

Management of Innovations in the Supply Chains of Russian Oil and Oil Products Taking Into Account Regional Structure

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Abstract

The article analyzes relevant factual information characterizing the state and use of the mineral resource base of the Russian Federation, as well as analytical materials that illuminate the state of affairs in the mineral resource complex of the country and the world. The relevant data of industry and state statistics, program, regulatory, methodological and reporting documents of the Ministry of Natural Resources of Russia, Rosnedr, territorial bodies and subordinate organizations of the Agency, data of mining companies and processing enterprises are presented. Maximum reliability and completeness of information, comparability of indicators, unification of the conceptual and terminological base and forms of presentation of actual data are provided. Based on the analysis of the data presented and the simplex optimization method, author's approaches to innovation management in the supply chains of Russian oil and oil products were proposed taking into account the regional structure. They are presented in the format of contour maps, which make it possible to determine both the optimal ratios of influencing factors on the studied indicator and the ratios of these factors for any possible outcomes of their mutual influence. The presented method makes a new contribution to the methodology for managing the supply chains of oil and oil products and creates additional opportunities for managing innovation in the export of oil and gas regions.

Keywords: supply chain management, economics, econometrics, innovation management, regional economy, oil and oil products

I. INTRODUCTION

The Russian mineral and raw material base is the foundation of the Russian economy and is a combination of different-ranking subsoil fund objects (deposits, ore occurrences, etc.), characterized by proven and estimated reserves and proven predicted mineral resources. Russia has a large raw material base for liquid hydrocarbons, providing the country with sixth place among the countries that hold reserves, twelfth place in production, thirteenth in export and seventh in oil refining capacities (Table 1).

Table 1. Russia's share in world reserves, production and export of crude oil

Index	%	Place in the world
Stocks	6	6
Mining	12	3
Crude oil export	13	2
Oil refineries power	7	3

According to the State balance of mineral reserves of the Russian Federation, technologically recoverable oil reserves of Russia as of 01.01.2019 amounted to 29.8 billion tons, condensate - 4.1 billion tons. The transnational oil and gas company British Petroleum (BP) estimates the Russian proved reserves (proved reserves) of liquid hydrocarbons of 14.6 billion tons (6% of the world). In terms of the daily and annual oil production rates (11.4 million barrels per day or 554.6 million tons in 2018), Russia confidently ranks third in the world, second only to the United States and Saudi Arabia. The depletion of oil reserves is 56.2%, while about 60% of current reserves are difficult to extract (high viscosity oils, low permeability and low thickness reservoirs, sub-gas zones, etc.). The potential for building up the oil resource base is high; its prepared and forecasted resources almost double the amount of recoverable reserves. Crude oil production in Russia for the period from 2009 to 2018 increased by 9% and reached 520.1 million tons. Crude oil exports, which consistently account for about half of the production volume, increased by 5.3% over the same period. About a third of oil products produced by domestic enterprises are also sent to foreign consumers. In 2012–2015 the volumes of these deliveries were actively growing, but in the next two years there was a decrease; in 2018, supplies began to grow again (Fig. 1).

