

Some old dams are being given a new power: generating clean electricity | CBC News

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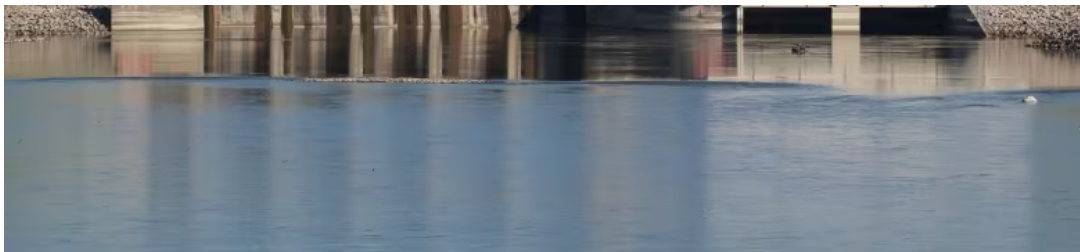
Hello, Earthlings! This is our weekly newsletter on all things environmental, where we highlight trends and solutions that are moving us to a more sustainable world. ([Sign up here](#) to get it in your inbox every Thursday.)

This week:

- **Some old dams are being given a new power: generating clean electricity**
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Some old dams are being given a new power: generating clean electricity





(Missouri River Energy Services)

As countries race to get their power grids off fossil fuels to fight climate change, there's a big push in the U.S. to upgrade dams built for purposes such as water management or navigation with a feature they never had before — hydroelectric turbines.

And the strategy is being used in parts of Canada, too.

The [U.S. Energy Information Administration](#) says only three per cent of 90,000 U.S. dams currently generate electricity. [A 2012 report from the U.S. Department of Energy](#) found that those dams have 12,000 megawatts (MW) of potential hydroelectric generation capacity. ([According to the National Hydropower Association](#), 1 MW can power 750 to 1,000 homes. That means 12,000 MW should be able to power more than nine million homes.)

As of May 2019, there were projects planned to convert 32 unpowered dams to add 330 MW to the grid over the next several years.

One that was recently completed was the [Red Rock Hydroelectric Project](#), a 60-year-old flood control dam on the Des Moines River in Iowa that was retrofitted in 2014 to generate 36.4 MW at normal reservoir levels, and up to 55 MW at high reservoir levels and flows. It started feeding power to the grid this spring, and is expected to generate enough annually to supply power to 18,000 homes.

It's an approach that advocates say can convert more of the grid from fossil fuels to clean energy, often with a lower cost and environmental impact than building new dams.

Hydroelectric facilities [can also be used for energy storage](#), complementing intermittent clean energy sources such as wind and solar for a more reliable, resilient grid.

The Nature Conservancy and the World Wildlife Fund are two environmental groups that oppose new hydro dams because they can block fish migration, harm water quality, damage surrounding ecosystems and release methane and CO₂. But they say [adding turbines to non-powered dams can be part of a shift toward low-impact hydro projects that can support expansion of solar and wind power](#).

Paul Norris, president of the Ontario Waterpower Association, said there's typically widespread community support for such projects in his province. "Any time that you can better use existing assets, I think that's a good thing."

New turbine technology means water doesn't need to fall from as great a height to generate power, providing opportunities at sites that weren't commercially viable in the past, Norris said.

In Ontario, about 1,000 unpowered dams are owned by various levels of government. "With the appropriate policy framework, many of these assets have the potential to be retrofitted for small hydro," Norris [wrote in a letter to Ontario's Independent Electricity System Operator this year](#) as part of a discussion on small-scale local energy generation resources.

He told CBC that several such projects are already in operation, such as a 950 kW retrofit of the McLeod Dam at the Moira River in Belleville, Ont., in 2008.

Four hydro stations were going to be added during dam refurbishment on the Trent-Severn Waterway, but [they were among 758 renewable energy projects cancelled by Premier Doug Ford's government after his election in 2018](#).

Patrick Bateman, senior vice-president of Waterpower Canada, said such dam retrofit projects are uncommon in most provinces. "I don't see it being a large part of the future electricity generation capacity."

He said there has been less movement on retrofitting unpowered dams in Canada compared to the U.S., because:

- There are a lot more opportunities in Canada to refurbish large, existing hydro-generating stations to boost capacity on a bigger scale.
- There's less growth in demand for clean energy, because more of Canada's grid is already non-carbon-emitting ([80 per cent](#)) compared to the U.S. ([40 per cent](#)).

Even so, Norris thinks Canadians should be looking at all opportunities and options when it comes to transitioning the grid away from fossil fuels, including retrofitting non-powered dams.

"If we're going to be serious about addressing the inevitable challenges associated with climate change targets and net zero, it really is an all-of-the-above approach."

— *Emily Chung*

Reader feedback

John Oster writes:

"I appreciate most of the content, though I rarely read them all (I find most of the articles way too long). REALLY like the idea of telling me specifically what I can do to help the planet. Even if you think it repeats what we already know: if we did, why are we in this mess??? Yes, Rethink, but what things to rethink? Reduce, yes, but in what order of priority? Reuse, yes, but which things and for what? You get the idea...."

Write us at whatonearth@cbc.ca.

Old issues of What on Earth? [are right here](#).

There's also a radio show and podcast! As COP26 climate summit concludes, *What On Earth* host Laura Lynch hears the call to recognize the climate crisis as a public health crisis and what can be done to address it. [What On Earth](#) airs Sunday at 12:30 p.m., 1 p.m. in Newfoundland. Subscribe on your favourite podcast app or hear it on demand at [CBC Listen](#).

The Big Picture: The weight of expectation at COP26

It was billed (by a number of leaders) as the "last best hope" for averting the worst effects of climate change, so it's not surprising that the COP26 summit in Glasgow, Scotland — which wraps up this week — was saddled with enormous expectations.

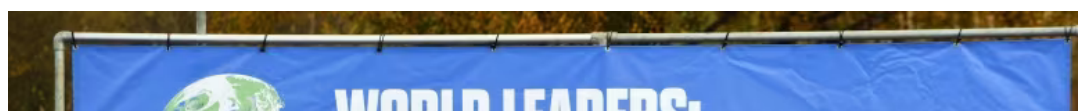
While the 2015 UN climate summit in Paris ended with the eponymous accord and a genuine feeling of accomplishment, this year's event feels far less jubilant and, well, hopeful. One of the main functions of COP26 is to ensure that the world stays on a path to keep global warming below 1.5 C above pre-industrial levels, but a report published this week says [we're on track for 2.4 C](#) by century's end.

Though there have been a host of highly publicized agreements during COP26, including ones to [end deforestation](#) and [minimize methane emissions](#), those concerned about the environment are doubtful the participants will be able to forge a sweeping final pact.

For one thing, the world's biggest carbon emitter, China, has been largely absent from the conference; so has Russia, the world's fourth-biggest polluter. Meanwhile, some commentators, such as [economist Yanis Varoufakis](#), think the countless net-zero pledges are a ruse, saying "polluters adore net zero targets ... because they are a brilliant cover for not restricting emissions."

Swedish climate activist Greta Thunberg also made her feelings known. During a protest in Glasgow, the teen thundered that the beautiful speeches at COP26 don't match the level of action needed, saying, "This is not a conference. This is now a Global North greenwash festival."

Yet there was a feeling of pleasant surprise mid-week when China and the U.S. — the world's two biggest economies and fierce rivals — [announced an agreement](#) to work together on reducing emissions in the coming decade.



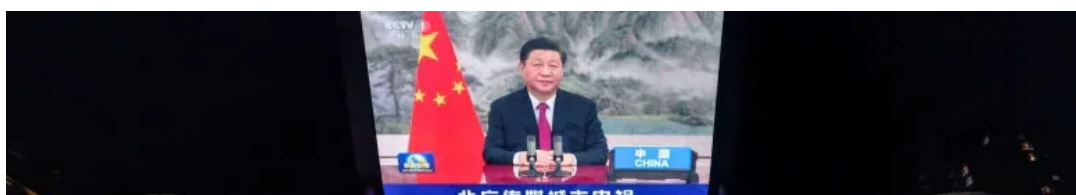


(Andy Buchanan/AFP via Getty Images)

Hot and bothered: Provocative ideas from around the web

- Some people in rural areas may see electric vehicles as transportation for city dwellers. But in some ways, [rural drivers could benefit more from electric vehicles than their urban counterparts](#), one vehicle engineer argues.
- Canada's five biggest banks and its second-biggest pension fund have committed to sustainability through the Glasgow Financial Alliance for Net Zero. But the [rest of Canada's eight-biggest pension funds have not, raising questions about their commitment to fighting climate change](#).
- As Ontario heads toward an election next June, many voters might be looking for a reminder about the environmental record of the current PC government. The Narwhal has [compiled a handy list that it plans to keep updating until the election](#).

Why climate-shaming China likely won't work





(Thomas Peter/Reuters)

For a country that pollutes more than any other, China, with its 1.4 billion people, has an unusually small footprint at the COP26 climate summit underway in Glasgow, Scotland.

President Xi Jinping skipped the leaders' portion of the event, and rather than sending the usual hundreds of delegates, China's government dispatched perhaps 50 at most.

All of this is fuelling criticism that China has become a climate action laggard. In a keynote speech on Monday, former U.S. president Barack Obama chided China's leadership, suggesting it all adds up to a lack of commitment to making COP26 a success and reflects "a dangerous lack of urgency."

China is responsible for roughly 26 per cent of the world's annual greenhouse gas emissions. Just days before COP26's opening, the country released a new plan to lower them, but critics said it contained little in the way of new "ambition."

Rather, China restated a forecast that it will hit peak emissions by 2030 and reduce its "carbon intensity" after that. Coal, a mainstay of Chinese energy production, will remain dominant for decades to come, although the country will start phasing it out in 2025.

But analysts who've followed China's slow transition from a fossil fuel behemoth to an emerging clean energy giant say the reality of China's commitment to hitting the goals laid out in the 2015 Paris climate accord — and updated in Glasgow — is more nuanced.

"Not having President Xi Jinping [at the summit] opened China up

to this type of criticism that they're not committed to the climate change issue," said Angel Hsu, an assistant professor of public policy and the environment at the University of North Carolina, Chapel Hill.

"But if we look at what's going on back home in China, they absolutely have been committed to the issue and putting the necessary steps in place."

Hsu says China has announced it will remove coal from their power system by 2050, replacing it with more nuclear power generation. Prior to the summit, the country also announced it would stop building new coal-fired plants in other countries.

As well, Chinese officials claim their country already accounts for 30 per cent of the world's total renewable energy capacity.

In December 2020, Xi told the United Nations General Assembly that China would get to carbon neutrality by 2060. That's a full decade later than the net-zero target set by many Western nations, but Hsu says it's quite possible China will reach the goal sooner.

"What they like to do is they like to under-promise, but over-achieve," Hsu said.

That assessment is shared by Alden Meyer, a senior associate at British climate consulting firm E3G. Meyer says geopolitics have shaped China's approach to the Glasgow event, and as the world's second-biggest economy, its leadership is loath to be seen as taking orders from the U.S.

The first week of the UN summit saw agreements signed by more than 100 nations on issues such as ending deforestation, limiting methane emissions, phasing out the domestic use of coal and tapping into the power of private equity to make green energy investments. China didn't sign any.

Meyer suggested China's government is proceeding cautiously because of the prospect of civil unrest if its transition away from fossil fuels is too rapid.

"China has 700,000 miners in the coal sector," he said. "Compare that to the U.S., where I think we have 35,000 or 40,000 active [coal] miners now. [Chinese leaders] have to consider the social implications, the transition, the labour rates and all that stuff."

While it is often seen as a climate villain abroad, China's environmental policies have been credited with making the skies clearer in its capital, Beijing, and improving living conditions for its 21 million residents.

China did this through a variety of measures outlined in its 2013 Air Pollution Action Plan, which included curtailing the amount of coal power in urban areas and limiting car traffic.

Hsu says many Western policy-makers fail to understand that China's leadership has decided to make moves on global warming because it's popular at home and there's strong support for it from civil society groups.

"China is acting on climate change because they [see] it's in their own domestic interest to do so," said Hsu. "They recognize that it's an issue of domestic, national importance, and that's what's going to push the needle for China — not finger-pointing and blaming and shaming."

— *Chris Brown*

Stay in touch!

Are there issues you'd like us to cover? Questions you want answered? Do you just want to share a kind word? We'd love to hear from you. Email us at whatonearth@cbc.ca.

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