



EDF Green Bonds

*Investor
Presentation*

December 2018





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EDF HAS ISSUED 5 GREEN BOND TRANCHES SINCE 2013, FOR THE EQUIVALENT OF AROUND €4.5 BILLION

November 2013

Inaugural EDF Green Bond issuance

- €1.4bn, 7.5 year maturity
- First benchmark corporate Green Bond

October 2015

2nd Green Bond issuance

- \$1.25bn, 10 year maturity

October 2016

3rd Green Bond issuance

- €1.75bn, 10 year maturity

January 2017

4th Green Bond issuance (2 tranches)

- ¥19.6bn, 12 yr + ¥6.4bn, 15yr

Construction of new wind
and PV projects

Construction of new wind
and PV projects

Modernisation and upgrade
of existing hydropower
plants in France

EDF GREEN BOND FRAMEWORK FOLLOWING BEST MARKET PRACTICES AND GREEN BOND PRINCIPLES

1

Use of Proceeds

Investment in **EDF EN** and **EDF's Hydro Division** power generation assets from renewable energy sources:

- **Development of new renewables generation capacity**
- **Renovation and modernisation of existing hydropower generation facilities** with a view to increasing efficiency, flexibility and ability to contribute to meeting needs of changing electricity systems as the share of intermittent capacity grows and adapting existing hydropower assets to changing climate patterns

Investment activities to comply with **specific Environmental and Social criteria**

2

Project selection process

Dedicated internal organisation to assess and ensure that only Eligible Projects as defined in Use of Proceeds may benefit from Green Bond financing

3

Management of Proceeds

Net proceeds **allocated to a sub portfolio, managed and tracked separately** until their allocation to Eligible Projects

4

Reporting

Half-yearly updates : Fund allocation

Annual disclosures: Fund allocation + Green Bond-funded projects and aggregated impacts (at the level of each Bond issuance)



5

External Review



Ex-ante Second Opinion – Vigeo Eiris' level of assurance on the sustainability of the Green Bond Framework is "reasonable"

Ex-post attestation report – Deloitte to issue an annual assurance report on fund allocations and EDF Green Bonds compliance with EDF Green Bond Framework and the Green Bond Principles

GREEN BONDS PROCEEDS ALLOCATION AT 30 JUNE 2018

Allocated funds as of 30/06/2018 (millions of currency units)

Issue date ⁽¹⁾	Maturity (in years)	Nominal amount (millions of currency units)	Currency	Allocated funds as of 30/06/2018 (millions of currency units)		Total (% of raised funds)
				Construction of new renewable capacity by EDF EN	Renovation, modernisation and development of existing hydroelectric facilities in metropolitan France	
Nov. 2013	7.5	1,400	EUR	1,400	<i>Not included in Use of Proceeds</i>	1,400 (100%)
Oct. 2015	10	1,250	USD	1,250	<i>Not included in Use of Proceeds</i>	1,250 (100%)
Oct. 2016	10	1,750	EUR	443	289	732 (42%)
Jan. 2017	12	19,600	JPY	-	-	-
Jan. 2017	15	6,400	JPY	-	-	-

(1) Date of funds reception

IMPACT REPORTING AT END-2017: RENEWABLE CAPACITY, RENEWABLE OUTPUT, AVOIDED CO₂

Issue date	Funds raised	Funds allocated	Projects financed by the Green Bond	Part of the total investments financed by the Green Bond	Gross total capacity of GB funded projects (in MW)		Expected output (in TWh/year)		Expected avoided CO ₂ emissions (in Mt/year)	
					Gross ⁽¹⁾	Net ⁽²⁾	Gross ⁽¹⁾	Net ⁽²⁾	Gross ⁽¹⁾	Net ⁽²⁾
Nov. 2013	€1.4bn	€1.4bn	13 EDF EN projects ⁽³⁾	59%	1,755	976	7.0	4.1	3.29	1.82
Oct. 2015	\$1.25bn	\$1.25bn	7 EDF EN projects ^(3,4)	62%	1,306	832	5.1	3.2	3.46	2.15
Oct. 2016	€1.75bn	€443m	3 EDF EN projects ⁽⁴⁾	67%	466	251	2.3	1.3	1.04	0.49
		€235m	>100 hydro operations	100% ⁽⁵⁾	16,341	16,341	0.2 ⁽⁶⁾	0.2⁽⁶⁾	0.01 ⁽⁶⁾	0.01⁽⁶⁾

Share of Green Bond funded capacity owned by EDF at the end of December 2017:

- Green Bond No. 1 (November 2013): 53%
- Green Bond No. 2 (October 2015): 53%
- Green Bond No. 3 (October 2016): 97%

The detailed list of EDF EN projects and hydraulic investment operations by category will be published in the 2017 EDF reference document

(1) Sum of the gross impacts of each project funded by the corresponding Green Bond

(2) Sum of the impacts of each project weighted by the share of total investment funded by the corresponding Green Bond

(3) Of which one project received funding from both Green Bonds of November 2013 and October 2015

(4) Of which one project received funding from both Green Bonds of October 2015 and October 2016

(5) Share of investments funded by EDF taken in full, including half of Romanche-Gavet investment amount

(6) Only linked to additional output expected from development investments, including half of the additional output expected from the Romanche-Gavet project

FRANCE HYDROPOWER FUNDED INVESTMENTS AT END-2017

Investment category	Number of operations by type	Impacted capacity (in MW)	Average output over 2011-2017 (in TWh)	Additional generation potential (in TWh)	Amounts (in €m)
Renovation and heavy maintenance	96	6,788	15.6		83
Modernisation and automation	4	15,480	31.2		37
Development of existing plants	11	1,148	2.4	0.3	116
Total (excl. duplications)	111	16,341	32.3	0.3	235

GREEN BONDS: EXAMPLES OF ENVIRONMENTAL AND SOCIAL BENEFITS OF SELECTED HYDROELECTRIC INVESTMENTS



Construction & development of Gavet (Romanche)

Major reconfiguration project of 5 dams and 6 power plants in 1 dam and 1 underground generation plant, with an ambitious re-naturation operation, a broad information campaign for stakeholders, significant economic benefits for local communities, and a return-to-work support programme

- Re-naturation using local plants harvested within a maximum radius of 25km to restore shorelines, grasslands and groves
- Management plan for 57 hectares of compensation areas
- Social integration clause implemented on the Romanche-Gavet site, to support the return to employment of people in difficulty

Development of kembs: reserved flow turbinng (Rhine)

Installation of the reserved flow in the Rhine to improve the living conditions of local aquatic life, allowing the attraction and the proper functioning of the fishway, as well as the feeding of the “Little Rhine”, a re-natured branch, supporting the return of endemic species

- Re-naturation of 100 hectares of agricultural fields in order to provide different environments favourable to biodiversity
- Sustained discussions with relevant stakeholders (for example, the *Petite Camargue Alsacienne*)



Partial renovation of the *La Rance* tidal power plant

- The consultation mechanism relating to the management of water levels in the Rance estuary, the first of this scale at the hydropower level, brought together 68 stakeholders and identified 9 major expectations in terms of water management, broken down into 13 objective criteria. The consultation, conducted by EDF, was supervised by a third party, who guaranteed its neutrality and fairness
- As part of this consultation, EDF carried out “life-size” tests to deploy a new mode of operation, in line with the identified expectations. These tests, conducted at different water levels, brought together 48 local “observers”, in partnership with the *Coeur Emeraude* association

EVOLUTION OF EDF'S GREEN BOND REPORTING

What has changed since 2013

What may change in the future

Content

- Introduction of:
- ⇒ Avoided CO₂ emissions
 - ⇒ Gross vs. Net impacts
 - ⇒ Share of Green Bond-funded capacity owned
 - ⇒ Reporting on one, then on several green bonds

- ⇒ Enhanced reporting on hydropower investments
- ⇒ Possible evolution of avoided CO₂ emission methodology in the context of renovation and modernization of hydropower plants
- ⇒ Other impact indicators?

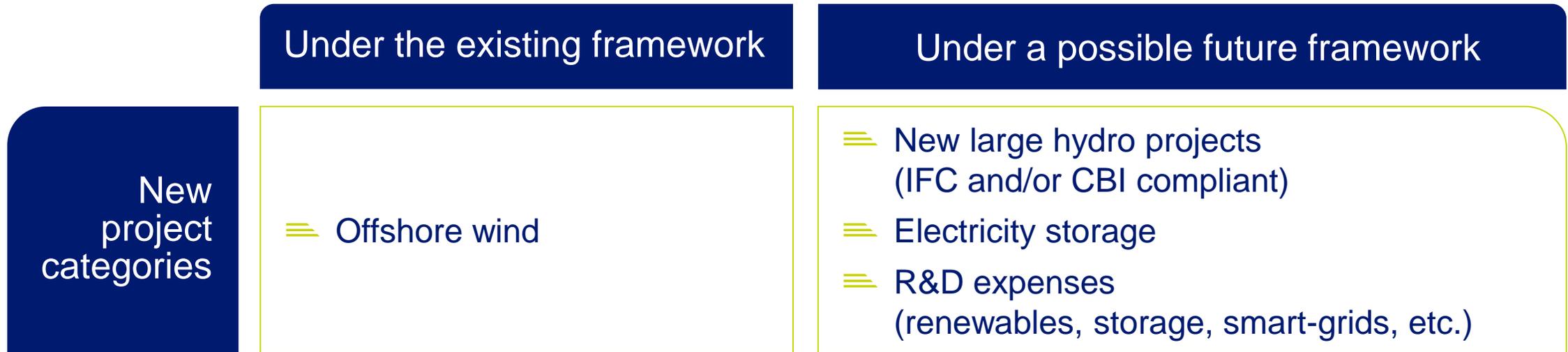
Format

- ⇒ Introduction in periodic financial presentations
- ⇒ Significant development of the dedicated page in EDF's website

- ⇒ Frequency of the reporting

- ⇒ Most changes introduced as a result of investors' feedback
- ⇒ Seeking feedback for any potential future evolution

EVOLUTION OF GREEN BOND PROJECT CATEGORIES AND FRAMEWORK



⇒ Evolution of EDF's Green Bond framework?

- Current GBP-compliant internal framework established in 2013 in the absence of a workable external reference
- Since then, CBI became a real option
- The EU Green Bond Standard is expected to be released mid-2019

➔ Should EDF just add new eligible project/expense categories under its existing framework?

➔ Should it move to CBI or to the EU GBS?



Sustainable Finance and EDF

Back-up



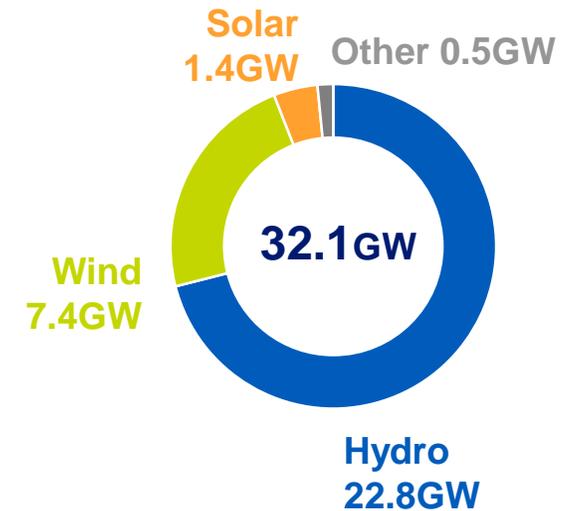
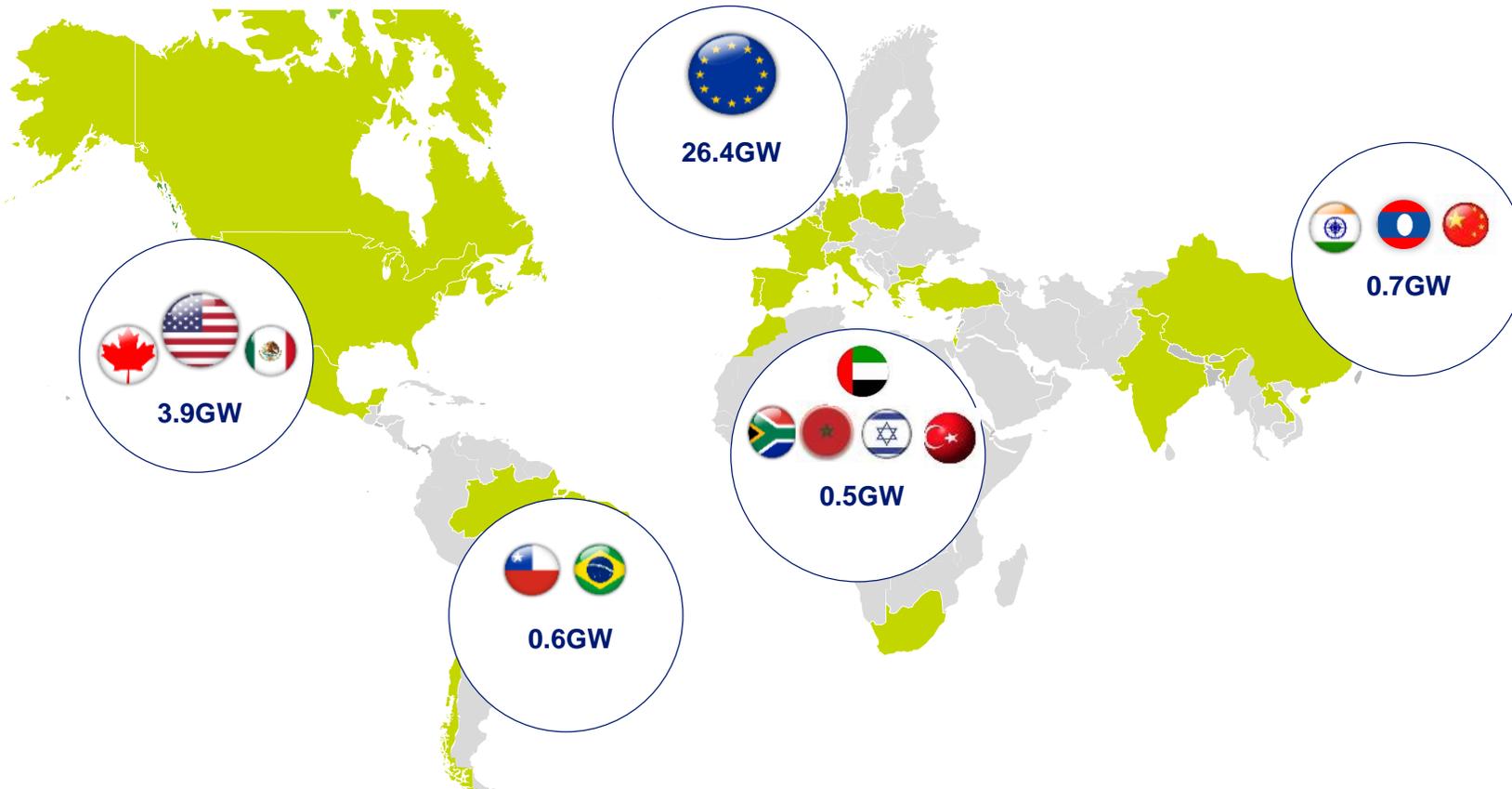
EDF ENERGIES NOUVELLES FUNDED PROJECTS AT END-2017

Project	Technology and capacity	Location	Project status	Funding GB1/GB2
La Mitis	Onshore wind, 25MW	Canada (Quebec)	Commissioned	GB1
Le Granit	Onshore wind, 25MW	Canada (Quebec)	Commissioned	GB1
Nicolas Riou	Onshore wind, 112MW	Canada (Quebec)	Commissioned	GB3
Rivière du Moulin	Onshore wind, 350MW	Canada (Quebec)	Commissioned	GB1
Ensemble éolien catalan	Onshore wind, 96MW	France (Pyrénées-Orientales)	Commissioned	GB1
CID Solar	Solar PV, 27MWp	USA (California)	Commissioned	GB1
Cottonwood	Solar PV, 33MWp	USA (California)	Commissioned	GB1
Great Western	Onshore wind, 225MW	USA (Oklahoma)	Commissioned	GB2
Heartland	Biogas, 20MW	USA (Colorado)	Commissioned	GB1
Hereford	Onshore wind, 200MW	USA (Texas)	Commissioned	GB1
Kelly Creek	Onshore wind, 184MW	USA (Illinois)	Commissioned	GB2
Longhorn North	Onshore wind, 200MW	USA (Texas)	Commissioned	GB1
Pilot Hill	Onshore wind, 175MW	USA (Illinois)	Commissioned	GB1
Red Pine	Onshore wind, 200MW	USA (Minnesota)	Commissioned	GB2 & GB3
Rock Falls	Onshore wind, 154MW	USA (Oklahoma)	Commissioned	GB3
Roosevelt	Onshore wind, 250MW	USA (New Mexico)	Commissioned	GB1 and GB2
Salt Fork	Onshore wind, 174MW	USA (Texas)	Commissioned	GB2
Slate Creek	Onshore wind, 150MW	USA (Texas)	Commissioned	GB2
Spinning Spur 2	Onshore wind, 161MW	USA (Texas)	Commissioned	GB1
Spinning Spur 3	Onshore wind, 194MW	USA (Texas)	Commissioned	GB1
Tyler Bluff	Onshore wind, 126MW	USA (Texas)	Commissioned	GB2

GREEN BOND ELIGIBLE PROJECTS: CORE TO EDF'S CURRENT ACTIVITIES AND FUTURE GROWTH

Group net⁽¹⁾ installed capacity at 30 June 2018: 32.1GW

Capacity by technology

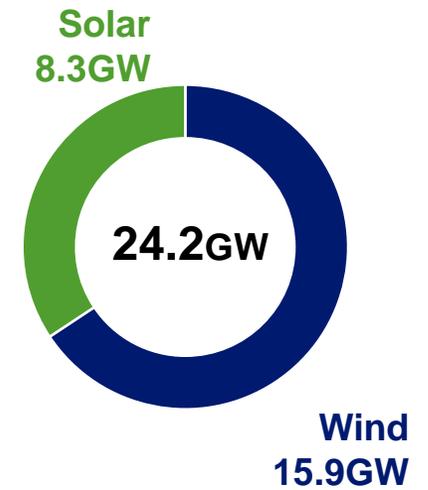
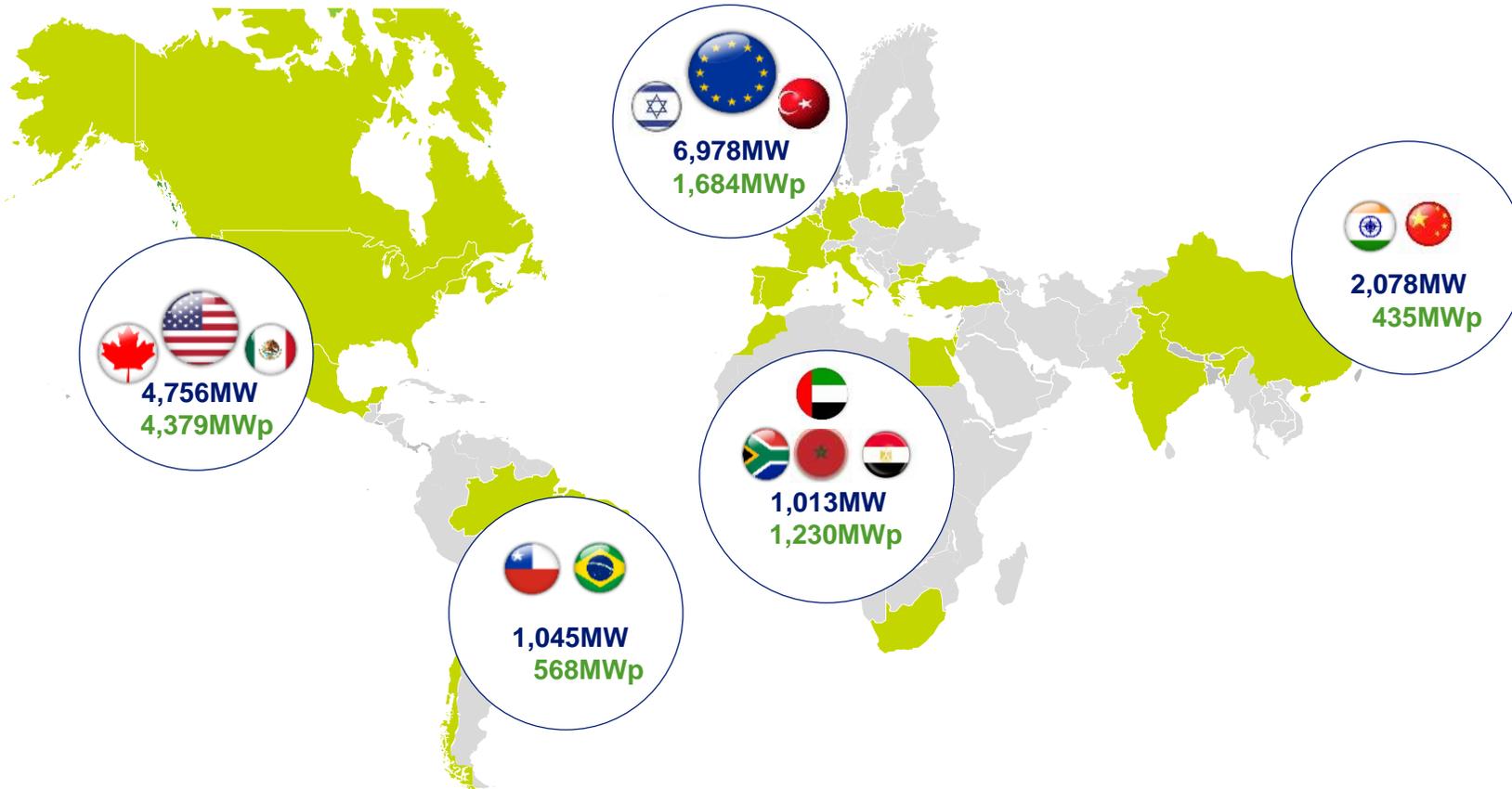


(1) Net installed capacity, corresponding to consolidated data according to EDF's percentage ownership in Group companies, including associates and joint ventures

EDF RENOUVELABLES: A SIGNIFICANT PORTFOLIO OF RENEWABLE PROJECTS

A wind and solar pipeline of around 24.2GW at 30 June 2018

Capacity by technology



Source: EDF, EDF Renouvelables

Note: pipelines are indicated for EDF Renouvelables and include capacity under construction

EDF EN ELIGIBLE PROJECTS

New renewable energy projects

- New projects identified and developed by EDF Energies Nouvelles in the field of renewable energies such as wind (off-shore and on-shore), photovoltaic, biogas, marine energy, etc.



- Eligible projects can only consist of new projects (under development or construction)

Fulfilling E&S criteria

- EDF EN Project E&S Criteria cover five Environmental and Social aspects
 - Civil rights and Governance assessment of country location of the projects
 - Management of environmental impacts
 - Protection of workers' health and safety
 - Promotion of responsible supplier relationship
 - Dialogue with local players

EDF MAINLAND FRANCE HYDRO ELIGIBLE PROJECTS

Investments in existing hydropower facilities in mainland France (excluding subsidiaries)

- Renovation and upgrade of hydropower generation facilities
- Modernisation and automation of existing hydropower facilities' maintenance and operation
- Hydropower development projects

Improve hydropower generation efficiency and safety

Improve resilience to climate change

Increase generation flexibility and ability to manage growth in intermittent renewables

Net increase of hydropower output and/or storage capacity (for pumped storage)

Fulfilling E&S criteria

- French Hydro Project E&S criteria cover five E&S aspects
 - Development of sustainable human resources practices and processes
 - Management of environmental impacts
 - Protection of employees and contractors workers' health and safety
 - Promotion of responsible contractors relationship
 - Dialogue with local players

Inspired by the IHA Protocol's philosophy

