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Country Study

Fossil fuel exploration subsidies: China

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This country study is a background paper to the report **The fossil fuel bailout: G20 subsidies for oil, gas and coal** by Oil Change International (OCI) and the Overseas Development Institute (ODI).

For the purpose of this report, exploration subsidies include: national subsidies (direct spending and tax expenditures), investment by state-owned enterprise and public finance. The full report provides a detailed discussion of technical and transparency issues in identifying exploration subsidies, and outlines the methodology used in this desk-based study.

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

Argentina
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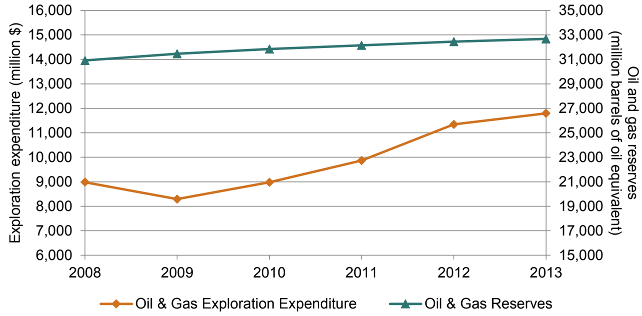
Background

China has 114.5 gigatonnes (Gt) of coal reserves (12.8% of the global total), 3.3 trillion cubic meters (tcm) of national gas (1.8%), and 18.1 billion barrels of oil (1.1%) with coal, oil and gas reserves located onshore, and oil and gas reserves located offshore. China was the world's largest consumer of primary energy in 2013 (22.4% of the global total), based on a heavy reliance on coal, which provided 67.5% of the total energy consumed (BP, 2013). The country's domestic supply is satisfied mainly by large state-owned and state-run enterprises that operate in the coal and petroleum sectors. Figure 1 shows recent trends in exploration expenditure and oil and gas reserves within China.

A number of ministries and agencies regulate and oversee China's domestic and international fossil-fuel interests, with considerable overlap between their function. Within the central Government, this includes the Ministry of Land Resources, the National Development and Reform Council, the State-owned Assets Supervision and Administration Commission and the Ministry of Finance. In addition, there is a role for regional (province/prefecture) and sub-regional (county/municipal) actors. China's 12th five-year plan (2011-2015) includes provision for state support in the development of new fossil-fuel reserves both domestically and internationally, with the aim of promoting further economic growth. The state-owned enterprises (SOEs) that dominate China's fossil-fuel industries also pursue joint ventures with a number of domestic and international private companies.

While the Chinese Government does report on state support for a variety of national priorities, including the development of fossil-fuels, the level of detail in published accounts (available in English) has allowed for only limited quantification of specific exploration subsidies. As a result, most of the subsidies to fossil-fuel exploration outlined below are described qualitatively.

Figure 1. Oil and gas exploration expenditure and reserves in China



Source: Rystad Energy, 2014

National subsidies

The majority of direct spending by the Government on fossil-fuel exploration is believed to take place through SOEs (see section below). As mentioned, publicly-available government accounts and SOE annual reports do not disaggregate government expenditure (or support) enough to allow precision on what proportion of this spending is linked to exploration for fossil-fuels.

In addition, while China's 2012 *Statistical Yearbook* notes a number of expenditures linked to fossil-fuel production, the information is not granular enough to determine which portion may be allocated to exploration, where support is accounted for under multiple categories and which investments are public or private. However, investment in 'mining and washing of coal' and in 'extraction of petroleum and natural gas' by both the public and private sectors appears to have amounted to approximately $90 billion and $50 billion in 2012, respectively, with $1.5 billion identified as coming from the state budget specifically (Table 1). Analysis by the Lawrence Berkley National Laboratory's China Energy

Table 1: Sources of investment for fossil-fuel extraction in China*

	State budget (billion $)	Domestic loans (billion $)	Foreign investment (billion $)	Self-raising investment (billion $)	Other (billion $)	Total (billion $)
Mining and washing of coal (billion $)	1.3	9.4	0.1	73.8	2.6	87.1
Extraction of petroleum and natural gas (billion $)	0.2	7.5	0.7	39.4	2.1	49.9

**Extracts from Table 5-13 in China's 2012 Statistical Yearbook.*
Source: National Bureau of Statistics of China, 2013

Group, which aimed to disaggregate these data, suggests that in 2011 investments in state-owned fixed assets for the extraction of coal, and similar investments in oil and gas amounted to $26 billion and $31.9 billion, respectively (Fridley, 2011).

Expenditure releases by the Ministry of Finance also aggregate state support in a manner that makes it difficult to identify the portion dedicated to fossil-fuel exploration. For example: $661 million was spent by the Government on 'industrial technology R&D [research and development] funding' (Ministry of Finance, 2013b) and $2.5 billion was spent on energy-saving and environmental protection measures, which appear to include exploration for and production of unconventional gas (Ministry of Finance, 2013a). It is unclear if any of this support includes funding to the state-run universities and research institutes dedicated to the fossil-fuel industry, including the China University of Petroleum or the Daqing Petroleum Institute (UPC, 2012; EOL, 2005).

In addition to direct funding, the Chinese Government also provides a number of tax breaks to firms engaged in fossil-fuel exploration. These include a 150% deduction for qualifying R&D costs, customs and VAT exemptions for exploration equipment, and special VAT treatment for projects in designated areas (EY, 2013). The Government does not appear to publish information on foregone revenue as a result of these exemptions. However, to provide some context, state-owned China National Petroleum Company (CNPC) reported research and development expenses of $2.3 billion in 2013 (CNPC, 2013).

Investment by state-owned enterprises

China's energy sector is dominated by SOEs, which only disclose limited information on their exploration activities. China's coal industry is dominated by Shenhua Coal, the world's largest coal company, along with the China National Coal Group Corporation and the Datong Coal Mining group. The oil and gas sector, in turn, is dominated by 'the big three': China National Petroleum Corporation (CNPC) and its subsidiary PetroChina; China Petroleum and its subsidiary Sinopec; and China National Offshore Oil Company (CNOOC) and its subsidiary CNOOC Limited.

A brief comparison of the scale and scope of these SOEs is provided in Table 2, which presents the limited data available. Data in the 'Major companies' section of this paper show that the total exploration expense for CNOOC, PetroChina and Sinopec was greater than $10 billion in China, while Table 2 shows that over $2.3 billion was spent on R&D that might have an exploration aspect, or overseas exploration.

Table 2: Overview of exploration activities by Chinese state-owned enterprises (SOEs)

Centrally-controlled SOEs	Ownership	Fossil-fuels	Exploration expense (million $)	Research and development (R&D) and overseas exploration (million $)	Year	International operations (*exploration confirmed)
PetroChina/ CNPC Group	87% State owned (CNPC)	Oil and gas	3,958 (exploration and extraction) including 2,191 on geological and geophysical costs alone	n/a	2013	Algeria*, Azerbaijan, Canada, Chad*, Ecuador*, Indonesia*, Iran*, Iraq, Kazakhstan*, Libya*, Mongolia, Myanmar*, Niger*, Nigeria*, Oman*, Peru*, Russia*, South Sudan*, Sudan*, Syria, Thailand*, Tunisia*, Turkmenistan, Uzbekistan*, Venezuela.
CNOOC Limited/ CNOOC Group	Subsidiary of CNOOC (SOE). 64.44% CNOOC-owned.	Oil and gas	2,762	1,027 on overseas capital exploration	2013	Algeria*, Argentina*, Australia*, Brazil, Canada*, Colombia* Equatorial Guinea*, Gabon*, Iceland*, Indonesia*, Myanmar, Nigeria, Papua New Guinea*, Qatar, Republic of Congo*, Trinidad and Tobago*, Uganda*, United Kingdom, U.S.*, Yemen.
Sinopec/ China Petrochemical Corporation	73.5% State-owned	Oil and gas	2,077	1,050 R&D across group	2013	Upstream activity in the Asia Pacific, Central Asia, Latin America, the Middle East, North Africa, the Russian Federation, and West Africa regions.
Shenhua Coal	73% state-owned	Coal and gas	24	254 R&D across group	2013	Australia*, Indonesia*, Russia, USA.
Shaanxi Yanchang Petroleum (Group) Limited	60% state-owned	Oil and gas	n/a	n/a	n/a	Canada, Madagascar.*
China Coal (of China National Coal Group Corporation)	>83% state owned (CNCGC)	Coal	n/a	n/a	2013	n/a
Datong Coal Mining Group	Province-owned	Coal	n/a	n/a	n/a	Domestic only
Shanxi Coal Import & Export Group	Province-owned	Coal	n/a	n/a	n/a	Domestic only
Yanzhou Coal	Province-owned	Coal	1.3	n/a	2013	Australia, Hong Kong.
Total exploration			7055.3			
Total exploration and extraction			8822.3			

Table 3. China overseas fossil fuel exploration project financing, 2010 to 2013

Project	Country	Financier	Year	Amount (million USD)	Stage
Sevan Driller II	Brazil	China Construction Bank	2010	200	Extraction (including exploration)
Sevan Driller Refinancing 2011	Brazil	China Development Bank	2011	96	Extraction (including exploration)
Galkynysh Gas Field Phase II	Turkmenistan	China Development Bank	2011	4,100	Extraction (including exploration)
Dragonquest Drillship Project Refinancing 2011	Mexico	China Development Industrial Bank	2011	100	Extraction (including exploration)
Turgai Kumkol oil field expansion	Kazakhstan	Bank of China	2011	60	Extraction (including exploration)
Turgai Kumkol oil field expansion	Kazakhstan	Bank of China	2011	40	Extraction (including exploration)
Total Extraction (including exploration) Financing, 2010-2013:				**4,596**	
Total Annual Extraction (including exploration) Financing, 2010-2013:				**1,149**	

Public finance

Domestic

In 2013, the outstanding loans from the China Development Bank (CDB) to petroleum and petrochemicals, and to coal were $740 billion and $26 billion, respectively. However it is not possible to determine which proportion of these support packages was allocated to upstream, midstream or downstream operations. As a national development bank, CDB is able to provide loans at favourable rates to projects that align with the Government's economic plans, including those related to the development of fossil-fuels, which are seen as one of the strategic 'pillar industries' (China Development Bank, 2013a; China Development Bank, 2013b).

Loans from CDB are in addition to those provided by China's state-owned domestic banks, the largest of which are: Bank of China, Industrial and Commercial Bank of China, China Construction Bank and the Agricultural Bank of China. The annual reports of these banks do not include detail on sectors, projects and companies receiving support, although the first three are thought to lend extensively to the fossil-fuel sector. This lending is in spite of lending restrictions placed on a range of projects, including those for fossil-fuel extraction, by the Ministry of Environmental Protection (MEP, 2013) and seems to run counter to the Green Credit Directive released by the China Banking Regulatory Commission (Matisoff, 2012).

In addition, in 2013, it was reported that a group of the largest state-owned coal firms, including those detailed above, were seeking to form a commercial bank with 'coal as its core focus' (Reuters, 2013).

International

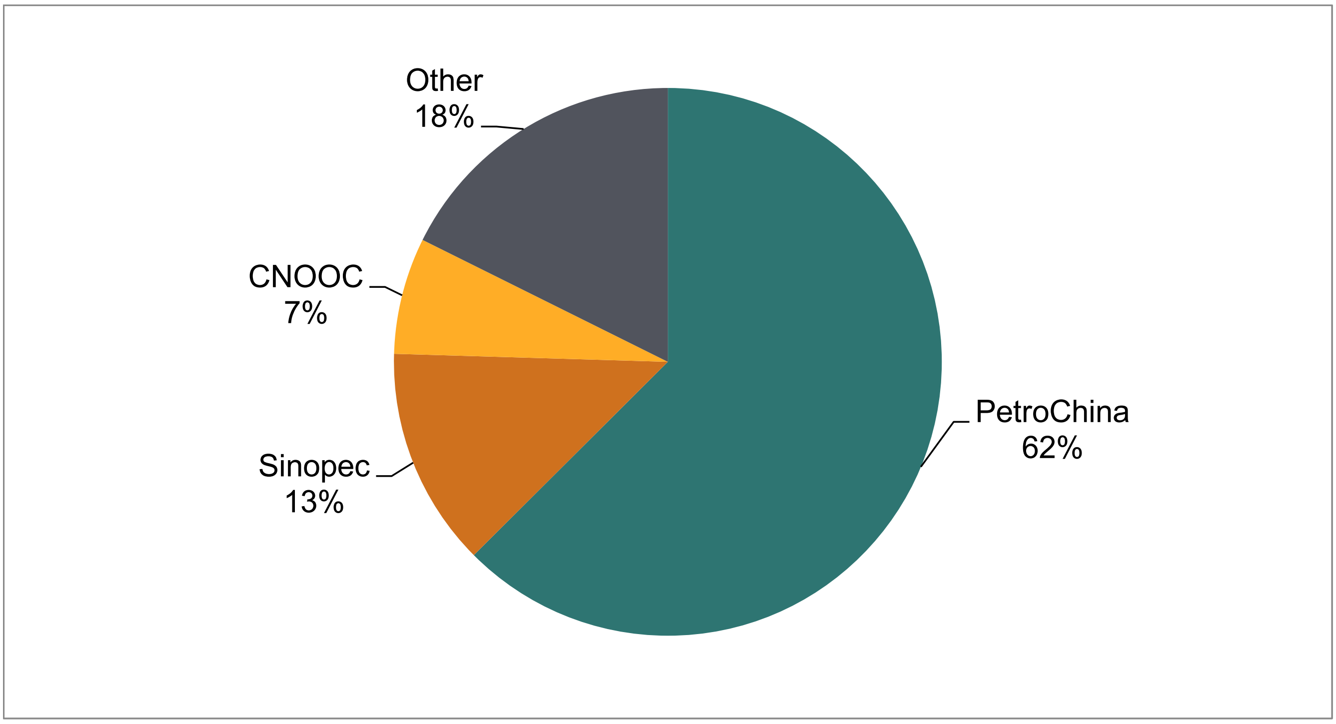
Despite the action of a number of dedicated non-governmental organisations that have published anecdotal records, very little information is available on the activities of China's three main providers of international finance: CDB, China Exim Bank and the export credit agency Sinosure (see, for example, Climate and Finance Policy Centre, 2014). It is believed that CDB is the country's most important lender to Chinese companies that want to acquire oil and minerals abroad, and although information on the specific level of support to fossil-fuel exploration is not available, their overall support is significant (Matisoff, 2012; Dyer and Anderlini, 2011). Examples of CDB lending to fossil-fuel projects include $25 billion to Rosneft and Transneft in Russia in 2009, $10 billion to the Brazilian SOE Petrobras in 2010, and $4 billion to the Venezuelan SOE PDVAS in 2011 (Sanderson and Forsythe,

2 Data are based partly based on shares of multilateral development banks (MDBs) held by each G20 country from the respective MDB annual reports and replenishment agreements.

3 Brazil, Russia, India, China and South Africa.

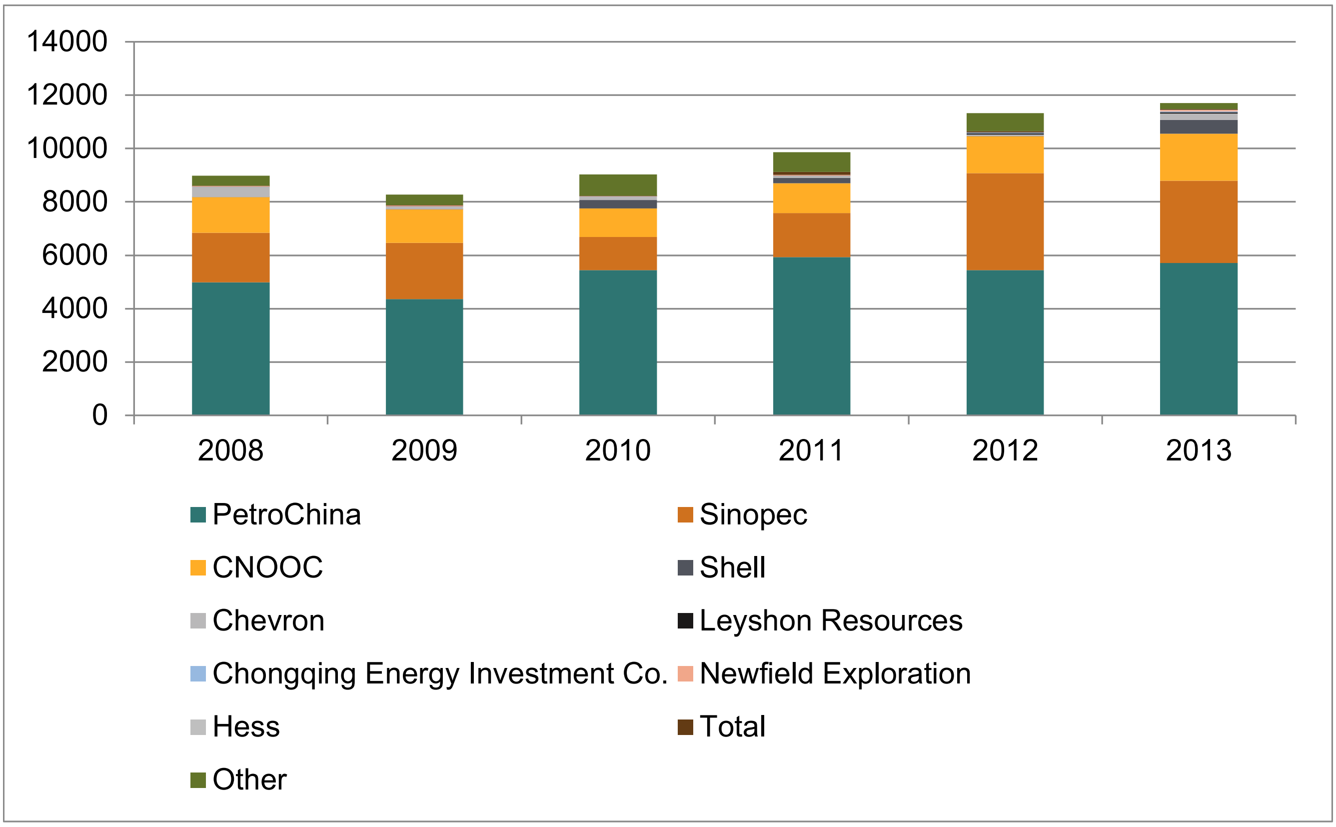
4 The income-tax share is calculated by dividing income tax by revenue, excluding royalties, bonuses and government profit.

Figure 2. China's top oil and gas reserve holders' share of total Chinese reserves as of January 2014



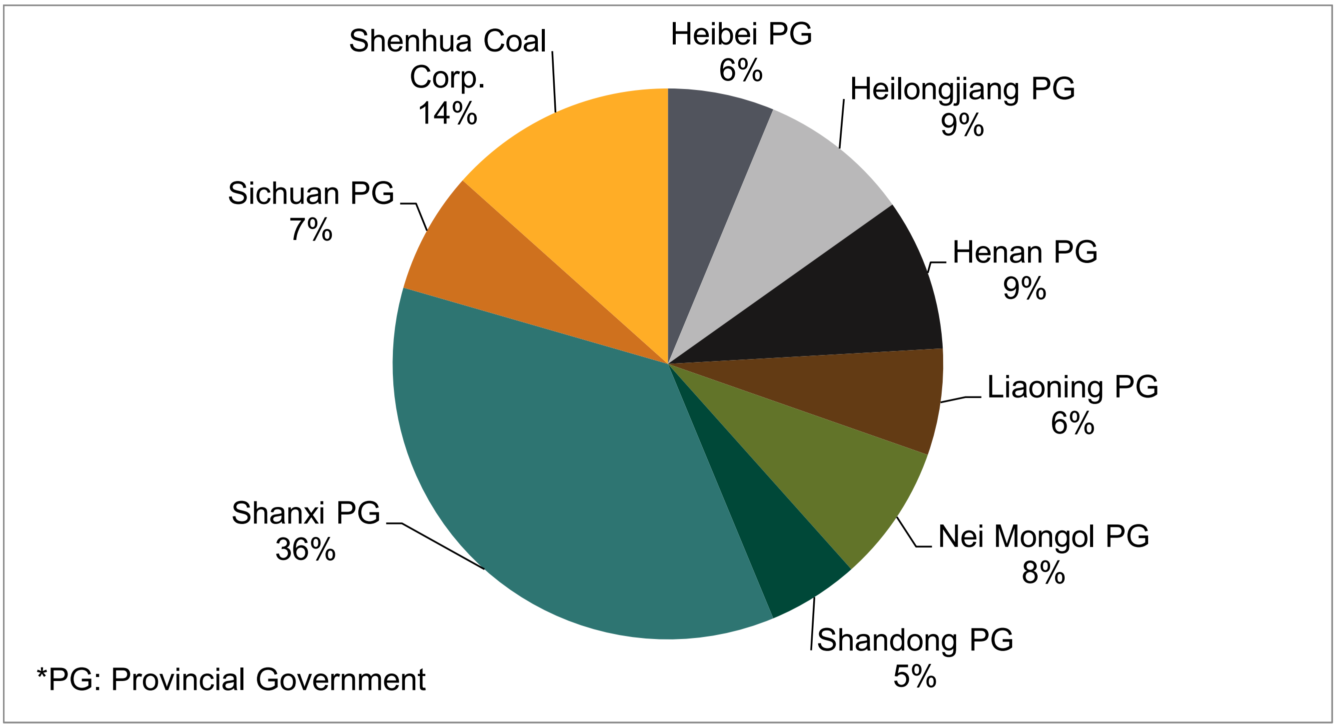
Source: Rystad Energy, 2014

Figure 3. Oil and gas exploration expenditure in China



Source: Rystad Energy, 2014

Figure 4: Major shares of Chinese coal-production capacity in 2012



Source: Tse, 2013

2013). However, it was not possible to determine whether any of these projects included exploration components. Combined lending by CDB and China Exim Bank across all sectors and project types is thought to have exceeded that of the World Bank in 2009-2010 (Dyer and Anderlini, 2011). To give a sense of the scale of the institutions involved, between December 2001-13, Sinosure supported projects worth S1.48 trillion and mobilised $314 billion from banks (Sinosure, n.d.).

Anecdotal evidence suggests that as well as the institutions listed above, domestic banks are also involved in providing finance for fossil fuel activities. Extracts from IG Global (2014) show that China Construction Bank provided $200 million for the Sevan Driller II project in 2010 in Brazil; CDB provided $96 million for

Table 4. China's top 10 oil and gas producer revenues, profits and income taxes, 2013

Company (	Headquarter country	Revenue (million $)	Profit (million $)	Income-tax payments (million $)	Income-tax share of revenue
PetroChina	China	$104,822	$6,853	$43,294	43%
Sinopec	China	$31,521	-$529	$10,325	34%
CNOOC	China	$24,960	$7,751	$4,973	21%
Shaanxi Yanchang Petroleum (Group) Limited	China	$9,762	$1,860	$6,884	71%
ConocoPhillips	U.S.	$2,283	$757	$420	24%
Bright	U.S.	$1,119	$358	$388	36%
Chevron	U.S.	$986	-$640	$208	22%
MIE Holdings Corporation	China	$857	$257	$471	59%
Shell	Netherlands	$409	-$246	-$123	-30%
Kuwait Petroleum Corp (KPC)	Kuwait	$86	$34	-$1	-2%

Source: Rystad Energy, 2014

refinancing of the Sevan Driller project in 2011 and $4.1 billion for the second phase of the Galkynysh Gas Field project in Turkmenistan in 2011; China Development Industrial Bank provided $100 million for refinancing the Dragonquest Drillship Project in Mexico in 2011 and Bank of China provided two loans (one of $40 million and one of $60 million) to support expansion of the Turgai Kumkol oil field in Kazakhstan.

China contributed an average of 2% of funding to multilateral development banks (MDBs) that invested in fossil-fuel exploration projects between 2010 and 2013. These contributions render China responsible for average annual spending on exploration for fossil-fuels of $14.9 million across this period (Oil Change International, 2014).[2]

Finally, the recent announcement of the creation of the New Development Bank, to be led by the BRICS countries,[3] is currently authorised to lending up to $34 billion annually (mainly for infrastructure), which may include support for fossil-fuel exploration activities (Khanna, 2014). China is set to pledge $41 billion of the initial $100 billion total capitalisation of the bank (José Romero, 2014).

Major companies

Oil and gas

In 2013, oil and gas companies in China made $180 billion in revenue and $14.6 billion in profits from upstream operations. State-owned companies dominate the upstream industry in terms of production and revenue, led by PetroChina, Sinopec and CNOOC (Table 4).

Of the $180 billion in revenue, China's Government received $68 billion in income taxes and $6 billion in royalties. The share of revenue (other than royalties) going to income taxes averaged 39% for China's upstream oil and gas industry.[4]

PetroChina, Sinopec and CNOOC together also hold 82% of China's oil and gas reserves, which totalled 33.1 billion barrels of oil equivalent (BOE) as of the start of 2014. PetroChina owned the majority, with 62%, or 20.7 billion BOE, of total Chinese reserves.

Oil and gas reserves in China are increasing alongside a rise in exploration expenditure. As with other aspects of the upstream industry in China, PetroChina, Sinopec and CNOOC accounted for the vast majority of exploration spending (Figure 3) (Rystad Energy, 2014).

Coal

China's coal production grew steadily from 2.75 billion tonnes to 3.66 billion tonnes between 2008 and 2012, with production spread across thousands of mines of varying sizes. In 2013 alone, 1,256 mines were due to be closed. Data on actual production by companies could not be found. Instead, Figure 4 illustrates the production capacity of what are assumed to be the largest coal producers. However, the total production capacity for these companies is just 1.1 billion tonnes (i.e. approximately 70% of the 2012 production is not accounted for in these data) (Tse, 2013).

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