EDF : A global leader in renewable energy

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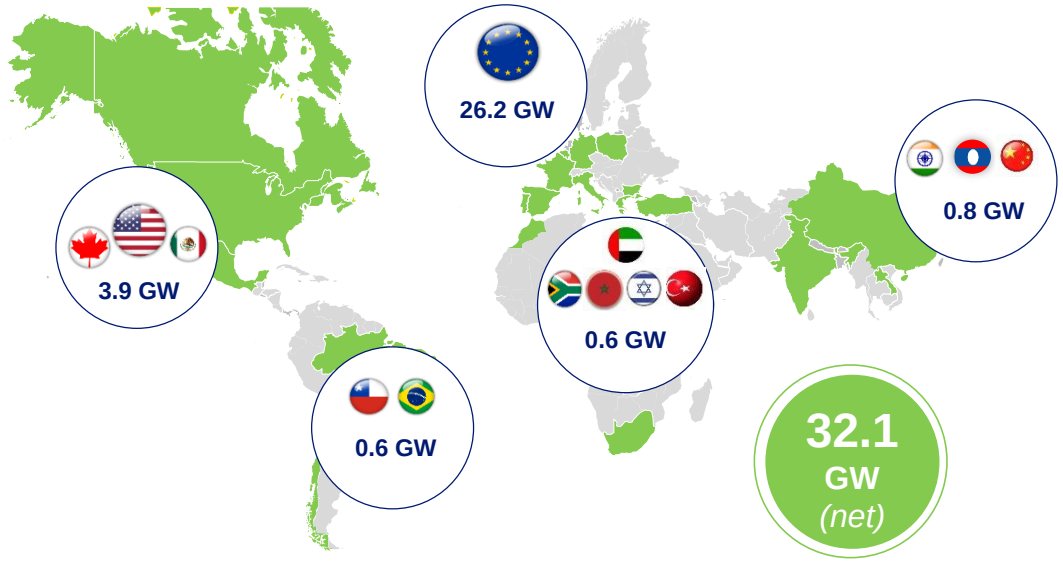
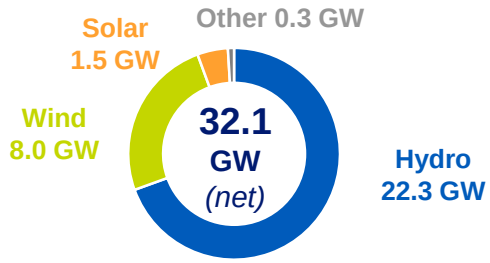
EDF: A GLOBAL LEADER IN RENEWABLE ENERGY

Renewable net installed capacity : 32 GW



Capacity by technology



BALANCED CAPACITY MIX WITH 32GW IN OPERATION

- Capacities in operation: 22.3 GW of hydropower and 8 GW of wind and 1.5 GW of solar PV

HYDROPOWER: "DNA" OF EDF

- #1 hydropower producer in EU
- More than 400 production sites in the world

A GLOBAL LEADER IN WIND AND SOLAR ENERGY

- 1.6 GW of gross capacities commissioned in 2018
- 4 GW currently under construction (2.1 GW of wind and 1.9 GW of solar)

SELECTIVE GROUP INVESTMENT PLAN

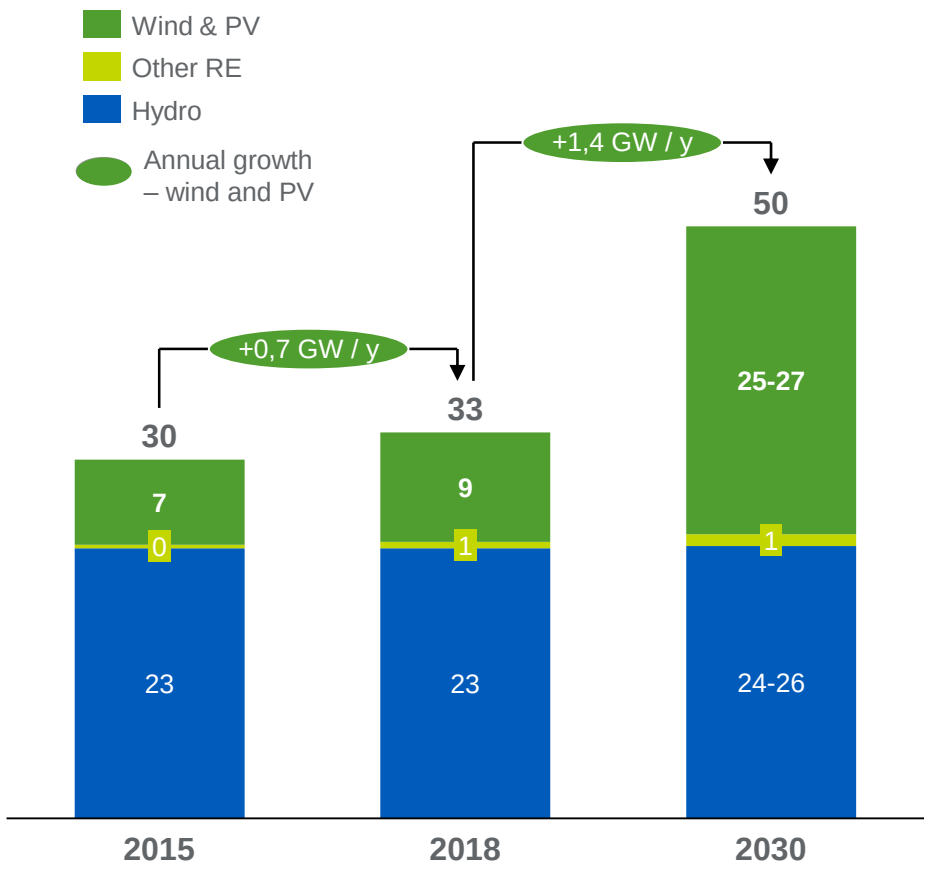
- Over 2G€ gross investments p.a. over 2017-2020 period

Data as of 30 june 2019. Net installed capacities, corresponding to consolidated data according to EDF's percentage ownership in Group companies, including associates and joint ventures

STRATEGY CAP 2030: A GROUP INDUSTRIAL PLAN SETTING AN AMBITIOUS TARGET FOR RENEWABLE ENERGY

CAP 2030 Ambition

50 GW net installed capacities by 2030



BA 136 Rosières-en-Haye, France – 115 MWp

Cabo Leones, Chile – 115 MW

THE SOLAR POWER PLAN & THE ENERGY STORAGE PLAN: A CONCRETE COMMITMENT TO THE ENERGY TRANSITION

LEPLANSOLAIRE

- **Develop 30%** of additional **solar photovoltaic market share in France** between **2020 and 2035**

25 G€
to invest with financial partners

France is the **5th**
largest solar potential in Europe

30 000 ha
needed for the development of 30 GW solar PV

French multiannual energy plan project (PPE) targets
~30 GW
PV capacity additions by 2028

LE PLAN stockage électrique

- Develop **10 GW** of new storage facilities in Europe **by 2035**, in addition to the **5 GW** operated today

8 G€
to invest in the period 2018-2035

70 M€
R & D budget (x2) dedicated to storage by 2020

A cost of batteries divided by **5**
In less than 10 years

15 M€
of investments in start-ups related to storage by 2020

FOCUS ON 2018 ANNUAL RESULTS: A GROWTH MOMENTUM

EDF RENEWABLES

In M€	2017	2018	Δ%	Δ% Org.(1)
EBITDA	**751**	**856**	**+14.0**	**+4.1**
O/w Generation EBITDA	*741*	*903*	*+21.9*	*+15.0*

- Growth driven by generation business
  - Electricity output: 15.2TWh (+15% org.)
  - Driven in particular by output from projects commissioned in 2017, some of which sold end-2018
- Slightly lower contribution from DSSA business(1)(2)
- Increase in development costs to support the business' growth
  - Gross capacity commissioned in 2018: 1.6GW (o/w 0.9GW in solar)
  - Gross portfolio of projects under construction at end-December 2018: 2.4GW (o/w 1.2GW onshore wind and 1.2GW solar)

GROUP RENEWABLES(3)

In M€	2017	2018	Δ%	Δ% Org.(1)
EBITDA(3)	**1,587**	**2,133**	**+34**	**+35**
Net investments	**(1,458)**	**(1,220)**	**-16**	

- EBITDA
  - Strong performance in French hydro generation
- Net investments
  - In 2018, significant acquisitions in offshore wind (NNG project under development in Scotland, development rights in the US) and significant sale of a non-controlling stake in UK wind farms(2)
  - In 2017, the acquisition of Futuren for 281 million €

(1) Organic change at comparable scope and exchange rates
(2) Significant sale in H1 2018 in the UK, but which does not impact EBITDA from DSSA activities as the EDF Group retains control.
(3) For the renewable energy generation optimised within a larger portfolio of generation assets, in particular relating to the French hydro fleet after deduction of pumped volumes, sales and EBITDA are estimated, by convention, as the valuation of the output generated at spot market prices (or at purchase obligation tariff) without taking into account hedging effects, and include the valuation of the capacity, if applicable

EDF-R GROWTH RELIES ON A SUSTAINABLE BUSINESS MODEL, LEVERAGING KEY COMPETITIVE ADVANTAGES

An integrated player, active across the entire value chain, with the ability to develop highly competitive projects with high returns

KEY SKILLS…

Operational excellence and ability to:

- Identify and secure sites,
- Perform engineering activities,
- Optimize procurement,
- Structure financing,
- Build local partnerships
- Offer the « right » price in competitive processes,
- Build plants on time and on budget,
- Operate and maintain assets with the target availability.

… FOR A GROWTH BASED ON A SUSTAINABLE BUSINESS MODEL

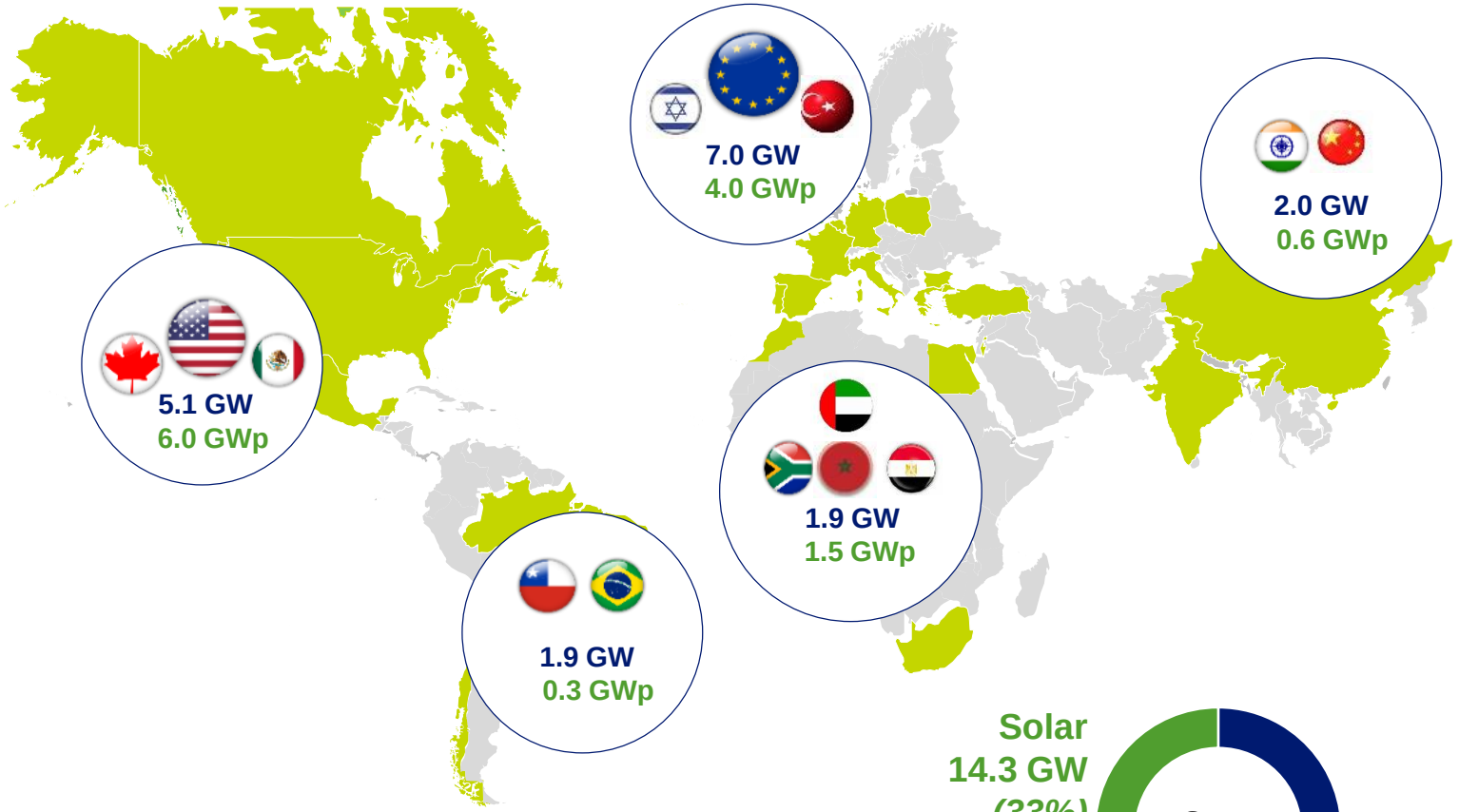
A strong and diversified **international presence**

Partnerships, giving growth opportunities and a good knowledge of local markets

Ability to create additional value with a selective **asset rotation program**

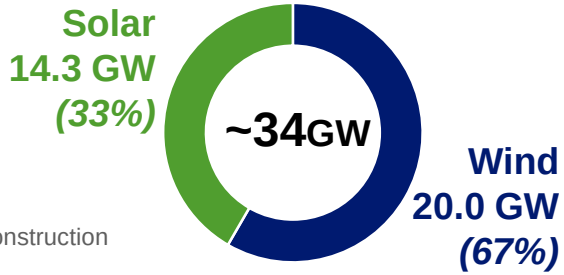
EDF-R GROWTH IS FOSTERED BY A SIGNIFICANT PORTFOLIO OF PROJECTS IDEALLY POSITIONED TO CAPTURE GROWTH

A wind and solar pipeline of around 34 GW…



4 GW of capacities in construction
30 june 2019

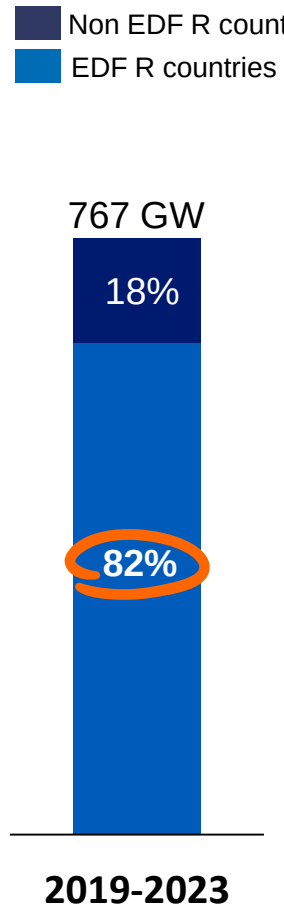
NB: the pipelines are indicated for EDF Renewables and includes capacities in construction



…ideally positioned for growth

TOP 15 countries by RE capacity additions [GW, 2019-2023]	EDF R presence
324	✓
96	✓
84	✓
26	✓
19	✗
19	✓
17	✓
14	✗
12	✗
10	✗
8	✓
8	✗
7	✓
7	✓
6	✓

Source: IEA, Renewables 2018



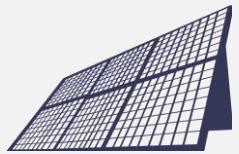
EDF-R GROWTH IS STRUCTURED AROUND HIGH VALUE CREATION REQUIREMENTS AND STRONG TRACK RECORD

A SELECTIVE DEVELOPMENT POLICY…

- Rigorous **country analysis**
- Stringent initial **project selection**
- Advanced **engineering capabilities** to estimate **projects' returns**
- Unique **procurement process** with in-depth due diligence of supply chain
- Strict **investment decision** processes

… TO DELIVER ATTRACTIVE IRR SPREADS(1) ABOVE WACC

ONSHORE WIND



SOLAR PV

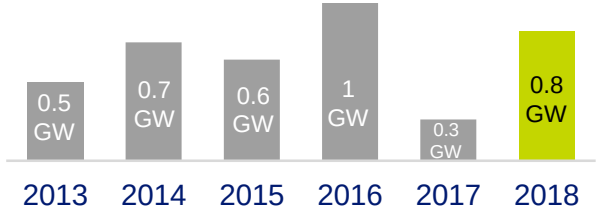
150-200 bps

(1) Average performance based on a profitability analysis (scope: 79% of installed capacity, 103 plants, 6,2GW net, 14 countries)

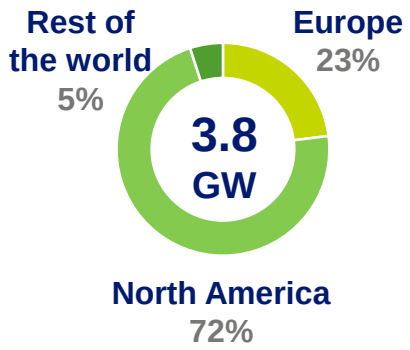
WITH OVER 3.8GW SOLD SINCE 2013, DSSA(1) IS AT THE CORE OF EDF RENEWABLES'S BUSINESS MODEL

EDF Renewables has an excellent DSSA track record

CONSISTENT ROTATION OF OPERATIONAL ASSETS (EDF RENEWABLES NET CAPACITY SOLD)



CUMULATIVE ASSET ROTATION 2013 TO DATE



DSSA: a self-funding and value accretive business model

DSSA ACTIVITIES ARE AN IMPORTANT PART OF EDF EN'S BUSINESS MODEL

- DSSA consists of the disposal of certain **fully-structured projects** (typically in operation and financed)
- Allows the execution of additional market opportunities with **superior returns**

KEY BENEFITS OF DSSA

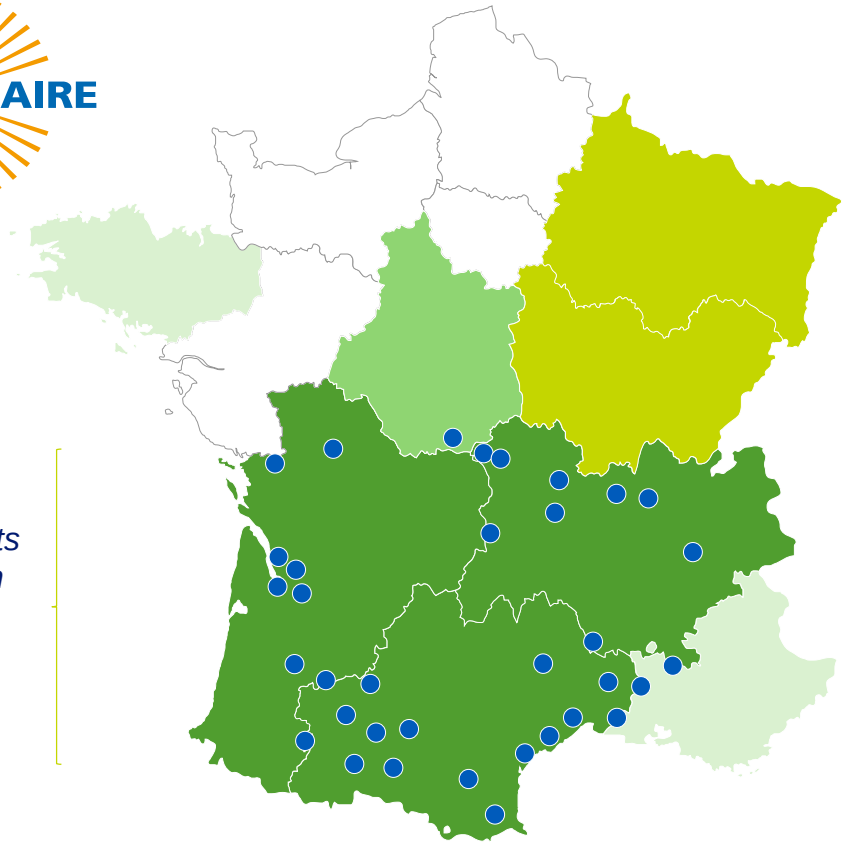
- **Immediate value crystallisation:** Realise premium on capex
- **Balance portfolio** through asset rotation
- **Increase financial flexibility** through management of investments
- **Increased competitiveness** due to lower financing costs due to participation of a co-investor

(1) Development and sale of structured assets (DSSA)

OPPORTUNISTIC M&A TO ACCELERATE GROWTH: THE LUXEL ACQUISITION EXAMPLE

LEPLANSOLAIRE

Pipeline of projects and solar farms in operation mainly located in the ***South of France***



< 10 MWp gross | 10 MWp gross < x < 50 MWp gross | 50 MWp gross < x < 100 MWp gross | > 100 MWp gross

Solar farms in operation

- **A significant pipeline of projects** c. **900 MWp** gross capacity under development, **100% solar in France**
- **A fully integrated player :**
  - Development
  - Construction
  - Operation and Maintenance
- A renowned **team specialized** in development and operation of **solar** projects in **France**

~1 GWp gross capacity in operation or under development in **France**

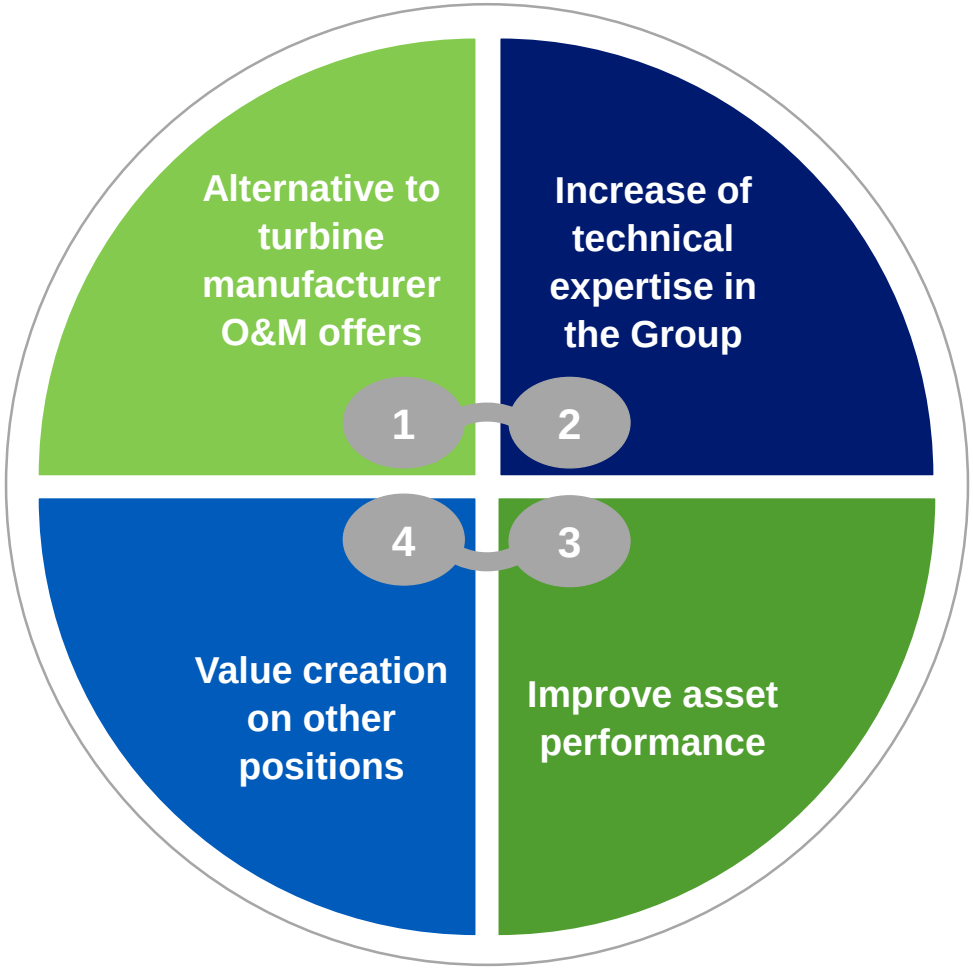
WITH 15GW UNDER MANAGEMENT, EDF-R CAPITALIZES ON A STRONG O&M EXPERTISE CREATING VALUE FOR THE WHOLE CHAIN

4 key principles

- **Competition with turbine manufacturers**, particularly O&M contract renewals

- M&A and DSSA[(1)]: **improved evaluation of acquisitions** and an advantage for asset divestitures

- Better **price positioning** on tenders / auctions and increase of the IRR by operational services



- **Strong credibility** towards turbine manufacturers and third party investors
- **Early project optimisation** (development, construction…)
- Increased knowledge for **tender** preparation

- **Real time supervision, continuous innovation** and **predictive maintenance** programs

(1) Development and sale of structured assets (DSSA)

INNOVATION PLAYS A KEY ROLE IN FOSTERING EDF-R GROWTH: THE NOOR MIDELT EXAMPLE

Noor Midelt

Key Project Facts

- With a capacity of 800 MW, this innovative hybrid solar project gathers concentrated solar power (CSP), photovoltaic technologies (PV) and batteries. **The hybridization of these technologies is a world first.**
- The combined operation of photovoltaic and CSP technologies increases the plant's output to produce a **flexible, dispatchable and competitive electricity** for the Moroccan grid **until five hours after sunset**
- A robust consortium structured around key players in renewables energy market bringing together **world leaders expertise**: EDF Renewables, Masdar and Green of Africa.
- Location: 20km north of the town of Midelt in central Morocco, in the high plains surrounding the Moulouya River and between the Middle and High Atlas Mountain

Key Dates

- May 2019: EDF R consortium awarded
- YE 2019: construction launch
- 2022: commissioning target

Noor Midelt, Morocco *(photomontage)*

MAJOR PROJECTS TO STEP UP THE GROWTH PACE IN OFFSHORE SECTOR

French tenders: 4 projects representing 2GW of combined capacity

- Offshore wind farms of **Saint-Nazaire, Fécamp and Courseulles-sur-Mer** (over 1.4GW of combined capacity)
  - Highly valuable partnerships with Enbridge and wpd
  - Total investment costs of c. 6G€
  - **Saint-Nazaire construction launched,** Fécamp and Courseulles-sur-Mer construction expected to start soon
- Offshore wind farm of Dunkirk (nearly 600 MW)
  - Highly valuable partnership with Enbridge and Innogy
  - Competitive tariff (44 €/MWh) confirming technology maturity

International development: a pipeline representing up to 3GW of combined capacity

- **United Kingdom**: acquisition of the offshore Neart na Gaoithe wind project, currently under development (450 MW)
- **China**: partnership with China Energy Investment Corporation (CEI) to jointly deliver two offshore wind projects (Dongtai IV and V, 500 MW)
- **United States**: acquisition of a lease to develop off-shore wind projects along the New Jersey coast

ONSHORE WIND 2019 HIGHLIGHTS

France: a strong delivery dynamic, underpinned by a solid development

- **300 MW in construction and near-construction**
- **134 projects under development**

Global development: major wind projects in EDF-R key countries

- **India**: EDF Renewables and SITAC Group signed a 25-year PPA covering 300 MW of wind project
- **Saudi Arabia**: The EDF Renewables-Masdar consortium was awarded a 400 MW wind project. Dumat will be Saudi Arabia's first wind farm and the most powerful in the Middle East.
- **Canada**: acquisition of Milligan 1, a 300 MW wind project in Nebraska
- **Germany**: acquisition of a significant pipeline of 300 MW wind projects under development from Altus AG, a major player in the German wind energy sector

ANTICIPATING AND SEIZING NEW TRENDS WILL BE A CRITICAL SUCCESS FACTOR TO CREATE DURABLE VALUE

New Route to Market opportunities : growing **merchant exposure** and **corporate PPAs market**

Technological improvements: digital optimization, floating offshore, etc.

Emergence of **storage** to complement renewable energy sources, hybrid projects

Microgrids for off grid users or users with poor connection, also including distribution

Making the most of these new trends from an **early stage** would be an invaluable asset for value creation


Thank you
EDF
renouvelables