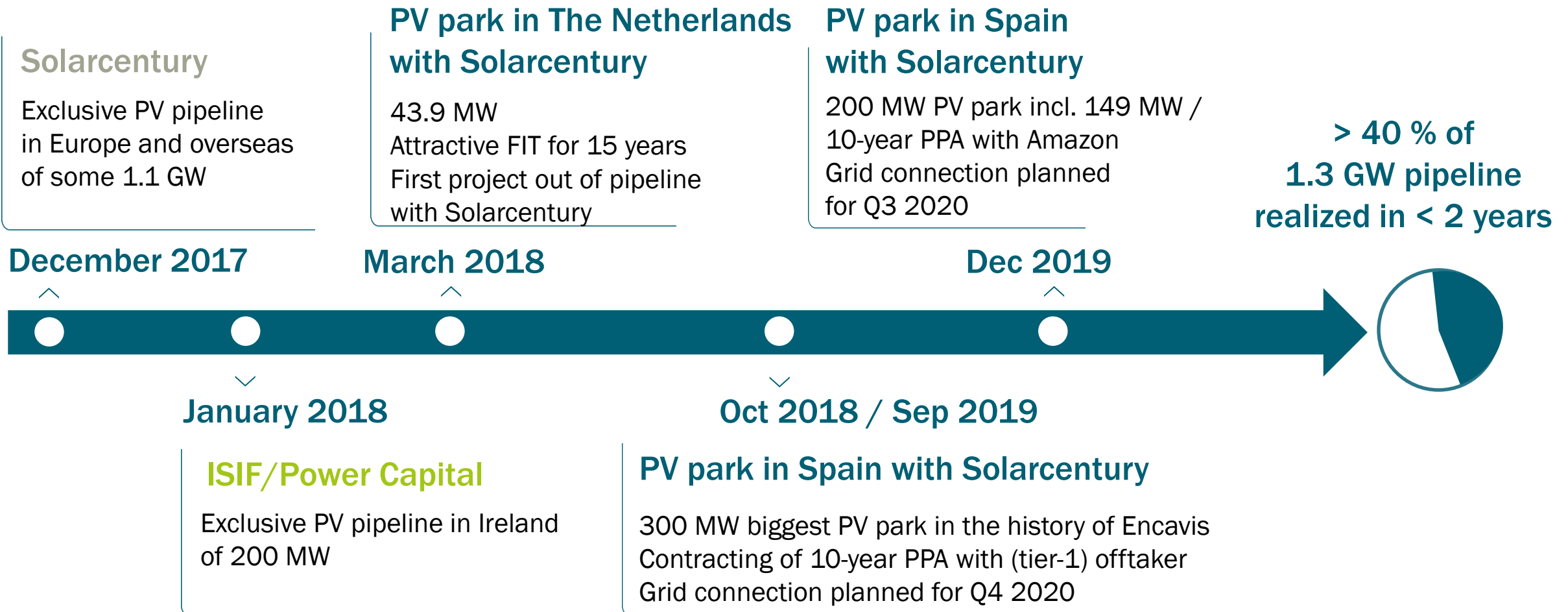
ENCAVIS is an Independent Power Producer (IPP) from renewable energy sources (solar/wind)

**Business model: risk structure of an investment over time (solar/wind)**





Three year project pipeline status of Dec 2019 with >750 MW in total to come

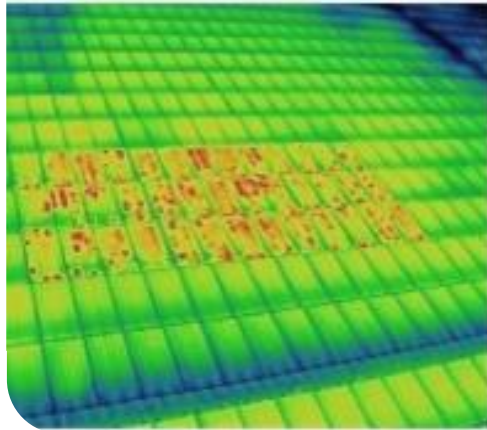




Appendix:

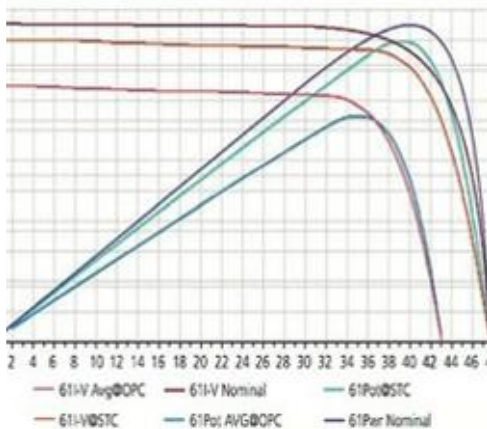
Operational excellence and battery storage

## Insight into our on-site activities (examples)



### Thermography

Identification of strings with short circuits  
Adjustment of the polarity



### Performance tests

Performance measurements for strings or single modules show performance reductions

### Repairs

For instance repair of string-inverters with lightning damages (350 in the past 24 months)



### Replacing modules

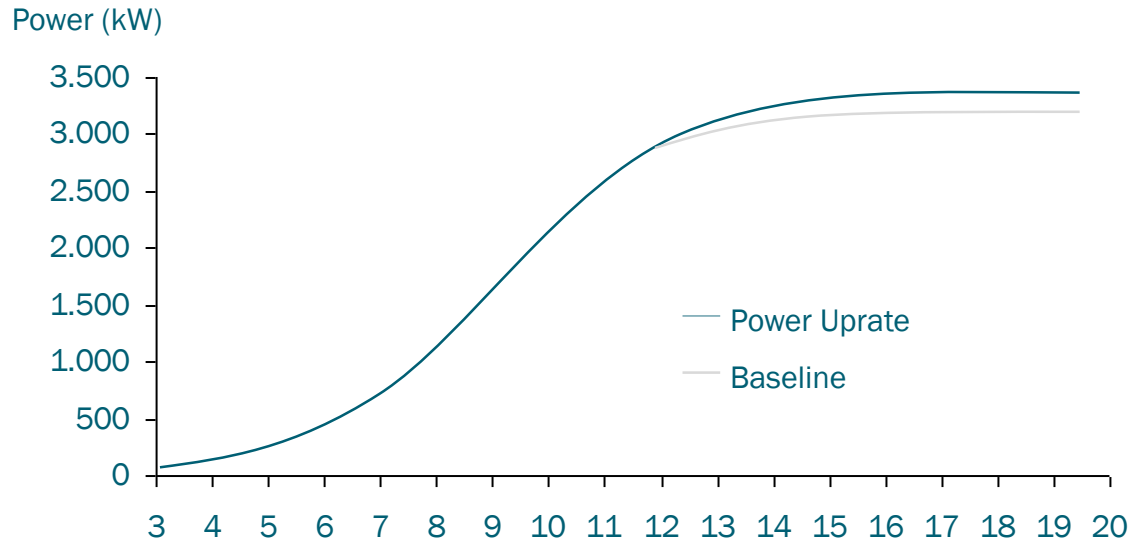
In 2014 and 2015 our team replaced more than 20,000 defect modules



## Optimizing the performance of our Wind Portfolio

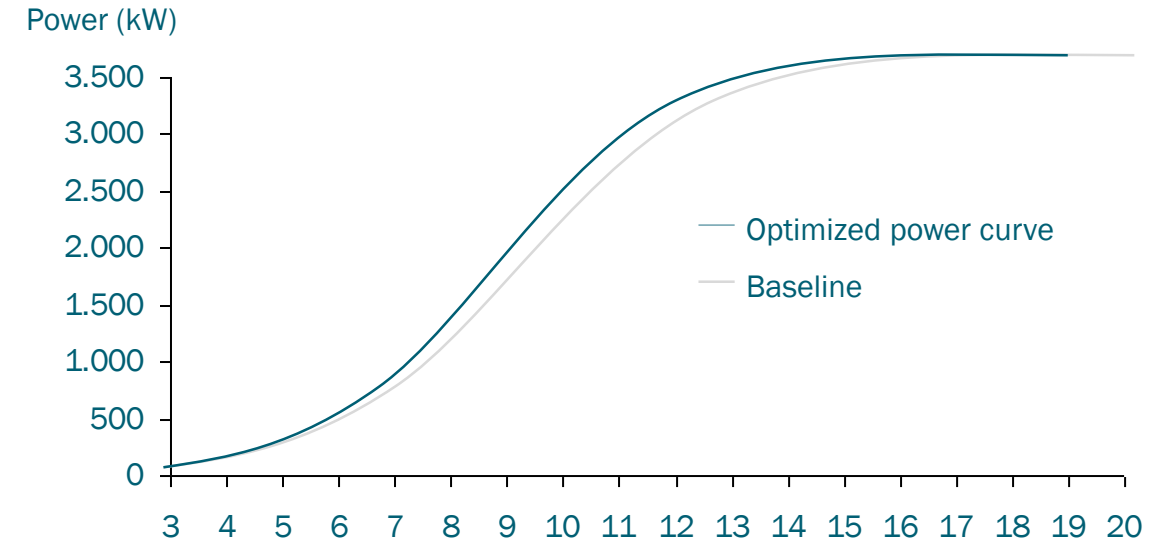
### Power Uprates

Power Uprates for installed turbines increase annual electricity production of turbines by up to 3% without effecting the turbine design life



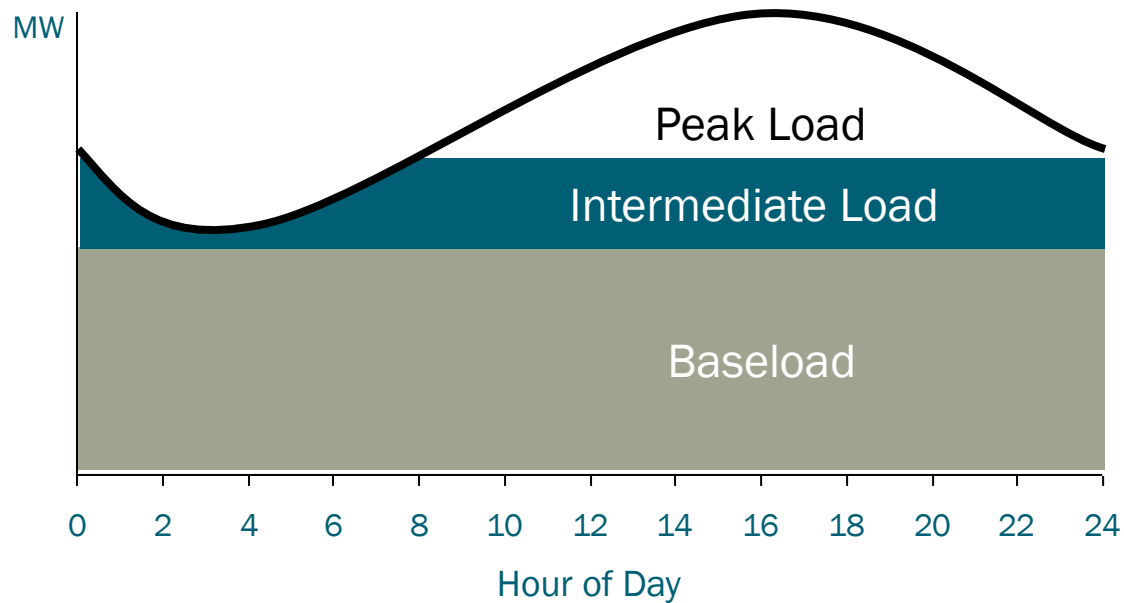
### Optimizing power curves

Improve efficiency of turbine at lower wind speeds through software updates and the optimization of regular downtimes, of blade pitch angle and of gondola alignment



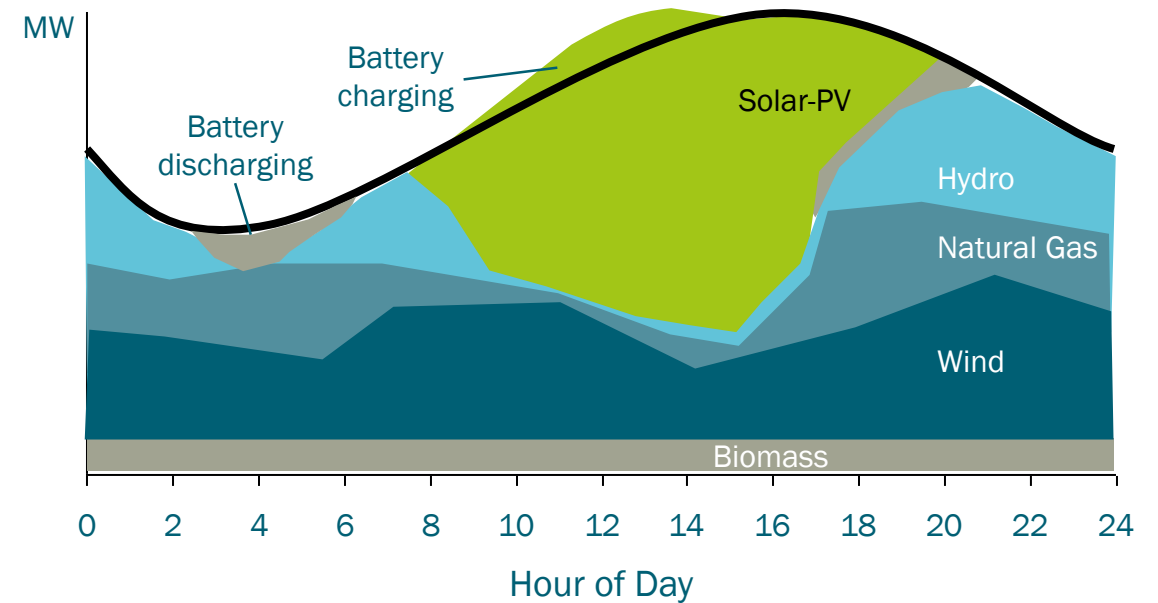
## Increasing share of renewables in power sector creates new challenges

### Electricity demand and historic supply mix



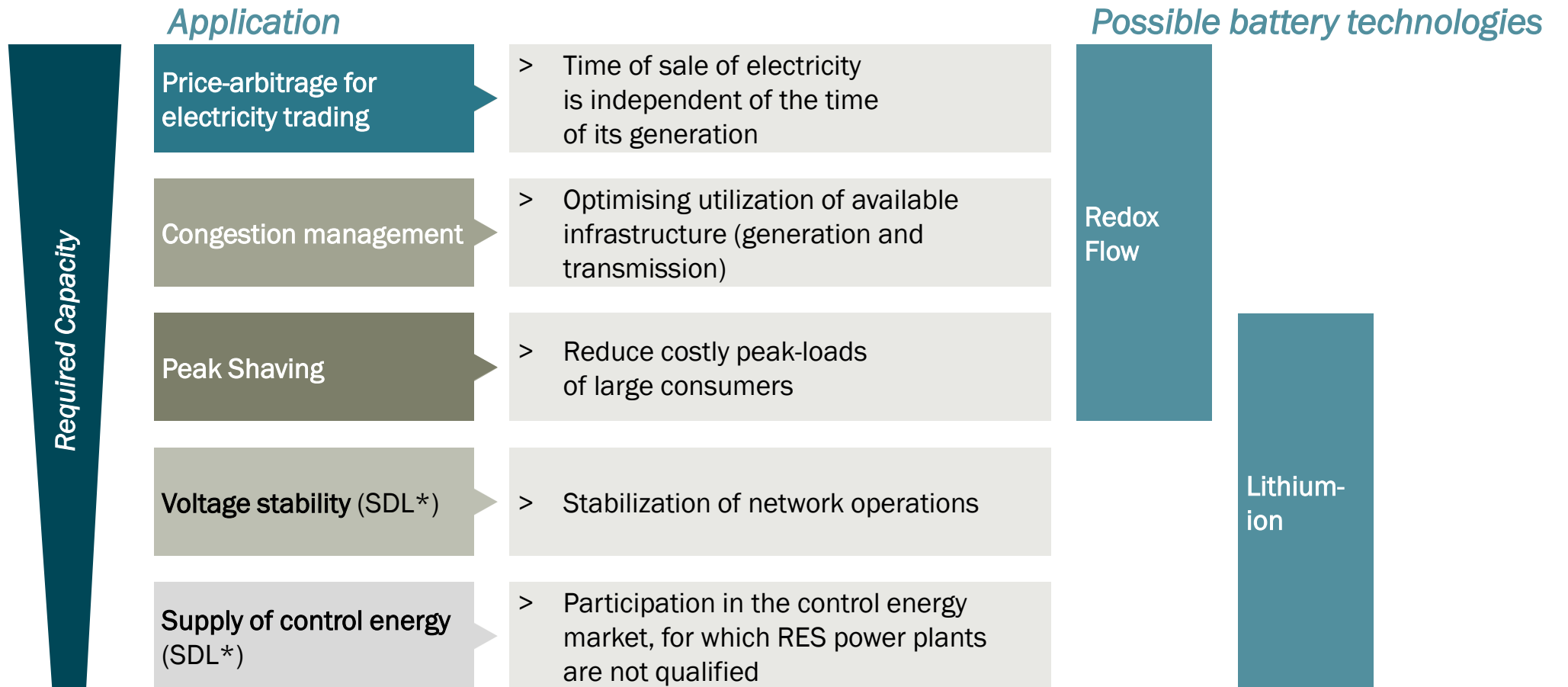
Supply based on coal, nuclear and gas  
 Large, centralized power plants  
 National markets are not interconnected

### Conceptual supply mix in the future



Supply based on Renewables and flexible gas power plants  
 Electricity storage with increasing importance  
 Decentralized power generation with prosumers

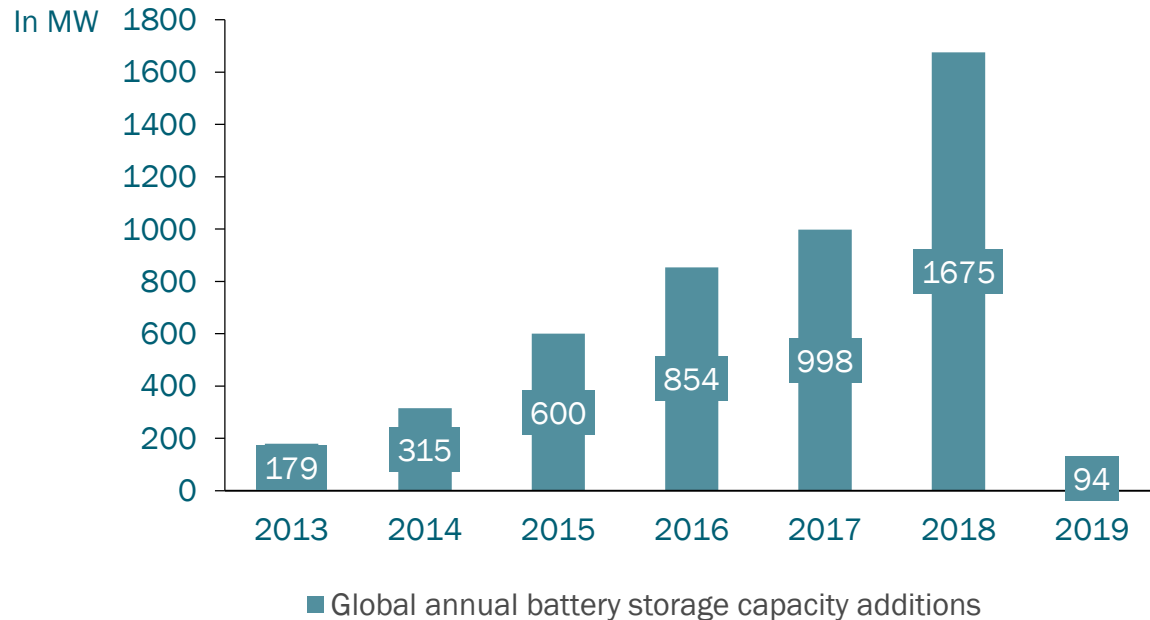
## New business cases for electricity storage



\* System services

## Market for electricity storage is already growing – Promising outlook

### Annually commissioned utility-scale storage

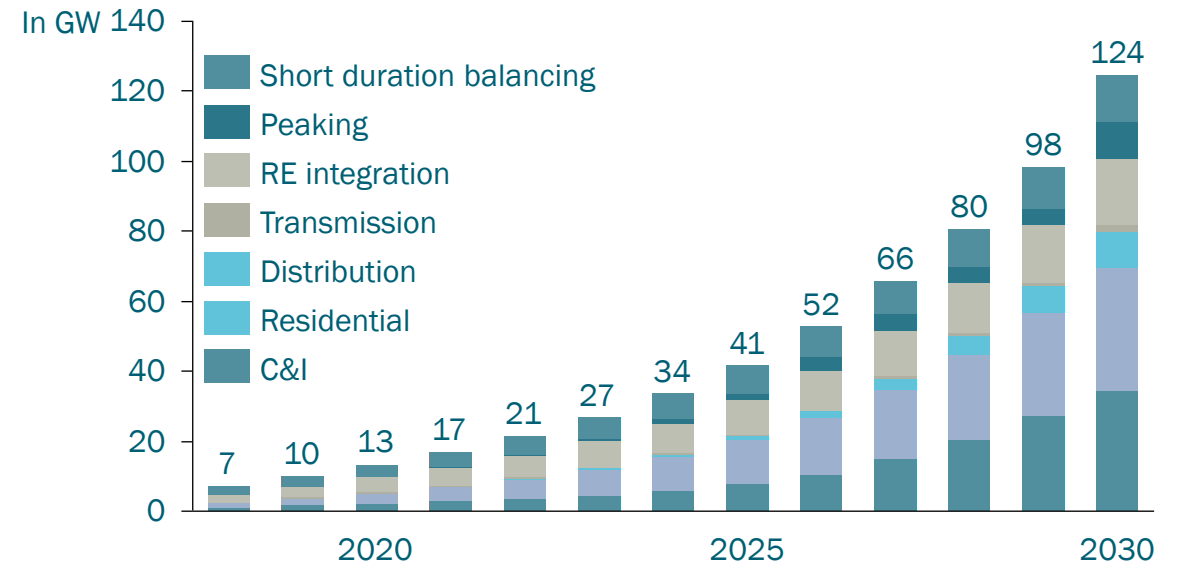


Strong increase in annual commissions

Growth distributed globally

Lithium-ion technology currently standard technology

### Future market outlook for storage applications



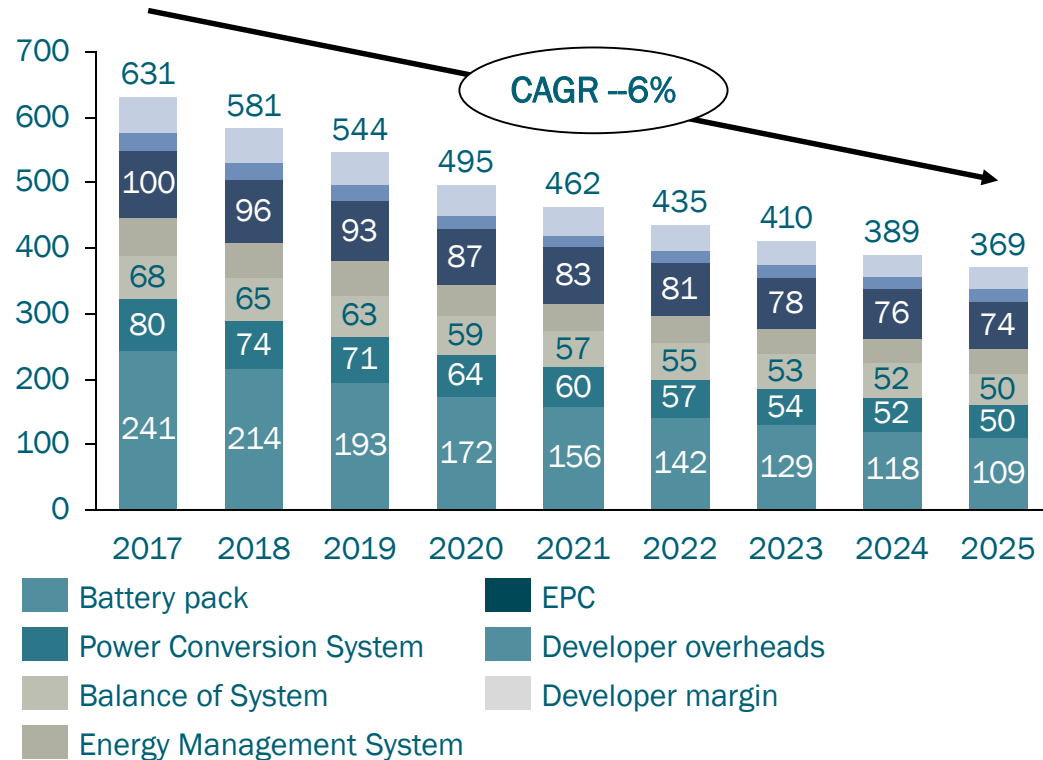
Strong growth in all regions until 2030 as storage is needed to integrate renewables into power sectors and thus guarantee security of supply

Decreasing costs drive capacity additions

Costs are forecasted to fall as installed capacities increase

## Reduction of costs for energy storage systems

In real 2017 USD/kWh



## Case example: Xcel Energy's tender

Resource solicitation for RES generation plus storage

Submission of 400 individual proposals

Median price for wind-plus-storage projects was USD 21/MWh and for solar-plus-storage was USD 36/MWh

Combined bids are only USD 3 -- 7 higher than standalone wind and solar power plants



## Battery Storage: Possible market entrance for ENCAVIS

