



Country Study

Fossil fuel exploration subsidies: Republic of Korea

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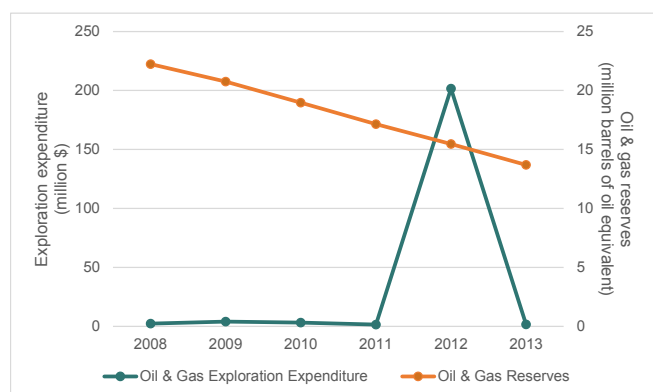
This country study is a background paper to the report **The fossil fuel bailout: G20 subsidies for oil, gas and coal** by Oil Change International (OCI) and the Overseas Development Institute (ODI).

For the purpose of this report, exploration subsidies include: national subsidies (direct spending and tax expenditures), investment by state-owned enterprises 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
Australia
Brazil
Canada
China
France
Germany
India
Indonesia
Italy
Japan
Republic of Korea
Mexico
Russia
Saudi Arabia
South Africa
Turkey
United Kingdom
United States

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



Source: Rystad Energy, 2014

Background

Korea has limited and declining oil, gas, and coal reserves. Oil and gas exploration expenditure, which is usually limited to just a few million dollars each year, peaked at over \$200 million in 2012, still a low amount compared to other G20 countries (see Figure 1) (Rystad Energy, 2014).

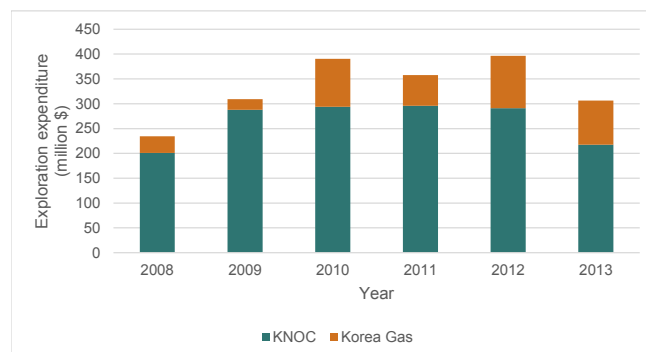
Despite limited exploration expenditure within the country, as with Japan, Korean companies are heavily invested in oil and gas exploration overseas to secure fossil-fuel resources for the country. Korea is also a major funder of coal projects overseas, largely for coal power plants, but also for coal exploration and mining (see ‘Public Finance’ section below).

National subsidies

As a result of Korea’s limited fossil-fuel resources, national subsidies for fossil-fuel exploration within the country are relatively small, at \$16 million per year (Table 1).

Between 2008 and 2011 (the latest year for which OECD data are available), the Korean Government

Figure 2. Oil and gas exploration expenditure by Korean state-owned enterprises



Source: Rystad Energy, 2014

spent a stable level of \$16 to \$17 million on research and development (R&D) for oil and gas exploration technologies, the majority of which went towards natural gas (OECD, 2013).

Korea had previously provided direct support to coal-mining activities in Korea, including exploration. Typically, the total level of direct support for coal mining was in the tens of millions of dollars each year. The exploration component of this funding was eliminated prior to the 2009 G20 fossil-fuel phase-out commitment and, following that pledge, the entire subsidy was repealed by 2010 (OECD, 2013).

Investment by state-owned enterprises

Korea’s state-owned oil, gas and mining companies are actively involved in exploration, the vast majority of which takes place overseas. Together, the state-owned oil company Korea National Oil Company (KNOC) and the partially state-owned Korea Gas spent \$306 million on exploration in 2013 (see Figure 2) (Rystad Energy, 2014).

Table 1. Korea’s national subsidies

Subsidy	Subsidy type	Targeted fossil-fuels	Estimated annual amount (million \$)	Timeframe for subsidy- value estimate	Stage
Direct spending					
Exploration technology research and development (R&D) (OECD, 2013)	Direct spending	Oil and gas	\$16	2011	Exploration
Coal-exploration support; eliminated in 2009 (OECD, 2013)	Direct spending	Coal	0	Phased out	Exploration
Total annual national subsidies			\$16		Exploration

Source: Rystad Energy, 2014

Within Korea, KNOC has offshore exploration projects in the Yellow Sea, East Sea, and South Sea. Overseas, KNOC conducts ongoing exploration in five exploration blocks in the Kurdistan autonomous region of northern Iraq, which the company obtained in 2008, as well as additional exploration activities in Viet Nam, Kazakhstan, Uzbekistan, Malaysia, Peru, U.S., Colombia, Nigeria, Yemen and the United Arab Emirates (KNOC, 2011).

The Korea Gas Corporation (KOGAS) has stakes in overseas exploration projects in Mozambique, Indonesia, East Timor, Uzbekistan and Cyprus (KOGAS, 2014). The state-owned Korea Resources Corporation (KORES) has coal exploration and mining operations in New South Wales and Queensland in Australia (KORES, 2013). KORES also invests heavily in diversified mining overseas, including coal. In 2012, KORES invested \$534 million in overseas mining, with a focus on coal projects in Indonesia and North America (Park, 2012).

The Korean Government also invests in coal mining through state-owned enterprises. The Korea Coal Corporation (KOCOAL) owns the country's three operational coal mines. KOCOAL also invests in coal mines abroad, including a 2010 \$18 million investment for a 50% stake in Mongolia (*Yonhap News Agency*, 2010).

In 2010, Korea's majority state-owned power company, Korea Electric Power Corporation (KEPCO) purchased a 20% share, worth about \$500 million, in Bayan Resources to support its coal-mining activities in Indonesia (Tan, 2014).

In 2014, the Korean Government mandated that 18 state-owned enterprises (SOEs) in the country cut their debt by a total of \$43 billion by 2017. In order to meet this requirement, a number of SOEs including KEPCO, KOGAS and possibly KNOC are seeking to sell their overseas assets, including KEPCO's stake in Bayan Resources in Indonesia (Chadbourne & Parke LLP, 2014).

Public finance

Domestic

Korea has limited fossil-fuel-resources of its own, and its level of domestic support is, therefore, relatively small. However, as in Japan, the Korean Government provides most of its support for fossil-fuel exploration through the financing of overseas fossil-fuel projects.

Through direct project financing and support for mergers and acquisitions from the Korea Export-Import Bank (Korea Eximbank), and financing from the Korea Trade Insurance Corporation (K-sure), Korea Finance Corporation (KoFC) and the Korea Development Bank (KDB), the Korean Government provided \$11.1 billion in financing for fossil-fuel exploration from 2010 to 2013 – an average of \$2.8 billion per year.

International

Korea Eximbank has a special division for Natural Resources Development Finance that provides loans and guarantees to 'Korean companies or foreign companies with Korean equity shares conducting exploration, development and production of natural resources outside Korea' (Korea Eximbank, 2011). Since 2010, Korea Eximbank has provided large financing packages for oil and gas projects and companies, many of which are likely to include an exploration component.

In addition to these approved financing amounts, in 2011 Korea Eximbank signed a memorandum of understanding (MOU) with the Saudi Arabian Oil Company (Saudi Aramco) to provide loans and guarantees for Saudi Aramco oil and gas projects in which Korean companies are involved (Korea Eximbank, 2012a).

Korea Eximbank also supports KNOC's overseas activities, pledging \$2 billion for KNOC's mergers and acquisitions of overseas energy companies in 2010. Later in the same year \$750 million of this financing was used for KNOC's hostile takeover of Dana Petroleum, a British oil and gas exploration company. Also in 2010 Korea Eximbank provided \$300 million in financing for a KNOC offshore exploration project in Nigeria (Korea Eximbank, 2010).

In 2009, Korea Eximbank also supported KNOC's \$450 million acquisition of 50% of Petro-Tech, a Peruvian offshore drilling company which was renamed Savia, with \$50 million in financing (Colombian state-owned oil company Ecopetrol acquired the other half) (Korea Eximbank, 2010). The two companies agreed to invest \$2.5 billion in Peru over the following eight years, of which \$328 million was earmarked for exploration activities (Crooks, 2009).

The Korea Trade Insurance Corporation (K-sure) – formerly the Korea Export Insurance Corporation – also provides significant financing for overseas exploration, although it is difficult to provide a comprehensive overview, as project and financing details are not transparent. Many of the projects financed by K-sure are also supported by Korea Eximbank. In 2011, for example, K-sure provided an \$85 million loan to Savia for exploration in Peru (*Trade Finance Magazine*, 2011). K-sure also provided an \$800 million loan for the Surgil natural gas field in Uzbekistan in 2012 (Table 3) (ING Structured Finance, 2013).

The Korea Finance Corporation (KoFC) another state-owned financial institution, includes natural-resource exploration and production and mine development in its lending priorities (KoFC, 2013b). Although specific financing details are not available for most projects, KoFC does provide overall amounts for annual approved financing for resource development, much of which goes toward fossil-fuels (Table 4) (KoFC, 2013a).

Similarly, the Korea Development Bank (KDB) finances overseas oil and gas exploration. Finance data

Table 2. Korea Eximbank oil and gas exploration finance, 2010-2013

Project	Country	Year	Type	Amount (million \$)	Stage
Petróleos Mexicanos (Pemex) Credit Line (Reuters, 2013)	Mexico	2013	Line of Credit	\$2,000	Extraction (including exploration)
Stena deep-water oil drilling rigs (Korea Eximbank 2013b)**	Sweden	2013	Loan and guarantee	\$340	Extraction (including exploration)
Songa North Sea oil drilling (Korea Eximbank, 2014)	Norway	2013	N/A*	\$264	Extraction (including exploration)
Teekay North Sea oil production (Korea Eximbank, 2013c)	Norway	2013	Loan and guarantee	\$307	Extraction (including exploration)
Surgil gas-field development (Korea Eximbank, 2013a)	Uzbekistan	2012	Loan and guarantee	\$1,000	Extraction (including exploration)
Oil and gas-field acquisition in Texas (with Korea Development Bank)(Korea Eximbank, 2012b)***	United States	2012	Reserve-based financing	\$25	Extraction (including exploration)
KNOC takeover of Dana Petroleum	United Kingdom	2010	Loan	\$750	Exploration
KNOC Offshore Exploration Project	Nigeria	2010	Loan	\$300	Exploration
Total Korea Eximbank financing				\$4,986	Extraction (including exploration)
Average annual Korea Eximbank financing				\$1,247	Extraction (including exploration)

*Information not available.

** Korea Trade Insurance Corporation (K-Sure) provided an additional \$340 million in export insurance for this project.

*** Korea Development Bank provided an additional \$25 million for this project.

are not available through KDB annual reports or other government publications. However, IJ Global, a database of infrastructure project finance, provides data for

some (though likely not all) KDB fossil-fuel exploration transactions (IJ Global, 2014).

Table 3. K-sure oil and gas exploration financing, 2010 to 2013

Project	Country	Year	Type	Amount (million \$)	Stage
Surgil natural gas field	Uzbekistan	2012	Loan	\$800	Extraction (including exploration)
Savia exploration activities	Peru	2011	Loan	\$85	Exploration
Total K-sure financing				\$885	Extraction (including exploration)
Average annual K-sure financing				\$221	Extraction (including exploration)

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

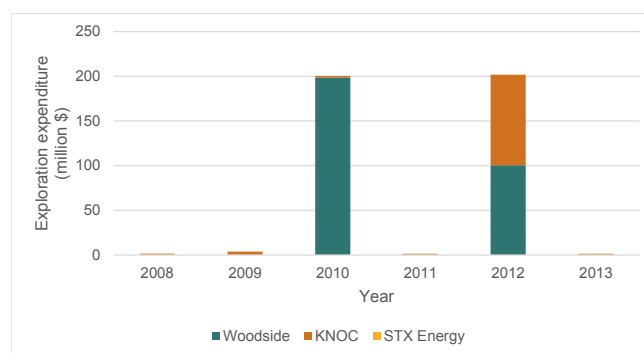
Korea also contributed \$6.9 million to fossil-fuel exploration projects in 2013 through its shares in the World Bank Group, European Bank for Reconstruction and Development and Asian Development Bank which total 0.5% to 5.1%, depending on the institution (Oil Change International, 2014).⁵

Major companies

Oil and gas

Korea's oil and gas production and reserves holdings are almost completely dominated by KNOC, the country's state-owned oil and gas company. Korea has limited hydrocarbon resources, and KNOC produced a relatively small amount of 10,820 barrels of oil equivalent (BOE) of oil and gas within Korea per day in 2013, generating revenue of \$323 million that year. KNOC retained \$169 million in profits, while the Korean Government received \$66 million in income taxes and \$47 million in royalties

Figure 3. Oil and gas exploration expenditure in Korea



Source: Rystad Energy, 2014

from the company. KNOC's oil and gas reserves in Korea were estimated at 11.7 million BOE at the start of 2014.

Woodside Petroleum, an Australian company, invested the most in exploration activities in Korea from 2008 to 2013 (entirely through investments in 2010 and 2012).

Table 4. Annual KoFC resource-development approved financing, 2010 to 2013

Year	Amount (million \$)	Selected projects financed	Stage
2013	\$674	U.S. shale-gas development	Extraction (including exploration)
2012	\$1,268	Securing oil and gas resources	Extraction (including exploration)
2011	\$2,447*	Daewoo oil-field development in Indonesia KNOC oil company acquisition in Kazakhstan	Extraction (including exploration)
2010	\$738	KNOC acquisition of Dana Petroleum (\$500 million) Korea Electric Power Corporation acquisition of Bylong coal mine in Australia	Extraction (including exploration)
Total KoFC financing	\$5,127		Extraction (including exploration)
Average annual KoFC financing	\$1,282		Extraction (including exploration)

*Amount is for total loans and investments in the 'Sustainable Growth' sector, of which 'Resource Development' is a sub-sector. The specific share for resource development financing was not available for this year.

Table 5. KDB oil and gas exploration financing, 2010 to 2013

Project	Sector	Country	Year	Amount	Stage
Khauzak-Shady and Kandym gas field financing	Oil and gas	Uzbekistan	2012	\$75	Extraction (including exploration)
La Muralla IV Additional Facility	Oil and gas	Mexico	2012	\$37	Extraction (including exploration)
Total KDB exploration finance, 2010 to 2013				\$112	Extraction (including exploration)
Average annual KDB exploration finance				\$28	Extraction (including exploration)

KNOC's exploration spending in Korea is normally low, with a peak of \$100 million in 2012 (Figure 3) (Rystad Energy, 2014).

Coal

Korea's domestic coal industry is small, given the country's low reserves, and the Korea Coal Corporation (KOCOAL),

a state-owned company, is the country's major coal producer. KOCOAL operates three mines in Korea (Jang Seong, Dogye, and Hwa Sun) that produced a combined total of 181 million metric tons of anthracite coal from 2005 to 2009, while private companies produced 1.2 million metric tons of coal over the same period (Korea Coal Corporation, 2010).

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