

China Energy Policy Newsletter: August 2019

1. Recent project activities

WRI and GIZ host workshop to discuss coal energy-water-agriculture-carbon nexus

The World Resources Institute (WRI) and GIZ jointly hosted an expert workshop in Beijing on 25 July 2019, in part to release two new reports providing new insight into the impact of coal plant water withdrawals on grassland carbon sequestration in the Three Norths. GIZ Project Director co-chaired the meeting, and Professor Jia Shaofeng, Head of Water Resource Research Department at the Institute of Geographical Sciences and Natural Resources Research of the China Academies of Science (CAS) presented the main research findings. China's grasslands are estimated to contain 8% of the world's soil organic carbon and 16% of China's soil organic carbon. Much of China's grassland area is located in the vulnerable, water-stressed region of the Three Norths, which is also home to a disproportionate share of the country's coal-fired power capacity and coal mines. Using data from CAS on grassland carbon sequestration, the research showed that grassland carbon sequestration has increased due to precipitation, even as coal-related water withdrawals have grown. The research employed projections of the China National Renewable Energy Centre to analyse potential future coal plant and coal mining water withdrawals in the region, projecting that water withdrawals will initially rise before falling sharply as China derives more energy from renewable sources. The English summary report also suggests avenues for future research that can better quantify the impact and cost of coal plant water withdrawals on local economies and soil quality in the Three Norths. The report is available to download in [Chinese](#) and [English](#).

2. China energy transition updates

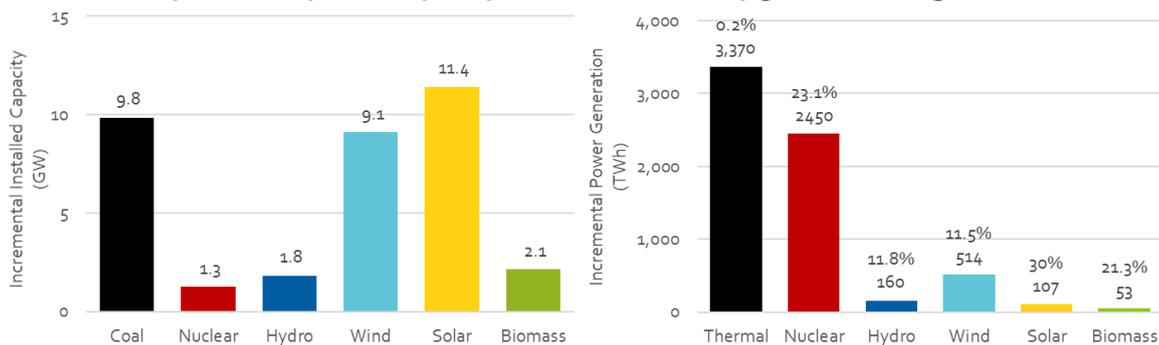
2019 H1 energy generation and consumption

The National Bureau of Statistics (NBS), the National Development and Reform Commission (NDRC), the National Energy Administration (NEA) and the China Electricity Council (CEC) have released partial energy and electricity production and consumption data of the first half of 2019. Primary energy consumption increased by 3.4% year-on-year, of which the share of clean energy including nuclear and renewables saw an increase of 1.6 percentage points while coal fell by 2.1 percentage points.¹ Crude oil production increased by 0.8%, which was the first increase in three years; natural gas production increased by 10.3% while consumption increased by 10.8%, with a steadily growth in supply and demand. Raw coal production increased by 2.6%. Imports of oil, gas, and coal all showed strong growth.²

2019 H1 electricity production and consumption

Total electricity consumption reached 3,400 TWh, an annual increase of 5.0%. The electricity consumption of the tertiary and residential sectors grew over 9% annually.³ China continued to promote electrification of industry and heating, and fuel switching from direct fossil fuel combustion to electricity accounted for about 980 TWh in the first half of the year, 2.9% of total electricity consumption. Newly installed power generation capacity of China was 40.74 GW, of which non-fossil energy accounted for 58.4%. In parallel with strict control of new coal power plants, and to enhance the flexibility of power system, the government added 28.73 GW of coal power peak reserves by appointing existing coal power plants or approving new ones.⁴ It is expected that most new coal plants would only be approved to be built for peak reserves in the future. Incremental power generation of 6 MW and above units reached 3,370 TWh, of which non-fossil energy accounted for 27.3%, an annual increase of 2.1 percentage points.⁵

2019 H1 newly installed power capacity (left) and electricity generation (right)



Source: Thermal, coal and nuclear from CEC, July 2019; rest from NEA, July 2019

¹ “2019 年上半年全国电力供需形势分析预测报告,” China Electricity Council, 26 July 2019, accessed at <http://www.cec.org.cn/guihuayutongji/gongxufenxi/dianligongxufenxi/2019-07-26/192945.html>.

² “国家统计局发布 2019 年 6 月份能源生产情况,” National Bureau of Statistics, 15 July 2019, accessed at http://www.stats.gov.cn/tjsj/zxfb/201907/t20190715_1676026.html.

³ “2019 年上半年全国电力供需形势分析预测报告,” China Electricity Council, 26 July 2019, accessed at <http://www.cec.org.cn/guihuayutongji/gongxufenxi/dianligongxufenxi/2019-07-26/192945.html>.

⁴ “63 台、42GW！以后新投产的煤电大机组是不是只能用作应急调峰储备电源了？”bjx.com, 26 June 2019, accessed at https://www.sohu.com/a/323167405_752692; “山东省关于增补 2019 年煤电应急调峰储备电源的公告,”bjx.com, 25 June 2019, accessed at <http://www.bjpsb.com/dwshuju/59166.html>.

⁵ “国家能源局李福龙：上半年能源供给保障能力不断提升，能源补短板力度持续加大,” National Energy Administration, 25 July 2019, accessed at http://www.nea.gov.cn/2019-07/25/c_138257022.htm.

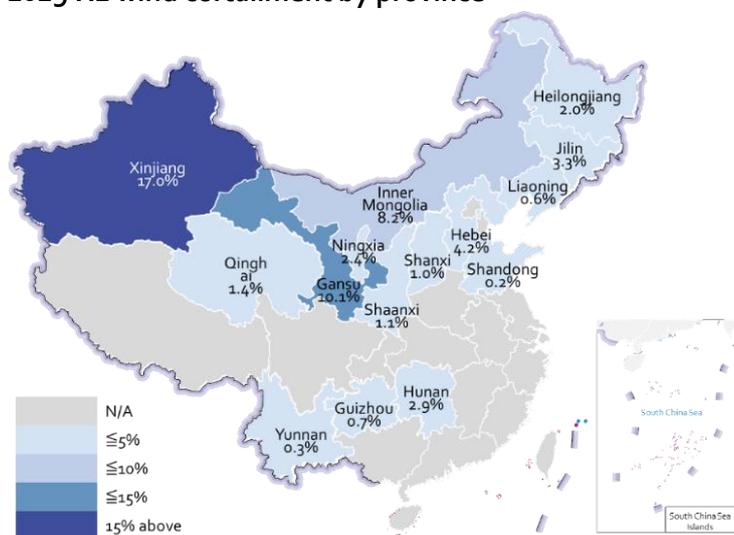
Renewable power capacity and electricity generation

The installed capacity of renewable energy continues to expand, and the trend of reduced curtailment of wind and solar energy has continued. The installed capacity of renewable energy reached 750 GW, an increase of 9.5% over the same period of 2018. More than 50% of newly installed wind and 38.7% of new solar PV was located in the central and eastern regions of the country. Distributed solar PV accounted for 40.2% of new solar PV capacity.

Renewable power generation in the first half of 2019 reached 887.9 TWh, showing an annual increase of 14%, while wind power together with solar PV accounted for 9.5%. Solar PV generation increased 30% YoY, followed by biomass of 21.3%. Dr Shi Jingli, researcher at CNREC, expects that the installation of renewable capacity in 2019 H1 was in line with previous expectation, and that the full-year newly-installed wind power capacity may reach 25-30 GW, while newly-added solar PV capacity could reach 40-45GW. Biomass may reach a record high with more than 3 GW capacity installed in 2019.

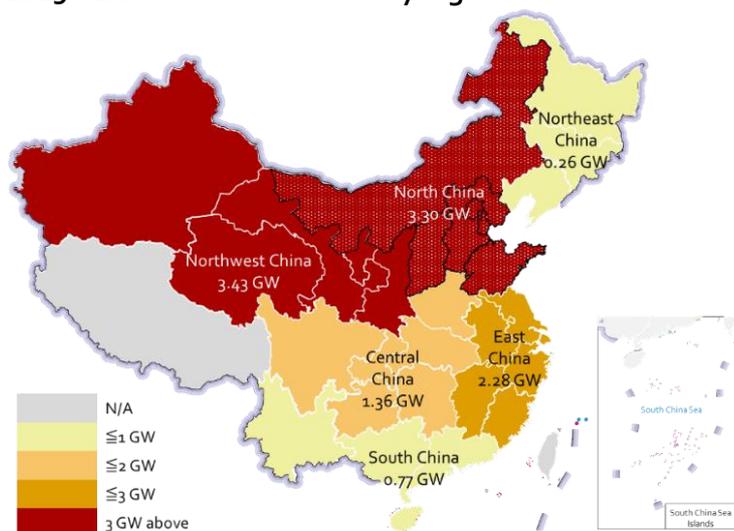
The national wind curtailment rate was 4.7%, a decline of 4 percentage points YoY. Wind curtailment in Xinjiang, Gansu, and Inner Mongolia all decreased dramatically. The national solar curtailment rate was 2.4%, a decline of 1.2 percentage points YoY.⁶

2019 H1 wind curtailment by province



Source: NEA, July 2019

2019 H1 incremental solar PV by region



Source: NEA, July 2019

⁶ “李创军介绍 2019 年上半年可再生能源并网运行情况,” National Energy Administration, 26 July 2019, accessed at https://www.sohu.com/a/329441579_418320.

NEA determined 2019 subsidized solar PV projects

In July 2019, NEA successively released the tendering results of utility-scale PV and approved residential PV projects by June that can receive national renewable subsidies after 2019. The tendered projects had a total capacity of 22.79 GW, covering 22 provinces and accounting for half of the estimated newly added PV capacity in 2019. Utility-scale PV accounted for 79.5% and were mainly distributed in the central and western regions; distributed solar PV (less than 6MW) that fully feed electricity into grids accounted for 20.5%, which were mainly distributed in the eastern coastal areas.⁷ The estimated subsidy demand is about RMB 1.7 billion (the subsidy cap issued was 2.25 billion), or RMB 0.0645/ kWh in average. The average bid winning price dropped by RMB 0.0817 /kWh. NEA stressed that these projects are only qualified to receive subsidies, whether a single project could receive the subsidy at all will depend on the date of full-scale grid connection.⁸ By June 2019, 2.23 GW of household solar PV projects were included in the subsidies list in 30 provinces, of which 21.9% connected to the grid after the 2019 subsidy policy issued on 28 May 2019.⁹

Spot power market rules settled

NDRC and NEA jointly issued the principles of establishing spot power market pilots on 31 July 2019.¹⁰ Mid-to-long term contracts will be the dominant trading market, while day-ahead and intraday trading will supplement. A few specific rules were clarified:

1. The government has set the amount of non-hydro renewable power that under the minimum mandatory purchase hours is allowed to declare its volume without offering price bids to participate in the market.
2. The market price cap should follow three main principles: promoting peak load shifting, consuming clean energy, and preventing abnormal price fluctuations.
3. The counterparties of mid-to-long-term priority contracts for inter-regional and inter-provincial power transmission should agree in advance on the transaction curve, as a reference for settlement.
4. The government suggests provinces use location-based marginal price in areas with severe power grid congestion, while using zonal marginal prices or system marginal prices in other areas—without specifying a precise rule for what constitutes severe congestion.
5. The ancillary service market should act as a supporting mechanism for spot power market, and ancillary services should include both electricity loads and energy storage facilities.

⁷ “国家能源局综合司关于公布 2019 年光伏发电项目国家补贴竞价结果的通知, 国能综通新能 (2019) 59 号,” National Energy Administration, 10 July 2019, accessed at http://zfxqk.nea.gov.cn/auto87/201907/t20190711_3682.htm.

⁸ “权威发布 | 国家能源局李创军: 保持政策延续性, 及早安排明年光伏竞价工作,” National Energy Administration, 25 July 2019, accessed at <http://www.asiasolar.net/index.php?ac=article&at=read&did=13791>.

⁹ “户用光伏项目信息 (2019 年 7 月)” National Energy Administration, 18 July 2019, accessed at http://www.nea.gov.cn/2019-07/18/c_138236461.htm.

¹⁰ “国家发展改革委办公厅 国家能源局综合司印发《关于深化电力现货市场建设试点工作的意见》的通知, 发改办能源规 (2019) 828 号,” National Development and Reform Commission, 31 July 2019, accessed at http://www.ndrc.gov.cn/gzdt/201908/t20190807_943964.html.

2019 H1 Incremental energy and power production and consumption data

Data	Amount	Year-on-year		Amount	Year-on-year
Energy consumption			Electricity consumption		
Primary energy	-	3.40%	Total	3,400 TWh	5.00%
Energy consumption/RMB 10,000 GDP	-	-2.70%	Primary Industry	34.5 TWh	5.00%
natural gas	149.3 Mcm	10.80%	Secondary Industry	2310 TWh	3.10%
			Tertiary Industry	555.2 GWh	9.40%
			Residential	499.3 GWh	9.60%
Energy production			Energy import		
Curde oil	95.39 Mt	0.80%	Curde oil	245 Mt	8.80%
Natural gas	86.41 bcm	10.30%	Natural gas	46.92 Mt	11.60%
Raw coal	1.76 Gt	2.60%	Raw coal	154 Mt	5.80%
Installed power capacity			Electricity generation		
Total	40.74 GW	-11.94 GW	Total	3,370 TWh	3.30%
Thermal (9.84 GW coal power)		(-540 MW)	Thermal	2,450 TWh	0.20%
Nuclear	1.25 GW	-	Nuclear	160 TWh	23.10%
Renewable	24.45 GW	-	Renewable	887.9 TWh	14%
Hydro	1.82 GW	-	Hydro	533.8 TWh	11.80%
Wind	9.09 GW (incl. 400 MW offshore)	-	Wind	214.5 TWh	11.50%
Solar PV	11.4 GW	-14.17 GW	Solar PV	106.7 TWh	30%
Biomass	2.14 GW	22.10%	Biomass	52.9 TWh	21.30%
Utilization hours			Curtailement		
National	1,834 hr	-24 hr	Wind	4.70%	-4.0 pct
Thermal	2,127 hr	-57 hr	Solar PV	2.40%	-1.2 pct
Gas	1,212 hr	-121 hr			
Nuclear	3,429 hr	-118 hr			
Hydro	1,674 hr	169 hr			
Wind	1,133 hr	-10 hr			
Solar PV	576 hr	10 hr			

Reference

Energy consumption			Electricity consumption		
Primary energy	-	[7]	Total	[6]	[6]
energy consumption/RMB 10,000 GDP	-	[7]	Primary Industry	[6]	[6]
natural gas	[3]	[3]	Secondary Industry	[6]	[6]
			Tertiary Industry	[6]	[6]
			Residential	[6]	[6]
Energy production			Energy import		
Curde oil	[1]/[7]	[1]/[7]	Curde oil	[1]/[7]	[1]/[7]
Natural gas	[1]/[7]	[1]/[7]	Natural gas	[1]/[7]	[1]/[7]
Raw coal	[1]/[7]	[1]/[7]	Raw coal	[1]/[7]	[1]/[7]
Installed power capacity			Electricity generation		
Total	[2]	[6]	Total	[6]	[3]/[6]
Thermal	[6]	[6]	Thermal	[6]	[3]/[6]
Nuclear	[2]	-	Nuclear	[6]	[6]
Renewable	Calculated	-	Renewable	[4]	[4]
Hydro	[2]/[4]	-	Hydro	[4]/[6]	[4]/[6]
Wind	[2]/[4], offshore[5]	-	Wind	[4]/[5]/[6]	[4]/[5]/[6]
Solar PV	[2]/[4]	[6]	Solar PV	[4]	[4]
Biomass	[4]	[4]	Biomass	[4]	[4]
Utilization hours			Curtailement		
National	[6]	[6]	Wind	[4]/[5]	[4]/[5]
Coal	[6]	[6]	Solar PV	[4]	[4]
Gas	[6]	[6]			
Nuclear	[6]	[6]			
Hydro	[4]/[6]	[4]/[6]			
Wind	[4]/[5]	[4]/[5]			
Solar PV	[4]	[4]			

- [1] "国家统计局发布 2019 年 6 月份能源生产情况," National Bureau of Statistics, 15 July 2019, accessed at http://www.stats.gov.cn/tjsj/zxfb/201907/t20190715_1676026.html.
- [2] "国家能源局李福龙: 上半年能源供给保障能力不断提升, 能源补短板力度持续加大," National Energy Administration, 25 July 2019, accessed at http://www.nea.gov.cn/2019-07/25/c_138257022.htm.
- [3] "国家发展改革委举行 7 月份定时主题新闻发布会介绍宏观经济运行情况并回应热点问题," National Development and Reform Commission, 16 July 2019, accessed at http://www.ndrc.gov.cn/gzdt/201907/t20190716_941708.html.
- [4] "李创军介绍 2019 年上半年可再生能源并网运行情况," National Energy Administration, 26 July 2019, accessed at https://www.sohu.com/a/329441579_418320.
- [5] "2019 年上半年风电并网运行情况," National Energy Administration, 26 July 2019, accessed at http://www.gov.cn/xinwen/2019-07/26/content_5415482.htm.
- [6] "2019 年上半年全国电力供需形势分析预测报告," China Electricity Council, 26 July 2019, accessed at <http://www.cec.org.cn/guihuayutongjigongxufenxi/dianligongxufenxi/2019-07-26/192945.html>.
- [7] "刘文华: 能源供应增长加快 清洁能源占比不断提高 | 国家统计局副局长解读"半年报", National Bureau of Statistics, 17 July 2019, accessed at http://www.stats.gov.cn/tjsj/sjjd/201907/t20190717_1676924.html.



2020 atmospheric pollution control targets set for industrial furnaces

Notice on Publishing Comprehensive Atmospheric Pollution Control Plan for Industrial Furnaces and Kilns, MEE Atmosphere [2019] No.56

The plan requires all industrial furnaces to fully reach the emission standard by 2020. The plan requires controlling the incremental industrial furnaces, reducing the stock by phase-out of outdated furnaces, and reducing the air pollutant discharge by facilitating fuel switching from fossil to clean energy and technical retrofit. Government, enterprise and social media need cooperation to achieve the control targets.

2019-07-09

http://www.mee.gov.cn/xxgk2018/xxgk/xxgk03/201907/t20190712_709309.html

NDRC updates the foreign investment negative list

Special Administrative Measures for Foreign Investment Access (Negative List) (2019), NDRC [2019] No.25

The latest foreign investment negative list cuts the number of items from 48 in 2018 to 40 in 2019. The government has removed several restrictions on foreign investment into China, such as the prior rule that only joint ventures and cooperative enterprises may conduct exploration and development of oil and natural gas, and only the Chinese side could be the majority shareholder of gas and heat pipe networks in cities with a population of over 500,000.

2019-06-30

http://www.ndrc.gov.cn/zcfb/zcfbl/201906/t20190628_940274.html

MOF issues rules for dedicated fund on soil pollution

Notice on the Dedicated Fund for Management Soil Prevention and Control, MOF Resource and Environment [2019] No.11

The policy clarifies the role of the dedicated fund to support monitoring and assessment of soil pollution, risk evaluation and control, source control and soil restoration, and support for setting up provincial funds. The Ministry of Finance (MOF) and Ministry of Ecological Environment (MEE) will cooperate to implement the policy: MOF is responsible for distribution of funds and budgetary management, while MEE is in charge of implementation, including proposals for fund distribution, and will monitor and assess performance. The effective period is from 15 June 2019 to the end of 2020.

2019-06-15

http://www.mof.gov.cn/zhuantihuiqu/cczq/zyzfqblbf/zxzyzf_7788/trwrfzzzj/201907/t20190701_3288337.html

MOF determines 2019 budget for air pollution program funding

Budget for 2019 Air Pollution Prevention and Control Fund, MOF Resource and Environment [2019] No.6

MOF will distribute RMB 25 billion of air pollution prevention and control funds in 2019, including RMB 15.2 billion for clean heating pilots, RMB 9.594 billion for implementing tasks under the Three-Year Blue Sky Protection Plan, and RMB 206 million for elimination of hydrofluorocarbons (HFCs).

2019-06-13

http://www.mof.gov.cn/zhuantihuiqu/cczq/zyzfqblbf/zxzyzf_7788/dqwrffzzj/201907/t20190701_3288324.html