Advances in Natural Gas: Formation, Processing, and Applications. Volume 7: Natural Gas Products and Uses
2024, Pages 381-400

17 - Cogeneration and trigeneration applications of natural gas

Subha Mondal [1], Sudipta De [2]

Show more

https://doi.org/10.1016/B978-0-443-19227-2.00008-3
Get rights and content

Abstract

Enhanced energy efficiency and lesser pollution with proper selection of fuels are two possible avenues for a low carbon footprint. Cogeneration/trigeneration units deliver two/three energy utilities from a single integrated unit. The overall efficiencies of delivering energy utilities by industrially acceptable cogeneration/trigeneration units have to be more than delivering the same utilities from multiple standalone units each delivering a single energy utility. On the other hand, for any amount of utility heat delivery, natural gas emits lesser greenhouse gas compared to other conventional fuels. In summary, a natural gas-fueled cogeneration/trigeneration unit has a significantly less adverse effect on the environment than the same utility outputs from multiple independent units. In the present chapter, different generalized schemes for natural gas–based cogeneration and trigeneration are presented, along with a few relevant case studies. From the presented case studies, it is obvious that natural gas fired cogeneration and trigeneration units are technoeconomically feasible and efficient low carbon energy solutions. Overall efficiency of a low-grade heat-driven cogeneration unit can be enhanced even more by using a liquefied natural gas regasification unit as the heat sink.

References (0)

Cited by (0)