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



BRIEFING ROOM

Paris Climate Agreement

JANUARY 20, 2021 • STATEMENTS AND RELEASES

We're back!

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



ACCEPTANCE ON BEHALF OF THE UNITED STATES OF AMERICA

I, Joseph R. Biden Jr., President of the United States of America, having seen and considered the Paris Agreement, done at Paris on December 12, 2015, do hereby accept the said Agreement and every article and clause thereof on behalf of the United States of America.

Done at Washington this 20th day of January, 2021.

JOSEPH R. BIDEN JR.

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 antiglobal warming

AMERICA FIRST ENERGY PLAN

clean power plan and vehicle emissions standards

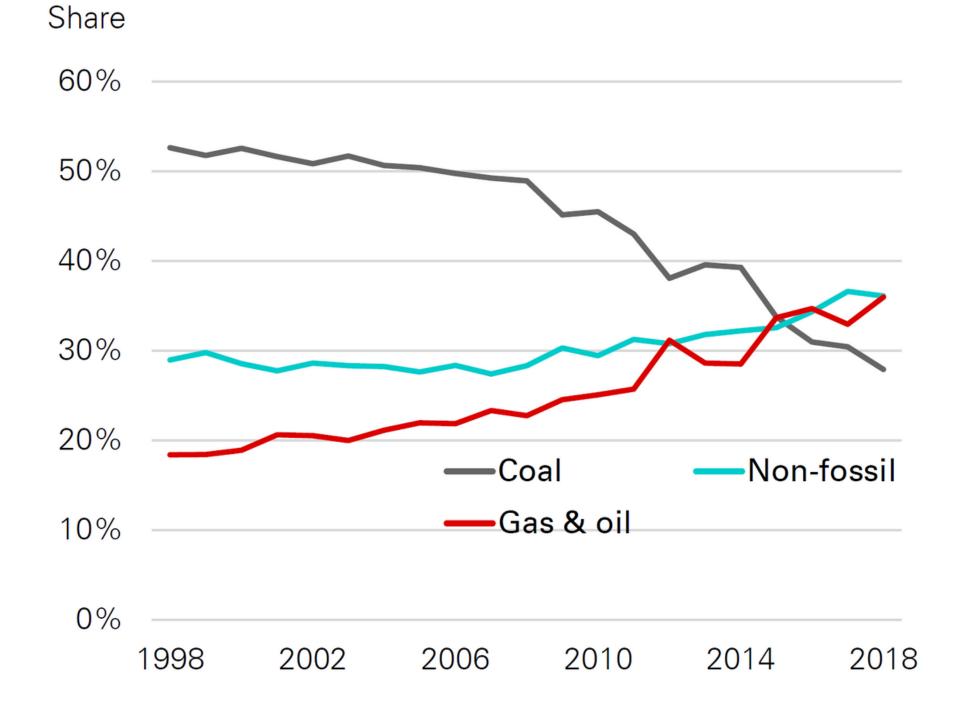
US SOLAR INDUSTRY ADDED JOBS AT 5X THE NATIONAL AVERAGE ~SEIA

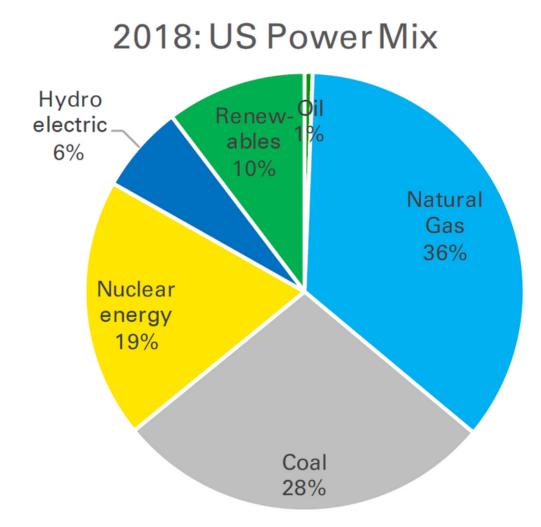
https://www.seia.org/research-resources/rebuilding-america-clean-energy-economy

Renewables, gas have helped decarbonize the US



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



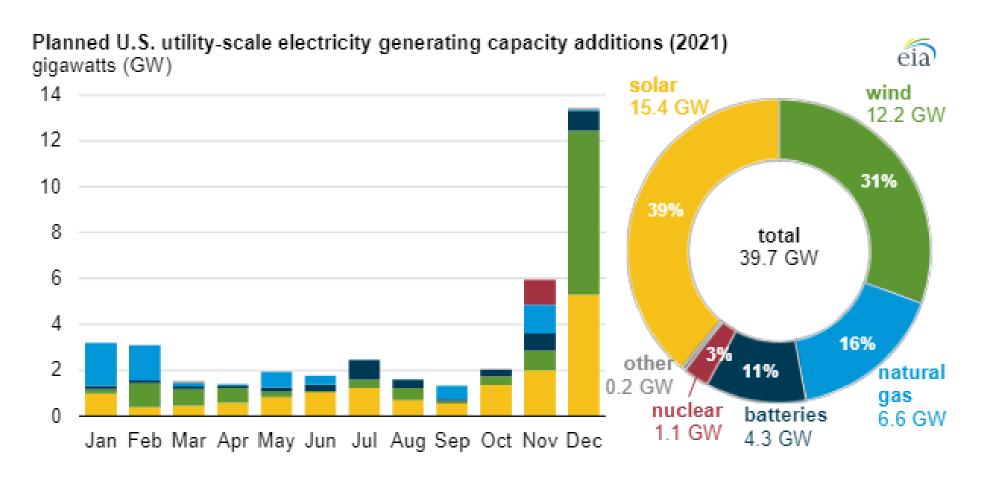


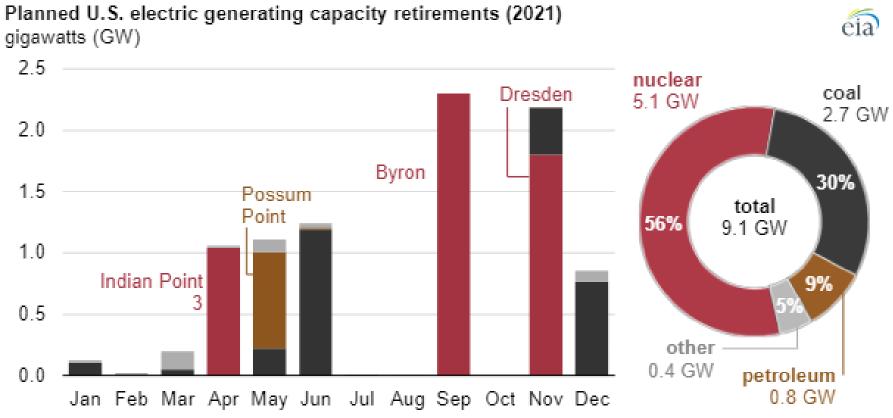
Top Line

Renewable capacity additions are outpacing fossil capacity additions, and fossils are retiring at a more rapid rate than renewables

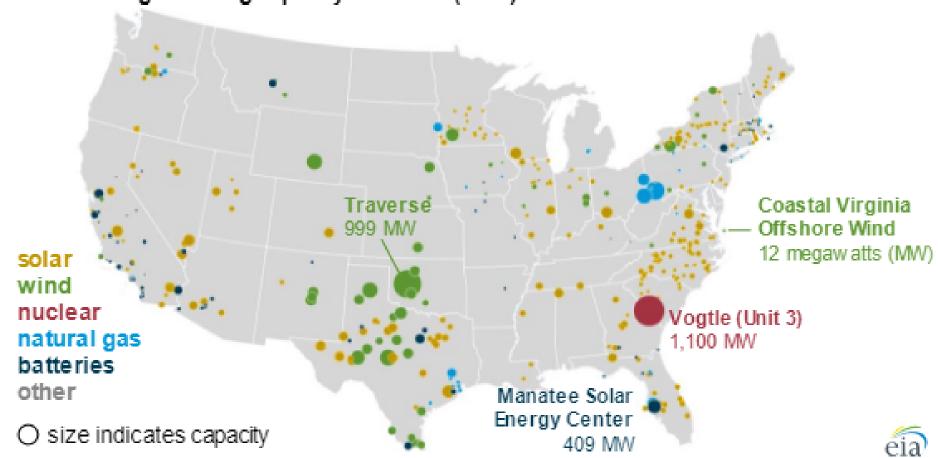
Energy Trends

What does the data in the US suggest that we can expect?

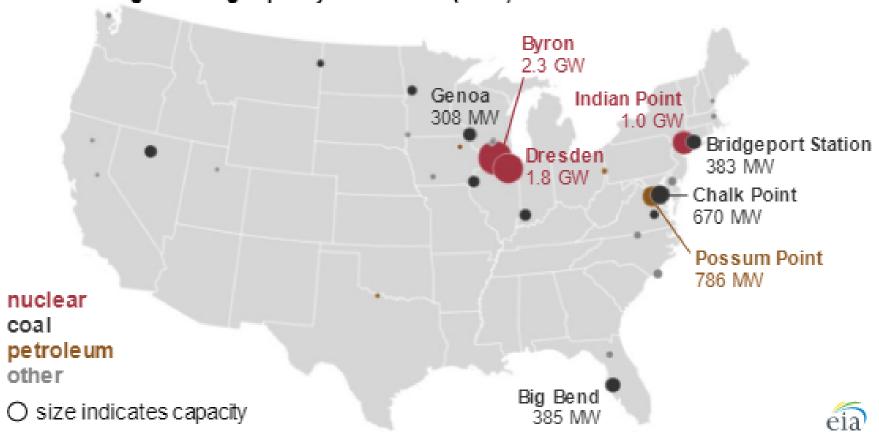








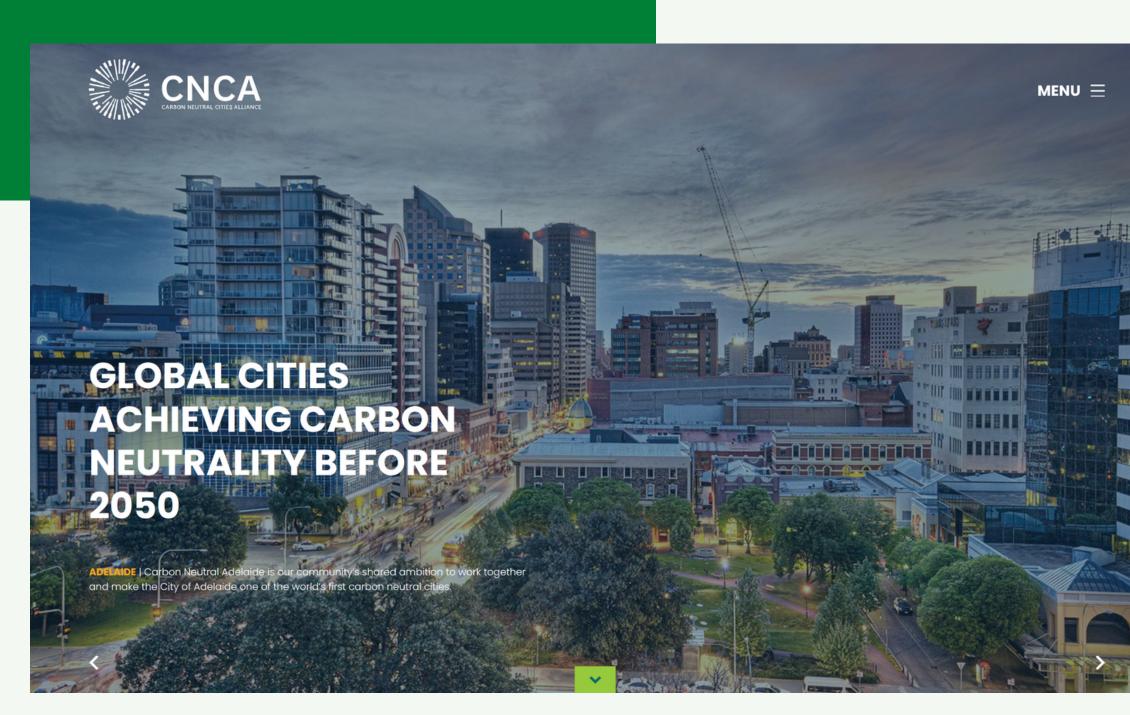
U.S. electric generating capacity retirements (2021)



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 ...



Cities

Leading the Way...

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 carbonfree 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.)

New York just passed the most ambitious climate target in the country

Carbon-free electricity by 2040 and a net-zero carbon economy by 2050.

By David Roberts | @drvox | david@vox.com | Updated Jul 22, 2019, 8:56am EDT









[Sinatra singing here] | Shutterstock

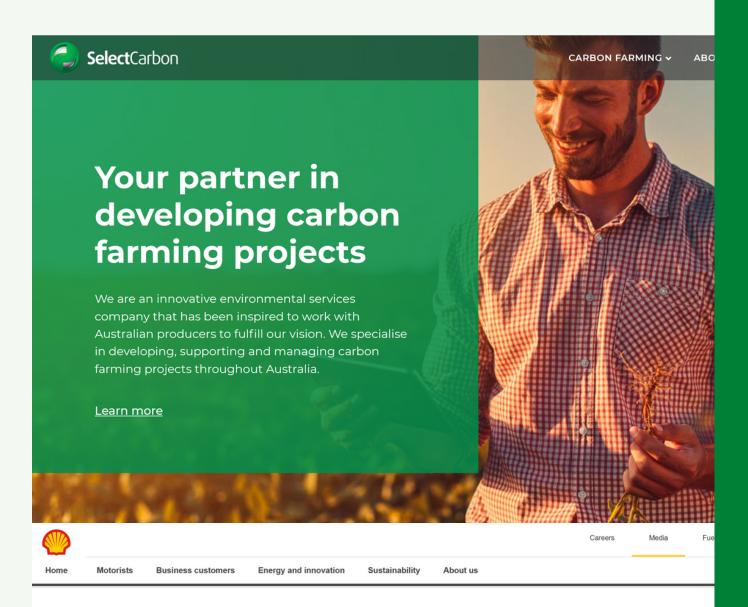
MOST READ





WHAT ELSE IS INSPIRING THIS CHANGE?

WHAT IS DRIVING CORPORATIONS TOWARDS ACTION



SHELL TO ACQUIRE ENVIRONMENTAL SERVICES COMPANY SELECTION

Au

Shell Australia will acquire 100% of Select Carbon . a specialist company that partners with farmers, pastoralists and other landowners to develop carbon farming projects throughout Australia.

This is Shell's first acquisition globally for its Nature-Based Solutions business, which invests in forests, grasslands, wetlands and other natural ecosystems around the world to reduce capture more CO₂ while benefiting biodiversity and local communities. It will contribute to **Shell's ambition to be a net-zero emissions energy business by 2050 or sooner, in ste Opens on Shell.com.** This ambition also involves working with customers to reduce or offset the emissions generated when they use Shell products, such as through the use of cart no single solution to tackling climate change and Shell supports nature-based carbon credits as one addition to robust decarbonisation throughout the global economy.

Select Carbon has developed and manages a portfolio of over 70 projects covering about 9 million hectares across different ecosystems and agricultural uses, including in Australia's rangelands. The carbon credits** generated through Select Carbon's projects are offered for sale through the Australian Government's Emissions Reduction Fund and other markets additional revenue stream for farmers and landowners.

"Select Carbon has a team of highly skilled professionals with strong technical expertise and an established national landowner network. Together with Shell's global resources, this caccelerate the growth of carbon farming in Australia," said Shell Australia chairman Tony Nunan. "The scale of Australia's rangelands, ecological diversity and integrity of intact primar market a natural choice for Shell's first acquisition globally for our Nature-Based Solutions business and to further scale Shell's investment in this area here in Australia."

"Select Carbon believes joining Shell will more thoroughly capture new opportunities in land management and carbon sequestration. Combined, we have the experience and resour nature-based solutions that bring economic and community benefits to regional Australia. It is a great opportunity to work alongside land managers to achieve multiple outcomes, in regional businesses and landscape health," said Dean Revell, CEO of Select Carbon. "Our collective immediate actions, and those over the next few decades, will be critical to ensuproductive and sustainable environments for generations to come."

Australia continues to be a priority market for Shell's investment in new operaies. The market offers a compelling combination of strong growth in renewables, adjacency of age as a

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

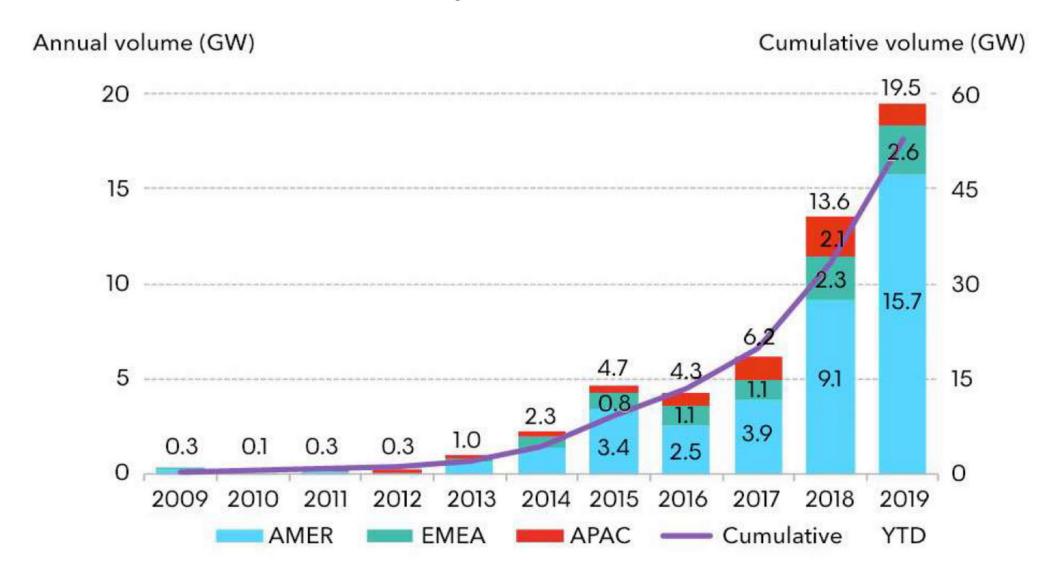
For additional corporate case studies:

- https://sciencebasedtargets.org/case-studies-2/
- https://www.there100.org/companies

New Renewable Energy Landscape



Global Corporate PPA Volumes



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.



REBA Deal Tracker

Large Energy Buyers Accelerate Renewable Energy Deals

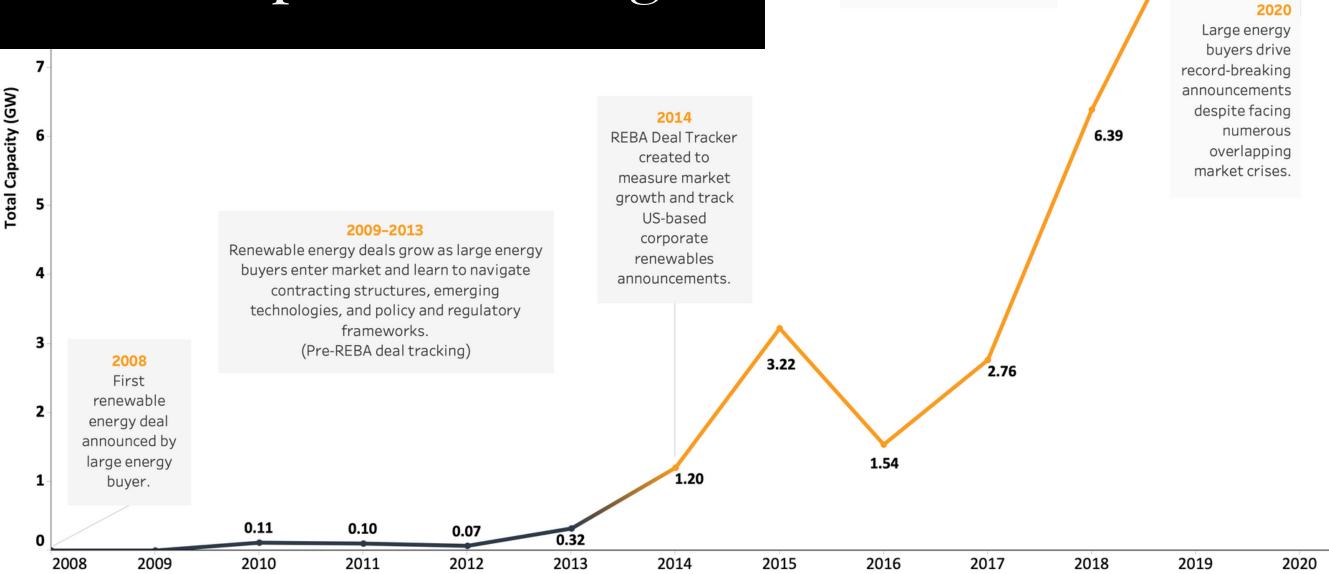


US corporations have accelerated the pace of change

Renewable Energy Buyers Alliance founded with the sole purpose of accelerating renewable energy procurement by helping energy buyers navigate the complexities of the energy market.

10.60

9.37



As of December 31, 2020. Publicly announced contracted capacity of corporate Power Purchase Agreements, Green Power Purchases, Green Tariffs, and Outright Project Ownership in the US, 2015 – 2020.

Excludes off-site generation (e.g., rooftop solar PV), deals with operating plants and deals meant to meet RPS requirements. (#) indicates number of deals each year by individual companies.

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Microsoft



Microsoft President Brad Smith Chief Financial Officer
Amy Hood

CEO Satya Nadella



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



Generate clean energy

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



20 Supporting solar energy in Virginia



37 Advancing wind power in Ireland



110 New wind power in Texas



175 Harnessing the wind in Illinois



180 Capturing clean energy in the Netherlands

How Net Metering Works Photovoltaic Solar Example Solar panels The energy is convert energy used in your from the sun home, school Energy used in into electricity or business your home from the electrical grid Excess energy from your solar panels not used An inverter converts the in your home electricity produced by the goes back to the solar panels from direct bi-directional meter electrical grid measures energy used current (DC) to alternating current (AC) for use in your and excess energy home, school or business produced

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

APRIL SALAS

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Tuck at COP24

Five representatives from Tuck traveled to Katowice, Poland to join the conversation alongside tens of thousands of other delegates from around the



Revers Center Examines Puerto Rico's Recovery After Hurricane Maria

The Revers Center for Energy and its MBA fellows traveled to Puerto Rico to learn about its efforts to restore the electrical grid after Hurricane Maria.



