The Past, Present & Future of Carbon Offsets

CFTC convening

Kyle Harrison

19 July 2023
Net-zero targets in aggregate call for gigatons of emission reductions

Net-zero targets by major companies

14.5GtCO2e

Annual emission reductions needed for major companies to achieve net zero emissions, compared with 2015

Source: BloombergNEF, Bloomberg Terminal, company filings   Note: Chart only includes emissions covered under a net-zero target.
Even the most aggressive abatement strategies will have residual emissions

Residual emissions from major companies under the SBTI net zero pathway

Source: BloombergNEF, Bloomberg Terminal, SBTI company filings   Note: Chart only includes emissions covered under a net-zero target
Even the most aggressive abatement strategies will have residual emissions

Residual emissions from major companies under a 2C pathway

Source: BloombergNEF, Bloomberg Terminal, company filings  Note: Chart only includes emissions covered under a net-zero target
This has led to an explosion in carbon offset popularity, across a range of sectors

Voluntary carbon offset retirements

Source: BloombergNEF, Verra, Gold Standard, American Carbon Registry, Climate Action Reserve   Note: Data through June.

MtCO2e

<table>
<thead>
<tr>
<th>Year</th>
<th>Energy generation</th>
<th>Avoided deforestation</th>
<th>Energy demand</th>
<th>Emissions</th>
<th>Reforestation</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>41.1</td>
<td>0.1</td>
<td>0.2</td>
<td>0.1</td>
<td>0.1</td>
<td>0.1</td>
</tr>
<tr>
<td>2016</td>
<td>32.0</td>
<td>0.1</td>
<td>0.2</td>
<td>0.1</td>
<td>0.1</td>
<td>0.1</td>
</tr>
<tr>
<td>2017</td>
<td>42.7</td>
<td>0.1</td>
<td>0.2</td>
<td>0.1</td>
<td>0.1</td>
<td>0.1</td>
</tr>
<tr>
<td>2018</td>
<td>52.6</td>
<td>0.1</td>
<td>0.2</td>
<td>0.1</td>
<td>0.1</td>
<td>0.1</td>
</tr>
<tr>
<td>2019</td>
<td>70.1</td>
<td>0.1</td>
<td>0.2</td>
<td>0.1</td>
<td>0.1</td>
<td>0.1</td>
</tr>
<tr>
<td>2020</td>
<td>93.4</td>
<td>0.1</td>
<td>0.2</td>
<td>0.1</td>
<td>0.1</td>
<td>0.1</td>
</tr>
<tr>
<td>2021</td>
<td>161.0</td>
<td>0.1</td>
<td>0.2</td>
<td>0.1</td>
<td>0.1</td>
<td>0.1</td>
</tr>
<tr>
<td>2022</td>
<td>153.8</td>
<td>0.1</td>
<td>0.2</td>
<td>0.1</td>
<td>0.1</td>
<td>0.1</td>
</tr>
<tr>
<td>2023</td>
<td>73.4</td>
<td>0.1</td>
<td>0.2</td>
<td>0.1</td>
<td>0.1</td>
<td>0.1</td>
</tr>
</tbody>
</table>
Developers have ramped up supply in response to growing demand

Voluntary carbon offset issuance

MtCO2e

Source: BloombergNEF, Verra, Gold Standard, American Carbon Registry, Climate Action Reserve. Note: Data through June.
Most supply comes from the Southern hemisphere

Carbon offset retirements, by geography of origin and demand

Source: BloombergNEF, Verra
Note: Data based on publicly disclosed buyers.
The price of every offset is unique and they’re generally cheap

APAC carbon offset prices, by transaction, and other regional averages

Source: BloombergNEF, Bloomberg Terminal   Note: Data comes from broker-submitted transactions.
Better infrastructure is needed to support a bigger and more liquid market...

Infrastructure and major players in the carbon offsets market

Source: BloombergNEF
...and boost integrity

Infrastructure and major players in the carbon offsets market

Source: BloombergNEF
The market desperately needs reform

Carbon offset supply, demand and prices – voluntary market scenario

$35/ton

Carbon offset prices in the voluntary market scenario in 2050

Source: BloombergNEF
With today’s structure, offset supply sources that need financing would fail to get it.

**Carbon offset supply curve in 2050 – voluntary market scenario**

- **Carbon offset cost ($/ton)**
  - 250
  - 200
  - 150
  - 100
  - 50
  - 0

- **Price**
  - 0
  - 50
  - 100
  - 150
  - 200
  - 250

- **Demand**
- **Millions of offsets supplied**
  - 1,731
  - 2,192
  - 2,922
  - 3,653
  - 4,383
  - 5,114
  - 5,844
  - 6,575
  - 7,305
  - 8,036

- **Source:** BloombergNEF
Carbon nationalism could restrict supply

Carbon offset supply curve in 2050 – voluntary market scenario

Carbon offset cost ($/ton)

Demand

515MtCO2e

REDD+ abatement potential in jeopardy from the Indonesia’

Source: BloombergNEF
Leading to noticeable impacts on pricing

Baseline and adjusted carbon offset prices in the voluntary market scenario

$/ton

Source: BloombergNEF
The market could be valued at hundreds of billions if handled properly

Annual carbon offset market value, by scenario

$ billion

Source: BloombergNEF
BloombergNEF (BNEF) is a leading provider of primary research on clean energy, advanced transport, digital industry, innovative materials, and commodities.

BNEF’s global team leverages the world’s most sophisticated data sets to create clear perspectives and in-depth forecasts that frame the financial, economic and policy implications of industry-transforming trends and technologies.

BNEF research and analysis is accessible via web and mobile platforms, as well as on the Bloomberg Terminal.

Coverage.
Clean energy
Advanced transport
Commodities
Digital industry

Client enquiries:
Bloomberg Terminal: press <Help> key twice
Email: support.bnef@bloomberg.net

Learn more:
about.bnef.com | @BloombergNEF