

Seminar

“Liquid air energy storage (LAES) Efficiency improvement using mixed refrigerant”

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Abstract:

Liquid air used for energy storage without the separation of air compositions. Air Liquefaction is an energy intensive process the separation of air constitutes take 20% of liquefaction energy, mixed refrigerant used into the kaptiza gas liquefaction cycle as precooling used for air liquefaction, under low pressure to enhance the cycle liquid air production yield. Which is the performance determinant factor to liquid air energy storage at the charging cycle.

Hydrocarbon and nitrogen based composition; refrigerants used for precooled single mixed refrigerant cycle to reduce energy consumption of the charging cycle and enhance the liquid air production yield. The simulation of air liquefaction perform using ASPEN HYSYS simulation software, precooled kaptiza gas liquefaction cycle used. The compression pressure of air from 2bar -35 bar, with the range of 2bar. The overall liquid Air production yield increase 10.9percentage, using Hydrocarbon and nitrogen based refrigerant with different molar ratio of Methane, ethylene, propane i-pentane and Nitrogen.

Date: Friday, February 11, 2022 @ 2:30 PM afternoon

Venue: Bahir Dar Energy Center