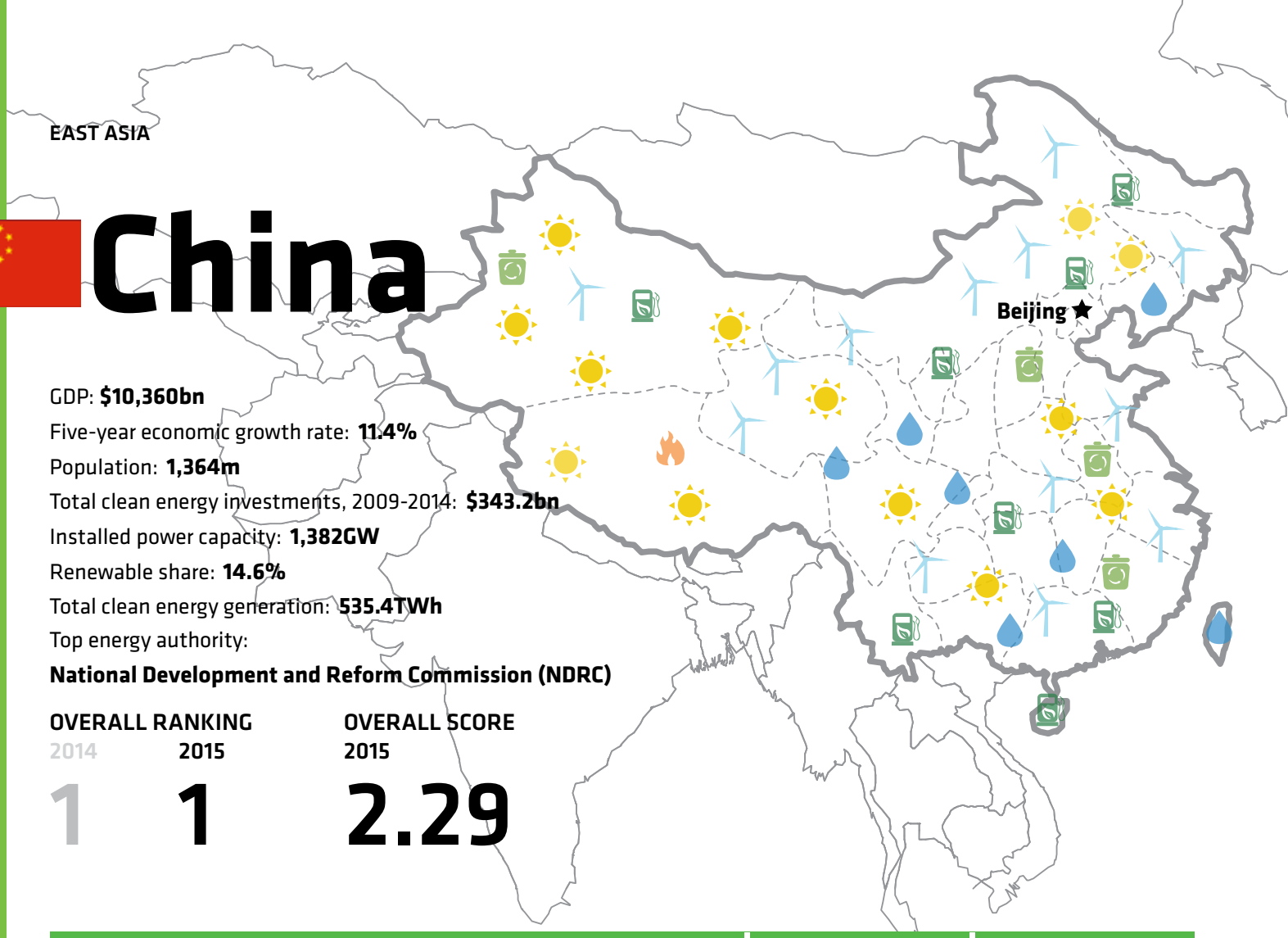
China



GDP: **$10,360bn**

Five-year economic growth rate: **11.4%**

Population: **1,364m**

Total clean energy investments, 2009-2014: **$343.2bn**

Installed power capacity: **1,382GW**

Renewable share: **14.6%**

Total clean energy generation: **535.4TWh**

Top energy authority:

National Development and Reform Commission (NDRC)

OVERALL RANKING 2014	OVERALL RANKING 2015	OVERALL SCORE 2015
1	1	2.29

PARAMETER	RANKING	SCORE
I. Enabling Framework	08	1.54
II. Clean Energy Investment & Climate Financing	05	1.46
III. Low-Carbon Business & Clean Energy Value Chains	01	5.00
IV. Greenhouse Gas Management Activities	01	3.24

SCORE SUMMARY

China scored 2.29 overall in *Climatescope* 2015, placing it first on the list of all *Climatescope* countries. China's 2015 overall score was a slight improvement on 2014's 2.23, when it also finished first among all countries surveyed.

The country's top ranking is based largely on its consistency in the top levels of all four Climatescope parameters. It scored no lower than eighth on any of them and was first on Low-Carbon Business & Clean Energy Value Chains Parameter III and Greenhouse Gas Management Activities Parameter IV.

On Enabling Framework Parameter I, China scored 1.54. It registered improvement from 2014 on both the Growth Rate of Installed Capacity and Clean Energy Electricity Generation indicators. That advance was partially offset by a decline on the Growth Rate of Power Demand Indicator.

On Clean Energy Investment and Climate Financing Parameter II, China scored 1.46. It improved on the Growth Rate of Clean Energy Investments Indicator while retreating somewhat on the Loans, Grants, Grant Programs Indicator.

On Low-Carbon Business & Clean Energy Value Chains Parameter III, China saw its score remain unchanged at a perfect 5.00 due to its consistent investments in value chain segments present in the country.

On Greenhouse Gas Management Activities Parameter IV, China scored 3.24, up 0.12 from 2013, as more provinces set up local carbon emission targets than previously.

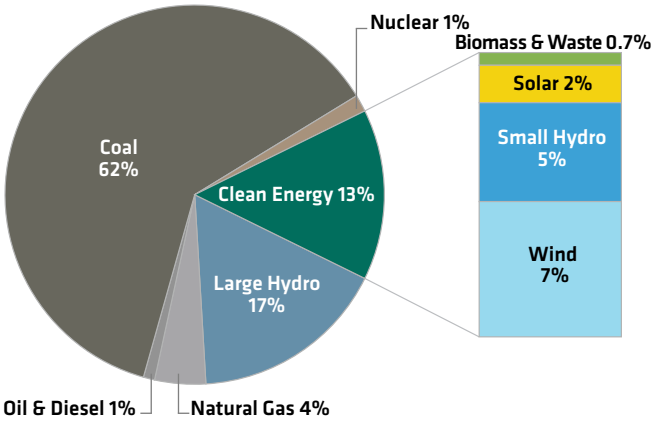
For further information, access www.global-climatescope.org/en/country/china

OVERVIEW

China, the world's second largest economy, is home to more power-generating capacity than any other nation on earth with 1,382GW on line as of year-end 2014. Renewables (non-inclusive of large hydro projects) represented 201GW (15%) with coal accounting for 62%, followed by large hydro at 17% and nuclear at 1.4%. China is also the world leader in terms of installed wind and solar capacity, having added 30GW in 2014 alone.

INSTALLED POWER CAPACITY BY SOURCE, 2014 (%)

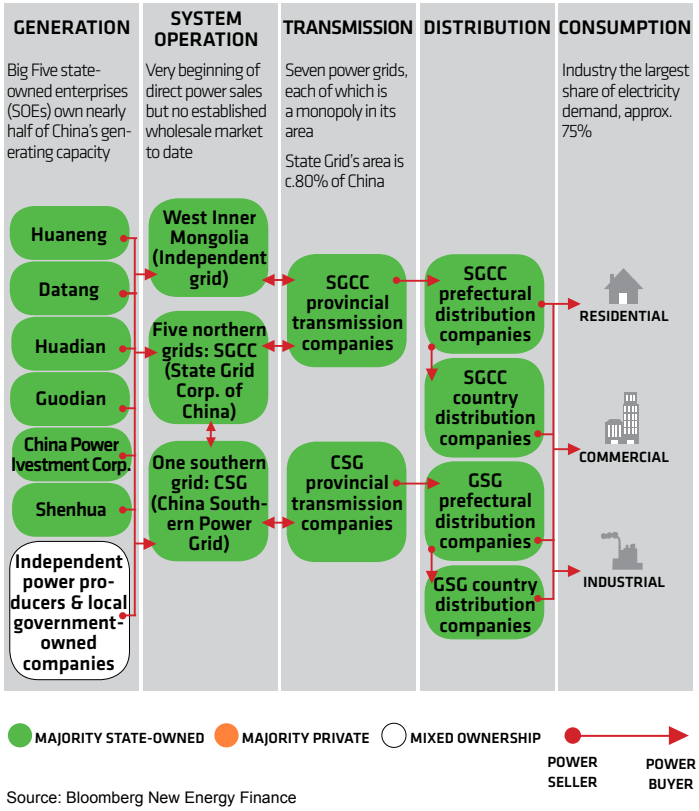
1.382GW total installed capacity



Source: Bloomberg New Energy Finance , Lawrence Berkeley National Lab, National Energy Administration
Note: Negligible values for geothermal cannot be graphically represented due to scale, see source data for the complete numbers.

POWER SECTOR STRUCTURE

Regulator: National Energy Administration



Source: Bloomberg New Energy Finance

In 2014, China maintained momentum in the deployment of renewables thanks to consistent policy support. But the country's remarkable jump has posed a major conundrum to China's transmission system, which continues to bottleneck clean power delivery. Curtailments were more frequent than ever in 2014 as power from not just wind projects, but from coal and nuclear plants failed to get delivered to consumers. Issues related to transmission are poised to continue unless the government follows through on proposed power sector reforms.

RENEWABLE ENERGY POLICY

China has in recent years provided generally consistent clean energy support at the federal level, with individual provinces also lending a hand. However, there were key instances in 2014 of policy changes that have the potential to at least temporarily interrupt the country's recent clean energy boom.

In December 2014, the National Development and Reform Commission (NDRC) announced a planned cut the onshore wind national feed-in tariff (FiT) to go into effect at the end of 2015. In addition, auctions for power contracts, efforts around the Golden Sun subsidy program, and central government project approvals all slowed in 2014.

Rather than focusing on short-term policies to boost development, the government has shifted attention to mid- to long-term goals, including quotas for renewable generation. Such a shift does have immediate implications for the market, however. The NDRC's planned cut to the wind FiT, for instance, has motivated developers to get as much capacity as they can on line before the benefit steps down in 2016. China will likely see another historic peak in 2015 with as many as 25.2GW of wind to be installed.

KEY POLICIES

Energy Targets	Proposed minimum quota of electricity from renewable energy sources by 2020. Power companies have targets for non-hydro renewable electricity generation whereas grid corporations and provinces have targets for purchase and consumption.
Energy Targets	16% energy intensity reduction by 2015 from 2010 levels.
Feed-in-Tariffs	National feed-in tariffs of $0.08-0.10/kWh for wind power. Scheduled for reduction in 2016 by $0.003 to $0.077-0.097.
Feed-in-Tariffs	National feed-in tariffs of $0.15-0.16/kWh for solar power, as of 2014.
Feed-in-Tariffs	National feed-in tariffs of $0.11/kWh for biomass power plants.
Debt-Equity Incentives	State-owned developers of large wind and solar projects can borrow at preferential rates; China Development Bank extends billions of dollars in credit to manufacturers
Tax Incentives	Less-developed provinces collect lower taxes on new business income (including from renewable energy projects) than do eastern provinces.

Source: Bloomberg New Energy Finance Policy Library

What becomes of the market in 2016 could well be dictated by the country's planned Renewable Portfolio Standard (RPS), or national clean energy quota that would mandate certain levels of clean power generation, transmission and consumption.

CAPACITY, NOT OPERATIONAL EFFICIENCY TARGETS

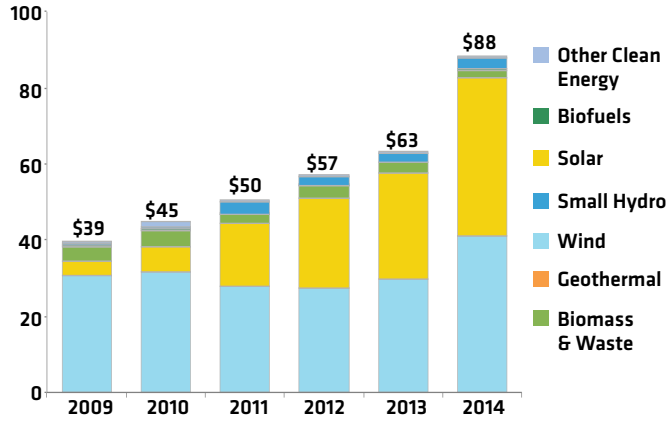
Already the global leader of installed renewable energy capacity, China added another 20.7GW of wind and 9.3GW of solar PV in 2014, representing more than one third of all clean energy added globally. In November, the State Council made its critical National Energy Development Plan (2014-2020) public. It aims to boost non-fossil energy sources vs primary energy consumption to 15% by 2020 from 10% in 2014. The implication: an additional 100GW of wind and solar will be needed online between 2015 and 2020.

The plan emphasizes new capacity build over the arguably more important issue of operational efficiency within China's power-generation matrix. With the country's overall economic growth slowing, utilization rates for existing coal, nuclear, wind and solar power projects have all fallen since 2013. Hydro projects (including large and small hydro), mainly in Yunnan and Sichuan provinces, have benefited from price cuts and rising cross-province exports.

Lower utilization rates are partly due to slower than expected economic growth, but delays in transmission network expansions are also to blame. Curtailments from wind and PV projects first began in 2010, then spread to other technologies in 2014. Gigawatts hours of generation have gone to waste and with them, substantial potential revenues for plant operators. The situation has been particularly challenging in northern provinces Heilongjiang, Jilin and East Inner Mongolia.

ANNUAL INVESTMENT IN CLEAN ENERGY, 2009-2014 ($bn)

$343.2bn total cumulative investment



Source: Bloomberg New Energy Finance
Notes: Total investments includes: Asset Finance, Corporate Finance and Venture Capital/ Private Equity Commitments.

REFORM

All of this has underlined the importance of a larger overhaul of China's power market and reform efforts have advanced recently. In March 2015, the State Council released a major policy paper outlining segments it will target for further deregulation and restructuring. The core of this new round of reforms is to make the power system more efficient, deregulated and environmentally sustainable.

Among the challenges: splitting apart the functions of the monopoly State Grid Corporation of China, which today controls dispatch and retail operations. Such a change has been proposed in a reform documents but follow-through will be critical.

Despite the issue of grid congestion and slowing power demand growth, the pipeline of new-build power plants that has received regulatory approval to come online in the next five years is considerable. Meanwhile, to limit further wasted energy, State Grid has begun to explore the possibility of ancillary market services. Such a market could provide flexible responses to immediate demand spikes and dips, by either ramping output or shedding load.

LEAGUE TABLE

2014 Total Investments	$88,035m

Top Three Lead Debt Arrangers 2014 ($m)

1st	China Development Bank Corp	$147m
2nd	China Investment Corp	$134m
3rd	KFW	$43m

Top Three Equity Sponsors 2014 ($m)

1st	China Guodian Corp	$3,147m
2nd	State Power Investment Corp	$2,354m
3rd	China Huadian Corp	$2,185m

Top Three Asset Finance Deals, 2014 ($m)

Rank	Sector	Project	Developer	Value
1st		China Wind Portfolio CNNC Acquisition	CNNC Huihai Wind Power Co Ltd	$1,005m
2nd		Huanghe Hydropower Gonghe Longyangxia PV Plant Water Hybrid Phase II	Huanghe Hydropower Development Co	$917m
3rd		Datang Renewable Guazhou Beidaqiao No. 6 AB Wind Farm	Datang Renewable Power Co	$720m

Source: Bloomberg New Energy Finance
Notes: Figures refer to disclosed asset finance investments committed in 2014 and include balance sheet commitments

CLEAN AIR

Concerns over poor air quality have risen up the Chinese Politburo agenda since 2012 and smog issues remain paramount in many of the country's major metropolitan areas. Beijing was smogged in every one in three days in 2014, undercutting the city's efforts to promote a business-friendly image.

In response, the central government has promoted national carbon credit trading, a new Environmental Law, fines and taxes on polluters, and coal usage caps, in addition to clean energy-friendly policies. The goal is to achieve a peak in economy-wide emissions by 2030 as promised by President Xi Jinping during a summit with US President Barack Obama in November 2014.

To date, pilot carbon credit trading schemes have been rolled out in select regions including the municipalities of Beijing, Shanghai, and Shenzhen, along with the provinces of Guangdong, Hubei, Chongqing and Tianjin. A national carbon trading system is coming in 2016 or 2017, the government has said. Meanwhile, a new Environmental Law went into effect in January 2015 and grants enhanced regulatory and enforcement powers to local agencies.

FINANCIAL INSTITUTIONS IN CLEAN ENERGY

✓	Banks	✓	Corporate Finance
✓	Funds	✓	Impact Funds
✓	Private Equity / Venture Capital		

Source: Bloomberg New Energy Finance
Note: Refers to types of institutions that finance clean energy projects. Check means that at least one institution is active in that segment in the country

In June 2015, the State Council drafted its planned National Environmental Tax. Compared to stand-alone fines, taxes can be a more systematic, standardized, and potentially easier way to price in environmental externalities. Specifically, the new tax covers 14 "pollution control priority" industries, such as thermal power, iron and steel.

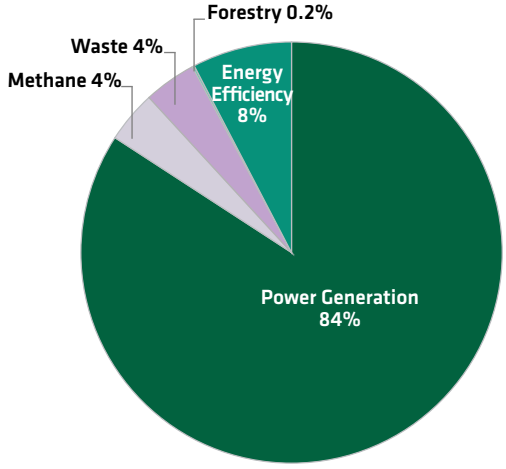
CLEAN ENERGY VALUE CHAINS BY SECTOR

Sector / Quantity	Available Sub-Sector
Biofuels	Producers ; Engineering ; O&M ; Equipment Manufacturing ; Distribution and Blending
Biomass & Waste	Project Development ; Engineering ; O&M ; Equipment Manufacturing ; Feedstock Supply
Geothermal	Project Development ; Engineering ; O&M ; Resource Development ; Turbines ; Balance of Plant
Small Hydro	Project Development ; Engineering ; O&M ; Turbines ; Balance of Plant
Solar	Project Development ; Engineering ; O&M ; Polysilicon/ingots ; Wafers ; Cells ; Modules ; Inverters ; Balance of Plant
Wind	Project Development ; Engineering ; O&M ; Turbines ; Blades ; Gearboxes ; Towers ; Balance of Plant

Source: Bloomberg New Energy Finance
Note: Uncolored icons, on the left, refer to each sub-sector of a complete value chain for a given sector, spelled out on the right. Colored icons represent the number of available subsectors for a given clean energy sector value chain. Bold text, on the right, illustrates at least one organization in that sub-sector is active in the country.

CARBON OFFSET PROJECTS BY SECTOR

4,109 CDM and voluntary carbon offset projects



Source: UNEP Risoe, Bloomberg New Energy Finance

CHINA – PERFORMANCE BY PROVINCE/REGION

In this year's *Climatescope*, China again ranked first among all 55 countries, thanks to its consistent policy support for zero-carbon energy, clean energy investment growth and the establishment of GHG ceilings in some provinces.

The 15 Chinese provinces evaluated by *Climatescope* scored significantly higher than in the previous year. In particular, Qinghai, Yunnan and Gansu scored higher than China overall based on their substantial improvements in local transmission infrastructures and policy incentives for clean energy deployments.

China's provincial profiles are diverse and fall into three cohorts: (1) The generation-resource rich west, (2) the east and south demand centers and (3) the demand-restraining provinces.

The country's resource-rich west includes Gansu, Xinjiang, West Inner Mongolia, Qinghai and Yunnan. All performed well on Parameters I and IV, based on their levels of clean energy investment and establishment of GHG emission targets. Newly built long-distance transmission systems, connecting these resource hubs with the manufacturing-heavy eastern and southern demand centers, boosted clean energy integration significantly in 2014.

The eastern and southern manufacturing-heavy provinces are Sichuan, Jiangsu, which surrounds Shanghai, and Hebei surrounding Beijing. Sichuan and Jiangsu performed well on the value chain and GHG emission targets indicators. Hebei, on the other hand, is a source of the air pollution plaguing Beijing and Tianjin, thanks to extensive coal burn. Those municipalities' strong power demand prevents Hebei from cutting fossil fuel usage to meet its 2015 GHG emission target, despite the local government's pledge.

The third cohort, demand-restraining provinces, includes Guangdong, Shandong, Fujian and Heilongjiang. They scored lower on all four parameters, in part because their power-demand growth slowed in 2014. As a result, new generation capacity additions were small compared to the other provinces evaluated.

2015 Global Climatescope scores
China provinces ranking