level of default, in the last year there were 17; with maximum level – 9 and 8, respectively. Structural analysis showed that default reduction in the Russian market can be associated with mostly non-returnable subsidies to the sector [22, 25], while in the foreign market the most popular one is concessional government lending [22].

Obviously, this study has its limitations - the wide applicability of its results is limited due to the size of the Russian renewable energy market and limited access to additional data of RES projects. Nevertheless, this article provides a valuable insight into the problematique of the research of default level of renewable energy projects in comparison of global and Russian practice.

Further areas of research are related to the development of a methodology for comprehensive assessment of the default of RES projects. Also it includes a study of the dependence of the default level on the types of state support, as well as improving a methodology for assessing competition in the global market. In the long-term perspective, this will make it possible to comprehensively study the economic attractiveness of renewable energy projects by region and by type of renewable energy, to assess the investment potential of different regions and companies in the sector, to identify the stage at which renewable energy projects will not require state support.

ACKNOWLEDGMENT

The work is supported by Act 211 of the Government of the Russian Federation, contract № 02.A03.21.0006 and by GSEM UrFU Development Fund.

REFERENCES

[1] Ermolenko, G.V., Tolmacheva, I.S., Ryapin I.Y., Fetisova, Y.A., Matshura, A.A., Reutiva, A.B. (2016). Handbook on renewable energy the European Union. Institute of Energy SRU GSE, Moscow, p. 96.

[2] Dia-Core project. The impact of risks in renewable energy investment and the role of smart policies. http://diacore.eu/results/item/enhancing-res-investments-final-report, accessed on Jun. 01, 2018.

[3] Chioncel, C.P., Tirian, G.O., Gillich, N, Hatiegan, C., Spunei, E. (2017). Overview of the wind energy market and renewable energy policy in Romania. IOP Conference Series: Materials Science and Engineering, 163(1): 012009. http://dx.doi.org/10.1088/1757-899X/163/1/012009

[4] Campatelli, G., Benesperi, F., Barbieri, R., Meneghin, A. (2015). New business models for electric mobility. IEEE International Electric Vehicle Conference, IEVC 2014, 7056136. http://dx.doi.org/10.1109/IEVC.2014.7056136

[5] Chebotareva, G. (2019). Impact of state support mechanisms on the cost of renewable energy projects: The case of developing countries. WIT Transactions on Ecology and the Environment, 217: 881-891. http://dx.doi.org/10.2495/SDP180741

[6] Parpas, D.S., Savvides, A.l. (2020). On the determinants of a successful, sustainable-driven adaptive reuse: A multiple regression approach. International Journal of Sustainable Development and Planning, 15(1): 1-13. http://dx.doi.org/10.2495/SDP-V15-N1-1-13

[7] Pristupa, A.O., Mol, A.P. (2015). Renewable energy in Russia: The takeoff in solid bioenergy? Renewable and Sustainable Energy Reviews, 50: 315-324. http://dx.doi.org/10.1016/j.rser.2015.04.183

[8] Porfirev, B.N. (2016). Green trends in the global financial system. World economy and International Relations, 60(9): 5-16. http://dx.doi.org/10.20542/0131-2227-2016-60-9-5-16

[9] Chebotareva, G. (2018). Leading factors of market profitability of the renewable energy companies. Proceedings of the 2nd International Conference on Social, Economic and Academic Leadership. Atlantis Press, 217: 277-287. http://dx.doi.org/10.2991/icseal-18.2018.39

[10] Renewable Energy Policy Network for the 21st Centure (REN21). State of renewable energy 2016. Global report. http://www.ren21.net/wp-content/uploads/2016/10/REN21_GSR2016_KeyFindings_RUSSIAN.pdf, accessed on Oct. 11, 2018.

[11] Renewable Energy Policy Network for the 21st Centure (REN21). State of renewable energy 2017. Global report. http://www.ren21.net/wp-content/uploads/2017/10/17-8399_GSR_2017_KEY-FINDINGS_RU_low.pdf, accessed on Oct. 20, 2018.

[12] Renewable Energy Policy Network for the 21st Centure (REN21). RENEWABLES 2018. Global status report. http://www.ren21.net/gsr-2018, accessed on Oct. 20, 2018

[13] International Renewable Energy Agency (IRENA). Renewable Energy Statistics 2017. http://www.irena.org/DocumentDownloads/Publications/IRENA_Renewable_Energy_Statistics_2017.pdf, accessed on Oct. 12, 2018.

[14] International Renewable Energy Agency (IRENA). Renewable energy highlights. http://www.irena.org/DocumentDownloads/Publications/IRENA_Renewable_energy_highlights_July_2017.pdf, accessed on Oct. 15, 2018.

[15] Shimbar, A., Ebrahimi, S.B. (2020). Political risk and valuation of renewable energy investments in developing countries. Renewable Energy, 145: 1325-1333. http://dx.doi.org/10.1016/j.renene.2019.06.055

[16] Mokhov, V.G., Chebotareva G.S., Khomenko P.M. (2018). Modelling of “green” investments risks. Bulletin of the South Ural State University. Series "Mathematical Modelling, Programming and Computer Software", 11(2): 154-159. http://dx.doi.org/10.14529/mmp180213

[17] Sorland, B.F., Rudel, M.G.N. (2015). What drives Financial Distress Risk and Default Rates of Leveraged Buyout Targets? Empirical Evidence from European Transactions. Norwegian School of Economics.

[18] Khaidarshina, G.A. (2009). Integrated model to assess the risk of bankruptcy. Finance, 2: 67-69.

[19] Qi, M., Yang, Y., (2018). Towards a sustainable oil supply: a risk diversification model to measure oil security risk in Japan and South Korea. International Journal of Sustainable Development and Planning, 13(5): 746-757. http://dx.doi.org/10.2495/SDP-V13-N5-746-757

[20] Xie, X., Tu, H., Chen, H., Lin, Y. (2018). Modeling the range information inaccuracy risk of battery electric vehicle. CICTP 2017: Transportation Reform and

Change - Equity, Inclusiveness, Sharing, and Innovation - Proceedings of the 17th COTA International Conference of Transportation Professionals, pp. 4994-5003. http://dx.doi.org/10.1061/9780784480915.515
[21] Li, W., Adachi, T. (2017). Quantitative estimation of resource nationalism by binary choice logit model for panel data. Resources Policy, 53: 247-258. http://dx.doi.org/10.1016/j.resourpol.2017.07.002
[22] Investing.com. https://www.investing.com, accessed on Oct. 01, 2018.
[23] Schreiner, G.O., Snyman-Van Der Walt, L. (2018). Risk modelling of shale gas development scenarios in the central Karoo. International Journal of Sustainable Development and Planning, 13(2): 294-306. http://dx.doi.org/10.2495/SDP-V13-N2-294-306
[24] Kozhevnikov, M., Gitelman, L., Magaril, E., Magaril, R., Aristova, A. (2017). Risk reduction methods for managing the development of regional electric power industry. Sustainability (Switzerland), 9(12): 2201. http://dx.doi.org/10.3390/su9122201
[25] ATSENERGO. http://www.atsenergo.ru/vie/proresults, accessed on Oct. 02, 2018.

NOMENCLATURE

Bln.	Billion
CHP	Combined heat and power
FD	Frequency of default
GPP	Geothermal power plant
GW	Gigawatt
GWh	Gigawatt hour
HPP	Hydro power plant
MW	Megawatt
PP	Power plant
RES	Renewable energy
SPP	Solar power plant
WPP	Wind power plant