

Submission Summary

Conference Name

44th IAEE International Conference - 2023

Paper ID

351

Paper Title

Sustainable Energy Efficiency improvements through methodology of prioritizing selections

Abstract

Industrial facilities are rapidly changing over the years, various technological advances have led to break-through its performance. The transformation is brought from new inventions, development of sophisticated processes/technologies, automation, digitalization, the list is continuously increasing. These technical development and strategies to realize it on the life-cycle basis forces the industries to explore sustainability concepts within the scope. On the other hand, the task to reduce Green House Gas emissions to protect environment is needed than ever before. Consequently, the revolution and evolution of products, processes, technologies, and resources, and sustainable requirement to mitigate climatic anomaly beams on the industrial sector and ordained it to cater an approach to optimize all efforts. The challenge is to develop a methodology by accommodating all the technological advances and sustainability requirements and transform facilities into a better performing asset with reduced emission. The solution is to make industrial facilities energy efficient which enable them to be competitive and environmentally friendly.

Saudi Aramco has never ending quest for innovation in technological future products and services. It is evident from its pledge to Operational Excellence and commitment to carbon circular economy. Saudi Aramco is resolute to develop and retrofit all of its facilities to be best-in-class from energy efficiency perspective which is palpable from its Energy Policy. To take on the challenge, Saudi Aramco developed new methodologies to design/retrofits industrial facilities to realize energy efficiency. The interplay of Energy Trilemma requirements i.e. techniques for energy savings, climate change abatement, and overall sustainable development is considered within the framework. Recent enthusiasm for using renewable energy resources, both to reduce expenses associated with traditional sources and to improve environmental conditions is overwhelming. But the emphasis to ensure optimal utilization of materials to achieve energy efficiency improvement through sustainable means is reflected in the developed approach.

In this paper, the developed technique is described which needs to be followed in retrofitting industrial facilities to make them the best-in-class. The methodology is conferred in the form of "Energy Pyramid" which is built on the principle of prioritization i.e. build the base first and then progressive layers are added until we finally get to the peak. It is likely that by following the approach, manufacturing industry of the future will become energy efficient and fully embrace the best practices to optimize resources utilization while consuming less energy. Industrial facility case studies are utilized to enrich and illustrate the subject and demonstrate the methodology appropriately to put them on track to achieve international climate and energy goals.

Created on

9/12/2022, 8:02:52 AM

Last Modified

2/6/2023, 10:38:44 PM

Authors

Abdulrahman Hazazi (Aramco) <abdulrahman.hazazi@aramco.com> ✓

Zeeshan Farooq (Aramco) <ZEESHAN.FAROOQ@ARAMCO.COM> ☺

Primary Subject Area

Energy Efficiency

