METHANE GAS IN COAL MINES

Energy Mining Planing Unit – UPME
Mining Subdirection
July 2018
EMISION GEI MTon CO$_2$e

35.471

Miming 2,4 Mton CO$_2$ 1.29%
Applied Studies

YEAR 2016

• STUDY WHAT DEFINES STRATEGIES FOR THE USE OF METHANE GAS ASSOCIATED COAL SEAM IN UNDERGROUND EXPLOITATION

YEAR 2017

• BUILD FOR COLOMBIA A METHANE GAS EXPLOITATION METHOD OR OXIDATION OF THE VENTILATION DUCTS (VAM) OF THE UNDERGROUND CARBON MINES
STRATEGIES FOR THE USE METHANE GAS ASSOCIATED WITH COAL SEAM

BACKGROUND

Mining Safety
- Dead
- Decree 1886

Environmental
- Climate Change
- GEI

Energy
- Non-Conventional Resources
- Energy Diversification
STRATEGIES FOR THE USE METHANE GAS ASSOCIATED WITH COAL SEAM

SCOPE

**Base Line**
- Information in public and private entities:
- Mining Safety
- Regulation
- Projects CBM and CMM
- Perforations

**International Information**
- México, EEUU, Polonia, China y Australia
- Projects of use CBM and CMM
- Regulation
- Business model

**Identification of Area**
- Identify areas for pilots projects and prioritize them
- Estrategies
STRATEGIES FOR THE USE METHANE GAS ASSOCIATED WITH COAL SEAM

RESULTS

- Commercial Reservations
- Legislation
- Identify of areas
- Review of emission factors
STRATEGIES FOR THE USE METHANE GAS ASSOCIATED WITH COAL SEAM

STRATEGIES

➢ Adopt standard for estimating and calculating reserves
➢ Development of technical (drilling, sampling, laboratory analysis)
➢ Legislación
➢ Development of a pilot project
➢ Research and technological development
➢ Business model that facilitate the use of methane gas from coal seams
MODEL OF USE OR OXIDATION METHANE GAS OF VENTILATION DUCTS (VAM)

BACKGROUND

- Prioritized area
- Environmental
- Emision GEI
- Mining safety
- Ventilation
MODEL OF USE OR OXIDATION METHANE GAS OF VENTILATION DUCTS (VAM)

**SCOPE**

- **International Diagnosis**
  - EEUU, China y Australia
  - Characteristic of the mines, investment and operation cost, applied techniques.

- **Diagnosis Of the mines**
  - Technical description of the mines (emphasis on ventilation)
  - Emision methane gas (79.861 Ton CO$_2$e)

- **Mines Identification**
  - Identification of zones and mines with higher gas content
  - Four mines (32.377 TonCO$_2$e)
RESULTS

**Strategies**
- Integrate mines
- Redesign of ventilation systems
- Improve productivity (mechanization)
- Legal adjustment
- New business perspectives
- Staff training
- Promote the use or oxidation of methane gas as a new business alternative (based on the proposal to create a national market for carbón credit)
- From the institutionality to encourage this type of projects
- Search for international support and agreements

**Possibilities VAM**
- The use is not viable
- Two proposals for methane gas destruction
RESULTS

➢ Two destruction proposals with integration of two mines
➢ Proposed adjustment in the regulation of safety
➢ Estimation of costs due to the reduction of one ton CO$_2$
  (7 to 13 $USD/tonCO_{2e}$)
➢ Proposal of technical guides
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