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LNG Process Summary

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Gajendra Kumar
Principal Analyst

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Abstract

Due to the increasing demand for natural gas in the world today, transportation of natural gas from different parts of the world has become a necessity. Liquefying natural gas provides a safer and cheaper alternative for transportation and also increases its storage capabilities. The liquefaction process requires natural gas to be cooled using various methods of cryogenic processes and also to be depressurized to atmospheric conditions for easier and safer storage.

This process summary reviews the key technology features and presents detailed process economics for the following LNG production processes:

- Large-scale LNG production by propane precooled mixed refrigerant process
- Large-scale LNG production by dual mixed refrigerant process
- Large-scale LNG production by cascade refrigeration process
- Small-scale LNG production by nitrogen refrigeration cycle process
- Small-scale LNG production by single mixed refrigeration cycle process

Given that feedstock prices can fluctuate greatly over time, a traditional process economics snapshot comparison for a particular time and region can often be misleading if applied to investment decisions. For investment purposes, using a historical process economics comparison over a long period of time provides a better basis. To address the impact of feedstock price fluctuations, this process summary includes an iPEPSpectra™ interactive data module that allows for quick comparison of historical process economics of competing technologies in several major regions from 2000 to 2015 on a quarterly basis. The iPEPSpectra™ module uses Microsoft Excel PivotTables and is attached with the electronic version of this process summary. The module provides a powerful interactive tool for comparing process economics at various levels, such as variable costs, plant gate costs, full production costs, and capital costs. An iPEPSpectra™ historical economic comparison provides a more comprehensive assessment of competing technologies and enhances investment decisions.

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