再エネ調達、日本での選択肢

Miho Kurosaki

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2050年までに340GWの再エネが新規導入

Source: BloombergNEF
日本の電源構成と予測
PVモジュール価格は2010年から83% 低減

Source: BloombergNEF, Maycock
風力タービンは2010年から32%低減

日本の電源構成と予測

Source: BloombergNEF, Lawrence Berkeley National Laboratory (LBL), ExTool study (Neij et al. 2003), Vestas annual reports
日本の電源構成と予測

日本の太陽光は他の電源よりも安くなる

$/MWh (real 2017)

太陽光は新設の一番安い電源
再エネ調達の選択肢
日本の選択肢

1. 自家発電、自家消費
2. 電気小売事業者からの購入（再エネ電力）
3. 再エネ証書
Source: BloombergNEF, METI. Note: in previous publications we estimated that 547,000 households with 2.15GW of PV will come off the buyback program in 2019. This was an estimate based on a chart published by METI.
オプション2: 再エネ電力

法人（大口契約）向けプラン

アクアプレミアム

アクアプレミアムは、水力100％（CO2フリー）のエコな電気料金プランです。

再エネプレミアムプランの電源構成
（平成30年度 計画値）

- 水力（3万kW未満）: 79.5%
- 水力（3万kW以上）: 19.5%
- 太陽光: 0.3%
- バイオマス: 0.7%

Source: Tepco, Shikoku Electric
オプション 3: 証書

1. グリーン電力証書
2. Jークレジット
3. 非化石価値証書
非化石価値証書

a) 入札参加者
b) 電源のトラッキング
c) 最低入札価格
   : 1.3円/kWh

非化石価値証書入札結果

Auctioned volume up almost 10x in the latest auction. Still, this represents just 0.1% of the total volume available for auctioning

Source: BNEF
変化する経済性

太陽光の固定価格価格と非化石価値購入の比較

Source: BloombergNEF
再エネ調達の選択肢

日本での選択肢

1. 自家発電、自家消費
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3. 再エネ証書
世界の再エネ調達
Global Corporate PPA volumes by region

<table>
<thead>
<tr>
<th>Year</th>
<th>AMER</th>
<th>EMEA</th>
<th>APAC</th>
<th>Cumulative</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>0.2</td>
<td>0.3</td>
<td>0.1</td>
<td>0.6</td>
</tr>
<tr>
<td>2009</td>
<td>0.3</td>
<td>0.1</td>
<td>0.3</td>
<td>1.5</td>
</tr>
<tr>
<td>2010</td>
<td>1.0</td>
<td>0.6</td>
<td>1.5</td>
<td>2.2</td>
</tr>
<tr>
<td>2011</td>
<td>1.0</td>
<td>2.2</td>
<td>3.4</td>
<td>4.6</td>
</tr>
<tr>
<td>2012</td>
<td>1.0</td>
<td>4.2</td>
<td>2.4</td>
<td>6.6</td>
</tr>
<tr>
<td>2013</td>
<td>1.0</td>
<td>1.1</td>
<td>3.3</td>
<td>9.0</td>
</tr>
<tr>
<td>2014</td>
<td>1.0</td>
<td>1.1</td>
<td>3.3</td>
<td>11.3</td>
</tr>
<tr>
<td>2015</td>
<td>1.0</td>
<td>4.2</td>
<td>2.4</td>
<td>13.6</td>
</tr>
<tr>
<td>2016</td>
<td>1.0</td>
<td>1.1</td>
<td>3.3</td>
<td>16.0</td>
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<tr>
<td>2017</td>
<td>1.0</td>
<td>1.1</td>
<td>3.3</td>
<td>19.3</td>
</tr>
<tr>
<td>2018</td>
<td>1.0</td>
<td>1.1</td>
<td>3.3</td>
<td>22.6</td>
</tr>
</tbody>
</table>

Source: BloombergNEF  Note: All data in this report is up to through November 2018. Volumes are for offsite deals only.
PPA の場所

Source: BloombergNEF  Note: Bubble size based on PPA capacity (MW)
Case Study: Walmart Goes All In on Supply Chain

by Kyle Harrison / 28 Aug 2018

Microsoft Makes Progress Yet
by Kyle Harrison / 24 Mar 2018

What Drives Europe’s Top Three Corporate PPA Markets?
by Helen Debnutt / 15 May 2018

Executive Summary

Walmart has established various initiatives to become carbon neutral by 2050, including adopting renewable energy. Its 18,710 stores, which consume 22 TWh of electricity annually, represent one of the largest customers of renewable energy in the world. Walmart has a significant amount of power purchase agreements and is looking to increase its adoption of renewable energy.

Executive Summary

Microsoft continues to make significant progress in its sustainability strategy, with a goal of reaching carbon neutrality by 2035. The company has already achieved reductions in emissions from its own operations and is partnering with suppliers to reduce emissions across the entire supply chain.

Executive Summary

The number and volume of power purchase agreements being signed in Europe is on the rise. However, almost all of the recent activity has been in just three countries: the Netherlands, Norway and Sweden. This note examines why these three have emerged as the main centers. It looks at policies, regulations, electricity markets, risk control characteristics, and business environments, and asks whether the trio can remain magnets for PPA deals in the years ahead. (Figure 3 in this note was corrected on May 24, to reflect the fact that at the time of publishing, there had been no new corporate PPA signed in the rest of Europe in 2018.)

Top 10 European PPA deals by volume (MW) since 2013

<table>
<thead>
<tr>
<th>Country/Region</th>
<th>Volume (MW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Markthagen D/DE</td>
<td>400</td>
</tr>
<tr>
<td>Oyjafset, NOR</td>
<td>500</td>
</tr>
<tr>
<td>Hnoy hydro portfolio, D/LW</td>
<td>200</td>
</tr>
<tr>
<td>Nordlicht/Kvitjet, NOR</td>
<td>150</td>
</tr>
<tr>
<td>Weingenrurer, M/LD</td>
<td>100</td>
</tr>
<tr>
<td>Breakfield wind portfolio, IRE</td>
<td>150</td>
</tr>
</tbody>
</table>

Source: BloombergNEF
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