



III International Scientific Conference “Sustainable and efficient use of energy, water and natural resources – SEWAN-2021”

ГАЛАХИМ



FEASIBILITY STUDY FOR THE REDUCTION OF LNG TRANSPORT COSTS

Authors: Oksana Medvedeva, Sergey Perevalov

**Affiliations: Yuri Gagarin State Technical University of Saratov,
Russia, Saratov**

Names **Oksana Medvedeva, Sergey Perevalov**

Affiliations **Yuri Gagarin State Technical University of Saratov**

Keywords:

LNG, pipeline gas, delivery

Research Objective: Determination of the optimal LNG delivery radius in comparison with a gas pipeline

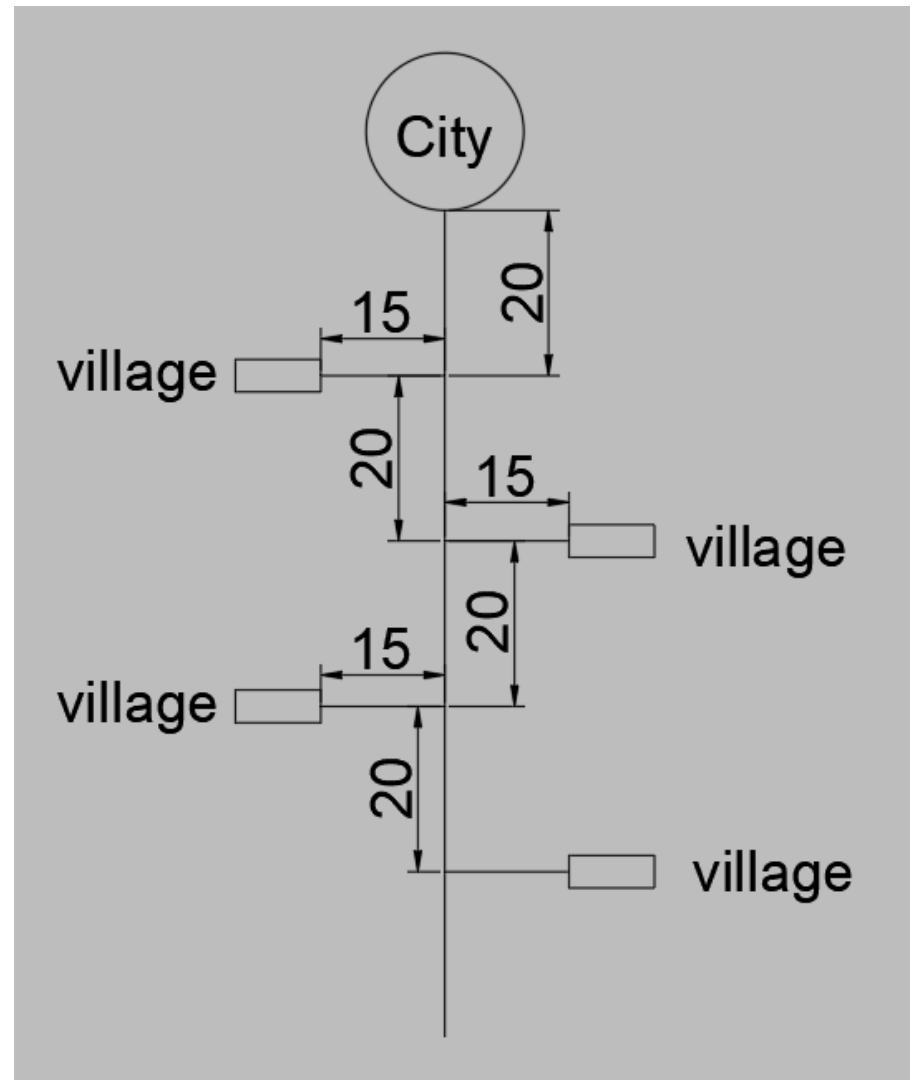
The model for which the calculations were made is a logistics scheme, where there is a main consumer of liquefied natural gas, namely the main city with the largest number of inhabitants, and there are branches, with a much smaller number of inhabitants in each. The main city is located at a distance of 20 to 160 km with an even step of 20 km. Every 20 kilometers, branches are accepted to localities with a length of 15 km. The equipment in the populated areas and the main city is used in accordance with the logic, namely: storage of liquefied natural gas, for continuous gas supply to consumers, evaporators, for LNG regasification. All the LNG produced at the liquefaction plants is distributed evenly among consumers, which allows us to calculate the demand for the necessary equipment.

FEASIBILITY STUDY FOR THE REDUCTION OF LNG TRANSPORT COSTS

Names **Oksana Medvedeva, Sergey Perevalov**
Affiliations **Yuri Gagarin State Technical University of Saratov**

Keywords:
LNG, pipeline gas, delivery

Transportation scheme



FEASIBILITY STUDY FOR THE REDUCTION OF LNG TRANSPORT COSTS

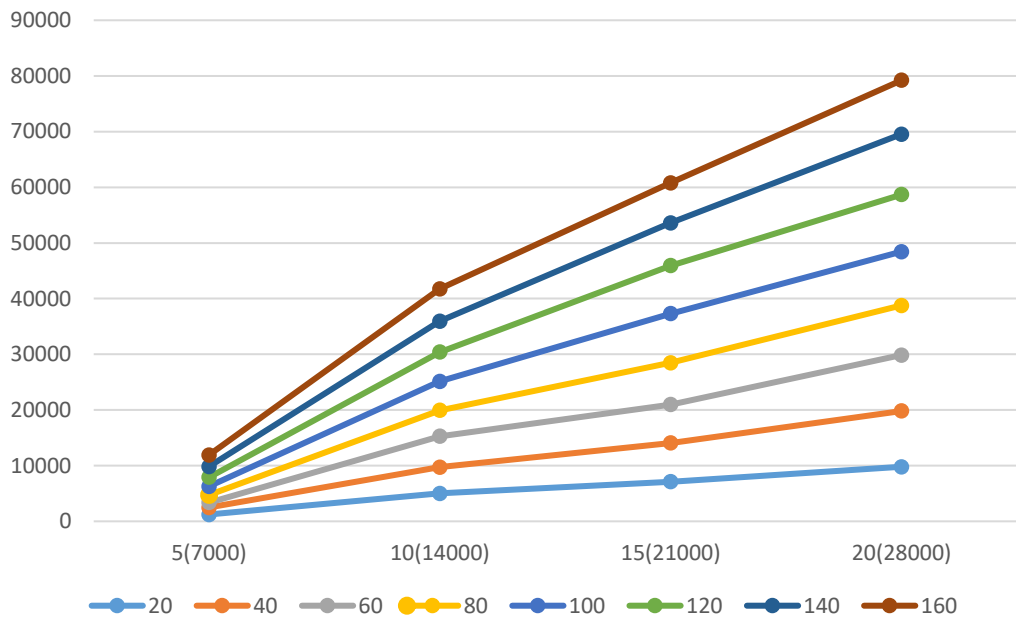
Names **Oksana Medvedeva, Sergey Perevalov**

Affiliations **Yuri Gagarin State Technical University of Saratov**

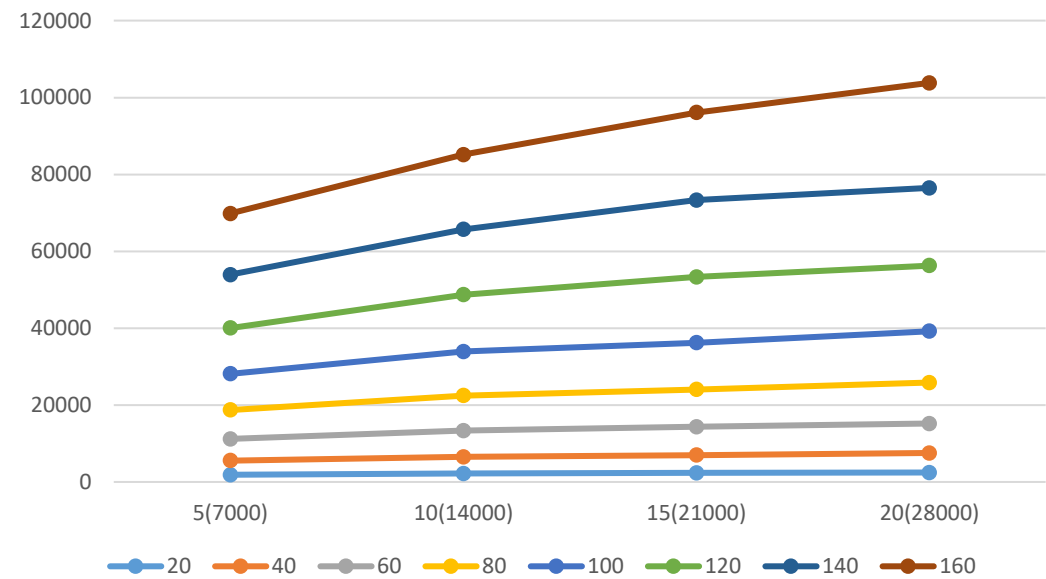
Keywords:

LNG, pipeline gas, delivery

Capital Investments (Gas Pipeline)



Capital investment (LNG)



FEASIBILITY STUDY FOR THE REDUCTION OF LNG TRANSPORT COSTS

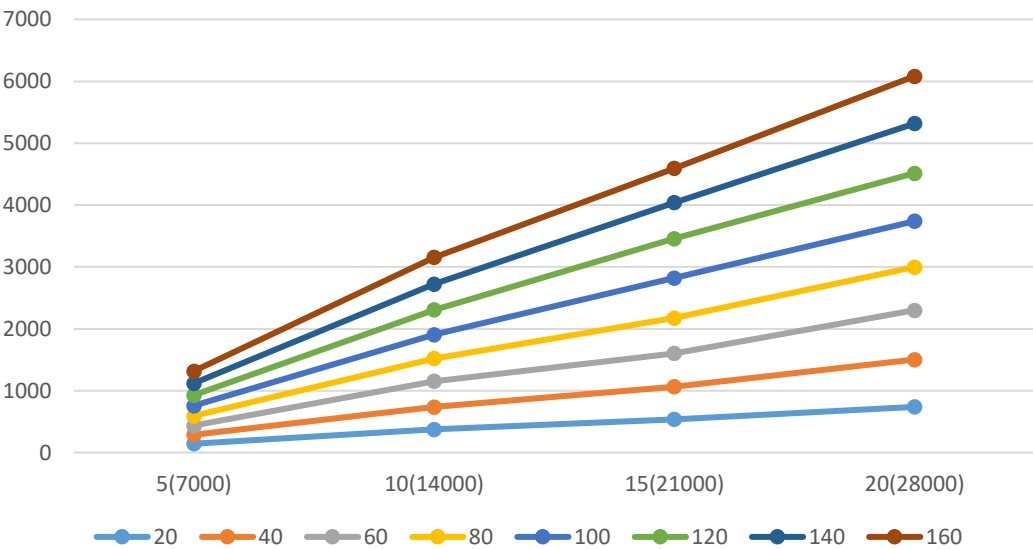
Names **Oksana Medvedeva, Sergey Perevalov**

Affiliations **Yuri Gagarin State Technical University of Saratov**

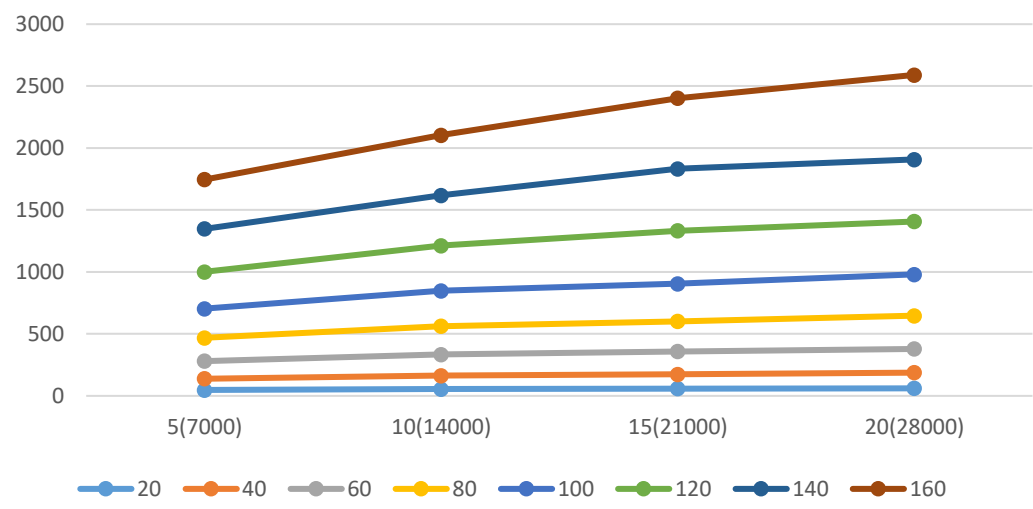
Keywords:

LNG, pipeline gas, delivery

Depreciation charges (Gas Pipeline)



Depreciation and amortization (LNG)



FEASIBILITY STUDY FOR THE REDUCTION OF LNG TRANSPORT COSTS

Names **Oksana Medvedeva, Sergey Perevalov**

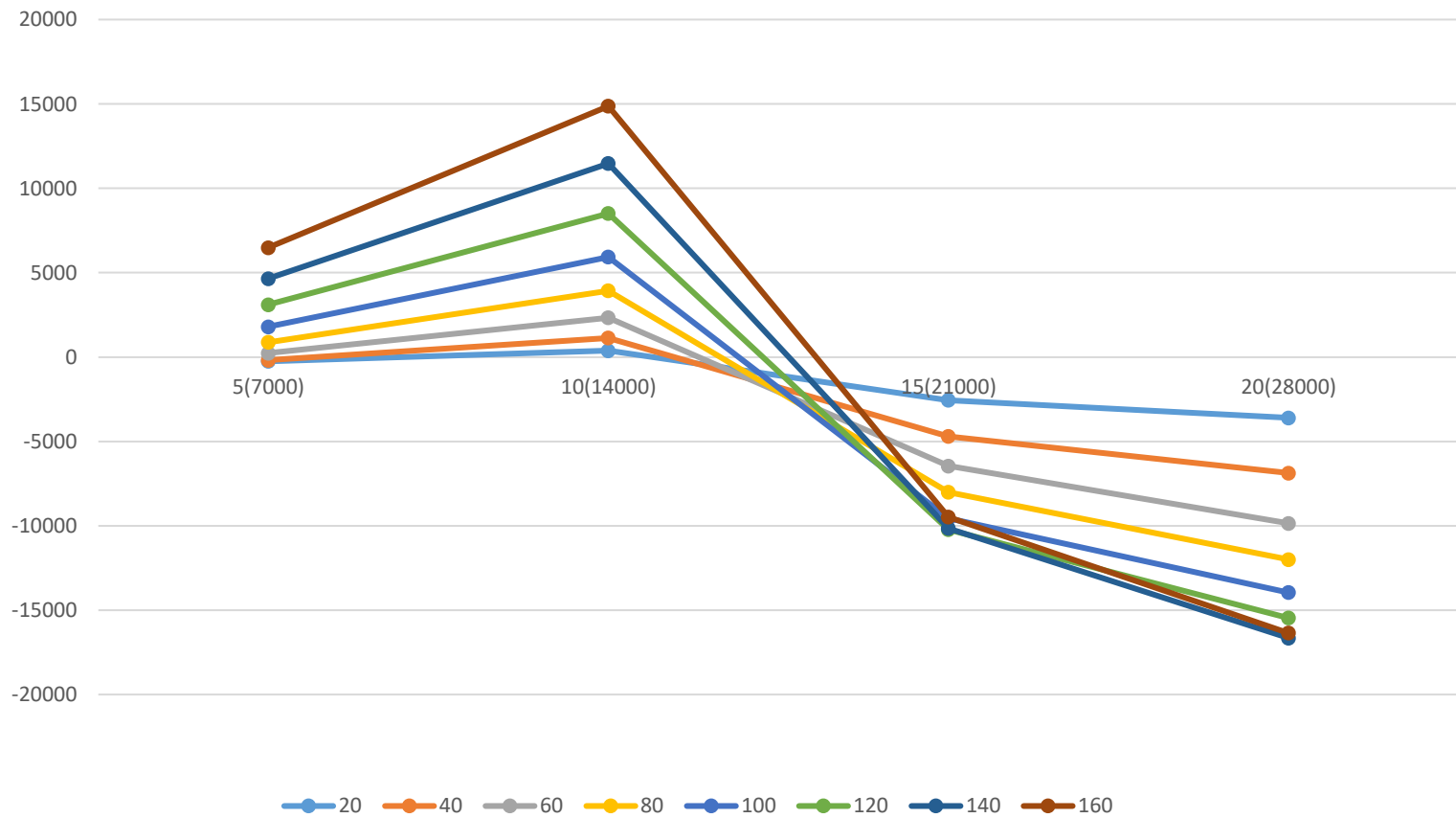
Affiliations **Yuri Gagarin State Technical University of Saratov**

Keywords:

LNG, pipeline gas, delivery

Results

The difference between the present costs for the supply of network supply gas in comparison with LNG



Conclusions

As a result of calculations, it was determined that the optimal radius of LNG distribution is in the wide range from 40 to 160 km, depending on the distance and population. The uneven distribution is explained by the difference in the unit cost of delivery and production of one cubic meter of gas. That is, the unit cost of building a gas pipeline per kilometer of transportation distance is a relatively constant value and within the project has a slight deviation in the greater or lesser direction. At the same time, due to the fact that the equipment for the production of LNG has a certain capacity and a step of increasing capacity, the increase in the reduced costs is not as rapid as with a gas pipeline.

References

1. Cisterna dlya transportirovki szhizhennogo prirodnogo gaza. Pat. RU 115309 U1: MPK B60P 3/22 / Medvedeva O. N., Frolov V. O.; zayavitel' i patentoobladatel' SGTU. – № 2011130459/11; zayavl. 21.07.2011; opubl. 27.04.2012, Byul. № 12. 15 s.
2. Rachevskij B.S. Netradicionnyj sposob gazifikacii // Gazovaya promyshlennost'. 1999. №6. S. 55–56.
3. Ishmuratova M. Rossijskij malo- i srednetonnazhnyj SPG. Regional'naya seriya: Kuzbass, Yakutiya, Dal'nij Vostok, Sahalin, Chernoe more. M.: Centr energetiki Moskovskoj shkoly upravleniya SKOLKOVO, 2019. 56 s.

Names **Oksana Medvedeva, Sergey Perevalov**

Affiliations **Yuri Gagarin State Technical University of Saratov**

Keywords:

LNG, pipeline gas, delivery

Thank you for your attention!

Authors: **Oksana Medvedeva, Sergey Perevalov**

Affiliations: **Yuri Gagarin State Technical University of Saratov,
Russia, Saratov**

Contact details: **medvedeva-on@mail.ru**
