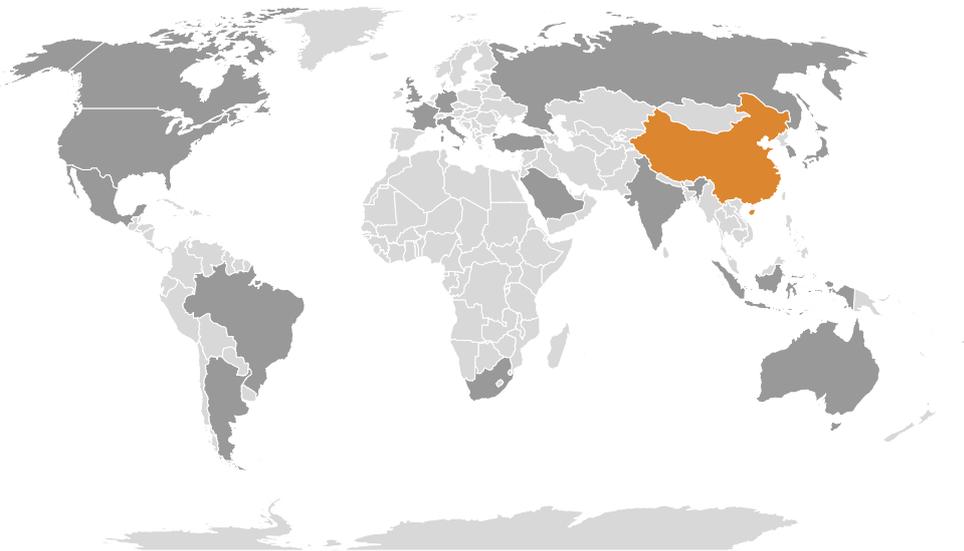




G20 subsidies to oil, gas and coal production: China

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This country study is a background paper for the report **Empty promises: G20 subsidies to oil, gas and coal production** by Oil Change International (OCI) and the Overseas Development Institute (ODI). It builds on research completed for an earlier report **The fossil fuel bailout: G20 subsidies to oil, gas and coal exploration**, published in 2014.

For the purposes of this country study, production subsidies for fossil fuels include: national subsidies, investment by state-owned enterprises, and public finance. **A brief outline of the methodology can be found in this country summary.** The full report provides a more detailed discussion of the methodology used for the country studies and sets out the technical and transparency issues linked to the identification of G20 subsidies to oil, gas and coal production.

The authors welcome feedback on both this country study and the full report to improve the accuracy and transparency of information on G20 government support to fossil fuel production.

A Data Sheet with data sources and further information for China's production subsidies is available at:
<http://www.odi.org/publications/10092-G20-subsidies-oil-gas-coal-production-China>

priceofoil.org
odi.org

Country Study
November 2015

Background

China was the world's largest consumer of energy in 2013 and 2014, averaging 23% of the global total, with coal providing two thirds of the total energy it consumed (BP, 2015). The country produced 47% of the world's coal in 2014 and was the world's largest oil importer (BP, 2015; Gronholt-Pedersen and Gloystein, 2015). China has proven reserves of 115 gigatonnes (Gt) of coal (13% of the global total), 3.3 trillion cubic metres (tcm) of natural gas (2%) and 18 billion barrels of oil (1%) (BP, 2015).¹

Coal dominates both energy production and consumption in China. Conventional oil and gas are produced both onshore and offshore while unconventional coal-bed production from shale gas and coal-bed methane is increasingly produced onshore. The production of fossil fuels is dominated by state-owned enterprises (SOEs), which are closely tied to the Government.

Significant support for the development and use of fossil fuels has been central to China's economic development plans until recently. Today, high levels of air pollution and a growing awareness of the impact of fossil fuels on climate are refocusing China's development objectives. There are emerging policies around a cap on coal use, as well as plans for a peak in the country's greenhouse gas (GHG) emissions and an increase in the share of non-fossil sources in the energy mix to 20%, both by 2030 (National Development and Reform Commission, 2015a). The country is presiding over the G20 in 2016 and has made a commitment to work closely with other G20 members to set a specific date for the phase out of inefficient fossil fuel subsidies via a US-China Joint Presidential Statement on Climate Change issued in 2015 (White House, 2015).

Alongside its command-and-control tools, such as technical regulations, China is now moving towards the use of market-based mechanisms to achieve its transition to lower carbon energy production. There is ongoing reform of energy prices, which have long been artificially lowered through subsidies to both producers and consumers. It has been suggested that existing regional emissions cap and trade schemes will be expanded to a national level by 2017 (National Development and Reform Commission, 2015a; White House, 2015). There is also rapid deployment of non-fossil energy electricity generation and many smaller coal-fired power plants and coal mines are closing.

Although China's coal consumption decreased in terms of volume in 2014, for the first time in recent history, new standards for coal quality may increase the intensity of coal use (Doyle and Stanway, 2015). Meanwhile, China continues to subsidise fossil fuel production through a number of mechanisms.

National subsidies

Tax expenditure

Although a number of national subsidies are supporting fossil fuel production in China, gaps in publicly available information make it difficult to quantify most of the tax breaks that have been identified. For example, one national target is to increase the share of natural gas in the national primary energy supply to 10% by 2020. To achieve this goal, the Government has set specific targets for increased shale gas production and has provided automatic exemptions from the mineral resource compensation fee for shale gas producers (Reuters, 2015).

In 2014, China's Government also started to forego revenue by increasing the minimum threshold price at which oil producers have to pay an oil income levy (also translated as 'oil-price windfall tax'): from \$55 to \$65 per barrel. It was not possible to quantify how much government revenue has been foregone as a result, but it could be significant, especially as the 'market price' of sold refined oil products is based on company self-reporting (Ministry of Finance of the People's Republic of China 2014a; Tang, 2014; Xinhua, 2009; Jiang, 2009).

Other unquantified tax exemptions at the national level that may benefit fossil fuel production include a 150% deduction for qualifying research and development (R&D) costs, customs and VAT exemptions for exploration equipment, tax breaks for new technological applications, an occupational allowance for coal projects, and exemptions from the exploration fee for shale gas and from the land-use fee for coal mines (Ernst and Young, 2013).

At the provincial level, fossil fuel producers can benefit from the right of provincial governments to modify or waive the recently reformed resource tax paid in their jurisdiction (PRC State Council Decree No. 605). When combined, reductions and waivers associated with the resource tax for oil and gas extraction were estimated to be worth \$670 million (RMB 4.3 billion) on average in 2013 and 2014 (Ministry of Finance of the People's Republic of China, 2014b; OECD, 2015). The value of the temporary tax relief in the three major coal-producing provinces was estimated at \$1.6 billion (RMB 10 billion) in 2013 alone (Zhao, 2013; Zhao, 2014).

Provincial subsidies are also provided in other forms. For example, fossil fuel producers (amongst actors in other sectors) may take advantage of a time-limited 10% tax break on corporate income tax related to operations in western provinces, and special VAT treatment for projects in designated areas (Ernst and Young, 2013; PwC, 2015).

¹ Available statistics differ widely because of important differences in the definition of reserves, as seen in the data for 2013 published by the National Bureau of Statistics of China: reserves of 24 billion barrels for oil, 236.3 Gt for coal and 4.6 tcm for natural gas are reported.

There are also preferential tax and land policies that apply to carbon capture and storage (CCS) projects, the value of which has not been quantified (Vennemo et al., 2013).

A number of subsidies to fossil fuel consumption are in place in China, and these also benefit fossil fuel production (e.g. oil refineries and fossil-fuelled power stations). These include the reduction of VAT on unconventional gas for power producers – a tax break that may soon be extended to coal (The Chinese State Council, 2014; Paltsev and Zhang, 2015).

Direct spending

As China's energy sector is dominated by SOEs, and the Government provides support to both SOEs and private companies, it can be challenging to disentangle support to SOEs from the different types of direct spending. To avoid double counting with the SOE investment outlined in the next section, the following values for direct spending have not been included in estimates of national subsidies.

Although there is no government disclosure of the level of transfers and support provided to SOEs, the Chinese media have reported that the state-owned China National Petroleum Corporation (CNPC) received \$1.5 billion (RMB 10.3 billion) and \$0.6 billion (RMB 3.9 billion) in 2013 and 2014 respectively (Beijing news, 2015). Sinopec, another major SOE, received \$0.4 billion (RMB 2.4 billion) in both 2013 and 2014 (Beijing news, 2015). In the coal sector, 19 listed coal companies received direct grants worth \$93 million (RMB 0.6 billion) in 2013 (Tang, 2014). The same amount was reported to have been allocated directly to the state-owned Shenhua Group and China Coal group in 2014 (estimates for other companies were not available at the time of writing). In addition, the Special Fund for Risky Exploration of Overseas Mineral Resources provides direct support to private companies and SOEs worth \$14 million per year (RMB 90 million, calculated as an average of the total value between 2010 and 2013) (Xue et al., 2015).

The Government also pays a premium directly to the producers of unconventional gas, including coal-bed methane, worth \$212 million or RMB 1.4 billion per year (OECD, 2015) and shale gas worth at least \$78 million or RMB 0.5 billion in 2014. This premium paid per unit of shale gas produced is to be reduced in the coming years,² but the predicted increase in production volumes means that it is unclear whether or by how much the size of the subsidy will change.

China also provides direct support to R&D for fossil fuel production. Coal producers received at least \$51

million (RMB 330 million) in 2013 to enhance production and process safety while oil and gas companies received \$26 million (RMB 165 million) (Xue et al., 2015).³

Since China started developing CCS in 2000, cumulative R&D expenditure in the sector to date has amounted to \$2.5 billion (RMB 17.5 billion). This funding has supported demonstration plants that are already operating among the 12 CCS projects developed by a number of large SOEs (Forbes, 2014).⁴ It is not possible to disaggregate the funding sources, but there is evidence of direct government spending on CCS. For example, the Ministry of Science and Technology provided 10% of the required investment to a CCS project at a coal liquefaction plant in Inner Mongolia (Price, 2014).

Regional and local governments also provide direct support to fossil fuel production although this is described only anecdotally. Examples include the Chongqing Government, which provided \$31 million (RMB 0.2 billion) for a shale gas survey in 2014, and national guidelines mandating local governments to support investment in gas transportation infrastructure (National Energy Administration of China, 2014; Sandalow et al., 2014).

Other support mechanisms

Several other mechanisms provide support to fossil fuel producers. For example, increased duties on imported coal provide market support, and import duties are waived on certain types of advanced equipment for fossil fuel production as well as land use fees for coal mines. The railway tariff for coal transportation in Inner Mongolia has also been reduced in comparison to that charged in other parts of the country, conferring a benefit to the local coal industry that was estimated at \$1.1 billion (RMB 7.2 billion) in 2013, but has not been quantified for 2014 (Zhao, 2013).

State-owned enterprise investment

State-owned enterprises dominate fossil fuel production in China. Altogether, the national-level SOEs we reviewed were found to have provided an average of \$77 billion per year in investment in fossil fuel production in 2013 and 2014 (see Table 2).

The three largest SOEs are PetroChina (a subsidiary of China National Petroleum Company, CNPC), Sinopec (a subsidiary of China Petrochemical Corporation), and China National Offshore Oil Corporation (CNOOC). These three SOEs accounted for about 90% of oil and gas production in 2014 and hold an effective monopoly (Lin,

2 The 0.4RMB/m³ premium on shale gas will be reduced to 0.3RMB/m³ from 2016 and further to 0.2RMB/m³ in 2019.

3 Based on yearly data and government spending structure from 2009.

4 This report does not differentiate between the international use of carbon capture and storage (CCS) and the Chinese use of carbon capture, utilisation and storage (CCUS).

Table 1: China's national subsidies to fossil fuel production, 2013-2014 (\$ million except where stated otherwise)

National subsidy*	Subsidy type	Targeted energy source	Stage	2013 estimate	2014 estimate	Estimated annual average amount
Tax expenditure						
Resource-Tax abatements and refunds for gas extraction	Tax break and refunds	Gas	Production	93	93	93
Resource-Tax abatements and refunds for oil extraction	Tax break and refunds	Oil	Production	576	576	576
Temporary tax and fee relief (Shanxi, Inner Mongolia and Shaanxi)	Tax waiving	Coal	-	1,584	N/A	1,584
The management measures of natural gas infrastructure construction and operation	-	Gas	Pipeline operation and development	N/A	N/A	N/A
Exploration fee waived for shale gas	Tax waiving	Gas	Exploration	N/A	N/A	N/A
Change in the Special Oil Income Levy	Tax break	Oil	Production	N/A	N/A	N/A
Exemption of business tax on overseas operations in construction and international transportation	Tax break	Oil and gas	Construction and international transportation	N/A	N/A	N/A
Other support mechanisms						
Raising import tariff	Price support	Coal	Production	N/A	N/A	N/A
Waving import tariff for certain advanced equipment	Price support	Coal	Production	N/A	N/A	N/A
Exemption for land use fee of coal mines	Provision of service below market value	Coal	Production	N/A	N/A	N/A
Providing Inner Mongolia producers with coal railway transportation below fair market rate	Provision of service below market value	Coal	Production	1,121	N/A	1,121
Total						
Total national subsidies (\$ m)						3,375
Total national subsidies (RMB m)						21,670

Sources and additional data are available in the Data Sheets that accompany each Country Study.

Notes: * To avoid double counting with SOE investment, the values outlined in the text above for direct spending have not been included in estimates of national subsidies. N/A indicates data was not publicly available at the time of publication. When data is not available for both 2013 and 2014, the two-year average is based on the data for one year only.

2012; Liao, 2015) (see Table 2). Shaanxi Yanchang Petroleum (Group) Limited is a much smaller SOE, responsible for less than 4% of total production in 2014. As it is a provincial-level SOE, it is not included in the remit of this study.

Although the State-Owned Assets Supervision and Administration Commission (SASAC) recently forced eight SOEs to sell off shares in some of their smaller subsidiaries,⁵ the main SOEs continue to be largely integrated across the production chain (SASAC, 2014). For example, PetroChina controls more than 80% of China's natural gas pipelines

(around 40,000 km) and Sinopec has the largest refinery capacity in China.

These SOEs may engage in unprofitable activities to support wider national objectives that are achieved through the Government's regulation of the price of fuels (Downs, 2006; Downs and Meidan, 2012). In 2014, PetroChina reported a loss of \$6.4 billion (RMB 41 billion) in its gas and pipelines segment that was linked to the high costs of gas imports as compared to domestic regulated sale prices (Tu, 2014; Petrochina, 2014).

⁵ SASAC is an organisation that oversees SOEs and acts as the government shareholder. This move by SASAC is reported to encourage transparency and efficiency through a mixed-ownership structure. However, the plans seem to apply only to the monopolies' subsidiaries, new joint ventures and transportation assets.

SOEs accounted for 65% of total coal production in China in 2012. Compared to the oil and gas sector, the role of the Government in coal mining is less prominent, with many coal SOEs being provincial and managed locally (and therefore outside the remit of this study). The coal industry is also less concentrated than the oil and gas sector, with a much larger number of companies involved (Leung et al., 2014; Wang, 2014). In recent years, however, there has been a drive to consolidate the industry by merging and shutting down some of the thousands of small coal-mining enterprises. The main national level SOEs involved in coal production are Shenhua Group, Huadian Resources, China Coal, China Huaneng Group Corporation, China Datang Corporation, and China Guodian Corporation (see Table 2).

Chinese SOEs also have significant levels of investment overseas in oil, gas and coal production (Scissors, 2015; Young, 2015; American Enterprise Institute, 2015). Our research shows that across the G20 countries alone Chinese SOEs are active in Argentina, Australia, Brazil, Indonesia, the UK and the US (see Table 4 in full report *Empty promises: G20 subsidies to oil, gas and coal production*). Research by the American Enterprise Institute has highlighted that China's investment in oil and gas in 2013 and 2014 also included activities in Angola, Ecuador, Kazakhstan, Mozambique, Uganda and Venezuela (Sandalow et al., 2014).

Nearly 75% of China's power generation is based on fossil fuels at present, although the aggressive deployment of non-fossil capacity and the closing of small and inefficient coal plants is reducing this proportion (Davidson, 2014). SOEs control more than 60% of China's power generation sector while power transmission remains a de facto state monopoly (Epikhina, 2013). There are two national-level state-owned power generators that draw more than 95% of their power generation mix from fossil fuels (China Shenhua Group and China Resources Power) and that have therefore been included in our estimates of SOE investments (see Table 2).

Several national-level Chinese SOEs draw less than 95% of their total generation capacity from fossil fuels. Others may rely on fossil fuels for more than 95% of their capacity, but are owned at the local level (National Bureau of Statistics of China 2015). Neither of these types of SOEs, therefore, come under the remit of this study (see Chapter 3 in the full report for more on this distinction).

Public finance

This analysis of public finance institutions includes: China Development Bank (CDB), a development finance institution; the Export-Import Bank of China (Chexim) and China Export and Credit Insurance Corporation (Sinosure), which are export credit, guarantees and insurance agencies; and some of the largest Chinese majority state-owned banks,

including the Industrial and Commercial Bank of China (ICBC), the Bank of China (BoC), the China Construction Bank (CCB), and the China International Trust and Investment Corporation Bank (CITIC). The analysis of project financing relies on publicly available data for financing that were approved in 2013 and 2014.

Not included in these totals are projects financed by some of the major state-owned oil, gas and coal enterprises, as these were covered earlier in the section on SOE investments, to avoid double counting. As a result of the lack of transparency and publicly available information, the financing that has been identified here is almost certainly incomplete and may substantially underestimate the actual level of Chinese public finance for fossil fuel production.

Domestic

Domestically, credit support is often available to industry, especially SOEs, on preferential loan rates and terms. A crucial driver of the development of the coal industry in previous decades, preferential loans remain key to financing fossil fuel production in China (Peng, 2009). For the oil and gas industry, CNOOC and Sinopec reported credit rates of 2% to 5% below the Bank of China benchmark in 2013 and 2014.⁶

Our review of project-level financing for fossil fuel production at seven Chinese state-owned banks uncovered only one domestic project that was not financing a major SOE. Loans from China Export Import Bank and CDB totalled \$183 million over 2013 and 2014, or an annual average of \$91 million.

Reporting from the institutions themselves suggests that there is significant additional financing that has not been quantified at the project level. For example, CDB's 2013 Annual Report stated that its key projects included a coal-to-liquids plant and an open-pit coal mine and that it also financed refinery projects and overseas oil exploration and development for CNPC and Sinopec, but did not quantify the specific amount of financing related to these (CDB, 2013).

International

China is extremely influential in international public finance for fossil fuel production. Some estimates suggest that CDB, Chexim and Sinosure alone provided as much as \$20 billion in investments for overseas coal-fired power plant projects from 2007 to 2013 (Ueno et al., 2014; Louvel et al., 2014). In 2014, Chinese banks provided loans to eight of the 10 biggest coal-mining projects and six of the 10 largest coal-fired power plants (Rainforest Action Network, Sierra Club and Bank Track, 2015; Louvel et al., 2014).

Altogether, the banks we reviewed were found to have provided \$32 billion in international public finance for fossil fuel production in 2013 and 2014, or \$16 billion annually (excluding the finance provided to SOEs). Investments in

6 From annual reports as well as the monetary policy department of the Bank of China.

Table 2: China's state-owned enterprise (SOE) investment, 2013-2014 (\$ million except where stated otherwise)

SOE	Description	Fossil fuel sector	Stage	2013	2014	Annual average value
Sinopec	Exploration and upstream capital expenditure	Oil and gas	Production	13,265	12,874	13,069
Petro China	Exploration and upstream capital expenditure	Oil and gas	Production	37,945	35,888	36,916
CNOOC	Exploration and upstream capital expenditure	Oil and gas	Production	14,570	16,257	15,414
Huadian Resources	Capital expenditure (planned expenditure)	Coal	Production	374	354	364
China Coal	Capital expenditure (actual expenditure)	Coal	Production	4,690	3,558	4,124
China Huaneng Group Corporation	Capital expenditure (coal segment - planned expenditure)	Coal	Production	288	186	237
China Datang Corporation	Capital expenditure (coal segment not including coal chemical engineering - planned expenditure)	Coal	Production	233	96	164
China Guodian Corporation	Capital expenditure (coal segment - planned expenditure)	Coal	Production	140	95	118
Shenhua Group	Capital expenditure (coal segment - actual 2013, and planned 2014)	Coal	Production	1,345	1,086	1,215
China Resources Power	Capital expenditure (property, plant and equipment)	Electricity (96.5% fossil fuel)	Generation	2,812	2,206	2,509
Shenhua Group	Capital expenditure (property, plant and equipment)	Electricity (97.5% fossil fuel)	Generation	1,736	3,025	2,381
Total						
Total SOE investment (\$ m)						76,512
Total SOE investment (RMB m)						491,204

Sources and additional data are available in the Data Sheets that accompany each Country Study.

oil and gas projects involving exploration and production, transportation, storage and/or processing and refining were responsible for more than three quarters of the total, with the remainder invested in coal projects including mining, transportation and/or combustion.

CDB was found to be the biggest financier of Chinese fossil fuel production overseas by far, providing \$23 billion over 2013 and 2014, or an annual average of \$11 billion. Chexim followed, with \$7 billion over 2013 and 2014, and the ICBC had \$1 billion in investment in fossil fuel production over 2013 and 2014.

The loans attributed to the Chinese banks include several for which there is uncertainty about whether the loans were ultimately made. These include a \$2 billion CDB strategic cooperation agreement with Russia's En+ Group in 2013 for coal projects, plus a line of credit for a comparable amount for Rosneft, also in 2013. Another CDB line of credit for

\$2 billion was extended in 2014 to Angola's state-owned Sonangol EP and included in the tally (in addition to an earlier CDB loan of \$1.3 billion for Sonangol apparently made in 2013). Also included was a \$900 million CDB loan to Costa Rica in June 2013 to refurbish an oil refinery. Similarly, Chexim appears to have agreed a \$1 billion line of credit in 2013 with Petróleos Mexicanos that has been included.

'Energy-backed loans' (EBLs), a form of lending common to China's international investments for nominally non-energy projects (e.g., infrastructure, housing, education), are not reflected in the bilateral public finance totals in this report. Also known as 'oil-backed loans' or 'oil-for-loans', by definition, EBLs are a form of financing that must be repaid either with direct shipments of oil or gas from the recipient country or via withdrawals by Chinese SOEs from cash accounts set up to receive the proceeds of fossil fuel sales by

the recipient country (Lee et al., 2014; Shea, 2014). For more information on EBLs, see Box 8 in the full report *Empty promises: G20 subsidies to oil, gas and coal production*.

A number of additional – very substantial – projects have not been included in our estimates but are worth mentioning.

- In November 2014, Petróleos Mexicanos (Pemex, the Mexican state-owned oil and gas company) reportedly signed agreements with CDB, ICBC and other Chinese entities to create a \$5 billion fund to finance Pemex projects, including the second phase of the Los Ramones natural gas pipeline already under construction. This is not included in our estimates because too few details are available (Shih, 2014; The Economist, 2014).
- CDB has apparently been a player in the multi-billion dollar lending for the Shwe gas and pipelines projects in Myanmar, but available sources are unclear about how much – if any – lending occurred in 2013 and 2014 (Gallagher, 2013; BankTrack, 2013).

The figures cited do not include a number of memoranda of understanding and other agreements that could, potentially, entail very large loans but for which there is not enough documentation to confirm that lending had actually occurred in 2013 and 2014, or the extent to which the loans included fossil fuels. These include the following.

- A draft agreement between China and Kazakhstan, announced in September 2013, would guarantee loans from CDB and Chexim – worth \$3 billion and \$5 billion respectively – to Kazakhstan’s state holding company Baiterek, charged with promoting innovation and industrial projects (which could be linked to the development of the Kashagain oil field) (Gordeyeva, 2013; Energy-Pedia, 2013).
- Similarly, one of 38 accords signed by China and Venezuela in July 2014 was a memorandum of understanding for Chexim to lend \$1 billion to PDVSA, the Venezuela state-owned oil company (NewsMax, 2014).
- In November 2014, China promised to invest around \$34 billion in various fossil and non-fossil energy projects in Pakistan over the next six years as part of a deal dubbed the China-Pak Economic Corridor. (Express-Tribune, 2014).

In addition to financing from state-owned banks, China also contributed an annual average of \$152 million to fossil fuel production in 2013 and 2014 through its shares in the African Development Bank, the Asian Development Bank, the Inter-American Development Bank and the World Bank Group, which range from 0.004% to 5.4% depending on the institution. China also holds 20% of shares in the New Development Bank and 30% of shares in the Asian Infrastructure Investment Bank, two new international institutions that could be sources of public finance for fossil fuel production in the future. The New Development Bank

is scheduled to begin operations in 2016, with \$50 billion in capital expected to rise to \$100 billion over time. The Asian Infrastructure Investment Bank is also scheduled to begin operations in 2016, with \$100 billion in total capital.

Private companies

Private upstream oil and gas companies

Private companies play a very limited role in China’s oil and gas industry and accounted for slightly less than 3.5% of the total national production of oil and gas in 2013 and 2014. Since 2012, they have been able to invest in conventional sources through a limited number of operations, as equity shares and joint ventures. They are also welcome to explore and develop shale gas resources. The main players include ConocoPhillips (US), Bright Energy (US), Shell (Netherlands), and Chevron (US). The total capital and exploration investment of the top 7 private upstream oil and gas producers averaged \$3.2 billion per year in 2013 and 2014 (Rystad, 2015) (see Table 4).

Following the ruling by SASAC, PetroChina announced that it would open six lines of business to non-state investors and created a \$6.5 billion joint venture in the pipeline sector.

Private midstream/upstream oil and gas companies

There are more than 20 private oil companies in China. Their market share is, however, very small, and until July 2015 they could only import crude oil under a very strict government quota (China Daily, 24 July 2015).

Private coal companies

Private companies account for about one third of domestic coal production in China, but are not considered major actors in the sector. There is wide criticism of the lack of the market concentration, and as a result small private coal-mining companies are the first target of the phase-out plan (Pan, 2012; Yu and Yu, 2006).

Private electricity companies (fossil fuel-based)

Although there are Independent Power Producers (IPPs) in China (representing 40% of the country’s overall power generation) these entities are still closely linked to the Government. Opportunities for the private investment sector are limited, as electricity prices in China are regulated (Epikhina 2013).

Table 3: China's public finance for fossil fuel production, 2013–2014 (\$ million, except where stated otherwise)

Institution	Coal mining	Coal-fired power	Upstream oil & gas	Oil and gas pipelines, power plants and refineries	Total fossil fuel finance 2013 & 2014	Annual avg. fossil fuel finance
Domestic						
China Export-Import Bank	-	-	91	-	91	46
China Development Bank	-	-	91	-	91	46
Subtotal domestic	-	-	183	-	183	91
International						
China Development Bank	2,000	1,270	12,022	7,670	22,962	11,481
Export-Import Bank of China	304	3,309	1,325	1,963	6,901	3,451
Industrial and Commercial Bank of China	50	639	202	341	1,232	616
Bank of China	-	234	304	424	962	481
Sinosure	-	234	180	-	414	207
Additional state-owned banks	-	234	-	53	287	144
Multilateral development bank share	-	71	46	186	304	152
Subtotal international	2,354	5,991	14,079	10,638	33,063	16,531
Total						
Total public finance (\$ m)						16,622
Total public finance (RMB m)						106,718

Sources and additional data are available in the Data Sheets that accompany each Country Study.

Table 4: Top private upstream oil and gas producers in China, 2013-2014

Company	Headquarter country	Oil production (million barrels in country)		Gas production (billion cubic meters in country)		Sum of operating expenditure & capital expenditure, including exploration expenditure (\$ million)		Profitability (from country operations, as measured by free cash flow, \$ million)	
		2013	2014	2013	2014	2013	2014	2013	2014
ConocoPhillips	US	24	25	0	2	378	408	994	977
Bright	US	7	7	1	11	327	295	269	310
Chevron	US	9	8	0	9	1,205	1,452	-509	-843
Shell	Netherlands	0	0	2	6	1,001	785	-564	-292
MIE Holdings Corporation	China	8	8	0	5	73	77	256	242
KunLun Energy	Hong Kong	5	5	0	4	138	148	55	32
Eni	Italy	3	2	0	2	62	58	154	123

Source: Rystad Energy, 2015.

Methodology

(for detailed methodology see Chapter 3 of main report)

This report compiles publicly available information on G20 subsidies to oil, gas and coal production across G20 countries in 2013 and 2014. It provides a baseline to track progress on the phase-out of such subsidies as part of a wider global energy transition. It uses the following terms and their definitions.

Production subsidies

Government support for fossil fuel production. For the purpose of this country study, production subsidies include national subsidies, investment by state-owned enterprises (SOEs) (domestic and international) and public finance (domestic and international) specifically for fossil fuel production.

Fossil fuel production

Production in the oil, gas and coal sectors. This includes access, exploration and appraisal, development, extraction, preparation, transport, plant construction and operation, distribution and decommissioning. Although subsidies for the consumption of fossil fuels can support their production, this report excludes such subsidies as well as subsidies for the consumption of fossil fuel-based electricity.

National subsidies

Direct spending, tax and duty exemptions and other mechanisms (such as forms of capacity markets) provided by national and sub-national governments to support fossil fuel production. Normally, the value assigned for a national subsidy is the number provided by the government's own sources, by the OECD, or by an independent research institution.

State-owned enterprise (SOE) investment

A SOE is a legal entity created by a government to undertake commercial activities on its behalf. SOEs can be wholly or partially owned by governments.

It is difficult to identify the specific component of SOE investment that constitutes a subsidy, given the limited publicly available information on government transfers to SOEs (and vice-versa), and on the distribution of investment within their vertically integrated structures. Therefore, this report provides data on total investment by SOEs in fossil fuel production (where this information is available from the company), which are presented separately from national subsidies.

For the purpose of this report, 100% of the support provided to fossil fuel production through domestic and international investment by an SOE is considered when a government holds >50% of the shares.

Public finance

Public finance includes the provision of grants, equity, loans, guarantees and insurance by majority government-owned financial institutions for domestic and international fossil fuel production. Public finance is provided through institutions such as national and multilateral development banks, export credit agencies and domestic banks that are majority state-owned.

The transparency of investment data for public finance institutions varies. Assessing the portion of total financing that constitutes a subsidy requires detailed information on the financing terms, the portion of finance that is based directly on public resources (rather than raised on capital markets) or that depends on the institutions' government-linked credit rating. Few of the institutions assessed allow public access to this information. Therefore, we report the total value of public finance from majority government-owned financial institutions for fossil fuel production separately from 'national subsidy' estimates.

For the purpose of this report, 100% of the support provided to fossil fuel production through domestic and international financing is considered when a government holds >50% of the shares in the bank or financial institution.

References

- American Enterprise Institute (2015) *China Global Investment Tracker*. (<https://www.aei.org/china-global-investment-tracker/>)
- BankTrack (2013) 'Shwe gas and pipelines projects'. Netherlands: BankTrack.org. (http://www.banktrack.org/show/dodgydeals/shwe_gas_and_pipelines_projects#tab_dodgydeals_finance)
- Beijing news (北京报网) (2015) 'CNPC receives more than 10 billion yuan national subsidies'. (中石油获数百亿国家补贴为哪般). Beijing News, 15 April. (www.bjnews.com.cn/graphic/2014/04/15/313080.html)
- Bloomberg (2015) 'China Carbon Emissions Decline as 2014 Global CO2 Stays Flat'. 3 March. (www.bloomberg.com/news/articles/2015-03-13/china-s-carbon-emissions-drop-for-the-first-time-since-2001)
- BP (2015) *BP Statistical Review of World Energy*. (www.bp.com/en/global/corporate/about-bp/energy-economics/statistical-review-of-world-energy.html)
- China Daily (2014) 'Coal-to-gas projects under microscope'. *China Daily*, 14 October. (http://usa.chinadaily.com.cn/business/2014-10/14/content_18733014.htm)
- China Daily (2015). 'China opens up crude oil import to private refineries'. *China Daily*, 24 July 2015. (http://www.chinadaily.com.cn/business/2015-07/24/content_21393937.htm)
- China Development Bank (CDB) (2013) *Annual Report*. (www.cdb.com.cn/english/NewsInfo.asp?NewsId=5274)
- Davidson, M. (2014) 'China's Electricity sector at a Glance'. *The Energy Collective*. (www.theenergycollective.com/michael-davidson/335271/china-s-electricity-sector-glance-2013)
- Downs, E. (2006) *Brookings Foreign Policy Studies Energy Security Series: China*. (www.brookings.edu/~/media/research/files/reports/2006/12/china/12china.pdf)
- Downs, E., Meidan, M. (2012) *Business and Politics in China: the Oil Executive Reshuffle of 2011*. (www.chinasecurity.us/images/stories/DownsMeidanCS19.pdf)
- Doyle, A. and Stanway, D. (2015) 'Exclusive: Chinese coal data cast doubt on historic stalling of world CO2'. *Reuters*, 15 September. (<http://www.reuters.com/article/2015/09/16/us-climatechange-carbon-china-exclusive-idUSKCN0RF1QT20150916>)
- Energy-Pedia News (2013) 'Kazakhstan: China buys into giant Kashagan oil field for \$5 billion'. 8 September. (<http://www.energy-pedia.com/news/kazakhstan/new-155908>)
- Epiikhina, R. (2013) 'Unite and rule? Developments in China's power generation sector'. Moscow: The US-Russia Foundation for Economic Advancement and the Rule of Law and IREX.
- Ernst and Young (2015) *Riding the Silk Road: China sees outbound investment boom. Outlook for China's outward foreign direct investment*. ([http://www.ey.com/Publication/vwLUAssets/ey-china-outbound-investment-report-en/\\$FILE/ey-china-outbound-investment-report-en.pdf](http://www.ey.com/Publication/vwLUAssets/ey-china-outbound-investment-report-en/$FILE/ey-china-outbound-investment-report-en.pdf))
- Ernst and Young (2013) *Global Oil and Gas Tax Guide*. ([www.ey.com/Publication/vwLUAssets/2013_global_oil_and_gas_tax_guide/\\$FILE/EY_Oil_and_Gas_2013.pdf](http://www.ey.com/Publication/vwLUAssets/2013_global_oil_and_gas_tax_guide/$FILE/EY_Oil_and_Gas_2013.pdf))
- Expatica (2015) 'FP China overseas investment jumps in February on Dutch deal'. (www.expatica.com/nl/news/country-news/China-overseas-investment-jumps-in-February-on-Dutch-deal-govt_453714.html)
- Express-Tribune (2014) 'China's US\$ 45.6 Billion economic promise to Pakistan'. 27 November. (<http://forpakistan.org/fpdata/chinas-us-45-6-billion-economic-promise-to-pakistan>)
- Forbes, S. (2014) 'China and the United States accelerate efforts on carbon capture and storage'. Washington D.C.: World Resources institute. (www.wri.org/blog/2014/07/china-and-united-states-accelerate-efforts-carbon-capture-and-storage)
- Gallagher, K. (2013) 'China's Development Banks Go Global: The Good and the Bad'. *Triple Crisis*, 9 September. (<http://triplecrisis.com/chinas-development-banks-go-global-the-good-and-the-bad>)
- Gordeyeva, M. (2013) 'China, Kazakhstan to ink deals worth \$30 billion on Saturday'. *Reuters*, 7 September. (<http://goo.gl/LNEIRf>)
- Gronholt-Pedersen, J. and Gloystein, H. (2015) 'China becomes world's top crude oil buyer despite economy stuttering'. *Reuters*, 5 November. (www.reuters.com/article/2015/05/11/china-crude-imports-idUSL4N0XW1TO20150511)
- Huyghebaert, N., Quann, Q. (2011) 'Ownership Dynamics After Partial Privatization: Evidence from China'. *Journal of Law and Economic* 54(2), 389–429.
- Jiang, H.M. (2009) 'An Analysis of Our Country's Current Reform in Oil Product Pricing'. *Journal of Southwest Petroleum University (Social Sciences Edition)* 2(3): 9–13.
- Leung, G.C.K., Cherp, A., Jewell, J and Wei, Y-M. (2014) 'Securitization of energy supply chains in China'. *Applied Energy* 123: 316–326.
- Liao, J.X. (2015) 'The Chinese government and the national oil companies (NOCs): who is the principal?' *Asia Pacific Business Review* 21(1), pp.44–59. (www.tandfonline.com/doi/abs/10.1080/13602381.2014.938939)
- Lin, X. (2012) 'Privatisation or Monopoly? – The Choices Facing the SOEs' Reform.' [In Chinese]. *Cultural Perspectives* 4, 68–76.
- Louvel, Y., Brightwell, R. and Aitken, G. (2014) *Banking on Coal. Bank financing of coal mining and coal power, and why it must stop*. Netherlands: BankTrack. (<http://www.banktrack.org>)

- www.banktrack.org/download/banking_on_coal_2014_pdf/banking_on_coal_2014.pdf
- Ministry of Finance of the People's Republic of China (2014a) 'Notice N°115 on the update on the Special Oil Income Levy Threshold' (财政部关于提高石油特别收益金起征点的通知) [In Chinese] (http://blog.sina.com.cn/s/blog_5ed646f70102vclj.html)
- Ministry of Finance of the People's Republic of China (2014b) 'Notice on the adjustment of Oil and Gas Resource Tax' 关于调整原油、天然气资源税有关政策的通知 [in Chinese]. 10(9). (www.tax.sh.gov.cn/pub/xxgk/zcfg/zys/201410/t20141013_410661.html)
- Myllyvirta, L. (2015) *China coal use falls: CO2 reduction this year could equal UK total emissions over same period*. (<http://energydesk.greenpeace.org/2015/05/14/china-coal-consumption-drops-further-carbon-emissions-set-to-fall-by-equivalent-of-uk-total-in-one-year/>)
- National Bureau of Statistics of China (2015) 'China Electricity power yearbook 2014' (2014 中国电力年鉴) [In Chinese] *China Academic Journal electronic Publishing House*.
- National Development and Reform Commission (2015a) *China INDC: Enhanced Actions on Climate Change-强化应对气候变化行动——中国国家自主贡献* [In Chinese]. ([www4.unfccc.int/submissions/INDC/PublishedDocuments/China/1/China's INDC - on 30 June 2015.pdf](http://www4.unfccc.int/submissions/INDC/PublishedDocuments/China/1/China's%20INDC%20-%20on%2030%20June%202015.pdf))
- National Development and Reform Commission (2015b) *To promote price reform as a breakthrough work positioning in transition. Interview with the National Development and Reform Commission said prices of Secretary Xu Kunlin* (in Chinese). (http://www.ndrc.gov.cn/xwzx/xwfb/201504/t20150421_688877.html)
- National Energy Administration of China (2014) 'Notice from National Energy Administration on Guidance for Energy Work in 2014' [国家能源局关于印发2014年能源工作指导意见的通知] (http://zfxgk.nea.gov.cn/auto82/201401/t20140124_1756.htm)
- NewsMax (2014) 'China provides \$4 billion to Venezuela in exchange for oil'. NewsMax, 21 July. (<http://www.newsmax.com/world/asia/venezuela-china-oil/2014/07/21/id/583953>)
- Organisation for Economic Co-operation and Development (OECD) (2015) *OECD database of budgetary support and tax expenditures*. Paris: OECD. (www.oecd.org/site/tadffss/data/)
- Ottery, C. (2014) *China's planned coal-to-gas plants to emit over one billion tons of CO2*. Amsterdam: Greenpeace. (www.greenpeace.org/international/en/news/features/China-coal-to-gas-plants-to-emit-billion-tons-of-CO2/)
- Paltsev, S. and Zhang, D. (2015) 'Natural gas pricing reform in China: Getting closer to a market system?' *Energy Policy* 86: 43–56. (<http://linkinghub.elsevier.com/retrieve/pii/S0301421515002451>)
- Pan, K.P. (2012) 'A Study on Market Concentration in China's Coal Sector' (in Chinese). *Management World*.
- Peng, W. (2009) *The evolution of China's coal institutions*. California: Stanford Freeman Spogli Institute for International Studies. (http://iis-db.stanford.edu/pubs/22612/PESD_WP_86.pdf)
- Petrochina (2014) *Annual Report*. Beijing: Petrochina. (<http://www.petrochina.com.cn/ptr/ndbg/201504/944b0a0ec9b3455484e4825b8ebcf726/files/8bd9792a173a4ccf8bcb1b5a7b95e080.pdf>)
- Price, J.P. (2014) *Effectiveness of Financial Incentives for Carbon Capture and Storage*. Virginia, USA: Bluewave Resources, LLC. (http://ieaghg.org/docs/General_Docs/Publications/Effectiveness%20of%20CCS%20Incentives.pdf)
- PwC (2015) *The People's Republic of China- Tax Facts and Figures- 2015*. (www.pwccn.com/webmedia/doc/635671281131435071_cn_tax_facts_figures_2015.pdf)
- Rainforest Action Network, Sierra Club and Bank Track (2015) 'The End of Coal? Coal Finance Report Card 2015'. San Francisco: Rainforest Action Network, Sierra Club and Bank Track. (<http://www.actu-environnement.com/media/pdf/news-24476-the-end-of-coal-2015.pdf>)
- Reuters (2015) 'China curbs conventional gas output, keeps shale target'. 10 September. (www.reuters.com/article/2015/09/10/china-gas-idUSL3N10N44X20150910)
- Sandalow, D. Wu, J., Yang, Q., Hove, A. and Lin, J. (2014) *Meeting China's Shale Gas Goals*. (http://energypolicy.columbia.edu/sites/default/files/energy/China%20Shale%20Gas_WORKING%20DRAFT_Sept%202011.pdf)
- Scissors, D. (2015) *China's investment in the world increasing, not soaring*. (<https://www.aei.org/wp-content/uploads/2015/07/Chinas-investment-in-the-world-increasing-not-soaring.pdf>)
- Sheng, H. (2013) *State-Owned Enterprises are Subsidised by All the Chinese People*. [In Chinese]. (www.economy.caijing.com.cn/2013-11-08/113540379.html)
- Shih, G., (2014) 'China, Mexico eye \$7.4 billion in investment funds'. *Reuters*, 13 November. (<http://www.reuters.com/article/2014/11/13/us-china-mexico-idUSKCN0IX0IF20141113>)
- State-Owned Assets Supervision and Administration Commission (SASAC) (2014) *Press Conference on Four Reform Pilots [in Chinese]*. 15 July.
- Tang, Z. (2014) 'It is More Difficult to Monitor SOEs than to Monitor the Government.' [In Chinese]. (www.comments.caijing.com.cn/2014-04-22/114120703.html)
- The Chinese State Council (2014) 'Notice regarding the 2014-2020 China National Energy Strategic Action Plan' 国务院办公厅关于印发能源发展战略行动计划（2014-2020年）的通知。（国家能源局）。National Energy Administration. (www.nea.gov.cn/2014-12/03/c_133830458.htm)

- The Economist (2014) 'Mexico and China get closer'. *Economist*, 17 November. (<http://www.eiu.com/industry/article/1002498084/mexico-and-china-get-closer/2014-11-19>)
- Tu, K. (2014) *Chinese Oil: An Evolving Strategy*. 24 April. (www.carnegieendowment.org/2012/04/24/chinese-oil-evolving-strategy)
- Ueno, T., Yanagi, M. and Nakano, J. (2014) *Quantifying Chinese Public Financing for Foreign Coal Power Plants*. Tokyo: University of Tokyo. (<http://www.pp.u-tokyo.ac.jp/research/dp/documents/GraSPP-DP-E-14-003.pdf>)
- Vennemo, H., He, J. and Li, S. (2013) 'Macroeconomic Impacts of Carbon Capture and Storage in China'. *Environmental and Resource Economics*, pp.1–23.
- Wang, D. (2014) 'Analysis on Conflicts of China's Coal Tax Reform'. *International Journal of Energy Economics and Policy*, 4(1): 1–18. (papers3://publication/uuid/FA82F823-7F7E-4558-B10B-92F4EB529DA9)
- White House (2015) 'U.S.-China Joint Presidential Statement on Climate Change' 25 September. (<https://www.whitehouse.gov/the-press-office/2015/09/25/us-china-joint-presidential-statement-climate-change>)
- Wall Street Journal (2015) 'Mines Shut as China Burns Less Coal'. 2 February, *Wall Street Journal*. (www.wsj.com/articles/mines-shut-as-china-burns-less-coal-1422905081)
- Xinhua (2014) *100 Largest Chinese Coal Enterprises by Revenue in 2014*. [In Chinese]. 28 August. (http://news.xinhuanet.com/2014-08/28/c_126929030_2.htm)
- Xinhua (2015a) 'China's coal production sees first drop since 2000'. 23 January. (http://news.xinhuanet.com/english/business/2015-01/23/c_133942640.htm)
- Xinhua (2015b) 'China pledges tougher measures to cut overcapacity'. 7 May. (http://news.xinhuanet.com/english/2015-05/07/c_134218832.htm)
- Xinhua (2009) 'How to Explain Higher Petrol Price in China than That in the United States?' [In Chinese]. 5 July.
- Xue, H., Wang, H., Bridle, R., Gerasimchuk, I., and Attwood, C. (2015) *Subsidies to Coal Production in China*. Geneva: Global Subsidies Initiative (GSI) of the International Institute for Sustainable Development (IISD).
- Yu, L. and Yu, Y. (2006) 'A Study on Vertical Regulation Model between Coal and Power Based on Value Chain Efficiency' [in Chinese]. *China Industrial Economy*.
- Zhao, C. (2013) 'Inner Mongolia comes up with a bailout plan: adjust the rate of the fund for coal prices adjustment and reduce railway tariffs' (In Chinese). *NBD*. (www.nbd.com.cn/articles/2013-09-24/775526.html)
- Zhao, C. (2014) 'Shanxi Coal 20 Articles may continue' (In Chinese). *NBD*. (www.nbd.com.cn/articles/2014-01-03/799910.html)



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