World Academy of Science, Engineering and Technology
International Journal of Industrial and Systems Engineering
Vol:12, No:05, 2018

Oil Logistics for Refining to Northern Europe

Authors : Vladimir Klepikov

Abstract : To develop the programs to supply crude oil to North European refineries, it is necessary to take into account the refineries' location, crude refining capacity, and the transport infrastructure capacity. Among the countries of the region, we include those having a marine boundary along the Northern Sea and the Baltic Sea (from France in the west to Finland in the east). The paper envisages the geographic allocation of the refineries and contains the evaluation of the refineries' capacities for the region under review. The sustainable operations of refineries in the region are determined by the transportation system capacity to supply crude oil to them. The assessment of capacity of crude oil transportation to the refineries is conducted. The research is performed for the period of 2005/2015, using the quantitative analysis method. The countries are classified by the refineries' aggregate capacities and the crude oil output on their territory. The crude oil output capacities in the region in the period under review are determined. The capacities of the region's transportation system to supply crude oil produced in the region to the refineries are revealed. The analysis suggested that imported raw materials are the main source of oil for the refineries in the region. The main sources of crude oil supplies to North European refineries are reviewed. The change in the refineries' capacities in the group of countries and each particular country, as well as the utilization of the refineries' capacities in the region in the period under review, was studied. The input suggests that the bulk of crude oil is supplied by marine and pipeline transport. The paper contains the assessment of the crude oil transportation by pipeline transport in the overall crude oil cargo flow. The refineries' production rate for the groups of countries under the review and for each particular country was the subject of study. Our study yielded the trend towards the increase in the crude oil refining at the refineries of the region and reduction in the crude oil output. If this trend persists in the near future, the cargo flow of imported crude oil and the utilization of the North European logistics infrastructure may increase. According to the study, the existing transport infrastructure in the region is able to handle the increasing imported crude oil flow.

Keywords : European region, infrastructure, oil terminal capacity, pipeline capacity, tanker draft
Conference Title : ICLESC 2018 : International Conference on Logistics Engineering and Supply Chain
Conference Location : Berlin, Germany
Conference Dates : May 21-22, 2018