



# Clean Cloud 2021

Tracking Renewable Energy Use in  
China's Tech Industry

GREENPEACE

## Introduction

During the Covid-19 pandemic, we have become more dependent on the internet than ever before. From video conferencing to live streaming to online retail, digital technology is central to our daily lives. But at the same time that the tech sector is raking in record profits, carbon emissions from the industry are on the rise, including in China.

In 2018, China's internet data centers consumed an estimated 161 billion kilowatt-hours of electricity, more than the total electricity consumption of Malaysia.<sup>1</sup> Moreover, power consumption from China's data center sector is on track to increase by two thirds over just five years, accompanied by a rise in climate-change causing greenhouse gas emissions. In 2018, data centers in China were powered 73% by coal.<sup>2</sup>

In our second annual Clean Cloud ranking, we assess the renewable energy record of China's 22 biggest cloud providers and data center companies. China is home to the world's fastest-growing renewables industry, and opportunities for wind and solar procurement are skyrocketing. Moreover, in September 2020, China's President Xi Jinping pledged to achieve carbon neutrality by 2060<sup>3</sup>, an announcement that has catalyzed climate commitments from both state-owned enterprises and the private sector. We examine which Chinese tech companies have taken advantage of China's clean energy momentum and which are falling behind.

## Scope

The analysis focuses on China's 22 largest cloud and data center companies, comprising 74%<sup>4</sup> of China's IaaS public cloud market and over 78%<sup>5</sup> of China's data center market.<sup>6</sup>

Researchers used publicly available information to rate the companies on energy transparency, energy efficiency and carbon reduction, renewable energy performance, and government and industry influence.

As of 2019, China was home to approximately 74,000 data centers, accounting for roughly 23% of the global total.<sup>7</sup>

<sup>1</sup> EIA. (2020). Electricity Consumption Data. Retrieved from <https://www.eia.gov/international/overview/world>

<sup>2</sup> Greenpeace. (2019). Powering the Cloud: How China's Internet Industry Can Shift to Renewable Energy. Retrieved from [https://www.greenpeace.org/static/planet4-eastasia-stateless/2019/11/7bfe9069-7bfe9069-powering-the-cloud\\_-\\_english-briefing.pdf](https://www.greenpeace.org/static/planet4-eastasia-stateless/2019/11/7bfe9069-7bfe9069-powering-the-cloud_-_english-briefing.pdf)

<sup>3</sup> UN News. (2020). Retrieved from <https://news.un.org/en/story/2020/09/1073052>

<sup>4</sup> iResearch. (2020). iResearch Released 2019 China IaaS Public Cloud Market Share. Retrieved from <http://report.iresearch.cn/content/2020/08/334253.shtml?from=groupmessage>

<sup>5</sup> Qianzhan Research Institute. (2020). Analysis on 2020 China IDC Market and Key Companies. Retrieved from <https://bg.qianzhan.com/trends/detail/506/200914-bb19423f.html>

<sup>6</sup> Note: Market segment figures calculated based on 2019 data.

<sup>7</sup> Chinese Institute of Electronics. (2020). China Green Data Center Development Report. Retrieved from <http://www.ictlce.com/wp-content/uploads/2020/11/%E4%B8%AD%E5%9B%BD%E7%BB%BF%E8%89%B2%E6%95%B0%E6%8D%AE%E4%B8%AD%E5%BF%83%E5%8F%91%E5%B1%95%E6%8A%A5%E5%91%8A%EF%BC%882020%EF%BC%89.pdf>

## Key Findings

**As of April 2021, 13 of China's 22 biggest tech companies had begun to actively procure renewable energy, compared to just eight companies in 2019.** Procurement mechanisms include construction of renewable energy infrastructure, investment in large-scale wind and solar projects, direct power purchase from markets and purchase of green power certificates.

**However, only two Chinese tech companies reported renewable energy usage of over 3% in 2020.** Data center operator Chindata Group reported 51%<sup>8</sup> renewable energy usage, and Baidu reported 8.6%<sup>9</sup> usage. All other ranked companies reported less than 3% useage or did not report.

**To date only one major Chinese tech company, Chindata, has pledged to achieve carbon neutrality by 2030.**<sup>10</sup> In January, Tencent announced that the company would work toward carbon neutrality,<sup>11</sup> but has not yet introduced a timeline or roadmap. Alibaba, China's biggest tech giant, and GDS, China's largest independent data center operator, have yet to issue carbon neutrality or renewable energy commitments.

### Cloud Providers

**Tencent ranked first on the clean energy scorecard among China's cloud providers** due to the company's overall progress, including its positive record on transparency, increase in renewable energy procurement, and recent announcement that it would work toward carbon neutrality.

**Alibaba fell from first to fourth place in the ranking of Chinese cloud providers** due to its poor transparency record, limited renewable energy usage, and lack of carbon neutrality commitment. Unlike Baidu and Tencent, Alibaba has not publicly disclosed its energy use or greenhouse gas emission data.

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<sup>8</sup> Chindata Group. (2020). 2020 Environmental, Social, and Governance Report. Retrieved from <https://www.chindatagroup.com/upload/admin/20210401/1228afcd8ef6de2dc5c1128b74bca2b2.pdf>

<sup>9</sup> Baidu. (2020). Environmental, Social and Governance Report. Retrieved from <http://esg.baidu.com/Uploads/File/2021/03/29/u606184a15e8af.pdf>

<sup>10</sup> Chindata Group. (2021). Chindata Group Releases 2030 Carbon Neutral Roadmap. Retrieved from <https://www.chindatagroup.com/media/news/285.html>

<sup>11</sup> Tencent. (2021). Tencent Kicks of Carbon Neutrality Planning. Retrieved from <https://mp.weixin.qq.com/s/GzkUYn6l6lUnogMvnzvccw>

## Data Center Operators

**For the second year in a row, Chindata ranked first among China's data center operators on the clean energy scorecard.**

Chindata remains the only major Chinese tech company to have announced a commitment to 100% renewable energy use by 2030. Chindata appears to be following through on its pledge. Last year company executives signed contracts to develop 1.3 GW<sup>12</sup> of wind and solar projects in Shanxi and Hebei provinces, making Chindata one of the top three renewable energy buyers worldwide in 2020<sup>13</sup>.

**GDS fell from second-ranked data center operator to sixth**, trailing behind competitors AtHub and 21 Vianet. Over the past 14 months, GDS has made no progress in the categories of energy transparency and renewable energy commitments. By contrast, AtHub and 21 Vianet have both released energy consumption and greenhouse gas emission data.

## Transparency

**As of April 2021, 50% of major Chinese tech companies had disclosed their total electricity consumption and greenhouse gas emissions, compared to just 20% in 2019.** Notably, Alibaba, GDS and Sinnet have not disclosed electricity consumption or greenhouse gas emission data and have yet to release ESG reports.

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<sup>12</sup> Chindata Group. (2021). Chindata Group Releases 2030 Carbon Neutral Roadmap. Retrieved from <https://www.chindatagroup.com/upload/admin/20210401/de3f862e29ae6a20e448c49aaad24202.pdf>

<sup>13</sup> BNEF. (2021). Corporate Clean Energy Buying Grew 18% in 2020, Despite Mountain of Adversity. Retrieved from <https://about.bnef.com/blog/corporate-clean-energy-buying-grew-18-in-2020-despite-mountain-of-adversity/>

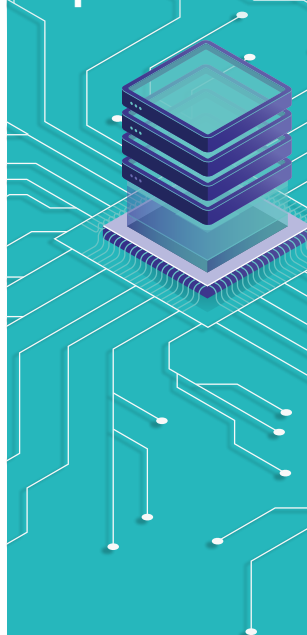
## Ranking

### Cloud Providers



	Total Score (100)	Energy Transparency (25)	Energy Efficiency and Carbon Reduction (25)	Renewable Energy Performance (40)	Government and Industry Influence (10)
Tencent	61	17.71	15.50	19.47	8.75
Huawei	53	13.29	12.82	17.12	10.00
Baidu	52	16.24	10.14	21.82	3.75
Alibaba	39	7.41	7.46	19.47	5.00
JD.com	35	13.29	6.57	10.06	5.00
Kingsoft	30	17.71	4.79	7.71	0.00
Inspur	28	10.35	7.46	7.71	2.50
UCloud	22	4.47	6.57	10.06	1.25
Wangsu Science & Technology	15	4.47	4.79	3.00	2.50

### Data Center Operators



	Total Score (100)	Energy Transparency (25)	Energy Efficiency and Carbon Reduction (25)	Renewable Energy Performance (40)	Government and Industry Influence (10)
Chindata Group	85	19.18	17.29	40.00	8.75
China Mobile	45	11.82	10.14	19.47	3.75
AtHub	44	16.24	10.14	14.76	2.50
21 Vianet	37	13.29	6.57	14.76	2.50
China Unicom	37	10.35	10.14	12.41	3.75
GDS	36	5.94	8.36	17.12	5.00
China Telecom	29	10.35	8.36	7.71	2.50
Dr. Peng	26	4.47	6.57	10.06	5.00
Centrin Data Systems	18	4.47	4.79	7.71	1.25
Guangdong Aofei Data Technology	15	4.47	3.00	7.71	0.00
Sinnet	15	5.94	4.79	3.00	1.25
Kehua Data	15	4.47	4.79	3.00	2.50
Baosight Software	12	4.47	4.79	3.00	0.00

## Methodology

### Data

This ranking is based on data from public sources, including corporate publications, news reports, government information platforms and third-party voluntary information disclosure platforms.

Scoring reflects both short and long-term indicators. Short-term indicators consist of data for the period January 2019 to April 2021. Long-term indicators are not time bound and include carbon neutrality commitments, renewable energy goals, data center siting and location, corporate governance, etc.

### Scoring Criteria

Scoring is based on

- 1) China's unique power market and its challenges
- 2) consultation with local renewable energy, data center, and ESG experts and
- 3) previous Greenpeace Click Clean and Clean Cloud reports.

Scoring criteria have been updated since the publication of Greenpeace East Asia's first Clean Cloud ranking in January 2020 to include sections on corporate governance and carbon neutrality commitments. Category weight has been adjusted accordingly.

25%

### Energy Transparency

Assessment of whether a company has disclosed the following information in external communications, media, or on third party information disclosure platforms, such as CDP

- Data center and company electricity consumption
  - a. Total annual electricity consumption
  - b. Breakdown of electricity consumption by data center
- Data center and company electricity mix
  - a. Total electricity mix
  - b. Breakdown of electricity mix by data center
- Data center PUE
  - a. Total annual average PUE
  - b. PUE breakdown by data center
- Data center and company greenhouse gas emissions
  - a. Total greenhouse gas emissions
  - b. Breakdown of greenhouse gas emissions by data center
  - c. Methodology and guidelines (if any)
- Corporate Governance: Incorporation of ESG matters into the scope of corporate governance; establishment of a specialized committee reporting to and supervised by the CEO and/or Board on a regular basis; creation of an internal renewable task force to implement renewable energy policy.

25%

## Energy Efficiency and Carbon Reduction

Assessment of whether a company has set carbon neutrality and emission reduction goals and taken measures to reduce carbon emissions and improve energy efficiency

- Commitment towards carbon neutrality
- Carbon reduction goals
  - a. Absolute carbon reduction goals
  - b. Carbon intensity reduction goals
- Energy efficiency goals
  - a. Absolute energy reduction goals
  - b. Energy intensity goals
- Energy efficiency performance
  - a. Energy efficiency improvement based on measurable targets and methodologies, such as energy saved (tonne coal equivalent), electricity saved (MWh), CO2e emissions reduced (tonne) and PUE (breakdown by geographic region).
  - b. Implementation of energy efficiency measures in data centers, including in buildings, IT equipment, cooling systems, power systems, etc.

40%

## Renewable Energy Performance

Assessment of whether a company has set renewable energy targets and taken measures to actively procure renewable energy

- Commitment to 100% renewable energy use, with midterm targets.
- Establishment of data center site selection policy that considers renewable energy supply (reflected in corporate publications).
- Public disclosure of renewable energy procured, including amount and type of renewables, and percentage of the total energy mix. (Procurement mechanisms include distributed wind and solar, investment in large-scale renewables, direct power purchase from markets and green power certificates.)
- Procurement of cloud and colocation services powered by renewables.
- Construction of data centers in areas with abundant renewable energy supply.

10%

## Government and Industry Influence

Assessment of whether a company has publicly leveraged their influence to build government and industry awareness about energy efficiency and renewable energy, including but not limited to the following forms:

- Cooperation with local governments, grid companies and power retailers to expand renewable energy procurement market mechanisms.
- Establishment of a sustainability section dedicated to sharing renewable usage on corporate publications.
- Sharing of renewable energy procurement and energy efficiency best practices with industry peers via conferences, white papers, journal papers etc.
- Participation in Green Data Center certification programs.

## Recommendations

In the face of the global climate crisis, the internet industry must increase its reliance on clean energy sources as soon as possible. Greenpeace advocates for the following measures:

- 1.** Internet and data center companies should set targets for 100% renewable energy use and achieve carbon neutrality by 2030 across the value chain (scope 1 to 3).
- 2.** We encourage companies to protect and restore ecosystems, but carbon offsets are not a substitute for the reduction of fossil fuel emissions.
- 3.** Companies must scale up renewable energy procurement and actively collaborate with local governments, grid companies and power retailers to expand renewable energy procurement market mechanisms.
- 4.** Companies must actively disclose energy and greenhouse gas emission data, and corporate environmental governance information.



The background of the entire page is a dark blue gradient. Overlaid on this are several geometric and network-like patterns. A series of concentric, slightly irregular white lines form a circular shape on the right side. A complex network of thin white lines connects numerous small white dots, creating a web-like structure that spreads across the lower half of the page. The Greenpeace logo, consisting of the word "GREENPEACE" in a bold, white, sans-serif font, is positioned in the lower-left quadrant.

**GREENPEACE**

For nearly 50 years, Greenpeace has been sailing the world's oceans protecting our planet and fighting for environmental justice.

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