

China leads in renewables jobs

Besides aiding better air quality for its cities, country's commitment to clean energy also generates much employment

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Going green is not only good for the planet, it creates jobs — lots of them. According to the International Renewable Energy Agency, across the globe there were 9.8 million jobs in the renewable energy sector in 2017.

A breakdown of the figures by the InsideClimate News website revealed that of these, China is leading the way, accounting for 3.64 million jobs in the renewable energy sector — comprised of solar, wind and hydropower.

Other significant contributors to the renewables jobs market are Brazil, with 867,000 jobs, the United States, 777,000 jobs, and the European Union with 1.16 million. In the EU, Germany and France have created the lion's share of renewables jobs — with 334,000 and 162,000, respectively.

According to Tan Hao, an associate professor at Newcastle Business School, at Australia's University of Newcastle, China is continuing with its "upward trend" in renewables jobs growth.

In his 2015 article, "How China is embracing green energy", published jointly with John A. Mathews, a professor of strategy at Sydney's Macquarie Graduate School of Management, Tan said that "wind, water, and solar power accounts for 31 percent of China's total electricity-generation capacity".

"In terms of power generation capacity, last year (2017) the figure was 36 percent. But to clarify, this is just for electric power generation, which is the largest user of energy," Tan told *China Daily Asia Weekly*. He pointed out that the figures do not include transport and industry.

And not surprisingly, renewable energy's share of the total jobs in China's energy sector has also kept on rising since 2015.

"Basically, the Chinese renewable energy sector, in the broader sense, is at 3.8 million jobs. Globally, it's about 8.8 million (excluding large-scale hydropower). China accounts for about 40 percent of total jobs in the renewable sector. So, China takes a major share in job creation in this sector," said Tan.

"This is largely driven by investment. In 2017, China accounted for about 45 percent of the global total in investment (at) \$126 billion. The two figures are largely consistent with each other — investment drives jobs."

Other notable China watchers have also observed the country's commitment to renewables jobs. According to Jill Baker, adjunct



Workers install solar energy panels at a photovoltaic power station in Tianchang, East China's Anhui province, on Oct 15. Of solar, wind and water, solar is the biggest creator of renewable sector jobs. IMAGINECHINA

fellow at the Hong Kong-based Asia Business Council, "China is creating more green energy jobs, faster (than the US). Chinese solar players already account for around (three-fourths) of all solar photovoltaic wafers (solar panels) manufactured globally. And China's other renewable energy leaders, such as Xinjiang Goldwind in wind turbines, have significant room to grow beyond China's borders as the Paris Agreement allows for trillions of dollars of technology transfer to countries in need."

Of solar, wind and water, solar is by far the biggest creator of employment.

"According to latest figures from the Renewable Energy Policy Network (for the 21st Century), based at the United Nations Environment Programme, solar PV (photovoltaic) is the renewable sector that creates the most jobs. It provides just over two million jobs (in China), followed by solar heating and cooling — such as solar water heating systems — which provided about 700,000 jobs in 2017," Tan said.

He added that wind power is responsible for about 500,000 jobs in China's renewables sector.

"There are much fewer jobs associated with hydropower projects. But there are certainly a lot of jobs created from solar PV and solar thermal systems, such as hot water systems, including not just manufac-

turing but also installation, maintenance and other associated aspects. There's also sales and retailing," Tan explained.

On a cautionary note, he added that coal power generation in China has bucked the downward trend of recent years.

"Coal consumption from 2014 to 2016 had been dropping in China. But in 2017 there was a slight increase in coal consumption. It was an increase of something like 0.4 percent. But the share of coal (in total energy production and consumption) is still dropping — and the share of renewables is still rising," said Tan.

One recent development which could slow China's renewables sector — and with a potential knock-on effect to green job creation — is this year's cut to subsidies to solar and wind energy companies. One company already feeling the bite from this is Asia Clean Capital, which is heavily involved in solar panel projects in China.

Thomas Lapham, CEO of Asia Clean Capital, told *China Daily Asia Weekly*: "Following the policy change (on June 1) we saw a significant reduction in new-build projects in the distributed rooftop space, which is our core market."

"We have tried to overcome this challenge by focusing on areas with local subsidies, focusing on projects with low (capital expenditure), such

as new roofs that require little remediation, and by increasing our number of acquisition projects."

Lapham conceded that since the cutting of subsidies, there has been an impact on green job creation.

"The policy (shift) reduced green jobs in the short term, and even caused some layoffs in the construction area and in areas with low sunlight hours," said Lapham.

"We are focused on solar. My understanding is that solar creates the most ongoing maintenance jobs because the panels require regular cleaning," he said.

He added that Asia Clean Capital also creates jobs in sales, engineering, finance and construction, and that ongoing employment is created for asset managers and for on-site maintenance workers.

Lapham remains confident that China's commitment to renewable energy will continue to make it a good place for his company to operate.

"China has most of the world's top equipment manufacturers very close to cities with rapid expansion and availability of competitively priced labor. This, combined with the government's pro-green policy, helps China lead in green job creation."

Tan, from the University of Newcastle, also believes that the cutting of subsidies in the renewables sector is unlikely to have a long-term effect. He did say, though, that the policy

change has "put a kind of brake on the industry", particularly "in relation to utility-scale renewable energy projects such as large wind and solar farms".

"When you are talking about solar PV, there are two major types of market. One is large solar farms and the other is distributed power generation, typically through rooftop PV panels. So they changed the targets for 2018 by reducing the feeding tariff — which is a major incentive for solar PV installation and PV use. But nobody knows what will happen next year, because, as far as I know, people are lobbying to reverse the (cutting of renewal subsidies) policy," said Tan.

"As far as I understand, this policy only applies for the rest of the year."

While China's green credentials remain strong, some other countries in the Asia-Pacific region are also demonstrating a robust commitment to the renewable energy sector and green job creation.

"Japan is doing well in creating ongoing maintenance jobs in the green sectors. Southeast Asia is still building up," said Lapham.

Tan concurred on Japan, adding that if China is excluded from the picture, India and Japan are leading the way among Asian countries. "India has about 400,000 jobs in the (renewables) sector and Japan has close to 300,000 jobs," he said.

Australia, despite its enormous potential in terms of solar and wind energy, continues to lag behind the region's best performers in the renewables sector.

Tan said it is not easy to pinpoint specific parts of China where renewables jobs are most concentrated.

"For manufacturing, it's everywhere, but I think the eastern coast provinces have greater manufacturing capacity, particularly for PV and wind," he said. "In terms of installation (many of the jobs are associated with) developers and operators of large renewable energy projects such as solar farms or wind farms."

Also, he said, the many jobs tied to the big five utility companies, Huaneng, Huadian, Datang, Guodian and China Power Investment Corp, mean "it's a very dynamic situation".

"When they install wind turbines, their people move from project to project. So it's very difficult to associate jobs with a particular location."

Another contributing factor to China's commitment to clean, renewable energy is help to improve the air quality in major cities. "I think it's a major motivation," said Tan.

Lapham from Asia Clean Capital added: "China's push to a greener future is essential both for job creation and for maintaining a healthy environment for people to live."