

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

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Shell Malaysia Exploration and Production

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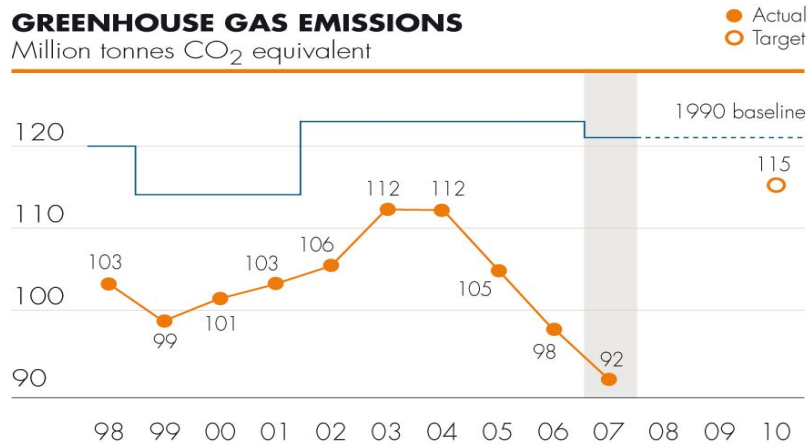
Context

- 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

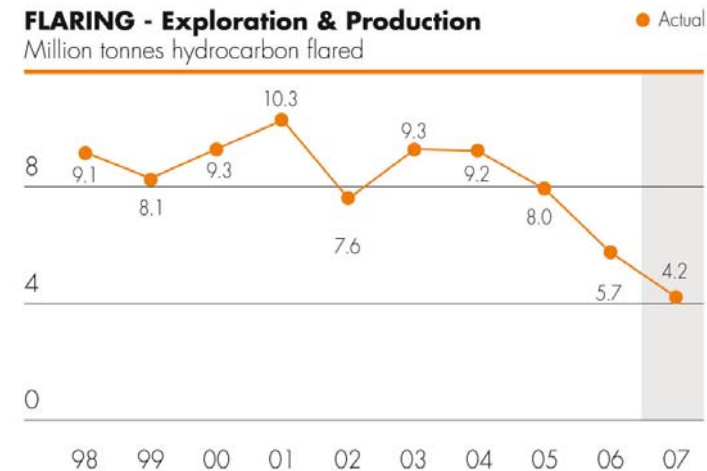
Million tonnes CO₂ equivalent



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

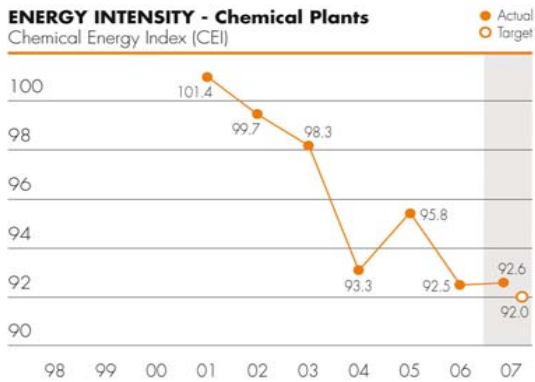
FLARING - Exploration & Production

Million tonnes hydrocarbon flared



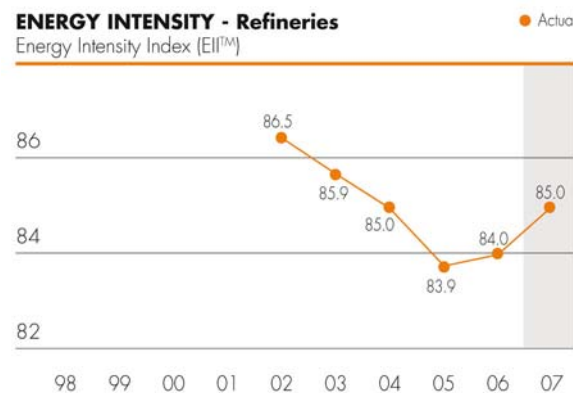
ENERGY INTENSITY - Chemical Plants

Chemical Energy Index (CEI)



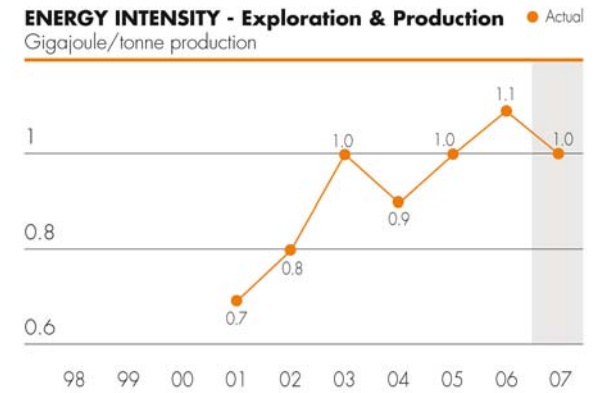
ENERGY INTENSITY - Refineries

Energy Intensity Index (EII™)

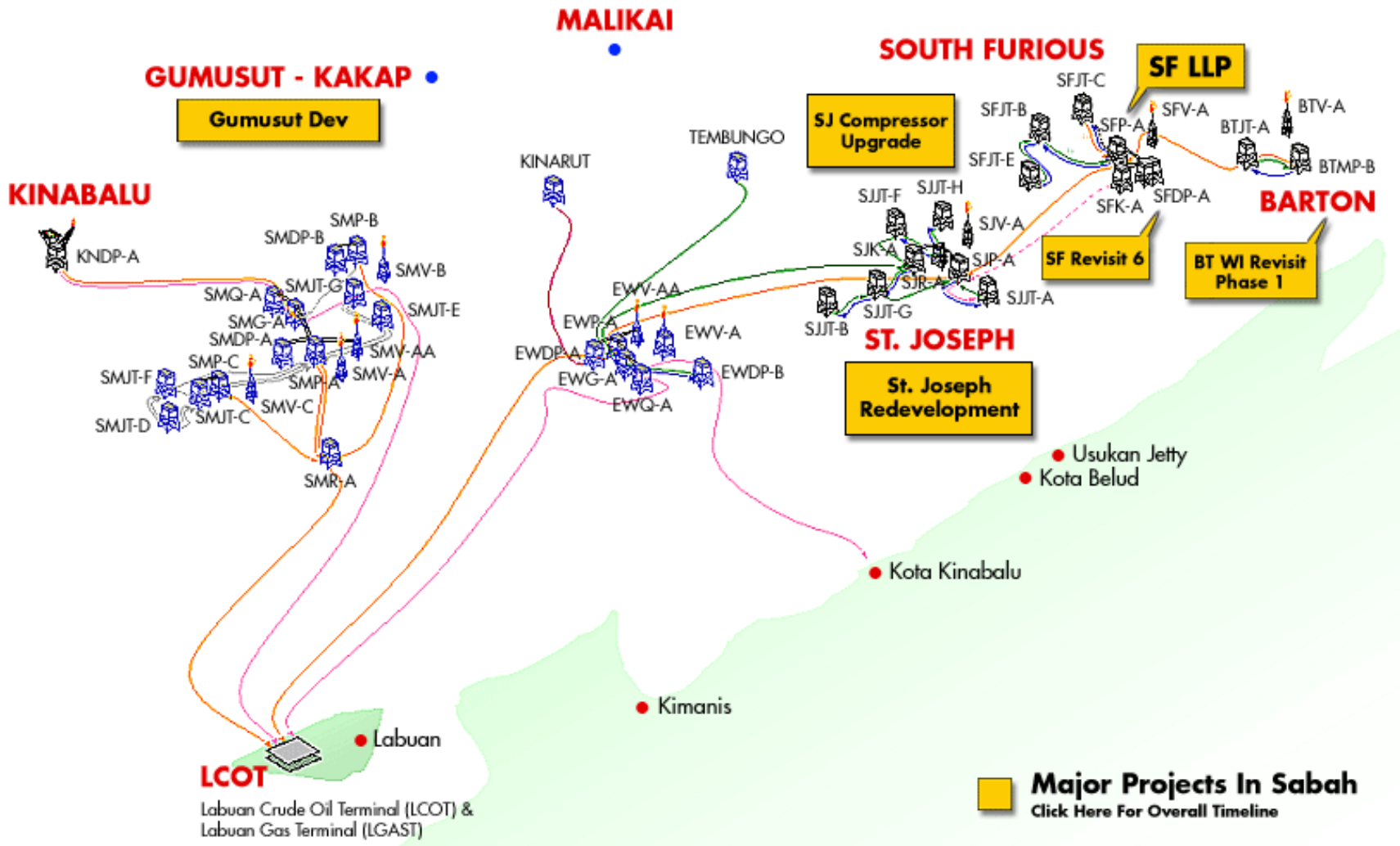


ENERGY INTENSITY - Exploration & Production

Gigajoule/tonne production

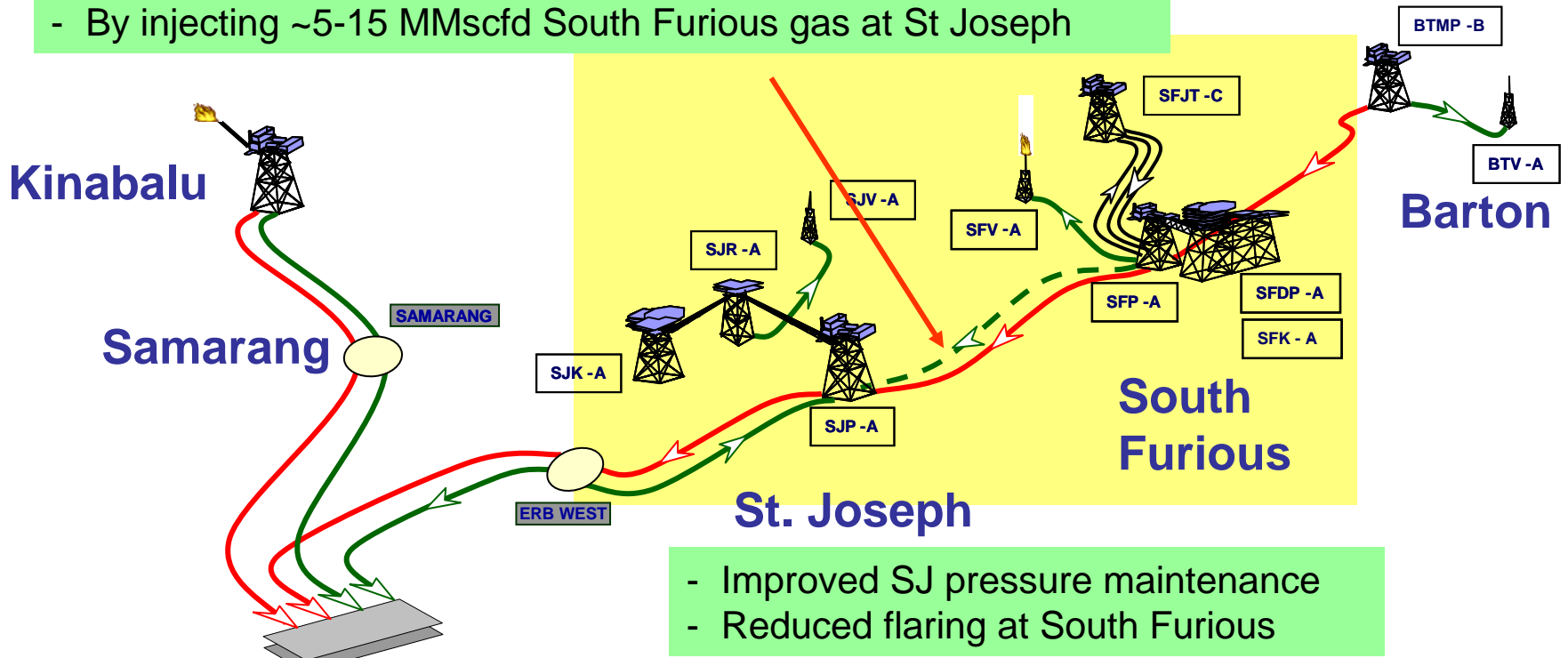


Shell-Operations in Sabah, Malaysia



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



- Improved SJ pressure maintenance
- Reduced flaring at South Furious

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

- 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

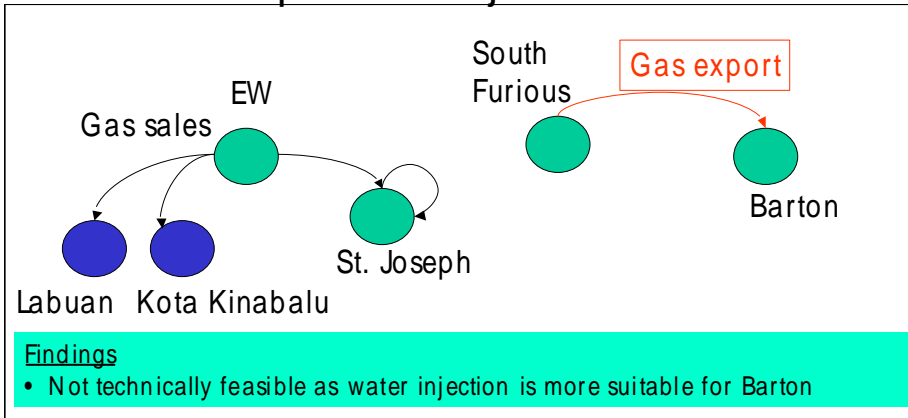
SGCP – Alignment with CDM Rules

- 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

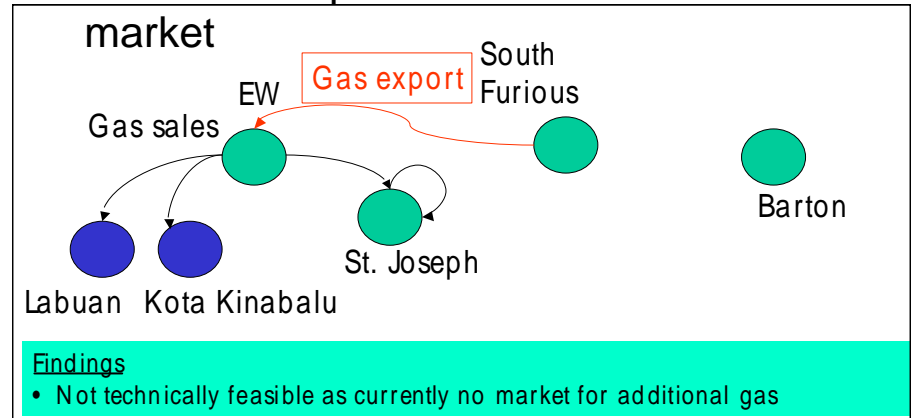


Additionality/Barrier Analysis

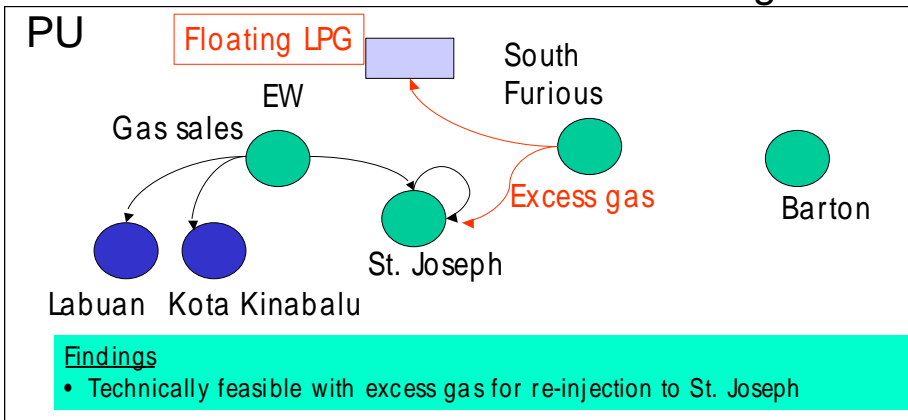
Alt 1: Gas export & re-injection from SF to Barton



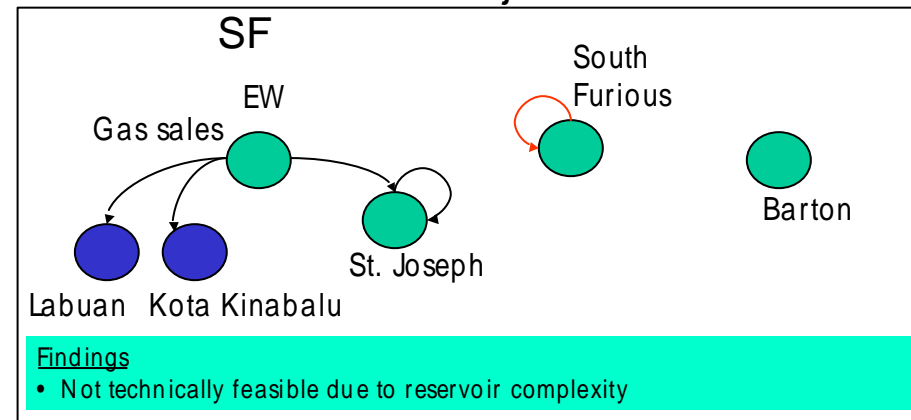
Alt 2: Gas export from SF to onshore market



Alt 3: Gas sales from SF to new floating LPG

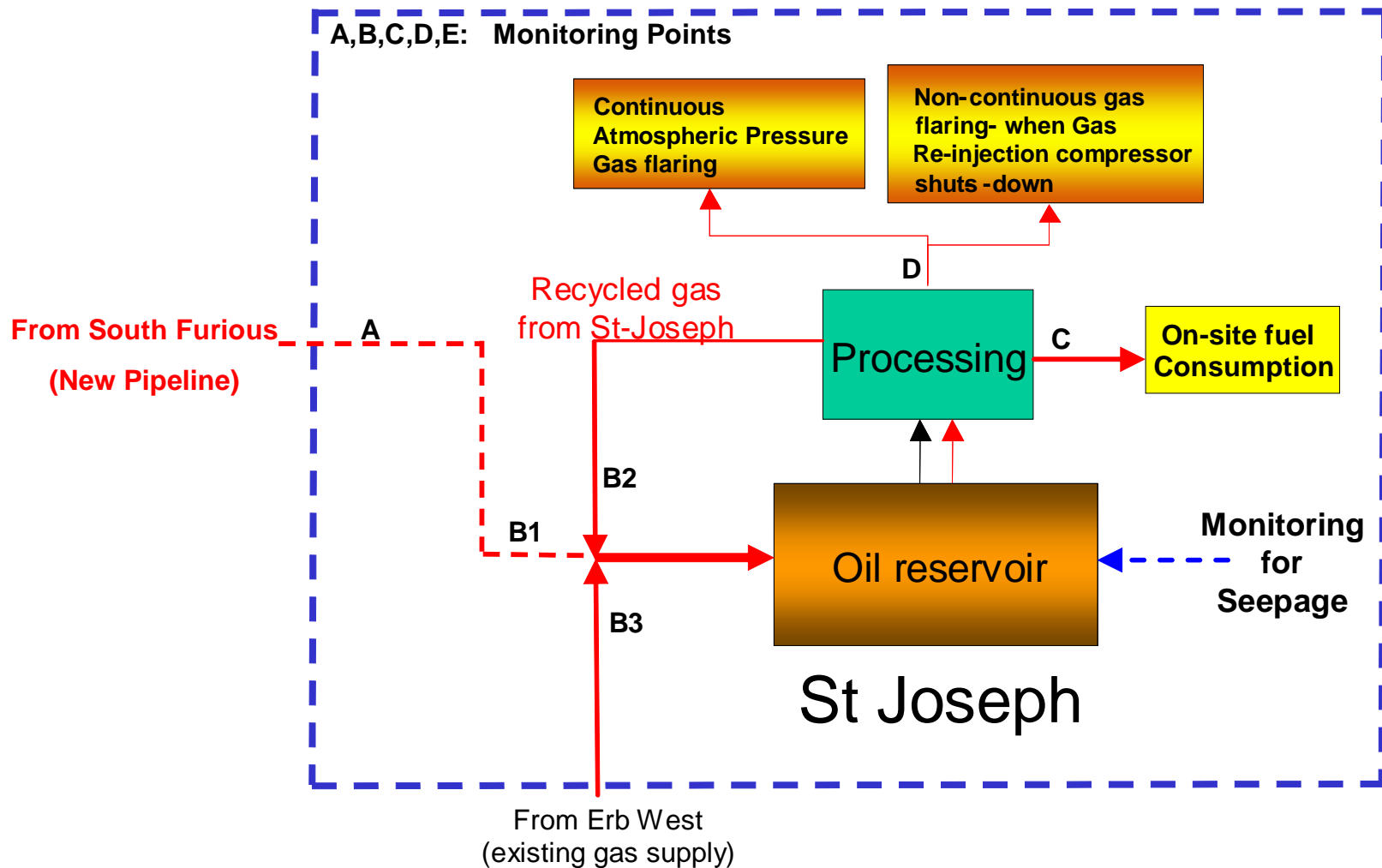


Alt 4: Gas re-injection at SF



Alt 5: South Furious excess gas is continuously flared

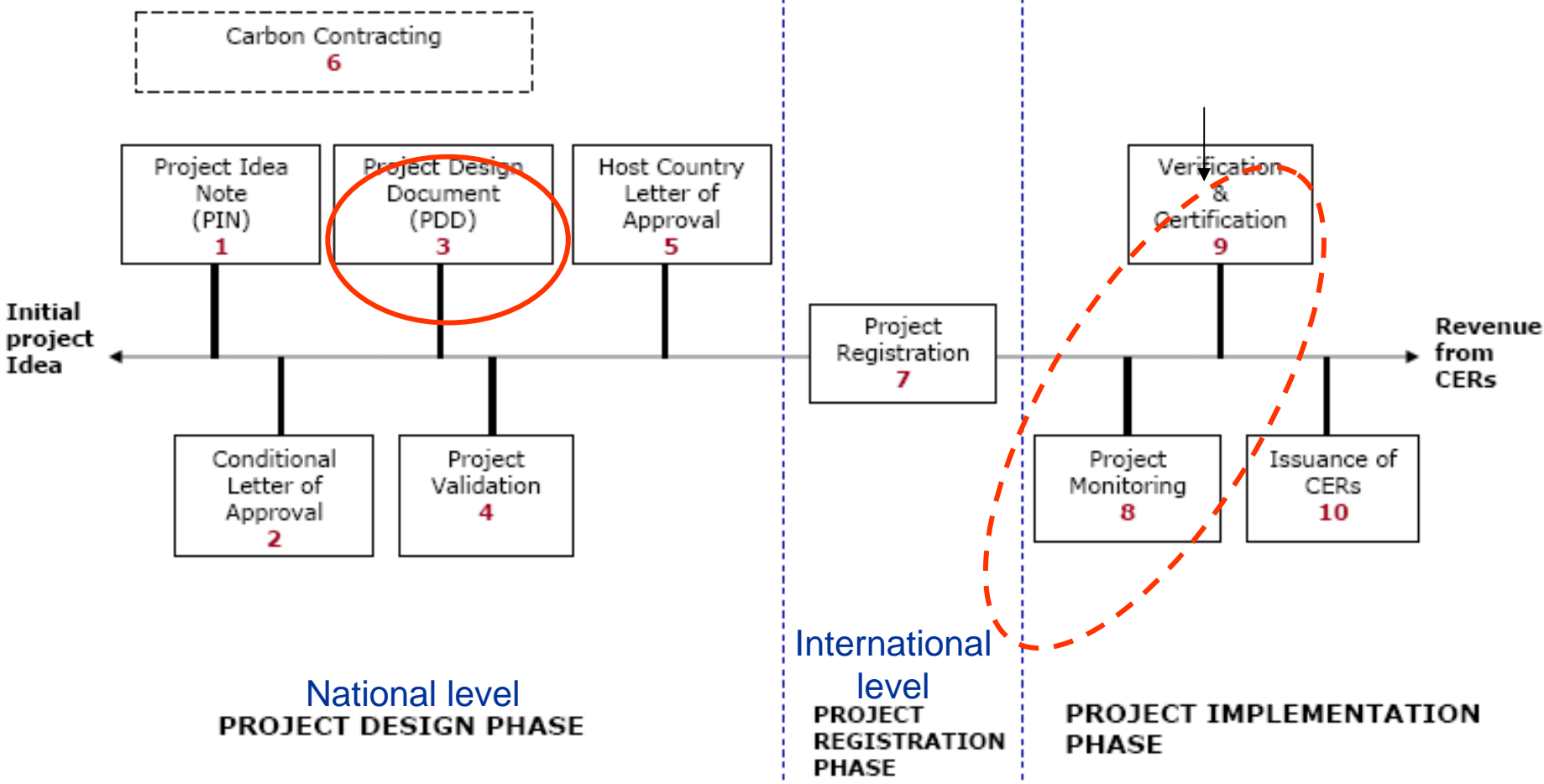
SGCP Project Boundary



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



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