UiT The Arctic University of Norway

Faculty of Law

Increasing the participation of citizens in energy production

A comparison of the legal regimes on prosumers in Italy and Norway

Giulia Petrachi

Course Code: JUR-3920

Course Title: Joint Nordic Master Programme in Environmental Law (NOMPEL)

Date: May 2022

Table of Contents

Abbreviations

ARERA: Autorità di regolazione per energia reti e ambiente (Regulatory Authority for Energy Networks and Environment)

DSO: Distribution Systems Operator

EEA: European Economic Area

EMD: Electricity Market Directive

EU: European Union

GSE: Gestore dei Servizi Energetici (Energy Services Operator)

MS: Member States

NVE: Norsk direktoratet for Vann og Energi (Norwegian Directorate for Water and Energy)

PV: Photovoltaic

RED: Renewable Energy Directive

SEP: Simplified Enablement Procedure

TSO: Transmission System Operator

Abstract

Individual prosumerism is a growing phenomenon that opens new opportunities for production and consumption of renewable energy with citizen as the main actors. Governments have a great impact in favouring the development of the phenomenon through laws and incentives. The thesis analyses the laws and incentives in Italy and Norway to assess what is more effective in promoting individual prosumerism. Effectiveness is assessed through three criteria: clarity, proportionality, and cost-effectiveness.

The first chapter introduces the topic of prosumerism, the purpose of the thesis and the methods used to achieve it. The second chapter introduces the legal regime of both countries, explicating the role of the EU in regulating prosumerism in its MS, in this case Italy. The third chapter compares the laws and incentives in the two countries, using the criteria for effectiveness. The fourth chapter draws conclusions on which instruments are effective and which could be improved and how.

KEY WORDS: renewable energy, prosumerism, Italy, Norway.

1 Chapter 1: Introduction

1.1 Background

To achieve the reduction of greenhouse gasses concentrations in the atmosphere, and therefore mitigate climate change, it is necessary to transform the energy supply system and increase energy generation through low carbon emission technologies.[1]

The European Union and its Member States have been working in the past decades to increase the percentage of energy produced by renewable sources in their energy mix. The EU has defined as renewables the following sources: wind, solar (both thermal and photovoltaic) and geothermal energy, ambient energy, tide, wave and other ocean energy, hydropower, biomass, landfill gas, sewage treatment plant gas, and biogas.[2]

[1] Bruckner T. et al., Energy Systems, in: Climate Change 2014: Mitigation of Climate Change. IPCC Working Group III Contribution to AR5, Chapter 7, (2014), p. 516.
[2] 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 (EU 2018), Art. 2 par. 1.

The rising phenomenon of energy prosumers can be contextualized in this legal and political scenario, as an answer to the desire of citizens to contribute to the process of decarbonization by producing energy through renewable sources.

The term prosumer is a combination of the word "producer" and "consumer", referring to somebody that produces the same product that they are going to then consume.[3] In the context of energy production, prosumers are "energy-producing consumers"[4] which produce energy with the intent of consuming it insofar as their needs require, while making plans for selling, storing, or trading the surplus of their production[5].

Energy prosumption is also generally associated with production of energy through renewable sources, usually in the form of solar panels[6] or a windmill installed on the property of the individual prosumer or of the prosuming community[7]. For this reason, prosumerism has been largely associated with national laws and EU legal acts regulating the use and production of renewable energy.

The term prosumerism encompasses both energy communities and individuals producing the energy they use. Energy communities are groups of people that benefit from renewable energy plants that they may own, or not own but still have a degree of agency over[8]. On the other hand, individual prosumers can be defined as owners of individual households that operate within their premise renewable electricity for their own consumption[9]. The main difference that can be drawn between the two is that the former are legal entities[10], while the latter are legal persons[11].

---

[3] Van Soest H., The Prosumer in European Energy Law, in: SIMPLY (Scandinavian Institute of Maritime Law Yearbook) Edition 2017, Chapter 5, Nordisk Institutt for Sjørett (Scandinavian Institute of Maritime Law) (2018), p. 107.
[4] Van Soest H., (2018) p. 108.
[5] Van Soest H., (2018) p 110.
[6] Van Soest H., (2018) p. 109.
[7] Van Soest H., (2018) p. 119.
[8] Savaresi A., The Rise of Community Energy from Grassroots to Mainstream: The Role of Law and Policy, in: Journal of Environmental Law, Vol. 31, (2019), p. 491.
[9] EU (2018), Art. 2, par. 14.
[10] EU (2018), Art. 2, par. 16.
[11] Petrick, K., Fosse, J., Klarwein, S. Principles for Prosumer Policy Options. PROSEU - Prosumers for the Energy Union: Mainstreaming active participation of citizens in the energy transition, Horizon 2020 (H2020-LCE-2017) Grant Agreement N°76405, (2019), p. 21.

My thesis will focus on individual renewables self-consumers in the legal systems of Italy and Norway. My choice for the two countries can be justified in the first place by their different position in respect to the European Union.

From the 1950s, Italy has been a Member State of the European Union, which means that the country is bound to implement EU's resolutions and transpose its directives with limited autonomy[12]. On the other hand, Norway joined the European Economic Area Agreement in 1994, thus becoming a part of the EU Single Market, but preserving its autonomy in many areas of governance (i.e., Common Agriculture and Fisheries Policies, Customs Union, Common Trade Policy, Common Foreign and Security Policy, Justice and Home Affairs, and Economic and Monetary Union)[13]. As a result, Norway is not bound to implement and transpose the entirety of the EU legal acts, but can choose, together with the other EEA countries, which EU legal acts to implement[14].

For what concerns provisions regulating energy, both countries participate in the energy market of the EU. Furthermore, EEA cooperation now includes 96 legal acts of the EU in the energy field[15], which are implemented both in Norway and in Italy.

The two countries are also being compared because of their distinct legal perspectives. It is sometimes debated whether Nordic legal systems form a legal family of their own or belong to the civil law family. Nonetheless, even scholars that group the Nordic countries in the civil law family recognize a difference between the Nordic legal family, to which Norway belongs, and the Romanistic, or Romance, legal family, of which Italy is a part.[16] In both cases, Nordic legal systems are characterised as lacking a civil code, a pivotal characteristic of the Romance legal family, using a less theoretical and conceptualized approach to legal problems than Romance legal systems, and incorporating case law and legal doctrine further to fill legal gaps.[17]

In this regard, both Iceland and Norway would have worked as examples of an EEA country belonging to the Nordic legal family. Nonetheless Norway appeared to be a better choice for

[12] Daniels P., Italy in the European Union, in: Economic and Political Weekly, Vol. 33, No. 35 (1998), p 107.
[13] https://energifaktanorge.no/en/eu-lovgivning/eos-avtalen-og-norsk-energipolitikk/ (last accessed: 3/05/2022).
[14] https://energifaktanorge.no/en/eu-lovgivning/eos-avtalen-og-norsk-energipolitikk/ (last accessed: 3/05/2022).
[15] https://energifaktanorge.no/en/eu-lovgivning/eos-avtalen-og-norsk-energipolitikk/ (last accessed: 3/05/2022).
[16] Bernitz U., What is Scandinavian Law? Concept, Characteristics, Future, Stockholm Institute for Scandianvian Law 1957-2010, (2010) p.28.
[17] Bernitz U., (2010) p.28.

the comparison because of its larger population, that influences its energy consumption as well as its potential for energy prosumption.

On the other hand, Italy is not the only Member State of the EU that belongs to the Romance legal family, but some peculiar characteristics of the country make it the best choice for a comparison on prosumerism.

In the first place, the high prices of electricity in Italy and elevated sun irradiation levels of the country incentivize the adoption of residential solar photovoltaic[18], the most used plant for renewable energy prosumption.

In the second place, the country introduced laws and market-based incentives for energy prosumption earlier than other European countries with similar sun irradiation and energy poverty percentage, by introducing smart meters and subsidizing energy residential solar PVs and batteries in the early 2010's.[19]

To conclude, the choice of Italy and Norway as subjects for the comparison is especially justified by their different use of renewable energy and their different endorsement of prosumerism.

As of 2020, Italy's total gross energy production was composed by energy coming from renewable sources only for 41,7%[20], a relatively low percentage when compared with other countries of the European Union. Concurrently, Italy has been one of the first countries in the EU to introduce a white certificate scheme and it is one of the few countries that allows individual prosumers of energy to sell electricity to the common energy grid[21]. As a result, the country is at the forefront for individual prosumption of renewable energy, with 900.000 power plants registered in 2020[22], but comparatively delayed in the field of renewable energy generation on a bigger scale.

---

[18] Kotilainen K. et al., From energy consumers to prosumers: How do policies influence the transition?, in: Accelerating the Energy Transition, Pami Aalto, Academic Press, (2021), p. 207
[19] Kotilainen K. et al, (2021), p. 207.
[20] Agrillo A. et al., Statistics Report on Renewable Energy in Italy 2020, GSE - Manager of Energy Services S.p.A., Directorate of Studies, Monitoring, and International Relations, Statistics and Target Monitoring Function, (2022), p.41.
[21] Campos I., et al, Regulatory challenges and opportunities for collective renewable energy prosumers in the EU, in: Energy Policy Vol. 138 111212, (2020), p. 6.
[22] https://www.autoconsumo.gse.it/ (last accessed: 25/05/2022).

On the contrary, Norway's energy generation is almost entirely based on renewable energy, with hydropower amounting to 89,4% of the total power production in March 2022.[23] This achievement puts the country ahead for what concerns minimization of carbon emissions and the accomplishment of its 2050 Climate targets. Nonetheless, in this scenario citizens are not incentivized to pursue green energy production on behalf of the State, which has been the impetus for prosumerism in other countries[24]. Indeed, by the beginning of 2021 only 6817 Norwegian consumers had been registered undertaking green energy prosumption.[25] Therefore, prosumerism represents a minor movement in Norway, despite the Government encouraging the population to undertake prosumption, for instance by revising the legislation in 2017 to provide a clearer legal basis for the regime applicable to prosumers[26].

1.2 Research questions

The present thesis analyses the national laws and financial incentives implemented in Italy and Norway, with the purpose to understand which laws, financial aids, and support schemes are more effective in promoting individual prosumerism. In engaging in this exercise, I compare the approach to prosumerism of a Nordic country that makes a substantial use of renewable energy with that of a Southern European country that is still lacking in terms of renewable energy use.

The present thesis compares the legal regimes on prosumers of Norway and Italy, with the objective to answer the following research questions:

- What is the legal regime on prosumers in Italy and Norway?
- Which laws and supports schemes are more effective in incentivizing the population to pursue prosumerism?

[23] https://www.ssb.no/energi-og-industri/energi/statistikk/elektrisitet (last accessed: 03/05/2022).
[24] Banet C., Prosumer Legislation in Norway - A first step for empowering small energy consumers, in: European Energy Law Report Vol. XII (2018), p. 169.
[25] https://www.nve.no/reguleringsmyndigheten/publikasjoner-og-data/statistikk/statistikk-over-sluttbrukermarkedet/plusskundestatistikk/ (last accessed: 13/05/2022).
[26] Banet C. (2018), p. 171.

1.3 Methodology

To fulfil the objective above, I use the comparative method to investigate the legal regimes of the two countries at once, highlighting the main features of each, something that could not have been achieved in the same way by analysing one country at a time.

The comparison at the core of the thesis concerns principally legal instruments, which are as well the main sources for the research of the thesis. For what concerns Italian legislation, these sources are mostly in the form of legislative decrees ("decreti legislativi"), in particular Legislative Decree 199/21[27], Legislative Decree 210/21[28], and Legislative Decree 387/03[29]. These sources of Italian law are found on the website of the Official Gazette ("Gazzetta Ufficiale") of the Italian Republic.

On the other hand, the sources of Norwegian law I will consider are mostly acts ("lover") and implementation regulations ("forskrifter"), in particular Regulation No. 302 of 11 March

[27] DECRETO LEGISLATIVO 8 novembre 2021, n. 199, Attuazione della direttiva (UE) 2018/2001 del Parlamento europeo e del Consiglio, dell'11 dicembre 2018, sulla promozione dell'uso dell'energia da fonti rinnovabili, (Legislative Decree of the 8th of November 2021 n. 199 "Implementation of 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", published on the Official Gazette n. 285 of the 30th of November 2021), (IT (2021) D. lgs. 199/21).

[28] DECRETO LEGISLATIVO 8 novembre 2021, n. 210, Attuazione della direttiva UE 2019/944, del Parlamento europeo e del Consiglio, del 5 giugno 2019, relativa a norme comuni per il mercato interno dell'energia elettrica e che modifica la direttiva 2012/27/UE, nonche' recante disposizioni per l'adeguamento della normativa nazionale alle disposizioni del regolamento UE 943/2019 sul mercato interno dell'energia elettrica e del regolamento UE 941/2019 sulla preparazione ai rischi nel settore dell'energia elettrica e che abroga la direttiva 2005/89/CE, (Legislative Decree of the 8th of November 2021 n. 210 "Implementation of Directive 2019/944 of the European Parliament and of the Council of 5 June 2019 on common rules for the internal market in electricity and amending Directive 2012/27/EU, as well as providing provisions for the adaptation of national legislation to the provisions of EU Regulation 943/2019 on the internal market in electricity and EU Regulation 941/2019 on risk preparation in the electricity sector and repealing the Directive 2005/89/EC", published on the Official Gazette n. 294 of the 11th of November 2021), (IT (2021) D. lgs. 210/21).

[29] DECRETO LEGISLATIVO 29 dicembre 2003, n. 387, Attuazione della direttiva 2001/77/CE relativa alla promozione dell'energia elettrica prodotta da fonti energetiche rinnovabili nel mercato interno dell'elettricita', (Legislative Decree of the 29th of December 2003 n. 387 "Implementation of Directive 2001/77/EC on the promotion of electricity from renewable energy sources in the internal electricity market", published on the Official Gazette n. 25 of the 31st of January 2004), (IT (2003) D. lgs. 387/03).

1999[30], Regulation no. 959 of 7 December 1990[31], and Act no. 50 of 29 June 1990[32]. These sources are collected through the official website of Norwegian laws, Lovdata.

For what concerns European Union law, the main sources I will use are communications, guidelines, regulations, and directives, in particular those that constitute the so-called Clean Energy Package[33].

The thesis also builds upon secondary sources, in the form of papers and commentaries regarding the norms compared, in order to obtain a more nuanced approach to the subject of the thesis.

The aforementioned sources are collected and analysed through doctrinal legal research, to achieve a systematic examination of the legal systems[34] that includes the legal reasoning and the development process behind the norms under analysis.[35] The choice of this method serves the purpose to include in the research not only the legal regimes as they currently are, but the reasons why the regimes evolved in different ways as well.

The thesis analyses the specific cases of Norway and Italy, going in-depth in investigating their approaches to prosumerism, including the contexts and processes involved[36] in the implementation of the legislation. To achieve this, the comparison is developed through the

[30] Forskrift av 11. mars 1999 nr. 302 om økonomisk og teknisk rapportering, inntekstramme for nettvirksomheten og tariffer, (Regulation on financial and technical reporting, income limit for the network business and tariffs), – (NO (1999) FOR-1999-03-11-302).
[31] Forskrift av 7. desember 1990 nr. 959 om produksjon, konvertering, overføring, handel, distribusjon og bruk av energi mv, (Regulations of 7 December 1990 no. 959 on production, conversion, transmission, trade, distribution and use of energy, etc.) – (NO (1990) FOR 1990-07-12-959).
[32] Lov av 29. juni 1990 nr. 50 om produksjon, omforming, overføring, omsetning, fordeling og bruk av energi (Energiloven), (Act on production, transformation, transfer, sale, distribution and use of energy or the Energy Act), - (NO (1990) LOV-1990-06-29-50).
[33] The Clean Energy Package is a package of eight Directives, the Renewable Energy Directive, the Energy Efficiency Directive, the Energy Market Directive, the Regulation on the Governance of the Energy Union and Climate Action, the Energy performance in buildings, the Electricity regulation, the Risk preparedness Regulation, and the ACER Regulation. The Package serves the purpose of moving the EU and its Member States away from fossil fuels towards cleaner energy and to deliver on the EU's Paris Agreement commitments for reducing greenhouse gas emissions.
[34] Kharel A., Doctrinal legal research, in: Myneni, Legal Research Methodology, Allahabad Law Agency, Vol.16 (2006), p.1
[35] Kharel A. (2006), p.2.
[36] Rashid Y. et al, "Case Study Method: A Step-by-Step Guide for Business Researchers", in: International Journal of Qualitative Methods Volume 18: 1–13 (2019), p. 5.

case study method, both in order to isolate the cases under investigation and limit the analysis to the topic alone, and to provide for a descriptive study, rather than a prescriptive one[37].

Since the purpose of the thesis is to assess the effectiveness of the laws and incentives enforced by the two countries in creating positive conditions for citizens to become prosumers, I will employ a set of effectiveness criteria. In doing so, I will take inspiration from Akirav's model for determining legislative significance and effectiveness, in particular his criteria "Is the bill worded clearly?[38]" for my clarity criteria, "Is the bill feasible?[39]" for my proportionality criteria, and "Does the bill correct injustice?[40]" for my cost-effectiveness criteria.

The first criterion is clarity of the applicable norms, therefore how easy it is to find information on the applicable law for people coming from all different backgrounds and with no prior knowledge on prosumerism, including certainty in the implementation of the applicable laws and financial incentives in place. The second criterion is proportionality of the norms, i.e., whether the norms create a reasonably accessible environment for prospective prosumers, whether it produces obstacles for prosumers and whether said obstacles are proportionate to the interest they try to preserve or not. The third and final criterion is cost-effectiveness, therefore considering whether the laws and incentives balance financial disadvantages of citizens interested in entering prosumerism, whether the laws and incentives tackle financial obstacles that low-income prosumers might find when first approaching prosumerism, and if the regime in place aids low-income citizens in pursuing prosumerism.

My choice of the three criteria is directed by the necessities that individual citizens have when first approaching prosumption: the necessity for clear information, simple access procedures, and financial accessibility. By assessing if these necessities are met, I will be able to assess whether the laws and financial incentives in place are effective in creating positive conditions for individual citizens to become prosumers.

---

[37] Punch, K, Introduction to social research: Quantitative and qualitative approaches (2nd ed.). London, England: Sage (2005), p. 121.
[38] Akirav O., A model for determining legislative significance and effectiveness, in: The Theory and Practice of Legislation, Vol. 6:3, (2019), p. 349.
[39] Akirav O., (2019), p. 348.
[40] Akirav O., (2019), p. 348.

1.4 Thesis structure

The first chapter provides basic structural background to the entire thesis. The first chapter is divided in three parts, starting with a subchapter on the European Union law's approach to prosumerism and renewable energy laws, which serves the purpose of giving a contextual background to some of the legal differences between Italy and Norway.

The second and third subchapters focus on the national laws and financial incentives implemented in Italy and Norway that regard individual prosumers. The subchapter is divided in Definition, Permit system, Connection to the grid, Energy trading, and Financial incentives and support schemes. The purpose of this subdivision is to differentiate the different phases individual citizens have to cross when becoming prosumers. The three subchapters serve the objective of explaining the legal background in which the two countries operate by answering the question "What is the legal regime on prosumers in Italy and Norway?".

The second chapter engages with the comparative method to draw attention to the differences of the legal approaches of Norway and Italy, answering to the question "Which laws and supports schemes are more effective in incentivizing the population to pursue prosumerism?". To answer the question, I will use the three effectiveness criteria I listed in the Methodology chapter: clarity, proportionality, and cost-effectiveness. The chapter mirrors the subdivision of the previous chapter in Permit system, Connection to the grid, Energy trading, and Financial incentives and support schemes.

Finally, the third chapter serves the purpose of drawing conclusions on the aspects researched in the previous chapters. The Conclusions chapter draws lessons from the comparison in the previous chapter by examining which measures work as stronger incentives for individuals to uptake prosumerism, and how a state can, through practical measures, create a fertile ground for citizens to start self-producing renewable energy.

2 Chapter 2: The Case Study

2.1 Section I: Prosumerism in European Union law

European Union law has regulated the topic of prosumerism with different legislative instruments, both binding and non-binding. These instruments can impact the legal regime of both Norway and Italy when they have EEA relevance, or only the regime of Italy when they don't have EEA relevance.

When a legal act of the EU is said to have EEA relevance it means, according to Article 102 (1) of the EEA Agreement, that the EEA Joint Committee shall take a decision concerning the appropriate amendment of the EEA Agreement to permit application of the legislation in the EEA countries[41].

EEA relevant directives, regulations, decisions, and recommendations go through many stages from the time they are prepared in the European Commission until they are adopted in the EU and EEA and incorporated into Norwegian law. The implementation of legal acts can take from months to years, depending on the type of case and content[42].

New EU legal rules are published in the EU Official Journal, where the Commission indicates EEA-relevant cases with a footnote. However, the three EEA countries make an independent assessment of what they believe is EEA-relevant. In Norway, the relevance of EEA cases and any need for exceptions will be discussed in the ministries' special committees for EEA matters.[43]

After the individual assessment, Norway, Iceland, and Liechtenstein jointly assess whether and how EU legislation should be incorporated into the EEA Agreement in its entirety or whether parts fall outside the scope of the agreement in the EEA working groups. For an EU provision to be accepted to have EEA relevance, the three EEA countries must accept it through consensus.

When the EEA Committee has decided on the incorporation of new EU legislation into the EEA Agreement and the decisions have entered into force, Norway is obliged to implement most of these in Norwegian laws, regulations, or circulars.

EU legal acts that are incorporated into the EEA Agreement are listed in the Annexes and Protocols to the EEA Agreement. Matters related to energy are contained in Annex IV of the Agreement[44].

---

[41] Council of the European Communities, and Commission of the European Communities, Agreement on the European Economic Area, Published on the Official Journal No L 1, 3.1.1994, p. 3; and EFTA States' official gazettes (EEA 1994), Art. 102, par. 1.
[42] https://www.europalov.no/laer-mer/beslutningsprosessen (last accessed: 03/05/2022).
[43] https://www.europalov.no/laer-mer/beslutningsprosessen (last accessed: 03/05/2022).
[44] EEA (1994), Annex VII.

Unless otherwise stated in the EEA Committee Decision, the same implementation and application deadlines apply to Norway as to the EU countries, as laid down in EU legislation. If these deadlines have been passed when the EEA decision is made, the date of entry into force of the decision applies as a new deadline.

Only once the EU legislation has been implemented in Norwegian law will the provisions apply to Norwegian citizens and legal entities. EU legislation thus has no direct effect in Norway, even after an EEA committee decision has been made on their incorporation into the EEA agreement.

For the EU countries, the situation is different: EU regulations and decisions apply directly as national legal rules, while directives must be implemented in national law in the same way as in Norway.

All the texts analysed in the following chapters are deemed to have EEA relevance according to the EU Commission, nonetheless, they are not yet implemented in Norway.

The Directives analysed are enforced in Italian law, or, for what concerns non-binding instruments, influence implementation of Italian law.

All the Directives analysed in the following chapters are still under EEA investigation, therefore scrutiny of the impact the Directives have on Italian legislation vis-à-vis Norwegian legislation can explain aforehand some of the differences between the two legal systems.

2.1.1 The Renewable Energy Directive

The Renewable Energy Directive[45] (hereafter RED) is an EU directive that belongs to the Clean Energy Package, a package of eight directives that serve the purpose of directing the EU energy policy framework away from the use of fossil fuels, and towards renewable energy, in order to deliver on the EU's commitments for reducing greenhouse gas emissions under the Paris Agreement[46].

[45] 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 (EU 2018).
[46] The Paris Agreement is a legally binding international treaty on climate change. It was adopted by 196 Parties in December 2015 and entered into force in November 2016. Its goal is to limit global warming to below 1.5 degrees Celsius, compared to pre-industrial levels. To achieve this long-term temperature goal, countries aim to reach global peaking of greenhouse gas emissions to achieve a climate neutral world.

Among the directives of the Clean Energy Package, the RED covers the topic of prosumerism in the most prominent way. The term "prosumer" is not used in the RED, nonetheless, the term "renewables self-consumer", as there defined, encompasses the persona of a prosumer.

Renewable self-consumers are defined as operating an installation within their premise or other premises, exclusively generating renewable energy with the purpose of their final consumption. The possibility to sell the generated energy is accorded to renewable self-consumers only insofar as the trading does not represent their primary professional activity.[47] The Directive further clarifies that, whereas the installation could be owned or operated by a third party, the benefitting party, and not the operating third party, should be considered a renewable self-consumer[48].

As a propeller of the energy transition, renewables self-consumers are players strongly promoted by the RED. To this effect, the Directive requires Member States to encourage citizens to become prosumers, insisting, in the Preamble, that renewable self-consumers are an opportunity of which the Member States should be taking advantage[49]. Part of this advantage is later detailed by the RED, which provides that the electricity produced by prosumers shall be considered in the calculation of the share of renewable energy of each Member State[50].

The Directive clarifies that consumers should be enabled to generate renewable energy to consume, store or sell[51], without being subject to discriminatory or disproportionate procedures and charges[52], maintaining their rights and obligations as consumers[53].

The RED further determines practical aspects related to the regulation of prosumerism in the Articles concerning the application for permit process, the notification procedure for grid connection, and the provision of information and training.

Permit process means the procedure necessary for energy producers to obtain a license that grants them the authorization to produce energy. In Article 16, the Directive determines that

[47] EU (2018), Art. 2, par 14.
[48] EU (2018), Art. 21, par. 5.
[49] EU (2018), Preamble, Recital 67.
[50] EU (2018), Art. 7, par. 2.
[51] EU (2018), Art. 21, par. 2 subpar. a.
[52] EU (2018), Art. 21, par. 2 subpar. a (II).
[53] EU (2018), Art. 21, par. 2 subpar. c.

Member States are required to designate a contact point guide for applicants and to facilitate the administrative permit application[54]. The permit granting process should be carried out transparently[55], and the resources that provide guidance for the permit application process should be available online to everyone[56].

Article 16 also sets detailed parameters regarding the content of the permits[57] and a deadline of one year for the permit-granting process for installations with an electrical capacity of less than 150 kW[58], a power capacity encompassing the majority of individual prosumers.

Finally, Article 16 establishes that Member States should ensure that renewable self-consumers shall enjoy of a simplified and swift permit-granting process for repowering of their installations, which should not exceed one year[59].

The notification procedure is the procedure necessary for prosumers to notify to the grid operators their desire to be connected to the grid. The subject is disciplined in Article 17 of the RED, which determines that Member States shall establish a simple-notification procedure for prosumer units with a capacity of 10,8 kW or less[60]. The distribution system operator (hereafter DSO) can reject or accept the request for connection to the grid. Nonetheless, after a month without response, the prosumer can assume silent consent and connect the installation to the grid[61].

Furthermore, Article 17 envisions the possibility for Member States to allow a simple-notification procedure for installations with an electrical capacity of above 10,8 kW and up to 50 kW, but only at the condition of granting that grid stability, grid reliability, and grid safety are maintained[62].

Information and training of energy producers is a necessary aspect to ensure that all citizens have a similar opportunity to become energy prosumers. In this context, Article 18 provides that Member States shall ensure that information on support measures is made available to

[54] EU (2018), Art. 16, par 1.
[55] EU (2018), Art. 16, par. 2.
[56] EU (2018), Art. 16, par. 3.
[57] EU (2018), Art. 16, par. 1.
[58] EU (2018), Art. 16, par. 5.
[59] EU (2018), Art .16, par. 6.
[60] EU (2018), Art. 17, par. 1.
[61] EU (2018), Art. 17, par. 1.
[62] EU (2018), Art. 17, par. 2.

prosumers[63]. The information should include net benefits, costs, and energy efficiency of equipments and systems for the use of heating, cooling, and electricity from renewable sources[64].

Furthermore, prosumers shall be made aware of the certificate schemes existing in the Member States[65]. Certificate schemes, in this context, are documents categorising certain types of energy sources according to a set of criteria. When energy producers provide a type of energy included in the scheme, usually energy from renewable sources, they are allotted a certificate. By the end of the year, energy suppliers should have a determined number of certificates, proportionate to the amount of power of their energy production, otherwise they will be sanctioned. Since energy suppliers can buy certificates from suppliers that produced more energy from renewable sources that they were expected to, the certificates gain monetary value inside a dedicated market. By selling their exceeding certificates, renewable energy producers can produce revenues, which rewards their compliance with existing norms.

Finally, Article 21 of the RED encompasses the full regime that applies to renewables self-consumers. The Article reinforces some points already brought up in the Preamble of the Directive, i.e., the principle of non-discrimination of renewable self-consumer[66], the entitlement of citizens to become prosumers[67], the persistence of their rights and obligations as final consumers[68]. Along these lines, Article 21 establishes that prosumers should be entitled to sell their excess production of renewable electricity through power purchase agreements[69], electricity suppliers, and peer-to peer (P2P)[70] electricity trading.[71]

Through the trading arrangements and support schemes set in place by Member States, prosumers are entitled to receive remuneration for the renewable electricity that they feed into the grid[72]. Such remuneration shall not only reflect the market value of the energy that

[63] EU (2018), Art. 18, par. 1.
[64] EU (2018), Art. 18, par. 2.
[65] EU (2018), Art. 18, par. 3.
[66] EU (2018), Preamble, Recital 68.
[67] EU (2018), Preamble, Recital 50.
[68] EU (2018), Preamble, Recital 72.
[69] Renewables power purchase agreements are a long-term contract under which a business agrees to purchase electricity directly from a renewable energy generator.
[70] Peer-to-peer trading arrangements are a business model, based on an interconnected platform, that serves as an online marketplace where consumers and producers directly trade electricity, without the need for an intermediary.
[71] EU (2018), Art. 21, par. 2 subpar. a.
[72] EU (2018), Art. 21, par. 2 subpar. d.

prosumers are supplying to the grid, but also the long-term benefits that the production of renewable energy had for society and the environment[73].

On the taxation of citizens undertaking prosumerism and operating installations on their premises, the Directive insists that prosumers shouldn't be subject to disproportionate or discriminatory charges or fees[74]. This applies to fees related to the energy consumed, fed into the grid,[75] and stored by prosumers, and to the installations operated for storing within their premises[76].

Nonetheless, MSs may impose non-discriminatory and proportionate charges and fees on the self-generated renewable electricity remaining within the prosumers' premises in certain circumstances[77]. For instance, prosumers can be subject to fees, insofar as they are economically viable for the project and they don't represent a disincentive, if the self-generated renewable electricity is effectively supported via support schemes[78], or if the installation has a total installed electrical capacity of more than 30 kW[79]. Another exception is expected to enter into force after December the 1st of 2026[80].

Article 21 acknowledges that renewable self-consumers could decide to operate jointly when living in close proximity and leaves up to MSs to proportionately differentiate between individual renewables self-consumers and jointly acting renewables self-consumers[81].

The RED also establishes that Member States are obligated to put in place an enabling framework to promote and facilitate the uptake of prosumerism for citizens[82]. The enabling framework should ensure that prosumerism, the related relevant existing support schemes, and electricity market segments[83] are accessible to all households without discrimination, with special attention for low-income and vulnerable households[84]. The framework thus

[73] EU (2018), Art. 21, par. 2 subpar. d.
[74] EU (2018), Art. 21, par. 2 subpar. a (II).
[75] EU (2018), Art. 21, par. 2 subpar. a (II).
[76] EU (2018), Art. 21, par. 2 subpar. b.
[77] EU (2018), Art. 21, par. 3.
[78] EU (2018), Art. 21, par. 3, subpar. a.
[79] EU (2018), Art. 21, par. 3, subpar. c.
[80] EU (2018), Art. 21, par. 3, subpar. b.
[81] EU (2018), Art. 21, par. 4.
[82] EU (2018), Art. 21, par. 6.
[83] EU (2018), Art. 21, par. 6, subpar. e.
[84] EU (2018), Art. 21, par. 6, subpar. a.

established must address existing financial[85] and regulatory[86] barriers to prosumerism, and cover measures to facilitate access to financing of projects[87] and to the grid and the electricity market[88], including incentives to building owners and tenants[89].

Member States are also required to assess the existing unjustified barriers to prosumerism and in the energy networks present on their territories[90]. These assessments should inform the drafting of the enabling frameworks for prosumerism[91] in order to effectively reduce the potential obstacles for citizens that aspire to self-production of energy.

The 2018 RED has been implemented in Italian law through Legislative Decree 199/21, which entered into force in late 2021[92]. The subject of implementation of the RED in Italian law will be further investigated in Section II of chapter 2 analysing Italian law.

For what concerns Norwegian law, the 2018 Renewable Energy Directive is still under scrutiny by the EEA, therefore the act is not implemented in Norwegian law[93]. However, the country still enforces the 2009 Renewable Energy Directive[94], as it will be further illustrated in Section III of chapter 2, on Norwegian law.

2.1.2 The Electricity Market Directive

The other Directive belonging to the Clean Energy Package that plays an important role in regulating prosumerism in EU law is the so-called Electricity Market Directive[95] (hereafter EMD). Similarly to the RED, the EMD does not use the term "prosumers", but instead defines the term "active customer" as an individual which bears similar characteristics to energy prosumers[96].

[85] EU (2018), Art. 21, par. 6, subpar. b.
[86] EU (2018), Art. 21, par. 6, subpar. c.
[87] EU (2018), Art. 21, par. 6, subpar. b.
[88] EU (2018), Art. 21, par. 6, subpar. e.
[89] EU (2018), Art. 21, par. 6, subpar. d.
[90] EU (2018), Art. 21, par. 6.
[91] EU (2018), Art. 21, par. 6.
[92] https://www.gazzettaufficiale.it/eli/id/2021/11/30/21G00214/sg (last accessed: 03/05/2022).
[93] https://www.efta.int/eea-lex/32018L2001 (last accessed: 03/05/2022).
[94] https://www.efta.int/eea-lex/32009L0028 (last accessed: 03/05/2022).
[95] Directive (EU) 2019/944 of the European Parliament and of the Council of 5 June 2019 on common rules for the internal market for electricity and amending Directive 2012/27/EU (EU 2019).
[96] EU (2019), Art. 15, par. 2, subpar. e.

According to the EMD, active customers can consume, store, and sell electricity generated within its premises[97]. Active customers can sell the excess energy generated through power purchase agreements[98] or participating in flexibility or energy efficiency schemes[99], insofar as this doesn't represent their primary professional or commercial activity[100].

Norms instituting the regime that applies to active customers are presented in Article 15 of the EMD. The Article premises that final customers are entitled to play an active role in their energy consumption by becoming active customers. Member States have the obligation to safeguard this freedom and to preserve active customers from disproportionate or discriminatory technical and administrative requirements, procedures, and charges.[101]

Along these lines, Member States must enable active customers to operate their installations either directly or through aggregations[102]. An active customer can delegate to a third party the management, installation, operation, data handling, and maintenance of the installations required for their activities[103]. The delegated third party is not considered an active customer, a title that is retained by the benefitting party[104].

The Directive provides that prosumers should be subject to cost-reflective, transparent, and non-discriminatory network charges, and that such charges should account separately for the electricity fed into the grid and the electricity consumed from the grid[105]. The accounting should be managed in compliance with Regulation (EU) 2019/943 on the internal electricity market, which says that distribution tariffs shall be cost-reflective considering the use of the distribution network by system users, including active customers[106]. Furthermore, the methodology and underlying costs used for the calculation of the relevant network tariffs should be made publicly available in order to increase transparency[107].

[97] EU (2019), Art. 15, par. 2, subpar. e.
[98] EU (2019), Art. 15, par. 2, subpar. e.
[99] EU (2019), Art. 15, par. 2, subpar. c.
[100] EU (2019), Art. 2, par. 8.
[101] EU (2019), Art. 15, par. 1.
[102] EU (2019), Art. 15, par. 2, subpar. a.
[103] EU (2019), Art. 15, par. 2, subpar. d.
[104] EU (2019), Art. 15, par. 2, subpar. d.
[105] EU (2019), Art. 15, par. 2, subpar. e.
[106] EU (2019), Art. 18, par. 7.
[107] EU (2019), Art. 59, par. 9.

The EMD also binds Member States to protect prosumers owning an energy storage facility from double charges, including network charges, for stored electricity remaining within their premises[108], and from disproportionate licensing requirements or fees[109].

Active customers that own an energy storage facility are entitled to a grid connection within a reasonable time after the request, provided that they are financially responsible for the imbalances they cause in the electricity system[110], in accordance with Article 5 of the Regulation on the internal electricity market[111], and that the adequate metering is offered[112]. They are also allowed to provide several services simultaneously, where it is technically feasible[113].

The EMD has been implemented in Italian law through Legislative Decree 210/21 of 8 November 2021[114]. The subject of implementation of the EMD in Italian law will be further investigated in Section II of chapter 2 analysing Italian law.

The Directive is still under scrutiny by the EEA, therefore it is not implemented in Norwegian law[115]. The 2009 EMD was implemented in Norway at the beginning of 2019[116]. This shows, in the first place, that the Norwegian legislation on the electricity market received substantive influence of EU law, and secondly that Norwegian law has recently implemented a new set of legislation on the electricity market.

2.1.3 Guidelines on State aid for climate, environmental protection, and energy 2022

The 2022 Guidelines on State aid for climate, environmental protection, and energy[117] is a non-binding instrument of EU law that is relevant for regulating prosumerism in the Member States. The purpose of non-binding, or soft law, instruments is of clarifying EU legislation,

[108] EU (2019), Art. 15, par. 5, subpar. b.
[109] EU (2019), Art. 15, par. 5, subpar. c.
[110] EU (2019), Art. 15, par. 3, subpar. e.
[111] EU (2019), Art. 5.
[112] EU (2019), Art. 15, par. 5, subpar. a.
[113] EU (2019), Art. 15, par. 5, subpar. d.
[114] https://www.gazzettaufficiale.it/eli/id/2021/12/11/21G00233/sg (last accessed: 03/05/2022).
[115] https://www.efta.int/eea-lex/32019L0944 (last accessed: 03/05/2022).
[116] https://www.europalov.no/rettsakt/elektrisitetsdirektivet-2009-tredje/id-385 (last accessed: 03/05/2022).
[117] Communication of the Commission on the Guidelines on State aid for climate, environmental protection and energy 2022 (2022/C80/01), (COM 2022).

therefore affecting the implementation of law in EU Member States, and the enforcement of norms in the EEA countries when implementing EU legislation.

In particular, the Guidelines serve the purpose of providing guidance on the way the European Commission will assess the compatibility of financial aid measures to advantage certain companies or activities, known as state aid[118]. More specifically, the Guidelines are relevant for what concerns the regime for support schemes and financial incentives for prosumers, which can fall under the definition of State aid for energy.

In the context of operations involved in environmental protection, the Guidelines select some measures of state aid that are deemed compatible with the internal market[119] and with Article 107 of the Treaty on the Functioning of the European Union on aid granted by the State[120].

Some of the compatible measures listed are aid for the reduction and removal of greenhouse gas emissions, including through support for renewable energy and energy efficiency[121], aid for the improvement of the energy and environmental performance of buildings[122], aid for resource efficiency and for supporting the transition towards a circular economy[123], aid in the form of reductions in taxes or parafiscal levies[124], aid for the security of electricity supply[125], and aid for energy infrastructures[126]. All these categories can apply to financial aids enforced to support prospective prosumers.

The Guidelines also present a set of criteria to distinguish between compatible and incompatible state aid measures. The criteria are necessity of the aid[127], appropriateness[128], proportionality[129], transparency[130], and avoidance of undue negative effects on competition and trade[131]. The criteria, as EU soft law, serve the purpose of guiding EU Member States in

[118] COM (2022), p. 8.
[119] COM (2022), p. 9.
[120] Treaty on the Functioning of the European Union, Official Journal of the European Union C 326/47, (EU (2012)), Art. 107.
[121] COM (2022), p. 9.
[122] COM (2022), p.10.
[123] COM (2022), p. 10.
[124] COM (2022), p. 10.
[125] COM (2022), p. 10.
[126] COM (2022), p. 10.
[127] COM (2022), p. 23.
[128] COM (2022), p. 24.
[129] COM (2022), p. 25.
[130] COM (2022), p. 27.
[131] COM (2022), p. 28.

designing the financial incentives, supports schemes, and other forms of state aids they put in place, including those used to subsidize individual prosumerism.

2.2 Section II: Italian law

The present chapter analyses norms of Italian law that regulate individual prosumerism. The official legal sources are in Italian, and there is no official English translation available of the laws I will be employing. Only a partial unofficial translation of Legislative Decree 199/21 can be found on the internet[132], for the other necessary legal sources I will independently employ my own unofficial English translation.

To understand the regulatory framework of prosumerism in Italian law, it is necessary to understand how the process of generation, import, export, storage, purchase, and sale of energy is regulated in Italian law. According to Law 239/04, said processes are free throughout the national territory, in compliance with the public service obligations deriving from EU legislation and current legislation[133]. The activities of management of energy supply infrastructures are in the public interest and are subject to public service obligations arising from EU legislation, existing legislation, and special agreements with the competent authorities.[134]. The activities of distribution of electricity transmission and dispatching of electricity are allocated in concession according to the provisions of national law[135].

The present chapter is divided in: a subchapter on the definition of the term prosumer in Italian law; a subchapter on the regulation of the permit system for building and operating an installation for the self-production of renewable energy; a subchapter on the norms and processes regulating the connection to the grid for prosumers; a subchapter on the tariffs and laws on energy trading for individual prosumers; and finally a subchapter on the financial incentives and support schemes available to prosumers. The same structure will be replicated in the chapter about Norwegian law.

---

[132] The partial unofficial English translation can be found at https://www.dentons.com/en/insights/alerts/2021/december/21/new-decree-implements-red-ii-directive (last accessed: 04/05/2022).
[133] LEGGE 23 agosto 2004, n. 239 "Riordino del settore energetico, nonché' delega al Governo per il riassetto delle disposizioni vigenti in materia di energia.", (Law of the 23rd August 2004 n. 239 "Reorganization the energy sector, as well as delegating to the Government for the reorganization of the current provisions on energy"), (IT (2004), L. 239/04), Art. 1, par. 2, subpar. a.
[134] IT (2004), L. 239/04, Art. 1, par. 2, subpar. b.
[135] IT (2004), L. 239/04, Art. 1, par. 2, subpar. c.

2.2.1 Definition

The definition of the term "prosumer" in Italian law follows the steps and complexities that I previously described in European Union law. While the term 'prosumer' does not feature in any Italian legal instrument - and its literal Italian translation "prosumatore" might sound unnatural or graceless to native speakers - the notion of prosumer has been defined using different names, in numerous legal instruments. Such definition has evolved in the past decades, alongside the definitions provided by EU law.

The process of legal definition of the term prosumer started at the end of the 20th century with the implementation of Legislative Decree 79/99, the transposition of the 1996 EMD in Italian law, and the legal definition of the term self-producer ("autoproduttore") and culminated in 2021 with the transposition and enforcement of the 2018 RED and of the 2019 EMD.

According to the definition of Legislative Decree 79/99, a self-producer of energy was a physical or legal person that produces energy and consumes at least the 70% per annum of the energy produced[136]. The threshold of 70% disappeared in the recent transposition of the 2019 EMD in Italian law in Legislative Decree 210/21. According to Decree 210/21, an "active customer" is an end customer who, within its premise, performs at least one of the following functions: production of electricity for its own consumption, storage or selling of self-produced electricity, participation in energy efficiency mechanisms, possibly also through an aggregator, but without such activities constituting its principal commercial or professional occupation[137].

Legislative Decree 387/03, which implemented the 2001 RED, only included a definition of microgeneration plants, as plants for the production of electricity with a generating capacity not exceeding one electric MW that generate energy from renewable sources[138]. This evolved with the transposition of the 2018 RED in Legislative Decree 199/21.

In Legislative Decree 199/21, "renewables self-consumers" are defined as end customers who produce renewable electricity for their own consumption and can store or sell the self-

[136] Decreto Legislativo 16 marzo 1999, n. 79 "Attuazione della direttiva 96/92/CE recante norme comuni per il mercato interno dell'energia elettrica", (Legislative Decree of the 16th of March 1999 n. 79 "Implementation of Directive 96/92/EC laying down common rules for the internal market in electricity"), (IT (1999), D. lgs 79/99), Art. 2, par. 2.
[137] IT (2021), D. lgs 210/21, Art. 3, par. 2.
[138] IT (2003), D. lgs 387/03, Art. 2, par. e.

produced renewable electricity in accordance with the conditions referred to in Article 30 of the Decree[139].

Article 30 of Decree 199/21 establishes that an end customer who becomes a self-consumer of renewable energy produces and stores renewable electricity for its own consumption[140], setting up a renewable energy production plant directly interconnected to the end user.

Similarly to what already established by paragraph 5 of Article 21 of the RED[141], Decree 199/21 establishes that the plant can be owned by a third party or managed by a third party for what concerns installation, operation, metering, and maintenance. Said third party is subject to the instruction of the self-producer and is not considered to be a renewable energy self-producer, a title that is retained by the benefitting party[142].

2.2.2 Permit system

To get started in the activity of prosumerism, individual citizens would need to build a plant for the generation of renewable energy. For this purpose, it is usually necessary to obtain a permit, either for the construction of the plant, or for the objective of energy generation.

The discipline related to the permitting system for renewable energy producers in Italian law used to be regulated by Article 12 of Legislative Decree 387/03. The Article established a power threshold for plants, above which a permit was made necessary[143]. The threshold is detailed in Annex A of Decree 387/03, differentiating the plants according to the renewable source they generate energy off. For wind power, the threshold was established at 60 kW, for PV solar power it was established at 50 kW, for hydropower at 100 kW, for biomass at 200 kW, and for biogas at 250 kW.[144]

Decree 387/03 also maintained that the procedures for safety control pertaining to activities subject to fire prevention supervisions had to be respected whatever the power threshold of the plants,[145]as well as the norms regulating the Communication of beginning of activity still

[139] IT (2021), D. lgs 199/21, Art. 2, par. 1, subpar. n.
[140] IT (2021), D. lgs 199/21, Art. 30, par. 1, subpar. a.
[141] EU (2018), Art. 21, par. 5.
[142] IT (2021), D. lgs 199/21, Art. 30, par. 1, subpar. a (1).
[143] IT (2003), D. lgs 387/03, Art. 12, par. 5.
[144] IT (2003), D. lgs 387/03, Annex A.
[145] IT (2003), D. lgs 387/03, Art. 12, par. 2.

applied to plants that did not require a formal permit for the construction works[146]. A Certified Communication for beginning of activity ("Denuncia certificata di inizio lavori") was sufficient for the construction of a renewable energy power plant under the power threshold, without the need for a building permit[147].

This regime clearly had to change with the transposition of the RED, since the Directive sets a permit threshold of 50 kW for all power plants without distinction[148].

The regime was reformed first in 2011 by Legislative Decree 28/11, which established that for plants above the power threshold a Certified Communication wasn't required anymore. In place of the Certified Communication, Decree 28/11 instituted the Simplified Enablement Procedure (hereafter SEP)[149], which had to be submitted to the municipality at least 30 days before the beginning of the works, accompanied by a detailed report, signed by a qualified technician, and with the appropriate design elaborations. The SEP also certified the compatibility of the project with urban planning tools and building regulations in force, as well as compliance with safety and hygiene standards.[150] After the deadline of 30 days from the presentation of the SEP without any feedback or notification from the municipality, the construction works could begin in accordance with the law[151].

A different regime was instituted as well for some types of small plants for the production of electricity, heat, and cold from renewable energy sources. These projects could be assimilated to projects of "free construction" ("edilizia libera"). Projects for the installation of solar photovoltaic always fell in this category, and simply required a Communication to the municipality before the beginning of the works.[152] The Communication should be

---

[146] IT (2003), D. lgs 387/03, Art. 12, par. 5.
[147] Decreto del Presidente della Repubblica 6 giugno 2001, n. 380 "Testo unico delle disposizioni legislative e regolamentari in materia edilizia", (Decree of the President of the Republic of the 6th of June 2001 n. 380 "Consolidated text of the building laws and regulations. (Text A)"), published on the Official Gazette n. 266 of the 15th of November 2001, (IT (2001), D. P. R. 380/01), Art. 22-23.
[148] EU (2018), Art. 17, par. 1.
[149] Decreto legislativo 3 marzo 2011, n. 28 "Attuazione della direttiva 2009/28/CE sulla promozione dell'uso dell'energia da fonti rinnovabili, recante modifica e successiva abrogazione delle direttive 2001/77/CE e 2003/30/CE", (Legislative Decree of the 3rd of May 2011 n. 28 "Implementation of Directive 2009/28/EC on the promotion of the use of energy from renewable sources, amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC"), (IT (2011), D. lgs 28/11), Art. 6, par. 4.
[150] IT (2011), D. lgs 28/11, Art. 6, par. 4.
[151] IT (2011), D. lgs 28/11, Art. 6, par. 4.
[152] IT (2011), D. lgs 28/11, Art. 7, par. 1.

accompanied by a detailed report signed by a qualified technician. Construction works could start without the need to wait for 30 days, or for approval by the municipality.[153]

With the transposition in Italian law of the RED with Legislative Decree 199/21, the permit regime has been reformed again. The Decree establishes the introduction of the digital Single Platform ("Piattaforma Unica") for the submission of all permit applications for renewable energy production[154]. The platform will provide guidance and assistance during all stages of the administrative procedure and interoperability with computer tools for submission of applications already operational at national, regional, provincial, or municipal level[155]. The platform is a contact point guide for applicants that facilitates the administrative permit application[156], enacting Article 16 of the RED.

Furthermore, Legislative Decree 199/21 introduced the Single Template ("Modello Unico") for the procedures of authorisation, a single document that could be utilised to apply for all the different activities, including energy production, connection to the grid, and energy trading[157]. The Template can be submitted by prospective prosumers via the so-called Single Platform, once it becomes active, without having to wait for a response by the municipality or the Energy Services Operator ("Gestore dei Servizi Energetici" hereafter GSE)[158].

The Single Templates can be used by prosumers installing solar PV with a power not exceeding 50 kW[159], which are no longer considered to fall under the regime of "free construction"[160].

Under Annex II of Decree 199/21, the installation of solar photovoltaic systems can be carried out without notice to the municipality when it pertains to ordinary maintenance. In accordance with Legislative Decree 115/08, this is the case when the system adheres to the roof of existing buildings, or it is integrated into the roofs of existing buildings with the same inclination and orientation as the roofs themselves.[161] The components of the plant must not

[153] IT (2011), D. lgs 28/11, Art. 6.
[154] IT (2021), D. lgs 199/21, Art. 19, par. 1.
[155] IT (2021), D. lgs 199/21, Art. 19, par. 2.
[156] EU (2018), Art. 16.
[157] IT (2021), D. lgs 199/21, Art. 19, par. 3.
[158] IT (2021), D. lgs 199/21, Art. 19, par. 3.
[159] IT (2021), D. lgs 199/21, Art. 25, par. 3, subpar. b.
[160] IT (2021), D. lgs 199/21, Art. 25, par. 6.
[161] IT (2008), D. lgs. 115/08, Art 11, par 3.

change the shape of the buildings themselves and the surface of the plant must not be greater than that of the roof on which it is built.[162]

When these conditions do not apply, the project is not considered to pertain to ordinary maintenance and the work can only start once the municipality has received the appropriate communication certified by a qualified technician[163]. This communication, also known as Certified Communication of Beginning of Construction Works ("Comunicazione di Inizio Lavori Asseverata") must include a certificate concerning the landscape and cultural authorization, where required[164]. After the Communication has been sent, the construction works can start without approval from the municipality[165].

After the beginning of the conflict between Ukraine and Russia in February 2022 caused Italy to acknowledge its energy dependence on other countries and on non-renewable sources, the reform of the permit system for solar PV has been considered once again. On the 21st of April 2022 the two chambers of the Italian Parliament have agreed on the enforcement of the Law - Decree 17/22[166] on the containment of the costs of electricity and natural gas, for the development of renewable energy and the relaunch of industrial policies[167]. Inter alia, the enforcement of the Law-Decree established that construction works for domestic PV with a power up to 200 kW can be started upon the simple compilation of the Single Template[168].

Nonetheless, Law-Decrees by design are only adopted to front a situation of stringent urgency or necessity and only have a provisory application. It must also be remarked that extending a simplified permit procedure to installations above 150 kW of power is not in line with Article 17 of the RED[169], as seen in Section I. Therefore, implementation of this new regime cannot be permanent, or it could cause sanctioning by the European Union.

---

[162] IT (2021), D. lgs 199/21, Annex II, Recital 2, par. a.
[163] IT (2021), D. lgs 199/21, Annex II, Recital 2, par. b.
[164] IT (2021), D. lgs 199/21, Annex II, Recital 2, par b.
[165] IT (2021), D. lgs 199/21, Annex II, Recital 2, par b.
[166] DECRETO-LEGGE 1 marzo 2022, n. 17, "Misure urgenti per il contenimento dei costi dell'energia elettrica e del gas naturale, per lo sviluppo delle energie rinnovabili e per il rilancio delle politiche industriali", (LAW-DECREE 1st of March 2022, n. 17, "Urgent measures to contain the costs of electricity and natural gas, for the development of renewable energies and for the relaunch of industry policies", (IT (2022), D. L. 17/22).
[167] IT (2022), D. L. 17/22, Preamble.
[168] IT (2022), D. L. 17/22, Art 9.
[169] EU (2018), Art 17.

To conclude, an aspect of the permit system that remained unaltered throughout the different reforms is that concerning the application of cultural and landscape constraints. Regardless of the permit application that the plant requires, be it the Single Template or the Certified Communication of Beginning of Construction Works, when building a renewable energy power plant, aspiring Italian prosumers often find the obstacle of cultural and landscape constraints. The constraints can apply for instance when prospective prosumers plan to build solar PV on a building that pertains to cultural heritage, or on land in a field deemed to be part of a valuable landscape. When the constraints do apply, the permit application procedure needs to follow the rules contained in Annex A and B of Decree of the President of the Republic 31/17.[170]

2.2.3 Connection to the grid

Generally, even before becoming prosumers, individual citizens already have a connection to the grid to satisfy their own energy consumption. Nonetheless, the installation of energy generation plants will impact the functioning of their connection and their relationship with the grid company to a certain extent.

When setting up a connection for distribution, the necessity to feed energy into the grid can make works for grid reinforcements necessary. This is for instance the case for homes in remote areas, or new buildings, where there may be a need to build new grid connections, which involves higher infrastructure investments[171].

The procedure for obtaining a permit to connect to the grid has been reformed by the implementation of Legislative Decree 199/21, with the introduction of the Single Template. By filling up both pages of the Single Template, prospective prosumers can receive authorization to connect their installation to the grid.[172] Prospective prosumers will be able to present the Single Template online on the Single Platform, when the Platform will become operative[173].

Legislative Decree 210/21 also regulated connection to the grid by transposing verbatim the norms established in the Electricity Market Directive, as they have been described in Section I

[170] IT (2021), D. lgs 199/21, Annex II, Recital 2, par. a.
[171] Banet C., (2018), p. 178.
[172] IT (2021), D. lgs 199/21, Art. 25, par. 3, subpar. b.
[173] IT (2021), D. lgs 199/21, Art. 19, par. 1.

of this thesis. In so doing, Decree 210/21 reinforces that self-producers who own storage facilities for energy are entitled to a connection to the electricity network within a reasonable time from their request[174]. When connecting to the grid, prosumers may not be subject to double taxation, including network charges for stored electricity which remains in their availability, or for the provision of flexibility services for system operators[175].

Furthermore, during the process of connection to the grid, active customers may not be subject to disproportionate charges or equivalent measures for the issuing of authorisation papers[176].

To facilitate the connection to the grid of all renewable energy producers, including active customers, Decree 210/21 also reforms Legislative Decree 79/99 and establishes that the national transmission system operator (hereafter TSO) shall establish and publish on its website, in a dedicated section, transparent and efficient procedures for the connection of new generation facilities and new electricity storage facilities, without discrimination[177].

2.2.4 Energy trading

Renewables self-producers sometimes happen to produce energy in excess to what is necessary to satisfy their energy consumption. Indeed, the possibility to make revenues from the trading of their excess energy production is oftentimes an incentive for citizens to pursue energy prosumerism.

In the Italian legal system, citizens prosuming energy are allowed to sell their self-produced renewable electricity, possibly even through an aggregator[178]. This is reinforced as well by Decree 210/21, which states that active consumers have the right to independently sell self-produced electricity on the energy market. This includes the possibility of entering into agreements for the purchase of energy[179]. As a result, individual prosumers are free to sell their excess energy on the electricity market or through bilateral contracts with wholesalers.

[174] IT (2021), D. lgs 210/21, Art. 14, par. 3, subpar. a.
[175] IT (2021), D. lgs 210/21, Art. 14, par. 3, subpar. b.
[176] IT (2021), D. lgs 210/21, Art. 14, par. 3, subpar. c.
[177] IT (2021), D. lgs 210/21, Art. 14, par. 3, subpar. c.
[178] IT (2021), D. lgs 199/21, Art. 30, par. 1, subpar. b.
[179] IT (2021), D. lgs 210/21, Art. 14, par. 2, subpar. b.

In line with EU law, the Italian legal system imposes that, while the activity of selling the excess energy can produce profit for the self-producers, it may not in any event constitute the principal commercial or professional activity of the prosumer[180].

To facilitate the process of energy trading, Italian law instituted two mechanisms that aided prosumers in selling their excess energy. These mechanisms, according to Legislative Decree 387/03, envisioned the collection of the excess energy by the GSE, upon request of the prosumer. The mechanisms, that could be exploited by all the energy producers operating a plant that generated energy from renewable sources[181], were arranged by the GSE in order to offer these energy producers prices in line with market conditions[182].

One of them, Dedicated Collection ("Ritiro Dedicato"), is still available to prospective prosumers. The mechanism is a simplified purchase and resale agreement where energy prosumers can sell their energy at guaranteed minimum prices to the GSE[183]. Consequently, prosumers are protected by market fluctuations and have a guaranteed buyer for their surplus energy. This measure is in accordance with what established by the 2022 Guidelines on State aid under the criteria of "Necessity of Aid", where the Guidelines determine that "support in the form of a certain guaranteed remuneration to limit exposure to negative scenarios may be considered necessary to ensure that the private investment takes place[184]".

To access the mechanism of Dedicated Collection, after the implementation of Legislative Decree 199/21 the individual prosumer will simply have to compile the Single Template necessary for the start of the construction works and to upload it on the Single Platform[185].

The other mechanism was the now abolished Exchange on the Spot ("Scambio sul posto"), a regulatory mechanism that allowed renewable energy producers to be compensated through an energy quota and a service quota[186] for the electricity fed into the grid. The quotas were than balanced against the expenses for the energy drawn from the network at a different time

[180] IT (2021), D. lgs 210/21, Art. 3, par. 2.
[181] IT (2003), D. lgs 387/03, Art. 13, par. 3.
[182] IT (2003), D. lgs 387/03, Art. 13, par. 4.
[183] Campos I. et al, (2020), p. 6.
[184] COM (2022), p. 32.
[185] IT (2021), D. lgs 199/21, Art. 7, par. 1.
[186] Campos I. et al, (2020) p. 6.

from where the first input took place[187]. The service used to be provided by the GSE[188] under request of the beneficiary[189]. The beneficiary had to be the operator of a plant powered by renewable sources of power up to 20 kWh[190] or a cogeneration plant with high power efficiency up to 200 kW[191]. The purpose of the mechanism was to allow energy producers to sell the energy to the grid, instead of trading the energy through a bilateral contract or independently on the energy market[192].

In theory, through the mechanism of Exchange on the Spot individual energy prosumers had the possibility to sell their excess energy directly on the energy market as well. Practically, however, the process was made difficult for individuals due to the strict requirements for accessing electricity markets[193]. Despite the abolition of the mechanism of Exchange on the Spot by Legislative Decree 199/21[194], Italian prosumers are still allowed to sell their surplus energy independently on the energy market, but this still rarely happened due to the stringent requirements.

2.2.5 Financial incentives and support schemes

Support schemes ("Regimi di Sostegno") are mechanisms of government intervention for the promotion of renewable energy on the energy market.

According to Legislative Decree 199/21, support schemes should be adopted in Italian law according to the EU Guidelines on State aid, as seen in previous Section I of this thesis. This includes compliance, inter alia, with the principle that initiatives for which there is evidence of viability even in the absence of public support are not eligible for incentives[195]. The Decree also institutes that support schemes are defined in accordance with criteria for the maximum simplification of administrative procedures[196]. All this considered, title 3 of Decree 199/21

[187] Delibera 20 dicembre 2012 570/2012/R/efr "Testo integrato delle modalità e delle condizioni tecnico-economiche per l'erogazione del servizio di scambio sul posto: condizioni per l'anno 2013", (Resolution of the 20th of December 2012 570/2012 / R / efr "Integrated text of the technical-economic terms and conditions for the provision of the on-site exchange service: conditions for the year 2013"), (IT (2012), Del 570/12), Annex A, Art. 1, par. 1, subpar. m.
[188] IT (2012), Del 570/12, Annex A, Art. 3, par. 1.
[189] IT (2012), Del 570/12, Annex A, Art. 3, par. 1.
[190] IT (2012), Del 570/12, Annex A, Art. 2, par. 2, subpar. a.
[191] IT (2012), Del 570/12, Annex A, Art. 2, par. 2, subpar. b.
[192] Campos I. et al, (2020) p. 6.
[193] Campos I. et al, (2020) p. 6.
[194] IT (2021), D. lgs 199/21, Art. 9, par. 2.
[195] IT (2021), D. lgs 199/21, Art. 4, par. 2, subpar. c.
[196] IT (2021), D. lgs 199/21, Art. 4, par. 2, subpar. e.

establishes that a final client that produces and stores renewable electricity for its own consumption is entitled to have access to financial incentives[197].

A potential incentive can be awarded through a tariff paid by the GSE on energy produced by the plant, or on the share of that production that is fed into the network or self-consumed[198]. The incentive can be obtained from the moment the plant starts operating for all the conventional average lifespan of that plant type[199].

The incentive must be proportionate to the costs of operation of the plants and be allocated in accordance with the criteria explained in Article 4 of the Decree[200]. The purpose of the incentive is to ensure fair remuneration for investment and operating costs[201], therefore they do not apply to ordinary maintenance works or to works carried out to adapt the installation to legal requirements[202].

For plants operating a power below 1MW the mechanisms of allocation of the incentives vary depending on which of the following two categories the plant falls into.

For installations with generation costs closer to market competitiveness, the incentives can be obtained through a request to be made directly on the date of entry into operation, subject to compliance with technical and environmental protection requirements[203].

For innovative installations and installations with higher generation costs the incentive is awarded by means of calls for tenders in which power quotas are made available. The selection criteria are based on compliance with technical requirements, environmental protection, and cost efficiency.[204] The calls are made on a regular basis and provide mechanisms to ensure the construction of the authorized facilities, including by setting deadlines for entry into operation[205].

[197] IT (2021), D. lgs 199/21, Art. 30, par. 1, subpar. c.
[198] IT (2021), D. lgs 199/21, Art. 5, par. 1, subpar. a.
[199] IT (2021), D. lgs 199/21, Art. 5, par. 1, subpar. b.
[200] IT (2021), D. lgs 199/21, Art. 5, par. 1, subpar. c.
[201] IT (2021), D. lgs 199/21, Art. 4, par. 2, subpar. a.
[202] IT (2021), D. lgs 199/21, Art. 4, par. 2, subpar. b.
[203] IT (2021), D. lgs 199/21, Art. 5, par. 3, subpar. a.
[204] IT (2021), D. lgs 199/21, Art. 5, par. 3, subpar. b.
[205] IT (2021), D. lgs 199/21, Art. 7, par. 1, subpar. b (3).

After the pandemic of Covid-19 hit in 2020 and severely damaged the public economy of Italy, the Italian Government instituted the National recovery and resilience plan, through Law-Decree 34/20[206]. The plan aimed to support the economy in the aftermath of the pandemic by instituting measures of financial and fiscal aid for citizens and companies. Among the measures of fiscal aid, the Law- Decree implemented the Superbonus 110%, consisting in the possibility of deducting 110% of the expenses incurred between the 1st of July 2020 and the 30th of June 2023. The expenses accepted for the tax deduction include measures to increase energy efficiency of buildings, among which the installation of solar PV panels.[207]

For PV solar systems the deduction is calculated on a total amount of the expenses, not exceeding 48,000 euros per single property unit and, in all cases, within the expenditure limit of 2,400 euros per kW of nominal power of the plant. For storage systems, when integrated in a solar PV systems admitted to the Superbonus, the deduction is recognized under the same conditions, within the same limits of total amount provided for the installation of solar panels, and with the limit of expenditure of € 1,000 for each kWh of storage capacity. The deduction shall be allocated to the eligible persons in five equal annual instalments and four equal annual instalments for the expenditure incurred in the year 2022[208].

The recent Law- Decree 17/22 also established a regional financial incentive dedicated exclusively to renewable energy producers in the South of Italy. The financial incentive will be in place until the 31st of December 2023, and it takes the form of a tax credit that can be used exclusively in compensation of investments in the field of renewable energy production in the regions Abruzzo, Basilicata, Calabria, Campania, Molise, Puglia, Sardinia, and Sicily. The aim of this initiative is to improve energy efficiency and promote the production of energy from renewable sources in all regions of the country. The tax credit may be combined with other financial incentives relating to the same costs, provided that such cumulation also

[206] DECRETO-LEGGE 19 maggio 2020, n. 34 Misure urgenti in materia di salute, sostegno al lavoro e all'economia, nonche' di politiche sociali connesse all'emergenza epidemiologica da COVID-19 (IT (2020), D. L. 34/20).
[207] IT (2020), D. L. 34/20, Art. 119.
[208] Agenzia dell'Entrate, Superbonus 110% Detrazioni per interventi di efficientamento energetico, sisma bonus, fotovoltaico, colonnine di ricarica di veicoli elettrici, eliminazione delle barriere architettoniche, (2021), p. 16.

takes account of non-compete income formation and the regional tax base on productive activities does not exceed the cost incurred[209].

Energy producers can receive the tax credit for all the expenses related to the additional investments necessary to achieve a higher level of energy efficiency and for the self-production of energy from renewable sources within the production facilities[210]. The measure is subject to the criteria for state aid established by the Guidelines on State Aid[211].

Finally, Italian law institutes that all the financial incentives are combinable, following certain criteria, and maintaining the principle that the incentives should be overall fair and proportionate.[212]

2.3 Section III: Norwegian law

The present chapter will analyse Norwegian laws regulating individual energy prosumers. Since sources of Norwegian law are mostly in Norwegian and the thesis must be written in English, an English translation was necessary. The Royal Ministry of Petroleum and Energy has published unofficial translations of Act No. 61 of 13 March 1981[213], Regulation no. 959 of 7 December 1990[214], Regulation No. 302 of 11 March 1999[215], Act No. 71 of 27 June 2008[216], Act No. 100 of 19 June 2009[217], and Regulation on technical requirements for construction works[218] that I will use for the thesis.

[209] IT (2022), D. L. 17/22, Art. 14, par. 1.
[210] IT (2022), Dl 17/22, Art. 14, par. 1.
[211] IT (2022), Dl 17/22, Art. 14, par. 1.
[212] IT (2021), D. lgs 199/21, Art. 5, par. 5, subpar. c.
[213] The unofficial English translation can be found at https://www.regjeringen.no/en/dokumenter/pollution-control-act/id171893/ (last accessed: 04/05/2022).
[214] The unofficial English translation can be found at https://www.regjeringen.no/globalassets/upload/oed/vedlegg/lover-og reglement/reg_no_959_of_7_december_1990.pdf (last accessed: 04/05/2022).
[215] The unofficial English translation can be found at https://www.regjeringen.no/globalassets/upload/oed/vedlegg/lover-og-reglement/reg_no_302_of_11_march_1999.pdf (last accessed: 04/05/2022).
[216] The unofficial English translation can be found at https://www.regjeringen.no/en/dokumenter/planning-building-act/id570450/ (last accessed: 04/05/2022).
[217] The unofficial English translation can be found at https://www.regjeringen.no/en/dokumenter/nature-diversity-act/id570549/ (last accessed: 04/05/2022).
[218] The unofficial English translation can be found at https://dibk.no/globalassets/byggeregler/regulation-on-technical-requirements-for-construction-works--technical-regulations.pdf (last accessed: 04/05/2022).

For Act no. 50 of 29 June 1990 relating to the generation, conversion, transmission, trading, distribution, and use of energy (hereafter, the Energy Act)[219], I was only able to find a 1990 unofficial English translation, thus predating all the amendments that followed. Since the following amendments are at the basis for prosumerism in the Norwegian legal system, the unofficial translation will be employed only insofar as it relates to provisions unaffected by later amendments.

The remaining Norwegian law sources I will analyse for the present thesis don't have an official translation, therefore I carried out their translation at the best of my abilities. The same also applies for the amendments of the Energy Act following 1990, in particular the amendments of 2010 and 2019.

2.3.1 Definition

In Norwegian law, the term prosumer is replaced by the word "plusskunde", that can be translated to English as "plus customer". The term was first defined in Norwegian law by the 2016 amendment of Regulation No. 302 of 11 March 1999 and evolved in recent years due to a pressure from the Government to promote prosumerism in Norway[220].

The definition of the 2016 amendment of Regulation 302/1999 describes plus customers as end users that perform consumption and production behind the connection point, without exceeding the input power of 100 kW at the connection point at any time. A plus customer may not have a facility subject to a license or may not operate a turnover, behind the connection point, that requires a trading license.[221]

The threshold of 100 kW is particularly important, since plus customers under this threshold are exempt from most of the obligations that apply to larger generators[222]. Whenever a plus customer happens to feed to the grid more than 100 kW, it cannot be considered a plus customer anymore and is subject to the same norms that apply to larger generators, including the necessity for a trade license[223].

---

[219] The old unofficial English translation can be found at https://www.regjeringen.no/globalassets/upload/oed/vedlegg/lover-og-reglement/act_no_50_of_29_june_1990.pdf (last accessed: 04/05/2022).
[220] Banet C. (2018), p. 169.
[221] NO (1999), FOR 1999-03-11-302, Sec 1-3, par. 13.
[222] Hansen H. K., (2020), p. 19.
[223] Hansen H. K., (2020), p. 19.

2.3.2 Permit system

The main rules for building and operating electricity installations in Norwegian law are given in Chapter 3 of the Energy Act. It is established, in Section 3-1 of the Energy Act, that a licence is necessary for installations for the generation, conversion, transmission, and distribution of high voltage electrical energy[224]. Nonetheless, the Ministry is free to decide the threshold of power voltage for the installation to be subject to this provision[225].

The threshold is established by the Ministry in Regulation no. 959 of 7 December 1990 (hereafter, Energy Regulation). Under the threshold, Section 3-1 is not applicable and an installation for the generation, conversion, transmission, and distribution of energy does not require a license to be operated.

The Energy Regulation sets the threshold, in Article 3-1, at a voltage of 1000V[226], and an ordinary residential house usually has a voltage of about 230 V.[227] Therefore, it is possible to assess that individual prosumers would generally not require a licence or permit to build or operate an installation for the generation of renewable energy.

The Ministry may issue further conditions if it is deemed necessary by public or private interests[228]. The further conditions thus established should take into consideration the demand for electrical energy in a given area[229], the demands of the procedures of commencement, construction, execution, commissioning, maintenance, operation, and decommissioning of the electrical system[230], the utilization of the individual power plant[231], and the impact the individual power plant has on the environment cultural heritage[232]. The Ministry should also consider the expertise of the party installing and operating the power plant[233].

[224] NO (1990), LOV 2019-21-06-50, Sec. 3-1, par. 1.
[225] NO (1990), LOV 2019-21-06-50, Sec. 3-1, par. 2.
[226] NO (1990), FOR 1990-07-12-959, Art. 3-1, par. 1.
[227] Hansen H. K., (2020) p. 28.
[228] NO (1990), LOV 2019-21-06-50, Sec. 3-5.
[229] NO (1990), LOV 2019-21-06-50, Sec. 3-5, par. 1.
[230] NO (1990), LOV 2019-21-06-50, Sec. 3-5, par. 2.
[231] NO (1990), LOV 2019-21-06-50, Sec. 3-5, par. 3.
[232] NO (1990), LOV 2019-21-06-50, Sec. 3-1, par. 4.
[233] NO (1990), LOV 2019-21-06-50, Sec. 3-1, par. 5.

Furthermore, as per their own legal definition, plus customers cannot operate a facility that requires a license[234]. Therefore, the plants that plus customers can operate do not require the issuing of a license or permit under Section 3 of the Energy Act.

Nonetheless, prosumers can still be subject to building permits and construction works requirements when installing their renewable energy plant. Construction of a solar PV plant, or wind power plant, for prosumption falls under the definition of construction, alteration, or repair of building technical installations ("oppføring, endring eller reparasjon av bygningstekniske installasjoner")[235]. This means that projects of construction of renewable energy self-production can fall under Section 20-1 of Act on Planning and Building Case Processing (hereafter Planning and Building Act), which lists all the constructions subject to the duty to have an application[236].

Prosumers cannot carry out the construction without sending an application to the municipality in advance, and without having received the municipality's permission, unless they can avail of one of the exceptions from Section 20-5, 20-6, 20-7, or 20-8 of the Planning and Building Act applies.

Considering that the discipline for exemption is very broad, whether individual prosumers would require a building permit is assessed on a case-by-case basis, depending on the type of building, the size of the installation, the surroundings, and the content of the local town plan[237]. Where a dispensation from application is required, the construction cannot be carried out until the dispensation has been applied for and granted by the municipality[238].

Solar PV mounted on a detached house are exempt from the requirement to apply and receive permission from the municipality, under the exemption in Section 20-5 of the Planning and Building Act[239].

[234] NO (1999), FOR 1999-03-11-302, Sec. 1-3, par. 13.
[235] Lov 27. juni 2008 nr. 71 om planlegging og behandling av byggesøknader eller plan (Bygningsloven), (Act of 27th of June 2008 no. 71 relating to planning and the processing of building applications or the Planning and Building Act), (NO (2008), LOV 2008-27-06-71), Sec. 20-1, par. f.
[236] NO (2008), LOV 2008-27-06-71, Sec. 20-2, par. 1.
[237] Banet C, (2018) p. 176.
[238] NO (2008), LOV 2008-27-06-71, Sec. 20-2, par. 1.
[239] NO (2008), LOV 2008-27-06-71, Sec. 20-5.

Municipal treatment of smaller wind power plants is always a matter of construction. Single turbines and smaller wind power plants are measures subject to application pursuant to Section 20-1 of the Planning and Building Act and must be constructed in accordance with the Act and associated regulations. This means that individual prosumers must send an application to the municipality and obtain a building permit before the beginning of the construction works.

Prosumers in Norway would also need to follow the technical requirements listed in the Regulations on technical requirements for construction works[240], more specifically those listed in Chapter 14 on energy and in Chapter 15 on installations and plants.

Finally, wind turbines and hydropower plants, even when they do not require a license under Section 3-1 of the Energy Act, must also be constructed in accordance with other acts of Norwegian law, such as the Cultural Heritage Act[241], the Pollution Control Act[242], and the Biodiversity Act[243]. The requirements in these acts apply to solar PV only when the panels are to be installed on the ground, and not on the roof of a building, or when the panels are to be installed on a building that is considered to fall under the definition of cultural heritage.[244]

2.3.3 Connection to the grid

A peculiarity of the Norwegian grid is that it is divided in three levels: national, regional, and distribution[245]. The national grid corresponds to the transmission grid and is under the responsibility of the TSO, which is Statnett.[246]

The regional grid makes the link between the transmission and distribution grids, while the distribution grid corresponds to local power grids and normally delivers electricity to end-

[240] Forskrift av 19. juni 2017 nr. 17 om tekniske krav til byggverk (TEK 17), (Regulation of the 19th of June 2017 no. 17 on technical requirements for construction works or TEK 17), (NO (2017), FOR-2017-06-19-840).
[241] Lov om endringer i lov 9. juni 1978 nr. 50 om kulturminner (Kulturminneloven), (Act of the 9th of June 1978 no. 50 on Cultural Heritage), (NO (1978), LOV 1978-09-06-50).
[242] Lov om endringer i lov 13. mars 1981 nr. 6 om vern mot forurensninger og om avfall (Forurensningsloven), (Act of the 13th of March 1981 no. 6 Concerning Protection Against Pollution and Concerning Waste), (NO (1981), LOV 1981-13-03-6).
[243] Lov av 19. juni 2009 nr. 100 om forvaltning av biologisk, geologisk og landskapsmessig mangfold, (Act of 19 June 2009 no.100 Relating to the Management of Biological, Geological and Landscape Diversity), (NO (2009), LOV 2009-19-06-100).
[244] NVE (2018), p. 2.
[245] NVE, (2018), p. 1.
[246] Banet C, (2018) p. 179.

users at a voltage of up to 22 kV.[247] Norwegian prosumers are usually connected either to the regional grid or to the distribution grid[248].

Since the 2010 amendment of the Energy Act, Section 3-4 paragraph a entails the obligation to connect facilities for the production of electrical energy to the grid[249]. Accordingly, everyone who has a licence for network installations has a duty to connect new installations for generation of electrical energy to the grid. If necessary, they may be called to invest in the new network.[250]

As I explained in the previous chapter, individual prosumers are not required to hold a license for operating renewable energy systems, therefore it would appear at first that the obligation to connect to the grid does not apply to prosumers. This appears to be corroborated by the Energy Regulation, which establishes that the obligation to be connected to the grid only subsists for energy producers insofar as it is the most rational option[251]. However, in 2017 the Ministry of Petroleum and Energy clarified, through an amendment of the Energy Act, that the connection duties in Chapter 3 apply to all customers, including prosumers who feed-in surplus power to the network[252] and therefore the DSOs have an obligation to offer all customers a grid connection[253]. The right to be connected to the grid is conditional, as long as prosumers respect the technical requirements for connection to the grid and pay the necessary tariffs[254]. The criteria for the establishment of said tariffs are listed in the Regulation n. 302 of 11 March 1999, especially in Part V[255].

For connection to the grid in Norway, there are two charges that are imposed on individual prosumers: the connection charge, to be paid in order to have access to the grid[256], and the running grid tariffs, for the use of the distribution network[257].

---

[247] Banet C, (2018) p. 179.
[248] Banet C, (2018) p. 179.
[249] NO (1999), FOR 1999-03-11-302, Sec. 3-4, par. a.
[250] NO (1990), LOV 2019-21-06-50, Sec. 3-4 a, par. 1.
[251] NO (1990), FOR 1990-07-12-959, Sec. 3-4, par. 1.
[252] NO (2017), Prop 5 L (2017-2018).
[253] NVE (2018), p.2.
[254] NVE (2018), p.2.
[255] NO (1999), FOR 1999-03-11-302, Part V.
[256] NVE (2018), p. 3.
[257] NVE (2018), p.3.

The connection charge is a one-time payment that is paid before the connection is ultimated[258]. The grid company must present an estimate of what the charge will be in advance[259]. The amount of the connection charge changes according to the requests of the market and is determined by the regulatory authority, which in Norway is the Norsk Direktoratet for Vann og Energi (hereafter NVE)[260]. The NVE may, under exceptional circumstances, provide for an exemption to the physical delivery and connection obligations, including the obligation to invest for connection to the grid and the obligation to pay off for the unbalances that the new connection may cause to the grid[261].

The running grid tariff covers the costs for the grid level at which the customer is connected to and for the overhead grid. This is not a one-time payment, and it varies across Norway, since the DSOs are responsible for setting their own tariffs, and the tariffs are covering costs within the DSO's area.[262]

Norwegian law establishes that the tariff must be objective, non-discriminatory, and designed and differentiated on the basis of relevant grid conditions[263]. Where the connection requires further investments to accommodate for the energy producer, the expenses should be covered by the energy producer itself[264]. Furthermore, the energy producer must present a schedule for the connection[265]. Access to the grid must be provided on non-discriminatory and objective terms and conditions[266], and any request for exemption must be handed over to the NVE[267].

Since there is no legally defined procedure for assessing the need for connection or reinforcement of the grid as a consequence of prosumption, the matter is regulated by the grid operator, which can decide on a case-by-case basis depending to the situation[268]. The individual prosumer will have to submit to the grid operator an application, including a

[258] Hansens H. K. (2020), p. 37.
[259] NVE (2018), p. 3.
[260] Hansens H. K. (2020), p. 40.
[261] NO (1990), LOV 2019-21-06-50, Sec. 3-4 a, par. 3.
[262] NVE (2018), p.3.
[263] NO (1999), FOR 1999-03-11-302, Sec. 13-1.
[264] NO (1990), FOR 1990-07-12-959, Sec. 3-4, par. 1.
[265] NO (1990), FOR 1990-07-12-959, Sec. 3-4, par. 2.
[266] NO (1990), FOR 1990-07-12-959, Sec. 3-4, par. 3.
[267] NO (1990), FOR 1990-07-12-959, Sec. 3-4, par. 4.
[268] Banet C, (2018) p. 180.

notification of installation work ("melding om installasjonarbeid") and a declaration of connection ("erklaering om tilkobling")[269].

If the DSO approves the application, and the installation follows the technical requirements determined by Regulation no. 17 of the 19th of June 2017, then the individual prosumer will be connected to the grid. The connection will be regulated by a contractual agreement between the prosumer and the DSO.[270]

2.3.4 Energy trading

The regime for energy trading in Norway is regulated by Chapter 4 of the Energy Act, which establishes that, without a license from the regulatory authority, no one other than the state can be responsible for the sale of electricity. In case of doubt, the NVE can decide whether the licensing obligation exists[271].

In light of this, prosumers cannot sell their excess energy on their own and depend on a contractual agreement with an entity that possesses a license. The entity is generally a DSO that accepts to enter into a plus-consumer contract ("plusskundeavtale") with individual prosumers, agreeing to buy their surplus energy and then selling it on the energy market. In the past decade, the way this mechanism has been regulated was altered by the entering into operation of the Elhub.

From 2010 to 2019 the NVE regulated remunerations from the trade of energy between the prosumers and the DSOs. For the sale of their surplus energy, prosumers could receive the spot price plus an additional payment for the value of the reduced grid loss, and they would be exempted from the payment of a grid fee. This model made self-consumption of energy more financially convenient for prosumers than energy trading through the DSO would be[272].

In 2019, the Elhub, the national point of data management, became operative. The data hub was established by the TSO, Statnett, under the indication of the NVE[273], and serves the

[269] Banet C, (2018) p. 180.
[270] https://elhub.no/aktorer-og-markedsstruktur/aktorenes-roller/elhub-for-aktorer-med-plusskunder/ (last accessed: 05/05/2022).
[271] NO (1990), LOV 2019-21-06-50, Sec. 4-1, par .1.
[272] Hansens H. K., (2020), p. 40.
[273] Hansens H. K., (2020), p. 34.

purpose of automating the energy market and simplifying the sharing of data related to energy trading for customers, grid operators, and power suppliers[274].

The provisions regulating the relations of energy suppliers with the Elhub are contained in Chapter VI of Regulation 301/99[275]. For Elhub users, it is necessary to enter into an agreement with the settlement manager in advance. The agreements must consider the interests of an efficient power market and equal treatment of the parties in the market. The settlement manager shall submit the agreements to the NVE.[276]

According to the rules of the Elhub, plus customers must choose a DSO who is willing to buy their surplus power and contemporarily provide them with the energy they need, since it is not possible to have a different power supplier for consumption and production. The contract signed between the prosumer and the power company determines the price at which the energy is sold.[277]

Power suppliers that have entered into a contract with plus customers must ensure that they have the necessary balance agreements to guarantee the balance of the energy network. If such an agreement is not signed, the plus customers are transferred to a delivery obligation for both consumption and production, to ensure that they have the same power supplier for consumption and production.[278]

2.3.5 Financial incentives and support schemes

Financial incentives and support schemes ("støtteordninger") are very important to grant a level playing field between citizens and ensure that everyone has the same possibility to become a renewable energy prosumer.

The main financial incentive in place in Norway is the one established by Enova SF, a public company owned by the Norwegian Ministry of Petroleum and Energy[279]. The purpose of the

[274] https://elhub.no/om-elhub/ (last accessed: 05/05/2022).
[275] Forskrift av 8. august 1999 nr. 301 om måling, fakturering, fakturering av nettjenester og elektrisk energi, nettselskapets nøytralitet, (Regulation of the 8th of August 1999 no. 301 on metering, billing, invoicing of grid services and electrical energy, the grid company's neutrality), (NO (1999), FOR 1999-08-08-301).
[276] NO (1999), FOR 1999-08-08-301, Sec. 6-1.
[277] https://elhub.no/aktorer-og-markedsstruktur/aktorenes-roller/elhub-for-aktorer-med-plusskunder/ (last accessed: 05/05/2022).
[278] https://elhub.no/aktorer-og-markedsstruktur/aktorenes-roller/elhub-for-aktorer-med-plusskunder/ (last accessed: 05/05/2022).
[279] Banet C, (2018), p. 186.

company is to manage the Climate and Energy Fund with the aim of helping Norway reach its climate commitments and contributing to the transition to a low-emission society[280].

Enova provides funding for a plethora of activities related to energy efficiency and environmental protection, including a system of grants for the installation of solar panels[281].

According to the 2021 report provided by Enova, 127 million NOK were paid out in support of 7,100 energy measures[282]. However, it is not possible to assess to which specific projects the funds were granted. Enova plans to enforce a new programme starting in 2022 and has stated that even more measures for households and individual consumers will be presented at the beginning of 2022[283].

Another smaller financial incentive is provided in the form of tax deduction. All energy prosumers in fact are exempted from paying tariffs for balancing the distribution network and are only bound to pay grid tariffs.[284]

The second most important support scheme in Norway comes in the form of the electricity certificates ("elsertifikater"), a set of certificates distributed for power produced from renewable energy sources.

The electricity certificates are a technology-neutral support scheme that make it more profitable to invest in power production based on renewable energy sources, such as water, wind, solar and bioenergy[285]. The scheme is regulated in the Electricity Certificates Act[286] and by the Regulation on electricity certificates[287].

From the 1st of January 2012, Norway became part of the common electricity certificates market with Sweden. In Norway, the support scheme is regulated by the NVE. Power plants approved in the scheme are awarded electricity certificates for up to 15 years. Norwegian

---

[280] Enova, Annual Report 2021, (2021), Part II.
[281] Banet C., (2018), p 187.
[282] https://2021.enova.no/arsrapport-2021/arsberetning-og-arsregnskap-enova-sf/arsberetning/ (last accessed: 06/05/2022).
[283] https://2021.enova.no/arsrapport-2021/arsberetning-og-arsregnskap-enova-sf/arsberetning/ (last accessed: 06/05/2022).
[284] Hansen H. K., (2020), p. 47.
[285] https://www.nve.no/energi/virkemidler/elsertifikater/ (last accessed: 06/05/2022).
[286] Lov av 24. juni 2011 nr. 39 om elsertifikater, (Act of the 24th of June 2011 no. 39 on electricity certificates), (NO (2011), LOV 2011-24-06-39).
[287] Forskrift av 24. juni 2011 nr. 39 om elsertifikater, (Regulation of the 24th of June 2011 no. 39 on electricity certificates), (NO (2011), FOR 2011-24-06-39).

power plants must be put into operation by the end of 2021 to be part of the scheme. Therefore, prosumers entering the market in 2022 will not be able to avail of this support scheme.[288]

A power plant approved for electricity certificates will receive one certificate per MWh produced. The demand for electricity certificates is formed by power suppliers and electricity customers that must fulfil the elsertifikater requirements. Accordingly, suppliers and customers are bound to cover a given share of the electricity they sell with the purchase of electricity certificates.[289]

The electricity certificates are awarded for gross production, defined as production minus consumption directly related to production. Plus-customers can apply to be approved for electricity certificates on an equal footing with other producers of renewable energy. The launch of the Elhub simplified the opportunities for plus-customers to apply for electricity certificates for gross production.[290]

Finally, according to Norwegian law, municipalities could adopt their own support schemes to favour energy generation from renewable sources. Nonetheless, the majority of these regional support schemes have been repealed because they were considered no longer necessary vis-à-vis the introduction of initiatives like Enova SF or Innovasjon Norge[291] for the financing of solar PV.

Sometimes, larger municipalities create their own projects to provide information to residents who want to install solar energy systems, including information regarding how to obtain financing from Enova. An example can be the Municipality of Stavanger, which launched the

[288] https://www.nve.no/energi/virkemidler/elsertifikater/ (last accessed: 06/05/2022).
[289] https://www.nve.no/energi/virkemidler/elsertifikater/ (last accessed: 06/05/2022).
[290] https://www.nve.no/energi/virkemidler/elsertifikater/siste-nytt-om-elsertifikater/informasjon-om-mikroprodusenter-og-elsertifikater/ (last accessed: 06/05/2022).
[291] Innovasjon Norge is a state-owned Norwegian company established through a merger of the Norwegian Business and Rural Development Fund, the Norwegian Export Council, the Norwegian Tourist Board and the Norwegian Guidance Office for Inventors. Innovasjon Norge provides support to farms for the installation of heat pumps and photovoltaic systems, under the scheme "Renewable energy in agriculture". The purpose of Innovasjon Norge is to support the state and municipalities financing projects and offering consulting regarding the realization of said projects.

Solsat project[292] in cooperation with the Rogaland County Municipality and the Nature Conservation Association in Rogaland[293].

Oslo Municipality provides financial grants for citizens interested in implementing smart energy-saving measures in their homes, however the list of measures that can receive this support does not include the installation of domestic power plants for the generation of renewable energy.[294]

3 Chapter III: the Comparison

This chapter compares the legal approaches of Italy and Norway. In the chapter I will compare the two legal systems and assess the effectiveness of the laws and financial incentives implemented in creating positive conditions for individual citizens to become prosumers. I will base my assessment for effectiveness on the three criteria I presented in the Methodology section of this thesis, in Chapter I. The three criteria are clarity, proportionality, and cost-effectiveness.

In the following subchapters, the three criteria will be applied to the different phases that prospective energy prosumers must cross: application for permit, connection to the grid, energy trading, and application for financial incentives and support schemes.

3.1 Permit system

For a citizen interested in becoming an energy prosumer, the permit system, both for energy production and construction works, is the first obstacle to face.

3.1.1 Clarity

Norwegian legislation does not require a license for power plants of any kind that do not enter to the grid more than 100 kW[295]. For this reason, prospective prosumers won't have to follow any specific process to obtain a permit for energy production. This regime provides clarity,

[292] The Solsat project is a scheme instituted to provide correct, relevant, and necessary information to residents who want to install solar energy systems.
[293] https://www.stavanger.kommune.no/renovasjon-og-miljo/miljo-og-klima/solenergi/#-konomisk-st-tte (last accessed: 09/05/2022)
[294] https://klimatilskudd.no/energiforbedring-i-boliger (last accessed: 09/05/2022).
[295] NO (1999), FOR 1999-03-11-302, Sec. 1-3, par. 13.

since the process itself is easy and information on it is straightforward, both in legal sources and articles on the topic on more simple language.

Information on the procedures necessary for the installation of power plants can be found mostly on the websites of companies that provide the service of installing power plants[296], on the websites of DSOs[297], or on the websites of most municipalities, which can usually be contacted for further information on the subject[298]. The website of the NVE provides updated information on the permit system as well[299].

The construction of some kinds of power plants can require permission from the municipality under Section 20-1 of the Planning and Building Act before the beginning of construction works[300]. The requirement applies on a case-by-case basis, and information on this can be generally found on the website of the local municipality. It is also not difficult for citizens interested in becoming prosumers through the exploitation of wind and hydropower to find information regarding the parameters they need to follow in order to be allocated a construction permit by the municipality. The regulations with guidance can be found on the website of the Directorate for Building Quality[301].

In the Italian permit system, the continuous changes in legislation in recent years have come at the expense of clarity of the applicable law. Indeed, Legislative Decree 199/21 enforced the Single Template regime for solar PV under 50 kW[302] and required the Certified Communication of Beginning of Construction Works for all the power plants that do not conform with the requirements of Annex II of Legislative Decree 199/21[303]. However, this has been recently rectified by Law-Decree 17/22, which extends the Single Template regime to solar PV with a power up to 200 kW[304]. As previously mentioned, Law-Decrees are only

[296] https://www.elvia.no/smart-forbruk/forbruk-og-sparing/slik-produserer-du-din-egen-strom/ (last accessed: 06/05/2022).
[297] https://www.elmea.no/plusskunde/ (last accessed: 06/05/2022).
[298] https://www.oslo.kommune.no/plan-bygg-og-eiendom/skal-du-bygge-rive-eller-endre/ma-du-sende-byggesoknad/solcelle-eller-solfangeranlegg/#gref (last accessed: 06/05/2022).
[299] https://www.nve.no/reguleringsmyndigheten/regulering/nettvirksomhet/nettleie/tariffer-for-produksjon/plusskunder/ (last accessed: 06/05/2022).
[300] NO (2008), LOV 2008-27-06-71, Sec. 20-1.
[301] https://dibk.no/regelverk/byggteknisk-forskrift-tek17/ (last accessed: 14/05/2022).
[302] IT (2021), D. lgs 199/21, Art. 19, par. 3.
[303] IT (2021), D. lgs 199/21, Annex II, Recital 2, par. a.
[304] IT (2022), D. L. 17/22, Art. 9.

provisional by nature, therefore it is probable that the extension of the threshold up to 200 kW will be changed again.

The frequent changes do not only make for a scarcity of clarity for the legislation, but also for the available updated information. Indeed, a citizen seeking information on how to obtain a permit for the construction of a solar PV plant will have to know in advance that the regulation recently changed, otherwise they will probably wander in the meander of obsolete information, even when it dates to only a couple months prior.

To limit the confusion, in 2019 the GSE instituted the Photovoltaic Self-consumption Portal, a platform which allows individuals, companies, and renewable energy communities who intend to install or use a PV system to obtain detailed information on the advantages of self-consumption and the sharing of electricity. The platform is supposed to provide help through Guides, FAQs, and Examples to carry out technical-economic simulations of the plant to be installed and to have a support to the start of the initiatives.[305] Nonetheless, the guide related to individual self-consumption on the platform was last updated at the end of November 2021[306], which is insufficient to provide updated information to citizens vis-à-vis the intense rhythms at which the legislation has changed in the last year.

It is plausible to expect that with the activation of the Single Platform[307], which serves the purpose of both providing information to prosumers and simplifying the permit application process, clearer and updated information will be provided more easily. However, this is not the case at present.

3.1.2 Proportionality

When it comes to proportionality, the Norwegian permit system poses very little obstacles to prospective prosumers, since no permit is generally required for plants under 100 kW[308]. However, when an individual prosumer happens to produce more than 100 kW, they will have to apply for a permit even after the construction works are completed, which can be an obstacle further during the energy production process. This obstacle, nonetheless, is

[305] https://www.autoconsumo.gse.it/guida-all-autoconsumo (10/05/2022).
[306] Gestore Servizi Energetici, Guida All'Autoconsumo Fotovoltaico per Privati e Condomini, published on the GSE website at "Portale Autoconsumo Fotovoltaico", (2021).
[307] IT (2021), D. lgs 199/21, Art. 18.
[308] NO (1999), FOR 1999-03-11-302, Sec. 1-3, par. 13.

proportionate and necessary to grant the balance of the grid, as I will further discuss in the following subchapter.

The Italian permit system creates more obstacles to prospective prosumers, since they are presented with the necessity to find out which one, between the Single Template and the Certified Communication of Beginning of Construction Works, they will need. Nonetheless, once this initial obstacle has been overcome, the permit system is quite accessible. Individual citizens can easily find the Single Template on the website of the GSE, at the portal "Customer Area". The document is two pages long, one page to be compiled before the beginning of construction works and one to be sent after the end of the construction works.[309] For what concerns instead the Certified Communication of Beginning of Construction Works, it should not be compiled by the prospective prosumer alone, but rather by the qualified technician that works on the planning of the project. Therefore, the only obstacle that prospective prosumers will have to face is to find a qualified technician for their construction project, something they would need to do anyway.

Furthermore, whether the construction of a power plant will require the compilation of a Single Template or of a Certified Communication of Beginning of Construction Works is a problem that only concerns the beginning of the construction works. After the correct permit application has been presented and the construction of the power plant has been completed, no further permit will be required, unless the plant requires maintenance, or it is expanded.

Finally, both documents are only communications of the start of the construction works and they do not require any kind of authorization either from the municipality or the GSE. The only burden that is imposed on prosumers when presenting the two permits is that of finding a qualified technician to plan the construction project and compile the relevant areas of the permit, a proportionate burden considering the necessity of the construction works to be safe for people.

An obstacle that a prospective prosumer could run into when planning the construction of a domestic renewable power plant are cultural heritage and landscape constraints. These constraints apply to prospective prosumers both in Italy, under Annex A and B of Legislative

[309] https://www.gse.it/servizi-per-te/news/fotovoltaico-online-modello-unico-realizzazione-connessione-messa-in-esercizio-impianti-e-nuove-modalita-attivazione-rid (last accessed: 11/05/2022).

Decree 31/17[310], and in Norway, under the Cultural Heritage Act. Both legal texts serve the purpose of protecting cultural monuments and cultural environments as part of the national cultural heritage.

In limiting a project for the purpose of protection of the landscape or cultural heritage, the Government may prohibit or otherwise regulate all types of measures that are suitable for counteracting the purpose of protection. Among these measures it can be included the installation of domestic renewable power plants that affect the culturally relevant object, for instance solar PV installed on the roof of a building deemed to have cultural relevance.

Since both Norway and Italy impose cultural heritage and landscape constraints on prospective prosumers on a case-by-case basis, whether and to which degree the norms on the subject apply to the specific case is only clarified at the moment of planning the construction.

Cultural heritage and landscape constraints used to be a big obstacle for Italian prospective prosumers, since the installation of renewable energy plants was often denied on the basis of protection of a culturally relevant building or of the landscape. Already in 2015, the Regional Administrative Court of Piemonte[311] had tried to clear up the matter and lower the burden for prospective prosumers.[312]

The burden was finally reduced in May 2021, when the Regional Administrative Court of Lombardy clarified that the installation of PV panels is an evolution of the constructive style of a building compatible with the constraint of the landscape of the area, provided that the overall external layout of the protected area is not changed[313]. In general terms, the Court has drawn attention to the fact that, according to consolidated principles of Italian jurisprudence, the authorization for construction works, and its eventual refusal, must be motivated, exposing the reasons of effective compatibility or incompatibility of the works to be realized with the specific values of the place[314].

---

[310] IT (2021), D. lgs 199/21, Annex II, Recital 2, par. a.

[311] A Regional Administrative Court is, in the legal system of Italy, an organ of administrative jurisdiction. The Regional Administrative Court has jurisdiction to decide on appeals, brought against administrative acts, from subjects who consider themselves damaged, in a way that does not conform to the legal system, in a legitimate interest.

[312] Ruling n. 1946/14 (2014).

[313] Ruling n. 296/21 (2021), p. 3.

[314] Ruling n. 296/21 (2021), p. 4.

With specific reference to the installation of PV panels in areas subject to landscape constraints, the Court stated that the reason for any refusal, even if partial, to authorise the installation of a renewable energy plant must be particularly stringent. It cannot be considered sufficient that the authority responsible for landscape protection claims a generic reduced profitability of the landscape, especially if said reduction of profitability is from the point of view of the decrease in its aesthetic dimension. In giving this decision, the Regional Administrative Court of Lombardy clarified that refusal of the authorisation for the construction of domestic renewable power plants with the purpose of protecting the landscape or the cultural heritage should be done balancing the interests at stake.[315]

While in the Italian legal system judicial precedents are not binding, rulings of the Administrative Courts can exceptionally have ultra partes, or even erga omnes, effects, extending the effects of the rulings to all citizens[316]. This is the case for this specific judgement since the Court has so established in giving the decision. Consequently, this ruling lowered the burden on all prospective prosumers when installing power plants for renewable energy production in areas subject to protection of cultural heritage or landscape.

In general, the constraints don't seem to apply as strictly in Norway. A particular case in Stavanger, in 2019, created a lot of sensation because of the rarity of cultural heritage and landscape constraints effectively representing a limit for individual renewable energy prosumers. The case regarded a homeowner that installed solar PV on his roof without first having applied for permission. The panels had been installed in 2017, before the prosumer was told that it was mandatory to apply. When he finally applied, he was refused the authorization and was ordered to take the panels down.[317]

The reason for this refusal was that Stavanger is known for its many wooden houses, especially in Old Stavanger. In order to preserve these buildings, the municipality has laid down strict guidelines, according to which changes that affect the appearance of buildings,

[315] Ruling n. 296/21 (2021), p. 4.
[316] Giurdanella & Partners (2019).
[317] https://www.huseierne.no/hus-bolig/tema/juss/solcellepanel-kan-vare-soknadspliktig/ (last accessed: 12/05/2022).

including roofs, must be notified before the start of construction works. The homeowner lived in one of the neighbourhoods that were subject to these guidelines.[318]

Using the Stavanger case as an example, it seems that Norway implements the constraints proportionately, since it is easy to obtain the building permits without incurring in the constraints, but they can still be implemented where it is considered necessary. Thus, the purpose of the constraints of protecting cultural heritage and landscape is not lost, but it is still possible for prospective prosumers to obtain a permit proportionately without incurring in the constraints.

In Italy, instead, cultural heritage and landscape constraints used to obstacle disproportionately prospective prosumers. With Decision 296/21 of the Regional Administrative Court of Lombardy, Italy is likely to reduce this obstacle for prospective prosumers. However, the decision is still quite recent, and it is difficult to assess whether it succeeded in making the burden of cultural heritage and landscape constraints more proportionate on renewable energy self-producer.

3.1.3 Cost-effectiveness

Under the criterion of cost-effectiveness, both legal systems do not require a payment for the process of permit application and permit allocation. As such, neither country imposes financial obstacles on low-income prosumers in the permit phase.

The only financial obstacle that prospective prosumers might find in the permit allocation phase is the cost of construction. The Italian legal system also requires the engagement of a qualified technician for the compilation of the Single Template or of the Certified Communication of Beginning of Works. Prospective prosumers can be aided through these expenses by the financial incentives, support schemes, and aids offered by the Government. I will further expand on the subject in the "Financial incentives" section of this chapter.

3.2 Connection to the grid

Connection to the grid would represent the second step for every citizen planning to become an energy prosumer.

[318] https://www.stavanger.kommune.no/bolig-og-bygg/skal-du-bygge/hva-ska-du-bygge/fasadeendring/ (last accessed: 12/05/2020).

Both the legal system of Italy and of Norway encompass the possibility for energy producers to connect to the grid. Before connecting to the grid, usually energy prosumers need authorization from the competent authority. In the case of Italy, connection to the grid is managed between the GSE and the DSOs, the main one being E-Distribution, ex Enel Distribution[319], while for Norway it is managed directly by the DSOs, the main ones being Elvia, BKK Nett, and Lyse Elnett[320].

3.2.1 Clarity

Under Italian law, the frequent recent changes of legislation impaired the clarity of the applicable law. Nonetheless, contrarily to the permit phase, the regime of connection to the grid was not affected by the recent implementation of Law-Decree 17/99. This afforded some more stability and clarity to the legal regime for connection to the grid, which has only majorly changed with Legislative Decree 199/21.

The Norwegian regime, instead, remained stable since the 2010 amendment of the Energy Act. Therefore, it has had more time be implemented, providing greater clarity to prospective prosumers. Since the 2010 amendment was an implementation of the RED in Norwegian law, it is possible that in the future the regime for connection to the grid will change again to align with the 2018 RED, and thus become closer to the Italian regime. Presently it is too early to draw any such conclusions.

The only point of Norwegian law relating to connection to grid which is unclear regards whether all energy producers have an obligation to connect to the grid or they only have a right to be connected to the grid. Logically, it is unreasonable to expect that all microproducers of energy are obligated to connect to the grid, nonetheless, the subject is still contended between the Energy Act[321], Regulation 959/90[322] and the 2017 clarification of the Ministry of Petroleum and Energy[323].

Information on the procedure to follow for connection to the grid can be found quite easily for both countries. In the case of Italy, the process of application for connection to the grid is

[319] https://www.centrali-next.it/hub-della-conoscenza/la-rete-elettrica-italiano/#:~:text=In%20Italia%20l'unico%20operatore,della%20domanda%20di%20elettricit%C3%A0%20italiana (last accessed: 12/05/2022).
[320] https://www.energinorge.no/tall-og-fakta/ordbok2/dso/ (last accessed: 18/05/2022).
[321] NO (2019), LOV 2019-21-06-50, Sec. 3-4, par. a.
[322] NO (1990), FOR 1990-07-12-959, Sec. 3-4, par. 1.
[323] NO (2017), Prop 5 L (2017-2018).

described in detail on the website of the GSE[324], while for what concerns Norway the process is described on the website of the Elhub[325].

3.2.2 Proportionality

To be authorized to connect to the grid, Italian prosumers need to compile the second part of the Single Template, interacting exclusively with the GSE on the GSE's Customer Area platform, after the construction works are completed[326]. After the Single Template has been compiled and delivered to the GSE through the GSE's Customer Area, the system can be connected to the pick-up point at low voltage.

Before the enforcement of Decree 199/21, the procedure required prospective prosumers to send the Single Template to the DSO, that then had to send the communication to the municipality in 20 working days, start the connection procedures, and make a request to the GSE[327]. The implementation of the RED through Decree 199/21 dramatically shortened the procedure, which now takes between 30 and 60 days, unless the municipality introduces complications regarding the authorization[328].

For what concerns Norway, renewable prosumers that require connection to the grid will have to submit application to the grid operator, including a notification of installation work and a declaration of connection[329] and will receive a license, to be issued between two months and three years depending on the dimension and type of project[330].

Both systems impose a relatively small burden on energy prosumers, that will only be required to compile an application form, after which they will be granted connection to the grid as long as it is technically feasible.

---

[324] https://www.gse.it/servizi-per-te/news/fotovoltaico-online-modello-unico-realizzazione-connessione-messa-in-esercizio-impianti-e-nuove-modalita-attivazione-rid (last accessed: 06/05/2022).
[325] https://elhub.no/aktorer-og-markedsstruktur/aktorenes-roller/elhub-for-aktorer-med-plusskunder/ (last accessed: 06/05/2022).
[326] https://www.gse.it/servizi-per-te/news/fotovoltaico-online-modello-unico-realizzazione-connessione-messa-in-esercizio-impianti-e-nuove-modalita-attivazione-rid (last accessed: 12/05/2022).
[327] https://innovasol.it/allaccio-fotovoltaico-enel/#Costo-e-tempistica-di-allacciamento-Enel-fotovoltaico (last accessed 12/04/2022).
[328] https://innovasol.it/allaccio-fotovoltaico-enel/#Costo-e-tempistica-di-allacciamento-Enel-fotovoltaico (last accessed 12/04/2022).
[329] https://elhub.no/aktorer-og-markedsstruktur/oppgaver-i-elhub/veiledere/rutine-for-endring-til-kombinasjonsmalepunkt-plusskunde-i-elhub/ (last accessed: 12/05/2022).
[330] NVE (2018), p.2.

3.2.3 Cost-effectiveness

For what concerns cost-effectiveness, the situation becomes more complex. Connection to the grid is a difficult aspect to manage, since the transportation of electricity is not linear, but it is more a matter of keeping the grid in a perpetual balance. This means that any input of electricity must be perfectly balanced by the exact same outtake of electricity somewhere else. Thus, the electricity system needs to be always perfectly balanced through the support of either the TSO or the DSOs.[331] This puts a burden on the grid operators and creates the risk of the grid potentially being unstable, therefore it is necessary to strictly regulate connection to the grid in order to balance the interests of grid operators, energy consumers, and energy producers.

Connection to the grid may also require construction works to be carried out to grant safety when receiving the input of energy from new sources. These construction works can be expensive and require an economic contribution by the energy producer to be carried out. The contribution can take the form of a tariff for connection to the grid or an obligation to take care of the grid once connected.

In theory, Italian legislation establishes that prosumers should be subject to network charges that are cost-effective, transparent, and non-discriminatory. The charges should account separately for the electricity fed into the grid and the electricity absorbed by the grid, to ensure an adequate and balanced contribution to the overall allocation of system costs[332]. Nonetheless, the current legal regime entered into force in December 2021 with Legislative Decree 210/21, therefore, it is difficult to assess how much it affected the charges imposed on individual prosumers yet.

As of December 2021, the cost of connection to the grid with E-Distribution depended on the power of input on the grid. The average prosumer that entered to the grid between 50 kW and 200 kW would have to pay a tariff amounting between 100 or 200 euros[333]. The price can be quite high for some households; however, it is proportionate to the necessity of maintaining grid stability. An aspect that could hinder cost-effectiveness is the absence of financial aids,

[331] Hansen H. K. (2020), p. 36.
[332] IT (2021), D. lgs 210/21, Art. 14, par. 2, subpar. e.
[333] https://innovasol.it/allaccio-fotovoltaico-enel/#:~:text=200%20euro%20%2B%20IVA%20per%20impianti,potenza%20oltre%20i%201000%20kW (last accessed: 12/05/2022).

either from the Government or from the DSO itself, for prospective prosumers to cover for the expenses of connection to the grid. Conversely, Italian prosumers connected to the grid are not under the obligation to pay for maintenance of the grid, an expense that is entirely covered by the DSO of choice[334].

For what concerns Norwegian legislation, Section 13-1 of Regulation 302/99 lists nine principles for the design of point tariffs. The list encompasses the criteria that tariff should be non-discriminatory and objective[335]. The propensity of the legislation on grid tariffs to be this detailed is a further safeguard for cost-effectiveness, since it ensures that the charges will be balanced by strict criteria.

Norwegian plus-costumers don't need to pay rent of the grid for their energy input, but only rent of the grid for the energy that they consume when their self-production doesn't satisfy their necessity for energy[336]. The amount that the plus-customer is supposed to be paying as rent of the grid when trading energy is detracted from the revenues he makes from selling energy[337]. This provision is very cost-effective, since the prosumer will never have to pay rent of the grid off his pocket, therefore balancing the playing field for low-income prosumers, that won't have to sustain an expense they might not be prepared for. The price for balancing the grid will be refunded by the revenues of energy selling, compensating the DSO from the necessary expenses.

Furthermore, a prospective prosumer in Norway would need to pay both a connection charge, that varies according to the requests of the market and the decisions of the NVE, and the running grid tariff, which is determined by the DSOs. Taking Elnett as an example of a Norwegian DSO, a standard contract with a plus-costumer the company will demand them to cover all costs in their own house, including costs for the electrical installer. Plus-costumers

[334] https://innovasol.it/allaccio-fotovoltaico-enel/#:~:text=200%20euro%20%2B%20IVA%20per%20impianti,potenza%20oltre%20i%201000%20kW (last accessed: 12/05/2022).
[335] NO (1999), FOR 1999-03-11-302, Sec. 13.-1, par. 1, subpar. c.
[336] https://elhub.no/aktorer-og-markedsstruktur/aktorenes-roller/elhub-for-aktorer-med-plusskunder/ (last accessed: 13/05/2022).
[337] https://elhub.no/aktorer-og-markedsstruktur/aktorenes-roller/elhub-for-aktorer-med-plusskunder/ (last accessed: 13/05/2022).

will also have the obligation to ensure that the technical requirements set by the network company are satisfied before signing the contract.[338]

The expectation, for a prospective prosumer, to cover the costs of the electrical installation for the connection to the grid can be considered balanced from a cost-effective point of view, since it is not the responsibility of the DSO to cover the costs related to house maintenance. Furthermore, citizens could have these types of interventions subsidized by one of the financial incentives by the Government, as I will further analyse in subchapter 3.4 on Financial Incentives.

Norwegian plus-costumers can also be demanded a construction contribution for the strengthening of the power grid, which is corroborated by an obligation to cover the expenses for further investments needed to accommodate for the energy producer contained in Regulation 959/90[339].

This can represent a burden on prosumers, nonetheless, it must also be considered that Norway has a very large territory with a scarce and scattered population. Additionally, the environmental conditions of many inhabited areas of the country make the maintenance and construction of a grid more expensive than it would be in most areas of Italy, a country that on the other hand is densely populated and does not present harsh environmental conditions. Therefore, while it is apparent that the Norwegian system is less financially accessible than the Italian system because it requires more expenses on the part of prospective prosumers, it appears that the burden is proportionate to the necessity of securing a balanced grid, and it respects the criteria of cost-effectiveness.

3.3 Energy trading

Once an individual citizen has managed to become an energy prosumer, energy trading might represent a point of interest for him, to avoid wasting its energy surplus, to make revenues from the selling of the energy, and as a valuable alternative to storing the excess energy.

3.3.1 Clarity

The abolition of the mechanism of Exchange on the Spot in March 2022 left an empty spot in the Italian legislation regarding energy trading and hindered the clarity of the available

[338] Banet (2018), p. 180.
[339] NO (1990), FOR 1990-07-12-959, Sec. 3-4, par. 1.

mechanisms for energy trading. If a prospective prosumer currently wants to research information regarding the available mechanism for energy trading, they will hardly find the information that the mechanism of Exchange on the Spot has now been abolished. Indeed, the website of the GSE itself does not acknowledge the abolition of the mechanism yet and still describes it as an available instrument[340] and Legislative Decree 199/21 only mentions it in one paragraph[341], which would be hard to find and interpret for a citizen without a legal background.

As of May 2022, Italian prosumers can still avail of the mechanism of Dedicated Collection to sell their excess energy at a fixed price to the GSE. While the mechanism is not particularly cost-effective vis-à-vis Exchange on the Spot when it comes to individual prosumers, it is more reliable from the point of view of clarity, since its enforcement has remained unaltered since its introduction in 2003.

In this context, the Norwegian regime for energy trading also changed in 2019 with the launch of the platform Elhub, nonetheless, the change positively affected the clarity of the procedure for connection to the grid in Norway. With the launch of the platform, all the information necessary to connect to the grid and to trade energy, both for prospective prosumers and for network operators, are available on the dedicated page on the Elhub website[342].

Furthermore, prosumers that are in doubt which energy supplier to choose to buy their surplus energy can check on the Ediel portal, where all the energy suppliers that provide plus-customer agreements should be registered[343]. The power supplier is obliged to provide this information according to Section 8-1 of Regulations 301/99[344].

3.3.2 Proportionality

On proportionality, the obstacles for trading energy through both the mechanisms of Exchange on the Spot and of Dedicated Collection are proportionate, since the prosumers interested in pursuing energy trading only need to compile the Single Text and upload it in the dedicated area on the website of the GSE.

---

[340] https://www.gse.it/servizi-per-te/fotovoltaico/scambio-sul-posto (last accessed: 12/05/2022).
[341] IT (2021), D. lgs. 199/21, Art. 9, par. 2.
[342] https://elhub.no/aktorer-og-markedsstruktur/oppgaver-i-elhub/veiledere/rutine-for-endring-til-kombinasjonsmalepunkt-plusskunde-i-elhub/ (last accessed: 12/05/2022).
[343] https://www.ediel.no/Info/bruker-og-implementasjonsguider (last accessed 12/05/2022).
[344] NO (1999), FOR 1999-08-08-301, Sec. 8-1.

The Norwegian regime overall gives limited option to energy prosumers. In the first place, because they are constrained in the choice of the power supplier, since not all the power suppliers accept this type of agreement, and the power supplier must also give favourable conditions for the prosumer as an energy consumer, i.e., offer convenient energy prices for consumption. The choice is further limited by the territorial configuration of Norway, where many urban agglomerations or households are confined in areas difficult to reach, thus further limiting the choice of energy suppliers available.

Arguably, nonetheless, the obstacles imposed by the Norwegian regime for energy trading is not disproportionate for renewable energy prosumers, since they still have a viable option for selling energy.

3.3.3 Cost-effectiveness

As mentioned in Section II of this thesis, Italy implements the mechanism of Dedicated Collection for prosumers that intend to sell their excess energy. The mechanism enables prosumers to sell their energy to the GSE at a minimum fixed price, shielding self-producers from market fluctuations and simplifying the transaction by selling to a single institutional actor rather than to several actors on the energy market. The minimum fixed price is settled by the ARERA[345] and approved by the GSE. In 2022, the minimum fixed price amounts to 40,70 €/MWh for solar PV, 51,10 €/MWh for wind power, and 59,20 €/MWh for hydropower[346]. There has been a slight increase in price in comparison with 2021, when solar PV was quoted at 39,90 €/MWh, wind power at 50,10 €/MWh, and hydropower at 58,60 €/MWh[347].

A small fee in favour of the GSE is applied to all producers who sell energy under a Dedicated Collection mechanism. The fee is equal to 0.5% of the equivalent of the electricity collected and is used by the GSE to cover administrative costs for the management of the service. The fee may not exceed, for each plant, the amount of € 3,500[348].

[345] Autorità di regolazione per energia reti e ambiente (Regulatory Authority for Energy Networks and Environment).
[346] https://www.arera.it/it/comunicati/22/220118.htm (last accessed: 12/05/2022).
[347] https://www.arera.it/it/comunicati/21/210119.htm (last accessed: 12/05/2022).
[348] https://www.gse.it/servizi-per-te/fotovoltaico/ritiro-dedicato/tariffe-e-copertura-del-servizio (last accessed: 12/05/2022).

However, while the mechanism of Dedicated Collection is available for all renewable energy power plants, it has always been considered more profitable for power plants of larger dimensions, ideally with a power superior to 200 kWh, and that are not connected to any users. This is because, before the enforcement of Legislative Decree 199/21, Exchange on the Spot was a more convenient mechanism for smaller power plants.

In this regard, Exchange on the Spot had the advantage of being easier to manage for individual prosumers. The energy produced by the PV panel was directed to the energy counter of the house and, if electricity was needed at the time of production, it was used directly by the occupants of the house. On the other hand, the energy of the PV panels that was not exploited immediately was channelled to a second energy counter called "counter for exchange" that measured the kWh generated by the prosumer's PV panels and those fed into the network. Afterwards, the DSOs would transmit to the GSE data on the energy input from the photovoltaic system in the public network and on that taken by the user. The GSE would then refund the user for the energy that had been entered in the network through a decrease in the energy bills of the prosumers.[349]

Therefore, the advantage of the mechanism of Exchange on the Spot, compared to the mechanism of Dedicated Collection, was the reimbursement of network services paid in the bill at times when the prosumer used energy from the grid.

To properly understand the functioning of the mechanism of Exchange on the Spot, it is necessary to understand how the Italian energy bill is structured. In Italy, the energy bill is made of nine components, three of these in particular are relevant for the mechanism of Exchange on the Spot: raw energy, which is the cost of electricity according to one's energy consumption, including some fixed costs; system charges, tariffs to cover activities of general interest for the electricity system; operating charges, which cover the costs of ancillary financial and non-financial management of the grid, excluding measures of an extraordinary nature[350].

[349] https://www.gse.it/servizi-per-te/fotovoltaico/scambio-sul-posto/tempistiche-e-pagamenti (last accessed: 12/05/2022).
[350] https://bolletta.arera.it/bolletta20/index.php/guida-voci-di-spesa/elettricita#:~:text=Il%20prezzo%20complessivo%20applicato%20in,componente%20di%20dispacciamento%20(%20DispBT%20) (last accessed: 13/05/2022).

In this scenario, if a PV system produces 10,000 kWh, of which a prosumer self-consumes 3,000 kWh, it means that the remaining 7,000 kWh will be fed into the public network.

If the prosumer uses energy during the moments of inactivity of the power plant, he will pay for it in the energy bill, as increased raw energy expenses and system charges. However, if the energy used is inferior to the 7,000 kWh the prosumer has previously fed into the network, he will be credited or liquidated of the difference.

The GSE would refund the bills paid for the energy that was first entered and then withdrawn by the user, but without covering the taxes on the expenses for raw energy. In addition, the GSE would also liquidate the excess energy that had been placed on the grid and not later consumed by the prosumer as surplus revenues at market value. As a result, generally the prosumer is reimbursed about half of the average price he would have spent buying the energy from the network (circa 0.08 €/kWh instead of 15 €/kWh)[351].

Finally, for operating charges, installations with a power higher than 3 kW will have to pay € 30 each year. If there is more than one pick-up and drop-off point, the expense is of € 4/year for each connection point[352].

In this scenario, Exchange on the Spot was strongly cost-effective for citizens interested in becoming prosumers, granting the possibility of saving money or making revenues in a manner tailored to the individual's energy use, without forcing on the DSO unbalanced expenses. Dedicated Collection is not as cost-effective for individual prosumers, since it provides for the acquisition of energy from prosumers at the same conditions that would apply to major energy suppliers. Individual prosumers will still have to pay the full energy bill for the energy withdrawn from the grid separately from the revenues derived from the energy entered on the grid.

Italian prosumers are still allowed to independently sell their excess energy on the energy market, however this is not very cost-effective when the power plant is of small dimensions and has a low power outtake, since prosumers won't have the certainty of receiving a fixed price and will have to find a potential buyer on their own.

[351] Madera V. (2021).
[352] Madera V. (2021).

Energy trading for Norwegian prosumers would appear to be more straightforward. Norwegian plus-customers can only sell energy to the network company that also provides them with energy[353].

The energy supplier and the prosumer must enter into a plus-customer agreement. If the prosumer's current power supplier does not offer this, he should switch as soon as possible, otherwise he risks being placed on a power supplier subject to delivery with both production and consumption volume[354].

To be paid for their surplus electricity, prosumers depend on an electricity meter (AMS meter) that records the exchange of energy in both directions, respectively the withdrawals and the input into the network[355].

In this scenario, the conditions of energy trading will depend on the plus-customer agreement and the conditions dictated by the energy supplier. What is offered varies, from spot price (e.g., Eidsiva and Tibber[356]), to spot price with a surcharge inclusive of an electricity certificate (e.g., Lustakraft)[357], to double spot price (e.g., Lyse), to prices up to one kroner per kWh (e.g., Ustekveikja and Otovo, for revenues up to a maximum of 5000 kWh per year)[358]. The spot prices are usually determined based on the values of the Nord Pool[359].

The mechanism of Dedicated Collection and the Norwegian system are similar in effects since prosumers sell their energy to a buyer independently from their energy consumption. Nonetheless, the Norwegian system would be more cost-effective, and safer for prosumers, if they were granted a fixed price and a consistent buyer, as it is the case with the mechanism of Dedicated Collection. The absence of these two aspects hinders the cost-effectiveness of the legal regime for energy trading, since prosumers are exposed to market fluctuations, and the

[353] https://elhub.no/aktorer-og-markedsstruktur/oppgaver-i-elhub/veiledere/rutine-for-endring-til-kombinasjonsmalepunkt-plusskunde-i-elhub/ (last accessed: 12/05/2022).
[354] https://elhub.no/aktorer-og-markedsstruktur/oppgaver-i-elhub/veiledere/rutine-for-endring-til-kombinasjonsmalepunkt-plusskunde-i-elhub/ (last accessed: 12/05/2022).
[355] https://klimaostfold.no/wp-content/uploads/2019/01/Elsertifikater-og-Plusskundeordningen.docx (last accessed: 12/05/2022).
[356] https://www.otovo.no/blog/strom/beste-plusskundeavtale/ (last accessed: 12/05/2022).
[357] https://www.lusterenergi.no/products/lustrakraft-timespot (last accessed: 12/05/2022).
[358] https://klimaostfold.no/wp-content/uploads/2019/01/Elsertifikater-og-Plusskundeordningen.docx (last accessed: 12/05/2022).
[359] NordPool is a European energy market with particular traction over the Nordic countries and the Baltic area.

energy producer that supplies them with energy might not be interested in offering them a plus costumer agreement.

3.4 Financial incentives and support schemes

Financial incentives are of great importance when it comes to creating a fertile ground for citizens to become renewable energy prosumers, both because they can remove the obstacle of initial expenses, that can be insurmountable for low-income households, and because they can motivate citizens to become prosumers.

Financial incentives can come in the form of tax deduction, bonuses for the purchase and installation of power plants, and certification schemes on the production of renewable energy.

3.4.1 Clarity

There is no fixed regime for financial incentives through tax deduction in Italy. Bonuses in the form of tax deduction are implemented in the country annually. This can damage clarity regarding the currently available financial incentives.

For the purpose of this chapter, I will take as an example Superbonus 110%, since it is currently available for prosumers. The Superbonus provides for tax deductions consisting of deductions from gross tax when carrying out interventions that increase the level of energy efficiency of existing buildings[360].

Information on Superbonus 110% and how to obtain it can be easily found on the website of the Government and of the Ministry of Economic Development[361], as it can be found on other less formal sources. What could hinder clarity is that the Superbonus 110% is only in place for a limited amount of time, since it is the product of a Law- Decree, which, as mentioned, is only a temporary instrument. For this reason, it is unclear whether and for how long the initiative will be repeated by the Italian Government.

On Norwegian financial incentives, the NVE founded Enova with the purpose of providing financial subsidies to initiatives in the production of renewable energy and climate change mitigation. The initiative has been impactful to the point that recently the NVE felt the need to raise its budget. Where in 2021 the subsidy could amount to up NOK 26,250, a citizen

[360] Agenzia dell'Entrate (2021), p. 2.
[361] https://www.mise.gov.it/index.php/it/incentivi/energia/superbonus-110 (last accessed: 28/05/2022).

intending to install a solar PV, or a domestic plant for wind or hydro energy, in 2022 could receive up to NOK 47,500 of financial aid[362]. Enova has been in place since 2001 and its functioning is clearly explained on the Enova website.

Both countries implement a certificate scheme for energy efficiency and renewable energy, however, the elsertifikater scheme in Norway can be exploited by individual prosumers, while the white certificates scheme in Italy is not available to individual prosumers, but only to big energy producers. This category encompasses companies, energy communities, and collective prosumers, but not individual prosumers.[363]

Finding information regarding the white certificates scheme in Italy is not easy, again because the website of the GSE is not properly up to date. All the information related to the elsertifikater scheme is available on the website of the NVE.

3.4.2 Proportionality

Both the Superbonus 110% and the Enova subsidy seem quite easy to access for individual citizens. Both initiatives can be accessed through the compilation of an online template that can be found on the internet, for the Superbonus 110% to be sent through the online platform ENEA, and for the Enova subsidy through the platform of Enova SF itself.

As I will further explain in the following chapter, the Superbonus 110% promises a sum in tax deduction that has a great potential for cost-effectiveness. Nonetheless, the tax deduction system expects individual prosumers to make the first investment unsubsidized and out of pocket, thus potentially excluding low-income households. Therefore, the ex-post approach of the Superbonus 110%, despite being a generous contribution, could still not achieve the demanded result reducing disproportionate obstacles on prospective prosumers.

The elsertifikater scheme also raises some interest when it comes to proportionality. The scheme is open to all power plants based on renewable energy whose construction started after the 7th of September of 2009 and all new hydropower plants whose construction started after the 1st of January of 2004[364]. Plants must be put into operation by the end of 2021 to be approved in the scheme.

---

[362] https://www.enova.no/privat/alle-energitiltak/solenergi/solcelleanlegg/ (last accessed: 12/05/2022).
[363] https://www.gse.it/servizi-per-te/efficienza-energetica/certificati-bianchi (last accessed: 12/05/2022).
[364] https://www.nve.no/energi/virkemidler/elsertifikater/kraftprodusenter/ (last accessed: 12/05/2022).

Interested energy producers must simply apply for the certificate after the plant has been put into operation[365] with the application form that can be found on the platform Altinn[366].

Power plants approved in the scheme will be awarded electricity certificates for up to 15 years at the rate of one electricity certificate per MWh produced[367].

Energy producers who have received electricity certificates must find power suppliers, or other potential buyers, themselves. There are also brokers who can arrange contact with potential buyers of electricity certificates, nonetheless the process of buying and selling doesn't happen through governmental circuits.[368]

Besides the obvious obstacle raised by the fact that the certificate scheme is no longer available for plants built after 2021, it is also worth noting that the obstacle of finding buyers can be disproportionate for individual prosumers, that receive a proportionately small number of certificates.

Furthermore, operators of plants under 100 kW, which by definition encompasses Norwegian plus customers, must pay a one-off fee of 15,000 NOK to be able to receive electricity certificates, in addition to costs related to measuring and reporting production[369]. For the electricity certificate schemes to be economically convenient for prosumers, the revenues from the sale of the certificates should be sufficient to offset the cost of the one-off fee.

In 2021, electricity certificates have been allotted in the quota of 19,3 øre per kWh of energy produced. The quota has raised in 2022 to 20,8 øre/kWh, an all-time high according to the projections of the NVE.[370]

---

[365] https://www.nve.no/energi/virkemidler/elsertifikater/kraftprodusenter/ (last accessed: 12/05/2022).
[366] https://www.nve.no/energi/virkemidler/elsertifikater/kraftprodusenter/soknadsprosessen/ (last accessed: 12/05/2022).
[367] https://klimaostfold.no/wp-content/uploads/2019/01/Elsertifikater-og-Plusskundeordningen.docx (last accessed: 12/05/2022).
[368] https://klimaostfold.no/wp-content/uploads/2019/01/Elsertifikater-og-Plusskundeordningen.docx (last accessed: 12/05/2022).
[369] https://klimaostfold.no/wp-content/uploads/2019/01/Elsertifikater-og-Plusskundeordningen.docx (last accessed: 12/05/2022).
[370] https://www.nve.no/energi/virkemidler/elsertifikater/statistikk-og-publikasjoner/elsertifikatkvoter/ (last accessed: 12/05/2022).

According to studies of the NVE in 2022, a solar cell system on a roof in Norway will produce between 650 - 1000 kWh per year[371]. Considering that prosumers can receive electricity certificates for the entire power production, including the electricity that goes to their own consumption,[372] this would amount, according to 2022 quota allocation, to a maximum of 20.800 certificates or a minimum of 13.520.

The market prices for the electricity certificates fluctuate monthly, as shown on the website of Statnett. As of May 2022, prosumers that joined the elsertifikater scheme would have sold at an average price of 1,49 NOK per certificate, which amounts to a maximum of 30.992 NOK or a minimum of 20.144 NOK. Both sums offset the one-off fee of 15.000 NOK necessary to enter the certificate scheme. Additionally, according to the statistics published on the Statnett website, May has been so far the least profitable month of 2022, with a peak of 18,02 NOK per certificate in January, which would have granted a far higher profit to prosumers partaking in the elsertifikater market.[373]

Therefore, the obstacle of the one-off fee for entering the certificate scheme is currently proportionate for prosumers, that would be able to cover the initial expense and turn a profit. Nonetheless, it must be considered that, according to the projection of the NVE, the quota of certificates allocated will progressively decrease until 2035, when the certificate scheme is supposed to be abolished, thus it will be determined by market fluctuations whether in the following decade the certificate scheme will be profitable for individual prosumers.

Finally, the elsertifikater scheme was not introduced to subsidize prosumerism, but rather to incentivize production of renewable energy in general. Additionally, prosumers are not bound to join the scheme. Therefore, designing a potential for prosumers to join the scheme is only a positive addition, rather than the whole scheme being designed in a flawed manner to properly encompass the interests of the plus-customers.

---

[371] https://www.nve.no/energi/energisystem/solkraft/#:~:text=Et%20solcelleanlegg%20p%C3%A5%20et%20tak,prosent%20av%20str%C3%B8mforbruket%20til%20boligen (last accessed: 12/05/2022).
[372] https://klimaostfold.no/wp-content/uploads/2019/01/Elsertifikater-og-Plusskundeordningen.docx (last accessed: 12/05/2022).
[373] https://necs.statnett.no/AveragePrice (last accessed: 12/05/2022).

3.4.3 Cost-effectiveness

The cost-effectiveness of the financial incentives depends on their capacity to remove or minimize financial obstacles for citizens interested in becoming prosumers, vis-à-vis the expenses necessary to build and operating installations.

For what concerns Superbonus 110% and Italy, the installation of a PV system for a standard house of about 100 square meters has a price around 3000 € per kW. This means that a 3 kW system, usually installed for a house of four people, has a price of about 9000 €. If, however, the prosumer wants to install a larger PV system, the price raises to about 5000 € per kW installed[374]. Considering the expenditure limit for the bonus of 2,400 € per kW of nominal power of the plant, the average prosumer installing a 3 kW system can obtain a maximum tax deduction of 7,200 € on the face of a 9000 € expense. While the tax deduction wouldn't reimburse the full expense, it still has the potential to cover 80% of it. Despite the proportionality issue related to the tax deduction being a reimbursement ex-post rather than a funding ex-ante, the sum provides for a cost-effective reduction of the initial financial obstacles that a prosumer might find.

For what concerns the Enova subsidy the amount of support received depends on the type of operation undertaken. For the actual installation of the facility, a prosumer could receive up to NOK 7,500 in support. This must be contrasted with the actual price of installation of a power plant. Taking for example solar PV, the most used type of plant for prosumers, the cost of the panel plus the installation can vary between 40,000 and 130,000 NOK for a detached house, and between 40,000 and a 100,000 NOK for a cabin[375]. The price of the solar PV without the price of the installation can vary depending on the type of panel installed. Solar panels designed as slabs cost between 2,500 and 3,000 NOK per square meter, while panels designed as roof tiles cost between 3,500 and 4,000 NOK per square meter[376]. The allocation of the rest of the Enova support depends on the capacity of the plant. For each kW of capacity of the installed plant, a prosumer can obtain 2,000 NOK, up to 20 kW for the final sum of 47,500 NOK in total[377].

---

[374] https://innovasol.it/costo-impianto-fotovoltaico/ (last accessed: 12/05/2022).
[375] https://www.boligsmart.no/pris/solcellepanel-tak (last accessed: 12/05/2022).
[376] https://www.boligsmart.no/pris/solcellepanel-tak (last accessed: 12/05/2022).
[377] https://www.enova.no/privat/alle-energitiltak/solenergi/solcelleanlegg/#:~:text=Du%20f%C3%A5r%20inntil%2047%20500,produksjon%20med%20vindm%C3%B8ller%20eller%20vannkraftverk (last accessed: 12/05/2022).

Therefore, the funding of Enova allows all prospective prosumers to start with an initial sum to invest in the construction works for a renewable energy power plant. The sum can cover between the 30% and the 90% of the expense, depending on the type of investment. The degree to which the Enova subsidy is cost-effective in reducing the financial obstacles that a prospective prosumer can face depends on the investment that the prospective prosumer decides to make. Nonetheless, the possibility to receive funding for the project aforehand provides prospective prosumers with more freedom to invest in the first place.

4 Chapter IV: Conclusions

The goal of this thesis was to understand which laws and financial incentives are more effective in creating the right conditions for individual citizens to become energy prosumers.

Energy prosumption is a recent phenomenon, therefore, assessing the effectiveness of laws and financial incentives in creating a positive environment for individual citizens to become energy prosumer is not a straightforward process. To achieve this goal, I employed three criteria to assess effectiveness: clarity, proportionality, and cost-effectiveness. My choice of the three criteria is justified by the needs that individual citizens have when first approaching prosumption: for clear information, simple procedures, and financial accessibility.

To assess clarity, I researched the applicable laws and incentives. Alongside with the official legislation, I researched the informal sources available on the internet, in the form of articles and literature. Since I wanted to assess whether the need of individual citizens to have clear information was being met, informal explicative sources available to citizens without prior knowledge on the topic was of primary importance. When the applicable law had been implemented recently, this impacted the availability of explicative sources, which consequently hindered clarity.

To assess proportionality, I analysed the procedures necessary to access each step individual prosumers must cross. I balanced the obstacles that prosumers could find at every phase against the interests these obstacles were serving, their necessity or impossibility to remove. Wherever the obstacles imposed were proportionately necessary or impossible to remove, I would consider the laws and financial incentives that I was analysing to be respecting the criteria of proportionality. Wherever the obstacles were disproportionate to the interests they were serving, I would consider the laws and financial incentives to be disproportionate.

To assess cost-effectiveness, I analysed the expenses that prosumers would have to face in each phase I was analysing and whether and how these expenses were offset by financial incentives. If an expense was too burdensome, or there was no sufficient financial incentive to offset it, I would consider it to not respect the criteria of cost-effectiveness. If an expense was proportionate or could be offset by an incentive, either entirely or to a reasonable degree, I would consider it cost-effective.

I based my analysis of the effectiveness of laws and financial incentives involved in individual prosumerism on the comparison of two countries, Italy and Norway. I chose the two countries because of their populations' different uptake of prosumerism and their different use of renewable energy, which made them two opposites when it came to renewable energy prosumerism.

Since prosumerism is a recently growing phenomenon, the analysis of each legal system had to start by how the Italian and Norwegian legal systems defined the term "prosumer". In both countries, the term prosumer is not commonly used in law.

The terms "self-producer" and "active customer" were introduced by the 2018 RED and the 2019 EMD, and later transposed in Italian law. Both terms refer to an individual that operates an energy plant with the purpose of self-consumption. Alongside with producing and consuming energy, both self-producers and active consumers are entitled to store and trade the surplus of energy production, insofar as the latter is not their primary professional or commercial activity.

In Norway, the term plus-customer is defined as an end user that performs consumption and production without exceeding the input power of 100 kW at any time. Plus-customers by definition operate energy power plants below the threshold that would require a license. The Norwegian definition of prosumer might be reformed with the implementation of the 2018 RED and of the 2019 EMD in Norwegian law. This can also apply to varying degrees, to all the other aspects that I have taken into consideration in my thesis, i.e., the permit system, the connection to the grid process, energy trading and the financial incentives and support schemes in place according to Norwegian law.

The procedure of obtaining a permit is regulated in the EU by the RED. It establishes that Member States are required to designate a contact point guide for applicants and facilitate the administrative permit application. In Italy, this requirement resulted in the launch of the

Single Platform. The Directive also demands that prosumers enjoy a simplified and swift permit-granting process for installations below a 150 kW and for repowering of installations. While the Italian permit system is swift, it lacks clarity. Depending on the dimension and type of implant that prospective prosumers plan to instal, the necessary procedure would change, requiring prospective prosumers to fill in either the Certified Communication of Beginning of Works or the Single Template. Furthermore, the system was significantly reformed twice in a short period of time.

The Italian permit system is proportionate, since it only requires notification to the municipality of the beginning of works, but it doesn't require the reception of a permit or license, thus simplifying and speeding the process.

Norwegian plus-customers could be required to have a permit under the Planning and Building Act unless the type of power plant they plan to install falls under the exemptions in Section 20 of the Act. Since Section 20 envisions many ways in which prosumers could be exempted from having a permit, and since each municipality implements different requirements for the permit system, the necessary process could be unclear. However, most municipalities make information on the matter easily available to citizens on their websites.

Both Italy and Norway impose restrictions to protect cultural heritage and landscape. Analysing two different cases, those of Lombardy and of Stavanger Municipality, I found that the restrictions seem to be applied more strictly for prospective prosumers in Italy than in Norway. Apparently, Italy will lower the threshold for imposing the restrictions following the decision recently rendered by the Regional Administrative Court of Lombardy.

After having obtained a permit, prospective prosumers often decide to connect to the grid to sell their surplus energy. In Italy, they can connect to the grid by contacting the GSE and the DSOs, while in Norway they can directly connect through the DSOs on the Elhub platform.

Prospective prosumers in Italy only must compile the second part of the Single Template and upload it on the GSE website. The procedure for connection to the grid only changed with the implementation of the 2018 RED and its simplicity ensures a degree of clarity.

The average prospective prosumer in Italy would sell to the grid between 50 kW and 200 kW of power and would be consequently charged by the DSO between 100 or 200 euros. It is proportionate for a prosumer connecting to the grid to be required to pay a fee, since the DSO

must deal with the burdensome procedures necessary to balance the grid. A measure that could make the expense more cost-effective is the offer of a financial aid to cover for it, either from the DSO or the Government.

Prosumers planning to connect to the grid in Norway, must submit an application to the grid operator, including a notification of installation works and a declaration of connection. This is a swift procedure that imposes limited restrictions and is clear in its requirements.

Upon connection to the grid, Norwegian plus-costumers must pay both a one-time connection charge and a running grid tariff. They can also be asked for a construction contribution for the strengthening of the power grid after they have been connected. Overall, the expenses for grid connection for Norwegian prosumers can be significant. Nonetheless, grid maintenance in harsh environmental conditions like those that can verify in Norway, in particular in the Northern territory, can be extremely expensive. This makes cost-effectiveness harder to assess, since high expenses fronted by prosumers mirror high expenses fronted by the DSOs.

Once connected to the grid, prosumers can take part in energy trading. Energy trading can be organized through a fixed buyer or independently on the energy market. Italy allows prosumers to sell their surplus energy both on the energy market and through the GSE, while Norway requires prosumers to sell their energy to their energy supplier.

The Italian regime has serious shortcomings when it comes to clarity, since one of the two mechanisms instituted in Italy for energy trading available to prosumers was recently abolished. The information is absent on the official website of the GSE and is only briefly mentioned on Legislative Decree 199/21, the Decree which abolished the mechanism in the first place.

Furthermore, while both the mechanism of Dedicated Collection and that of Exchange on the Spot were available to prosumers, the now abolished Exchange on the Spot was the most profitable for individual prosumers. Italian prosumers are now left with two unproportional and not cost-effective options for energy trading: independent trading on the energy market and Dedicated Collection, a mechanism better suited for large energy producers.

The Norwegian approach is not better, since prosumers only have the option to sell their surplus energy to the same company that supplies them with energy. The option is quite limited since not all energy companies offer a plus-customer agreement and since prosumers

cannot sell energy to a company different to the one that supplies them with energy. The obstacles in finding a buyer for their surplus energy seems disproportionate. Nonetheless, the cost-effectiveness will depend on the terms of the plus-customer agreement that a prosumer signs, according to the conditions offered by each energy supplier.

Finally, financial incentives can take the form of energy certificates, tax deductions, and subsidies for the purchase and installation of power plants, both in Italy and in Norway.

The Italian white certificates scheme is not available for individual prosumers, while the Norwegian elsertifikater is. According to current quota allocation of certificates and to current market prices of the certificates, the support scheme is cost-effective for individual prosumers, vis-à-vis the one-time payment necessary for entering the support scheme. Whether the scheme will remain cost-effective until 2035, its expected abolition date, depends on market fluctuations of the certificates' prices. Moreover, the trading mechanism of the certificate scheme leaves the responsibility of finding a buyer up to the individual prosumer, which could represent a disproportionate obstacle.

The main financial incentives for prospective prosumers are enforced in the form of tax deduction in Italy, more specifically tax breaks to propel energy efficiency measures. To analyse effectiveness of the financial incentives implemented in Italy, I considered the so-called Superbonus 110% -the last bonus offered by the Italian Government. I assessed that, while the continuous changes of the benefits offered hindered the clarity of available incentives, information on the Superbonus 110% is generally easy to find. Furthermore, access to the instrument is proportionate and poses few obstacles to prospective prosumers. The size of the benefits enables it to cover the expenses sustained by prospective prosumers for the installation of renewable energy plant. Nonetheless, the ex-post approach of the bonus can prove not cost-effective since many citizens could be unable to cover the initial expense out of pocket.

To subsidize installation of power plants, Norway has created a strong mechanism in the form of the Enova subsidy. Enova is a long-standing financial aid measure which is easy to access and easy to obtain information about. Nonetheless, sometimes the size of the subsidy can be too small to aid low-income households to cover the expenses for the installation of a renewable energy power plant. Perhaps, increasing the sum offered could make the Enova

subsidy the perfect financial incentive for prospective prosumers. Indeed, the Norwegian Government has already progressively raised the Enova budget in the last years.

In the coming years, for Italy to improve the clarity of the applicable law on prosumerism, it will be necessary to settle on a stable regime and slow the rhythm at which reforms are being implemented. However, reform will be necessary to recreate cost-effective balance within the energy trading regime, since the abolition of Exchange on the Spot left fewer options for prosumers interested in pursuing energy trading.

During the next decade it is also probable that Norway will keep implementing measures to incentivize individual citizens to become energy prosumers. To obtain this result, they will have to increase proportionality by lowering the burden on prosumers interested in connecting to the grid. Perhaps it could also be more cost-effective for the Norwegian Government to increase its control over the process of energy trading instead of leaving the matter up to private companies. This change could potentially offer more opportunities to individual prosumers and grant them more reliability in the energy trading system.

5 List of sources

5.1 Primary Sources

5.1.1 Case law

TAR Lombardia, Ruling n. 296/21 of 15/04/2021 (Ruling n. 296/21 (2021)).

TAR Piemonte, Ruling n. 1946/14 of 10 December 2014 (Ruling n.1946/14 (2014)).

5.1.2 European Economic Area

EEA (1992), Council of the European Communities, and Commission of the European Communities, Agreement on the European Economic Area, Published on the Official Journal No L 1, 3.1.1994, p. 3; and EFTA States' official gazettes, (EEA 1992).

5.1.3 European Union law

COM (2022), Communication from the Commissions on the Guidelines on State aid for climate, environmental protection, and energy 2022, Official Journal of the European Union C 80/01.

EU (2012), Treaty on the Functioning of the European Union, Official Journal of the European Union C 326/47.

EU (2018), 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, Official Journal of the European Union L 328/82.

EU (2019), Directive (EU) 2019/944 of the European Parliament and of the Council of 5 June 2019 on common rules for the internal market for electricity and amending Directive 2012/27/EU, Official Journal of the European Union L 158/125.

EU (2019), Regulation (EU) 2019/943 of the European Parliament and of the Council of 5 June 2019 on the internal market for electricity, Official Journal L 158/125.

5.1.4 Italian law

IT (1999), Decreto Legislativo 16 marzo 1999, n. 79 "Attuazione della direttiva 96/92/CE recante norme comuni per il mercato interno dell'energia elettrica", (Legislative Decree of the

16th of March 1999 n. 79 "Implementation of Directive 96/92/EC laying down common rules for the internal market in electricity"), published on the Official Gazette n. 75 of the 31st of March 1999, (D. lgs 79/99).

IT (2001), Decreto del Presidente della Repubblica 6 giugno 2001, n. 380 "Testo unico delle disposizioni legislative e regolamentari in materia edilizia", (Decree of the President of the Republic of the 6th of June 2001 n. 380 "Consolidated text of the building laws and regulations. (Text A)"), published on the Official Gazette n. 266 of the 15th of November 2001, (D.P.R. 380/01).

IT (2003), Decreto Legislativo 29 dicembre 2003, n. 387 "Attuazione della direttiva 2001/77/CE relativa alla promozione dell'energia elettrica prodotta da fonti energetiche rinnovabili nel mercato interno dell'elettricità.", (Legislative Decree of the 29th of December 2003 n. 387 "Implementation of Directive 2001/77/EC on the promotion of electricity from renewable energy sources in the internal electricity market"), published on the Official Gazette n. 25 of the 31st of January 2004, (D. lgs. 387/03).

IT (2004), Legge 23 agosto 2004, n. 239 "Riordino del settore energetico, nonché' delega al Governo per il riassetto delle disposizioni vigenti in materia di energia.", (Law of the 23rd August 2004 n. 239 "Reorganization the energy sector, as well as delegating to the Government for the reorganization of the current provisions on energy"), published on the Official Gazette n. 215 of the 13th of September 2004, (L. 239/04).

IT (2008), Decreto legislativo 30 maggio 2008, n. 115 "Attuazione della direttiva 2006/32/CE relativa all'efficienza degli usi finali dell'energia e i servizi energetici e abrogazione della direttiva 93/76/CEE", (Legislative Decree of the 30th of May 2008 n. 115 "Implementation of Directive 2006/32/EC on energy end-use efficiency and energy services and repeal of Directive 93/76/EEC"), published on the Official Gazette n. 154 of the 3rd of July 2007, (D. lgs. 115/08).

IT (2011), Decreto legislativo 3 marzo 2011, n. 28 "Attuazione della direttiva 2009/28/CE sulla promozione dell'uso dell'energia da fonti rinnovabili, recante modifica e successiva abrogazione delle direttive 2001/77/CE e 2003/30/CE", (Legislative Decree of the 3rd of May 2011 n. 28 "Implementation of Directive 2009/28/EC on the promotion of the use of energy from renewable sources, amending and subsequently repealing Directives 2001/77/EC and

2003/30/EC"), published on the Official Gazette n. 71 of the 28th of March 2011, (D. lgs. 28/11).

IT (2012), Delibera 20 dicembre 2012 570/2012/R/efr "Testo integrato delle modalità e delle condizioni tecnico-economiche per l'erogazione del servizio di scambio sul posto: condizioni per l'anno 2013", (Resolution of the 20th of December 2012 570/2012 / R / efr "Integrated text of the technical-economic terms and conditions for the provision of the on-site exchange service: conditions for the year 2013"), published on the website www.arera.it on the 21th December 2012, (Del. 570/12).

IT (2015), Decreto 19 maggio 2015 "Approvazione del modello unico per la realizzazione, la connessione e l'esercizio di piccoli impianti fotovoltaici integrati sui tetti degli edifici", (Decree of the 19th of May 2015 "Approval of the single model for the construction, connection and operation of small photovoltaic systems integrated on the roofs of buildings"), published on the Official Gazette n. 121 of the 27th of May 2015, (D. M. 19/5/2015).

IT (2017), Decreto del Presidente della Repubblica 13 febbraio 2017, n. 31 "Regolamento recante individuazione degli interventi esclusi dall'autorizzazione paesaggistica o sottoposti a procedura autorizzatoria semplificata", (Decree of the President of the Republic of the 13th of February 2017 n. 31 "Regulation identifying interventions excluded from the landscape authorisation or subject to a simplified authorisation procedure"), published on the Official Gazette n. 68 of the 22nd of March 2017, (D.P.R. 31/17).

IT (2020), Decreto-Legge 19 maggio 2020, n. 34 "Misure urgenti in materia di salute, sostegno al lavoro e all'economia, nonche' di politiche sociali connesse all'emergenza epidemiologica da COVID-19", (Law- Decree of the 19th of May 2020, n. 34 "Urgent measures on health, support to work and the economy, as well as social policies related to the epidemiological emergency by COVID-19"), published on the Official Gazette n. 128 of 19th of May 2020, (D. L. 34/20).

IT (2021), Decreto Legislativo 8 novembre 2021, n. 210 "Attuazione della direttiva UE 2019/944, del Parlamento europeo e del Consiglio, del 5 giugno 2019, relativa a norme comuni per il mercato interno dell'energia elettrica e che modifica la direttiva 2012/27/UE, nonche' recante disposizioni per l'adeguamento della normativa nazionale alle disposizioni del regolamento UE 943/2019 sul mercato interno dell'energia elettrica e del regolamento UE 941/2019 sulla preparazione ai rischi nel settore dell'energia elettrica e che abroga la direttiva

2005/89/CE", (Legislative Decree of the 8th of November 2021 n. 210 "Implementation of Directive 2019/944 of the European Parliament and of the Council of 5 June 2019 on common rules for the internal market in electricity and amending Directive 2012/27/EU, as well as providing provisions for the adaptation of national legislation to the provisions of EU Regulation 943/2019 on the internal market in electricity and EU Regulation 941/2019 on risk preparation in the electricity sector and repealing the Directive 2005/89/EC"), published on the Official Gazette n. 294 of the 11th of November 2021, (D. lgs. 210/21).

IT (2021), Decreto Legislativo 8 novembre 2021, n. 199 "Attuazione della direttiva (UE) 2018/2001 del Parlamento europeo e del Consiglio, dell'11 dicembre 2018, sulla promozione dell'uso dell'energia da fonti rinnovabili.", (Legislative Decree of the 8th of November 2021 n. 199 "Implementation of 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"), published on the Official Gazette n. 285 of the 30th of November 2021, (D. lgs. 199/21).

5.1.5 Norwegian law

NO (1978), Lov om endringer i lov 9. juni 1978 nr. 50 om kulturminner (Kulturminneloven), (Act of the 9th of June 1978 no. 50 on Cultural Heritage), (LOV 1978-09-06-50).

NO (1981), Lov om endringer i lov 13. mars 1981 nr. 6 om vern mot forurensninger og om avfall (Forurensningsloven), (Act of the 13th of March 1981 no. 6 Concerning Protection Against Pollution and Concerning Waste), (LOV 1981-13-03-6).

NO (1990), Lov 29. juni 1990 nr. 50 knyttet til produksjon, konvertering, overføring, handel, distribusjon og bruk av energi mv. (Energiloven), (Act of 29 June 1990 no. 50 relating to the generation, conversion, transmission, trading, distribution and use of energy etc. or The Energy Act), in particular Amendments no. 21 of the 4th of June 2010 and no. 65 of the 21st of June 2019 (LOV 2019-21-06-50).

NO (1990), Forskrift av 7. desember 1990 nr. 959 om produksjon, konvertering, overføring, handel, distribusjon og bruk av energi mv. (Energilovforskriften), (Regulation of the 7th of December 1990 no. 959 concerning the generation, conversion, transmission, trading, distribution, and use of energy etc. or The Energy Act Regulation), (FOR 1990-07-12-959).

NO (1999), Forskrift av 11. mars 1999 nr. 302 om økonomisk og teknisk rapportering, inntektsramme for nettvirksomheten og tariffer, (Regulation of the 11th of March 1999 no. 302 governing financial and technical, reporting, income caps for network operations and transmission tariffs), in particular the Amendment of the 29th of April 2016 (FOR 1999-03-11-302).

NO (1999), Forskrift av 8. august 1999 nr. 301 om måling, fakturering, fakturering av netttjenester og elektrisk energi, nettselskapets nøytralitet, (Regulation of the 8th of August 1999 no. 301 on metering, billing, invoicing of grid services and electrical energy, the grid company's neutrality), (FOR 1999-08-08-301).

NO (2008), Lov 27. juni 2008 nr. 71 om planlegging og behandling av byggesøknader eller plan (Bygningsloven), (Act of 27th of June 2008 no. 71 relating to planning and the processing of building applications or the Planning and Building Act), (LOV 2008-27-06-71).

NO (2009), Lov av 19. juni 2009 nr. 100 om forvaltning av biologisk, geologisk og landskapsmessig mangfold, (Act of 19 June 2009 no.100 Relating to the Management of Biological, Geological and Landscape Diversity), (LOV 2009-19-06-100).

NO (2011), Lov av 24. juni 2011 nr. 39 om elsertifikater, (Act of the 24th of June 2011 no. 39 on electricity certificates), (LOV 2011-24-06-39).

NO (2011), Forskrift av 24. juni 2011 nr. 39 om elsertifikater, (Regulation of the 24th of June 2011 no. 39 on electricity certificates), (FOR 2011-24-06-39).

NO (2017), Forskrift av 19. juni 2017 nr. 17 om tekniske krav til byggverk (TEK 17), (Regulation of the 19th of June 2017 no. 17 on technical requirements for construction works or TEK 17), (FOR 2017-19-06-17).

5.2 Secondary sources

5.2.1 Literature

Akirav O., A model for determining legislative significance and effectiveness, in: The Theory and Practice of Legislation, Vol. 6:3, (2019), p. 343-361.

Banet C., Prosumer Legislation in Norway- A first step for empowering small energy consumers, in: European Energy Law Report Vol. XII (2018), p. 169-190.

Bernitz U., What is Scandinavian Law? Concept, Characteristics, Future, Stockholm Institute for Scandianvian Law 1957-2010 (2010).

Bruckner T. et al., Energy Systems, in: Climate Change 2014: Mitigation of Climate Change. IPCC Working Group III Contribution to AR5, Chapter 7, (2014).

Campos I., et al, Regulatory challenges and opportunities for collective renewable energy prosumers in the EU, in: Energy Policy Vol. 138 111212, (2020).

Daniels P., Italy in the European Union, in: Economic and Political Weekly, Vol. 33, No. 35 (1998), p. 107-112.

Giurdanella & Partners, Sentence of the Administrative judge and erga omnes effects, published on the website Giurdanella.it, https://www.giurdanella.it/2019/03/sentenza-del-giudice-amministrativo-giudicato-effetti-erga-omnes/ (2019).

Hansen K. H., "In what ways does the Norwegian regulation of prosumers correspond to the current and future EU/EEA regulation and how can the Norwegian rules eventually be improved in order to promote prosumers?", University of Bergen, (2020).

Kharel A., Doctrinal legal research, in: Myneni, Legal Research Methodology, Allahabad Law Agency, Vol.16 (2006).

Kotilainen K. et al., From energy consumers to prosumers: How do policies influence the transition?, in: Accelerating the Energy Transition, Pami Aalto, Academic Press, (2021), p. 197-216.

Madera V., Exchange on the Spot: how does it work? The GSE as an example, published on the website StudioMadera.it, https://www.studiomadera.it/news/464-scambio-sul-posto (2021).

Punch, K, Introduction to social research: Quantitative and qualitative approaches (2nd ed.). London, England: Sage (2005), p. 119-125.

Rashid Y. et al, "Case Study Method: A Step-by-Step Guide for Business Researchers", in: International Journal of Qualitative Methods Volume 18: 1–13 (2019).

Savaresi A., The Rise of Community Energy from Grassroots to Mainstream: The Role of Law and Policy, in: Journal of Environmental Law, Vol. 31, (2019), p. 487–510.

Smiths J. M., "What is legal doctrine? On the aims and methods of legal-dogmatic research", in: Maastricht European Private Law Institute Working Paper No. 2015/06 (2015).

Van Soest H., The Prosumer in European Energy Law, in: SIMPLY (Scandinavian Institute of Maritime Law Yearbook) Edition 2017, Chapter 5, Nordisk Institutt for Sjørett (Scandinavian Institute of Maritime Law) (2018), p.103-138.

5.2.2 Online sources

ARERA, Aggiornamento dei prezzi minimi garantiti per l'anno 2022, (last updated: 18/01/2022), https://www.arera.it/it/comunicati/22/220118.htm (last accessed: 12/05/2022).

ARERA, Aggiornamento dei prezzi minimi garantiti per l'anno 2021, (last updated: 19/01/2021), https://www.arera.it/it/comunicati/21/210119.htm (last accessed: 12/05/2021).

ARERA, Come leggera la bolletta, (last updated: 2022), https://bolletta.arera.it/bolletta20/index.php/guida-voci-di-spesa/elettricita#:~:text=Il%20prezzo%20complessivo%20applicato%20in,componente%20di%20dispacciamento%20(%20DispBT%20) (last accessed: 13/05/2022).

Boligsmart, Hva koster solcellepanel for tak? Pris i 2022, (last updated: 2022), https://www.boligsmart.no/pris/solcellepanel-tak (last accessed: 12/05/2022).

Direktoratet for byggkvalitatet, Byggteknisk forskrift (TEK17) med veiledning, (last updated: 15/9/2017), https://dibk.no/regelverk/byggteknisk-forskrift-tek17/ (last accessed: 14/05/2022).

Ediel, Bruker- og implementasjonsguider (last updated: 2014), https://www.ediel.no/Info/bruker-og-implementasjonsguider (last accessed: 12/05/2022).

EFTA, 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, (last updated: 20/12/2011), https://www.efta.int/eea-lex/32009L0028 (last accessed: 03/05/2022).

EFTA, 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 (last updated: 24/12/2018), https://www.efta.int/eea-lex/32018L2001 (last accessed: 03/05/2022).

EFTA, Directive (EU) 2019/944 of the European Parliament and of the Council of 5 June 2019 on common rules for the internal market for electricity and amending Directive 2012/27/EU (last updated: 31/12/2020), https://www.efta.int/eea-lex/32019L0944 (last accessed: 03/05/2022).

Elhub, Elhub for aktører med plusskunder, (last updated: 05/11/2020), https://elhub.no/aktorer-og-markedsstruktur/aktorenes-roller/elhub-for-aktorer-med-plusskunder/ (last accessed: 05/05/2022).

Elhub, Om Elhub, (last updated: 24/02/2022), https://elhub.no/om-elhub/ (last accessed: 05/05/2022).

Elhub, Rutine for endring til kombinasjonsmålepunkt (plusskunde) i Elhub, (last updated: 26/03/202), https://elhub.no/aktorer-og-markedsstruktur/oppgaver-i-elhub/veiledere/rutine-for-endring-til-kombinasjonsmalepunkt-plusskunde-i-elhub/ (last accessed: 12/05/2022).

Elvia, Slik produserer du din egen strøm, (last updated: 2022), https://www.elvia.no/smart-forbruk/forbruk-og-sparing/slik-produserer-du-din-egen-strom/ (last accessed: 06/05/2022).

Energi Norge, DSO, (last updated: 2022), https://www.energinorge.no/tall-og-fakta/ordbok2/dso/ (last accessed: 18/05/2022).

Energy Facts Norway, The EEA Agreement and Norwegian Energy Policy, (last updated: 06/04/2021), https://energifaktanorge.no/en/eu-lovgivning/eos-avtalen-og-norsk-energipolitikk/ (last accessed: 03/05/2022).

Enova SF, Enova Årsrapport 2021, (last updated: 14/02/2022), https://2021.enova.no/arsrapport-2021/arsberetning-og-arsregnskap-enova-sf/arsberetning/ (last accessed: 06/05/2022).

Enova SF, Solcelleanlegg, (last updated: 02/02/2022), https://www.enova.no/privat/alle-energitiltak/solenergi/solcelleanlegg/#:~:text=Du%20f%C3%A5r%20inntil%2047%20500,pr

oduksjon%20med%20vindm%C3%B8ller%20eller%20vannkraftverk (last accessed: 12/05/2022).

Enova SF, Solenergi, (last updated: 02/02/2022), https://www.enova.no/privat/alle-energitiltak/solenergi/solcelleanlegg/ (last accessed: 12/05/2022).

Europalov, Elektrisitetsdirektivet 2009 (tredje), (last updated: 21/03/2022), https://www.europalov.no/rettsakt/elektrisitetsdirektivet-2009-tredje/id-385 (last accessed: 03/05/2022).

Europalov, On the decision-making process, (last updated: 2021), https://www.europalov.no/laer-mer/beslutningsprosessen (last accessed: 03/05/2022).

Gazzetta Ufficiale, Legislative Decree 8 November 2021, n. 199, (last updated: 15/12/2021), https://www.gazzettaufficiale.it/eli/id/2021/11/30/21G00214/sg (last accessed: 03/05/2022).

Gazzetta Ufficiale, Legislative Decree 8 November 2021, n. 210, (last updated: 26/12/2021), https://www.gazzettaufficiale.it/eli/id/2021/12/11/21G00233/sg (last accessed: 03/05/2022).

Gestore Servizi Energetici, Autoconsumo, (last updated: 31/12/2020), https://www.autoconsumo.gse.it/ (last accessed: 25/05/2022).

Gestore Servizi Energetici, Certificati Bianchi, https://www.gse.it/servizi-per-te/efficienza-energetica/certificati-bianchi (last accessed: 12/05/2022).

Gestore Servizi Energetici, Fotovoltaico, Online il Modello Unico per la realizzazione, connessione e la messa in esercizio degli impianti e le nuove modalità di attivazione del servizio di ritiro dedicato, (last updated: 14/04/2022), https://www.gse.it/servizi-per-te/news/fotovoltaico-online-modello-unico-realizzazione-connessione-messa-in-esercizio-impianti-e-nuove-modalita-attivazione-rid (last accessed: 06/05/2022).

Gestore Servizi Energetici, Portale Autoconsumo Fotovoltaico, (last updated: 27/11/2021), https://www.autoconsumo.gse.it/guida-all-autoconsumo (last accessed: 10/05/2022).

Gestore Servizi Energetici, Ritiro Dedicato, (last updated: 12/05/2022), https://www.gse.it/servizi-per-te/fotovoltaico/ritiro-dedicato/tariffe-e-copertura-del-servizio (last accessed: 12/05/2022).

Gestore Servizi Energetici, Scambio sul Posto, (last updated: 01/01/2015), https://www.gse.it/servizi-per-te/fotovoltaico/scambio-sul-posto (last accessed: 12/05/2022).

Hus&Bolig, Solcellepanel kan være søknadspliktig, (last updated: 24/09/2019), https://www.huseierne.no/hus-bolig/tema/juss/solcellepanel-kan-vare-soknadspliktig/ (last accessed: 12/05/2022).

Innovasol, Allaccio Fotovoltaico Enel: come fare, tempi e costi, (last updated: 27/10/2021), https://innovasol.it/allaccio-fotovoltaico-enel/#Costo-e-tempistica-di-allacciamento-Enel-fotovoltaico (last accessed: 12/05/2022).

Innovasol, Costo Impianto Fotovoltaico: tutto quello che c'è da sapere, (last updated: 12/06/2021), https://innovasol.it/costo-impianto-fotovoltaico/ (last accessed: 12/05/2022).

KlimaØstfold, Elsertifikater og plusskundeordningen, (last updated: 01/2019), https://klimaostfold.no/wp-content/uploads/2019/01/Elsertifikater-og-Plusskundeordningen.docx (last accessed: 12/05/2022).

Luster Energi, Lustrakraft – Plusskunde, (last updated: 2022), https://www.lusterenergi.no/products/lustrakraft-timespot (last accessed: 12/05/2022).

Ministry of the Economic Development, Superbonus e Sismabonus 110% - Decreti attuativi, (last updated: 2021), https://www.mise.gov.it/index.php/it/incentivi/energia/superbonus-110 (last accessed: 28/05/2022).

Next, Il mercato elettrico europeo e italiano, (last updated: 2019), https://www.centrali-next.it/hub-della-conoscenza/la-rete-elettrica-italiano/#:~:text=In%20Italia%20l'unico%20operatore,della%20domanda%20di%20elettricit%C3%A0%20italiana (last accessed: 12/05/2022).

Norges vassdrags og energidirektorat, Elsertifikater, (last updated: 10/01/2022), https://www.nve.no/energi/virkemidler/elsertifikater/ (last accessed: 06/05/2022).

Norges vassdrags og energidirektorat, Elsertifikaterkvoter, (last updated: 27/01/2022), https://www.nve.no/energi/virkemidler/elsertifikater/statistikk-og-publikasjoner/elsertifikatkvoter/ (last accessed: 12/05/2022).

Norges vassdrags og energidirektorat, Kraftprodusenter, (last updated: 15/06/2021), https://www.nve.no/energi/virkemidler/elsertifikater/kraftprodusenter/ (last accessed: 12/05/2022).

Norges vassdrags og energidirektorat, Informasjon om mikroprodusenter og elsertifikater, (last updated: 15/06/2021), https://www.nve.no/energi/virkemidler/elsertifikater/siste-nytt-om-elsertifikater/informasjon-om-mikroprodusenter-og-elsertifikater/ (last accessed: 06/05/2022).

Norges vassdrags og energidirektorat, Plusskunder, (last updated 16/12/2021), https://www.nve.no/reguleringsmyndigheten/regulering/nettvirksomhet/nettleie/tariffer-for-produksjon/plusskunder/ (last accessed: 06/05/2022).

Norges vassdrags og energidirektorat, Plusskundestatistik, (last updated: 12/2021), https://www.nve.no/reguleringsmyndigheten/publikasjoner-og-data/statistikk/statistikk-over-sluttbrukermarkedet/plusskundestatistikk/ (last accessed: 13/05/2022).

Norges vassdrags og energidirektorat, Solkraft, (last updated: 03/05/2022), https://www.nve.no/energi/energisystem/solkraft/#:~:text=Et%20solcelleanlegg%20p%C3%A5%20et%20tak,prosent%20av%20str%C3%B8mforbruket%20til%20boligen (last accessed: 12/05/2022).

Norges vassdrags og energidirektorat, Søknadsprosessen, (last updated: 1/06/2021), https://www.nve.no/energi/virkemidler/elsertifikater/kraftprodusenter/soknadsprosessen/ (last accessed: 12/05/2022).

Oslo Kommune, Byggesøknad for solcelle- eller solfangeranlegg, (last updated: 2022), https://www.oslo.kommune.no/plan-bygg-og-eiendom/skal-du-bygge-rive-eller-endre/ma-du-sende-byggesoknad/solcelle-eller-solfangeranlegg/#gref (last accessed: 06/05/2022).

Otovo, Dette er de beste strømavtalene for husholdninger med solceller og batterier, (last updated: 2020), https://www.otovo.no/blog/strom/beste-plusskundeavtale/ (last accessed: 12/05/2022).

Statistiks Sentralbyrå, Access and use of electricity in the period 1993-2017, (last updated: 04/2022), https://www.ssb.no/energi-og-industri/energi/statistikk/elektrisitet (last accessed: 03/05/2022).

Statnett, Average Price, (last updated: 12/05/2022), https://necs.statnett.no/AveragePrice (last accessed: 12/05/2022).

Stavanger Kommune, Fasadeendring, (last updated: 06/08/2020), https://www.stavanger.kommune.no/bolig-og-bygg/skal-du-bygge/hva-ska-du-bygge/fasadeendring/ (last accessed: 12/05/2022).

Stavanger Kommune, Solenergi, (last updated: 04/02/2022), https://www.stavanger.kommune.no/renovasjon-og-miljo/miljo-og-klima/solenergi/#-konomisk-st-tte (last accessed: 09/05/2022).

5.2.3 Reports

Agenzia dell'Entrate, Superbonus 110% Detrazioni per interventi di efficientamento energetico, sisma bonus, fotovoltaico, colonnine di ricarica di veicoli elettrici, eliminazione delle barriere architettoniche, published on "L'Agenzia Informa" the website of the Italian tax agency, (2021).

Agrillo A. et al., Statistics Report on Renewable Energy in Italy 2020, GSE - Manager of Energy Services S.p.A., Directorate of Studies, Monitoring, and International Relations, Statistics and Target Monitoring Function, (2022).

Gestore Servizi Energetici, Guida All'Autoconsumo Fotovoltaico per Privati e Condomini, published on the GSE website at "Portale Autoconsumo Fotovoltaico", (2021).

Norsk Vassdrags og energidirektorat (NVE), The Norwegian power system. Grid connection and licensing, published on the NVE website at "Fact sheet on licensing and grid connection", NVE FAKTA NR. 3 08/2018, (2018).

Petrick, K., Fosse, J., Klarwein, S. Principles for Prosumer Policy Options. PROSEU - Prosumers for the Energy Union: Mainstreaming active participation of citizens in the energy transition, Horizon 2020 (H2020-LCE-2017) Grant Agreement N°76405, (2019).