

General Perspectives on the Law of Energy Transition in Italy

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A. Some Data about the Current National Energy Mix

As specified by the national Institute for Environmental Protection and Research (ISPRA),¹ in Italy gross inland energy consumption increased from 1990 until 2005 when it peaked at 189.4 Mtoe (Million Tonnes of Oil Equivalent). After an initial reduction caused by the economic crisis (149.8 Mtoe reached in 2014) and a further contraction due to measures implemented to contain the Covid-19 pandemic (-8.9 % lower than 2019 level and -4.4 % lower than 1990 level), in 2021 there was a rebound of energy consumption (+8.5 % higher than 2020) to 153.7 Mtoe.

According to data provided by the Italian Ministry of Environment and Energy Security,² in 2022, the gross energy availability consisted of 37.6 % natural gas, 35.7 % oil and petroleum products, 18.5 % renewables and bioliquids, 5 % solid fuels, and 2.5 % electricity.

Renewable gross inland consumption has more than quadrupled from 6.5 Mtoe in 1990 to 29.9 Mtoe in 2021 (19.4 % of gross inland consumption).³

1 Istituto Superiore per la Protezione e la Ricerca Ambientale, 'Efficiency and decarbonization indicators in Italy and in the biggest European Countries. Edition 2023' <<https://www.isprambiente.gov.it/files2023/pubblicazioni/rapporti/r386-2023.pdf>> accessed 31 August 2023.

2 Ministero dell'Ambiente e della Sicurezza Energetica, 'La situazione energetica nazionale nel 2022' 10 and Appendice A <https://www.mase.gov.it/sites/default/files/Archivio_Energia/LA%20RELAZIONE%20SULLA%20SITUAZIONE%20ENERGETICA%20NAZIONALE%20NEL%202022_MASE%20Luglio%202023.pdf> accessed 31 August 2023.

3 Istituto Superiore per la Protezione e la Ricerca Ambientale, 'Efficiency and decarbonization indicators in Italy and in the biggest European Countries. Edition 2023' 6 (n 1), according to which "The renewable electricity on total electricity production went from 16 % in 2005 to the top of 43.1 % in 2014, in 2021 the share is 40.2 %, with a particularly significant 152 increase in wind and photovoltaic sources. The contribution of hydropower remains decisive also in relation to the intrinsic variability of this source. Preliminary estimate shows an abrupt contraction of renewable share in 2022 (35.5 %), mainly due to the sharp reduction of hydroelectric generation".

In 2022, renewables found wide diffusion in Italy in all sectors of energy use (electricity, thermal, transport), despite the occurrence of some climatic phenomena that affected their uses and availability (reduced rainfall, relatively high average temperatures).

In line with the previous year, the share of total energy consumption covered by renewables is estimated at around 19 %.⁴

Some important decarbonization targets have been set by various plans and programmes adopted by Italy. According to the Integrated National Energy and Climate Plan 2019⁵ (INECP, adopted by the Italian Government in compliance with the European Union's Regulation 2018/1999/EU), for instance, by 2030 the percentage of energy from renewable sources in gross final energy consumption shall be 30 % (22 % in transport), the percentage of reduction in primary energy consumption compared to the PRIMES 2007 scenario shall be 43 %, and the reduction of greenhouse gases in all non-ETS sectors shall be 33 % compared to 2005.

Targets established by the Integrated National Energy and Climate Plan have been revised and made more ambitious with the National Recovery and Resilience Plan (NRRP – Piano Nazionale di Ripresa e Resilienza: this plan is part of the Next Generation EU programme)⁶ (considering the “Fit for 55” EU package) and the National Ecological Transition Plan

4 Ministero dell'Ambiente e della Sicurezza Energetica, 'La situazione energetica nazionale nel 2022' (n 2).

5 Ministero dell'Ambiente e della Sicurezza Energetica, 'Piano Nazionale Integrato per l'Energia e il Clima' <https://www.mimit.gov.it/images/stories/documenti/PNIEC_finale_17012020.pdf> accessed 31 August 2023.

6 The Plan was definitively approved by EU Council of Ministers through the Council Implementing Decision on July 13th 2021 on the approval of the assessment of the recovery and resilience plan for Italy (ST 10160/21; ST 10160/21 ADD 1; ST 10160/21 ADD 1 REV 1; ST 10160/21 ADD 1 REV 2; ST 10160/21 ADD 1 REV 2 COR 1). The Plan was necessary to enable access to the funds of the Recovery and Resilience Facility, which is the main component of the NGEU programme: Regulation (EU) 2021/241 of 12 February 2021 of the European Parliament and of the Council establishing the Recovery and Resilience Facility [2021] OJ L 57/17. The NGEU funding programme is the tool introduced by the European Union for post-Covid-19 pandemic recovery with the goal of relaunching the Member States' economy: see Commission, 'Europe's Moment: repair and prepare for the Next Generation' (Communication) COM (2020) 456 final. The Italian National Recovery and Resilience Plan presented foresees important investments: 191.5 billion euros will be financed through the RRF and 30.6 billion euros through the Complementary Fund, bringing the total investment to 222.1 billion euros.

(ETP, approved on 8 March 2022)⁷, where it has been established that the contribution of renewable energies shall be at least 72 % by 2030, while the phase-out of coal should be achieved by 2025. In addition, in line with international and European commitments, Italian decarbonization (“net zero” emissions) shall be reached by 2050 and a reduction of 55 % in CO₂ emissions shall be obtained by 2030.⁸

On July 1, 2024, the Ministries of Environment and Energy Security and of Infrastructure and Transport submitted to the European Commission the finalized text of the annual update of the Integrated National Energy and Climate Plan (INECP).

Regarding renewable energies, the Plan states: “Renewable energies occupy a prominent position in national energy policy. ... The aim is to reach a share of nearly 40 % of gross final energy consumption by 2030, aligning with the expected contribution to achieving the EU target. Regarding the dissemination of renewable energies in the transportation sector, the EU framework presents a favorable outlook; in fact, the RED III Directive has raised the 2030 target related to the share of consumption in the transportation sector covered by renewable sources, currently set at 14 % by RED II, to 29 %. Consequently, the obligation for suppliers to integrate renewable products into consumption will be gradually increased, extending its application to all transportation sectors and coordinating its effects with FuelEU Maritime and ReFuelEU Aviation regulations. Simultaneously, the use of more energy vectors is intended to be promoted, for instance, setting the goal to include in consumption a quantity of renewable fuels of non-biological origin and ensuring the contribution from the use of pure biofuels. In the thermal sector, the vector biogas (primarily) and hydrogen (particularly in the industrial sector) will increasingly be integrated, with a vision towards the possibility of cogeneration from nuclear production.

7 Governo Italiano, ‘Delibera 8 marzo 2022 del Comitato interministeriale per la transizione ecologica Approvazione del Piano per la transizione ecologica ai sensi dell’art 57-bis, comma e) e seguenti del decreto legislativo 3 aprile 2006 n 152 [2022] OJ 138/47’ <<https://www.mase.gov.it/sites/default/files/archivio/allegati/PTE/PTE-d efinitivo.pdf>> accessed 22.08.2024; ETP is the national multi sectoral plan for the period 2022–2050 that coordinates national environmental policies, digitization and energy transition towards the goal of ecological transition. The main objective of the Ecological Transition Plan is to achieve climate neutrality by 2050.

8 In June 2023, the Ministry of the Environment and Energy Security sent the proposal for updating the National Integrated Energy and Climate Plan to Brussels, thus starting the updating process that will lead to the final approval of the new text by June 2024.

From a technological perspective, it will be important to continue creating a favorable framework to accelerate the decarbonization of civil consumption through the widespread adoption of heat pumps in the civil sector, leaving the market to determine the most efficient option for each application and also assessing their contribution in cooling mode.”⁹

Many other plans have been set in Italy, also in the light of the dramatic geopolitical and energy crisis of 2022: suffice to mention the National Gas Containment Plan aimed at reducing gas demand in 2022,¹⁰ and achieving the national target for filling gas stocks to at least 90 % of their capacity.¹¹

B. Policies and Strategies Envisaged by Italy

In the light of the ongoing geopolitical crisis, some political initiatives can be mentioned.

Firstly, in order to reduce dependence on Russian gas and diversify the supply, Italy has made agreements with many other countries, such as Algeria, Egypt, Angola, the Republic of the Congo, Nigeria and Qatar.

Secondly, one floating storage and regasification unit (FSRU) is expected to be operational by the end of 2025 in Ravenna, while another one has been operational in Piombino since 2023.

Thirdly, on the topic of hydrogen, thanks to funds from the above-mentioned National Recovery and Resilience Plan, the State pledged 3.6 billion euros of investment by 2026 in projects to promote the development of the hydrogen supply chain. A number of ministerial decrees have been adopted to set out the administrative procedures supporting the construction of plants. In sum, Italy aims at (1) the development of projects for the use of hydrogen in industrial sectors that are hard to abate, such as the steel industry; (2) the establishment of “hydrogen valleys” using brownfield sites in order to create ecosystems that include both production and consumption of hydrogen; (3) enabling the use of hydrogen in heavy transport and in non-electrified railway sections.

9 Governo Italiano, <https://www.mase.gov.it/portale/documents/d/guest/pniec_2024_revfin_01072024-pdf> accessed 15 May 2025.

10 Ministero della Transizione Ecologica, ‘Piano nazionale di contenimento dei consumi di gas naturale’ <https://www.mase.gov.it/sites/default/files/archivio/comunicati/Piano%20contenimento%20consumi%20gas_MITE_6set2022.pdf> accessed 31 August 2023.

11 Decreto legge 1 marzo 2022 n 17 convertito in legge 27 aprile 2022 n 34 [2022] OJ 50/1.

Obviously, another strategy is a strong boost in favour of renewable energies. In this regard, mention may be made of a piece of national legislation,¹² which focuses on the objective of accelerating the country's sustainable growth path, laying down provisions on energy from renewable sources, in line with the European objectives of decarbonization of the energy system by 2030 and complete decarbonization by 2050.¹³

With regard to mobility, different investments are planned within the National Recovery and Resilience Plan (where energy transition is considered along with sustainable mobility), such as the development of electric recharging infrastructures and the renewal of bus and green train fleets.

C. The Legal Tools (Command and Control, Market-Based Tools) and the Public Interests that are Involved in the Transition

All the targets and strategies mentioned above are pursued through a continuous series of legislative amendments and “refinements”.

The most relevant public interests considered are the protection of the environment¹⁴, the implementation of the NRRP,¹⁵ and the fight against energy crises related to war.¹⁶

12 Decreto legislativo 8 novembre 2021 n 199 [2021] OJ 285/4.

13 This Decree transposed the European ‘RED II’.

14 Art.16-septies, Directive (EU) 2023/2413 of the European Parliament and of the Council of 18 October 2023 amending Directive (EU) 2018/2001, Regulation (EU) 2018/1999 and Directive 98/70/EC as regards the promotion of energy from renewable sources, and repealing Council Directive (EU) 2015/652 [2023] OJ L 2023/2413 (RED III), provides that “Until climate neutrality is achieved, Member States shall ensure that, in the permit-granting process, the planning, construction and operation of renewable energy production installations, their connection to the grid, the grid itself, and storage facilities are considered to be of overriding public interest and in the interest of public health and safety when balancing legal interests in each individual case”.

15 See (n 6).

16 Consider, for instance, decreto legislativo 8 novembre 2021 n 199 [2021] OJ 285/4; decreto legge 16 luglio 2020 n 76 convertito in legge 11 settembre 2020 n 120 [2020] OJ 228/1; decreto legge 31 maggio 2021 n 77 convertito in legge 29 luglio 2021 n 108 [2021] OJ 129/1; decreto legge 1 marzo 2022 n 17 convertito in legge 27 aprile 2022 n 34 [2022] OJ 50/1; decreto legge 17 maggio 2022 n 50 convertito in legge 15 luglio 2022 n 91 [2022] OJ 114/1; decreto legge 30 aprile 2022 n 36 convertito in legge 29 giugno 2022 n 79 [2022] OJ 100/1; decreto legge 9 agosto 2022 n 115 convertito in legge 21 settembre 2022 n. 142 [2022] OJ 185/1; decreto legge 24 febbraio 2023 n 13 convertito in legge 21 aprile 2023 n 41 [2023] OJ 47/1.

The “answer” to a complex problem – such as energy generation and supply – is a multifaceted set of measures, all of which are relevant to public law and give rise to a plurality of intervention models spanning from command and control to market-based tools (specifically through incentive mechanisms).

As can be seen from the cited list of some of the main and most recent sources of law enacted in the renewable energy sector,¹⁷ there is an incessant flow of legislation. For this reason, the “annual law for the market and competition 2021”¹⁸ empowered the government to reorganize the existing legislation on renewable energy sources, in order to achieve a significant reduction and rationalization of legislative provisions and to ensure a greater degree of legal certainty and simplification of procedures.

Under the delegated legislation, a legislative decree 190/2024, titled “Regulation of Administrative Regimes for the Production of Energy from Renewable Sources in Implementation of Article 26, Paragraphs 4 and 5, Letters b) and d), of Law No. 118 of August 5, 2022,” came into force at the end of 2024¹⁹.

It is not new that in our system there is a constant concern about regulatory and bureaucratic simplification, pursued, in particular, through the design of streamlined administrative regimes for the construction and operation of renewable energy plants and providing for substitutive powers in the event of inaction by the relevant administrative bodies.²⁰

Organizational simplification measures have also been taken. For instance, national government has set up a specific EIA (Environmental Impact Assessment) Technical Commission for the NRRP projects (among which there are also those relating to renewable energies) and it has established a special Superintendence for the protection of cultural and landscape assets in cases where such assets are affected by the interventions under the NRRP.²¹ An Interministerial Committee for the Ecological Tran-

17 See (n 16).

18 Legge 5 agosto 2022 n 118 [2022] OJ 188/1.

19 Decreto legislativo 25 novembre 25 2024 n 190 [2024] OJ 291/4.

20 In this regard, the National Recovery and Resilience Plan calls for two key reforms on renewable energies: “simplification of permitting procedures for on-shore and offshore renewable facilities, new legal framework to support renewable generation and extension of the timing and eligibility of current support schemes” and “new legislation to promote renewable gas production and consumption”.

21 Decreto legge 31 maggio 2021 n 77 convertito in legge 29 luglio 2021 n 108 [2021] OJ 129/1.

sition was also established, with the task of ensuring the coordination of national policies for the ecological transition and related programmes.

According to a multilevel approach, it is also of interest to mention the experience (for which relevant incentives are provided) of Energy Communities and Collective Self Consumption,²² which allows the sharing of renewable electric energy among various producers and consumers located within the same area.

The relationship and the legal relevance of these strategies, measures and legal tools can be better explained by using the theoretical concept of energy transition (see below), which is a crucial component of the green transition due to the evident fact that energy production from traditional sources significantly contributes to climate change.

D. Notion of Energy Transition; Political Conception and Legal Implication.

1. The First Part of the Definition: the Transition as a “Form of a Function”

In general, the word “transition” expresses a shift from a *before* to an *after*. The adjective “energy”, on the other hand, explains and indicates the direction of this change.

What has just been provided, however, is not yet a specific definition and, above all, it is not a legally useful definition.

In this respect, it should be added that even national and European legal sources do not offer any particular definition.

It is therefore necessary to take a further step, making a theoretical effort towards abstraction and starting from the few elements existing in the legal context.²³ First, it is worth focusing on the broader concept of

22 As of 30 September 2022, Italy had 17 Energy Communities and 37 Collective Self Consumption: data from Osservatorio ENEA, ‘Energia: da ENEA un Osservatorio per promuovere le Comunità Energetiche Rinnovabili’ <<https://www.media.enea.it/comunicati-e-news/archivio-anni/anno-2023/energia-da-enea-un-osservatorio-per-promuovere-le-comunita-energetiche-rinnovabili.html>> accessed 31 August 2023; See Governo Italiano, ‘Art. 8 decreto legislativo 8 novembre 2021 n 199 [2021] OJ 285/4 and decreto MASE 7 dicembre 2023 n 414’ <www.mase.gov.it> accessed 30 June 2024.

23 About transition in Italy: Francesco de Leonardis, *La transizione ecologica come modello di sviluppo di sistema: spunti sul ruolo delle amministrazioni* (2021) Diritto amministrativo 779; Michela Petrachi, *La tutela dell’ambiente nel prisma della transizione ecologica* (Giappichelli 2023); Giuseppe Severini, ‘La “transizione” come ordinamento giuridico’ (2022) Giustizia insieme <www.giustiziainsieme.it> accessed 24

ecological/green transition and observing how the latter constitutes one of the pillars of the above-mentioned National Recovery and Resilience Plan.

More specifically, the National Recovery and Resilience Plan, to be implemented in the span of five years, is structured around three strategic axes (digitization and innovation, ecological transition) and six fields of intervention (called “missions”). One of those pillars (with the greatest endowment of funds: 68.6 billion euros) is precisely (green revolution and) ecological transition (mission 2), aiming for progressive decarbonization. This mission is expected to be achieved by different tools. Among these, reforms aiming at the modernization of the country should be cited.²⁴ Worth mentioning is simplification, which is a tool that also involves, as already stated, renewable energies, to the extent that it aims at removing the “bottlenecks” to the diffusion and implementation of renewable energy plants.

The National Recovery and Resilience Plan is integrated with the National Ecological Transition Plan (ETP), according to which “energy production is the sector most responsible for greenhouse gas emissions – three-quarters of the global total according to data from the International Energy Agency. For this reason, the progressive replacement of fossil fuels with renewable energies represents the main necessary condition of the ecological transition”.²⁵

This is an important element that leads to a more complete understanding of the phenomenon: the energy transition is a condition of the ecological transition, which is one of the pillars of the NRRP.

November 2022; Tamara Favaro, *Regolare la “transizione energetica”. Stato, mercato, innovazione* (Cedam 2020); See also Fabrizio Fracchia, *Transizioni: il punto di vista del diritto amministrativo* (Editoriale Scientifica 2024).

24 More in detail, the Plan provides for a twofold order of interventions, namely, “reforms” to be prepared and “investments” to be made. The Plan is centered on milestones and targets (M&T): the milestones define, in general terms, the relevant administrative and procedural steps: they are qualitative targets to be met through a given NRRP measure (reform and/or investment); The targets are the expected results of actions, quantified by measurable indicators: they are quantitative targets to be met through a given NRRP measure (reform and/or investment).

25 See above (n 8). Alongside the primary goal (achieving climate neutrality by 2050 and reducing greenhouse gas emissions by 55 % by 2030), the Plan sets additional objectives and areas of intervention, including decarbonization. Referring to the NECP, the Plan “envisions a further effort in energy-saving policies, particularly in the transport and building sectors, and an electrification of the primary energy system which, in the perspective of total decarbonization by 2050, will need to exceed 50 %”.

However, the conclusion just reached remains unsatisfactory, as it would be more appropriate to provide a definition specific to the field of law. Otherwise, the transition would be described in the same manner as in other social systems (e.g., economics, history, politics).

Moreover, the definition and the paradigm that we intend to outline should be able to explain and include three further aspects of the notion of energy transition.

First of all, the energy transition is also a political goal. In this regard, it must be recalled the Italy's plan to "become the energy and gas hub of Europe" (this is the goal repeatedly indicated by Italian Prime Minister Giorgia Meloni in 2022).²⁶

Secondly, the transition is aimed at achieving many other different and long-term legally binding goals. Of course, it has a clear environmental relevance, being connected to the 2030 UN Agenda for Sustainable Development and to the Paris Agreement. Nevertheless, the transition (in particular, the one towards renewable energies) is being carried out also in order to manage the consequences of war (suffice to think of Repower EU package)²⁷ and, in particular, to replace declining Russian gas supplies and boost energy security.²⁸ As a matter of fact, in the EU context, at the very beginning, the 1995 Green paper²⁹ stressed the objective of the security and therefore a goal clearly different from decarbonization and environmental protection. Again, in the case of Italy, suffice to mention the change in the

26 Governo Italiano, 'President Meloni's press statement with Prime Minister Abela' <www.governo.it/en/articolo/president-meloni-s-press-statement-prime-minister-abela/22914> accessed 31 August 2023.

27 European Commission, Communication 'REPowerEU: A Plan to Rapidly Reduce Dependence on Russian Fossil Fuels and Fast forward the Green Transition' COM (2022) 230 final 2022 <https://ec.europa.eu/commission/presscorner/detail/en/IP_22_3131> accessed 22 August 2024. The REPowerEU aims at ensuring the full implementation of the Fit for 55 package. The package sets the goal of achieving at least -55 % net greenhouse gas emissions by 2030 and climate neutrality by 2050 in line with the European Green Deal.

28 In Italy, decreto legge 31 maggio 2021 n 77 convertito in legge 29 luglio 2021 n 108 [2021] OJ 181/1 stated that the "prompt and punctual implementation of the interventions" included in the NRRP "assumes paramount value for the national interest".

29 European Commission, 'Green paper: For a European Union Energy Policy' COM (94) 659 final 1995 of 23 February 1995: "the energy policy objectives for the Community are appraised in terms of the challenges identified. These objectives are readily apparent involving, as they do, the management of policy to ensure the satisfaction of all least cost while meeting the requirements of security of supply and users' needs at the environmental protection". "The foreign policy of the Community needs to have security of energy supply as an objective".

name of the Ministry: the current Ministry of Environment and Energy Security was formerly called the Ministry of Ecological Transition. In conclusion, many interests are involved within the transition, often in contrast with each other.

The third aspect that must be taken into account in order to offer a convincing legal definition of transition is related to the results of studies on the National Recovery and Resilience Plan. Some scholars have considered it as an act of planning with both national legislative and EU law coverage³⁰ and, above all, related to a series of activities and initiatives carried out in view of a result. That means that a theoretical paradigm able to express this “continuity” and the relevance of the outcome (constituted by the progressive replacement of fossil fuels with renewable energies) is needed. The result is a legal constraint that arises from the law and that binds not only the Government and the entire Administration, but also the interpreters.³¹ This is important considering the Recovery Plan (NRRP), where

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- 30 Fabio Cintioli, ‘Risultato amministrativo, discrezionalità e PNRR: una proposta per il Giudice’ (2021) *Giustizia-amministrativa* 18 <www.giustizia-amministrativa.it> accessed 12 November 2021: “the administrative result seems to receive a coverage by EU law. The actions of the Plan are defined in an agreement, which in turn lays the foundations in EU Regulation 2021/241, and they respond to objectives that the Republic, as we said, intended to assume as its own in the context of this commitment, so that the way in which to achieve them – and the related risk of disregarding them – is not only a question of procedural autonomy of the Member State”. About the nature of the NRRP, see also Luisa Torchia, ‘Il sistema amministrativo italiano e il fondo di ripresa e resilienza’ (2020) *Astrid Online* <www.astrid-online.it> accessed 10 November 2020; Antonella Sciortino, ‘PNRR e riflessi sulla forma di governo italiana. Un ritorno all’indirizzo politico “normativo?” (2021) *Federalismi* <www.federalismi.it> accessed 28 July 2021; Nicola Lupo, ‘Il Piano Nazionale di Ripresa e Resilienza (PNRR) e alcune prospettive di ricerca per i costituzionalisti’ (2022) *Federalismi* <www.federalismi.it> accessed 12 January 2022; Marcello Clarich, ‘Il PNRR tra diritto europeo e nazionale: un tentativo di inquadramento giuridico’ (2021) 341 *Astrid Online* <www.astrid-online.it> accessed 21 July 2021.
- 31 Cintioli, ‘Risultato amministrativo, discrezionalità e PNRR: una proposta per il Giudice’ 13 (n 30): “The result is therefore consolidated in an act based on the law and which makes use of its strength and we can say, from this point of view, that that result commits not only the administration called to execute the Plan, but also the other legal operators, interpreters all, including Courts of course, which will have to be interested in that result also because – let us not forget – its achievement ‘assumes rewarding value for the national interest’. Any delay or failure in meeting this objective could lead to the suspension of resource disbursement, followed by revocation and the obligation to repay”.

the achievement of the outcomes³² (including transition) is a condition to obtain European funds. As a consequence, this achievement must also have a legal relevance.

To sum up the reasoning developed up to now, the energy transition might be defined as a condition of the ecological transition; at the same time, it appears as a set of tools, that, from the legal point of view, are relevant only when considered as a whole and from the perspective of a functionalized continuity aimed towards a result. This outcome – although intertwined with multiple political and legal reasons – is the progressive replacement of fossil fuels with renewable energies.³³

I therefore put forward a preliminary definition: transition is a “form of a function”.

The term “function” expresses the activity (considered as a whole) towards a goal³⁴; the term “form” is used to explain that transition is the legal form through which the function can be seen being unfolded. It is the external and legally relevant manifestation of a function: the form visible to the observing scholar and, in particular, to the researcher of Administrative and Public law.

This function involves different measure and legal tools (from laws to administrative acts, actions and activities, aiming at reforms and achievement of goals) and different subjects (at several institutional levels): it even

32 Cintioli, ‘Risultato amministrativo, discrezionalità e PNRR: una proposta per il Giudice’ 14 (n 30) “The rationale is precisely that of the result. What else represent the Milestones and Targets through which the verification of compliance with the commitments undertaken by the Italian Government passes and will pass?”

33 In Italy, nuclear power plants were banned after a 2011 referendum in which Italians voted against a law supporting a national nuclear program. Previously, in November 1987, Italy had held its first national referendum concerning the repeal of the regulations allowing the siting of nuclear power plants by the CIPE (the Interministerial Committee for Economic Planning is an Italian governmental body), which Italian voters approved. Recently, on September 21, 2023, the first meeting of the National Platform for Sustainable Nuclear Energy (PNNS) took place. Its objective is to establish a clear pathway towards potentially resuming the use of nuclear energy in Italy. Ministero dell'Ambiente e della Sicurezza Energetica, ‘Al MASE la prima riunione della Piattaforma Nazionale per un Nucleare Sostenibile’ <<https://www.mase.gov.it/comunicati/al-mase-la-prima-riunione-della-piattaforma-nazionale-un-nucleare-sostenibile>> accessed 23 September 2023. See below (n 35).

34 This legal concept was suggested by Feliciano Benvenuti, *Funzione amministrativa, procedimento, processo* (1952) 2 *Rivista trimestrale di diritto pubblico* 118 in order to describe administrative procedure as a form of the administrative function.

involves the Courts and – to some extent – requires the cooperation of private actors.

2. The Second Part of the Definition: Setting the Problem, Considering Energy Transition, Structural Change in Society, Stop and Go, Multilevel Approach, Intergenerational Relations, Connections with Other Problems of Modernity

The objective of providing a comprehensive legal definition of the energy transition has not yet been completely achieved.

Other important aspects, in fact, must be considered.

Firstly, what we are witnessing nowadays is not simply a sectoral strategy: NRRP aims at a change in the structure of society, since it outlines a new model of social, institutional, and economic development. This aspect is well expressed by the final goal of 2030 UN Agenda for Sustainable Development: “transforming our world”³⁵. Consequently, the ecological and energy transition is also a tool for a structural change in society as a whole.

Secondly, although the tendency to privilege renewable energy is very clear, we are witnessing a kind of “stop and go” in the transition. As already mentioned, regarding Italy, with strong measures towards simplification (including establishing the appointment of commissioners to speed up the permitting process),³⁶ a floating storage and regasification unit (FSRU) started operating in 2023 and another is expected to be operational by the end of 2025; from another point of view, consider the debate on reopening coal-fired power plants or the re-evaluation of nuclear power.³⁷ The problem of considering and explaining these aspects cannot be sidestepped, as

35 UN, ‘Transforming our world: the 2030 Agenda for Sustainable Development’, Resolution adopted by the General Assembly on 25 September 2015.

36 Art 5 decreto legge 17 maggio 2022 n 50 convertito nella legge 15 luglio 2022 n 91 Decreto Aiuti [2022] OJ 164/17.

37 See (n 33). About Taxonomy regulation (which is part of the EU action plan on financing sustainable growth), the European Parliament on 6 July 2022 did not object to the Commission’s Taxonomy Delegated Act (approved on 2 February 2022) to include, under certain conditions, specific nuclear activities in the list of environmentally sustainable economic activities covered by the so-called EU Taxonomy (enabling investors to label and market investments in them as green). See Commission Delegated Regulation (EU) 2022/1214 of 9 March 2022 amending Delegated Regulation (EU) 2021/2139 as regards economic activities in certain energy sectors and Delegated Regulation (EU) 2021/2178 as regards specific public disclosures for those economic activities [2022] OJ L 188/1.

the definition of transition must also emphasize this ongoing recalibration and revision of objectives.

Thirdly, the transition can be carried out only by using a multilevel approach: international, EU, and local levels.

Fourthly, there is a sort of “unacknowledged yet influential presence” in the reasoning that is here carried on: the next generations. What is the place of this new actor in the legal paradigm that is being outlined? The relevance of this new subject/object of law is confirmed by a series of legal elements. Suffice to consider the phrase “Next Generation” used in the title (NGEU) of the aforementioned recovery and resilience project of Europe, which clearly places emphasis on these generations; all this is in line with art. 9, Italian Constitution (recently amended),³⁸ according to which the Italian Republic must take into consideration also the interest of future generations. The importance of considering these generations is implicit in the fact that many measures are characterized by a long-term perspective (and this aspect is a recurring trait in the transition). For instance, the horizon of the National Ecological Transition Plan is 2050, the year in which Italy must achieve the clear and ambitious goal of operating “at zero carbon emissions”.

Finally, a further *aspect must be underlined*: the interconnection with other problems of modernity. The energy transition has to do with environmental crises, the issue of public finances, population growth, and geopolitical scenarios. All these crises must be considered and studied in the long term; they have an impact on future generations.

3. The Third Part of the Definition: The Transition as a Form of Fulfilment of (Common but Differentiated) Intergenerational Duties

The reconstructive and theoretical effort to be conducted, therefore, must consider that the transition: a) is part of a structural change in society, b) is a long-term process, c) is a path in which stop and go moments are possible despite the final goal remaining very clear, d) has to do with future generations and e) with other overarching themes and problems of modernity.

As mentioned above, the objective of these last paragraphs is to identify a conceptual scheme and a definition that are typical of the legal system, so

38 Legge costituzionale 11 febbraio 2022 n 1 Modifiche agli articoli 9 e 41 della Costituzione in materia di tutela dell'ambiente [2022] OJ 44/1.

as to avoid a mere description of the transition or to offer an “observation” analogous to that of another system (economics, history, politics).

To these ends, it is possible to add a further piece to the theoretical reconstruction, aimed at clarifying how, from the legal point of view, the transition is also the object of a specific set of rules, that of intergenerational relations and responsibility.³⁹

This step is essential to provide a definition that is specifically legal, capable of indicating⁴⁰ to other social systems (economics, politics, science) whether the transition itself is legal or illegal, whether it is compatible with legal principles, as well as providing a set of legal rules that the institutions must comply with in carrying out a transition and that a judge can apply to review their choices.

It is therefore time to analyze the features of this branch of law, the object of which is intergenerational relations.

These regulations apply where an intergenerational responsibility arises and therefore, for instance, in the context of environmental crises, economic-financial crises, health issues, immigration, the issue of public finances, corruption, food crises, population growth, and of course, to energy crises.⁴¹ The plausibility of the proposal outlined above (that is to say: progressive emergence of an autonomous sector of law, having as its object the responsibilities and intergenerational relations, that might guide the action of the various actors) is supported by different sets of considerations.

Firstly, all these crises (consider climate change, immigration and energy crisis) have similar characters: globality or, in any case, non-reducibility of problems to the scale of a single State (which also means globality of

39 The research programme – the expression is here used according to the meaning provided by Imre Lakatos, *The methodology of scientific research programmes* (CUP 1978) – which, applying a well-defined paradigm and described above, in the text, focuses on the emergence of this area of law is fed and marked by various scientific works: Fabrizio Fracchia/Pasquale Pantalone, *Decider(ci) per la morte: crisi, sostenibilità, energie rinnovabili e semplificazioni procedurali. Interpretare il presente con il paradigma delle relazioni intergenerazionali nutrite di solidarietà*, (Editoriale Scientifica 2022); Pasquale Pantalone, *La crisi pandemica dal punto di vista dei doveri. Diagnosi, prognosi e terapia dei problemi intergenerazionali secondo il diritto amministrativo* (Editoriale Scientifica 2023).

40 In line with a Luhmannian approach, the purpose of the theory is to allow the legal system to fulfill its function of structuring expectations: Niklas Luhmann, ‘Law as a Social System’ in Fatima Kastner/Richard Nobles/David Schiff/Rosamund Ziegert (eds), *Oxford Socio-Legal Studies* (Oxford University Press 2004) 498.

41 Fracchia/Pantalone, *Decider(ci) per la morte: crisi, sostenibilità, energie rinnovabili e semplificazioni procedurali* 88 (n 39).

causes and local dimension of effects and vice versa), widespread nature of the damage incurred, plurality of causes, spatial and temporal disconnection between cause and effect, information asymmetries, intertwining with ethics, relevance of technological innovation, difficulty in identifying the most appropriate decision-making centres, the need to organize differentiated responses, impact on justice and equity, and significant impact on public debt, public budgets and public administrations. Due to the presence of common characteristics, we need a common theoretical “filter” from a scientific point of view.

Secondly, the tendency to broaden the concept of sustainable development (the cardinal principle mentioned above) is undeniable. Just think of the 2030 UN Agenda for Sustainable Development and its 17 goals: they do not only concern the environment but, showing a very clear expansive attitude, cover many different areas. In many Constitutions (as for Italy: art. 81) sustainability has been enlarged as far as including the public debt and budget: another form of intergenerational responsibility.⁴² The broadening of the scope of this principle justifies the attempt to unify the perspective of the investigation, so as to encompass the full range of legal relationships involved in the principle.

Thirdly: intergenerational problems often arise simultaneously, and are linked (for example, the intertwining of climate change and energy transition is evident) or related to each other in terms of cause and effect: the war crisis leads to obvious environmental and energy consequences; attempts to overcome the energy crisis produce significant environmental tensions or food crises, taking away space from agriculture;⁴³ bad environmental habits have effects not only on health, but also on pollution (think of

42 “The State shall ensure the balance between revenue and expenditure in its budget, taking into account the adverse and favorable phases of the economic cycle”. It is also worth underlining the fact that Constitutional Court 18 [2019] OJ Special Series 8 I, reviewing the constitutional legitimacy of a regulation concerning the reformulation or remodulation of the long-term financial rebalancing plans of local authorities thus decided: “the very long time delay ends up conflicting even with elementary principles of intergenerational equity, given that both dating back and important deficits and the repayments of authorized loans will be burdened by future administered entities”. And again: “intergenerational equity also entails the need not to burden disproportionately the growth opportunities of future generations, guaranteeing them sufficient resources for a balanced development”.

43 The comparison between Covid pandemic and Black Death of Fourteenth century in Europe is impressive: both periods are characterized by a) pandemic, b) climate change, b) population growth, c) financial crisis, d) moral crisis; e) war: see Pasquale Pantalone, *La crisi pandemica* (n 39).

the consumption of out-of-season or non-zero kilometer products); energy independence could prevent certain military conflicts or allow for stronger diplomatic action; in all cases, these problems affect justice, equity, public finance and so on.

Fourthly, intergenerational problems or their effects often appear unpredictable (economic crisis, financial crisis, health crisis, energy crisis). In reality, we often realize *ex post* that more responsible choices in the past could have prefigured them.

Lastly, their management takes place (or so one should hope) also at the supranational level (in particular at the European level: a good and paradigmatic example is by the common debt assumed at the EU level in relation to the Next Generation EU package).

The cornerstone of this unitarian branch of law is the principle of sustainable development, which expresses a canon of intergenerational responsibility.

In all the cases mentioned above, in fact, the decisions to be taken are aimed at safeguarding the interests of future generations, enabled by virtue of the fulfillment of duties on the part of current generations, who must set aside the claim of untouchable and impregnable rights.

In the Italian context, the paradigm of intergenerational responsibilities can now easily be based on Article 9 of the Italian Constitution (amended in 2022) which obliges the Republic to consider “also” the interests of future generations.

The transition (form of a function), therefore, is also and above all a form of fulfilment of (common but differentiated: see *infra*) intergenerational duties, set by a specific set of rules to which all the actors, behaviour and initiatives mentioned in section D 1, considered together, are subject. Even the legislature, when faced with intergenerational issues, and also in the case of transitions, should therefore set regulations in line with the above framework.

This paradigm is helpful towards tackling the problems of modernity: its pillars are environmental principles, which play a central role to guide the above-mentioned activities, not to mention that they have the undoubted advantage of penetrating every legal system. Initially, they seem related only to the environment; nevertheless, at a deeper glance, they are principles of the whole branch of law discussed here, which are established by art. 191, TFEU (in particular, “the polluter pays”, the principle of “common but differentiated responsibility”, the principles of prevention and precaution). The reason why the environment (with its principles) remains the driving

factor in the construction of a set of rules applicable to the remaining inter-generational issues is that it is a stark reminder of one of the more tragic tendencies of modernity: to take strategic decisions that can impact future generations. The “strength” of the environmental issue, so worrying in modernity, forges the characteristics of the law of intergenerational choices. In conclusion, environmental law is the tip of a much larger, richer, and more complex iceberg, the paradigmatic example of the bundle of intergenerational problems: for this reason, the law has begun to regulate precisely this area. A classic example of a conflict (and a classic difficulty of modernity) that can be solved by applying the rules and the principles mentioned here is the one involving renewable energy and the landscape. The conflict is in particular generated by the temporal disconnection between aggressor and victim: the production of renewable energy can affect parts of the landscape and some people who inhabit it *hic et nunc* (the current “victims” of an “aggressive” anthropic activity); however, when environmental problems are measured in the long-term perspective, looking at humanity as a whole (not therefore simply focusing on the people who currently appear to be the victims), it is hard to deny that that renewable energy production benefits the environment that future generations will be able to inherit. It is up to politics to make a responsible decision also on behalf of future generations; the legal paradigm above outlined can provide the juridical basis (although very limited and restricted) for judicial or constitutional review in the light of the intergenerational depth.

As is usual happened in scientific fields, the function of the theoretical models suggested by scholars is twofold: solving problems and providing operational consequences deriving from general legal principles of this new sector of law (and this aspect has just been dealt with by referring to a specific problem), and describing the “real world” and the characteristics of the object of the research.

From the second point of view, the theory gives due emphasis to the next generations, given that they are firmly at the centre of this branch of law. Moreover, it is in line with the idea of a structural change in society (this transformation is exactly the final outcome when dealing with intergenerational problems) and with the fact that, during the period of energy crisis, the dimensions of solidarity and duty stand out (we are all called to contribute with individual sacrifices – including fiscal sacrifices –

to the containment of consumption and the achievement of objectives).⁴⁴ It also explains the multi-level approach, as each level is involved according to its responsibility. Stop and go moments are also easy to understand: the policies that impact future generations are long journeys; responsibility and intergenerational solidarity, by their nature, must be adapted and recalibrated, and suffer moments of crisis and arrest, while maintaining their final goal.

E. Concluding Remarks

In 2022, Italy used many different types of energy sources: 37,6 % of natural gas, 35,7 % of oil and petroleum products, 18,5 % of renewables and bioliquids, 5 % of solid fuels, 2,5 % of electricity. As far as renewables are concerned, over the last few years they have found widespread use in all sectors (electrical, thermal, transport).

Many policy initiatives – taken *inter alia* to reduce dependence on Russian gas and diversify supply – have been developed in the field of energy, paving the way for a continuous series of legislative measures, the most important of which is the NRRP.

Moreover, since a complex problem – such as energy generation and supply – has to be tackled with a complex approach, Italy has made use of

44 The dimension of solidarity already emerged from Regulation (EU) 2017/1938 of 25 October 2017 of the European Parliament and of the Council concerning measures to safeguard the security of gas supply and repealing Regulation (EU) 994/2010 [2017] OJ L 280/1. In the sixth *whereas* clause it is said that “energy security constitutes one of the objectives of the Energy Union Strategy, as set out in the Commission Communication of 25 February 2015 on a Framework Strategy for a Resilient Energy Union with a Forward-Looking Climate Change Policy, which also emphasized the “energy efficiency first” principle and the need to fully implement existing Union energy legal acts. The communication highlighted the fact that the Energy Union rests on solidarity, enshrined in Article 194 of the Treaty on the Functioning of the European Union (TFEU), and trust, which are necessary features of energy security. This Regulation is intended to boost solidarity and trust between the Member States and put in place the measures needed to achieve those aims. When assessing the preventive action plans and the emergency plans established by the Member States, the Commission should also be able to draw the attention of the Member States to the objectives of the Energy Union”; according to the tenth *whereas* clause, “in a spirit of solidarity, regional cooperation, involving both public authorities and natural gas undertakings, should be the guiding principle of this Regulation, to mitigate the identified risks and optimize the benefits of coordinated measures and to implement the most cost-effective measures for Union consumers”.

a large number of different measures and models, ranging from command and control to market-based tools.

In order to explain the combination and legal relevance of these strategies, measures and legal instruments the theoretical concept of energy transition has been proposed.

The effort to provide a legally useful definition of transition and to offer an “observation” different from those suggested by the different branches of social science (economics, history, politics) leads to the notion of “form of function” and of “form of fulfilment of intergenerational duties (common but differentiated)”, subject to a specific and unitary branch of law, whose cornerstone is the principle of sustainable development, which expresses a canon of intergenerational responsibility.

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