Recompression of Gas During Pipeline Repair

New Orleans, November 2, 2010
Introduction

Recompression

- 15,000 kilometre
- 18 compressor stations
- 125 bcm transported annually

Flaring

Venting
What is Recompression?
What is Recompression?
What is Recompression?
What is Recompression?
What is Recompression?

6-10 bar minimum
Why Recompression?

- Environmentally friendly
- Cost-effective
- Less waste of energy (commodity is saved!)
- Less CO$_2$ emission as with flaring
  - only CO$_2$ from flaring the residual gas and the fuel consumption of the compressor driver
  - together this is only 15% of the CO$_2$ emission produced by flaring all the evacuated gas
Recompression at Gasunie

- Part of Gasunie’s Footprint Reduction Program
  - Program to reduce greenhouse gas emissions
  - Gasunie awards € 0.34 per m³\(^{(n)}\) * of avoided natural gas emission for business cases to stimulate footprint reducing developments

  * (price level 2009)
Recompression at Gasunie

- Recompression is fully integrated in workflow and is considered for every gas evacuation job.

- Whether to use venting, flaring or recompression to evacuate gas is driven by:
  - the time available
  - the cost involved
  - local legislation
  - practical feasibility

- $1 \text{ m}^3_{(n)}\text{ Natural Gas} = € 0.24$ (commodity price level 2009)
- $1 \text{ tonne } \text{CO}_2 = € 25.00$ (CO$_2$ trading price level 2009)
Design Challenges

- Fuel flexible
- Easy to transport and install
- High pressure ratio
- Explosion proof
- Safe and easy to operate
- Autonomous operation
What came out of the oven…
Practical Example

- Recompressed volume is approximately 360,000 m\(^3\)\(^{(n)}\)
- Connecting and disconnecting the unit takes a day each (typically)
Economy

- CAPEX = 1.5 M€
- OPEX = ~ 10% of CAPEX (annually)
- 18 recompression jobs since 2006 until 2009
- 7.5M m³(n) recompressed
- Revenu = 1.8 M€ (commodity value)
- Business Case value = 4.1 M€
Ecology

* natural gas as being Methane

- Recompressed volume 7.5M m³
  - Venting 7.5M = 124kT CO₂ = 100%
  - Flaring 7.5M = 15kT CO₂ = 12%
  - Recompressing 7.5M = 0.15kT CO₂ = 0.12%
Conclusions / Perspectives

- Recompression is a double winner
  - Saving the environment
  - Saving money

- Gasunie recompression capacity expands
  - A second unit is about to be in operation
Thank you!