Building Broad Community Consensus for Climate Action

International Energy Agency | CERT
The role of ‘Behavioural aspects’ for reaching net zero emissions by 2050

April Salas | Revers Center for Energy | Tuck School of Business
We're back!

The US officially committed to rejoicing the Paris Climate Accords on January 20, 2021

https://www.whitehouse.gov/briefing-room/statements-releases/2021/01/20/paris-climate-agreement/
US SOLAR INDUSTRY ADDED JOBS AT 5X THE NATIONAL AVERAGE ~SEIA

ENVIRONMENTAL REGULATIONS
64+ rollbacks from prior administration

OFFSHORE DRILLING
including oil pipelines and drilling on federal lands

ENERGY INDEPENDENCE
withdraw from Paris Climate Accords and stop contributions towards UN anti-global warming

AMERICA FIRST ENERGY PLAN
clean power plan and vehicle emissions standards

https://www.seia.org/research-resources/rebuilding-america-clean-energy-economy
Renewables, gas have helped decarbonize the US

Coal’s share of the power mix is half of what it was in the 1980s

Share

<table>
<thead>
<tr>
<th>Year</th>
<th>Coal</th>
<th>Non-fossil</th>
<th>Gas &amp; oil</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998</td>
<td>60%</td>
<td>10%</td>
<td>30%</td>
</tr>
<tr>
<td>2002</td>
<td>55%</td>
<td>15%</td>
<td>30%</td>
</tr>
<tr>
<td>2006</td>
<td>50%</td>
<td>20%</td>
<td>30%</td>
</tr>
<tr>
<td>2010</td>
<td>45%</td>
<td>25%</td>
<td>30%</td>
</tr>
<tr>
<td>2014</td>
<td>40%</td>
<td>30%</td>
<td>30%</td>
</tr>
<tr>
<td>2018</td>
<td>35%</td>
<td>35%</td>
<td>30%</td>
</tr>
</tbody>
</table>

2018: US Power Mix

- Natural Gas: 36%
- Coal: 28%
- Nuclear energy: 19%
- Non-fossil: 35%
- Renewables: 10%
- Hydroelectric: 6%
Top Line

Renewable capacity additions are outpacing fossil capacity additions, and fossils are retiring at a more rapid rate than renewables.
There are a "new" set of actors

Deployment Led Innovation

States, cities, towns, individuals and corporations see a whole new way to 1) participate, and 2) lead in the transition ...
New York is the fourth most populous state in the US and its third-largest economy. Now it is poised to adopt the country’s most ambitious climate targets, including 100 percent carbon-free electricity by 2040 and economy-wide, net-zero carbon emissions by 2050.

In passing bold climate legislation, New York will follow in the footsteps of Maine, Oregon, Washington, Colorado, New Mexico, California, and New Jersey, all of which have passed substantive clean energy policies in the past year or so. (Hawaii has had its 100 percent renewables target in place since 2015.)
Think about it

WHAT ELSE IS INSPIRING THIS CHANGE?

WHAT IS DRIVING CORPORATIONS TOWARDS ACTION
R100 + Science Based Targets Initiative

R100
280 Companies (315+ Twh/yr)

SCIENCE BASED TARGETS
942 companies are taking science-based climate action and 427 companies have approved science-based targets

For additional corporate case studies:
- https://www.there100.org/companies
Global Corporate PPA Volumes

Annual volume (GW) vs Cumulative volume (GW)

Source: BloombergNEF. Note: Data are through 2019, reported in MW DC capacity. Onsite PPAs are not included. Australia sleeved PPAs are not included. APAC number is an estimate. Pre-market reform Mexico PPAs are not included. These figures are subject to change and may be updated as more information is made available.
US corporations have accelerated the pace of change
Microsoft

Microsoft President
Brad Smith

Chief Financial Officer
Amy Hood

CEO Satya Nadella
Microsoft’s Commitment Journey

2012
- Achieved carbon neutrality
- Established internal carbon tax

2018
- 50% energy use from wind, solar and hydroelectric power

2020
- 60% energy use from wind, solar and hydroelectric power

2025
- 100% energy use from renewable energy

2030
- Carbon negative
- Electrify global campus operations vehicle fleet

2050
- Remove all company emissions from electrical consumption or direct creation since 1975 founding
Increasing our goal to 100% renewable by 2025

Since our first power purchase agreement in 2013, Microsoft has signed agreements that will enable approximately 2GW of incremental renewable capacity in grids around the world.

In 2016, Microsoft committed to a goal of achieving 70% renewable energy by 2023.

This year, Microsoft has increased its commitments to green energy, with a goal of achieving 100% renewable energy for all Microsoft electricity consumption by 2025.

Increasing our targets

Generate clean energy

Enabling the transition towards a grid powered by carbon-free energy

<table>
<thead>
<tr>
<th>Capacity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 MW</td>
<td>Supporting solar energy in Virginia</td>
</tr>
<tr>
<td>37 MW</td>
<td>Advancing wind power in Ireland</td>
</tr>
<tr>
<td>110 MW</td>
<td>New wind power in Texas</td>
</tr>
<tr>
<td>175 MW</td>
<td>Harnessing the wind in Illinois</td>
</tr>
<tr>
<td>180 MW</td>
<td>Capturing clean energy in the Netherlands</td>
</tr>
</tbody>
</table>
Technology is unlocking new markets...and market participants. This presents new opportunities for sustainable business models to emerge.
The Future Outlook

LAST 4 YEARS' FEDERAL POLICIES TRANSFERRED ACTION TO CORPORATE / STATE / INDIVIDUALS

BROAD BASED ELECTRIFICATION AND DECARBONIZATION POLICIES AND PROGRAMS EXPECTED GOVERNMENT-WIDE

COVID-19 IMPACTS TO CLEAN ENERGY ECONOMY UNCERTAIN

ENERGY TRANSITION AND SOCIAL JUSTICE FOCUS
Thank you

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