

China Builds World's Biggest Solar Farm In Journey To Become Green Superpower

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Longyangxia Dam Solar Park – the 850MW plant has the capacity to power up to 200,000 households. Photograph: Tom Phillips/The Guardian

[Tom Phillips](#) in Gonghe county, Qinghai province

Vast plant in Qinghai province is part of China's determination to transform itself from climate change villain to a green energy colossus.

High on the Tibetan plateau, a giant poster of the Chinese president, [Xi Jinping](#), guards the entrance to one of the greatest monuments to Beijing's quest to become a clean energy colossus.

To Xi's right, on the road leading to what is reputedly the biggest solar farm on earth, a billboard greets visitors with the slogan: "Promote green development! Develop clean energy!"

Behind him, a sea of nearly 4m deep blue panels flows towards a spectacular horizon of snow-capped mountains – mile after mile of silicon cells tilting skywards from what was once a barren, wind-swept cattle ranch.

"It's big! Yeah! Big!" Gu Bin, one of the engineers responsible for building the Longyangxia Dam Solar Park in the western province of Qinghai, enthused with a heavy dose of understatement during a rare tour of the mega-project.

The remote, 27-square-kilometre solar farm tops an ever-expanding roll call of supersized symbols that underline China's determination to transform itself from climate villain to green superpower.

Built at a cost of about 6bn yuan (£721.3m) and in almost constant expansion since construction began in 2013, Longyangxia now has the capacity to produce a massive 850MW of power – enough to supply up to 200,000 households – and stands on the front line of a global photovoltaic revolution being spearheaded by a country that is also the world’s greatest polluter.

“The development of clean energy is very important if we are to keep the promises made in the Paris agreement,” Xie Xiaoping, the chairman of Huanghe Hydropower Development, the state-run company behind the park, said during an interview at its headquarters in Xining, the provincial capital.

Xie said that unlike Donald Trump, a climate denier whose election as US president has alarmed scientists and campaigners, he was convinced global warming was a real and present danger that would wreak havoc on the world unless urgent action was taken.

“When I was a child, rivers usually froze over during the winter; heavy snowfall hit the area every year, so we could go skiing and skating ... people weren’t very rich, and nobody had a fridge, but you could still store your meat outside,” the Qinghai-born Communist party official remembered. “We cannot do that any more.”



Sheep graze amid the panels at Longyangxia Dam Solar Park in China’s Qinghai province. The plant has the capacity to produce 850MW of power. Photograph: Tom Phillips/The Guardian

Anders Hove, a Beijing-based clean energy expert from the Paulson Institute, said that as recently as 2012 solar power was shunned as a potential source of energy for China’s domestic market because it was seen as too expensive.

No more. [Costs have since plummeted](#) and by 2020 China – which is now the world’s top clean energy investor – hopes to be producing 110GW of solar power and 210GW of wind power as part of [an ambitious plan to slash pollution and emissions](#). By 2030, China has pledged to increase the amount of energy coming from non-fossil fuels to 20% of the total.

Earlier this month, meanwhile, [China’s energy agency vowed to spend more than \\$360bn on renewable energy sources](#) such as solar and wind by 2020, cutting smog levels, carbon emissions and creating 13m jobs in the process.

“The numbers are just crazy,” said Amit Ronen, director of the George Washington University’s GW Solar Institute, who described feeling “awed” by the scale of the Chinese solar industry during a recent trip to the country.

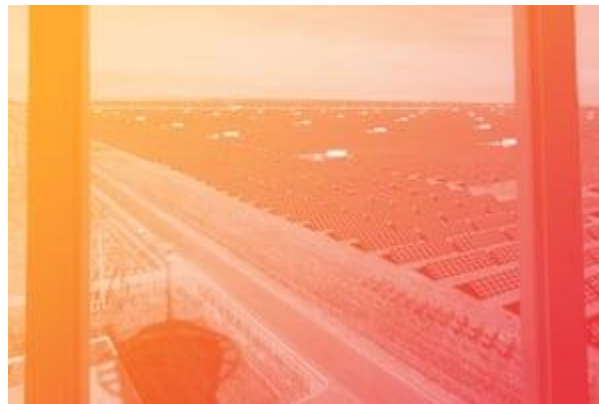
Activists now hope Beijing will up the ante once again following Trump’s shock election.

Amid fears the billionaire US president will water down attempts by his predecessor, Barack Obama, to fight global warming, campaigners are calling on China’s rulers to seize the mantle and position their country as the world’s number one climate leader.

“As Mr Trump drops Obama’s legacy, Mr Xi might establish one of his own,” Greenpeace campaigner Li Shuo [told the Guardian on Wednesday](#) .

That campaigners are now looking to [China](#) for green leadership underlines the once unimaginable changes that have taken place in recent years.

While China remains the world’s biggest emitter, thanks to its toxic addiction to coal, it has also become an unlikely figurehead in the battle against climate change.



Longyangxia Dam Solar Park in China’s Qinghai province. Photograph: Tom Phillips/The Guardian

Last September campaigners hailed a major victory in the war on global warming [when China and the US jointly announced they would formally ratify the Paris agreement](#).

“Our response to climate change bears on the future of our people and the wellbeing of mankind,” Xi said, vowing to “unwaveringly pursue sustainable development”.

Ronen said: “A decade ago, China’s attitude was: ‘You guys put all that carbon in the atmosphere growing your economy, we should be allowed to put a lot of pollution up there too to grow our economy. Now look at where we are.’”

Sam Geall, the executive editor of China Dialogue, a bilingual website on the environment, said Beijing viewed having a climate change denying US president as a rare and unexpected opportunity to boost Chinese soft power by positioning itself as the world’s premier climate change fighter.

“[China sees it as] an opportunity for them to show leadership,” he said. “I’ve already heard that from people who work in environment bureaucracy in China. They see this as an opportunity for China to step up.”

Ronen said China’s renewable revolution, which has seen [sprawling solar and wind parks spring up across its western hinterlands](#), was part of a dramatic political U-turn that culminated in Beijing throwing its weight behind the Paris climate accord last year.

He said part of the explanation was air pollution – [repeated episodes of toxic smog](#) have convinced Beijing it must take action to quell public anger – and part was climate change.

“They are very much [impacted by a lot of these climate change weather patterns](#) that are particularly troublesome: drought in the north, flooding they are very vulnerable to,” Ronen said.

But Paulson Institute’s Hove said the key driving force behind China’s low carbon quest was economic.

“Most of the things that China is doing related to the environment are generally things that China ... wants to do for the economy as well,” he said, pointing to Beijing’s desire to rebalance the economy away from investment-led heavy industry-focused growth while simultaneously making itself the key player in an “industry of the future” and guaranteeing its own energy security.

Hove said Beijing saw a “huge investment opportunity” in exporting low-carbon technology such as high speed rail, solar power or electric vehicles to developing nations in Africa, south Asia and Latin America. “This is a 20-30 year mission to develop [clean] markets,” he said.

A recent report captured how [China was already dominating the global clean energy market](#), pointing to billions of recent investments in renewables in countries such as Brazil, Egypt, Indonesia, Pakistan and Vietnam.

Xie, the Huanghe chairman, said his company was now making its first steps into Africa with solar and hydro projects under development in Ethiopia.

“We are actively going global,” he said, warning that the developing world could not copy the west’s dirty development model without bringing about “the destruction of the world”.

Geall said one indication of whether China was prepared to become the world’s premier climate leader would be if it was seen helping to finance more low-carbon projects beyond its own borders – such as [a huge Chinese-built solar park in Pakistan](#).

“You’d hope to start seeing more of those sorts of projects around the world being financed ... rather than [China being] just a source of cheap finance for dirty energy projects.”

Not all are convinced China is ready or even willing to become the world’s top climate leader in a post-Trump world.

Zhang Junjie, an environmental expert from Duke Kunshan University, believed China would stick to [its Paris commitments](#) out of self-interest, particularly since the fight against global warming empowered its environmental agencies to crack down on toxic smog despite strong resistance from vested interests.

“[But] if China needs to do more, to commit more, I don’t expect that is likely,” Zhang added, noting that China wanted to be *a* climate leader but not *the* climate leader. “Leadership is not just power ... it is responsibility.”

With China’s economy losing steam, Zhang said tightening regulations on greenhouse gas emissions further would inflict “major trouble” on its manufacturing sector. China’s clean industries were not sufficiently developed to provide jobs for all those who would be made unemployed as a result. “I would say, don’t count on [China to fill the gap left by the US],” he said. “China has its own troubles now.”

China’s push to develop renewables has not been entirely plain sailing either, with concerns about over-capacity, falling demand for electricity and [curtailment](#), the amount of energy that is produced but fails to make it to the grid.

Hove said despite the rapid growth of the sector, wind still accounted for just 4% of China’s electricity last year and solar for about 1%. Government subsidies meant many of the biggest solar and wind parks had been built in “sub-optimal” locations such as Qinghai, Gansu and Xinjiang, far from the southern and eastern metropolises where the energy was most needed.

Those behind the world’s largest solar park admitted obstacles such as energy wastage and transmission had yet to be overcome, but said there was no looking back as China forged ahead towards a low-carbon future.

“New energy is surely the future ... It’s hard to predict the future but I believe that solar energy will account for 50% of the total in 50 years,” said the engineer Gu.

Xie said authorities in Qinghai were now so confident the future of China was green that they were planning two massive new solar parks on the Tibetan plateau, with the capacity to produce 4GW of power.

In a sign of the central government’s support for the renewable revolution, [Xi recently visited Xie’s company](#), urging staff to “make every reasonable effort to develop the PV industry”.

Xie, who hosted the Chinese president, scoffed at Trump’s suggestion that climate change was a Chinese hoax and said such claims would do nothing to dampen his country’s enthusiasm for a low-carbon future.

“Even if President Trump doesn’t care about the climate, that’s America’s point of view,” he said. “The Chinese government will carry out and fulfil its international commitments as they always have done in the past, and as they are doing now in order to try to tackle climate change.”

Xie concluded: “I don’t care what Mr Trump says – I don’t understand it and I don’t care about it. I think what he says is nonsense.”

Additional reporting by Wang Zhen
