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THE LATEST TRENDS OF THE EUROPEAN REGULATION OF HYDROGEN ENERGY IN THE CONTEXT OF ENSURING RUSSIAN INTERESTS

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The subject of research is the dynamic change in the regulatory and legal framework of the EU and its Member States in the field of energy, in particular, concerning the regulation of hydrogen projects.

The purpose of the study is to propose a response from the Russian side to the measures taken by Europe.

Methodology. The research methods include both theoretical (analysis, synthesis, deduction, induction, analogy) and special legal methods of cognition (formal legal and comparative legal).

The main results and the scope of the study. The European Union initiated a comprehensive development of the energy sector within the framework of the European Green Deal: the emphasis on certain sectors is no longer placed. At the same time, there is a growing interest in hydrogen projects, which are facing the problem of absence of large-scale regulation and the difficulty of resolving financing issues. In contrast to neighboring countries, the German experience in hydrogen regulation has proved to be successful and closest to Russian interests. New energy (primarily hydrogen) markets in the EU are awaiting supranational regulation. Germany's technical readiness has allowed it to quickly form the rules of the game in the emerging hydrogen network market, which should suit the Russian side in terms of tariffs and access. The EU is effectively adopting new documents and acts aimed at greater integration of various energy sectors within the Union and "discarding" traditional energy and its actors. The rapid development of the law reduces the chances of successful implementation of projects with the participation of non-EU member states.

Conclusions. In the near future, in particular, on the eve of the emergence of hydrogen regulation at the EU level, Russia should reconsider the approaches to organizing the national energy policy and pay more attention to integration development. The opposite will entail economic losses and deprive the Russian side of competitive advantages and leverage. The study of the material can affect the improvement of energy legislation and business processes with the participation of third countries (for example, Russia), as well as their companies, interacting with the EU: for example, "Gazprom" Group is already considering various options for realizing hydrogen projects in Europe. Moreover, the EU experience can be useful for unlocking the energy potential of the Eurasian Economic Union. Separately, countries should consider the quantitative criterion and the phenomenon of 27 EU "heads" (by the number of member states), comprehensively improving energy orders at various levels, despite sometimes arising internal contradictions.

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1. Introduction

Notwithstanding the European political success in the context of the Third Energy Package[1] [1] the European Union (EU, the Union) has been focused on the all-round development of the energy sector with the aim of reducing the carbon footprint [2]. Since 2014, EU institutions have been recurrently issuing thematic policy and strategy papers and revising the energy legal acts of the Union (J.C. Junker being the President of the European Commission).

In order to ensure economic resilience of the EU through its adaptation to the climatic and ecological changes the European Commission introduced a new piece of legislation, the Clean Energy for All Europeans package[2], in 2016. That corpus of acts and documents became historic. Alongside with implementing the policy provisions of the Framework Strategy for a Resilient Energy Union with a Forward-Looking Climate Change Policy as of 2015[3] it brought up to date the architecture of the market relations and national regulators' relations with the European Commission. The focus was drawn on increasing indicators in the field of renewable energy sources (RES), energy efficiency and, as a consequence, carbon footprint reduction [3]. The Clean Energy for All Europeans package develops the European Energy Union (policy term as of 2015) which includes the following aspects:

1. Energy security;
2. Single energy market;
3. Energy Efficiency;
4. Decarbonization of the economy;
5. Research, innovation and competitiveness.

The relevant EU legislation mentioned the activity of the Union and its Member States in the sphere of conventional energy (in particular, gas industry) but the pertinent projects are no longer technically timely [4] as a systematic approach is now prescribed for the energy sector issues. However, some innovations of the Clean Energy for All Europeans package are to certain extent relevant to gas and hydrogen [5].

The Directive 2018/2001 on the renewable energy[4] prescribes that the share of RES in the gross final energy consumption of the Union by 2030 shall be no less than 32% (compared with the earlier target of 20%). At the same time, the respective share of each state in the energy sector shall not be inferior to the share defined by the states as of 2020 according to the superseded Directive 2009/28[5]. Apart from that, provisions establishing various RES markets are partially implemented, for example, licensing, certification and granting of guarantees of origin are prescribed on condition of engagement with consumers [6].

The Directive 2018/2002 on energy efficiency[6] fixed the relevant overall target of no less than 32,5% by 2030 (amending the previous target of 20%).

According to the Regulation 2018/1999 on the Governance of the Energy Union and Climate Action[7] each EU Member State (as well as the EU as

[1] Third Energy package. URL: https://ec.europa.eu/energy/topics/markets-and-consumers/market-legislation/third-energy-package_en

[2] Clean energy for all Europeans package. URL: https://ec.europa.eu/energy/topics/energy-strategy/clean-energy-all-europeans_en

[3] A Framework Strategy for a Resilient Energy Union with a Forward-Looking Climate Change Policy. URL: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52015DC0080

[4] Directive (EU) 2018/2001 of the European Parliament and of the Council of 11 December 2018 on the promotion of the use of energy from renewable sources. URL: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32018L2001

[5] Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC. URL: https://eur-lex.europa.eu/legal-content/en/ALL/?uri=CELEX%3A32009L0028

[6] Directive (EU) 2018/2002 of the European Parliament and of the Council of 11 December 2018 amending Directive 2012/27/EU on energy efficiency. URL: https://eur-lex.europa.eu/eli/dir/2018/2002/oj

[7] Regulation (EU) 2018/1999 of the European Parliament and of the Council of 11 December 2018 on the Governance of the Energy Union and Climate Action, amending Regulations (EC) No 663/2009 and (EC) No 715/2009 of the European Parliament and of the Council, Directives 94/22/EC, 98/70/EC, 2009/31/EC, 2009/73/EC, 2010/31/EU, 2012/27/EU and 2013/30/EU of the European Parliament and of the Council, Council Directives 2009/119/EC and (EU) 2015/652 and repealing Regulation (EU) No 525/2013 of the European Parliament and of the Council. URL: https://eur-lex.europa.eu/legal-

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regards its own instrument in the field) assumed the obligation to elaborate and submit to the European Commission a 30-year national strategy as well as a 10-year national energy and climate plan[8].

Nevertheless, in December 2019 the "Fit for 55"[9] legislative initiative was introduced as a part of the most recent "European Green Deal"[10] roadmap. The new energy package is designed to deepen and enlarge the options for achieving climate neutrality by 2050 (in accordance with the current EU legislation Europe would only reduce emissions by 60% by 2050).

2. The Latest European Initiatives in the Sphere of Energy Regulation

"Fit for 55" as a corpus of acts prescribes the following reforms to be carried out by 2021:

1. Revision of the above-mentioned Directive on renewable energy sources so as to introduce the requirement to exploit the minimum share of RES in buildings and increase the relevant share to 40%;
2. Revision of the above-mentioned Directive on energy efficiency so as to increase the relevant indicators to 36%;
3. Adoption of a regulation gradually imposing the transboundary carbon tax mechanism on resources / goods according to the amount of carbon emitted during their production[11].
4. Revision of the Regulation 2018/842[12] on effort sharing with the aim to extend obligations to reduce methane emissions to the energy industry;
5. Revision of the Directive 2009/73 concerning common rules for the internal market in natural gas[13] and the Regulation 715/2009 on conditions for access to the natural gas transmission networks[14].

The amended gas legislation shall henceforth govern the functioning of the hydrogen market on the basis of the gas transmission and distribution infrastructure. The third draft of the Directive on the renewable energy sources[15] (RED III) includes an integrated certification and guarantees of origin not only for renewable ("green") but also for low-carbon hydrogen (to put it otherwise, the new energy package shall cover production of any type of hydrogen fuel) as well as "incentives to increase the share of renewable and clean energy sources in all sectors". That implies extension of such measures to any hydrogen projects with no CO_2 emissions regardless of the technical methods of generation of hydrogen [7].

Russia should take these possible amendments to the EU legislation into account due to several reasons. Firstly, Russia is highly likely to follow the same path in regulating generation and realization of hydrogen fuel as the EU. To date no national legislation in the field exists while the first step was approval of the Schedule of Measures Regarding the Development of Hydrogen Energy until 2024[16] by the

content/EN/TXT/?uri=uriserv%3AOJ.L_.2018.328.01.0001.01.ENG

[8] As of the deadline fixed (January 1st, 2021), 10 Member States failed to perform the obligation.

[9] Legislative train schedule. Fit for 55 package. URL: https://www.europarl.europa.eu/legislative-train/theme-a-european-green-deal/package-fit-for-55

[10] European green deal. URL: https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en

[11] Carbon Border Adjustment Mechanism. Q&A. URL: https://ec.europa.eu/commission/presscorner/detail/en/qanda_21_3661

[12] Regulation (EU) 2018/842 of the European Parliament and of the Council of 30 May 2018 on binding annual greenhouse gas emission reductions by Member States from 2021 to 2030 contributing to climate action to meet commitments under the Paris Agreement and amending Regulation (EU) No 525/2013. URL: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32018R0842

[13] Directive 2009/73/EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in natural gas and repealing Directive 2003/55/EC. URL: https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32009L0073

[14] Regulation (EC) No 715/2009 of the European Parliament and of the Council of 13 July 2009 on conditions for access to the natural gas transmission networks and repealing Regulation (EC) No 1775/2005. URL: https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=celex%3A32009R0715

[15] RED III: Europe's reality check. URL: https://www.euractiv.com/section/biofuels/special_report/red-iii-europes-reality-check/

[16] The Government of the Russian Federation Has Approved the Schedule of Measures Regarding the

Government of the Russian Federation. As outlined by the Ministry of Energy of the Russian Federation, nowadays the government already has crucial competitive advantages in the development of hydrogen energy. These include:

1. Significant energy and resource potential;
2. Underloaded generating capacities;
3. Geographic proximity to the potential consumers of hydrogen;
4. Operating transport infrastructure.

These advantages will allow Russia to obtain leadership in the field of production and supply of hydrogen to the global market in the long run.

Secondly, in case of organization of supplies of hydrogen and its preparation for transfer the "Gazprom" group of companies will have to respect the requirements of the European legislation [8]. It is important to examine the rules of the Union in order to avoid the issues of exemptions and derogations with regard to the gas projects as the case was after the adoption of the Third energy package [9].

Thirdly, if Russia doesn't create an emission trading system similar to the European one (which applies directly to the European energy companies)[17] as well as an effort sharing system[18] while the draft Regulation establishing the transboundary carbon mechanism is adopted and applied extraterritorially to emissions of Russian oil and gas enterprises starting from 2025-2026, significant financial losses might be incurred.

3. Background of the European Regulation of the Hydrogen Energy

The hydrogen issue gave rise to an international upsurge of ideas and initiatives several years ago and has been actively developing at the level of the European Union. The EU considers the use of hydrogen fuel as the main element of its energy policy (alongside with electricity) aimed at reduction of CO_2 emissions, improving the environment as well as ensuring sustainable supplies [10]. According to the International Energy Agency[19] reports, combustion of hydrogen fuel produces considerably more energy than that of natural gas, gasoline or diesel fuel [11]. Hydrogen fuel is environmentally friendly. Moreover, its reserves are nearly unlimited [12].

As of July 1st, 2021, hydrogen energy constitutes less than 1% of energy consumption in the EU. Low consumption is caused by the high price of the good as well as lack of necessary infrastructure for its transfer and supply.

Considering hydrogen among energy resources with the highest potential, the European Commission published the EU Hydrogen Strategy[20] in 2020. The strategy anticipated the European energy transition with the leading role of hydrogen fuel. Unlike earlier documents elaborated within the framework of development of hydrogen policy, the strategy affirms support of renewable hydrogen by the European Union, the "green" one produced as a result of electrolytic effect [13] or the "blue" one obtained through steam or autothermal reforming with carbon sequestration [14]. The need for other forms of low-carbon hydrogen based on fossil fuels in the short and middle term is emphasized but only provided that carbon sequestration technologies are applied [15]. Therefore, traditional schemes of hydrogen production from natural gas and other mineral resources without carbon sequestration, as well as pyrolysis of methane without any emissions [16], which benefit the final consumers and producers / suppliers the most [17] are not covered by the document. While the new legislation, in particular regarding creation of the hydrogen market and transfer of hydrogen, hasn't been adopted yet, the States have started to elaborate their own energy transition regimes.

4. Hydrogen Legislation of Germany: the First Attempt

Exploration of the German practice of hydrogen net market creation appears reasonable. Germany became the first state in which hydrogen transition

Development of Hydrogen Energy. URL: https://minenergo.gov.ru/node/19194

[17] EU Emission Trading System. URL: https://ec.europa.eu/clima/policies/ets_en

[18] Effort sharing 2021-2030: targets and flexibilities. URL: https://ec.europa.eu/clima/policies/effort/regulation_en

[19] Decarbonising industry with green hydrogen. URL: https://www.iea.org/articles/decarbonising-industry-with-green-hydrogen

[20] A hydrogen strategy for a climate-neutral Europe. URL: https://ec.europa.eu/energy/sites/ener/files/hydrogen_strategy.pdf

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legislation was adopted (within the framework of the Energy Utilities Act[21]). Meanwhile its recent provisions will be revised immediately after the adoption of the new version of the Directive on the single natural gas market. The new legislation will be applied only to the networks that are used exclusively for transfer of hydrogen while its admixture and further operations shall be regulated by national law on natural gas networks [18].

Hydrogen network operators may, but are not obliged to, declare that their hydrogen networks fall within the scope of the new rules. This will enable them to recover the expenditures on the network by applying network tariffs and ensure the cost-effectiveness of the production. They shall submit a petition to the Federal Network Agency of Electricity, Gas, Telecommunications, Mail and Railroads (BNetzA). When the operators receive funds in accordance with the national hydrogen strategy, BNetzA shall confirm that the new infrastructure is necessary.

Hydrogen Network operators must ensure that operation of the network is not dependent on production, storage and distribution of hydrogen. Therefore, operators may not possess, construct or exploit relevant facilities. If operators are involved in commercial activities other than hydrogen network exploitation their activities shall be considered and documented separately in order to avoid cross funding of other forms of activity of the running network users. As a consequence, network tariffs on natural gas shall be separated[22]. Operators shall provide access to hydrogen network to the third parties on the individually agreed conditions which shall be reasonable and non-discriminatory.

As regards their essence, the rules governing network tariffs on natural gas will apply to tariffs due to be paid by the clients of hydrogen network operators. Therefore, conditions and tariffs on the access to hydrogen networks shall be elaborated in a reasonable, non-discriminatory and transparent manner. During the calculation of the network tariffs the expenses of the operators shall be determined annually on the basis of expected expenditures for the following calendar year with account of the difference between the income and actual expenses of the previous years. As in gas industry, these expenditures shall be established / approved by BNetzA.

The same rules on granting of construction, modification and exploitation of natural gas networks permissions as well as technical standards shall apply to hydrogen networks. Where the existing natural gas networks are conversed into hydrogen transfer networks the new rules provide for the following: permissions concerning existing natural gas infrastructure stay effective while hydrogen transfer requires notification of the conversion addressed to the competent authorities. The competent authority shall be given two months to raise objections on technical matters. This ensures significant assistance to network operators who intend to converse natural gas infrastructure or construct and exploit additional hydrogen infrastructure alongside with existing natural gas facilities.

Important reforms were introduced to German legislation in December 2020. Mechanisms and amendments to the existing structure of renewable energy sources (RES) support were elaborated. These include reduction of the RES tax for hydrogen producers to 85% while producers of the “green” hydrogen shall enjoy a complete exemption from the tax. The definition of “green” hydrogen was given by the Government of Germany in its Decree to the Renewable Energy Sources Act[23]. To be considered “green” hydrogen shall be produced by electrochemical methods exclusively while electricity consumed shall correspond to the prescribed criteria.

[21] Gesetz über die Elektrizitäts- und Gasversorgung. URL: http://www.gesetze-im-internet.de/enwg_2005/

[22] Which is important for gas producers and suppliers (first of all, PJSC “Gazprom”, PJSC “Royal Dutch Shell”) as they will not pay for the modernization of the relevant networks while the tariffs applied to them will not take into account the markup for development of the hydrogen market.

[23] Verordnung zur Umsetzung des Erneuerbare-Energien-Gesetzes 2021 und zur Änderung weiterer energierechtlicher Vorschriften. URL: https://www.bmwi.de/Redaktion/DE/Artikel/Service/Gesetzesvorhaben/verordnung-zur-umsetzung-des-erneuerbare-energien-gesetzes-2021-und-zur-aenderung-weiterer-energierechtlicher-vorschriften.html

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The main particularity of the legislation consists in the fact that, unlike prescribed by previous national rules, any type of hydrogen fuel irrespective of its production technologies may be transferred by gas and hydrogen pipes. Before that 10% of the gas transfer and distribution systems could be filled only with "green" hydrogen fuel. In practice realization of the most progressive German "H2-Startnetz 2030" hydrogen initiative[24] will require construction of 100 km of new pipelines - the rest of the infrastructure is completed although it is subject to refitting and resetting. Operators do not request any material support from the government. Only their investment amounting to 660 million Euros within 10 years is required. According to the "FNB Gas" managing director Inga Posch, the reforms will result in less than 1% of increase in tariffs on main transmission networks in 2031.

Unlike most European States Germany is ready to create a hydrogen market both on national level and in the EU [19]. The reason is the development of a gas transfer system that can receive a mixture of hydrogen and gas (the details are explored below). The task was to elaborate the relevant legal framework. Guided by the principle "Do no harm!" and taking into consideration national interests the German authorities tried to apply an objective approach to elaborating its hydrogen legislation on the basis of that in the field of gas which has been successfully regulating the largest European energy market for years.

5. Options and Issues of Elaboration of the Legal Framework for the European Hydrogen Market

It is unknown whether the European Commission will follow the path of the German Government and regulate hydrogen and natural gas separately by amending the European gas legislation in 2021. Some interested parties in Germany, in particular transfer system operators, have expressed their support of creation of a single regulatory framework for hydrogen and natural gas by extending the natural gas networks regulation to hydrogen networks.

It is important for Russia to prevent cross funding of the hydrogen market by gas sector participants on the level of the EU. Apparently, the interests of producers / suppliers and transfer companies differ, the latter joined by companies producing "green hydrogen" - the higher the expenses in the gas industry, the better for them.

The position of the European Network of Transmission System Operators for Gas (ENTSOG)[25] regarding partial (or potentially complete) integration of expenses on hydrogen infrastructure development and functioning of the gas networks for a more accessible transition to hydrogen energy implying distribution of expenditures among a large number of consumers raises the greatest concerns. Thus, ENTSOG suggests that the European Commission consider the option of cross funding of the hydrogen market at the expense of natural gas transfer companies with reference to climate protection! The association claims that as the hydrogen market expands the additional financial burden on consumers can be recovered at the expense of reduction of the number of gas consumers and partial coverage of the rest of expenditures of gas networks by the hydrogen infrastructure developed at that moment. It remains unclear how this could be achieved in practice [20]. The European Commission as the initiator of the reform expressed its interest in reduction of the expenses and, therefore, tariffs for further effective functioning of gas networks[26].

12 European gas operators from 11 EU Member States joined the European Hydrogen Backbone (EHB)[27] initiative on April 13th, 2021. In total, 23 operators of the gas transmission system (Creos,

[24] Fernleitungsnetzbetreiber veröffentlichen H2-Startnetz 2030. URL: https://www.fnb-gas.de/fnb-gas/veroeffentlichungen/pressemitteilungen/fernleitungsnetzbetreiber-veroeffentlichen-h2-startnetz-2030/

[25] Press Release "ENTSOG calls for an integrated natural gas and hydrogen regulatory framework". URL: https://www.entsog.eu/sites/default/files/2021-05/PR0241_210526_Press%20Release%20ENTSOG%20calls%20for%20integrated%20natural%20gas%20and%20hydrogen%20legislation.pdf

[26] Impact of the use of the biomethane and hydrogen potential on trans-European infrastructure. URL: https://op.europa.eu/en/publication-detail/-/publication/10e93b15-8b56-11ea-812f-01aa75ed71a1/language-en?WT.mc_id=Searchresult&WT.ria_c=37085&WT.ria_f=3608&WT.ria_ev=search

[27] The European Hydrogen Backbone vision. URL: https://gasforclimate2050.eu/ehb/

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DESFA, Elering, Enagás, Energinet, Eustream, FGSZ, Fluxys, Gas Connect Austria, Gasgrid Finland, Gasunie, GAZ-SYSTEM, Gas Networks Ireland, GRTgaz, National Grid, NET4GAS, OGE, ONTRAS, Plinovodi, TAG, Teréga, Snam, Swedegas) from 21 countries participate in the project.

EHB Group has specified its position regarding the development of hydrogen pipeline systems by 2040. As of now it implies increasing the length of the European main transmission network to 39 700 km in 21 Member States (previously 23 000 km) with 69% of the network constructed upon the conversed gas pipelines (previously 75%). The funds required for the realization of the project amount to 43-81 billion Euros (previously 27-64 billion Euros). Only 660 million Euros is needed the largest European market of Germany.

The sum of investment per one km of pipeline has decreased compared to that in the previous report as it used to include only expenses on 48-inch pipelines. The current document takes into consideration the fact that most of gas infrastructure consists of smaller pipelines which are easier to converse. However, using such infrastructure means higher cost of transfer per km. The question "who will pay for this?" remains unanswered [21].

Much depends on the conditions for operators that national legislatures will define with regards to compensating expenses on infrastructure upgrade and tariffs. National development plans of EU states do not provide for investment, except for the Belgian, Slovenian and French ones. The French plan, for example, includes investment in RTD into expenses covered by tariffs in order to ensure a smooth transition towards clean hydrogen energy [21].

Infrastructure upgrade is usually achieved through conversion of the existing pipelines where parallel routes are accessible the exploitation of which is not restricted by long-term obligations with regards to supply and transfer of gas. This is the case of some regions of the Netherlands, Germany, France, Spain and Italy.

States with older infrastructure networks and gas underground storages that are unable to adapt to the realization and storage of hydrogen fuels appeared to be the weaker parties of the European hydrogen transition[28]. Steel pipelines that have not been upgraded are not suitable for hydrogen transfer due to its high volatility (in large volume). Nevertheless, the impact of hydrogen on the material the pipeline is made of depends to a great extent on the type of steel which is why such impact is to be estimated case by case.

Furthermore, in some countries (e.g. in Britain) businesses already face the need to replace their gas facilities. The same is likely to be necessary for the final consumers in the future.

Support at the level of the EU can have a certain effect on transfer infrastructure update. Thus, Fuel Cells and Hydrogen Joint Undertaking (FCHJU)[29] helps with regards to projects of high pressure. Estimated initiative funding amounts to 2 billion Euros. The European Union outlines that it will offer other investment mechanisms at the Union level and invites the states to stick to the same approach[30].

The Report of the European Commission on the impact of the use of the biomethane and hydrogen potential on trans-European infrastructure[31] explores the system of income adjustment that would ensure recovery of the cost of services within the current regulation period. However, there are middle- and long-term risks e.g. in case of significant drop in volumes of transferred gas. The document emphasizes that as income levels are based on actual expenditures it is necessary to consider measures to reduce such expenditures and, thus, tariffs (this option makes sense if one keeps in mind, for instance, French initiatives). Operators could then

[28] This concerns, for example, Ukraine. The State's position is that its infrastructure is ready for clean hydrogen transfer: Ukrainian Gas Pipelines can supply hydrogen to the EU. URL: https://nangs.org/news/midstream/gazoprovod-ukrainy-mozhet-postavlyaty-vodorod-v-es.

[29] Possible regulation of hydrogen networks. ACER document. URL: https://www.acer.europa.eu/en/Gas/Documents/ACER%20H2%20Paper_%20vFinal_clean.pdf. P. 30.

[30] Id est. P. 28.

[31] Impact of the use of the biomethane and hydrogen potential on trans-European infrastructure. URL: https://op.europa.eu/en/publication-detail/-/publication/10e93b15-8b56-11ea-812f-01aa75ed71a1/language-en?WT.mc_id=Searchresult&WT.ria_c=37085&WT.ria_f=3608&WT.ria_ev=search. P. 92.

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receive additional income due to power-to-gas (P2G)[32] provided that the legal regime of such projects is defined by the latest EU and Member States' legislation[33]. It is unknown whether P2G option will be separated from operators' transfer and distribution activity (as storage was previously). However, it is suggested that the system operators be allowed to possess and use P2G in the lack of interest of other market participants. At the same time the problem of lack of mechanisms of compensation for services at costs that would ensure profit occurs in this case.

The issue of storage of hydrogen arises as well. Storage is technically possible in the underground gas storage facilities (provided those are properly adapted to it) so it is necessary to examine the operating infrastructure of each storage. Salt rooms are considered most suitable for these aims[34] [22].

In most states system options will have to be adjusted in accordance with particular choices of technologies by the EU Member States depending on the potential of demand on hydrogen, biomethane and natural gas. This may "play a low-down trick" on Europeans as after conversing their pipes they might become dependent exclusively on hydrogen which is a more expensive energy recourse than gas (which the EU has not officially abandoned yet).

6. Conclusions

The Clean Energy for All Europeans package was one of the first steps on the path towards decarbonization and undermining the status of fossil fuels. The European Union is elaborating new integrated ecology and energy legislation that will negatively affect leading exporters of fuel and raw materials. "Fit for 55" corpus of acts and documents will fall within the previously set decarbonization course. Its adopting will update the legislation designed to reduce CO_2 emissions and extend the scope of its application, in particular to the low-carbon initiatives (which is, beyond doubt, its advantage). With the emergence of the Clean Energy for All Europeans package the limits between various energy sectors began to blur. All this influences the common perception of gas legislation which, notwithstanding its expected revision, remains a part of the "old" system of relations in energy industry and is relegated to the background with the effort of the EU institutions.

As for hydrogen transition in Europe, we should outline the main thing. If one evaluates various points of view and positions, the European hydrogen market is most likely to obtain legislation similar to that of Germany. The Union is not ready to take a risk of losing the leading suppliers of the gas market as well as to create highly comfortable conditions for operators which will lead to increase in the costs of the energy source (be it gas or hydrogen) for the final consumers. The EU understands that States cannot invest to the extent required in "green" hydrogen, electrolytic effect and other costly technologies that are unable to meet the demands of the population.

The governments of the EU Member States[35] admit that they "will not be able to deal without importations of significant amounts of hydrogen fuels in the middle- and long-term prospective". Hence, Dutch and Russian supplies (of "blue" and "green" hydrogen) are expected. Russia can count on the conformity of the "blue" and "green" hydrogen projects with the regulatory framework and existing practices of energy realization. German hydrogen transition scenario is suitable for Russia taking into consideration, in particular, the high extent of preparedness of the national network system, lack of premises for significant tariffs escalation and solutions to regulatory problems[36].

"Gazprom" group is already considering various options for realization of the "turquoise" hydrogen in case of emergence of the respective demands in the EU. For example, it is working on a gas processing project on the territory of Germany,

[32] A technology in which electricity is applied to produce gaseous fuel. Most P2G systems use electrolytic effect to produce hydrogen.

[33] Possible regulation of hydrogen networks. ACER document: URL: https://www.acer.europa.eu/en/Gas/Documents/ACER%20H2%20Paper_%20vFinal_clean.pdf. P. 46.

[34] Id est. P. 9.

[35] E.g. Germany. The National Hydrogen Strategy. URL: https://www.bmwi.de/Redaktion/EN/Publikationen/Energie/the-national-hydrogen-strategy.html

[36] Advancing German-Russian Hydrogen Cooperation in a Strained Political Climate. SWP Comment 2021/C 34, 19.05.2021, 8 Seiten doi:10.18449/2021C34. URL: https://www.swp-berlin.org/10.18449/2021C34/

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examining the technical criteria for Nord Stream-2 “pipes” in order to transfer exclusively hydrogen in the future. For “Gazprom” group it is important to evaluate various options for hydrogen projects realization taking into account the possible implementation of transboundary hydrogen tax and methane emissions reduction obligations by the EU. In case of lack of taxation / quotation system in Russia the monetary flows will go to the EU budget. However, gas supplies remain the priority.

Alongside with the issue of elaborating the legal regime of the European and national hydrogen markets States face ongoing problems: gas prices increase and there’s lack of it in Europe, storages being filled only by 40% in average in 2021. While Europe occupies itself with “benevolent intentions” Russia succeeds in Nord Stream-2 realization (which is now unstoppable), does not purchase additional capacities from economically (and politically) distressed Ukraine, concludes new contracts including those on the territory of Balkan States aimed at creation of the “Energy Ring” that will impede gas ambitions of Poland and provide “Gazprom” with new levers of pressure. The hydrogen market will be created but with account of the position of gas suppliers that have demonstrated through the example of “Gazprom” the remaining energy dependence of the EU. Apart from that, if Russia paid more attention to Asian markets, EU and US sanctions impacting oil production, including that in the Arctic (where hydrogen sector is highly promising as well [23]) would probably have already been lifted. It is necessary to take into account the advantages of participation in various international and European informal energy associations and councils. Such practices allow to consolidate positions of different actors and, which is most important, to obtain favorable legislation.

So, what should Russia do? Selectively accept the European rules of the game. And having accepted them, it should start using the same mechanisms (e.g. Energy community of the EU) and means of implementation within the framework of the Eurasian Economic Union [24]. European organizations have, beyond doubt, demonstrated their efficiency within 70 years of their existence as they have united states of various cultural, political and economic backgrounds.

Any citizen of a European state is aware of the existence of national and European legislation and almost any would declare his or her attachment to the European values. Hardly could one claim that even half of the population of the EAEU Member States is aware of its existence, leaving alone any aspects of its activity.

Will Russia and other EAEU Members States apply EU experience which is based, first of all, on its integration principles? One can expect that this will not happen in the years immediately ahead. Nowadays EAEU is in its early stages of integration, the Member States’ national interests remaining the priority [25]. The problem is that the processes on the energy market of the EAEU that have been in the stage of formation for 10 years (!) should be to great extent automated [26] and transparently organized in order to prepare further integration of other actors e.g. on Chinese energy market or Japanese hydrogen fuel market [27].

Russia’s energy policy is successful but it only reacts to the challenges caused by other parties. The above-mentioned Schedule of Measures Regarding the Development of Hydrogen Energy became a typical example of such reaction. Adoption of this document is in significant part explained by concerns that the new EU markets and the European transboundary carbon tax will attempt to take away Russian money in the energy sector. “Playing catch” with the EU will continue until the State starts to approach energy issues systemically.

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