Utilization of cold from LNG driven fishing vessels

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Cold recovery potential from LNG gasification

• LNG is stored in cryogenic tanks at 1 bar and -162 °C.
• Before use as fuel in engine, the liquid converts into gas in the cold box/vaporizer.
• The outlet temperature and pressure of gas from the cold box depends on the engine specifications.
- Estimated LNG cold recovery potential of 4.5 MW fishing vessel

- Estimated LNG cold recovery potential of 760 kW fishing vessel
LNG cold applications

Sub-cooling of refrigerant

- Result is high coefficient of performance (COP) of refrigeration system or extra capacity
Cooling of chilling tank

- Boosting the refrigeration capacity.
Thermal energy storage

- Thermal energy storage can either for chilling purpose or freezing.
- Easy to fully utilize the fluctuating LNG cold potential.
Air conditioning

• Air conditioning can be used for cooling in machinery room or for freezing storage room.

• It is possible to combine different applications in one vessel. However, it is entirely depend on the size and requirements of the vessel.
Reference


• Further calculations and results are in the author’s conference paper in ICCC 2020 and Master thesis.
Thank you. Questions?