Feasibility Studies with the Aim of Developing a Bilateral Offset Credit Mechanism FY2011

Studies for Project Development and Organization

Program organization research of recovery & effective utilization of associated gas project in Russian Federation

New Energy and Industrial Technology Development Organization (NEDO)
JX Nippon Oil & Energy Corporation
Mitsubishi Corporation
CO₂ emission reduction through effective utilization of APG (associated petroleum gas) that would otherwise be flared

Proposed Project

- Proponents:
  - JX Nippon Oil & Energy Corporation
  - Mitsubishi Corporation
- Technical consultant: Toyo Engineering Corporation
- Partner: Gazprom Neft
- Consultant: Energy System Institute

Location

Noyabrskiy Integrated Project at Yamal-Nenets autonomous district of northwest Siberia of Russia

APG is flared currently

APG is recovered and utilized using the proposed technology
Proposed Technology

**GTPP** (Gas processing plant)

**Mini-LNG** (Liquefied Natural Gas)

**GTL** (Gas to Liquid)

**DME** (Dimethyl Ether)
The result of a sensitivity analysis on the project economics for varying cost of pipeline construction at the particular oil field shows the GTL technology being in a better economic position than all other options, where its advantage increases as the cost of pipeline construction increases (such as when the oil field is located further away than the present one).
The result of a sensitivity analysis on the project economics for varying value of emission credit at the particular oil field shows GTL has an advantage over others in a low price range for emission credits, the effect of higher carbon price on improvements in economics is smaller compared to other technologies.
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To simplify, the suggested MRV is to calculate the CO₂ emission reduction based on production volume of syncrude at point B. Allocation to respective oil field is calculated based on APG volume (V) and heat value (NCV) at point A, B and C as shown below.

\[
ER = \frac{V_{A,y} \cdot NCV_{A,y}}{V_{C,y} \cdot NCV_{C,y}} \cdot m_{\text{syncrude},B,y} \cdot 85\% \cdot \frac{44}{12} - Ly
\]

CO₂ emission reduction is calculated based on syncrude production quantity (ton/year)

Allocated based on heat value of C and A => No need to obtain data from other companies i.e. Oil field Xi