

10 Ecuador



10.1 Summary of Coal Industry

10.1.1 ROLE OF COAL IN ECUADOR

Ecuador is neither a consumer nor a producer of coal. Ecuador has maintained its position as Latin America's fifth largest producer of oil and is one of the top three exporters of oil in the region. Oil is the keystone to the country's economy, and represents a sizeable portion of all export earnings (EIA, 2014a).

There are estimated reserves of 24 million tonnes of recoverable lignite and sub-bituminous coal, ranking Ecuador 68th worldwide in total coal reserves (EIA, 2014b).

Table 10-1. Ecuador's Coal Reserves and Production

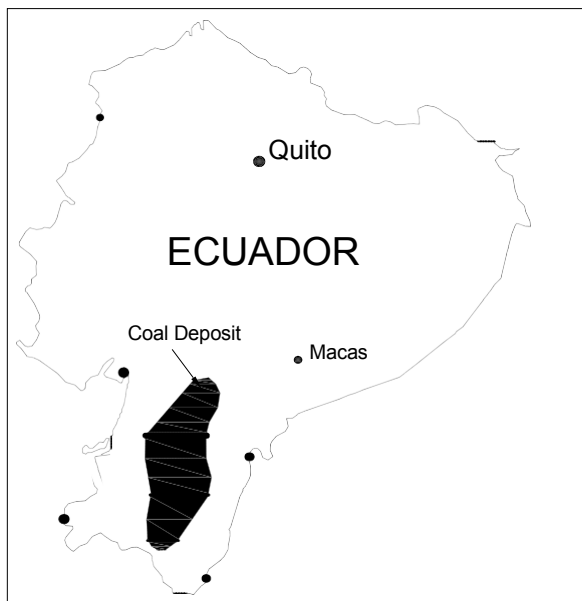
Indicator	Anthracite & Bituminous (million tonnes)	Sub-bituminous & Lignite (million tonnes)	Total (million tonnes)	Global Rank (# and %)
Estimated Proved Coal Reserves (2011)	0	24	24	68 (0.003%)
Annual Coal Production (2012)	0	0	0	Not applicable

Source: EIA (2014b)

Figure 10-1 shows the location of Ecuador’s coal reserves.

Figure 10-1.
Coal Reserves

Location of Ecuador’s



Source: Adapted from Biewick et al. (1995)

10.1.2 STAKEHOLDERS

Table 10-2 identifies potential stakeholders in Ecuadorian coal mine methane (CMM) development.

Table 10-2. Key Stakeholders in Ecuador’s CMM Industry

Stakeholder Category	Stakeholder	Role
Mining Companies	Carbones del Cerrejon Ltd BHP Billiton, Newmont Rio Tinto Aurelian Resources, Inc.	Coal operators in neighboring countries/ mining operators in Ecuador
Equipment Manufacturers	Breaker Technology, Inc. (BTI) Kluane International Drilling, Inc. (KID)	Provide equipment to other mining industries in Ecuador
Developers	See http://www.epa.gov/coalbed/networkcontacts.html	Project opportunity identification and planning
Engineering, Consultancy, and Related Services	Cardno ENTRIX MPC Construcciones e Ingenieria See http://www.epa.gov/coalbed/networkcontacts.html	Consultant to other mining industries
Natural Gas Transmission & Distribution Companies	Petroecuador	Pipeline sales
Regulatory Agencies and Government Groups	Ministry of the Environment Inter-Institutional Committee on Climate Change Ministry of Non-Renewable Natural Resources	Regulation, permitting, licensing

Table 10-2. Key Stakeholders in Ecuador’s CMM Industry

Stakeholder Category	Stakeholder	Role
Professional Associations	ARPEL – Regional Association of Oil, Gas and Biofuels Sector Companies in Latin America and the Caribbean	Project network

10.1.3 STATUS OF COAL AND THE COAL MINING INDUSTRY

Ecuador’s mineral industry includes mining of gold, silver, copper, and steel. Crude petroleum and petroleum refinery products are extracted as well. However, no coal exploration is known and all coal reserves remain unutilized (USGS, 2008).

10.2 Overview of CMM Emissions and Development Potential

10.2.1 CMM EMISSIONS FROM OPERATING MINES

There are no operating coal mines in Ecuador.

10.2.2 CMM EMISSIONS FROM ABANDONED COAL MINES

Ecuador has no abandoned coal mines.

10.2.3 CBM FROM VIRGIN COAL SEAMS

There is no commercial coal bed methane development at this time in Ecuador. Ecuador, however, has a fledging natural gas industry. Reserves are relatively small, but the Amistad field in the Gulf of Guayaquil produces 26 million cubic feet (0.7 million cubic meters) a day to produce electricity at a nearby power plant. With little natural gas pipeline infrastructure, all other gas is flared in oil operations (EIA, 2014a).

10.3 Opportunities and Challenges to Greater CMM Recovery and Use

Table 10-3 summarizes Ecuador’s climate change mitigation commitment. As a Non-Annex I Party to the Kyoto Protocol, Ecuador has no national emissions targets and is eligible to host mitigation projects under the Clean Development Mechanism (CDM).

Table 10-3. Ecuador’s Climate Change Mitigation Commitment

Agreement	Signature	Ratification
UNFCCC	June 9, 1992	February 23, 1993
Kyoto Protocol	January 15, 1999	January 13, 2000

Source: UNFCCC (2014)

In the context of the Kyoto Protocol, Ecuador has proposed two objectives regarding CDM:

Definition and implementation of the CDM Project Validation Process at the national level.

Promotion and implementation of national capacity (public and private) to prepare CDM projects and to generate significant Certified Emission Reduction Units (UNFCCC, 2000).

While there are several biomass energy, landfill gas, and other methane avoidance CDM projects underway in Ecuador, there are none related to coalbed/mine methane. Ecuador's climate change position will be conducive to development of CMM projects, should they arise from future utilization of coal reserves.

Ecuador developed a National Strategy on Climate Change (2012-2025) in 2012. It is available here (in Spanish): <http://www.redisas.org/pdfs/ENCC.pdf>

10.3.1 MARKET AND INFRASTRUCTURE FACTORS

Currently, the market for methane in Ecuador is fairly limited as there is weak domestic demand and support infrastructure for natural gas (EIA, 2014a). However, Ecuador joined the Global Methane Initiative (formerly the Methane to Markets Partnership) and its Steering Committee in 2005, and explores methane capture opportunities in its oil and agriculture industries.

Methane emissions, typically from the flaring of natural gas during oil drilling, currently make up 15 percent of the country's annual greenhouse gas emissions. To date, there are no records of projects underway (M2M, 2005; EIA, 2014a).

10.3.2 REGULATORY INFORMATION

As there are no existing CMM projects (i.e., Ecuador is neither a coal producer nor consumer), a legal framework regulating them does not exist. The oil and natural gas industries are regulated by the Ministry of Non-Renewable Natural Resources, Hydrocarbons National Directorate. Full Spanish text of Ecuador's hydrocarbon regulations can be downloaded from the Natural Resource Governance Institute website at

<http://www.resourcegovernance.org/sites/default/files/Ley%20de%20Hidrocarburos.pdf>.

10.4 Profiles of Individual Mines

There are no coal mines in Ecuador.

10.5 References

- Biewick et al. (1995): Biewick, Laura R. H. and Weaver, Jean N., The Digital Coal Map of South America in ARC/INFO Format: U.S. Geological Survey Open-File Report 95-235, adapted by Raven Ridge Resources, Denver, Colorado, 1995.
- EIA (2014a): Country Analysis Brief - Ecuador, U.S. Energy Information Administration, Washington, DC, last updated: January 2014. <http://www.eia.gov/countries/cab.cfm?fips=EC>
- EIA (2014b): International Energy Statistics, U.S. Energy Information Administration, Washington, DC, accessed June 2014. <http://www.eia.gov/cfapps/ipdbproject/IEDIndex3.cfm>
- M2M (2005): "Methane International: Methane to Markets Partnership Quarterly Update," Methane to Markets, November 2005. https://www.globalmethane.org/documents/newsevents_mi3.pdf

UNFCCC (2000): *National Communication Republic of Ecuador*, United Nations Framework Convention on Climate Change, November 2000. <http://unfccc.int/resource/docs/natc/ecunc1.pdf>

UNFCCC (2014): Ratification Status – Ecuador, United Nations Framework Convention on Climate Change, accessed September 2014. <http://maindb.unfccc.int/public/country.pl?country=EC>

USGS (2008): 2008 Minerals Yearbook: Ecuador [Advance Release], United States Geologic Survey, 2008. <http://minerals.usgs.gov/minerals/pubs/country/2008/myb3-2008-ec.pdf>