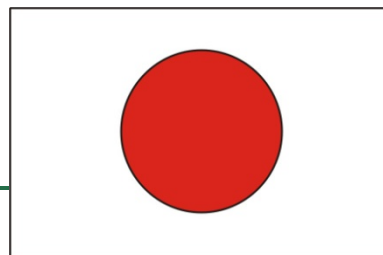


19 Japan



19.1 Summary of Coal Industry

19.1.1 ROLE OF COAL IN JAPAN

Coal accounted for 23 percent of Japan’s total energy consumption in 2012 (EIA, 2014a). However, Japan does not have any active coal mines (domestic production ended in 2002) and now imports 100 percent of its coal. For three decades, Japan was the world’s largest importer of coal. In 2012, Japan was surpassed by China as the world’s largest importer of coal. Japan now accounts for about 15 percent of total world coal imports, primarily from Australia (EIA, 2014a). Sources of imported thermal and coking coal are Australia, Canada, China, Colombia, Indonesia, Mongolia, Russia, and the United States; South Africa is also a source of thermal coal, while New Zealand is an additional source of coking coal (IEEJ, 2012). While Japan does not have any active coal mines at this time, it operated as much as 600 coal mines in the 1960s (M2M, 2005). Its total coal reserves are estimated at 347 million tonnes (Mmt) (Table 19-1) and lie primarily on the Hokkaido and Kyushu islands (see Figure 19-1 on next page).

Table 19-1. Japan’s Coal Reserves and Production

Indicator	Anthracite & Bituminous (million tonnes)	Sub-bituminous & Lignite (million tonnes)	Total (million tonnes)	Global Rank (# and %)
Estimated Proved Coal Reserves (2011)	336	11	347	38 (0.039%)
Annual Coal Production (2012)	0	0	0	NA

Source: EIA (2014b)

19.1.2 STAKEHOLDERS

Table 19-2 identifies potential stakeholders in Japanese coal mine methane (CMM) development.

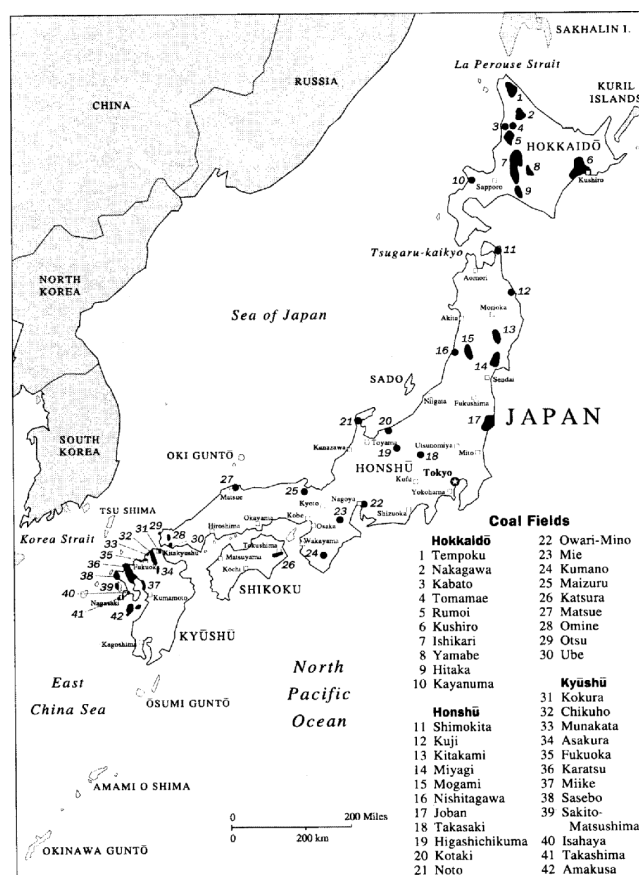
Table 19-2. Key Stakeholders in Japan’s CMM Industry

Stakeholder Category	Stakeholder	Role
Developers	<ul style="list-style-type: none"> See http://www.epa.gov/coalbed/networkcontacts.html 	Project opportunity identification and planning
Engineering, Consultancy, and Related Services	<ul style="list-style-type: none"> See http://www.epa.gov/coalbed/networkcontacts.html 	Technical assistance
Government Groups	<ul style="list-style-type: none"> Ministry of Economy, Trade, and Industry Environment Management Bureau – Ministry of the Environment 	Permitting, outreach efforts

Table 19-2. Key Stakeholders in Japan’s CMM Industry

Stakeholder Category	Stakeholder	Role
Other	<ul style="list-style-type: none"> ▪ Japan Bank for International Cooperation ▪ New Energy and Industrial Technology Development Organization ▪ Japan Coal Energy Center ▪ Macquarie Bank Limited ▪ Mitsui Mining Co. ▪ Mitsubishi Materials Co. ▪ Mizuho Corporate Bank, Ltd. 	Finance providers, development assistance providers, carbon credit purchasers

Figure 19-1. Japan’s Coal Fields



Source: Schwochow (1997)

19.1.3 STATUS OF COAL AND THE COAL MINING INDUSTRY

Japan’s coal industry has declined steadily in the last 50 years. In the 1960s, Japan had about 600 coal mines and produced about 55 Mmt of coal annually. Due to competition with coal imports, production declined to about 3.5 Mmt in 2001 (EIA, 2014b). Production ceased entirely in January 2002 with the closure of the last remaining Kushiro coal mines (EIA, 2008).

19.2 Overview of CMM Emissions and Development Potential

The Global Methane Initiative (GMI) International CMM Projects Database identifies two projects in Japan at abandoned mines as described in Section 1.2.2 (GMI, 2014). Updates on future CMM projects in Japan can be found at <https://www.globalmethane.org/coal-mines/cmm/index.aspx>.

19.2.1 CMM EMISSIONS FROM OPERATING MINES

Methane emissions in Japan totaled 53.9 million cubic meters (m³) in 2000, but are projected to decrease significantly to 3.5 million m³ by 2015, and then only rise slightly to 4.2 million m³ by 2030 (see Table 19-3).

Table 19-3. Japan's CMM Emissions (million cubic meters)

Emissions	2000	2005	2010	2015 (projected)
Total CH ₄ Emitted	53.9	4.9	3.5	3.5

Source: USEPA (2012)

19.2.2 CMM EMISSIONS FROM ABANDONED COAL MINES

Two CMM use projects that were operating at abandoned coal mines in Japan in the early 2000s have since closed (M2M, 2006).

19.2.3 CBM FROM VIRGIN COAL SEAMS

There is no commercial development of coalbed methane in Japan at this time.

19.3 Opportunities and Challenges to Greater CMM Recovery and Use

Under the Kyoto Protocol, Japan pledged to reduce its national greenhouse gas (GHG) emissions by 6 percent in the period 2008 to 2012, relative to base year 1990 (UNFCCC, 2003). Table 19-4 summarizes Japan's climate change mitigation commitment. It further pledged to cut GHG emissions 25 percent below 1990 levels by 2020 during the 2009 Copenhagen United Nations Climate Change Conference (UNFCCC, 2009).

Table 19-4. Japan's Climate Change Mitigation Commitment

Agreement	Signature	Ratification
UNFCCC	June 13, 1992	May 28, 1993 (Acceptance)
Kyoto Protocol	April 28, 1998	June 4, 2002 (Acceptance)

Source: UNFCCC (2014)

In November 2013, at the U.N. climate talks in Warsaw, Poland, Japan announced plans to scale back its commitment to reducing GHG emissions from 25 percent below 1990 levels to 3.8 percent below 2005 levels (representing a 3.1 percent *increase* from 1990 levels). This decision, known as The Warsaw Target, was made in large part due to the fact that all of Japan's 50 nuclear reactors, which produced about 30 percent of Japan's electricity, were shut down for safety inspections following the March 2011 earthquake. As of late 2013, Japan's nuclear power generation capacity was entirely removed from service (EIA, 2014a). The Warsaw Target, therefore, assumes no nuclear power generation and aggressive GDP growth. The target is tentative, however, and will likely be revised based on future reviews. Japan's long-term commitment to reduce emissions to 80 percent below 1990 levels by 2050 still stands (WRI, 2014).

19.3.1 MARKET AND INFRASTRUCTURE FACTORS

Japan has developed considerable technical resources to develop CMM, including high efficiency CMM recovery and power generation systems, well-developed town gas systems for subsidence areas in coal mining regions, and technologies for dimethyl ether production from CMM (M2M, 2005).

Financing for CMM projects could potentially be acquired through the Japan Bank for International Cooperation (JBIC). JBIC has been increasing financing for projects that address global environmental problems, including global warming and environmental projects, such as those aimed at reducing pollution. JBIC's Official Development Assistance loans give preference to projects that support environmental efforts in developing countries. For example, JBIC is supporting a CMM recovery project in Shanxi province, China. The project has been developed to qualify as a Clean Development Mechanism project; Japanese firms are expected to purchase carbon credits generated from the project (JBIC, 2007).

19.3.2 REGULATORY INFORMATION

Japan lacks specific regulations for CMM industry and gives CMM ownership rights to coal mine owners. The Mining Law provides a basic system that governs mining of mineral resources, while the Mine Safety Law addresses mine safety issues and promotes the safe development of the mineral resources.

19.4 Profiles of Individual Mines

No information profiling individual underground mines in Japan was found.

19.5 References

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