

# The EU Energy Sector in Turmoil Legal Aspects of the Role of Gas as a Bridge towards the Net-Zero: A Concise Outlook

Maria Meng-Papantoni<sup>\*</sup>

## Table of Contents

|   |     |
|---|-----|
| A. Introduction: EU Policies on climate neutrality and the role of gas as a medium towards net-zero | 792 |
| B. The novelties of the Commission's legislative initiatives concerning the EU gas sector           | 794 |
| I. The broadening of the term "gas"   | 796 |
| II. The integration/certification processes of "new (clean) gases" in the energy acquis             | 797 |
| III. The new parameter: Hydrogen  | 798 |
| C. Concluding remarks   | 800 |

## Abstract

Climate change poses an existential threat to our planet, our health, and our well-being. This has been identified by the European Union (EU), which seeks to change its regulatory framework to adjust to a more sustainable paradigm. This paper seeks to present how the Union plans to transform its internal gas markets via the newly announced "Hydrogen and Decarbonised Gas Market" Package. From a legal viewpoint, this paper tries to illustrate the main proposed changes within the new legislative initiative which contribute to the conquest of the highest political goal of our century, the full decarbonisation of the European Union by 2050. Following the invasion of Ukraine and the recent decisions undertaken by the European Union to rapidly and completely decouple from fossil fuels, mainly originating from Russia, the achievement of this goal becomes more urgent than ever before.

**Keywords:** EU Gas Markets, Climate Change, Gas, Legal Aspects, Net-Zero, Hydrogen

<sup>\*</sup> Professor of European Law at the Panteion University of Social and Political Sciences (Greece), and Visiting Professor at the Europa-Institut, University of Saarland (Germany), record available at: <https://orcid.org/0000-0002-4371-536X> (18/10/2022). E-mail: [maria-papantoni6@googlemail.com](mailto:maria-papantoni6@googlemail.com).

It should be highly stressed that the present contribution was submitted before the autumn 2022 Commission's proposed emergency measures to mitigate high energy prices and the risk of supply shortages in Europe.

## A. Introduction: EU Policies on climate neutrality and the role of gas as a medium towards net-zero

In this ever-changing world, where anything that stays the same for too long stagnates and becomes obsolete, the EU has decided to be at the forefront of all environmental initiatives and commitments toward sustainability from the start.<sup>1</sup> The Union inspired by the spirit of the Paris Agreement,<sup>2</sup> adopted its Green Deal in 2019<sup>3</sup> aiming to transform the EU into a competitive and sustainable<sup>4</sup> economy, where economic growth is decoupled from the intensive use of resources. To this end, the European Climate Law<sup>5</sup> being the legal embodiment of the Green Deal, establishes a legally binding obligation for the EU institutions and its Member States to achieve climate neutrality by 2050.

The “Fit for 55” Package of thirteen legislative proposals<sup>6</sup> which implements the European Climate Law<sup>7</sup> sets the intermediate target of reducing net greenhouse gas emissions by at least 55% by 2030. The upper political and legislative initiatives of the Union accompanied by multiple strategies, plans, and actions such as the *European Union Strategy for a resilient Energy Union*,<sup>8</sup> the *Hydrogen strategy for a climate-neutral Europe*,<sup>9</sup> and the *Action plan for the circular economy*<sup>10</sup> on the climate neutrality of the Union, raise the question of whether there is leeway for gas to form a bridge to this new “green” future.

It is a perplexing question to answer, as currently, the future use of natural gas has become a very pressing subject. Until Russia’s military invasion of Ukraine, natural

1 For a complete timeline of the European Union’s climate change negotiations, see [https://www.europarl.europa.eu/infographic/climate-negotiations-timeline/index\\_en.html](https://www.europarl.europa.eu/infographic/climate-negotiations-timeline/index_en.html) (18/10/2022).

2 In its conclusions of 12 December 2019, the European Council endorsed the objective of achieving a climate-neutral EU by 2050, in line with the objectives of the Paris Agreement, which was ratified by the EU on 5 October 2016, and entered into force on 4 November 2016.

3 *European Commission*, The European Green Deal, COM(2019) 640 final.

4 *Chiti*, Common Market Law Review 2022/1, pp. 19–48.

5 Regulation (EU) 2021/1119, OJ L 243 of 9/7/2021 establishing the framework for achieving climate neutrality and amending Regulations (EC) No 401/2009, OJ L 126 of 21/5/2009 and (EU) 2018/1999, OJ L 328 of 21/12/2018 (‘European Climate Law’).

6 The legislative proposals include the revision of the legislation on effort-sharing, land use and forestry, renewable energy, energy efficiency, emission standards for new cars and vans, and the Energy Taxation Directive, as well the strengthening of the emissions trading system (ETS), extending it to the maritime sector, and reducing over time the free allowances allocated to airlines. New legislation is proposed on clean maritime and aviation fuels. To ensure fair pricing of GHG emissions associated with imported goods, the Commission has proposed a new carbon border adjustment mechanism.

7 For a detailed analysis, see *Schlacke/Wentzien/Thierjung/Köster*, Oxford Open Energy 2022/1, pp. 1–13.

8 *European Commission*, A Framework Strategy for a Resilient Energy Union with a Forward-Looking Climate Change Policy, COM(2015) 80 final.

9 *European Commission*, A hydrogen strategy for a climate-neutral Europe, COM(2020) 301 final.

10 *European Commission*, A new Circular Economy Action Plan for a cleaner and more competitive Europe, COM(2020) 98 final.

gas had been estimated as an integral part onto the European energy sector leading up to its green transition. According to a special report by International Energy Agency (IEA) in 2019: “The clearest case for switching from coal to gas comes when there is the possibility to use existing infrastructure to provide the same energy services but with lower emissions.”<sup>11</sup> In particular, it was argued that natural gas could play the role of a bridge fuel as it’s an easy-to-store, lower-carbon option, which stands out as a good candidate to provide an uninterrupted, flexible energy supply in tandem with intermittent output from wind and solar, while storage technologies are scaled up and innovative new energy pathways are explored.<sup>12</sup> In addition, its infrastructure can be used to transmit renewable gas instead of conventional unabated fossil gas in the foreseeable future. Actually, studies have shown that it is feasible to use the existing gas network in Europe<sup>13</sup> to achieve climate targets, and it can actually prove to be economically efficient.<sup>14</sup> Hence, natural gas as a commodity itself and as a means of infrastructure, i.e. pipelines and storage, was stated to be relevant,<sup>15</sup> at least until 2030,<sup>16</sup> a year which, according to the Climate Target Plan<sup>17</sup> was set as a timeframe for a climate-neutral EU.<sup>18</sup>

However, the events following the Russian invasion of Ukraine in February 2022, forced the Union to make commitments to removing Russian gasoline from the European market<sup>19</sup> as well as to adopt a specific plan to reduce its dependence on Russian gas by 2/3 in 2022 with the vision of a full phase-out before the end of the decade.<sup>20</sup>

11 IEA (2019), *The Role of Gas in Today's Energy Transitions*, IEA, Paris, available at: <https://www.iea.org/reports/the-role-of-gas-in-todays-energy-transitions> (18/10/2022).

12 *International Energy Forum*, *4 Reasons Natural Gas Is a Critical Part of the Energy Transition*, 2021, available at: <https://www.ief.org/news/4-reasons-natural-gas-is-a-critical-part-of-the-energy-transition> (18/10/2022).

13 *Commission Staff Working Document*, Evaluation Report accompanying the 1) Proposal for a Directive of the European Parliament and of the Council on common rules for the internal markets in renewable and natural gases and in hydrogen (recast), 2) Proposal for a Regulation of the European Parliament and of the Council on common rules for the internal markets for renewable and natural gases and for hydrogen (recast), SWD (2021) 457 final, p. 40.

14 For a technical approach, see *Cerniauskas/Junco/Grube/Robinius/Stolten*, *International Journal of Hydrogen Energy* 2020/21, pp. 12095–12107.

15 Gökçe, p. 11; *Shell*, *Shell analysis – Sky Scenario*, available at: [https://www.shell.com/promos/business-customers-promos/overview-of-sky/\\_jcr\\_content.stream/1556211464715/08824370d34cbe871b0b813f9afdf96d8c267b/sky-scenarios-leaflet.pdf](https://www.shell.com/promos/business-customers-promos/overview-of-sky/_jcr_content.stream/1556211464715/08824370d34cbe871b0b813f9afdf96d8c267b/sky-scenarios-leaflet.pdf) (18/10/2022).

16 Cf. *European Council conclusions* 23–24 October 2014, available at: <https://www.consilium.europa.eu/en/policies/climate-change/2030-climate-and-energy-framework/> (18/10/2022).

17 *European Commission*, *The European Green Deal*, COM(2019) 640 final.

18 *European Commission*, *A Clean Planet for All. A European strategic long-term vision for a prosperous, modern, competitive and climate neutral economy*, COM(2018) 773 final.

19 Cf. *Forbes – University of Houston Energy Fellows*, *The sudden surge in gas prices didn't happen overnight. Here's why.*, available at: <https://www.forbes.com/sites/uhenery/2022/07/06/the-sudden-surge-in-gas-prices-didnt-happen-overnight-heres-why/> (18/10/2022).

20 *European Commission*, *REPowerEU Plan*, COM(2022) 230 final.

In this contradictory context, where initially natural gas was labeled as a transition fuel in the EU taxonomy<sup>21</sup> and now the REPowerEU plan<sup>22</sup> contains strategies to decrease EU dependency on Russian imports and more generally on natural gas, we will elaborate further on the future reconstruction of the existing legal framework concerning the internal gas markets. We will also search to highlight the opportunities presented by the EU plan to make gas an intermediate means of achieving climate neutrality in view of accelerating the Union's decoupling from gas.

## B. The novelties of the Commission's legislative initiatives concerning the EU gas sector

The issue of energy security in the European Union – given its dependence on a few or even one supplier on the one hand and the challenges faced by energy infrastructure from the growing demand for renewable energy sources to supply end consumers on an uninterrupted basis and at reasonable prices on the other – has not stopped legislative efforts to gradually shape the internal energy market.<sup>23</sup>

The existing legal framework for natural gas, part of the “Third Energy Package”,<sup>24</sup> includes Directive 2009/73/EC<sup>25</sup> (Gas Directive)<sup>26</sup> and Regulation 715/2009<sup>27</sup> (Gas Regulation). Their purpose of adoption was to introduce common

21 Commission Delegated Regulation (EU) / amending Delegated Regulation (EU) 2021/2139, OJ L 442 of 9/12/2021, p. 1 as regards economic activities in certain energy sectors and Delegated Regulation (EU) 2021/2178, OJ L 443 of 10/12/2021, p. 9 as regards specific public disclosures for those economic activities, C/2022/0631 final; this legislative act has recently been voted, see <https://www.europarl.europa.eu/news/en/press-room/20220701IPR34365/taxonomy-meps-do-not-object-to-inclusion-of-gas-and-nuclear-activities> (18/10/2022). It should be noted that in the Energy Charter Treaty modernization process, the EU has reaffirmed its commitment to fighting climate change by opting to “carve-out fossil fuel related investments from investment protection under the ECT, including for existing investments after 10 years from the entry into force of the relevant provisions and for new investments made after 15 August 2023 as of that date with limited exceptions” (See *Energy Charter Secretariat*, Subject: Public Communication explaining the main changes contained in the agreement in principle, p. 3, available at: [https://www.euractiv.com/wp-content/uploads/sites/2/2022/06/Agreement-in-principle-ECT\\_FS.pdf](https://www.euractiv.com/wp-content/uploads/sites/2/2022/06/Agreement-in-principle-ECT_FS.pdf) (18/10/2022)).

22 *European Commission*, REPowerEU Plan, COM(2022) 230 final.

23 *Cameron/Heffron*, p. 20; *Gökçe*, p. 85.

24 Adopted on June 2009 and entered to force in 2011, the Third Energy Package consists of: a) Directive 2009/72, OJ L 211 of 14/8/2009, p. 55 concerning common rules for the internal market in electricity, b) Directive 2009/73, OJ L 211 of 14/8/2009, p. 94 concerning common rules for the internal market in natural gas, c) Regulation 713/2009, OJ L 211, of 14/8/2009, p. 1 establishing the Agency for the Cooperation of Energy Regulators (ACER), d) Regulation 714/2009, OJ L 211 of 14/8/2009, p. 15 on conditions for access to the network for cross-border exchanges in electricity and e) Regulation 715/2009, OJ L 211, 14/8/2009, p. 36 on conditions for access to the natural gas transmission networks.

25 Concerning common rules for the internal market in natural gas and repealing Directive 2003/55/EC.

26 As amended by Directive (EU) 2019/692, OJ L 117 of 3/5/2019, p. 1.

27 On conditions for access to the natural gas transmission networks and repealing Regulation (EC) No 1775/2005, OJ L 289 of 3/11/2005, p. 1.

rules to create a competitive,<sup>28</sup> secure, and environmentally sustainable market in natural gas.<sup>29</sup> Particularly, the Gas Directive establishing common rules for the transmission, distribution, supply and storage of natural gas (Art. 1 (1)) addresses the unbundling<sup>30</sup> of energy supply and generation, from the transmission and the distribution in the gas sector. It also promotes non-discriminatory network access<sup>31</sup> and aims to strengthen the independence of regulators. As regards the Gas Regulation, it covers rules on access to natural gas transmission networks, gas storage, and liquefied natural gas (LNG) facilities. Furthermore, it determines the methodologies for the calculation of tariffs. It sets the market rules by stipulating how services are offered, determining the allocation of capacity to transmission system operators (TSOs), and setting transparency requirements and balancing rules.<sup>32</sup>

This legislative package has been enacted to improve the functioning of the internal gas markets as well as to resolve some of its structural problems<sup>33</sup> namely the incomplete liberalization process and a more competitive and fair gas markets. The current legal framework is designed to address the factors hindering competition, a different problem from that of decarbonisation.<sup>34</sup> Both legislative acts were designed for the fossil-based natural gas sector; they do not apply to the emerging situation concerning the acceptance of gases with diverging gas quality associated with various models of production, transmission, distribution, and cross-border tradability of new “cleaner” types of gases.<sup>35</sup> Hence, the revision of the applicable gas legal framework necessary in order to gradually phase out the unabated use of fossil gases by replacing natural gas with renewable and low-carbon gases, while maintaining the competitiveness of the gas sector, had already been declared before the start of the war against Ukraine.<sup>36</sup> It aims to translate the EU strategies on energy system

28 Jones revised by Vermeeren, in: Jones Ch./Kettlewell (eds.), num. 2.36–2.41.

29 Art. 3 (1) of the Gas Directive.

30 Krüger, pp. 140–141.

31 Cabau E., (revised and updated by) Sandberg L., in: Jones/Kettlewell (eds.), num. 4.1–4.259; Gräper F., in Jones/Kettlewell (eds.), 2021, num. 9.1–9.77.

32 Krüger, p. 142.

33 Andreu, pp. 441, 474 f., 496; Talus, pp. 19 ff.; Costescu/Manitsas/Szikszai, State of implementation of the Third Energy Package in the gas sector, available at: <http://dx.doi.org/10.2760/533990> (18/10/2022).

34 Barnes, Can the Current EU Regulatory Framework Deliver Decarbonisation of Gas?, The Oxford Institute for Energy Studies, 2020, available at: <https://www.oxfordenergy.org/wpcms/wp-content/uploads/2020/06/Can-the-current-EU-regulatory-framework-deliver-decrbonisation-of-gas-Insight-71.pdf> (18/10/2022).

35 Commission Staff Working Document, Evaluation Report accompanying the 1) Proposal for a Directive of the European Parliament and of the Council on common rules for the internal markets in renewable and natural gases and in hydrogen (recast), 2) Proposal for a Regulation of the European Parliament and of the Council on common rules for the internal markets for renewable and natural gases and for hydrogen (recast), SWD (2021) 457 final, p. 37.

36 Tenhunen, Revision of the third energy package for gas: Decarbonising the gas market. Regulation 715/2009/EU and Directive 2009/73/EU, Think Tank – European Parliament, 13/12/2021, available at: [https://www.europarl.europa.eu/thinktank/en/document/EPRS\\_BRI\(2021\)699464](https://www.europarl.europa.eu/thinktank/en/document/EPRS_BRI(2021)699464), (30/7/2022).

integration and integration of hydrogen as well as on reducing methane emissions into concrete proposals.<sup>37</sup>

Thereupon, on 15 December of 2021, the European Commission issued a new package regarding the decarbonisation of the European Union's internal gas markets<sup>38</sup> containing a Proposal for a new Directive<sup>39</sup> (Proposal for a new Gas Directive) and for a new Regulation<sup>40</sup> (Proposal for a new Gas Regulation) jointly referred to as the “*Hydrogen and Gas Market Decarbonisation Package*”.<sup>41</sup> The two main elements of this legislative package are, firstly the creation of the infrastructure necessary for the production, transportation, distribution, and consumption of hydrogen, and secondly, the broadening of the scope of natural gas, by promoting access to renewable and low carbon gases to the existing gas market.

The shift in the current legal design of the natural gas market is being brought about by the planned changes below:

### I. The broadening of the term “gas”

The Proposal for a new Gas Directive aims to facilitate the penetration of renewable and low-carbon gases into the energy system enabling a shift from fossil gas. To this end, and in order to allow the said new gases to play an important role towards achieving the EU's 2030 climate objectives and climate neutrality in 2050, the definition of the term *gas* is subject to the following conceptual developments.

The term *gas* is enriched by the following terms:

- “natural gas” means all gases that primarily consist of methane, including biogas and gas from biomass, in particular biomethane, or other types of gas, that can technically and safely be injected into, and transported through, the natural gas system (Art. 2 (1) of the Proposal for a new Gas Directive).
- “renewable gas” means biogas as defined in Article 2, point (28) of Directive 2018/2001, including biomethane, and renewable gaseous fuels part of fuels of non-biological origins (“RFNBOs”) as defined in Article 2, point (36) of that Directive (Art. 2 (2) of the Proposal for a new Gas Directive)

<sup>37</sup> *European Commission*, Powering a climate-neutral economy: An EU strategy for Energy System Integration, COM(2020) 299 final; *European Commission*, A hydrogen strategy for a climate-neutral Europe, COM(2020) 301 final; *European Commission*, On an EU strategy to reduce methane emissions, COM(2020) 663 final.

<sup>38</sup> It is in this respect pointed out that the specification of the objectives, targets and contributions for the five dimensions of the Energy Union remain the responsibility of the Member States (Art. 4 Regulation (EU) 2018/199, OJ L 38 of 10/2/2018, p. 9 on the Governance of the Energy Union and Climate Action).

<sup>39</sup> On common rules for the internal market in renewable and natural gases and in hydrogen, see *European Commission*, COM(2021) 803 final.

<sup>40</sup> On the internal market for renewable and natural gases and for hydrogen (recast), see *European Commission*, COM(2021) 804 final.

<sup>41</sup> This legislative initiative is complementary to the Proposals for the revision of (a) the Renewable Energy Directive (RED II), (b) the Energy Efficiency Directive (EED) and (c) the Emissions Trading Scheme (EU ETS) of the “Fit-for-55” legislative package.

- “gases” mean natural gas and hydrogen (Art. 2 (3) of the Proposal for a new Gas Directive).
- “low-carbon gas” means the part of gaseous fuels in recycled carbon fuels as defined in Article 2, point (35) of Directive (EU) 2018/2001,<sup>42</sup> low-carbon hydrogen and synthetic gaseous fuels the energy content of which is derived from low-carbon hydrogen, which meet the greenhouse gas emission reduction threshold of 70% (Art. 2 (11) of the Proposal for a new Gas Directive).<sup>43</sup>
- “low-carbon fuels” mean recycled carbon fuels as defined in Article 2 of Directive (EU) 2018/2001, low-carbon hydrogen and synthetic gaseous and liquid fuels the energy content of which is derived from low-carbon hydrogen, which meets the greenhouse gas emission reduction threshold of 70% (Art. 2 (12) of the Proposal for a new Gas Directive).

The upper conceptual upgrade of the term gas embodies the pivot towards the decarbonisation of the EU gas markets. Enriching the concept with new elements of gas energy carriers, such as hydrogen and biomethane, changes the current regulatory regime so that we will not address the gas market as solely that of natural gas, but of *gases*.<sup>44</sup>

## II. The integration/certification processes of “new (clean) gases” in the energy *acquis*

The repurposing of the existing gas infrastructure via the adaptation of the Gas Directive and the Gas Regulation for the accommodation of renewable and low-carbon gases (including hydrogen and biomethane) is of great importance in order to deal simultaneously with the energy crisis created during the last months<sup>45</sup> as well as with the whole problematic of the climate mitigation. Even though the current contribution of biogas, biomethane, renewable and low carbon hydrogen as well as synthetic methane (all together renewable and low carbon gases) is deemed still minor,<sup>46</sup> it is expected to represent some 2/3 of the gaseous fuels in the 2050 EU energy mix.<sup>47</sup> In order to become important fuels in the future decarbonised energy sys-

42 Directive (EU) 2018/2001, OJ L 328 of 21/12/2018, p. 82 on the promotion of the use of energy from renewable sources.

43 A specific methodology for calculating and defining the thresholds and conditions for renewable and low-carbon hydrogen will be defined in subsequent Delegated Acts. See [https://ec.europa.eu/info/news/commission-launches-consultation-regulatory-framework-renewable-hydrogen-2022-may-20\\_en](https://ec.europa.eu/info/news/commission-launches-consultation-regulatory-framework-renewable-hydrogen-2022-may-20_en) (18/10/2022).

44 Recital 118 of the Proposal for a new Gas Directive.

45 *Tubiana/Glachant/Beck/Belmans/Colombier/Hancher/Piebalgs/Rossetto/Rüdinger/Runge-Metzger*, Policy Briefs 2022/42, EUI Florence School of Regulation, July 2022, available at: <http://hdl.handle.net/1814/74737> (18/10/2022), pp. 1–8.

46 *International Gas Union*, Global Renewable and Low-Carbon Gas Report, pp. 16–17, 48, available at: [https://natargas.com/co/wp-content/uploads/2021/11/IGU\\_RenewableGasReport2021\\_V4.pdf](https://natargas.com/co/wp-content/uploads/2021/11/IGU_RenewableGasReport2021_V4.pdf) (18/10/2022).

47 See *European Commission*, Explanatory Memorandum of the Proposal for a new Gas Directive/Regulation, p. 1.

tem, their integration inside the existing gas network as well as the gas markets seems crucial. To this extent, the following measures are envisaged:

- a) A certification system for renewable and low-carbon gases<sup>48</sup> in line with the rules of the Renewable Energy Directive applicable to renewable gases. (Art. 8 of the Proposal for a new Gas Directive). Their certification is essential to deploy an EU-wide certification system, allowing the Member States to compare them with other decarbonisation options and consider them in their energy mix as a viable solution.<sup>49</sup>
- b) Market access for renewable and low carbon gases (Art. 26-30 of the Proposal for a new Gas Directive as well as Art. 18 and Art. 33 of the Proposal for a new Gas Regulation). It should be noted that long-term contracts for renewable and low carbon gases are allowed, provided they comply with the Union's competition rules and contribute to decarbonisation (Art. 27 (2) of the Proposal for a new Gas Directive).
- c) Tariff discounts concerning renewable and low carbon gases. Renewable and low carbon hydrogen will receive a 75% discount from various entry and exit tariffs (Art. 16 of the Proposal for a new Gas Regulation). Moreover, until 1 January 2031 tariffs will not be chargeable for transmission of these gases across interconnection points between the Member States. Tariffs at interconnection points will also not apply to the pure hydrogen network once it is established.<sup>50</sup>

### III. The new parameter: Hydrogen

As regards the still nascent hydrogen market,<sup>51</sup> the draft package has been envisaged to be flexible and progressive, catering to an immature hydrogen value chain. It is expected that hydrogen, particularly renewable or “green” hydrogen<sup>52</sup> to be the

48 Low-carbon gases and low-carbon hydrogen are not considered as renewable fuels; hence their certification could not be included in the Proposal for the revision of Directive (EU) 2018/2001, OJ L 328, of 21/12/2018, p. 8. This legal void is being remedied by the new legislative measures examined in this paper.

49 Recital 9 of the Proposal for a new Gas Directive.

50 See *EUI Florence School of Regulation*, Discussing the future tariffs for hydrogen and low-carbon gases, available at: <https://fsr.eui.eu/discussing-the-future-tariff-framework-for-hydrogen-and-low-carbon-gases/> (18/10/2022).

51 *European Commission*, Evaluation Report accompanying the 1) Proposal for a Directive of the European Parliament and of the Council on common rules for the internal markets in renewable and natural gases and in hydrogen (recast), 2) Proposal for a Regulation of the European Parliament and of the Council on common rules for the internal markets for renewable and natural gases and for hydrogen (recast), SWD (2021) 457 final, p. 41.

52 The distinction of hydrogen is made by the way it is created; in general, low-carbon hydrogen includes green hydrogen which is hydrogen created by renewable electricity, blue hydrogen, which is created by fossil fuels with CO<sub>2</sub> emissions reduced by the use of Carbon Capture Use and Storage. For a more detailed analysis, see *Yu/Wang/Vredenburg*, *International Journal of Hydrogen Energy* 2021/41, pp. 21261–21273.

game changer of the European decarbonisation process,<sup>53</sup> being the culmination of the Union's shift towards renewable gases, when the conditions are technically and economically ripe.

Both legislative initiatives launch the integration of hydrogen into the energy system. They comprise a phased approach for the introduction of rules concerning the hydrogen market as well as its network whilst establishing some clear main regulatory principles to give certainty to the potential investors and avoid high costs for ex-post regulatory interventions.<sup>54</sup> The main characteristics of this new element that will be incorporated into the existing gas market reformulating it anew are the following:

- a) Third Party Access to hydrogen networks. It can be excluded until 31 December of 2030, aiming to encourage the development of the network and associated hydrogen market. (Art. 31 of the Proposal for a new Gas Directive, and Art. 6-7 of the Proposal for a new Gas Regulation).
- b) Special rules will apply concerning the unbundling of hydrogen network operators until 31 December 2030 (Art. 62 of the Proposal for a new Gas Directive).
- c) A new European Network of Network Operators for Hydrogen (ENNOH) will be established.<sup>55</sup> The ENNOH will cooperate closely and in a defined way with the Commission, ACER, ENTSO-E and ENTSO-G. The ENNOH is tasked in particular with formulating a 10-year network development plan for hydrogen (Art. 40-42 of the Proposal for a new Gas Regulation).
- d) A legal framework for cross-border EU hydrogen networks is developed, including the establishment of network codes and guidelines. These will be adopted by the Commission, as delegated acts (Art. 39, 52-57 of the Proposal for a new Gas Regulation).

By introducing these legislative initiatives, the Commission aspires to ignite the demand for hydrogen production and demand. However, the regulatory framework alone, even though major for the creation of the market cannot compensate for the fact that still, renewable hydrogen produced via electrolysis of water powered by renewables remains financially unsustainable as it requires vast amounts of renew-

53 See particularly *European Commission*, Europe's moment: Repair and Prepare for the Next Generation, COM(2020) 456 final; *European Parliament*, The potential of hydrogen for decarbonising EU industry. Study – Panel for the Future of Science and Technology, 2021, available at: [https://www.europarl.europa.eu/RegData/etudes/STUD/2021/697199/EPRS\\_STU\(2021\)697199\\_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2021/697199/EPRS_STU(2021)697199_EN.pdf) (18/10/2022).

54 *Tanase/Anchustegui*, The EU hydrogen and decarbonised gas market package, EUI Florence School of Regulation, available at: <https://fsr.eui.eu/the-eu-hydrogen-and-decarbonised-gas-package-revising-the-governance-and-creating-a-hydrogen-framework/> (18/10/2022).

55 The establishment of this association is being challenged by the European Parliament, See *EP Committee on Industry, Research and Energy*, Draft Report on the Proposal for a regulation of the European Parliament and of the Council on the internal markets for renewable and natural gases and for hydrogen (recast), 2021/0424(COD), available at: [https://www.europarl.europa.eu/doceo/document/ITRE-PR-734108\\_EN.pdf](https://www.europarl.europa.eu/doceo/document/ITRE-PR-734108_EN.pdf) (30/7/2022).

able power.<sup>56</sup> Hence, in the meantime to figure this out, the growth of demand for low-carbon gases, including other “shades” of hydrogen<sup>57</sup> such as blue and turquoise<sup>58</sup> may be a feasible solution on the road to decoupling from fossil fuels, including unabated natural gas.

### C. Concluding remarks

This paper examines from a legal point of view the role reserved for *gas* in the near future. After examining the Union’s policies to achieve net-zero carbon emissions by 2050, and the Union’s political as well as ethical commitment to lead the green transformation in the global area, this paper analyses from a legal standpoint the shift the Union had taken before the rapid developments of the Russian war against Ukraine, which demonstrates the necessity of the Union’s independence from fossil fuels.

The EU legislative Proposals to recast the applicable Gas Directive and the applicable Gas Regulation are practically broadening the existing natural gas markets and network rules to accommodate the shift towards new clean energy carriers, such as hydrogen and biomethane that could be incorporated into the energy acquis. They also regulate the creation of a new market, that of hydrogen, from scratch.

The legislative novelties proposed by the European Commission envisage to transform the gas regulatory framework to become fit for purpose, meaning the uptake of renewable and low-carbon gases, whilst retaining the core benefits of the Internal Energy Market.

### Bibliography

ANDRIEU STÉPHANE, *Droit de l’énergie*, Manuel, 2017

CABAU, EMMANUEL revised and updated by SANDBERG, LENA, *Creating competition on the generation market*, in: Jones, Christopher; Kettlewell, William-James, (eds.), *EU energy law*, vol. 1, *The Internal Energy Market*, 2021, num. 4.1–4.259.

CAMERON, PETER; HEFFRON, RAPHAEL, *Legal aspects of EU Energy Regulation. The consolidation of Energy Law across Europe*, Oxford, 2016

56 *IEA*, *The future of Hydrogen*, 2019, available at: <https://www.iea.org/reports/the-future-of-hydrogen>, (18/10/2022), p. 42.

57 *IEA*, *Low-carbon gases demand in the European Union in the Sustainable Development Scenario, 2019–2050*, available at: <https://www.iea.org/data-and-statistics/charts/low-carbon-gases-demand-in-the-european-union-in-the-sustainable-development-scenario-2019-2050> (18/10/2022).

58 See *The Hydrogen color spectrum*, available at: <https://www.nationalgrid.com/stories/energy-explained/hydrogen-colour-spectrum> (18/10/2022).

- CERNIAUSKAS, SIMONAS JUNCO; CHAVEZ, ANTONIO JOSE; GRUBE, THOMAS; ROBINIUS, MARTIN; STOLTEN, DETLER, *Options of natural gas pipeline reassignment for hydrogen: Cost assessment for a Germany case study*, International Journal of Hydrogen Energy, 2020, vol. 45(21), pp. 12095–12107
- CHITI, EDOARDO, *Managing the ecological transition of the EU: The European Green Deal as a regulatory process*, Common Market Law Review, 2022, vol. 59(1), pp. 19–48
- COSTESCU, ANCA, MANITSAS, EPHTYMIOS, SZIKSZAI, ANDRAS, *State of implementation of the Third Energy Package in the gas sector*, European Commission, JRC Science for Policy Report, 2018
- GÖKÇE METE, *Energy transitions and the future of gas in the EU, Subsidise or Decarbonise*, Palgrave Macmillan, 2020
- GRÄPER, FLORIS, *The gas regulation: substantive access rules*, in: Jones, Christopher; Kettlewell William-James (eds.), EU energy law, vol. 1, The Internal Energy Market, 2021, num. 9.1–9.77
- JONES, CHRISTOPHER, revised by VERMEEREN RUBEN, *Creating competition on the generation market*, in: Jones, Christopher; Kettlewell, William-James (eds.), EU energy law, vol. 1, The Internal Energy Market, 2021, num. 2.36–2.41
- KRÜGER, HEIKO, *European energy law and policy: an introduction*, Cheltenham, 2016
- SCHLACKE, SABINE; WENTZ IEN, HELEN; THIERJUNG, EVA-MARIA; KÖSTER, MIRIAM, *Implementing the EU Climate Law via the “Fit for 55” package*, Oxford Open Energy, 2022, vol. 1
- TALUS, KIM, *Introduction to EU Energy Law*, Oxford, 2016
- YU, MINLI; WANG, KE; VREDENBURG, HARRIE, *Insights into low-carbon hydrogen production methods: Green, blue and aqua hydrogen*, International Journal of Hydrogen Energy, 2021, vol. 46(41), pp. 21261–21273

