Sabah Gas Conservation Project: Reducing Gas Flaring using the Clean Development Mechanism

Ajay Mehta
Shell Malaysia Exploration and Production

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Context

- Voluntary commitment to reduce Shell Group emissions by 5% below 1990 levels by 2010, even as we grow the business
- Conventional hydrocarbon production is becoming more difficult
- Rapidly changing regulatory landscape in the Asia-Pacific region
- Aspiring towards “Zero Continuous Flaring” across EP operations
- CDM recognized as a valid mechanism to manage GHG emissions
Group Emissions

GREENHOUSE GAS EMISSIONS
Million tonnes CO₂ equivalent

120
110
100
90
98 99 00 01 02 03 04 05 06 07 08 09 10

The 1990 baseline and absolute 2010 target will change again between 2008 - 2010 as the portfolio changes.

FLARING - Exploration & Production
Million tonnes hydrocarbon flared

The 1990 baseline and absolute 2010 target will change again between 2008 - 2010 as the portfolio changes.

ENERGY INTENSITY - Chemical Plants
Chemical Energy Index (CEI)

ENERGY INTENSITY - Refineries
Energy Intensity Index (EI™)

ENERGY INTENSITY - Exploration & Production
Gigajoules/tonne production
Shell-Operations in Sabah, Malaysia
Sabah Gas Conservation Project

- Conserve about 14 BSCF of excess Gas from South Furious
- By injecting ~5-15 MMscfd South Furious gas at St Joseph

Labuan Crude Oil Terminal (LCOT)
Labuan Gas Terminal (LGAST)

- Improved SJ pressure maintenance
- Reduced flaring at South Furious

Gas Pipelines
Oil Pipelines
Why do a CDM Project at SGCP?

• No regulatory framework as yet governing gas flaring, but fully aligned with national aspirations to make a positive impact

• Marginal project economics; going the CDM route provided an impetus to progress the project with JV partner

• Potential CER credits could partially offset the total project cost

• Trigger the wider replication of gas flaring reduction via CDM projects in other Asia Pacific operations & non-Annex I countries
SGCP – Alignment with CDM Rules

- Key to CDM - demonstrating barrier analysis and additionality
- Clear project boundary (baseline, project emissions & leakage)
- New monitoring methodology – front based on Rang Dong
- Alignment with an Annex-1 entity (Shell Trading) in the UK
Additionality/Barrier Analysis

Alt 1: Gas export & re-injection from SF to Barton

Findings
- Not technically feasible as water injection is more suitable for Barton

Alt 2: Gas export from SF to onshore market

Findings
- Not technically feasible as currently no market for additional gas

Alt 3: Gas sales from SF to new floating LPG PU

Findings
- Technically feasible with excess gas for re-injection to St. Joseph

Alt 4: Gas re-injection at SF

Findings
- Not technically feasible due to reservoir complexity

Alt 5: South Furious excess gas is continuously flared
SGCP Project Boundary

A, B, C, D, E: Monitoring Points

Continuous
Atmospheric Pressure
Gas flaring

Non-continuous gas
flaring - when Gas
Re-injection compressor
shuts-down

From South Furious
(New Pipeline)

From Erb West
(existing gas supply)

Monitoring for
Seepage

On-site fuel
Consumption

Recycled gas
from St-Joseph

Processing

Oil reservoir

St Joseph
Project Status

- Project successfully commissioned with ~5 MMscfd gas being currently exported from SF to SJ for re-injection

- Potential to generate ~707 ktonnes CO2 abatement over the 10-year crediting period; 70% in first four years.
Project’s CDM Application Status

Initial project Idea

1. Project Idea Note (PIN)
2. Conditional Letter of Approval
3. Project Design Document (PDD)
4. Project Validation
5. Host Country Letter of Approval
6. Carbon Contracting

PROJECT DESIGN PHASE

7. Project Registration
8. Monitoring
9. Verification & Certification
10. Issuance of CERs

PROJECT IMPLEMENTATION PHASE

Revenue from CERs

National level

International level
Summary

• A material reduction in gas flaring is possible via CDM projects

• The process for registering an EP project is however lengthy....... ....urgent need to expedite flow from idea to issuance of credits

• Approval of new methodology is essential to replicate success in other upstream locations with similar flaring challenges

• Post-CDM implementation, we need to develop a standardized approach for monitoring and verification of emissions reductions