

Foreign Experience of Developing CMM Projects in Colombia



Operating under auspices of the UNECE Group
of Experts on Coal Mine Methane

Coal Mine Methane as a Valuable Energy Source

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Investing in Colombia



Why invest in Colombia

- Economic stability: The Government was able to maintain steady growth even during crises;
- Political stability: Colombia's democracy is the oldest and most stable on the South American continent;
- Recovered foreign investor confidence: More than 700 multinational companies launched investment programs in Colombia;
- Qualified and competitive human resources: Colombian workers are amongst the best qualified in Latin America. Literacy rate is around 95%;
- Strategic geographic location: Colombia is a strategic point between the different markets of the region. The country has modern port facilities on both the Pacific and the Atlantic oceans, which facilitates trade with European countries, the United States, and Asian countries;
- Colombia has signed 19 bilateral investment treaties, giving the country access to a market of almost 1.2 billion people; and
- Infrastructures are both numerous and modern.



Why invest in energy in Colombia

- Colombia possesses extensive fossil fuel and natural resources.
- The country has productive petroleum reserves, extensive coal reserves (the largest in South America), significant but largely untapped natural gas reserves, and extensive hydroelectric resources.
- A large amount of potentially productive oil and natural gas areas remain unexplored.
- Demand for energy (petroleum, natural gas, and electricity) is expected to grow 3.5 percent per annum through 2020.
- Colombia's country investment risk rating is "acceptable".



Colombia's active coal basins



Colombia's energy sector



Energy sector regulators

- Ministry of Mines and Energy (MME)
 - National Hydrocarbon Agency (ANH) – administrative body under MM
- Ministry of Environment and Sustainable Development (MADS)
 - National Authority for Environmental Licenses (ANLA)
- Ministry of Interior
 - Office of Prior Consultation - DCP



Exploration & production licenses

- Open competitive bidding
 - Pre-qualified companies bid on blocks that are made available in “Rounds”, selection based on technical and financial capacity.
- Closed competitive bidding
 - ANH invites a pre-determined number of bidders that meet certain pre-established criteria.
- Direct contracting
 - Awarded to private parties that meet certain legal, technical, financial and operational criteria:
 - The area’s special nature and geographic location,
 - The area’s particular geologic characteristics,
 - The lack of technical information about the area,
 - The existence of social or environmental restrictions affecting the area,
 - For reasons of public interest, national security or public order, and
 - Special economic or energy policy considerations.



Environmental license

- Administered by MADS
 - Contains all of the permits, authorizations, and concessions necessary for the exploration of and use of natural resources during the lifetime of the project, work or activity.
- ANLA has sole competence over all hydrocarbon-related projects.
 - Grant, track, and manage all environmental licenses, permits and procedures, including: air quality permits, water rights (use and discharge).

Treatment of indigenous peoples

- 3.4 percent of population, with one-third of country made up of lands controlled by indigenous communities.
- Constitution recognizes the fundamental rights of indigenous peoples – as defined by the ILO Convention.
- 1991 Constitution lays out the groundwork for Consulta Previa (prior consultation).



Consulta Previa

- No procedural agreement on how to interpret law – trial and error in treatment.
- DCP - identifying and certifying the presence of any communities likely to be impacted by project development.
- Prerequisite for granting Environmental Permit.

Consulta Previa

- Developer submits letter to MOI, which includes coordinates of project area and list of all indigenous and ethnic communities that may be impacted.
- Office of Consulta Previa confirms and corrects list, if necessary.
- Developer is required to contact and negotiate with all communities on list.
- Terms of each agreement are submitted to office of Consulta Previa.
- Copy of terms are included in Environmental Permit application.

ANH hydrocarbon license structure

Phase 0 – one-year duration, tasks include negotiating with stake holders (indigenous peoples) and secure Environmental Permit

Phase 1: Exploration Period – six year duration for conventional hydrocarbon licenses, nine years for unconventional hydrocarbon licenses, carry out all exploration activities

Phase 2: Production Period – 24 year duration for conventional hydrocarbon licenses, 30 years for unconventional hydrocarbon licenses, full field development

Colombia's energy markets



Structure of the Colombian energy market

- *The Ministry of Mines and Energy (MME)* – leading institution in Colombia's energy sector.
- *National Hydrocarbon Agency (ANH)* – authority responsible for promotion, management and control over resource development.
- *The Unit for Mining and Energy Planning (UPME)* – responsible for future energy development planning.
- *Energy and Gas Regulatory Commission (CREG)* – Independent administrative commissions created to regulate the activities of public services, specifically, gas and electricity distribution.
- *Superintendency of Residential Public Services (SSPD)* – responsible for supervising and monitoring utilities.



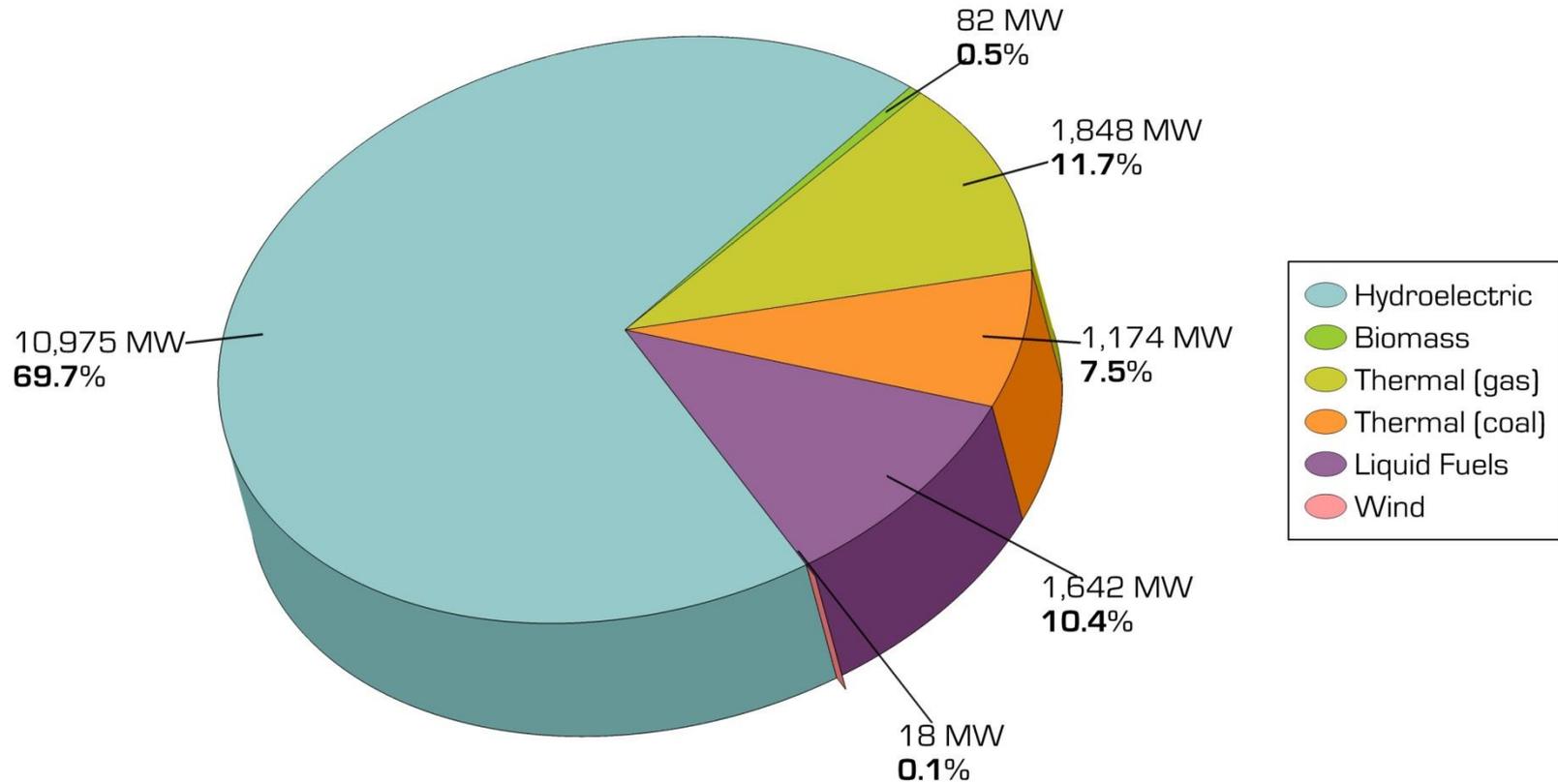
Royalties, fees and taxes

- Royalties
 - Royalty rates are calculated based on daily production rates of barrels of oil (BOE) per day equivalent.
 - Base rate is 8 percent, increasing up to 25 percent.
 - Unconventional production pays only 60 percent of calculated royalty.
- Subsurface fees
 - US\$ 0.75/hectare during exploration phase
 - US\$ 0.01/mscf during exploitation period.
- Industry and commerce tax
 - 1.3 percent
- Federal income tax
 - 25 percent

Power generation & sales

- Hydro is the largest source of electricity
 - Underutilized capacity due to impacts of climate change
- Liberalized electricity market
- Regulated and non-regulated segments
- Brownouts are common throughout country
 - Average customer experiences 18.6 per year
 - Average length is 17.7 hours
 - Totaling 320 hours annually
- UPME provides regular forecasts of electricity generation, consumption and prices

Installed Electricity Generating Capacity - 2015

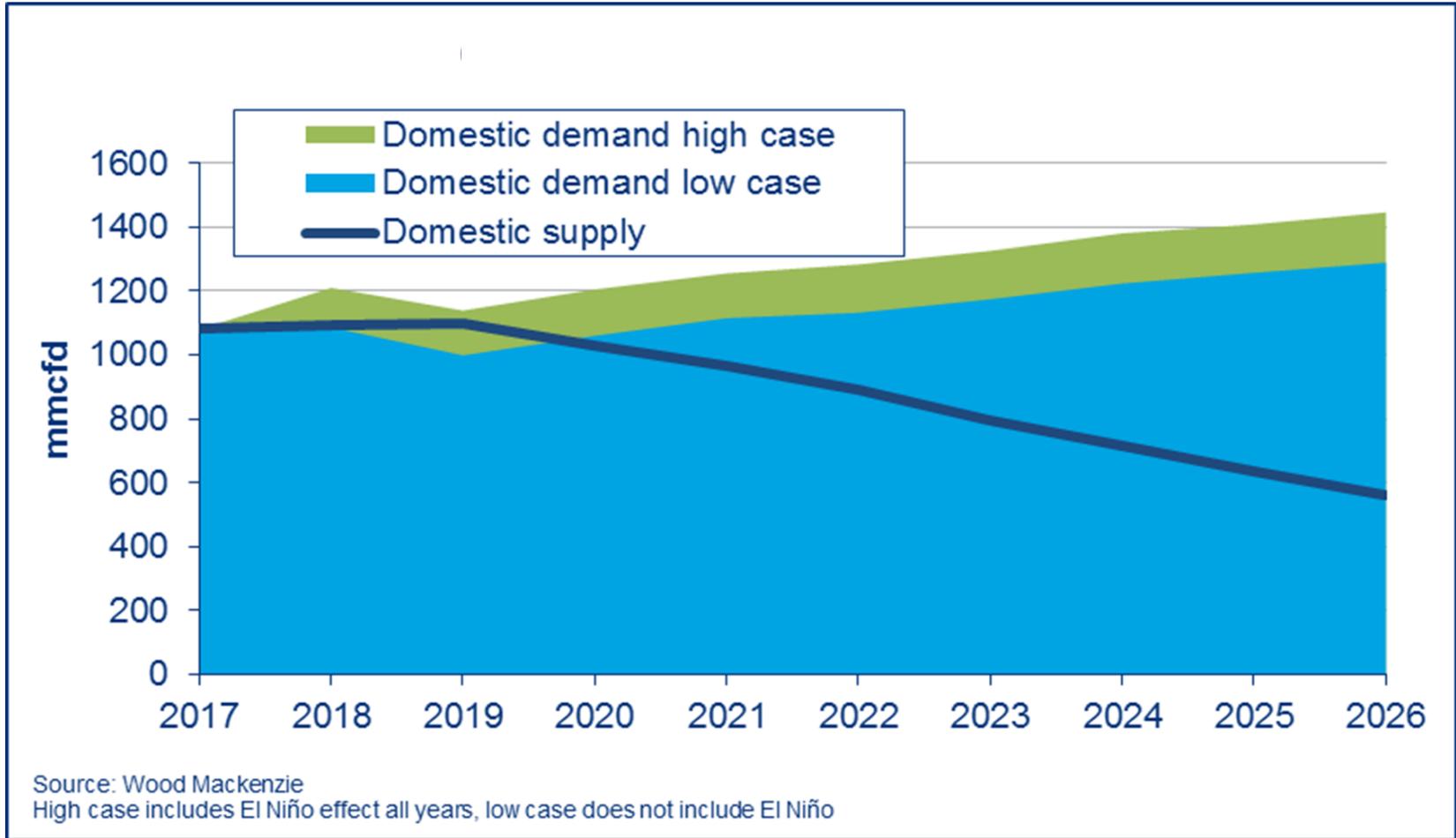


Source: UPME (2015) Plan de Expansión de Referencia Generación - Transmisión 2015 - 2029

Natural gas sales

- Regulated by CREG
 - Provide general criteria for price regulation
 - Designate charges for national transport system
 - Regulate the principle of free access
 - Regulate the connection of new sources of production and new users
- UPME provides regular forecasts of natural gas production and sales
- Selling price can be freely negotiated between producer and purchaser
- Three types of gas sales contracts established through public auction; which are fixed for a term of either one or five years
 - Firm sale contracts
 - Conditional firm sale contracts
 - Purchase option contracts

Colombia gas market balance forecast



Other viable market options

- LNG – there are no liquefaction or re-gasification facilities in Colombia at this time
 - There is an offshore storage terminal currently under construction, but is designed for importing LNG
- CNG – no current market for CNG, but government is interested in establishing this market; government policy to encourage use in vehicles

Risks and mitigants



Risks & Mitigants

- Risk
 - Legal right to develop gas resources
 - Conventional or unconventional hydrocarbon license: rules and regulations are very clear and well established, what is not clear is the situation where an unconventional license overlaps a coal license. Underground mines have the rights to the gas for self use, but surface mines have no rights to the gas.
 - The procedures for bidding and the criteria for award are straightforward for open and closed competitive bidding processes, what is less straightforward is the direct contract award, seems somewhat subjective.
- Mitigant
 - Good communication with ANH, the surrounding lease holders, and mine owners in the area.



Risks & Mitigants

- Risk
 - Resolution with the indigenous peoples
 - ANH has provided guidelines, but the risk arises if the future project production is greater than anticipated when the agreement was signed; it is common for these indigenous groups to attempt to renegotiate.
- Mitigant
 - Tie compensation to production



Risks & Mitigants

- Risk
 - Access to surface lands
 - Developer has the right to access any and all surface lands necessary to carry out the project's operations.
- Mitigant
 - Developer and landowner should work diligently and avoid legal action, as outcome would most-likely favor developer.



Risks & Mitigants

- Risk
 - Safety
 - U.S. State Department warns to stay out of certain departments – along Venezuelan border and along Pacific coast
 - Due to common violent crime and terrorism
 - The National Liberation Army (ELN) terrorist organization continues plotting attacks throughout Colombia
 - U.S. Government personnel cannot travel freely throughout Colombia
- Mitigants:
 - Be aware of your surroundings
 - Monitor local media
 - Always have a contingency plan for emergency situations
 - Check in with your country's embassy

Conclusions



Takeaways

- Find a partner with a strong presence in Colombia
- Good, sound contracts are important
 - ANH
 - Indigenous peoples
 - Off takers
- Projected increase in natural gas demand with a decrease in supply

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