4 years of Green Bond reporting: What have we learnt?

Chaire Énergie et Prospérité
24 November 2017
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

Benefits for EDF
- Diversify investor base
- Highlight EDF’s existing footprint and development strategy in renewable energies
- Further streamline EDF’s approach to Corporate Responsibility

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

**External Review**

**Ex-ante Second Opinion** – Vigeo Eiris’ level of assurance on the sustainability of the Green Bond Framework is “reasonable”
- Confirms bonds to be issued are Green Bonds and alignment with the GBPs
- Considers EDF ESG performance and the new Green Bond Framework as “robust”
- Considers reporting commitments showing an overall consistent level of transparency

**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

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EDF 4 years of Green Bond reporting: What have we learnt?
# FUND ALLOCATION REPORTING AT END-2016

<table>
<thead>
<tr>
<th>Issue date(1)</th>
<th>Maturity (in years)</th>
<th>Nominal amount (millions of currency units)</th>
<th>Currency</th>
<th>Eligible investments in the use of proceeds</th>
<th>Allocated funds as of 31/12/16</th>
</tr>
</thead>
<tbody>
<tr>
<td>11/2013</td>
<td>7.5</td>
<td>1,400 EUR</td>
<td>EUR</td>
<td>Construction of new renewable capacity by EDF EN</td>
<td>100%</td>
</tr>
<tr>
<td>10/2015</td>
<td>10</td>
<td>1,250 USD</td>
<td>USD</td>
<td>Renovation and modernization of existing hydroelectric facilities in metropolitan France</td>
<td>97.6%</td>
</tr>
<tr>
<td>10/2016</td>
<td>10</td>
<td>1,750 EUR</td>
<td>EUR</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>01/2017</td>
<td>12</td>
<td>19,600 JPY</td>
<td>JPY</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>01/2017</td>
<td>15</td>
<td>6,400 JPY</td>
<td>JPY</td>
<td></td>
<td>-</td>
</tr>
</tbody>
</table>

(1) Date of funds reception
### Project-Level Reporting at End-2016

<table>
<thead>
<tr>
<th>Project</th>
<th>Technology and Capacity</th>
<th>Location</th>
<th>Projected Year of Commissioning</th>
<th>Funding GB1/GB2</th>
</tr>
</thead>
<tbody>
<tr>
<td>CID Solar</td>
<td>Solar PV, 27MWp</td>
<td>USA (California)</td>
<td>Commissioned</td>
<td>GB1</td>
</tr>
<tr>
<td>Cottonwood</td>
<td>Solar PV, 33MWp</td>
<td>USA (California)</td>
<td>Commissioned</td>
<td>GB1</td>
</tr>
<tr>
<td>Ensemble éolien catalan</td>
<td>Onshore wind, 96MW</td>
<td>France (Pyrénées-Orientales)</td>
<td>Commissioned</td>
<td>GB1</td>
</tr>
<tr>
<td>Great Western</td>
<td>Onshore wind, 225MW</td>
<td>USA (Oklahoma)</td>
<td>Commissioned</td>
<td>GB2</td>
</tr>
<tr>
<td>Heartland</td>
<td>Biomethane, 20MW</td>
<td>USA (Colorado)</td>
<td>Commissioned</td>
<td>GB1</td>
</tr>
<tr>
<td>Hereford</td>
<td>Onshore wind, 200MW</td>
<td>USA (Texas)</td>
<td>Commissioned</td>
<td>GB1</td>
</tr>
<tr>
<td>Kelly Creek</td>
<td>Onshore wind, 184MW</td>
<td>USA (Illinois)</td>
<td>Commissioned</td>
<td>GB2</td>
</tr>
<tr>
<td>La Mitis</td>
<td>Onshore wind, 25MW</td>
<td>Canada (Quebec)</td>
<td>Commissioned</td>
<td>GB1</td>
</tr>
<tr>
<td>Le Granit</td>
<td>Onshore wind, 25MW</td>
<td>Canada (Quebec)</td>
<td>Commissioned</td>
<td>GB1</td>
</tr>
<tr>
<td>Longhorn North</td>
<td>Onshore wind, 200MW</td>
<td>USA (Texas)</td>
<td>Commissioned</td>
<td>GB1</td>
</tr>
<tr>
<td>Pilot Hill</td>
<td>Onshore wind, 175MW</td>
<td>USA (Illinois)</td>
<td>Commissioned</td>
<td>GB1</td>
</tr>
<tr>
<td>Rivière du Moulin</td>
<td>Onshore wind, 350MW</td>
<td>Canada (Quebec)</td>
<td>Commissioned</td>
<td>GB1</td>
</tr>
<tr>
<td>Roosevelt</td>
<td>Onshore wind, 250MW</td>
<td>USA (New Mexico)</td>
<td>Commissioned</td>
<td>GB1 and GB2</td>
</tr>
<tr>
<td>Salt Fork</td>
<td>Onshore wind, 174MW</td>
<td>USA (Texas)</td>
<td>Commissioned</td>
<td>GB2</td>
</tr>
<tr>
<td>Slate Creek</td>
<td>Onshore wind, 150MW</td>
<td>USA (Texas)</td>
<td>Commissioned</td>
<td>GB2</td>
</tr>
<tr>
<td>Spinning Spur 2</td>
<td>Onshore wind, 161MW</td>
<td>USA (Texas)</td>
<td>Commissioned</td>
<td>GB1</td>
</tr>
<tr>
<td>Spinning Spur 3</td>
<td>Onshore wind, 194MW</td>
<td>USA (Texas)</td>
<td>Commissioned</td>
<td>GB1</td>
</tr>
<tr>
<td>Tyler Bluff</td>
<td>Onshore wind, 126MW</td>
<td>USA (Texas)</td>
<td>Commissioned</td>
<td>GB2</td>
</tr>
</tbody>
</table>
## IMPACT REPORTING AT END-2016: RENEWABLE CAPACITY, RENEWABLE OUTPUT, AVOIDED CO₂

<table>
<thead>
<tr>
<th></th>
<th>Funds raised</th>
<th>Funds allocated</th>
<th>Projects having received GB funding</th>
<th>Share funded by the GB</th>
<th>Gross total capacity of GB funded projects (in MW)</th>
<th>Expected output (in TWh/year)</th>
<th>Expected avoided CO₂ emissions (in Mt/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>Gross(1)</strong></td>
<td><strong>Net(2)</strong></td>
<td><strong>Gross(1)</strong></td>
</tr>
<tr>
<td><strong>GB 1 Nov. 2013</strong></td>
<td>€1.4bn</td>
<td>€1.4bn</td>
<td>13 projects(3)</td>
<td>57%</td>
<td>1,755</td>
<td>976</td>
<td>7.0</td>
</tr>
<tr>
<td><strong>GB 2 Oct. 2015</strong></td>
<td>$1.25bn</td>
<td>$1.22bn</td>
<td>3 projects(3)</td>
<td>74%</td>
<td>1,109</td>
<td>814</td>
<td>4.3</td>
</tr>
</tbody>
</table>

Share of Green Bond funded capacity owned by EDF at the end December 2016:

- Green Bond N.1 (November 2013): 53%
- Green Bond N.2 (October 2015): 55%

The detailed list of projects will be published in the 2016 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.
<table>
<thead>
<tr>
<th>Content</th>
<th>Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction of:</td>
<td></td>
</tr>
<tr>
<td>- Avoided CO(_2) emissions</td>
<td>- Introduction in periodic financial presentations</td>
</tr>
<tr>
<td>- Gross vs. Net impacts</td>
<td>- Significant development of the dedicated page in EDF’s website</td>
</tr>
<tr>
<td>- Share of Green Bond-funded capacity owned</td>
<td></td>
</tr>
<tr>
<td>- Reporting on one, then on several green bonds</td>
<td></td>
</tr>
</tbody>
</table>

Most changes introduced as a result of investors’ feedback

(1) Net investments excluding Linky, new developments and asset disposals
WHAT WILL/MAY CHANGE IN THE FUTURE?

Content

- Reporting on hydropower investments
- Possible evolution of avoided CO$_2$ emission methodology in the context of renovation and modernization of hydropower plants
- Other impact indicators?

Format

- Frequency of the reporting

Best to seek investors’ view on such changes before their introduction

(1) Net investments excluding Linky, new developments and asset disposals
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Appendices
GREEN BOND ELIGIBLE PROJECTS: CORE TO EDF’S CURRENT ACTIVITIES AND FUTURE GROWTH

Global presence in 22 countries

Capacity by Technology

- Hydro 22.9GW
- Wind 7GW
- Solar 0.7GW
- Other 0.4GW

31 GW in operation

- BALANCED CAPACITY MIX WITH 31GW IN OPERATION
- 8.3GW renewables and 22.7GW hydro operating assets
- ~2GW UNDER CONSTRUCTION
- Including over 500MW in solar
- HYDROPOWER: ‘DNA’ OF EDF
- Leader in Europe with a growing development pipeline
- SELECTIVE GROUP INVESTMENT PLAN
- Over €2.5bn gross investments p.a. and increasing over time
- SKILLED AND EXPERIENCED WORKFORCE
- Close to 10,000 staff dedicated to renewable energy sources

Key figures at 30 September 2017. All capacity figures are net figures, corresponding to EDF Group’s stake in each asset. Includes net installed power generation capacity and net power generation capacity under construction.

In addition, renewables activities comprise 2.5GWth of renewable heat capacity (located mainly in France and operated by Dalkia).
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