HOW TO LEGALLY ENABLE ENERGY COOPERATIVES IN TURKEY?: LESSONS LEARNED FROM RED II, ED 2019 AND GERMAN PRACTICE

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ABSTRACT

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Özcureci**,** Berker

Master's Program in Sustainable Energy

Advisor: Prof. Dr. Mehmet Efe BİRESSELİOĞLU

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Community energy provides a democratic, decentralized, and sustainable approach. It enables citizens to design, fund, own, and manage energy systems and services. Citizens can participate in the energy system through numerous legal forms and models. Energy cooperatives are the most common and fastest-growing legal structure around the globe. Turkey should aid energy cooperatives as it would significantly increase Turkey's utilization of renewable energy in generating electricity. At the moment, 46 energy co-operatives exist in Turkey. It remains fully in question whether the legal and administrative framework is suitable for further development. On the contrary, energy cooperatives are Germany's most prominent and common legal form for community participation in the energy sector. At the time of writing, 835 energy cooperatives exist with approximately 200,000 members. Germany stands as the most advanced utilization of energy cooperative as an instrument in the energy sector. Moreover, as a European Union candidate, Turkey aims to be consistent with the EU legislation. The European Union has recently adopted energy communities as a policy

instrument with RED II and ED 2019. As a candidate country, it would be very beneficial for Turkey to adopt energy communities, including energy cooperatives, and align with RED II and ED 2019. This research aims to identify the aspects that require legal amendments to enhance the activity of energy cooperatives in the Turkish electricity sector, and to achieve consistency with the legislation of the European Union and Turkey.

Keywords: energy cooperatives, energy community, functional analysis, comparative law.

ÖZET

TÜRKİYE'DE ENERJİ KOOPERATİFLERİ YASAL OLARAK NASIL ETKİNLEŞTİRİLİR? RED II, ED 2019 VE ALMAN UYGULAMASINDAN ALINAN DERSLER

Özcureci**,** Berker

Sürdürülebilir Enerji Yüksek Lisans Programı

Tez Danışmanı: Prof. Dr. Mehmet Efe BİRESSELİOĞLU

Haziran, 2022

Topluluk enerjisi, demokratik, merkezi olmayan ve sürdürülebilir bir yaklaşım sağlamaktadır. Vatandaşların enerji sistemlerini ve hizmetlerini tasarlamalarını, finanse etmelerini, sahip olmalarını ve yönetmelerini mümkün kılmaktadır. Vatandaşlar, enerji sistemine çok sayıda yasal form ve model aracılığıyla katılabilir. Enerji kooperatifleri dünya çapında en yaygın ve en hızlı büyüyen yasal yapıdır. Türkiye'nin elektrik üretiminde yenilenebilir enerji kullanımını önemli ölçüde artıracağı için Türkiye enerji kooperatiflerine destek vermelidir. Şu anda Türkiye'de 46 enerji kooperatifi bulunmaktadır. Yasal ve idari çerçevenin bu kooperatiflerin daha da gelişmesi için uygun olup olmadığı halen tartışmalıdır. Öte yandan, enerji kooperatifleri Almanya'da enerji sektörüne toplumsal katılımın en belirgin ve yaygın yasal biçimidir. Bu yazının yazıldığı sırada, yaklaşık 200.000 ortağı olan 835 enerji kooperatifi bulunmaktadır. Almanya, enerji sektöründe bir araç olarak enerji kooperatiflerinin en ileri düzeyde kullanıldığı ülke konumundadır. Ayrıca, bir Avrupa

Birliği adayı olarak Türkiye, AB mevzuatıyla uyumlu olmayı hedeflemektedir. Avrupa Birliği yakın zamanda RED II ve ED 2019 ile enerji topluluklarını bir politika aracı olarak benimsemiştir. Aday bir ülke olarak, Türkiye'nin enerji kooperatifleri de dahil olmak üzere enerji topluluklarını benimsemesi ve RED II ve ED 2019'a uyum sağlaması çok faydalı olacaktır. Bu araştırma, Türkiye elektrik sektöründe enerji kooperatiflerinin faaliyetlerini geliştirmek ve Avrupa Birliği ve Türkiye mevzuatıyla uyum sağlamak için yasal değişiklik gerektiren hususları belirlemeyi amaçlamaktadır.

Anahtar Kelimeler: enerji kooperatifleri, enerji toplulukları, fonksiyonel analiz, karşılaştırmalı hukuk.

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ABBREVIATIONS

4th BimSchV: Verordnung über genehmigungsbedürftige Anlagen

9th BimSchV: Verordnung über das Genehmigungsverfahren

BauGB: Baugesetzbuch

BGBl: Bundesgesetzblatt

BImSchG: Bundes-Immissionsschutzgesetz

ED 2019: Electricity Directive 2019/944

EEG: Erneuerbare-Energien-Gesetz

EIA: Environmental Impact Assessment

EİGM: Enerji İşleri Genel Müdürlüğü

EnWG: Energiewirtschaftsgesetz

EU: The European Union

GenG: Genossenschaftsgesetz

GenRegV: Genossenschaftsregisterverordnung

IRENA: International Renewable Energy Agency

kw: Kilowatt

KOOPBİS: Kooperatif Bilgi Sistemi

KraftNAV: Kraftwerks-Netzanschlussverordnung -

MERSIS: Merkezi Sicil Kayıt Sistemi

Mwe: Megawatt electrical

No.: Numbered

RED II: Renewable Energy Directive 2018/2001

SCA: Systematic Content Analysis

TFEU: The Treaty on the Functioning of the European Union

UVPG: Gesetz über die Umweltverträglichkeitsprüfung

CHAPTER 1: INTRODUCTION

Preventing climate change and ensuring environmental sustainability, energy equity, and energy security requires holistic approaches that simultaneously deliver solutions for different objectives. (Gielen et al., 2019) To do so, altering energy systems in a carbon-dominated world is crucial, and it demands the exploitation of alternative methods, foundational changes in energy systems, and greater utilization of renewable energy sources. (Seyfang, Park and Smith, 2013; Yıldız et al., 2015) In this respect, decentralized energy systems play a part in realizing the aims under energy and climate contexts. (Koirala et al., 2015) As a prominent approach, citizen participation in the energy market and community energy implementations emerges as phenomena that aid in managing a successful energy transition. (Kalkbrenner and Roosen, 2016)

Community participation in the energy sector offers many benefits. Community energy provides a democratic, decentralized, and sustainable approach. It enables citizens to design, fund, own, and manage energy systems and services. (Wuebben, Romero-Luis and Gertrudix, 2020) Community energy does not refer to an absolute, fixed concept. (Wuebben, Romero-Luis and Gertrudix, 2020) Citizens can participate in the energy system through numerous legal forms and models: “energy cooperatives, limited partnerships, community trusts and foundations, housing associations, non-profit customer-owned enterprises, public-private partnerships, and public utility companies” are some legal structures that enable citizen participation in the energy system. Among them, energy cooperatives are the most common and fastest-growing legal structure around the globe. (Caramizaru and Uhrein, 2020)

While global interest in energy cooperatives is growing due to the benefits offered, Turkey has been making strides in this sector as well. (Özgül, Koçar and Eryaşar, 2020) However, energy cooperatives are a relatively recent topic in the energy policy of Turkey, contrary to the global situation. (Özcan and Strauss, 2017) The research conducted on the subject built a consensus that energy cooperatives offer many benefits for Turkey. Localization of electricity generation and consumption via energy cooperatives enhances employment growth, societal participation in the economy, local development, and the favorable impact on the environment, and reduces the country's energy dependency. (Ayanoğlu, 2014) By expounding that

energy cooperatives combine technology and social transformation, they have the potential to play an essential part in ensuring Turkey's energy independence, its transition to sustainable growth, and fulfilling its environmentally friendly investment goals. (Özgül, Koçar and Eryaşar, 2020) Turkey should improve an innovative and novel energy cooperative approach based on its own experience and needs. Embracing the energy cooperatives as an energy policy offers to boost local prosperity, energy equity, and national energy independence while reducing greenhouse gas emissions. (Özcan and Strauss, 2017) Köne and Büke (2019) support this statement and discuss that Turkey should aid energy cooperatives as it would significantly increase Turkey's utilization of renewable energy in generating electricity.

Both action plans of Turkey on cooperatives and renewable energy recommended the concept of energy cooperatives. (Kaya, 2017; Özgül, Koçar and Eryaşar, 2020) These action plans embody the introduction of unlicensed energy generation in 2013. Making the legal environment eligible for energy cooperatives in Turkey, the action plans resulted in the foundation of the first energy cooperative in Tavas, Denizli. Further, the "renewable energy generation cooperative" concept was adopted in 2016, resulting in a swift increase in the number of energy cooperatives. Nevertheless, despite all benefits, the number of energy cooperatives and their members is still limited. (Sargsyan and Aydın, 2019) At the moment, 46 energy cooperatives exist in Turkey. (KOOPBİS, 2022) The publications (Gozen, 2015; Sargsyan and Aydın, 2019; Özgül, Koçar and Eryaşar, 2020; Everest, 2021; Guresci, 2021; Biresselioğlu et al., 2021) on energy cooperatives in Turkey determine the inadequacy of legislation; designate that legal and administrative obstacles hinder the expansion of energy cooperatives. This topic is worth studying due to two major factors. The first is the arising need for the implementation of energy cooperatives as a different instrument in the energy policy of Turkey to meet its energy and climate aims. On the other hand, it remains fully in question whether the legal and administrative framework on energy cooperatives in Turkey is suitable for the further development of energy cooperatives, and if not, is it possible to suggest a solution?

Contrary to Turkey, Germany has widespread experience and practice in implementing energy cooperatives. Among community energy forms, energy cooperatives are Germany's most prominent and common legal form for community participation in the energy sector. (Meister et al., 2020) At the time of writing, 835 energy cooperatives with approximately 200.000 members exist in Germany. (DGRV,

2022) Energy cooperatives have existed since the German Reich, where they were a tool for rural electrification in the first half of the 20th century. (Yıldız et al., 2015) The liberalization of the German Energy Market in 1998, the amendment in the related legislation to simplify founding procedures for energy cooperatives in 2006, and the German Renewable Energy Sources Law offered a favorable environment for energy cooperatives. (Herbes, Rilling and Holstenkamp, 2021) From 2009 to 2013, energy cooperatives had significant growth in the number of projects implemented. Despite the deceleration in number in recent years, energy cooperatives have a place in the energy transition in Germany (Yıldız et al., 2015), and Germany has exemplary legislation on energy cooperatives. (Inês et al., 2020) Considering its leading role in the subject, legislation on energy cooperatives in Germany is a salient embodiment for Turkey.

The EU has been considering community energy in their union-wise policy on energy and climate as well. While community energy has a long history in several Member States, "Regulation (EU) 2018/1999 on the Governance of the Energy Union and Climate Action" pinned out renewable energy communities as a tool used under national energy and climate policies. Moreover, in 2019, the EU Clean Energy Package provided a framework for "citizen energy communities" and "renewable energy communities" with "Internal Electricity Market Directive (EU) 2019/944" (ED 2019) and "Renewable Energy Directive (EU) 2018/2001" (RED-II). These concepts are recognized as tools employed to achieve energy and climate goals under the EU acquis, in line with the Regulation (EU) 2018/1999. Article 22 of RED II put forth a detailed framework for promoting and developing renewable energy communities. Besides, in its 5th paragraph, the Article obliges the Member States to include renewable energy communities in their national energy and climate plans and progress reports. As an EU candidate, Turkey aims to be consistent with the EU legislation. (Barış and Kucukali, 2012) Turkey should also pursue the approach adopted by the European Union in the context of harmonization efforts.

The specific purpose of this research is both to seek a more suitable legal environment for energy cooperatives in Turkey and to identify the aspects that require amendments to achieve consistency with the legislation of the European Union and Turkey as a part of harmonization process. To identify these aspects, I will employ legislation on energy cooperatives in Germany, as it stands as the most advanced utilization of energy cooperatives as an instrument in the energy sector. In this respect, the research question

below arises:

RQ: What legal amendments are required to harmonize the legislation on energy cooperatives in Turkey with the EU legislation and to overcome legal barriers that hinder the development of electricity generation via energy cooperatives?

As the body of legislation is vast and the subject may be in relationship with numerous sources of law, the research will focus on,

1- the establishment process of energy cooperatives,

2- the implementation process of renewable energy projects of energy cooperatives,

3- incentives offered for energy cooperatives under the legislation.

The method selected to map the relevant legislation in the scope of the thesis is Qualitative Content Analysis. The relevant legislation on energy cooperatives will be obtained from the official online databases of Turkey and Germany. To obtain the relevant legislation, a keyword search will be conducted, with keywords selected based on the "state-of-the-art" review. The legislation thus obtained will be narrowed down to the scope of the thesis, grounded on its relevance to the focal points mentioned above. Later, a comparative law analysis on Turkey and Germany will take place, as well as the compatibility of Turkey's legislation to the EU *acquis*. A functionalist approach will be adopted in the comparative law analysis of the legislation. This phase aims to identify the legal and administrative obstacles that hinder the implementation of energy cooperatives in Turkey, as well as the areas that should be updated to ensure compatibility with the EU *acquis*. Finally, in a problem-solving manner, suggestions from Germany and EU practices will be presented to the identified deficiencies.

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manner, suggestions from Germany and the EU practices will be presented to the identified deficiencies.

In this respect,

Chapter 1 consists of the grounding of the thesis, pointing out the necessity for Turkey to consider developing a suitable legal environment for energy cooperatives, showing the logic behind selecting the legislation on energy cooperatives in Germany and the EU acquis for comparison, and identifying the research question and theoretical framework.

Chapter 2 consists of the methodological framework constructed under the thesis, selected research methods, and the research design.

Chapter 3 consists of the literature review on the concept of energy cooperatives and the benefits of implementing energy cooperatives as a tool to achieve energy and climate aims.

Chapter 4 consists of the mapped legislation on energy cooperatives in the EU acquis, Turkey, and Germany.

Chapter 5 consists of the examination of the alignment of Turkish legislation with the European Union acquis and amendments necessary for harmonization of Turkish legislation with the European Union legislation.

Chapter 6 consists of the comparison of legislation on energy cooperatives in Turkey and Germany

And finally, Chapter 7 consists of the conclusion of the thesis and the recommendations for Turkish legislation.

CHAPTER 2: METHODOLOGICAL FRAMEWORK

The study embodies a two-phase methodological framework.

The first phase involves mapping the relevant legislation that the research focuses on and holding in two steps. In this respect, I will conduct a systematic content analysis. The first step is retrieving all primary and secondary legislation with the ones that include the selected keyword(s). The second step would be assessing the relevance of the retrieved legislation and identifying the ones that fall under the scope of this research. Additionally, since Turkey's compliance with the provisions on energy communities under RED II and ED 2019 will be examined within the scope of the thesis, RED II and ED 2019 are analyzed.

The second phase includes a functional analysis of the identified legislation within the scope of comparative law.

The methodological framework of the thesis is shown in Figure 1 below.

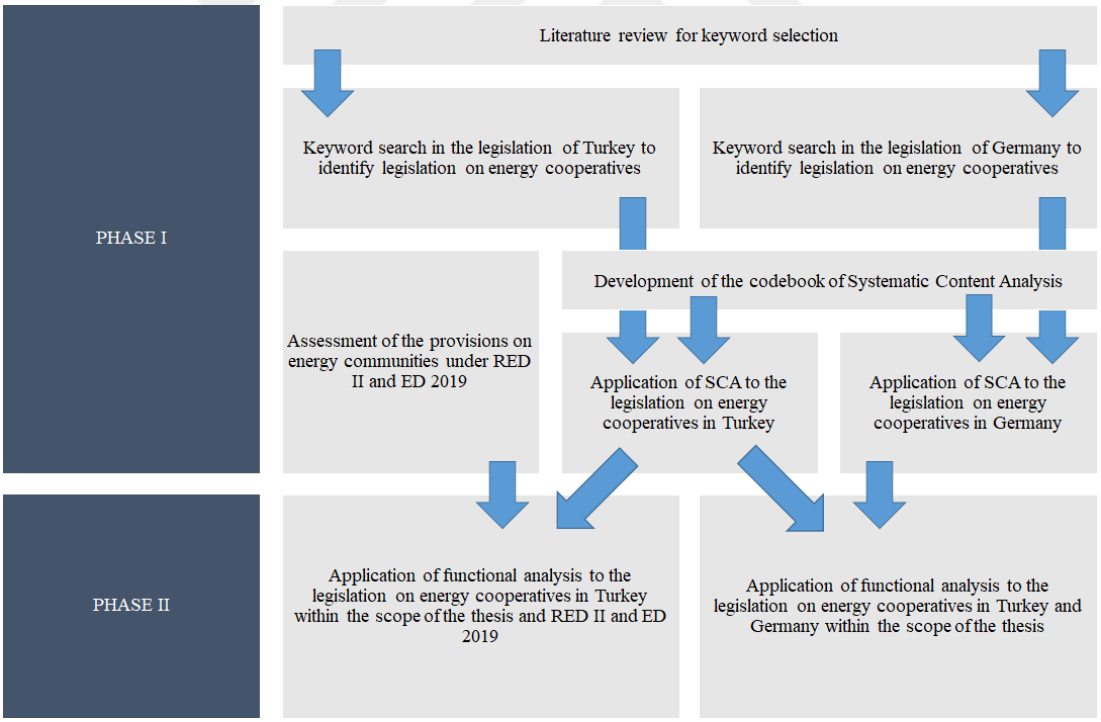

Figure 1. Methodological framework

2.1. Identifying the legislation on energy cooperatives in selected countries within the scope of the thesis

To conduct the comparative law analysis, determining the legislation on energy cooperatives within the scope of this thesis first is necessary. In this context, Systematic Content Analysis (SCA) is chosen to identify the relevant legislation. SCA is a commonly used method for social scientists who aim to qualitatively or/and quantitatively evaluate visual, verbal and written documents. (Salehijam, 2018) It is a systematic, repeatable approach for condensing large amounts of text into fewer content categories using specific analyzing (coding) rules. (Stemler, 2001) It allows the researcher to deduce a vast amount of text into fewer content categories based on specific coding criteria. (Salehijam, 2018)

Despite its potential, SCA's use in legal studies is recent, and the empirical approach in the field of law is still controversial. (Salehijam, 2018) However, SCA is similar to the practice of traditional legal analysis, as it fundamentally involves gathering data (or documents), such as court decisions on a specific issue, and examining them at once, identifying their usage and meaning. It applies social science precision to the understanding of law, resulting in a uniquely legal type of empiricism. The traditional legal analysis relies on legal interpretation and the interpreter's experience to choose key points and themes and probable societal repercussions. On the other hand, the researcher must describe the data and coding selection and in sufficient objective detail under SCA. (Hall and Wright, 2008)

SCA requires determining the research topic or hypothesis, similar to the first stage of most legal research. (Salehijam, 2018) The aim of this phase is to detect the legislation on energy cooperatives in Turkey within the scope of the thesis. Hence, the research questions to be answered with SCA are,

1- What is the legislation on the establishment of energy cooperatives?

2- What is the legislation on the implementation of renewable energy projects by energy cooperatives?

3- What is the legislation on incentives for energy cooperatives?

SCA of legal text usually contains three phases:

- creating a database of legal text based on robust selection criteria;
- systematically recording (manually or automatically) quantitative and/or qualitative features of the text based on a predefined protocol
- reflection stage, in which the scholar categorizes the text. (Hall and Wright,

2008; Salehijam, 2018; Brook, 2021)

Based on this point, a database was created within the scope of this thesis. The current legislation in the selected countries has been taken into account in the creation of this database to implement the SCA. The legislation in force is available on the official online databases of Turkey and Germany. Legal researchers that use SCA tend to limit their study scope depending on topic matter, region, language, and/or time. (Salehijam, 2018) Since the characteristic of the thesis requires qualitative analysis, the scope of the legislation was narrowed down by keyword searches conducted on the official legislation databases. The subchapter "2.1.1. Retrieving the legislation on energy cooperatives in Turkey and Germany" explains the database creation step.

The next step of SCA requires data coding. In qualitative research, a code is

> *"a word or short phrase that symbolically assigns a summative, salient, essence-capturing, and/or evocative attribute for a portion of language based or visual data." (Saldaña, 2015)*

In the coding step, Saldaña (2005)'s detailed and extensive book on coding is used as a guide. Within SCA, there are many methods that can be applied depending on the characteristics of the research. (Saldaña, 2005) Since the purpose of applying SCA in this thesis is primarily to identify the legislation to be compared, descriptive coding was chosen. Descriptive Coding (or Topic Coding) describes the main theme of qualitative data in a single word or brief phrase. (Saldaña, 2005) Generated codes are represented in the subchapter "2.1.3. SCA Coding".

Finally, SCA requires categorization, which is reflected in the subchapter "2.1.4. Analysis of Case Coding".

2.1.1. Retrieving RED II and ED 2019

The EU *acquis* is available on the official legislation website of the European Union, "eur-lex.europa.eu". The Publications Office of the European Union runs the database, EUR-lex, which is published in 24 official languages of the EU. RED II and ED 2019 were obtained from the online database and analyzed. The review is shared under the subheading "4.1. Energy communities under RED II and ED 2019".

2.1.2. Retrieving the database for SCA

To identify all the relevant legislation on energy cooperatives, A keyword search has been conducted under the legislation database of each country. The legislation is available online on official websites run by each country's government. I have identified thematic keywords based on the objective of the thesis topic. Aiming to determine the keywords, I have singled out the commonly used terms with a state-of-the-art review. Selected keywords are:

energy community, renewable energy community, citizen energy community, cooperative(s), energy cooperative(s), renewable energy cooperative(s), electricity, electric energy, electricity generation, electric energy generation, and renewable energy.

Additionally, the existence of terms adapted to languages differently is noticeable. For the research to achieve its purpose, these terms were taken into account in the search. In this respect, language-specific keywords have been created for the terms adapted to languages differently.

As the keyword search on the legislation requires working in the official languages of selected countries, I translated each keyword into Turkish, German, and Spanish. I used English keywords while searching the legislation of the EU acquis.

2.1.2.1. Retrieving the legislation on energy cooperatives in Turkey

The legislation of Turkey is available on the official legislation website of the Presidency of the Turkish Republic, "mevzuat.gov.tr". The General Directorate of Law and Legislation, Administrative Affairs Department of the Presidency of the Republic of Turkey runs the database, *Mevzuat Bilgi Sistemi* (Legislation Information System). According to Presidential Decree on the Official Gazette No. 10,

> *"Laws, presidential decrees, by-laws, communiqués and other regulatory administrative acts published in the Official Gazette are made into a single text in the Legislation Information System and published up-to-date."*

Mevzuat Bilgi Sistemi, as a legal requirement arising from the Article above, includes all primary and secondary legislation in force: the Constitution, Laws, Decree--Law, Presidential Decrees, By-Laws, Presidential By-Laws, Communiques, Presidential Decisions, Presidential Circulars. Additionally, there are types of

legislation sources that are no longer in the legislative system of Turkey due to the change in the government system of Turkey with the adoption of the presidential system. These sources, such as Cabinet Decrees, Cabinet By-Laws, Regulations, and Prime Ministry Circulars, are still available online if they are in force.

In identifying all the relevant legislation on energy cooperatives in Turkey, the search in Turkish includes the keywords shown under the sub-chapter "2.1.1. Retrieving the legislation on energy cooperatives in the EU acquis and selected countries":

enerji topluluğu (energy community), *yenilenebilir enerji topluluğu* (renewable energy community), *vatandaş enerji topluluğu* (citizen energy community), *kooperatif(ler)* (cooperative(s)), *enerji kooperatifi(leri)* (energy cooperative(s)), *yenilenebilir enerji kooperatifi(leri)* (renewable energy cooperative(s)), *elektrik* (electricity), *elektrik enerjisi* (electric energy), *elektrik üretimi* (electricity generation), *elektrik enerjisi üretimi* (electric energy generation), *yenilenebilir enerji* (renewable energy)

Additionally, due to the differences in the adoption, the legislation of Turkey includes different terms. The term "energy cooperatives" takes place in the legislation of Turkey as yenilenebilir enerji üretim kooperatifleri (renewable energy generation cooperatives). Therefore, additional keyword generated for the search under the legislation of Turkey is,

yenilenebilir enerji üretim kooperatifleri (renewable energy generation cooperatives)

2.1.2.2. Retrieving the legislation on energy cooperatives in Germany

The Federal legislation of Germany is available on the official legislation website of the Federal Government of Germany, "gesetze-im-internet.de". The Federal Ministry of Justice and the Federal Office of Justice run the database. The database is a part of N-Lex, which provides the national law databases on each EU country. In identifying all the relevant legislation on energy cooperatives in Germany, the search in German includes the keywords shown under the sub-chapter "2.1.1. Retrieving the legislation on energy cooperatives in the EU acquis and selected countries":

Energiegemeinschaft (energy community), *Erneuerbare-Energie-Gemeinschaft* (renewable energy community), *Bürgerenergiegemeinschaft* (citizen energy community), *Genossenschaft(en)* (cooperative(s)), *Energiegenossenschaft(en)* (energy cooperative(s)), *Erneuerbare-Energien-Genossenschaft(en)* (renewable energy cooperative(s)), *Elektrizität/Strom* (electricity), *Elektrische Energie* (electric

energy), *Stromerzeugung* (electricity generation), *erneuerbare Energie* (renewable energy).

Moreover, the legislation of Germany recognizes the term Bürgerenergiegesellschaft (citizen energy companies). In this respect, Germany-specific keyword searched in the legislation of Germany is,
B*ürgerenergiegesellschaft* (citizen energy companies).

2.1.3. SCA Coding

Under this research, the selected codes serve as a tool to identify the legislation that falls within the scope of the thesis among the retrieved legislation on energy cooperatives in the EU *acquis* and selected countries. In relation to this, the use of descriptive coding has already been mentioned above. In this respect, pieces of legislation, such as articles of law, are coded to describe the function of the pieces. The codebook that SCA is based on is shown below.

Category: Establishment of energy cooperatives
- **Code:** ESTABLISHMENT
  - **Sub-Code:** REQUIREMENTS
  - **Sub-Code:** ADMINISTRATIVE PROCEDURES
- **Code:** OTHER

Category: Implementation of projects by energy cooperatives
- **Code:** COMPETENCE
- **Code:** GENERATION
  - **Sub-Code:** ENVIRONMENTAL REQUIREMENTS
  - **Sub-Code:** LAND-USE
  - **Sub-Code:** CONSTRUCTION
  - **Sub-Code:** TECHNICAL REQUIREMENTS
  - **Sub-Code:** ADMINISTRATIVE PROCEDURES
  - **Sub-Code:** GRID CONNECTION
- **Code:** TRANSMISSION AND DISTRIBUTION
  - **Sub-Code:** ENVIRONMENTAL REQUIREMENTS
  - **Sub-Code:** LAND-USE
  - **Sub-Code:** CONSTRUCTION
  - **Sub-Code:** TECHNICAL REQUIREMENTS

Sub-Code: ADMINISTRATIVE PROCEDURES

Code: OTHER

Category: Incentives for energy cooperatives

Code: INCENTIVE

Sub-Code: FEED-IN TARIFF

Sub-Code: GRANT

Sub-Code: EXEMPTION

Code: OTHER

2.1.4. Analysis of Case Coding

In the last step of SCA, the database was analyzed according to the codes identified. The results, the legislation on energy cooperatives in the EU *acquis*, Turkey and Germany determined to be within the scope of the thesis, is shown in CHAPTER 4. Since the language of the thesis is English, the legislation has been translated into this language. During the translation, all primary legislative sources are referred to as Law to avoid confusion.

Pieces of legislation coded as "Other" have been excluded as they were found to be out of scope.

2.2. Employing functional method on the identified legislation on energy cooperatives in selected countries within the scope of the thesis

In its final phase, the research will benefit from a perspective relying on the foundations of comparative law. Siems (2022) mentions three purposes of comparative law: knowledge and understanding, practical use at the domestic level, and practical use at the international level. Study of other legal systems enhances the understanding of law and provides a broader understanding of domestic law. Moreover, foreign legislation can serve as models for how different sets of legal norms function in solving a certain problem or pursuing a specific agenda. Finally, comparative law is used by lawmakers at the international or supranational level when addressing whether and how legal unity may be accomplished. (Siems, 2022) In this respect, comparative law provides different aspects that are required to answer the research question: a better understanding of the legislation on energy cooperatives in Turkey, demonstrating how Germany provides a favorable legal environment for energy cooperatives, and identification of requirements for harmonization of Turkish legislation with the EU

legislation.

Comparative law requires the identification of the legal system and the legal source to be compared, as well as the identification of the objectives to be achieved through comparison. In determining the legal sources, there may be a very specific reasoning, such as knowledge of the language of the source, or different approaches may be adopted, such as the compatibility of the legal system. Regardless, from an academic aspect, the researcher must be able to explain the decision. (van Hoecke, 2016) The country selected for the thesis is Germany. Germany was chosen as a comparative case because energy cooperatives are actively involved in the energy sector and the country is a global pioneer in this field. In addition, there will be a focus on European Union legislation relevant to energy cooperatives, as Turkey is a candidate member state and needs to align with EU legislation.

The research employs the functional method of comparative law. This analogical approach focuses on the function of the objects rather than the structural relationships between the objects of comparison. The method facilitates an analysis based on the objects' (legal sources') actual functions and purposes. (Samuel, 2014) Because of its practical focus, functionalism is so crucially pertinent to modern comparative law. (Brand, 2007)

Michaels (2005) classifies functionalism under seven concepts: finalism, adaptionism, classical functionalism, instrumentalism, refined functionalism, epistemological functionalism, and equivalence functionalism. While each concept underlines olfunctionalism under comparative law, the selection of concepts is up to the researcher, based on the research question necessitates. Under the research, instrumentalism is employed, which is groundbreakingly influenced by Zweigert and Kötz (1998).

Three fundamental premises underpin the selected concept of functional comparisons. Finding its basis in the realist notion of the law as a tool to direct human behavior, the first premise asserts that the law answers to societal needs or interests. In other words, in the context of functional comparison, the law represents a problem–solution approach. Legal systems may present different solutions for the same practical problem. The functional analysis consists of the assessment of similarities and differences in different legal systems' take on the same problem. (Zweigert and Kötz, 1998; Brand, 2007)

The second premise of functional approach tackles the issue of legal

institutions' true function being a social concern. The law is required to solve similar, if not identical, practical problems in every country. Hence, all countries' legal challenges are comparable. (Zweigert and Kötz, 1998; Brand, 2007)

Functionalism's third premise posits that legal systems tend to answer practical concerns in the same way. Regardless of social structure and development, the same questions call for similar solutions. In this respect, a functionalist approach, rather than needing to go into the sociological study, allows one to examine social issues and their remedies inside the familiar legal framework. The presumption of resemblance can be utilized to put a comparison's results to the test. (Zweigert and Kötz, 1998; Brand, 2007)

As explained earlier, SCA was used to identify the legislation that will be functionally analyzed and that remains within the scope of the thesis. In addition to identifying the legislation to be compared, the SCA will also ensure that the legislation to be compared is already categorized into groups.

As mentioned earlier, the thesis aims to propose a favorable legal environment for the development of energy cooperatives in Turkey. In this context, the thesis will compare Germany's legislation, which clearly creates a favorable legal environment for energy cooperatives, with Turkey's. This comparison will show the differences and similarities between the German and Turkish legislation for energy cooperatives. This comparison will be used to make recommendations for Turkey based on the knowledge gained from Germany, which appears to have a better system in practice than Turkey. In addition, Turkey's legislation, as a candidate country, will be evaluated in terms of its compliance with the regulations made by the European Union legislation. If there is a change required by this comparison, changes will be identified and recommendations will be made to Turkey.

CHAPTER 3: LITERATURE REVIEW

The comparative analysis conducted by Biresselioğlu et al. (2021) examines the legal and administrative frameworks on the concept of renewable energy communities and citizen energy communities in Austria, Germany, Greece, Italy, Spain, and Turkey. In this context, this study also examines Turkey's legal framework with RED II and ED 2019. Although “energy community” is a term that comprehends energy cooperatives as a branch, no comparative law study specifically focuses on legislation and administrative framework for energy cooperatives in Turkey and Germany. Therefore, the literature review is based on core elements chosen to ground the examination of the topic: (1) the concept of energy cooperatives, (2) the benefits of energy cooperatives, (3) reasons hindering the development of energy cooperatives

System-wide adjustments and a fundamental shift in a variety of functions are required to meet the demands of sustainable development. (Seyfang and Haxeltine, 2012; Elzen, 2014) The role of households and communities is a crucial component of the shift because acting collectively often yields better results than doing things alone, and it is the responsibility of the government to foster an environment that will foster community innovation and ideas for combating climate change. (Seyfang, Park and Smith, 2013) Any combination of at least two of the following constitutes community energy:

• A renewable energy project is owned entirely or primarily by local stakeholders.

• A group from the local community controls the voting process.

• The vast majority of social and economic advantages are locally distributed. (IRENA, 2018)

Historically, the centralized structure of the energy market has made it very difficult for citizens to participate in the energy market. However, with the energy transition, citizens' participation in the energy market, especially the concept of community energy, is gaining importance. (Bauwens, Gotchev and Holstenkamp, 2016) As potential sources of innovation, a new policy instrument, to help sustainable energy transitions, community energy initiatives represent an important part. (Hargreaves et al., 2013; Seyfang, Park and Smith, 2013) Different forms of community participation in the energy market and several interpretations of the energy communities in the literature exist. (Becker, Kunze and Vancea, 2017; Soeiro and

Dias, 2019) The form of participation determines the legal frame of the decision-making process and the realization of the non-monetary goals. (Becker, Kunze and Vancea, 2017) Acknowledged by the majority of literature (Seyfang G., Park, J.J. and Smith A., 2013; Šahović and da Silva, 2016) the research of Walker and Devine-Wright (2008) examines the matter under two dimensions: process and outcome. While the process dimension describes the ownership and control of the project's realization, the outcome dimension indicates the distribution of the project outcomes, and who benefits in economic or social terms. Seyfang G., Park, J.J. and Smith A. (2013) have derived the definition for "community-led sustainable energy projects" based on these dimensions which is cited by many authors (Becker, Kunze and Vancea, 2017; Soeiro and Dias, 2019; Caramizaru and Uihlein, 2020; van Summeren et al., 2020; Biresselioğlu et al., 2021), which show high ownership and control by communities that originate from location or interest, and jointly benefit from the outcomes. Because of the legal and organizational structure variety that enables community participation in the energy market, energy communities are quite diverse. (Caramizaru and Uihlein, 2020; Herbes, Rilling and Holstenkamp, 2021) Aspects of responsibility and the allocation of project risk mostly influenced the choice of a specific legal structure. (Yıldız et al., 2015) However, while structures such as associations, partnerships, development trusts, and private companies exist, energy cooperatives are the most common type of community participation and receive public favor and political endorsement in practice. (Caramizaru and Uihlein, 2020; Herbes, Rilling and Holstenkamp, 2021)

In the literature, many researchers (Somerville, 2007; Novkovic, 2008; Dogawara, 2010; Majee and Hoyt, 2011; Johanisova, Suriñach Padilla and Parry, 2014; Šahović and da Silva, 2016) adapt the cooperative definition of the International Cooperative Alliance and International Labour Office. International Cooperative Alliance (1995) under the Statement on the Cooperative Identity and International Labour Office (2002) under the Promotion of Cooperatives Recommendation coin the definition of cooperatives as

> *"an autonomous association of persons united voluntarily to meet their common economic, social and cultural needs and aspirations through a jointly owned and democratically controlled enterprise."*

The International Cooperative Alliance bases this definition on seven principles that are widely embraced worldwide. These principles (International Cooperative Alliance, 1995) are,

1. “voluntary and open membership”: Cooperatives are organizations that are available to anybody who can utilize their services and is ready to undertake the duties of membership, regardless of gender, socioeconomic, racial, political, or religious beliefs.

2. “democratic member control”: Cooperatives are democratic organizations governed by their members, who actively engage in policy formulation and decision-making. People who serve as elected representatives must answer to the membership. Members of cooperatives have equal voting rights (one member, one vote), and are likewise democratically organized.

3. “member economic participation”: Members contribute evenly to and democratically govern their cooperative's capital. The capital is the cooperative's common property. Members often get little or no remuneration for capital subscribed as a condition of membership. Members allocate surpluses for any or all of the following purposes such as developing the cooperative.

4. “autonomy and independence”: Cooperatives are self-help organizations that are run by their members. They must maintain conditions that enable democratic governance by their members and their independence from other entities.

5. “education, training, and information”: Cooperatives educate and train their members, elected representatives, managers, staff, and the general public so that they may successfully contribute to the development of their co-operatives.

6. “cooperation among cooperatives”: Cooperatives may best serve their members and advance the cooperative movement by collaborating.

7. “concern for community”: Cooperatives use policies adopted by their members to promote the long-term growth of their communities.

Cooperatives are membership-based organizations in which members own, administer, and govern the organization. (Rajasekhar, Manjula and Paranjothi, 2020) A cooperative is a social and economic enterprise since it seeks its members' economic, social, and cultural gains rather than profit maximization. (Yıldız et al., 2015) People combine their capital and labor resources in order to reap more or different advantages from an operation than if the venture had been handled individually. (Fairbairn et al., 1995) Cooperatives are able to satisfy social demands that the market does not meet

through collective participation. Cooperative governance, principles, and social impact are suitable for social innovations. Cooperatives, as a result, have the potential to be social innovators in resolving vexing societal challenges. (Rajasekhar, Manjula and Paranjothi, 2020) Cooperatives should be considered within a mutual-purpose framework, distinguishing between for-profit and not-for-profit legal forms. The cooperative aim (or "shared purpose") consists of two components: the ultimate goal of benefitting members and the execution of a specific activity to achieve this goal. To this end, cooperatives can have different purposes and undertake different activities. (Fici, Cracogna, and Henrÿ, 2013) Cooperatives are a type of legal business entity that is prevalent around the world, particularly in the industries of agriculture, retail, banking, and, to a lesser extent, manufacturing. (Heras-Saizarbitoria, 2018) As can be seen in the book by Fici, Cracogna, and Henrÿ (2012), which analyzes cooperative legislation in many countries, energy cooperatives take place in different countries' legislation among different types of cooperatives.

International Labour Office (2013) defines energy cooperatives as

> *"... cooperatives that are formed for the purpose of producing, selling, consuming or distributing energy or other services related to this area. Through energy cooperatives, members address their common need for affordable and reliable electricity and modern energy services as well as other related economic, social and cultural needs."*

As the most common type of community energy, energy cooperatives play an important role in the energy transition. (Yıldız et al., 2015) Energy cooperatives are dubbed "social businesses," and it emerges when certain distinct categories of stakeholders have a strong attraction to become owners while having shared interests and objectives. Its interests include sustainable development, social inclusion, and poverty reduction, as well as access to energy as a critical problem for development processes, such as eradicating poverty and meeting fundamental human requirements. (Soeiro and Dias, 2020) In order to fulfill these objectives, energy cooperatives run activities such as energy technology and services, energy generation and services, energy distribution, energy marketing and sale, and energy demand services. (Yıldız. 2014) Cooperatives and their members may have notable absolute numbers, yet they nevertheless occupy a limited part of the energy market. However, depending on where

they are in their growth, energy cooperatives may be viewed as niche innovations, whereas nations with a long history of energy cooperatives may be seen as well-established organizations that have already made some changes to the sociotechnical system. (Hufen and Koppenjan, 2015) On the theory that they could represent grassroots innovations with the potential to support an energy transition, energy cooperatives have attracted a lot of scholarly attention in energy social research. (Fischer, Gutsche and Wetzel, 2021) Numerous socioeconomic aspects have been linked to the effective development of energy cooperatives. Beneficial institutional and policy arrangements for the financial, legal, and procedural setup of energy cooperatives were discovered to be significant during the establishment of energy cooperatives. (Lodea, Coosemans and Camargo, 2022)

According to Beggio and Kusch (2015), despite their differences, many energy cooperatives exhibit many elements in common and adhere to the ICA's seven basic cooperative principles. In spite of their variations, Willis and Willis (2012) identify the following commonalities in the general framework of energy cooperatives.

- A group of people determines if a project is feasible, frequently assisted by grants and counsel from other cooperatives or non-profit organizations.
- The group formally takes the cooperative form and issues a share prospectus outlining its business strategy, expected rate of return on investment, and community benefit initiatives. The plan is advertised, frequently locally. Every investor joins the cooperative as a member.
- For larger projects, a bank loan or collaboration with a commercial developer complements the revenue from private investors.
- The plan is put together once the money has been raised. Depending on profitability, the amount used for community benefit or invested in future plans, members earn a return.

The literature points to many benefits of energy cooperatives. First, energy cooperatives offer a new way of financing projects. Since they may be a successful strategy to provide an additional equity source, energy cooperatives offer a solution to fund the energy transition. (Enzensberger, Fichtner and Rentz, 2003) According to Magnani and Osti (2016), energy cooperatives are tools to minimize technical expenses while simultaneously optimizing the economic output from the selling of power to the grid. Compared to conventional company models, energy cooperatives are more resilient during economic downturns, and have the adaptability to the

changing market and environment, making them more long-term viable. (Soeiro and Dias, 2019) Due to their integration into local development, energy cooperatives enable individuals to adopt a longer-term perspective by establishing shared expectations and by providing a more sustainable foundation. (Heras-Saizarbitoria, 2018)

Energy cooperatives offer important differences from the mainstream actors operating in the energy market. The concept of energy cooperatives differs from other organizations, such as investor-oriented companies or not-for-profit organizations. (Yıldız et al., 2015) Due to the legal nature of cooperatives, participants are less impacted by risk, changing profitability, and uncertain policy compared to venture capitalists. (Yıldız, 2014) Since participants are often not accountable individually under the cooperative model, the fundamental issue of responsibility is resolved, making the concept appealing for bigger undertakings. (Yıldız et al., 2015) Energy cooperatives differ in the form of governance compared to other forms, its democratic style provides one vote for one share. (Meister et al., 2020) Cooperatives are only allowed to enjoy a small portion of the capital as remuneration, suggesting that profit maximization is not the primary goal. (Bauwens, 2016) The fact that energy cooperatives are member-driven ensures the commitment of their members, and the fact that their goals intersect with renewable energy and social policies provides an advantage and ensures that projects are accepted by the community. (Hufen and Koppenjan, 2015)

Energy cooperatives offer local solutions to global problems. Energy cooperatives are frequently community-based businesses that provide a democratic and local solution, a viable model for rural electrification, and a chance to utilize locally accessible renewable energy. (International Labour Office, 2013) Their significant public engagement, and often pioneer roles such as electrification of rural areas, make energy cooperative essential actors in the energy transition. (Meister et al., 2020) In contrast to traditional energy production, which is far more centralized, it presents prospects for the local administration of energy generation. (Bauwens, 2016) By enticing a significant portion of new members from outside of their initial areas of the establishment, cooperatives may also evolve from regional to practically nationwide organizations. (Kuzne and Becker, 2015) In this way, it can be said that the benefits counted in this way can reach larger volumes rather than being regional.

Energy cooperatives can help to increase renewable energy deployment. They

are a tool that fosters the transition to renewable energies. (Meister et al., 2020) Through cooperatives, local residents may collectively own and control renewable energy projects. Citizens generate, invest in, and, in some circumstances, consume renewable energy using this method. (Bauwens, 2016) Increased social acceptance of renewable energy sources, particularly for onshore projects, may result from citizen involvement in the benefits and decision-making processes of renewable energy projects (Bauwens, 2015, Maruyama et al., 2007) In addition to realizing projects, energy cooperatives can gain wider social acceptance with participating citizens. Participation of residents in renewable energy project benefits and decision-making processes may raise levels of social acceptance of renewables, particularly in the case of onshore projects (Bauwens, 2015, Maruyama et al., 2007) Energy cooperatives adapt and promote renewable energy, offering the chance to set an example and influence energy policy, and enhance local generation and decentralization. (Meister et al., 2020)

In addition to their contributions to society and policies, energy cooperatives also contribute to their members. Energy cooperatives can provide their members with access to cheaper electricity. The members of energy cooperatives access energy for lower prices; socially and economically invest in sustainable development. (Meister et al., 2020) Energy cooperatives provide "triple bottom line" returns by tackling social and environmental concerns as well as bringing economic advantages to their members and/or their communities. (Lipp and McMurtry, 2015) The growth of energy cooperatives can be partially attributed to consumers' unhappiness and desire for greater control over the source of their energy. (Heras-Saizarbitoria, 2018)

On the other hand, energy cooperatives have their own drawbacks. First, participation in the electricity market requires technical know-how, professional organization, and entrepreneurship, which energy cooperatives must possess. In a system based on democratic member participation, there may be some problems in ensuring this. Another important issue is the financing of projects. In a system based on purely voluntary member participation, it is a major obstacle for energy cooperatives to realize projects with only their own resources, especially when compared to large investments by large corporations. In order to compete in open markets and against incumbents, energy cooperatives continue to rely on governmental support. (Hufen and Koppenjan, 2015; Wierling et al., 2018; Soeiro and Dias, 2019) Another important obstacle is that in an energy network that exists in a market that has

been centralized from the outset, transmission and distribution systems may not be suitable to cover decentralized systems. In addition, it should be noted that energy cooperatives also face regulatory problems. (Hufen and Koppenjan, 2015; Soeiro and Dias, 2019) Conflicts and mistrust among members can be characterized as another problem. (Soeiro and Dias, 2019) A number of approaches were established to get around these obstacles, and this contributed to the development of best practices that are applicable internationally. Community efforts, however, are less likely to be effective if their justification for taking action conflicts with the government. (Wierling et al., 2018)

CHAPTER 4: RED II, ED 2019 AND LEGAL AND ADMINISTRATIVE FRAMEWORK ON ENERGY COOPERATIVES IN TURKEY AND GERMANY

4.1. Energy communities under RED II and ED 2019

Regulation (EU) 2018/1999 and the Renewable Energy Directive (EU) 2018/2001 (RED II) are built into renewable energy communities as a tool that shall be implemented to fulfill energy and climate aims. The terms "renewable energy communities" and "citizen energy communities" are put forth in the "Renewable Energy Directive (EU) 2018/2001" (RED II) and the "Internal Electricity Market Directive (EU) 2019/944" (ED 2019). RED II emphasizes renewable self-consumption and renewable energy communities highly in the promotion of the use of energy from renewable sources. In the Directive, "renewable energy community" is defined under Article 2(16) as a legal entity,

> *"which, in accordance with the applicable national law, is based on open and voluntary participation, is autonomous, and is effectively controlled by shareholders or members that are located in the proximity of the renewable energy projects that are owned and developed by that legal entity;*
>
> *(a) the shareholders or members of which are natural persons, SMEs or local authorities, including municipalities;*
>
> *(b) the primary purpose of which is to provide environmental, economic or social community benefits for its shareholders or members or for the local areas where it operates, rather than financial profits;"*

The Directive obliges the Member States to provide measures to integrate and deploy renewable energy, while principally focusing on renewable self-consumption and renewable energy communities. This approach is also reflected in the imperative to provide information and training on different aspects of renewable energy sources, such as benefits, or development and utilization, including self-consumption or realization through renewable energy communities.

Article 16 of RED II is entirely devoted to renewable energy communities. The Article binds the Member States in numerous aspects aiming to enable renewable

energy communities as a tool. The first paragraph of Article 16 ensures equitable conditions and procedures for participating, aiming for final customers to have the right to engage in a renewable energy community without jeopardizing their rights. The second paragraph sets a general frame to empower renewable energy communities and determines their abilities. According to the paragraph, renewable energy communities shall entitle to,

> *"(a) generate, consume, store and sell renewable energy, including through renewables power purchase agreements;*
> *(b) share, within the renewable energy community, renewable energy that is generated by the generation units owned by that renewable energy community, subject to the other requirements laid down in this Article and to maintaining the rights and obligations of the renewable energy community members as customers;*
> *(c) access all suitable energy markets both directly or through aggregation in a non-discriminatory manner."*

The paragraph calibrates the minimum power that renewable energy communities should hold to develop and involve in the energy sector. Additionally, the Member States are obliged to detect existing barriers that hinder the development and identify the potential of deploying renewable energy communities in the following paragraph. Hence, the general framework is bolstered by determining country-specific obstacles and opportunities in addition to union-wise principles.

Article 22(4) sets a detailed basis to enable energy cooperatives as a tool. It stipulates the Member States establish an enabling framework to encourage the development of renewable energy communities. To fulfill this purpose, the Member States must form a framework that

> *"(a) unjustified regulatory and administrative barriers to renewable energy communities are removed;*
> *(b) renewable energy communities that supply energy or provide aggregation or other commercial energy services are subject to the provisions relevant for such activities;*
> *(c) the relevant distribution system operator cooperates with renewable energy*

communities to facilitate energy transfers within renewable energy communities;

(d) renewable energy communities are subject to fair, proportionate and transparent procedures, including registration and licensing procedures, and cost-reflective network charges, as well as relevant charges, levies and taxes, ensuring that they contribute, in an adequate, fair and balanced way, to the overall cost sharing of the system in line with a transparent cost-benefit analysis of distributed energy sources developed by the national competent authorities;

(e) renewable energy communities are not subject to discriminatory treatment with regard to their activities, rights and obligations as final customers, generators, suppliers, distribution system operators, or as other market participants;

(f) the participation in the renewable energy communities is accessible to all consumers, including those in low-income or vulnerable households;

(g) tools to facilitate access to finance and information are available;

(h) regulatory and capacity-building support is provided to public authorities in enabling and setting up renewable energy communities, and in helping authorities to participate directly;

(i) rules to secure the equal and non-discriminatory treatment of consumers that participate in the renewable energy community are in place."

As seen, the paragraph details the principles to be considered in establishing the framework for energy communities. Subparagraph (a) is the basis for the paragraph and refers to regulatory and administrative barriers and indicates the creation of an enabling environment for renewable energy communities. In support of this paragraph, other paragraphs consider specific situations and ensure sufficient means for their energy-related activities. They underline that energy communities should be on an equal footing with actors across the market, should not be discriminated against in market activities, and should not be subject to disproportionate procedures, charges, and taxes. While regulatory and capacity-building support have been prescribed, DSO cooperation and support for access to finance and information are envisaged. Moreover, steps have also been taken to ensure that everyone has access to energy communities. On a similar note, the seventh paragraph of the Article stipulates taking into account the renewable energy communities in the design of support mechanisms,

preventing them from falling into a disadvantageous position against other market players.

One aspect that needs to be taken into account under RED II is the support schemes. It has already been mentioned that the Member States are obliged to establish support mechanisms for renewable energy communities. In this context, Article 4 of RED II indicates that member countries can establish support mechanisms to achieve the targets in terms of renewable energy resources while pointing out some possible applications as suggestions. The support mechanisms to be established in this context should provide incentives for electricity generated from renewable energy sources, taking into account integration fees and system stability, in order to maximize the share of renewable resources. Article 4(3) envisaged that support can be provided with a fixed or sliding direct price. However, Member States may exempt small-scale facilities and demonstration projects from the Article, according to the third paragraph. This difference opens the door to the creation of a support program for small-size renewable energy facilities, including those owned by renewable energy communities.

On a similar basis to the regulation of renewable energy communities under RED II, ED 2019 regulates citizen energy communities. In the Directive, "citizen energy community" is defined under Article 2(11) as a legal entity,

> *"(a) is based on voluntary and open participation and is effectively controlled by members or shareholders that are natural persons, local authorities, including municipalities, or small enterprises;*
> *(b) has for its primary purpose to provide environmental, economic or social community benefits to its members or shareholders or to the local areas where it operates rather than to generate financial profits; and*
> *(c) may engage in generation, including from renewable sources, distribution, supply, consumption, aggregation, energy storage, energy efficiency services or charging services for electric vehicles or provide other energy services to its members or shareholders;"*

The paragraph brings legal recognition of citizen energy communities to the table. Citizen energy communities are member-led communities where membership is open and voluntary. No one can be forced to be part of a community, or prevented from being part of a community. The paragraph also limits the objectives of citizen

energy communities. Accordingly, citizen energy communities can only pursue environmental, economic, or social benefits; citizen energy communities cannot just aim to make a profit. The third subparagraph addresses actions that citizen energy communities can take in the energy market. According to this paragraph, citizen energy cooperatives can fulfill many actions under the market, especially generation.

In the same way that RED II regulates renewable energy communities, the ED 2019 states that a framework can be provided to enable citizen energy communities to be used as a tool. Article 16(1) requires the Member States to develop an enabling regulatory framework for citizen energy communities that ensures:

> *"(a) participation in a citizen energy community is open and voluntary;*
> *(b) members or shareholders of a citizen energy community are entitled to leave the community, in which case Article 12 applies;*
> *(c) members or shareholders of a citizen energy community do not lose their rights and obligations as household customers or active customers;*
> *(d) subject to fair compensation as assessed by the regulatory authority, relevant distribution system operators cooperate with citizen energy communities to facilitate electricity transfers within citizen energy communities;*
> *(e) citizen energy communities are subject to non-discriminatory, fair, proportionate and transparent procedures and charges, including with respect to registration and licensing, and to transparent, non-discriminatory and cost-reflective network charges in accordance with Article 18 of Regulation (EU) 2019/943, ensuring that they contribute in an adequate and balanced way to the overall cost sharing of the system."*

As seen, the regulation of citizen energy communities is very similar to the regulation of renewable energy communities. Subparagraph (a) reiterates the feature under the definition discussed above that participation in citizen energy communities should be open and voluntary.

Subparagraph (b) refers to Article 12. This Article is based on the rules on rights of way and tolls related to transit, and especially focuses on switching suppliers, or engaging in aggregation. In this respect, members or shareholders of a citizen energy community that switch suppliers or engage in the aggregation are entitled to leave the community. Moreover, subparagraph (c) stipulates that participants in citizen energy

communities, similar to renewable energy communities under RED II, retain their rights and duties based on their status of being consumers. Accordingly, the paragraph also requires and that citizen energy communities are not discriminated against that procedures and fees are non-discriminatory, open, fair, and transparent in a way that citizen energy communities contribute to the overall cost sharing of the system. Relevant distribution system operators collaborate with citizen energy communities to promote power transfers within citizen energy communities, subject to equitable remuneration as determined by the regulatory authorities. In this respect, the ED 2019 framework introduces a more detailed regulatory structure for citizen energy communities compared to renewable energy communities.

Additionally, the second paragraph of the article also indicates some suggestive points for the framework. Under the paragraph, enabling cross-border participation and the right to own, build, purchase and operate distribution networks for citizen energy communities are suggested. Finally, subparagraph (c) states that the exemptions provided in Article 38(2) for closed distribution networks may apply to citizen energy communities.

In addition to the mandatory and advisory framework, the Article provides for the Member States to adopt certain regulations on citizen energy communities. According to the third paragraph, Member States are obliged to ensure energy communities,

> *"(a) are able to access all electricity markets, either directly or through aggregation, in a non-discriminatory manner;*
> *(b) are treated in a non-discriminatory and proportionate manner with regard to their activities, rights and obligations as final customers, generators, suppliers, distribution system operators or market participants engaged in aggregation;*
> *(c) are financially responsible for the imbalances they cause in the electricity system; to that extent they shall be balance responsible parties or shall delegate their balancing responsibility in accordance with Article 5 of Regulation (EU) 2019/943;*
> *(d) with regard to consumption of self-generated electricity, citizen energy communities are treated like active customers in accordance with point (e) of Article 15(2);*

(e) are entitled to arrange within the citizen energy community the sharing of electricity that is generated by the generation units owned by the community, subject to other requirements laid down in this Article and subject to the community members retaining their rights and obligations as final customers."

The first two subparagraphs once again refer to ensuring that citizen energy communities have access to the market without discrimination and without losing their rights. Other aspects of citizen energy communities' roles in the energy system include their balance responsibilities, consumption of self-generated electricity, and sharing of generated electricity among the members of the community. While sharing generated electricity, network charges, tariffs and levies would still be in force. Article 5 of Regulation (EU) 2019/943 is cited under subparagraph (c), which governs balance duties. It holds all market players accountable for the system imbalances they create, which implies financial accountability for such imbalances. Article 5(2) facilitates three exemptions from balance responsibility:

"(a) demonstration projects for innovative technologies, subject to approval by the regulatory authority, provided that those derogations are limited to the time and extent necessary for achieving the demonstration purposes;
(b) power-generating facilities using renewable energy sources with an installed electricity capacity of less than 400 kW;
(c) facilities benefitting from support approved by the Commission under Union State aid rules pursuant to Articles 107, 108 and 109 TFEU, and commissioned before 4 July 2019."

In this respect, demonstration projects and renewable energy facilities with a generation capacity of less than 400 kw under citizen energy communities may be subject to exemption from balance responsibility. Cited under subparagraph (c), Articles 107, 108, and 109 of the Treaty on the Functioning of the European Union (TFEU) relate to state aid, which helps the establishment and improvement of the internal market. In this respect, facilities commissioned before 4 July 2019, which received approved state aid also may be exempt from balance responsibility.

Distribution network rights that may be granted to citizen energy communities under the framework are further expanded in Article 16(4). Member States may

provide citizen energy communities the ability to administer distribution networks in their operational area and to create the necessary procedures. In the event that such a right is granted, certain aspects are set out for citizen energy communities. Citizen energy communities have the right to reach an agreement with the relevant distribution system operator or transmission system operator with whom their network is connected about the operation of their network. In accordance with Article 59(7), citizen energy communities are subject to appropriate network charges at the connection points between their network and the distribution network outside the citizen energy community. Such network charges account separately for electricity fed into the distribution network and electricity consumed from the distribution network outside the citizen energy community. Finally, in a manner to protect customers who remain connected to the distribution grid, citizen energy communities must not discriminate against or harm these customers.

Article 16 of ED 2019 guarantees third-party access to distribution and transmission systems. The article underlines that the citizen energy communities have access, like all other customers, to the right to access the transmission and distribution systems with the published tariff. TSOs or DSOs are only able to reject the access if the system capacity is inadequate. Still, in this instance, TSOs or DSOs are obliged to present comprehensive technical and economic reasons and information on measures to reinforce the capacity.

Finally, Article 59(1)(z) obliges the regulatory authorities to monitor the implementations aiming to overcome barriers to the growth of self-consumption and citizen energy communities.

4.2. Turkey

4.2.1. Establishing an energy cooperative

There is no primary legislation that specifically recognizes and regulates energy cooperatives. In this respect, in the establishment process of energy cooperatives, general laws on cooperatives are taken into account. The primary legislation on cooperatives in Turkey is Cooperatives Law No. 1163 (“Kooperatifler Kanunu No. 1163”). Cooperatives Law regulates the establishment procedures and principles of articles of association of cooperatives; acquisition and loss of cooperative partnerships, rights and obligations of cooperative partners, accounting of cooperatives, the body of

cooperatives, cooperative unions, dissolution of cooperatives; duties and powers of the Ministry of Commerce under the Law, and various provisions such as political activity ban and Cooperative Information System. Cooperatives Law defines cooperatives as,

> *"...partnerships with variable partners and variable capital, which are established by real and legal persons to provide and protect certain economic interests of their members, especially their professional or livelihood needs, through mutual assistance, solidarity, and surety with their labor and monetary contributions."* (Article 1 of the Cooperatives Law)

Unless otherwise stated, at least seven partners found cooperatives by signing articles of association in the presence of personnel at the Trade Registry Directorate. The Ministry of Commerce has the authority to permit the process, register, and announce the establishment in the trade registry. (Article 2 of the Cooperatives Law) However, the Law includes the term "the relevant Ministry" and states that,

> *"The relevant Ministry is authorized to classify the cooperatives in terms of their fields of activity, to establish working zones, to determine the number of members not less than the minimum number of members for the establishment of cooperatives, and to determine other conditions; procedures and principles for the establishment of cooperatives. The communiqué issued by the relevant Ministry shall determine the procedures and principles regarding the implementation of this article."* (Article 2 of the Cooperatives Law)

The term "the relevant Ministry" points out the Ministry of Agriculture and Rural Affairs for agricultural cooperatives and their higher organizations, the Ministry of Public Works and Settlement for building cooperatives and their higher organizations, and the Ministry of Industry and Trade for other cooperatives and higher organizations, under Additional Article 1 of the Law. However, the amendment date of the Article, 10 June 2010, is before the structural transition to the Presidential government system and the reorganization of the ministries, which have legislated under Presidential Decree No. 1 on the Presidential Organization ("Cumhurbaşkanlığı Teşkilatı Hakkında Cumhurbaşkanlığı Kararnamesi No. 1"). Therefore, the Additional Article stands as outdated. However, a series of by-laws on cooperatives dated 14 January 2022 defines

"the relevant Ministry" as the Ministry of Agriculture and Forestry for agricultural cooperatives and their higher organizations; the Ministry of Environment, Urbanization and Climate Change for building cooperatives and their higher organizations; the Ministry of Commerce for other cooperatives and their higher organizations. Hence, the organizational structure of the Ministries regarding cooperatives should be taken into account as stated in these up-to-date legislations. In this respect, energy cooperatives are subject to the authority of the Ministry of Commerce not only in the establishment procedures but later in processes and procedures as well.

Regarding the cooperatives and their parent organizations within the jurisdiction of the Ministry of Commerce, The Communiqué No. 24721 on the Foundation and Amendment of Articles of Association and The Determination of the Number of Founding Partners and Operation Areas of Cooperatives ("Kooperatiflerin Kuruluş ve Anasözleşme Değişiklik İşlemleri ile Kurucu Ortak Sayıları ve Çalışma Bölgelerinin Belirlenmesi Hakkında Tebliğ No. 24721") determines the area of activity and the minimum number of founding partners, the procedures and principles regarding the establishment and amendment of articles of association. The Communiqué recognizes renewable energy cooperatives under the term "renewable energy generation cooperative" and regulates further terms and conditions to establish an energy cooperative. According to Article 12(1) of the Communiqué, only subscribers in the same distribution region and the same tariff group can find a renewable energy generation cooperative. Moreover, the contracted power of the partner with the highest contracted power can be at most 20 times the contracted power of the partner with the lowest contracted power under renewable energy generation cooperatives established by subscribers in the industry and commercial tariff groups. (Article 12(2) of Communiqué No. 24721) However, the Ministry of Commerce may increase the determined rate for renewable energy generation cooperatives that have set up the necessary infrastructure and have started to generate energy by combining consumption following the relevant legislation. (Article 12(3) of the Communiqué No. 24721) The number of founding members of energy cooperatives does not differ from the Cooperatives Law.

The establishment procedure for cooperatives is detailed under the Communiqué No. 24721. The necessary information, documents and petition samples to be requested during the applications for establishment permits are published on the

website of the General Directorate. First, articles of association must be issued in the *Merkezi Sicil Kayıt Sistemi* (MERSIS-Central Register Registration System) and submitted to the Trade Registry Directorate via MERNİS in order to get permission to establish a cooperative. Trade Registry Directorates are established by the Ministry to operate in the chambers of commerce and industry or chambers of commerce in provinces. (Article 5 of Trade Registry By-Law No. 20124093 ("Ticaret Sicili Yönetmeliği, No. 20124093")) Later, the founding members must sign the articles of association in the presence of authorized staff at the Trade Registry Directorate. Finally, a petition on the request for the establishment with the signed articles of association and other required documents must be submitted to the Directorate General of Tradesmen, Craftsmen, and Cooperatives. (Article 5 of the Communiqué No. 24721) According to Article 5 of the Communiqué, the information, documents, and petition samples to be requested during application are published on the website of the Directorate General. Following the completion of the permission process, the cooperative must be registered with the Trade Registry Directorate in accordance with Article 3 of the Cooperatives Law, the establishment must be published in the *Türkiye Ticaret Sicili Gazetesi* (Turkish Trade Registry Gazette). (Article 8 of the Communiqué No. 24721) Additionally, in accordance with Article 4(4), at least 1/4 of the cash capital shall be paid in advance. In this respect, the relevant provision of Turkish Commercial Law No. 6102 ("Türk Ticaret Kanunu No. 6102") would be in force. According to Article 345 of the Turkish Commercial Law, ¼ of the capital must be deposited in a special account to be opened in the name of the cooperative to be established in a bank subject to Banking Law No. 5411 (Bankacılık Kanunu No. 5411) in a manner that only the cooperative can use.

In line with Article 88 of the Cooperatives Law, the Ministry of Commerce provides sample articles of association for cooperatives, cooperative unions, cooperative central unions, and the National Cooperatives Union of Turkey, provided that such organizations' opinions are taken into consideration. According to Article 453 of the Presidential Decree No. 1 on the Presidential Organization, the General Directorate of Tradesmen, Craftsmen, and Cooperatives is authorized,

> *"Preparing sample articles of association for cooperatives and updating the existing articles of association in line with the needs,"*

In practice, sample articles of association are in direct use in cooperative establishment processes. However, using sample articles of association is not mandatory. The founding partners can write their own, as long as they comply with Article 4 of the Cooperatives Law and the Law's compulsory other regulations. Article 4 of the Cooperatives Law stipulates that articles of association must include:

"1. Name and headquarters of the cooperative,
2. The purpose of the cooperative and its working subjects,
3. The conditions and circumstances that give and take away the title of partnership,
4. The share amount of the members and the method of payment of the cooperative capital, at least 1/4 of the cash capital to be paid in advance,
5. Whether the partners will contribute capital in kind or not,
6. The status and degree of responsibility of members for the obligations of cooperatives,
7. Duties, powers and responsibilities of the executive and supervisory bodies of the cooperative and the manner of their election,
8. Provisions on the representation of the cooperative,
9. Calculation and utilization of annual income and expenditure differences,
10. Name, surname, work and residence addresses of the founders,"

Moreover, articles of association may establish optional provisions shown in Article 5 of the Law:

"1. Provisions on the meeting of the General Assembly, adoption of resolutions and casting of votes;
2. Principles on the manner of operation of the cooperative;
3. the relations of the cooperative with the unions;
4. Provisions concerning the merger of the cooperative with another cooperative;
5. The term of the cooperative."

The Ministry of Commerce may not refrain from authorizing the establishment of cooperatives on the grounds that the articles of association deviate from the optional

provisions of the Law.

Among sample articles of association prepared by the General Directorate of Tradesmen, Craftsmen, and Cooperatives, a sample articles of association of the Renewable Energy Generation Cooperative is available online on the website of the Ministry of Commerce. The articles of association include,

- the declaration of establishment; legal entity and amendment of the articles of association; title, headquarters, and branches of cooperative, term, objective and area of activity of cooperative under Chapter 1,
- capital and shares under Chapter 2,
- partnership procedures under Chapter 3,
- bodies and administration under Chapter 4,
- accounts and books under Chapter 5,
- dissolution and liquidation under Chapter 6,
- and Miscellaneous Provisions under Chapter 7.

4.2.2. Implementing of projects by energy cooperatives

4.2.2.1. Competence to operate in the market

The law regulating the electricity market is Electricity Market Law No. 6446. (“Elektrik Piyasası Kanunu No. 6446”) All real and legal persons involved in electricity generation, transmission, distribution, wholesale or retail sale, import and export, and market operation, are covered by the Electricity Market Law. The Law is the primary legislation that establishes the general framework for electricity generation.

A licensing system is in effect in the electricity market in Turkey. This licensing system classifies the activities carried out in the electricity market, requiring the retention of a specific license for the conduct of each "activity". Electricity generation is among the activities that are subject to a license, which is a certificate that authorizes legal entities to engage in the market activities listed on it, under the Law. (Article 4(1) of Law No. 6446) Moreover, legal entities that will operate in the market must be formed as joint stock companies or limited liability companies. In this respect, cooperatives are not legally competent to generate electricity, as the classification under Article 124 of the Turkish Commercial Law No. 6102 differs cooperatives from joint-stock companies and limited liability companies among commerce companies.

On the other hand, the Law legislates activities exempt from the obligation to obtain a license and establish a joint stock company or limited liability company under Article 14. According to Article 14(1), exempt activities include:

> *"a) Emergency groups and generation facility that does not install a connection with the transmission or distribution system,*
> *b) Generation facility based on renewable energy resources with a maximum installed capacity of one megawatt,*
> *c) Electricity generation facility established to be used in the disposal of municipal solid waste facilities and treatment plant sludge,*
> *ç) Micro-cogeneration facilities and cogeneration facilities which are in the category set by the Board that provide the efficiency value set by the Ministry,*
> *d) Generation facility based on renewable energy resources, which uses all of the energy it generates without giving it to the transmission or distribution system, and whose generation and consumption are at the same measurement point,*
> *e) Market activities carried out within the scope of electricity storage and demand-side participation within the framework of the limits, procedures and principles determined by the Board by taking the opinion of the Ministry,*
> *f) Generation facility based on renewable energy resources established and operated by the General Directorate of State Hydraulic Works or by irrigation unions with the permission of the General Directorate of State Hydraulic Works to meet the electricity needs of agricultural irrigation facilities whose electricity subscription belongs to the General Directorate of State Hydraulic Works or irrigation unions, provided that the installed capacity limited to the contracted power in the connection agreement of agricultural irrigation facility, or sum of the contracted powers in the connection agreements of more than one facility,*
> *g) Generation facility based on renewable energy resources by municipalities and their affiliated organizations, industrial facilities and facilities for agricultural irrigation purposes, provided that twice the contract power in the connection agreement and other persons are limited to the contract power in the connection agreement*
> *ğ) Renewable energy generation facilities established on immovables for which irrigation unions have operation, maintenance, repair and management*

responsibility and other immovables under the ownership or disposal of irrigation unions and DSİ, with the approval of DSİ and operated by irrigation unions, provided that they are limited to the contract power in the connection agreement"

Additionally, within the framework of the principles of competition development, technical adequacy of transmission and distribution systems, and ensuring supply security, the President of the Republic is authorized to increase the upper limit of installed capacity of generation facilities based on renewable energy resources that can operate without a license by up to five times on a resource basis. (Article 14(2) of the Law No. 6446)

Considering the legislation on and legal nature of energy cooperatives, the key phrase in the Paragraph is "meeting the electricity needs of itself and its partners by generating electricity from renewable energy sources". In other words, as generating electricity for self-consumption is the main aim of energy cooperatives, subparagraph (d) enables unlicensed electricity generation for energy cooperatives. The subparagraph stipulates the musts below:

1- Generating electricity based on renewable energy resources

2- Using the generated energy without giving it to the transmission or distribution system

3- The generation and the consumption of the facility and cooperative partner are at the same measurement point

Issued on the basis of the Article 14 of the Electricity Market Law No. 6446 and Article 6/A of the Law No. 5346 on the Use of Renewable Energy Resources for the Purpose of Electricity Generation ("Yenilenebilir Enerji Kaynaklarının Elektrik Enerjisi Üretimi Amaçlı Kullanımına İlişkin Kanun No. 5346"), Unlicensed Electricity Generation in the Electricity Market By-Law No. 31502 ("Elektrik Piyasasında Lisanssız Elektrik Üretim Yönetmeliği No. 31502") is the primary legislation on unlicensed electricity generation. The By-Law legislates the application procedure process regarding the establishment of unlicensed generation facilities and their connection to the network, the process to supply surplus energy generated in the facility to the network, as well as transfer of the facilities, the rights and obligations of the network operators, and auditing of unlicensed electricity generation facilities. The exemption from obtaining a license and establishing a company, which is indicated in

Article 14 of the Electricity Law, is also listed once again in Article 5 of the By-Law stipulating the musts for self-consumption aforementioned before. Unlike the Law, Article 5 of the By-Law includes the phrase “exemption from pre-license” in addition to “exemption from license”. However, the licensing procedure under the law should also be considered as pre-license and license phases. Because the preliminary license is a prerequisite for obtaining the license. According to Article 5(1) of the By-Law, generation facilities that can be established exempt from the obligation to obtain pre-license and license and establish a company are,

“a) Emergency groups,

b) Generation facilities operating without any connection to the transmission or distribution system,

c) Generation facilities based on renewable energy resources with an installed capacity of one megawatt or up to the upper limit of installed capacity determined by the President within the framework of Article 14 of the Law,

ç) Generation facilities based on renewable energy sources that use all of the energy they generate without giving it to the transmission or distribution system, and whose generation and consumption are at the same measurement point,

d) Cogeneration facilities in the category providing the efficiency value to be determined by the Ministry,

e) Microcogeneration plants,

f) Generation facilities established for sludge disposal of solid waste facilities and treatment plants of Municipalities,

g) Generation facilities based on hydraulic resources if technically feasible and approved by DSİ, are established on the water transmission lines and wastewater transmission lines operated by the municipalities by legal entities that more than half of the capital which directly or indirectly belongs to the municipality,

ğ) Generation facilities based on renewable energy resources established and operated by the General Directorate of State Hydraulic Works to meet the electricity needs of agricultural irrigation facilities whose electricity subscription belongs to the General Directorate of State Hydraulic Works, provided that the installed power is limited to the contract power in the connection agreement of the agricultural irrigation facility or the sum of

contract powers of more than one facility.

h) Generation facilities based on renewable energy resources, provided that they are limited to the contract power in the connection agreement."

As can be seen, the Article is very similar, and even mostly identical, to Article 14(1) of the Electricity Market Law. Subparagraph (d) of Article 14(1) of the Law, which regulates the exemption for self-consumption, is identical to Subparagraph (ç) of Article 5(1) of the By-Law. The By-Law also regulates aggregation. Real/legal persons whose a single joint meter measures their consumption can establish a generation facility or facilities by combining their consumption via written application to the relevant network operator. (Article 29(1) of By-Law No. 31502) Moreover, the same Article recognizes "renewable energy generation cooperatives", which makes it the only source of legislation on electricity to recognize energy cooperatives. Article 29(5) authorizes renewable energy generation cooperatives, even the ones without a consumption facility, for the purpose of conducting the processes defined under the By-Law. (Article 29(5) of By-Law No. 31502) However, it should be taken into account that the production facility of the cooperative that will generate electricity on this basis and the consumption of the cooperative and its members must be connected to the grid from the same measurement point.

However, Article 5(1) of the By-Law embraces a unique type. Under subparagraph (h) of Article 5(1) of the By-Law, generation facilities based on renewable energy sources are exempt from pre-license, license and establishment requirements provided that they are limited to the contract power in the connection agreement. The type defined in this subparagraph is subject to various additional regulations under the Regulation. In order to meet the electricity needs of consumption facilities, a generation facility based on renewable energy resources can be established within the scope of subparagraph (h) of the first paragraph of Article 5(1), not exceeding the contract power in the connection agreement of the relevant consumption facilities. The generation and consumption facilities do not have to be located at the same measurement point as the facilities covered by this Article, as long as they are in the same distribution region. (Article 30(1) of By-Law No. 31502) Within this scope, the consumption facilities that will be associated with the generation facility must be in the same tariff group. (Article 30(6) of By-Law No. 31502) Moreover, the energy supply of all consumption facilities must be met by a single supplier. (Article 30(5) of

By-Law No. 31502) The implementation of generation facilities under this type is in line with the characteristics of energy cooperatives. If the generation facility is to be operated by the cooperative and its members are located in the same distribution region and its members are in the same tariff group, the electricity generated by energy cooperatives can be consumed by its members.

4.2.2.2. Generation, Grid Connection and System Use

Since energy cooperatives can only carry out unlicensed generation activities, the legislation on the construction process within the scope of this thesis only covers the establishment of the generation facility. In Turkish legislation, the construction of an electricity generation facility is subject to Zoning Law No. 3194 ("İmar Kanunu No. 3194"). Article 3 of Law No. 3194 stipulates that any area cannot be used for purposes contrary to the principles of plans of all scales and the conditions and regulations of the region where it is located. Regulations on land use are spread across various sources of legislation. The special land use provisions for renewable energy generation take place in Article 8 of the Law No. 5346 on the Use of Renewable Energy Resources for the Purpose of Electricity Generation. The first provision relates to immovable properties that are forests or are under the exclusive ownership of the Treasury or under the jurisdiction of the State. According to the Article, the Ministry of Environment and Forestry or the Ministry of Finance has the authority to grant permits, lease, establish easement rights or grant occupancy permits for a fee. However, in a change similar to the reorganization in the government system discussed above, the Ministry of Environment and Forestry was divided into the Ministry of Environment and Urbanization and the Ministry of Forestry and Water Affairs with the Decree Law No. 644 on the Organization and Duties of the Ministry of Environment and Urbanization ("Çevre ve Şehircilik Bakanlığının Teşkilat ve Görevleri Hakkında Kanun Hükmünde Kararname No. 644") and Decree-Law No.645 on the Organization and Duties of the Ministry of Forestry and Water Affairs ("Orman Ve Su İşleri Bakanlığının Teşkilat ve Görevleri Hakkında Kanun Hükmünde Kararname No. 645"). With the structural reorganization of the Presidential government system and the reorganization of the ministries, the Ministry of Forestry and Water Affairs was transformed into the Ministry of Agriculture and Forestry under Presidential Decree No. 1. In addition, following Turkey's signing of the Paris Agreement, the Ministry of Environment and Urbanization was also reorganized as the

Ministry of Environment, Urbanization and Climate Change with the Presidential Decree No. 85 Amending Certain Presidential Decrees ("Bazı Cumhurbaşkanlığı Kararnamelerinde Değişiklik Yapılması Hakkında Cumhurbaşkanlığı Kararnamesi No. 85"). The Ministry of Finance was merged with the Undersecretariat of Treasury and renamed as the Ministry of Treasury and Finance under Decree Law No. 703 on the Amendment of Some Laws and Decrees in order to Harmonize with the Amendments Made to the Constitution ("Anayasada Yapılan Değişikliklere Uyum Sağlanması Amacıyla Bazı Kanun ve Kanun Hükmünde Kararnamelerde Değişiklik Yapılması Hakkında Kanun Hükmünde Kararname No. 703").

The second land use provision is based on pastures and meadows. In the event that the immovables are pastures and meadows within the scope of Pasture Law No. 4342 ("Mera Kanunu No. 4342"), these immovables shall be registered in the name of the Treasury by changing the purpose of allocation. In relation to these immovable properties, the Ministry of Finance shall lease or establish easement rights. For the reasons discussed above, it is clear that the Treasury and the Ministry of Finance referred to in this provision should be considered as the Ministry of Treasury and Finance.

The third provision offers a discount on the permit, lease, easement right, and use permit fees. Eighty-five percent discount is applied to the right fees of the generation facilities based on renewable energy resources to be put into operation until 31/12/2025, transportation roads, and energy transmission lines up to the point of connection to the system for ten years from the license date.

The final provision makes the scope of land use for renewable energy facilities virtually unlimited, as long as the relevant authorization is obtained. Generation facilities based on renewable energy sources are allowed to be established in national parks, nature parks, nature monuments, and nature conservation areas, protected forests, wildlife development areas, special environmental protection areas, provided that the positive opinion of the relevant Ministry is obtained, and in natural protected areas, provided that the positive opinion of the relevant protection regional board is obtained.

All of these rules are applicable to all renewable energy facilities, with no distinction between licensed and unlicensed generation. In this respect, energy cooperatives can also benefit from these regulations in the implementation of their projects.

Moreover, Article 20 of the Law No. 3194 states that buildings can be constructed in accordance with the zoning plan and the construction license. Therefore, the renewable electricity generation facilities are required to establish zoning plans in line with the higher scale spatial plans and the "Spatial Plan" in the absence of provisions in specific legislation. Zoning plans should be prepared in accordance with the Spatial Plans Making By-Law No. 19788 (“Mekansal Planlar Yapım Yönetmeliği No. 19788”). The plan display technique should be in accordance with "Energy Generation Area” under Annex 1a on Common Displays and “Generation Facility Based on Renewable Energy Sources" under Annex 1d on Implementation Plan Displays of By-Law No. 19788.

The upper limit for capacity that can be installed is shown under By-Law No. 31502. There is no upper limit on the installed capacity for the type of generation covered by subparagraph (ç). (Article 5(6) of By-Law No. 31502) However, although there is no upper limit in the generation type in subparagraph (h) as a rule (Article 5(6) of By-Law No. 31502), the installed capacity cannot be more than the contracted capacity of the consumption facility to be associated with in the connection agreement. (Article 7(10) of By-Law No. 31502)

The Environmental Impact Assessment By-Law No. 20235 (“Çevresel Etki Değerlendirme Yönetmeliği No. 20235”), regulates the facilities and activities falling within the scope of the regulation and the procedure for their environmental impact assessment. Within the scope of the Regulation, there are also renewable energy generation facilities that have certain characteristics. Wind power plants with 20 turbines or more or with an installed capacity of 50 MWm or more, extraction and utilization of geothermal resources, (Thermal capacity 20 MWe and above), and solar power plants with a project area of 20 hectares or more or an installed capacity of 10 MWe or more are subject to environmental impact assessment under Annex-I. These facilities are required to prepare an environmental impact assessment report in accordance with Article 7 of By-Law No. 20235. There are also facilities that are assessed by the Ministry of Climate Change, Environment, and Urbanization on the specific application to be made, whether the environmental impact needs to be assessed. (Article 15 of By-Law No. 20235) Renewable energy facilities that meet certain characteristics are evaluated within the scope of these projects, which are called projects subject to selection and elimination criteria. These renewable energy projects are hydroelectric power plants with an installed capacity of 1-10 MWm, wind power

plants with 5 turbines or more or with an installed capacity of 10 MWe or more and less than 50 MWe, extraction and utilization of geothermal resources (thermal power of 5 MWe and above), solar power plants with a project area of 2 hectares or more or an installed capacity of 1 MWe or more (excluding roof and facade systems) are identified as projects subject to selection and elimination criteria under Annex-II. If it is decided that an environmental impact assessment is required for these projects, an environmental impact assessment will be required. (Article 17 of By-Law No. 20235)

The technical evaluation for the construction of the facility and the realization of electricity generation is carried out during the system connection application by the grid operator and EİGM for wind and solar energy based facilities, and only by the grid operator for facilities based on other renewable energies.

The technical specifications required for renewable energy generation facilities are allocated in different sources under the legislation.

Solar energy-based facilities are subject to By-Law on Technical Evaluation of Solar Energy Based Electricity Generation Applications No. 23701 ("Güneş Enerjisine Dayalı Elektrik Üretimi Başvurularının Teknik Değerlendirmesi Hakkında Yönetmelik No. 23701"). The By-Law includes a dedicated section on unlicensed generation. Within the scope of this regulation, the scope of the technical evaluation carried out by EİGM following the approval of the connection application for the unlicensed generation application indicates some requirements. These requirements are mainly related to land use.

The power plant site specified in the application must not be located in unusable areas. Moreover, the site must not overlap with a site subject to a pre-license application. Finally, the site must not be located on immovable properties that are either in the Treasury's private possession or under the State's disposal. However, facilities based on subparagraph (ç) of Article 5(1) of By-Law No. 31502 are exempt from the final requirement and can be located on properties under the private ownership of the Treasury or under the provision and disposal of the State. EİGM also evaluates the power density of the site on the basis of Schedule 3 of By-Law No. 23701.

Within the scope of Article 7 of the Unlicensed Electricity Generation in the Electricity Market By-Law, unlicensed generation facilities must be connected to the distribution system, with the specified exceptions. Generation facilities based on renewable energy sources that use all of the generated energy without giving it to the

transmission or distribution system, whose generation and consumption are at the same measurement point, must be connected to the transmission system if the consumption facility is to be associated with these facilities is connected to the system at the transmission level.

Although engaging in an unlicensed generation is possible within the scope shown above, unlicensed generation is still subject to an application process for grid connection. Applications under subparagraphs (e) and (h) are made to the grid operator with the information and documents determined by the Energy Market Regulatory Authority. (Article 10(1) of By-Law No. 31502) The required information and documents were published in the Board Decision No. 8587 dated May 16, 2019 "(Enerji Piyasaları Düzenleme Kurulu Kararı No: 8587"). The documents that are relevant for energy cooperative projects:

1- Unlicensed Generation Connection Application Form

2- Authorization certificate(s) of the person(s) authorized to sign on behalf of the legal entity

3- Information and documents showing the partnership structure of the legal entity

4- Title deed, lease agreement, or document on the right of use of the place where the generation facility will be established

5- A document from the Ministry of Agriculture and Forestry or the provincial directorates of the Ministry stating that the location where the generation facility will be established is not absolute agricultural land, special cropland, planted agricultural land, irrigated agricultural land and will not affect agricultural use in the surrounding lands.

6- Construction permit and approved electrical project cover for the consumption facility

7- Environmental Impact Assessment

8- Application fee receipt

9- Single line diagram showing the technical specifications of the generation facility

10- General Directorate of Energy Affairs technical evaluation form

11- coordinated application sketch approved by Licensed Map Cadastre Office or map engineer

12- Declaration

13- Document the total efficiency of the facility

14- Document showing that the right to use the renewable energy source has been obtained

The evaluation of applications takes place in two stages. The evaluation of applications concerning generation facilities to be installed at the distribution level is conducted by the commission established by the grid operator within the scope of Article 12 of the By-Law. If an application is on a generation facility to be installed at the transmission level, the evaluation process is conducted by TEİAŞ in the same manner as the grid operator.

In the first stage, applications are evaluated whether they include the documents required by Board Decision No. 8587. Applications are evaluated for document requirements by the commission within the first 15 days of the month following the application. (Article 13(1) of By-Law No. 31502) In case of incomplete or incorrect information and documents, they are returned to the applicant within three business days following the evaluation. (Article 13(2) of By-Law No. 31502) Within one business day after the review date, the evaluation results are published on the website of the relevant grid operator, together with reasons for incomplete and inaccurate applications. (Article 13(3) of By-Law No. 31502) If the required documents are missing or incorrect, the application will not be taken into technical evaluation, which is the second stage of the evaluation process. (Article 13(1) of By-Law No. 31502) Following the document evaluation for applications concerning generation facilities to be installed at the distribution level, an opinion on the fault current limit particular to the substation is received from TEİAŞ. (Article 7(5) of By-Law No. 31502) TEİAŞ must issue the opinion on the relevant request within fifteen days of receiving it.

Applications that are found to be complete are taken to the second stage, the technical evaluation. The commission evaluates the technical aspects within the first fifteen days of the month following the month of evaluation in terms of documents. Applications that have been informed by TEİAŞ that the fault current limit has been exceeded are automatically denied without technical review. (Article 14(1) of By-Law No. 31502) The technical evaluation includes the application in terms of the measurement and protection system of the facility planned to be established within the scope of the connectable capacity and fault current limit calculations of the relevant substation, based on the compliance of the application with the By-Law and the relevant technical legislation. The relevant grid operator publishes the results of the

evaluation on its website within the business day following the evaluation date and notifies the applicant in three business days.

In the step following the announcement of the technical assessment, applications for wind or solar energy-based facilities are differentiated from those that are not. Applicants who apply within one month following the announcement of the approval of the applications based on other than solar and wind energy on the website of the grid operator shall be notified by the relevant network operator of the invitation letter to the connection agreement.

Within ten working days of the date of acceptance of the applications based on wind or solar energy, the information included in the technical evaluation form of the applications whose connection application is authorized must be given to EİGM for technical assessment. Within thirty days, the technical evaluation must be completed, and the technical evaluation report must be provided to the appropriate grid operator. In case of errors or deficiencies in the submitted information to EİGM, the relevant grid operators must notify the applicant. Applicants would have ten business days of notice to correct the nonconformity. (Article 16(1) of By-Law No. 31502) Application results are published monthly on the grid operator's website. (Article 16(5) of By-Law No. 31502)

The invitation letter to the connection agreement for approved solar energy-based applications must be notified to the applicant upon written application within one month of the date of the website announcement. invitation letter to the connection agreement for solar energy-based applications whose technical evaluation report is positive shall be notified to the relevant person upon written application of the relevant persons within one month from the website announcement by the relevant grid operator. (Article 16(2) of By-Law No. 31502)

The technical assessment report of wind energy-based applications whose technical evaluation is accepted by EİGM is published on its website until the fifth of each month. The applicant applies to TÜBİTAK for technical interaction approval and submits to EİGM the paperwork demonstrating that the application in question has been made within thirty days of the website announcement. The technical interaction permit, together with the technical evaluation report, is notified to the relevant grid operator by EİGM within ten business days. (Article 16(3) of By-Law No. 31502) The letter of invitation to the connection agreement for approved wind energy-based applications must be notified to the applicant upon the written application within one

month of the date of the website announcement. (Article 16(4) of By-Law No. 31502)

Applicants who receive the invitation letter have 180 days from the date of notification for the connection agreement. The grid connection agreement was published in the official gazette with the Board Decision No. 3860/43 (1) ("Enerji Piyasaları Düzenleme Kurulu Kararı No: 3860/43(1)"). Within the first ninety days of this period, the applicants submit the generation facility project and the connection line project, if any, for the approval of the Ministry or the institutions and/or legal entities authorized by the Ministry. (Article 17(1) of By-Law No. 31502) Upon request of the applicant, the relevant network operator grants an additional period of one hundred and eighty days, provided that the applicant has applied for project approval. If the applicant submits the project approval, the grid operator is obliged to sign the connection agreement in thirty days. For applications based on hydraulic resources, a water use agreement must also be submitted. (Article 17(2) of By-Law No. 31502)

Following the connection agreement, the applicant constructs the generation facility and applies to the grid operator for an official report confirming the facility's suitability. The grid operator must deliver the official report within 15 days. The applicant applies to the Ministry or the relevant entities authorized by the Ministry with the official document for provisional acceptance. (Article 18(1) of By-Law No. 31502) Provisional acceptance procedure, starting from the date of signature of the connection agreement, must be completed in,

> *"a) Three years for generation facilities based on hydraulic resources to be connected at MV level,*
> *b) Two years for generation facilities other than generation facilities based on hydraulic resources to be connected at MV level,*
> *c) One year for all generation facilities to be connected at LV level,*
> *ç) For generation facilities to be connected to the transmission network, the period stipulated for generation facilities with the same qualifications within the framework of the Electricity Market License By-Law published in the Official Gazette dated 2/11/2013 and numbered 28809,"*

For the final stage, the applicant signs a system usage agreement with the grid operator within one month following the start of operation of the facility with the provisional acceptance. The system usage agreement was published in the official

gazette with the Board Decision No. 3860/43(2) ("Enerji Piyasaları Düzenleme Kurulu Kararı No: 3860/43(2)").

4.2.2.3. Transmission and Distribution

Transmission and distribution activities are subject to licensing under the Energy Law and the requirement to be a joint stock or limited liability company. (Article 4 of the Law No. 6446) Energy cooperatives cannot carry out these activities in Turkey. In this respect, there is no legislation that falls within the scope of the thesis.

4.2.3. Incentives and subsidies

Several incentives and subsidies available to energy cooperatives arise from the legislation on generation on renewable energy, especially for an unlicensed generation. Under unlicensed generation, persons generating electricity can sell the amount of electricity left after meeting their needs to the system. The right to sell surplus electricity arises from Article 14(3) of the Electricity Market Law. According to Article, in the event that persons that generate unlicensed electricity supply surplus electricity to the system, the electricity is purchased by the end-source supply company at the prices determined within the scope of the Law on the Use of Renewable Energy Resources for the Purpose of Electric Energy Generation. Article 6/A of Law on the Use of Renewable Energy Resources for the Purpose of Electricity Generation regulates surplus energy. Supply companies are obliged to buy the surplus energy generated by self-consumers. This transaction is deemed within the scope of the *Yenilenebilir Enerji Destekleme Mekanizması* (YEKDEM - RES Support Mechanism). Article 5(2) of By-Law No. 31502 reiterates that the surplus energy will be utilized within the scope of YEKDEM. Self-consumers benefit from the prices in Schedule I of the Law for a period of ten years, which is the retail single-time active energy cost of its own subscriber group, announced by EMRA as TL kurus/ kWh. After the end of the ten years, the price to be applied for the surplus electricity is determined by the President. The current prices are announced in Presidential Decision No:1044 ("Cumhurbaşkanı Kararı No:1044")

In line with the provisions presented above, energy cooperatives have the right to sell electricity generated in excess of their and their members' needs. The right on surplus electricity occurs under Article 6 of sample articles of association for energy cooperatives:

"2) makes use of the surplus electricity within the framework of the relevant legislative provisions regarding the electricity market."

Energy cooperatives based on the subparagraph (h) of Article 5(1) of By-Law No. 31502 benefit from these provisions. However, surplus energy from energy cooperatives based on subparagraph (ç) of Article 5(1) of By-Law No. 31502 supply is identified as a free contribution, despite its recognition of being within the scope of YEKDEM. In this respect, energy cooperatives based on subparagraph (ç) do not receive any payments from the grid operator and incumbent supply company. (Article 24(3) of By-Law No. 31502)

Article 6/B of Law No. 5346 provides for the possibility of receiving incentives if the mechanical and/or electro-mechanical components used in the generation facility are domestically manufactured. The Article also includes a provision on unlicensed generation. According to this regulation,

"The domestic contribution prices to be applied in Turkish lira for unlicensed generation facilities to be established to meet the needs of the consumption facility using domestic components that will enter into operation after 30/6/2021, the updating of these prices, the period to be applied and other procedures and principles regarding the application shall be determined and announced by the President."

Unlicenced generation facilities with an installed capacity of up to 5 MW are exempt from the available capacity charge. (Article 36(1) of By-Law No. 31502) The available capacity charge is the only fee exemption available to energy cooperatives.

As a sum, legislation related to energy cooperatives in Turkey is shown in the table below. (Table 1.)

Table 1. Relevant legislation on energy cooperatives in Turkey within the scope of the research

Type of Legislation	Number of Legislation	Official Gazette	Name of Legislation (in English)	Name of Legislation (in Original Language)	Relative Points
Law	1163	Number: 13195, Date: 10 May 1969	Cooperatives Law	Kooperatifler Kanunu	the primary legislation on cooperatives in Turkey
Law	3194	Number: 18749, Date: 9 May 1985	Zoning Law	İmar Kanunu	covers the provisions for the construction of facilities and grids.
Law	5346	Number: 25819, Date: 18 May 2015	Law on the Use of Renewable Energy Resources for the Purpose of Electric Energy Generation	Yenilenebilir Enerji Kaynaklarının Elektrik Enerjisi Üretimi Amaçlı Kullanımına İlişkin Kanun	the legal basis for YEKDEM and land-use provisions for renewable energy applications
Law	6446	Number: 6446, Date: 30 Mar 2013	Electricity Market Law	Elektrik Piyasası Kanunu	the primary legislation on electricity market activities in Turkey, including electricity generation
By-Law	19357	Number:28896, Date: 28 January 2014	Electricity Market Connection and Grid Usage By-Law	Elektrik Piyasası Bağlantı ve Sistem Kullanım Yönetmeliği	requirements and procedures for grid connection and grid usage

Table 1 (Continued). Relevant legislation on energy cooperatives in Turkey within the scope of the research

By-Law	21189	Number:29508, Date: 20 October 2015	By-Law on the Technical Evaluation of Applications for Wind Resource Electricity Generation	Rüzgar Kaynağına Dayalı Elektrik Üretimi Başvurularının Teknik Değerlendirmesi Hakkında Yönetmelik	regulates the technical requirements for solar energy based production facilities
By-Law	23701	Number:30110, Date: 30 June 2017	By-Law on the Technical Evaluation of Applications for Solar Electricity Generation	Güneş Enerjisine Dayalı Elektrik Üretimi Başvurularının Teknik Değerlendirmesi Hakkında Yönetmelik	regulates the technical requirements for wind energy based production facilities
By-Law	31502	Number: 30772, Date: 12 May 2019	Unlicensed Electricity Generation in the Electricity Market By-Law	Elektrik Piyasasında Lisanssız Elektrik Üretim Yönetmeliği	regulates unlicensed electricity generation which enables energy cooperatives to participate in the electricity sector
By-Law	20235	Number: 29186, Date: 25 November 2014	Environmental Impact By-Law	Çevresel Etki Değerlendirmesi Yönetmeliği	organizes the facilities where environmental impact assessment is required and the assessment process.
By-Law	19788	Number: 29030, Date: 14 June 2014	Spatial Plans Making By-Law No.	Mekansal Planlar Yapım Yönetmeliği	covers the provisions for the construction of facilities and grids.

Table 1 (Continued). Relevant legislation on energy cooperatives in Turkey within the scope of the research

Communiqué	24721	Number: 30466, Date: 2 July 2018	Communiqué on the Foundation and Amendment of Articles of Association and The Determination of the Number of Founding Partners and Working Areas of Cooperatives	Kooperatiflerin Kuruluş ve Anasözleşme Değişiklik İşlemleri ile Kurucu Ortak Sayıları ve Çalışma Bölgelerinin Belirlenmesi Hakkında Tebliğ	contains provisions on the establishment of cooperatives and their articles of association.
Presidential Decision	1044	Number: 30770, Date: 10 May 2019	Presidential Decision No:1044	Cumhurbaşkanı Kararı No:1044	Determines feed-in-tariff fees under YEKDEM.
Board Decision	3860/43(1)	Number: 28335, Date: 26 June 2012	Energy Markets Regulatory Authority Board Decision No. 3860/43(1)	Enerji Piyasaları Düzenleme Kurulu Kararı No: 3860/43(1)	determines required information and documents for grid connection and system use
Board Decision	3860/43(2)	Number: 28335, Date: 26 June 2012	Energy Markets Regulatory Authority Board Decision No. 3860/43(2)	Enerji Piyasaları Düzenleme Kurulu Kararı No: 3860/43(2)	sets grid connection agreement
Board Decision	No. 8587	Number: 30780, Date: 21 May 2019	Energy Markets Regulatory Authority Board Decision No. 8587	Enerji Piyasaları Düzenleme Kurulu Kararı No: 8587	sets grid usage agreement

4.3. Germany

4.3.1. Establishing an energy cooperative

German Cooperatives Law ("Gesetz betreffend die Erwerbs- und Wirtschaftsgenossenschaften - Genossenschaftsgesetz - GenG") governs all cooperatives, including energy cooperatives, in Germany. GenG legislates the procedures and principles of the establishment process of a cooperative, the legal relationship of cooperatives and their members, the organizational structure of cooperatives, procedures, and principles of the audition process, termination of membership, dissolution and nullity of cooperatives, cooperative-specific procedures, and principles of the bankruptcy process and liabilities of members, and penal provisions. The definition of cooperatives is inferred under the GenG §1(1) the nature of cooperatives. Accordingly, cooperatives are

> *"companies with an indefinite number of members whose purpose is to promote the income or the economy of their members or their social or cultural interests through joint business operations"*

The minimum number of members a cooperative should hold is set at three under GenG §4. Therefore, establishing a cooperative requires at least three partners to sign articles of association. Under GenG §6 and §7, articles of association should cover at least,

- the name and registered office of the cooperative
- cooperative's objective
- Whether members hold liability in the insolvency proceedings, and if they are, whether there is a limit
- the procedures and principles for convening the general assembly of members, the recording of its resolutions, and the chairmanship of the meeting
- the form of notices of the cooperative and determination of the public gazettes or publicly accessible electronic information media for notices those should be published
- shares, payments on shares
- the formation and management of the legal reserve

Members may hold more than one share. The articles of association may determine the maximum number of shares that a member can have or the requirements to hold more than one share.

The Executive Board must register the articles of association signed by at least three members, the members of the Executive Board, and the Supervisory Board (if exist, as the need to form one can be waived if the cooperatives have less than twenty members) to *Genossenschaftsregister (Cooperatives Registry)*, at the Register Court in whose district the cooperative has its registered office. To register the members of the Boards, the Executive Board encloses a copy of the documents on appointments. Moreover, a certificate and an expert opinion obtained from the auditing association of which the cooperative is a member should be enclosed. While the certificate proves the membership, the expert opinion shows the financial situation of the cooperative, whether it jeopardizes the interest of its members or its creditors. (GenG §11) The fourth paragraph cites §12(2) of the Commercial Law (Handelsgesetzbuch - HGB) in relation to registration. According to HGB §12(2), submission of the documents is carried out electronically. While submitting an original the document, a simple copy of the document, or written document, a digital copy is sufficient to fulfill the submission obligation. A notarized document or a certified copy must be submitted with a simple electronic certificate, disclosed under §39a of the Authentication Law (Beurkundungsgesetz - BeurkG)

Following the registration, the Court examines the previous steps. Cooperative Register Regulation (Verordnung über das Genossenschaftsregister, Genossenschaftsregisterverordnung - GenRegV) expands the examination process. According to §15 of the Regulation, the Court examines the purpose of the cooperative under the requirements of GenG §1, the expert opinion, if the articles of association contains the necessary provisions. It has the power to reject the registration if

- the cooperative has not been properly established and registered,
- the expert opinion discloses a potential danger to the interest of its members or its creditors
- one or more provisions of the articles of association on the matters that must be included in the scope of GenG §6-7 or based on other mandatory provisions are defective, missing, or null.

(GenG §11a, GenRegV)

If the procedures carried out and the articles of association comply with the

legislation, the Court publishes the excerpt of registered articles of association with the date, the registered office, the objective of the cooperative, the members of the Executive Board, and their powers of representation, and the duration of cooperative - if the cooperative will operate for a certain period of time- immediately. (GenG §12, GenRegV §15)

4.3.2. Implementing of projects by energy cooperatives

4.3.2.1. Competence to operate in the market

Under German energy legislation, there are no explicit licensing requirements for electricity generation in the electricity market. In fact, the Federal Immission Control Law (BImSchG) provides a system similar to the license system, but the licensing system based on BImSchG is evaluated within the framework of environmental requirements and examined under the heading "4.3.2.2. Generation, Grid Connection and System Use". Also, electricity generation is not specific to certain legal forms under the legislation.

Unlike generation, operating a grid, transmission, or distribution, is subject to a license. License to operate a grid is found its basis on §4 of ENwG. The operation license is about whether the applicant is competent to operate and is not specific to any legal form. In this context, energy cooperatives are legally able to operate a transmission or distribution network as long as they are capable of operating the grid. Therefore, also given their ability to generate electricity, energy cooperatives are legally capable of performing all activities in the electricity market, provided that they meet the relevant requirements.

4.3.2.2. Generation, Grid Connection and System Use

The establishment of a generation facility is subject to a number of regulations arising from electricity, environmental, construction, and land use legislation.

The Federal Immission Control Law (“Gesetz zum Schutz vor schädlichen Umwelteinwirkungen durch Luftverunreinigungen, Geräusche, Erschütterungen und ähnliche Vorgänge - Bundes-Immissionsschutzgesetz - BImSchG”) governs the majority of the authorization criteria for the facility. The law applies to the facilities’ construction and operation. (BImSchG §2) Facilities that are within the scope of BImSchG require a license for construction and operation. The Federal Government

has the authority to determine the facilities that require a license, with the consent of the *Bundesrat* (German Federal Council). (BImSchG §4) There are 44 regulations that are applied in the implementation of the BImSchG. In particular, Regulation on Installations Requiring a License ("Vierte Verordnung zur Durchführung des Bundes-Immissionsschutzgesetzes - Verordnung über genehmigungsbedürftige Anlagen - 4th BImSchV") and Regulation on the Approval Procedure ("Neunte Verordnung zur Durchführung des Bundes-Immissionsschutzgesetzes - Verordnung über das Genehmigungsverfahren - 9. BImSchV") apply to energy cooperatives.

4th BImSchV identifies the facilities that require a license for construction and operation in Annex 1. The approval requirement is dependent on performance limits (capacity limits) or specific system sizes. Several systems of the same type, which - taken individually - do not reach the performance limits or system sizes specified in Annex 1, are considered as one system if they are operated by the same operator and are in a close spatial and operational connection, are on the same person's premises, are connected to common operating facilities and serve a comparable technical purpose (4th BImSchV §1(1)) If the facility,

- is listed in Annex 1 of the 4th BImSchV, and performance limit or facility size is reached or exceeded.
- will operation longer than 12 months
- do not hold a scientific or pilot scale purpose
- do not excepted from the requirement,

the license is required for construction and operation.

The Federal Immission Control Act does not need authorization for the development of solar energy farms. If the wind farm has at least 20 turbines or the turbines are taller than 50 meters, the Federal Immission Control Act needs authorization. Typically, a Federal Immission Control Act authorization is needed for the building of biomass facilities. Other biomass facilities are subject to a streamlined approach, whilst plants with a rated thermal capacity of 50 MW or more are subject to the standard authorization procedure.

BImSchG §5 stipulates that to provide a high degree of environmental protection, the operator of an installation needing a license is obliged to build and operate in a way that,

- No adverse environmental consequences, other dangers, serious drawbacks, or substantial annoyances for the general public and the neighborhood can be

brought about.

- Precautions are taken, particularly via the use of cutting-edge methods, against adverse environmental consequences, other risks, substantial disadvantages, and significant nuisances.
- Avoid waste, recover waste that is unavoidable, and dispose of waste that is unrecoverable without harming the public good.
- Use Energy sparingly and efficiently.

In order to meet these targets, some requirements are set out under BImSchG §7. In this respect, facilities,

- must comply with certain technical requirements,
- emit in a way to not to exceed certain limit values or must comply with equivalent parameters or equivalent technical measures,
- must comply with certain requirements,
- operate in a way must that carries out measurements of emissions,
- carry out certain safety inspections and certain inspections of safety-related documents,
- return to baseline condition pursuant to Section 5 (4) must comply with certain requirements, in particular with regard to the baseline condition report and the determination of the materiality of soil and groundwater contamination.

Approval is granted if the facility meets the requirements listed as bullet points above that arise from BImSchG §5 and §7. (BImSchG §6) Also, a partial permit may only be granted if there is a legitimate interest and a positive preliminary overall assessment shows that there are no insurmountable obstacles to the permit requirements of § 6 BImSchG in relation to the construction and operation of the entire system. (BImSchG §8) The applicant can apply for a preliminary decision on individual licensing requirements or the location of the facility, provided he can prove a legitimate interest and the effects of the facility can be assessed. (BImSchG §9)

9th BImSchV provides the procedure for the issue of a permit. (9th BImSchV §1) The application can be submitted physically or electronically. The application must include proof that the requirements shown above are met. (BImSchG §10; 9th BImSchV §2) As soon as the applicant notifies the licensing authority of the anticipated project, the authority must notify the applicant, and have a discussion with them about the timeliness of the licensing process and other matters important to its execution. Discussion must include,

"1. which application documents must be submitted with the application,

2. which probable effects the project may have on the general public, and the neighborhood and which consequences result from this for the procedure,

3. which expert opinions are likely to be required and how duplicate expert opinions can be avoided,

4. how the time schedule of the approval procedure can be structured, and what other measures can be taken by the project sponsor and the approval authority to simplify and accelerate the approval procedure,

5. whether an acceleration of the procedure can be achieved by the fact that the official representative of the procedure, who supervises the design of the time schedule of the procedure as well as the organizational, and technical determination, uses the services of a project manager at the suggestion or with the consent and at the expense of the applicant,

6. which authorities are likely to be involved in the procedure." (9th BImSchV §2)

In addition, the authority must notify and advise the developer of the project subject to Environmental Impact Assessment (EIA) at an early stage regarding the type, content, scope, and level of detail of the information that the applicant is required to include in the documents to be submitted. (9th BImSchV §2a)

The required documents are set out in 9th BImSchV §4a.

"1. The plant components, process steps and ancillary equipment to which the approval requirement pursuant to Section 1 (2) of the Ordinance on Installations Requiring Approval extends,

2. The land requirements and the condition of the plant site,

3. The process or types of process envisaged, including the data required for identification, such as information on the type, quantity and nature

4. the energy used and generated in the system,

5. possible releases or reactions of substances in the event of disruptions in the course of the process,

6. the type and extent of the emissions that are expected to come from the installation, whereby this information, insofar as air pollution is concerned,

must also refer to the raw gas before mixing or dilution, the type, location and dimensions of the emission sources, the spatial and temporal distribution of the emissions as well as the exit conditions and

7. an overview of the most important alternatives that may have been examined by the applicant."

In addition to the above-mentioned documents, the applicant must also submit documents on protective measures that will be implemented. (9th BImSchV §4b) EIA and additional information are required for the facilities that fall within the scope of EIA. (9th BImSchV §4e) The authority must make a decision about the application right away if all the factors crucial to its evaluation have been established when the objection time has ended (which is one month according to 9th BImSchV §12) if a discussion date has been set after the relevant authorities' views have been received. (9th BImSchV §20)

The procedures subject to environmental impact assessment and the assessment process are regulated under the Environmental Impact Assessment Law ("Gesetz über die Umweltverträglichkeitsprüfung – UVPG"). According to Annex 1 of the Law, the construction and operation of generation facilities with a capacity of more than 200 MW, and wind farms with 20 or more wind turbines are subject to environmental impact assessment. The construction and operation of generation facilities with a capacity of 50 MW to 200 MW and wind farms with 6 to less than 20 wind turbines are subject to the general preliminary examination of the individual case. The competent authority carries out a general preliminary examination to determine whether an EIA is required. (UVPG §7(1)) Wind farms with 3 to less than 6 wind turbines are subject to the location-related preliminary examination of the individual case. The competent authority shall carry out a site-related preliminary examination to determine whether the EIA is mandatory. (UVPG §7(1)) Following the application, the competent authority shall determine, without delay, whether the project is subject to an obligation to conduct an environmental impact assessment. (UVPG §5)

Building Law ("Baugesetzbuch - BauGB") applies to the construction of various renewable energy-based generation facilities. Solar energy-based generation facilities, geothermal-based generation facilities, and hydroelectricity facilities require a permit for construction.

§49 of Energy Industry Law (Gesetz über die Elektrizitäts- und Gasversorgung

- Energiewirtschaftsgesetz - EnWG) specifies requirements for generation, transmission and distribution facilities' technical safety. Accordingly,

> *"1) Facilities shall be erected and operated in such a way that technical safety is ensured. Subject to other legal provisions, the generally recognized rules of technology shall be observed.*
> *(2) Compliance with the generally accepted rules of technology shall be presumed if, in the case of installations for the generation, transmission and distribution of*
> *1. Electricity the technical rules of the Association for Electrical, Electronic & Information Technologies,*
> *...*
> *have been complied with."*

The latest technical standards must be followed while operating electricity generation facilities. (EnWG §49(1)) The authority that supervises the technical safety aspect is the Federal Ministry for Economic Affairs and Energy. (EnWG §49(4))

The obligation of the network administrator to connect generation facilities and end consumers to the network derives from §17 of EnWG. Grid operators' obligation is limited in cases under reasonable technical and economic conditions and no less favorable compared to other network operators, as well as being non-discriminatory and transparent. In cases contrary, the operator may notify the application for refusal in writing. The explanation in the case of a capacity shortage must include meaningful information on the detailed measures and associated costs that would be required to expand the network in order to carry out the network connection at the request of the applicant. §20 of EnWG extends the obligations of operators to provide grid access. Grid operators are obliged to provide nondiscriminatory network access to everyone based on objectively justified criteria, which are based on disclosed terms and conditions online, including, if practicable, uniform countrywide model contracts and concession fees. A grid usage contract is defined for end consumers and suppliers under the following section.

Power Plant Grid Connection Regulation (Verordnung zur Regelung des Netzanschlusses von Anlagen zur Erzeugung von elektrischer Energie - Kraftwerks-Netzanschlussverordnung - KraftNAV) regulates the grid connection of generation

facilities with a capacity of 100 megawatts or more. Procedures under the KraftNAV are carried out by the grid operator. The information that applicants must provide, the terms and circumstances of the standard network access contract, and constantly updated details on the grid status, including any capacity bottlenecks that may be present, must all be made available on the websites of network operators. By enabling non-vertically integrated power plant operators to make site decisions based on rational commercial criteria, this transparency intends to promote competition at the generational level. The network operator shall start the assessment as soon as the applicant submits a valid application and makes a prepayment equal to 25% of the anticipated assessment expenses. The network operator is required to reserve the connection point for the applicant if the application is confirmed to be legitimate.

The operator also has responsibilities with regard to renewable energy sources. The operator also has responsibilities with regard to renewable energy sources. These responsibilities are regulated under Renewable Energy Sources Law (Gesetz für den Ausbau erneuerbarer Energien - Erneuerbare-Energien-Gesetz - EEG 2021). According to § 8 of EEG 2021, Grid operators are obliged to immediately connect renewable energy generation facilities. This connection may be the shortest, or it may be the most sensible option in terms of financial and voltage levels. Upon receiving a grid connection request, grid system operators must provide connection applicants with a precise timetable for completing the grid connection. The timetable and request include the actions that will be taken to complete the grid connection, and what information must applicants provide to grid operators in order for the grid operators to determine the connection point and relevant plans. Grid operators must submit the following to connection applicants immediately, but no later than eight weeks after receiving the relevant information:

- A timetable for establishing the grid connection as soon as possible, including all essential work phases
- All information needed by connection applicants to examine the connection point
- A clear and detailed estimate of the costs incurred by grid operators as a result of the grid connection

The BImSchG provisions under the heading "4.3.2.2. Construction and technical requirements" within the scope of construction give rise to obligations in terms of construction and operation of the relevant obligations and have the same

effects on the scope of this heading.

4.2.2.3. Transmission and Distribution

Per ENwG, the Grid Expansion Acceleration Act ("Netzausbaubeschleunigungsgesetz Übertragungsnetz - NABEG"), and the Federal Requirement Plan Act ("Gesetz über den Bundesbedarfsplan - Bundesbedarfsplangesetz - BBPlG"), the development of electricity transmission networks must go through a multi-stage planning and approval procedure on the federal level. ENwG forms the framework for operating grids. As discussed above, the activity of network management is subject to a license. The grid operating license is regulated in §4 of ENwG. According to ENwG, the competent authority is authorized to evaluate license applications and issue the license. The decision on whether the license will be granted is within six months from the submission of the complete application. (§4 of ENwG) Evaluation is based on whether the applicant has the personnel, technical and economic capacity and reliability to ensure network grid in the long term. Procedures and requirements for transmission and distribution are detailed in the following provisions.

The TSOs first collaborate at a "scenario range" (Szenariorahmen) every two years, working through at least three potential scenarios for the evolution of the German energy and electricity environment over the course of the following 10–15 years (EnWG §12). The TSOs create a unified grid development plan based on the "scenario range". They present the proposal to BNetzA jointly. The grid development plan details the grid expansion measures that are required over the course of the following three years and a schedule specifically for these projects. The grid development plan is evaluated and approved by BNetzA, making it enforceable. ((EnWG §12b) The grid development plan serves as the cornerstone of the federal requirement plan, which was put out by the federal government and approved by legislators. A federal planning procedure will specify a high voltage line corridor if it is compliant with the required federal plan (Bundesfachplanung). NABEG requires that the project be authorized through planning approval.

Operating a transmission network necessitates authorizations from the relevant state authorities (EnWG §4). Additionally, BNetzA must certify TSOs (EnWG §4a). Only if the TSO meets the unbundling requirements outlined in ENwG §8-10 would BNetzA be able to award certification.

In accordance with demand, TSOs shall run, maintain, optimize, strengthen, and grow a secure, reliable, and efficient network without discrimination, provided that doing so is financially feasible (EnWG §11). When trading power with other domestic or foreign grids, TSOs must take extra precautions to preserve grid stability (EnWG §12). Furthermore, TSOs must adhere to the pertinent technical requirements shown under the sub-chapter “4.3.2.2. Generation, Grid Connection and System Use” (EnWG §49)

The competent state authority must approve the plans before a 110 kV electrical distribution network or any of its individual lines may be built (EnWG §43). An administrative process specific to infrastructure projects is the planning approval procedure. The project's admissibility and the location of the transmission network are determined by the planning permission. The clearance consolidates all required authorizations and, as a result, also considers whether the project conforms with applicable building laws, environmental regulations, and safety guidelines.

4.3.3. Incentives and subsidies

Under EEG there is a section dedicated to FIT and market premium. Operators of renewable energy-based generation facilities have a right against the grid operator for the electricity generated in these installations for the market premium, feed-in tariff, and tenant electricity surcharge. (EEG §19)

Market premium is a compensation payment for generators who market the electricity they generated directly. To qualify for market premium, electricity must be marketed directly, with the grid operator labeling the electricity as "electricity from renewable energy sources or from mine gas, financed from the EEG levy", and the electricity must be accounted for in a balancing group or sub-balancing group in which balancing is carried out. Balancing must be carried out electricity from renewable energies that are directly marketed in the form of the market premium, or for which the facility operator or the direct marketer is not responsible for its inclusion in the balancing group or sub-balancing group. (EEG §20)

The energy premium is set competitively through a tender. Tender applies to facilities based on wind energy, facilities based on solar energy, and biomass facilities. (EEG §22(1)) For the onshore facilities based on wind energy and the facilities based on solar energy, the electricity generated by the facility would be in the scope only to the extent that a surcharge issued by the Federal Network Agency for the facility is in

effect. onshore wind energy facilities and solar energy facilities with an installed capacity of up to and including 750 kilowatts; and pilot onshore wind energy facilities with a total installed capacity of up to and including 125 megawatts per year are exempt from this requirement. (EEG §22(2); (EEG §22(3)) The auctions are based on a certain capacity specific to renewable energy types, which is allocated for each year. (EEG §28)

On the other hand, the feed-in tariff offers fixed prices for the electricity fed into the grid. Eligibility for a feed-in tariff depends on the capacity of the operated facility. Accordingly, the feeding of

- electricity generated at facilities with an installed capacity of up to 100 kilowatts,
- electricity generated at facilities with an installed capacity of more than 100 kilowatts for a period of up to three consecutive calendar months and a total of up to six calendar months per calendar year,
- electricity from subsidized onshore wind energy installations for which the original entitlement to payment under the version of the Renewable Energy Sources Law applicable to the installation has ended on December 31, 2020, or
- electricity from de-subsidized facilities that are not onshore wind energy facilities and have an installed capacity of up to 100 kilowatts.

into the system is within the scope of FIT. (EEG §21(1))

The entitlement to payment of the tenant electricity surcharge applies to electricity generated at solar energy-based facilities with a total installed capacity of up to 100 kilowatts installed on, at, or in a residential building. For this, electricity is supplied by the grid operator or a third party and consumed by an end consumer within that building or in residential buildings or ancillary facilities in the same neighborhood in which that building is located. Unlike FIT, electricity must not be fed into the system. (EEG §21(3))

Market premiums, feed-in tariffs, or tenant electricity surcharges are to be paid for a period of 20 years. (EEG §25))

As a sum, legislation related to energy cooperatives in Germany is shown in the table below. (Table 2.)

Table 2. Relevant legislation on energy communities in the Federal Legislation of Germany within the scope of the research

Type of Legislation	Number of Legislation	Official Gazette	Name of Legislation (in English)	Name of Legislation (in Original Language)	Relative Points
Law	-	BGBl. I S. 2230 Date: 6 October 2006	Cooperatives Law	Gesetz betreffend die Erwerbs- und Wirtschaftsgenossenschaften - Genossenschaftsgesetz - GenG	the primary legislation on cooperatives in Germany
Law	-	BGBl. I S. 205 Date: 12 February 1990	Environmental Impact Assessment Law	Gesetz über die Umweltverträglichkeitsprüfung – UVPG	regulates the permit required for the construction and operation of generation facilities.
Law	-	BGBl. I S. 1970, 3621 Date: 7 July 2005	Energy Industry Law	Gesetz über die Elektrizitäts- und Gasversorgung - Energiewirtschaftsgesetz - EnWG	the primary legislation on the energy sector in Germany. Sets the requirements and procedures for transmission and distribution systems.
Law	-	BGBl. I. p. 880 Date: 14 may 1990	Federal Immission Control Law	Gesetz zum Schutz vor schädlichen Umwelteinwirkungen durch Luftverunreinigungen, Geräusche, Erschütterungen und ähnliche Vorgänge - Bundes-Immissionsschutzgesetz - BImSchG	regulates the permits required for the construction and operation of production facilities.

Table 3 (Continued). Relevant legislation on energy communities in the Federal Legislation of Germany within the scope of the research

Law	-	BGBl. I S. 3634 Date: 3 November 2017	Building Law	Baugesetzbuch - BauGB	regulates the permits required for the construction of generation facilities.
Law	-	BGBl. I S. 1066 Date: 21 July 2014	Renewable Energy Sources Law	Gesetz für den Ausbau erneuerbarer Energien - Erneuerbare-Energien-Gesetz - EEG 2021	the primary source of law on renewable energy. establishes rules on construction and operation, as well as support mechanisms for renewable energy sources.
Regulation	-	BGBl. I S. 2268 Date: 16 October 2006	Registry of Cooperatives Regulation	Verordnung über das Genossenschaftsregister, Genossenschaftsregisterverordnung - GenRegV	regulates the registration process of cooperatives, including energy cooperatives
Regulation	-	BGBl. I S. 1440 Date: 31 May 2017	Regulation on Facilities Subject to Licensing	Vierte Verordnung zur Durchführung des Bundes-Immissionsschutzgesetzes - Verordnung über genehmigungsbedürftige Anlagen - 4th BImSchV	determines the facilities within the scope of Federal Immission Control Law

Table 4 (Continued). Relevant legislation on energy communities in the Federal Legislation of Germany within the scope of the research

Regulation	-	BGBl. I S. 1001 Date: 29 May 1992	Regulation on the Approval Procedure	Neunte Verordnung zur Durchführung des Bundes-Immissionsschutzgesetzes - Verordnung über das Genehmigungsverfahren - 9th BImSchV	determines the procedures within the scope of Federal Immission Control Law
Regulation	-	BGBl. I S. 1187 Date: 26 June 2007	Power Plant Grid Connection Regulation	Verordnung zur Regelung des Netzanschlusses von Anlagen zur Erzeugung von elektrischer Energie - Kraftwerks-Netzanschlussverordnung - KraftNAV	regulates the grid connection of generation facilities with a capacity of 100 megawatts or mor

CHAPTER 5: COMPARISON OF THE LEGISLATION IN TURKEY WITH RED II AND ED 2019

This chapter includes the examination of the alignment of Turkey's legislation under sub-heading 3.2 with the EU acquis of the European Union under sub-heading 3.1.

Renewable energy communities and citizen energy communities, concepts that include energy cooperatives, are widely recognized as energy policy instruments in the EU. The use of community energy as an energy policy instrument is envisaged in the European *acquis*, around RED II and ED 2019. The Directives aim to establish citizen participation in the energy system in national policies and legislation by recognizing renewable energy communities and citizen energy communities by the Member States. Both Directives offer the rationale behind the aim to ensure the use of energy communities as a policy instrument at the national level under their recitals respectively. The two directives draw parallel images, albeit with minor differences. The general framework on energy communities of the Directives can be grouped into the following categories.

- Obligation on the Member States to recognize energy communities.
- Obligation on the Member States to equip energy communities with the rights to participate in the electricity market on an equal footing and without discrimination.
- Obligation on the Member States to carry out an assessment of the existing barriers and potential development of energy communities.
- Obligation on the Member States to establish an enabling framework to ensure the above. Within the scope of this obligation, some mandatory provisions have defined the framework should cover, as well as some provisions that hold suggestive nature, especially for citizen energy communities.

Turkish legislation does not define renewable energy communities or citizen energy communities. On the other hand, the term "renewable energy generation cooperative" is found in the Communiqué No. 24721 on the Foundation and Amendment of Articles of Association and The Determination of the Number of Founding Partners and Operation Areas of Cooperatives and the Unlicensed Electricity

Generation in the Electricity Market By-Law No. 31502. However, the definition of renewable energy generation cooperatives is not included in either of the two legislative sources and the scope of regulation is quite limited: The Communiqué includes two additional requirements for establishing a renewable energy generation cooperative in addition to general requirements for establishing a cooperative. The By-Law provides a special exemption for renewable energy generation cooperatives to carry out the procedures for the unlicensed generation.

It is clear that the recognition of community energy, and energy cooperatives as part of it, the legislation is quite inadequate compared to the expected features of RED II and ED 2019. However, it is also necessary to look at Turkey's policy documents to determine whether Turkey considers community energy, or at least renewable energy generation cooperatives, as a policy instrument. In this context, it can be determined whether Turkey has recognized these instruments in the past, if so, why they have not been functionally activated, and whether they should be included in energy policies in the future.

The Ministry of Customs and Trade (recently, The Ministry of Trade) Directorate General of Cooperatives published the Turkey Cooperative Strategy and Action Plan of 2012 - 2016 (Türkiye Kooperatifçilik Stratejisi ve Eylem Planı 2012-2016) in 2012 aiming at aid to expand the use of cooperatives. Cooperatives in the World and Turkey, Situation Analysis, and Strategic Approach are the three main chapters of the policy paper. Although it briefly recognizes that no cooperative operates in energy generation and sector, unlike example countries, the policy paper does not consist of a strategy or a plan to promote or expand the renewable energy generation cooperatives.

Turkey National Renewable Energy Action Plan of 2011-2020 (Türkiye Ulusal Yenilenebilir Enerji Eylem Planı 2011-2020) is the only policy document that includes the term “renewable energy cooperative”. The plan points out implementing renewable energy cooperatives as a step toward achieving its goal to enhance the utilization of renewable energy sources in Turkey. The plan classifies “implementing renewable energy” as a legal step. While it does not set the timeline for the step, it states the timeline is under consideration and marks its status as a work in progress. The expected outcome of the step is

“providing easy access to finance and a scale advantage in licensed and

unlicensed generation through energy cooperatives."

Table 5. Policy documents include community energy or energy cooperatives in Turkey

Type	Name of Policy Document	Official Gazette	Relevant Points
Strategy and Action Plan	Turkey Cooperative Strategy and Action Plan of 2012 - 2016		The plan recognizes that no cooperative operates in the energy generation and energy sector. However, it does not include a strategy or an action plan regarding energy cooperatives.
Action Plan	Turkey National Renewable Energy Action Plan of 2011-2020	Number: 30840 (bis), Date: 23 July 2019	The plan aims to implement renewable energy cooperatives to achieve its goal to enhance the utilization of renewable energy sources in Turkey.

As can be seen, policy documents recognize renewable energy generation cooperatives to a certain extent, albeit cursorily. However, it is important to note that, unlike other instruments that are broadly defined and planned, the presence of energy cooperatives in the electricity market is not prioritized. In fact, it seems that energy cooperatives are recognized by Turkish policy as a policy instrument, especially where the term is included, although not as widely as others. In contrast, even this cursory acquaintance shows that some steps have been taken to include energy cooperatives in the system.

The first step in this context belongs to the Ministry of Trade and Customs. The General Directorate of Tradesmen, Craftsmen, and Cooperatives, which is authorized to create sample articles of association for cooperatives, has created sample articles of association for the renewable energy generation cooperative based on the Turkey

Cooperative Strategy and Action Plan of 2012 - 2016. (The Ministry of Customs and Trade, n.d.) The sample articles of association provide clues about Turkey's approach to energy cooperatives.

Article 6 of the Sample establishes the objective of renewable energy generation cooperatives as

> *"... to generate electrical energy from renewable energy sources under the relevant legislation on the electricity market to meet the electrical energy needs of its members."*

Further, the Article specifies the activities carried out to accomplish the objective. Under Paragraph 1 of the Article, renewable energy generation cooperatives,

> *"1) by combining the electrical energy consumption in the facilities under the responsibility of itself and its cooperative partners, establishes and operates an unlicensed electricity generation facility or facilities, generates electrical energy from these facilities, and meets the needs of itself and its partners by proxy from the electricity it generates."*

Other paragraphs of the Article include numerous activities aiding to fulfill the objective above. Paragraph 3 to Paragraph 14 of the Article authorizes the renewable energy generation cooperatives to invest and manage the tangible and intangible assets that electricity generation requires. According to these paragraphs, renewable energy generation cooperatives,

> *"3) may purchase, sell, import, use, rent and lease all kinds of machinery, installations, vehicles, devices, tools, equipment, other movable goods, and rights necessary to be used in the generation of electrical energy.*
> *4) determine the generation areas for energy generation, renting, buying and operating facilities. Buy land, field, buildings, and real estate; establishes, build, operate, take over, rent, lease, manufacture, and sell all kinds of facilities.*
> *5) to meet the credit needs of the cooperative, apply to domestic or foreign financial institutions, borrow money, and take measures to ensure that the loan*

is used on time and by its purpose.

6) cooperate with other cooperatives that are in line with its purpose. Become a partner in companies operating in line with its objectives.

7) conduct research for the purpose of the cooperative, receive consultancy services in this regard, train its partners and employ the necessary personnel for this purpose.

8) receive and give mortgages, perform all real estates transactions such as amalgamation, allotment, abandonment, right of easement, and similar transactions, and establish real rights. It can conclude short, medium, and long-term loans.

9) make agreements with domestic and foreign companies, enter into domestic and international tenders, make commitments. Contribute to the administrative and technical organizations of the existing or to-be-established companies in which they participate as a founder.

10) establish partnerships with domestic and foreign commercial organizations operating by the realization of its objectives, participate in established partnerships, buy and sell their stocks and bonds on the condition that it does not act as an intermediary.

11) make industrial and commercial investments within its purpose and activity scope. Acquire, transfer and renounce trademarks, patents, and other industrial property rights related to their purpose and make license agreements on them.

12) acquire industrial, property rights and precedent rights such as permits, concessions, licenses, patents, licenses, know-how trademarks, termination letters, documents, trademarks within the framework of the provisions of the legislation or may transfer them to third parties, lease them, rent them.

13) carry out training, publication, research, and similar activities related to its subject when necessary.

14) can create funds in line with its objectives."

In fact, the sample articles of association include almost all the rights and capabilities that are envisaged to be endowed under RED II and ED 2019 for energy communities to play an active role in the energy market. However, it should be kept in mind that these are only sample articles of association, which is not mandatory. Hence, the rights and capabilities described do not derive from the law or any other source of

legislation. Renewable energy generation cooperatives have not been subject to high-level legal recognition, unlike some other types of cooperatives, such as housing cooperatives and agricultural credit cooperatives, which are recognized by law and other sources of legislation, and subject to extensive regulation.

In addition, it is important to examine how defined renewable energy generation cooperatives can participate in the energy market. The legislation on electricity generation in Turkey has strict characteristics. Accordingly, in order to engage in electricity generation activities, it is necessary to have the relevant license and to be a company with the legal forms specified in the legislation. However, generating electricity in exceptions to these rules is also possible. While there are exceptions available to energy cooperatives, they have been subject to many changes over time.

First of all, this is not the first By-Law on unlicensed generation. The now-defunct By-Law No. 28783 on Unlicensed Electricity Generation in the Electricity Market (Elektrik Piyasasında Lisanssız Elektrik Üretimine İlişkin Yönetmelik No. 28783), published in 2013, was the first By-Law on unlicensed electricity generation in Turkey. Under this By-Law, two types of generation activities opened the way for energy cooperatives to engage in generation activities in the energy market:

> *"c) Generation facilities based on renewable energy resources with an installed capacity of one megawatt or up to the upper limit of installed capacity determined by the Council of Ministers' decision within the framework of Article 14 of the Law,*
>
> *ç) Generation facilities based on renewable energy sources that use all of the energy they generated without giving it to the transmission or distribution system, and whose generation and consumption are at the same measurement point,"* (Article 5(1) of By-Law No. 28783)

Subparagraph (ç) of Article 5(1) of the repealed By-Law was retained in the subsequent amendments and in the new regulation that repealed the regulation. Subparagraph (c) of Article 5(1) of the repealed By-Law is also included in the current By-Law as Subparagraph (c) of Article 5(1). However, unlike the current By-Law, the repealed By-Law recognized subparagraph (c) within the scope of consumption aggregation and relative grid connection principles that were adopted with the amendment that was implemented with By-Law Amending By-Law on Unlicensed

Electricity Generation in the Electricity Market (Elektrik Piyasasında Lisanssız Elektrik Üretimine İlişkin Yönetmelikte Değişiklik Yapılmasına Dair Yönetmelik).

In order to be able to do consumption aggregation under the By-Law, as a rule, it was necessary to be connected to the same connection point or to be able to measure electricity consumption with a single common meter. (Article 23(1) of By-Law No. 28783) However, these conditions were not sought for the consumption aggregation for the facilities established through renewable energy generation cooperatives. (Article 23(7) of By-Law No. 28783) This paved the way for the viability of energy cooperatives.

Moreover, the amendment added a new provision for renewable energy generation cooperatives. This provision was regulated under Article 6(11), stipulating that,

> *"The allocations to be made within the scope of the tenth paragraph for the generation facilities to be established based on renewable energy resources in the consumption aggregation made for the facilities established through the renewable energy generation cooperatives established within the scope of the Cooperatives Law dated 24/4/1969 and numbered 1163 shall be determined in proportion to the number of partners and consumption needs of the renewable energy generation cooperatives established within the scope of the Cooperatives Law dated 24/4/1969 and numbered 1163. In this framework, depending on the number of partners and the installed power of the generation facility associated with each consumption facility shall not exceed 1 MW;*
> *a) Up to 1 MW for cooperatives with up to 100 partners,*
> *b) Up to 2 MW for more than 100 and up to 500 partners,*
> *c) Up to 3 MW for more than 500 and up to 1000 partners,*
> *ç) Up to 5 MW for more than 1000 partners,*
> *allocation can be made."*

The By-Law in force at the moment largely had closed the door to energy cooperatives by excluding the above-mentioned consumption aggregation, which formed the basis for energy cooperatives. Ultimately, the type of generation that actually provided the scope of application for energy cooperatives in the annulled By-Law was out of consideration, as consumption aggregation was limited to state

institutions and organizations in the new By-Law. Given the generation types indicated in both Article 14(1) of the Electricity Market Law No. 6446 and Article 5(1) the Unlicensed Electricity Generation in the Electricity Market By-Law No. 31502 and the characteristics of renewable energy generation cooperatives, energy cooperatives were able to follow only one generation type. This generation type, which also takes place in the annulled By-Law, under Article 14(1)(d) of Law No. 6446 and Article 5(1)(ç) of By-Law No. 31502 is

> *"Generation facilities based on renewable energy sources that use all of the energy they generate without giving it to the transmission or distribution system, and whose generation and consumption are at the same measurement point,"*

A particular consideration in this type is that the electricity generated is consumed at the point of consumption without being fed into the system. In this context, the point of generation and the point of consumption must be connected to the system at the same measurement point. This has been cited in the literature (Biresselioğlu et al., 2021) as one of the biggest obstacles to the functioning of energy cooperatives. However, with Law Amending the Electricity Market Law No. 7257 and Certain Laws ("7257 Elektrik Piyasası Kanunu ile Bazı Kanunlarda Değişiklik Yapılmasına Dair Kanun) published in 2020 and By-Law Amending the Unlicensed Electricity Generation in the Electricity Market By-Law ("Elektrik Piyasasında Lisanssız Elektrik Üretimine İlişkin Yönetmelikte Değişiklik Yapılmasına Dair Yönetmelik) published in 2021, fundamental changes in terms of consumption were made that will also benefit energy cooperatives.

With Law Amending the Electricity Market Law No. 7257 and Certain Laws, a new generation type is defined under Article 5(1). The emerging type recognized under subparagraph (h) is

> *"h) Generation facilities based on renewable energy resources, provided that they are limited to the contract power in the connection agreement."*

In connection with the new generation type, an exception was made to the main condition of consumption aggregation with By-Law Amending the Unlicensed Electricity Generation in the Electricity Market By-Law, which is to be measured with

a single common meter. Under Article 30(1) of the Regulation, it is regulated that generation facilities based on renewable energy resources can be established within the scope of subparagraph (h) of the first paragraph of Article 5, so as not to exceed the contract power of the consumption facilities in the connection agreement. This regulation also provides a favorable environment for energy cooperatives, as it regulates that generation and consumption facilities are not required to be located at the same measurement point, provided that they are located in the same distribution region.

EPDK's announcement dated 22.03.2022 (Enerji Piyasaları Düzenleme Kurulu, 2022) states that the amendments are intended to pave the way for individuals to establish a generation facility at a different measurement point from the consumption point in order to meet their consumption needs. Although the first version of the Regulation, published in 2019, included a short regulation on renewable energy generation cooperatives, it is clear that this version is not functional in terms of promoting energy cooperatives or collective self-consumption. Despite the fact that this announcement does not take energy cooperatives into consideration, it can be interpreted that energy cooperatives will regain momentum thanks to the possibility of generation and consumption from different metering points. Of course, it cannot be said that the recent amendments fulfill the obligation to identify possible barriers and potentials of energy cooperatives by RED II and ED 2019.

Overall, when the Turkish legislation is analyzed with respect to RED II and ED 2019, it becomes clear that it is woefully inadequate. First of all, Turkey does not directly recognize community energy legally, but only within the scope of consumption aggregation that can be realized within the scope of unlicensed generation. Furthermore, the rights and capabilities recognized are only in this context. Community energy is shaped around a cursorily defined term, renewable energy generation cooperatives. In this context, the framework required under RED II and ED 2019 is also non-existent. Moreover, current policy papers do not include community energy or energy cooperatives, suggesting that this situation is unlikely to change in the near future.

CHAPTER 6: COMPARISON OF THE LEGISLATION ON ENERGY COOPERATIVES IN TURKEY AND GERMANY

This chapter includes the comparison of Turkey's legislation under sub-heading 3.2 with Germany's legislation under sub-heading 3.3.

6.1. Establishing an energy cooperative

Neither country's legislation defines a specific establishment procedure for energy cooperatives. Therefore, the establishment of energy cooperatives follows the same procedures as other cooperatives, and the general provisions on cooperatives apply. Cooperatives Law No. 1163 in Turkey and German Cooperative Societies Law (GenG) in Germany are functionally equivalent, serving as the primary source of legislation for cooperatives. These laws set out the general provisions governing cooperatives, including their establishment. The definitions of cooperatives under the laws are shown in the table below. (Table x)

Table 6. Comparison of the definitions of cooperatives under the legislations of Turkey and Germany

TR	DE
"...partnerships with variable partners and variable capital, which are established by real and legal persons to provide and protect certain economic interests of their members, especially their professional or livelihood needs, through mutual assistance, solidarity, and surety with their labor and monetary contributions." (Article 1 of Law No. 1163)	*"companies with a variable number of members whose purpose is to promote the income or economy of their members or their social or cultural interests through joint business operations"* (GenG §1)

The definitions of the two laws are quite similar. While both laws emphasize that the number of members can be variable, Turkish law additionally includes variable capital in the definition. Both laws focus on the economic interests of cooperative members. However, German law also encompasses social and cultural interests. These interests are put on the same level as economic interests. Finally, while Turkish law draws attention to social solidarity in achieving the objective, German law considers

business operations.

The fundamental steps followed in the establishment of cooperatives are the same in both countries. The establishment requires members to sign articles of association, and registration in the relevant registry. However, there are differences in the procedures and the authorities to be consulted.

Turkish legislation details the application process through Law No. 1163 and its extension, Communique No. 24721. The first step is to prepare the articles of association and apply to the Trade Registry Directorate through MERSIS. (Article 5(2)(a) of Communique No. 24721) In practice, sample articles of association prepared by the Ministry are used in general. Ministry of Trade, 2022) After this application, the articles of association are signed by at least 7 persons in the presence of an authorized person at the Trade Registry Office. (Article 5(2)(b) of Communique No. 24721) The next step is to apply to the General Directorate with the signed articles of association and the necessary documents published on the website of the General Directorate according to Article 5(1) of the Law. (Article 5(2)(c) of Communique No. 24721) These documents are,

- Petition and Establishment Information Form, which shows the members of the board of directors and supervisory board
- Bank receipt, indicating that at least 1/4 of the capital has been deposited into a special account to be opened in the name of the cooperative in accordance with Article 4(4) of Law No. 1163.
- Documents showing that Board members meet the requirements (the Ministry of Trade, 2022)

In addition to the above-mentioned documents, there is a special document for renewable energy generation cooperatives. The necessity of this document is required by Article 12(1) of the Communiqué:

> *"(1) Renewable energy generation cooperatives shall be established by electricity consumption subscribers in the same distribution region and in the same tariff group."*

The following document is requested for the proof of the matter shown in the relevant article.

- Subscriber Certificates of the members, which shows that members are able to

aggregate consumption within the scope of unlicensed electricity generation in order for the cooperative to achieve its purpose.

Upon the approval of the application by the General Directorate, the documents are sent to the Provincial Directorate of Trade where the cooperative is established for the registration of the cooperative in the trade registry.

The German legislation provides for a system whereby the local court examines the application and, if deemed appropriate, registers the cooperative in the decentralized registry. According to § 11 of GenG, documents to be submitted with the application are,

- Signed articles of association
- A document shows the members' appointment of the Board of Directors and the Supervisory Board
- The certificate of an auditing association that the cooperative has been admitted to membership
- Expert opinion of the auditing association as to whether the personal or economic circumstances, in particular the financial situation of the cooperative, are likely to endanger the interests of the members or creditors of the cooperative.

The application is submitted electronically through a notary public in accordance with §12 of HGB.

The noteworthy issue at this point is the membership in the audit association and the expert opinion to be provided by the association. The cooperative must demonstrate to the auditing association that it is in good financial standing and will not cause harm to members and creditors. For this, the cooperative will need to create a business plan and liquidity plan. In addition, since sample articles of association are not available in Germany as in Turkey, the articles of association will have to be specially drafted for each case. However, it is possible to examine the articles of association of existing cooperatives. In this context, as pre-registration procedures, it will be necessary to prepare the articles of association, become a member of the supervisory union, and prepare a business plan and liquidity plan to be submitted to the supervisory union for its opinion.

Figure 2 illustrates the procedures for establishing energy cooperatives in Turkey, while Figure 3 illustrates the procedures for establishing energy cooperatives in Germany. Also, Table x shows the elements of the establishment phase of energy

cooperatives in the two countries.

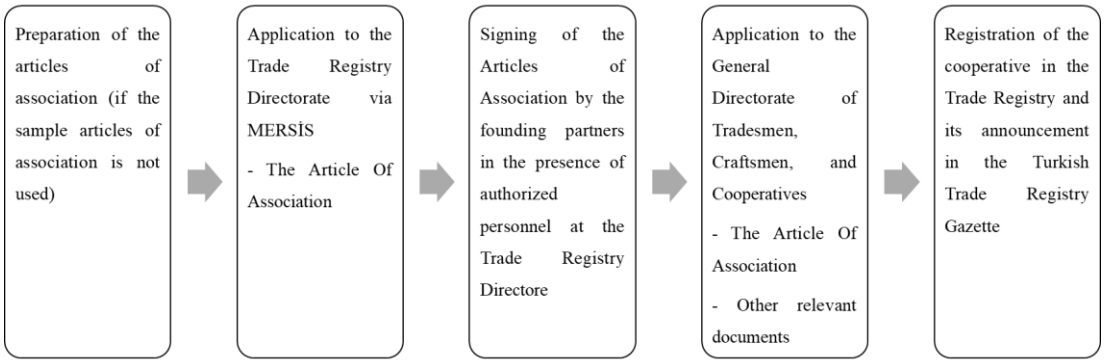

Figure 2. Procedures for the establishment of cooperatives in Turkey

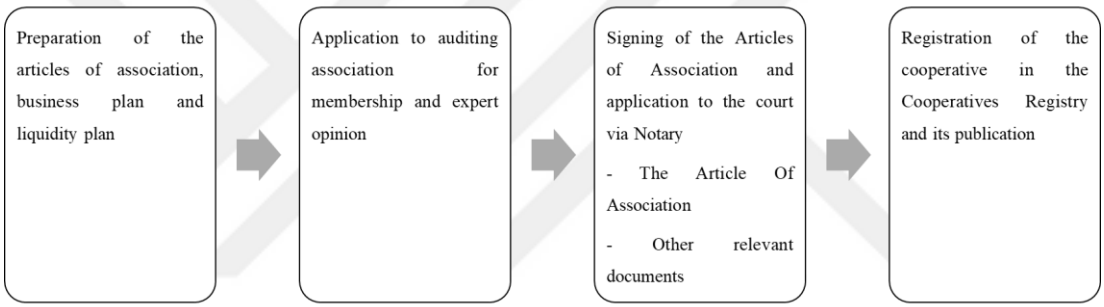

Figure 3. Procedures for the establishment of cooperatives in Germany

Table 7. Comparison of the establishment process under the legislations of Turkey and Germany

	TR	DE
Minimum number of members required to sign the Articles of Association	7	3
Required documents	● Signed articles of association ● Petition and Establishment Information Form ● Bank receipt	● Signed articles of association ● Documents showing the appointments of the Board of Directors and the

Table 5 (Continued). Comparison of the establishment process under the legislations of Turkey and Germany

	● Documents showing that Board members meet the requirements ● Subscriber Certificates	Supervisory Board ● The certificate of an auditing association membership ● Expert opinion of the auditing association
Authority(ies)	the Directorate General of Tradesmen, Craftsmen and Cooperatives of the Ministry of Trade the Trade Registry Directorate (in the province where the cooperative is established)	the Register Court (in whose district the cooperative has its registered office)
Registry	*Türkiye Ticaret Sicili* (Trade Registry of Turkey)	*Genossenschaftsregister* (Cooperatives Registry)

The first notable difference in the legislation of the two countries on the subject is the difference in the number of founding members. Germany reduced the number of founding members from seven to three in 2006 to facilitate the establishment of cooperatives. However, this number is still seven in Turkish legislation.

Under Turkish legislation, energy cooperatives can only exist as a system that consumes what it generates from renewable energy sources. Under German law, however, the situation is different. Energy cooperatives show a wide spectrum along the energy supply chain. Energy cooperatives offer different examples in terms of the type of energy generated, the type of generation, the type of distribution, the fields of activity. In this regard, examples such as consumer cooperatives, energy services cooperatives, and generation cooperatives can be seen. (Moldenhauer and Blome-Drees, 2020)

Another issue is the cooperative's membership in an auditing association and obtaining expert opinions from this association. This practice does not exist in Turkey. While the duties and powers of the Directorate General of Tradesmen, Craftsmen, and Cooperatives in Turkey are shared between the auditing association and the district court in Germany, the duties and powers of the Trade Registry Directorate are assumed

by the district court. Compulsory membership in a cooperative auditing association, as well as the monopoly of cooperative auditing federations to perform cooperative audits and their costs, are the principal barriers to the establishment of new cooperatives. (Münkner, 2013)

6.2. Implementing of projects by energy cooperatives

The main legislative sources of the electricity sector in Turkey are Electricity Market Law No. 6446, Law No. 5346 on the Use of Renewable Energy Resources for the Purpose of Electricity Generation, Unlicensed Electricity Generation in the Electricity Market By-Law No. 31502. The functional equivalents of these laws under German legislation that regulate the electricity market are, Energy Industry Law (EnWG), Renewable Energy Sources Law (EEG). Provisions within the scope of these legislative sources and other related legislation are analyzed under the headings specified under the SCA.

6.2.1. Competence to operate in the market

In order to operate in the electricity market in Turkey, it is necessary to obtain a license indicating competence in the relevant activity and to have a legal personality in the form of a joint stock company or limited liability company. Electricity generation is among these activities. (Article 4 of Law No. 6446) However, it is exceptionally possible to operate without meeting these requirements under certain conditions. (Article 14 of Law No. 6446) Energy cooperatives can only engage in electricity generation activities under these exemptions. The electricity generated within the scope of unlicensed generation must be utilized within the scope of self-consumption. In this context, as a rule, a consumption point must be associated with a generation point, and in this context, the generation and consumption point must be located within the same distribution region. (Article 5(5) of By-Law No. 31502) Energy cooperatives can only engage in electricity generation activities under these exemptions and are only based on renewable energy sources. In the meantime, these generation activities are only possible if certain conditions are met. First generation type (Article 14(1)(d) of Law No. 6446; Article 5(1)(ç) of By-Law No. 31502) requires,

- using all of the energy it generates without giving it to the transmission or distribution system

- generation and consumption are at the same measurement point.

In addition, consumption aggregation is required to link generation with multiple consumption points. For this purpose, a generation facility or facilities can be established by consumption aggregation for the electricity consumed in the facilities belonging to one or more real and/or legal persons whose electrical energy consumption can be measured with a single common meter. (Article 29 of By-Law No. 31502) However, if the consumption points are in the same distribution region, the requirement for a common measurement point, if the generation facility is being established within the scope of Article 5(1)(h) of By-Law No. 31502. (Article 30 of By-Law No. 31502) The only requirement in this regard is that the generation facility should not exceed the contractual capacity of the relevant consumption facilities in the connection agreement. On the other hand, in Germany, electricity generation is not subject to specific legal forms or a licensing system under energy legislation. All energy cooperatives established for the purpose of electricity generation under their articles of association, established in accordance with the procedures and registered in the registry, are authorized to generate electricity. As can be seen, electricity generation by energy cooperatives in Turkey is an exception to the main rules. In Germany, however, electricity generation by energy cooperatives is allowed as part of the main rules.

In addition, carrying out transmission and distribution activities are subject to a license. However, there is no requirement to have a specific legal form. In Germany, energy cooperatives are authorized to install and operate transmission and distribution networks, provided that they obtain the relevant license.

6.2.2. Generation, Grid Connection and System Use

The permits required for the construction and production of the plant are different, as energy cooperatives can carry out generation activities exceptionally in Turkey and as the main rule in Germany. The fact that energy cooperatives are exceptionally able to carry out generation activities in Turkey means that they are not subject to the complexity and requirements of the main procedures. In fact, energy cooperatives are even required to obtain the necessary permits for construction and generation under the energy legislation during system connection and utilization procedures. Apart from this, the necessary procedures are the environmental impact assessment report and obtaining the necessary permits required by the legislation on

construction.

On the other hand, energy cooperatives in Germany are subject to the same requirements and procedures as all other actors in order to construct a facility and generate electricity, meaning they have to follow a complex system and compliance with many laws. It can be interpreted that the fact that energy cooperatives in Turkey can generate electricity without a license is beneficial in terms of energy cooperatives not fulfilling the licensing procedures that require a long and complex bureaucratic process. However, this means that energy cooperatives can only produce under certain conditions, and may not reach their full potential.

Depending on the generation technology and the renewable energy source, different utility-scale renewable energy projects have different building and operating requirements in Germany under different areas of law. A process similar to the licensing process defined under the Electricity Market Law, in the context of electricity legislation in Turkey, is offered in Germany under the Federal Immission Control Law within the scope of environmental law. However, it should be reiterated that in Turkey, the ability of energy cooperatives to engage in generation is exceptional, and energy cooperatives are exempt from obtaining the license required to carry out generation activities. In this respect, the construction and generation of facilities based on wind and biomass facilities at certain scales present a far more challenging framework in Germany than in Turkey.

Apart from that, the size of the project or the generation capacity in Turkey does not change the procedures and mostly derives from the electricity legislation, specifically from unlicensed generation. However, in Germany, the processes and requirements arising from the environment, and construction legislation vary according to the size and generation capacity of the plant. The establishment and operation of an unlicensed energy facility in Turkey will require the necessary permits, construction permits under the relevant legislation, environmental impact assessment, if required, and technical assessment, specific to wind and solar energy. In Germany, however, different requirements appear depending on the type of energy. The Federal Immission Control Law requires a permit for the building and operation of onshore wind installations. For projects involving 20 or more wind turbines, a detailed environmental impact study, as well as a public involvement approach, are usually necessary. According to the Federal Building Law and the Building Laws of the Federal States, solar power plants require a building permit. They must, in particular,

adhere to regional and land-use planning. Hydroelectricity and geothermal energy require additional permits to use the sources.

6.2.3. Transmission and distribution

Since energy cooperatives in Turkey are not qualified to carry out transmission and distribution activities, no legislation has been obtained under the SCA. Therefore, a comparison with the German legislation could not be conducted. At this point, the old versions of the Turkish electricity legislation were also reviewed and it was observed that energy cooperatives in Turkey have not been able to operate in these fields from the very beginning of the liberalization of the market.

The review of the German legislation reveals that similar to generation, Germany does not provide any special treatment for energy cooperatives in transmission and distribution. Energy cooperatives are on an equal footing with all other actors. In this context, in order for energy cooperatives to be able to carry out transmission and distribution activities in Germany, like all other actors, must follow the procedures set under electricity legislation.

6.3. Incentives and subsidies

Energy cooperatives in both countries have access to some incentives in generation. These incentives stem from the promotion of renewable energy generation. In Turkey, the FIT for renewable energies, which can also be enjoyed by energy cooperatives, originates from Electricity Market Law No. 6446, which states that unlicensed electricity generation is also covered, and is regulated under Law No. 5246 on the Use of Renewable Energy Resources for the Purpose of Electric Energy Generation. Energy cooperatives can sell surplus electricity to the system for 10 years at a price determined by the President of the Republic.

The EEG is the primary law used to encourage the purchase and selling of energy derived from renewable sources. It includes a system of remuneration for electricity generated via renewable energy in particular. A so-called market premium for power supplied to the grid may be used to compensate renewable energy facilities. However, the market premium will pay the operator for the discrepancy between the market price of electricity and the nominal value of the market premium. The operators must continue to sell the electricity directly on the electricity market. Tendering methods are used to identify the renewable energy eligible for compensation as well as the

nominal value of the market premium. Starting on the date of the specific facility's commissioning and continuing for 20 years, the market premium will be paid. Statutory fixed feed-in rates are only permitted in extreme cases, such as for small or elderly plants.

German energy cooperatives saw a surge beginning in 2006 when GenG was amended to make it easier to form new cooperatives. However, more importantly, changes in the market effectiveness of energy cooperatives in Germany over time have been particularly influenced by changes in support mechanisms. EEG provided FITs as a basis for many of the newly established energy cooperatives' projects via creating a funding for them. (Klagge and Meister, 2018)

The 2014 EEG amendment resulted in the phase-out of FITs and the implementation of auctions and tender procedures for renewable power production, rendering the most significant (FIT-based) business plan of many small(er) companies, such as energy cooperatives, unworkable. Rather, the requirement to engage in auctions and tender procedures exposes companies to greater transaction costs, increased financial risk, and new challenges. Not unexpectedly, this marks the end of Germany's energy cooperative boom. (Klagge et al. 2016; Klagge and Meister, 2018) The impact of this situation on the number of energy cooperatives established by year can be seen in the figure below. As can be seen, support mechanisms are of great importance.

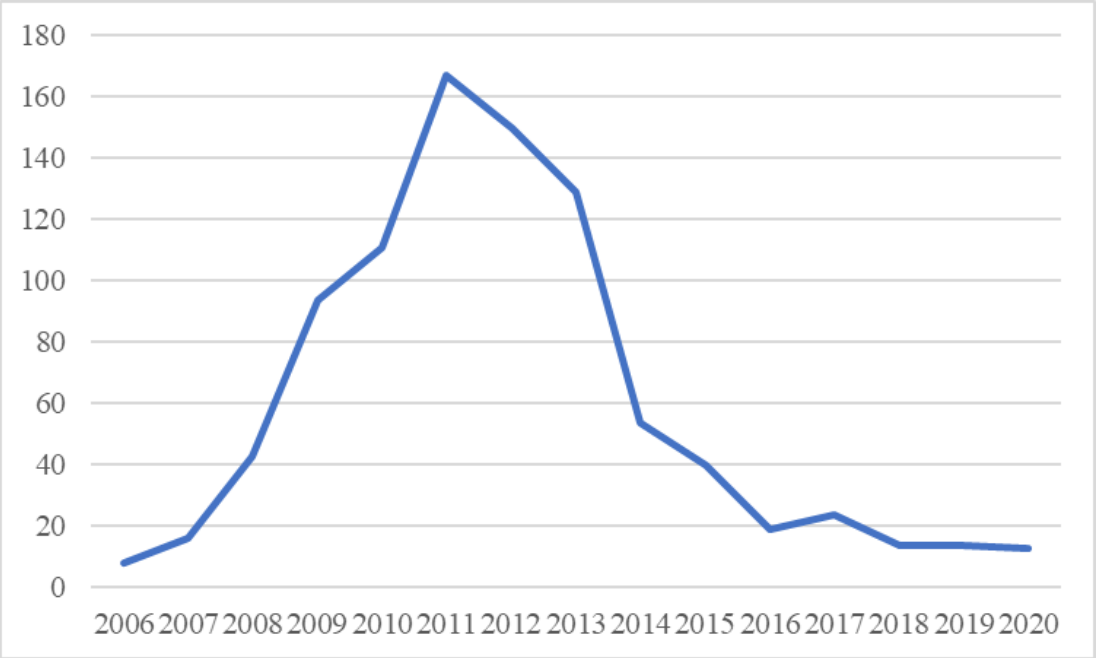

Figure 4. Number of energy cooperatives established in Germany by year (2006-2020) (Source: DGRV, 2022)

On the other hand, Turkey's transition to Lira under the FIT system also had a negative impact. The adjustment of the mechanism in the Lira has led to a significant reduction in payments. It is foreseeable that this gap will widen with the depreciation of the Lira. Prices determined by Presidential Decision No:1044 and previous prices within the scope of the YEKDEM are shown in the table below.

Table 8. Feed-in-tariff prices in Turkey

Type of source	YEKDEM prices until 30.06.2021 (USD/CENT)	YEKDEM prices after 30.06.2021 (TRY/KRŞ)
Biomass	0.133	0.32 / 0.50 / 0.54 (depending on the type)
Solar	0.133	0.32
Hydroelectricity	0.073	0.40
Wind	0.073	0.32
Geothermal	0.105	0.54

The mechanisms of the two countries create the same negativity for different

reasons. Mechanisms for supporting energy cooperatives need to be designed specifically for groups that are disadvantaged in the market relative to other legal forms.

CHAPTER 7: CONCLUSION AND RECOMMENDATIONS FOR THE LEGISLATION OF TURKEY

As an energy policy instrument, energy cooperatives offer many opportunities to support decentralized generation, provide an alternative form of project funding, and provide citizens with access to cheap and affordable electricity. With RED II and ED 2019, the European Union has introduced broader terms covering energy cooperatives, namely renewable energy communities and citizen energy communities, with the aim of enabling the Member States to take advantage of these opportunities by adopting these concepts politically and legally. As a candidate country, or as a country in close relations with the European Union, a country that has received and expects to receive large investments from the European Union, Turkey's harmonization with the European Union acquis has been a priority objective. Even if not for these, the steps Turkey has taken on climate change by signing the Paris Agreement, reducing emissions from the energy sector, and turning to renewable energy as an energy-dependent country also require the adoption of new policy instruments. In this context, the adoption of the energy communities' concepts presented under RED II and ED 2019 will provide multifaceted benefits for Turkey.

When RED II and ED 2019 are analyzed, the expectations to be met by member states can be grouped as follows:

- renewable energy communities and citizen energy communities are recognized and adopted as policy instruments
- identifying barriers and potentials for energy communities
- establishing a framework to ensure the adoption of energy communities as a policy instrument, the removal of obstacles that hinder their implementation and development, and the utilization of their potential

The review of Turkish legislation under RED II and ED 2019 reveals that none of the requirements or recommendations are met, except for cursory regulations on energy cooperatives. Despite its opportunities, Turkey has not embraced citizen energy as a priority policy, which is evident by considering the amendments in recent years and policy documents. Currently, only energy cooperatives can claim a presence in the electricity market. Additionally, Turkish electricity market legislation imposes stringent requirements for operating in the market. Among these stringent

requirements, energy cooperatives are only allowed to generate electricity primarily for self-consumption, provided they meet certain conditions. In this context, in order for Turkey to comply with RED II and ED 2019, it will be necessary to recognize and include energy communities in its policies, identify the barriers and potentials hindering their development, and implement a framework to this end. In particular, it is necessary to take into account the rights of energy communities and their capabilities in the electricity market, which are envisaged to be granted under RED II and ED 2019. Providing these rights and capacities would be essential for the policy adoption of citizen energy. Energy cooperatives as a form of energy community will also need to be reviewed in this context. In addition, it is also evident that the granting of the ability to operate distribution lines, which is presented as a proposal under citizen energy communities, could provide a solution to the distribution system in Turkey, which, following the liberalization of the grids, has presented the characteristics of a regional monopoly by a small number of companies.

As analyzed in Chapter 5, Turkey, compared to RED II and ED 2019, does not fulfill almost any of the requirements of the Directives. In order to align with the EU acquis, almost all of the provisions for community energy under RED II and ED 2019 will need to be recreated from scratch. RED II and ED 2019 are recommendations and requirements to be fulfilled by member states. The requirements for energy communities are assessed in terms of energy cooperatives, a type of energy community practice, and the focus of this thesis. The issues proposed to be legally adopted by Turkey within the scope of the thesis are stated below.

- Turkey should legally recognize and incorporate renewable energy communities and citizen energy communities into its policies. In Turkish legislation, there are types of cooperatives (agricultural sales cooperatives, agricultural credit cooperatives) at the level of special law, and there are also types of cooperatives (building cooperatives) that are broadly defined in the law on cooperatives and expanded through secondary law sources. Considering the German example, it is recommended that the Cooperatives Law be amended to recognize energy cooperatives. In addition, energy cooperatives need to be integrated into policy papers on energy and cooperatives. Beyond fulfilling the requirements as a candidate country, the inclusion of energy communities in policy and legislation will assist Turkey in achieving its energy and climate goals.

●The capabilities shown in the sample articles of association of the renewable energy generation cooperatives should be recognized under the law or secondary legislation sources for energy communities. It is recommended that these changes be recognized through a new secondary source of law (By-Law) under the Cooperatives Law, as well as through amendments to the Electricity Market Law and By-Law on Unlicensed Electricity Generation in the Electricity Market within the scope of electricity legislation. In fact, this would provide most of the rights that energy communities are envisaged to have in the energy market under RED II and ED 2019. These rights are already exercised by renewable energy generation cooperatives.

●Energy cooperatives should be organized in such a way that all citizens, especially the disadvantaged, can participate. This is essentially ensured by the legal guarantee of participation in cooperatives under the Cooperatives Law. However, in order to ensure that the process of establishing and running energy cooperatives is conducive to participation, the proposed By-law should take this into consideration.

●The rights of citizens participating in energy cooperatives as consumers in the energy market need to be secured. The Electricity Market Law also contains regulations to ensure that consumers benefit from more comprehensive legal protection while Law No. 6502 on the Protection of Consumers ("6502 sayılı Tüketicileri Koruma Kanunu"), which is a general law on the protection of consumers, exists.

●Financial and information support should be provided and some regulations should be made in this regard. In this context, a financial mechanism needs to be established. In Turkish legislation, incentives are regulated in Law on the Utilization of Renewable Energy Resources for Electricity Generation within the scope of generation. Although it is possible that energy cooperatives can also benefit from this Law to a certain extent, the financial support provided is not sufficient. Creating more favorable FIT prices for energy cooperatives is an important part of supporting energy cooperatives. In this context, it is recommended that the law be improved in favor of energy cooperatives in terms of FIT.

●Within the scope of the unlicensed generation legislation, it should be ensured that the regulations envisaging the use of the distribution system also

cover energy communities. Changes should be made so that distribution systems can be realized by energy cooperatives. Accordingly, the Electricity Law should be amended to exempt energy cooperatives from the conditions for carrying out distribution activities. Although it is a suggestion under ED 2019, it would also serve as a solution instrument to the regional monopoly system in Turkey.

It should be noted that harmonization with the EU acquis has dimensions beyond those suggested above. To ensure harmonization, the standards set by the EU, within the framework of EU principles, need to be met across the legal and administrative system. In this respect, certain system-wide conditions will need to be met in order to achieve the recommendations shared above in this thesis. As in all other markets, it is necessary to ensure liberal market characteristics and create an environment of free competition in the electricity market. In particular, this arises from the need for cooperatives not to be discriminated against in the market and to have equal rights and conditions with other actors. It is also necessary to mention fundamental principles such as the rule of law. In addition to the ability of cooperatives to act in the market, this principle will also underpin the principle that membership in cooperatives should not be detrimental to the rights of individuals. In the annual assessments carried out by the EU Commission, Turkey does not appear to have taken sufficient steps in these areas, and even seems to have regressed over the years. The Commission's report recognizes that there has been a clear backsliding, particularly with regard to the rule of law, and that action is needed. Therefore, in addition to the steps proposed to be taken by Turkey within the scope of the legislation, the principles required by the steps should also be taken into consideration as a whole and necessary arrangements should be made.

In contrast to Turkey, Germany offers a pioneering characteristic where energy cooperatives are actively involved in the electricity market. In both countries, the process of establishing an energy cooperative is similar in the sense that it is considered within the framework of general cooperative framework legislation, with the exception of minor specific requirements. In fact, as noted in the literature, the membership of cooperatives in Germany in the auditing organizations and the work required to be submitted to the auditing organizations for expert opinion for the establishment are highly obstructive. While it is professionally beneficial to ensure that a financial system is in place that will not harm members and creditors, such as providing a

business plan and liquidity plan, the Turkish system places a burden on cooperatives during the establishment phase. On the other hand, Germany is more advanced than Turkey in terms of the capability of energy cooperatives in the electricity market. Perhaps the most significant outcome of the thesis is the identification of energy cooperatives as a mainstay in the German electricity market, whereas in Turkey they are only exceptionally present in electricity generation. It is clear that the amendments in the unlicensed electricity generation legislation in 2019, which is cited in the literature as a reason for the inability of renewable energy generation cooperatives to function, were largely eliminated with the amendments in 2021. In this respect, the effectiveness of energy cooperatives in Turkey can be expected to increase. However, considering the period before 2019, it would be wrong to attribute the stagnation of energy cooperatives entirely to regulatory issues. In contrast to Turkey's practice of restricting the ability to operate in the electricity market to joint stock and limited liability companies, Germany allows energy cooperatives to exist in the electricity market on an equal footing with other legal forms. In fact, Germany does not have any legal framework to strengthen energy cooperatives in particular. Energy cooperatives are no different from other legal forms in German legislation in terms of carrying out activities such as generation, transmission and distribution. Energy cooperatives do not have any advantages in obtaining permission to carry out these activities, in the installation of facilities or lines, or in the operation of the activities. Despite Germany's procedures in the electricity market, which can be quite demanding for any actor, this expands the range of roles that energy cooperatives play in the electricity market and ensures that energy cooperatives have an active presence in the electricity market.

In addition, one of the biggest lessons for Turkey relates to changes in Germany's renewable energy incentive system. Notwithstanding its pioneering stance on this issue, changes to the feed-in-tariff system under the EEG in 2014 have led to a slowdown in energy cooperatives in Germany. This illustrates the importance of taking energy cooperatives into account in the design of support mechanisms in the electricity market, in particular the legal facilitation of financing. In a similar situation, Turkey's previously Dollar-denominated FIT system is now Lira-denominated, and while fewer payments are currently being made, the devaluation of the Lira means that in a dollar-denominated market, one of the largest revenues for energy cooperatives will be lost. In this case, it can be interpreted that while the amendments introduced in 2021 will lead to an increase in the number of energy cooperatives in Turkey, the number of

projects realized by energy cooperatives will not increase at the same rate.

Turkish and German legislation is compared in Chapter 6. The recommendations identified for Turkey as a result of this comparison are listed below.

- There are aspects of the current legislation where the competent authority, in particular, has not been updated. All legislation should incorporate the changes brought about by the presidential system and the changes experienced at the ministerial level.

- A system similar to the involvement of audit institutions in the establishment and operation of energy cooperatives in Germany could be adopted. With regard to the establishment of energy cooperatives, the only thing that can be exemplified in Germany is the membership and supervision of the cooperatives by an auditing organization. Although this is seen as a barrier in the literature, it could provide a more professional basis for cooperatives. With this system, members and creditors will be financially guaranteed, which will be beneficial in increasing the number of members and finding financing for projects. If a similar system were to be implemented in Turkey, an assessment of the benefits and drawbacks could be made and a similar system could be adopted. In this context, it is recommended that the Cooperatives Law should recognize supervisory bodies and ensure that cooperatives are subject to these supervisory bodies during the establishment and operation phases.

- Energy cooperatives, like limited liability and joint stock companies, should be allowed to carry out all activities in the electricity market. The biggest lesson of the German system is that energy cooperatives have been integrated into a functioning market without any legal advantages or disadvantages. In this respect, Turkey can incorporate energy cooperatives into its market without any major legal changes. The most important obstacle to a more active role for energy cooperatives in Turkey is that, unlike energy cooperatives in Germany, energy cooperatives have a very narrow scope. Energy cooperatives can only generate electricity limited to the sum of their member's consumption contracts in the same distribution region, or provided that their members and generation are located at the same measurement point. This means that energy cooperatives can only generate electricity for self-consumption. The ability of energy cooperatives to fulfill the full range of activities will make them more useful as a policy instrument in a wider area. It should be ensured that energy cooperatives

produce beyond self-consumption and are not limited to a single metering point or distribution region. In addition, especially energy cooperatives' distribution activities will have a positive impact on the electricity market, given the characteristics of distribution systems in Turkey. In this context, the Electricity Market Law should be amended to authorize energy cooperatives to carry out other related activities.

- A framework should be established to facilitate the implementation of energy cooperatives' projects, including the proposed expansion of the scope of generation. Although the scenarios for energy cooperatives to generate electricity in Turkey are few, they are more easily realized than in Germany. In addition, in Turkey, energy cooperatives would be required to obtain a license as defined under the Electricity Market Law to carry out all activities in the energy market. In this context, an approach that helps energy cooperatives facilitate project implementation could be determined by considering the market functioning while allowing them to carry out other activities.
- Financial instruments should be created to support energy cooperatives. As can be seen in the case of Germany, the FIT system is particularly important in supporting energy cooperatives. The activity of energy cooperatives in the energy market in Germany has varied according to the changes in the FIT legislation. In Turkey, structuring the FIT system to operate through the lira may be insufficient to support energy cooperatives in their current form. As mentioned earlier, the Law on the Utilization of Renewable Energy Resources for Electricity Generation should be updated in favor of energy cooperatives.

Many conclusions can be drawn from the combination of these two situations. First of all, Turkey, as an EU candidate and considering the benefits, needs to include energy communities in its policies and take action in this direction. In this context, it is favorable for Turkey to ensure that energy communities have the rights and capabilities shown in RED II and ED 2019, and to establish a legal framework by evaluating the problems they may face if they are included in the legal system. In addition, the comparison with Germany did not reveal any setbacks in the establishment of energy cooperatives. However, in order to ensure more robust development, the financial foundations of energy cooperatives, such as business plans and liquidity plans, should be more solidly established. In addition, the ability of energy cooperatives to operate in the energy market has been found to be quite limited

compared to Germany. It is recommended that Turkey recognize energy cooperatives as a policy instrument and create a legal environment in which they can engage in activities other than generation. In particular, ensuring that they are competent in transmission and distribution will enable these systems, which are driven by monopolies at the time, to operate more efficiently in competition.

At this point, there is no system that has been applied specifically to energy cooperatives in Germany and is proposed for legal transplant to Turkey. In other words, the operation of energy cooperatives in Germany is not regulated differently from other legal forms. As in the case of Germany, it would be beneficial for the functioning of the market to ensure that energy cooperatives are included in the existing system as much as other actors. In this respect, the main recommendation is to extend the requirement to establish a joint stock or limited liability company in order to operate in the electricity market to cooperatives. It is also possible for Turkey to provide energy cooperatives with special arrangements tailored to Turkey's market characteristics. In particular, steps will need to be taken to provide financial resources to energy cooperatives, drawing on the example of the ups and downs of energy cooperatives in Germany over time.

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