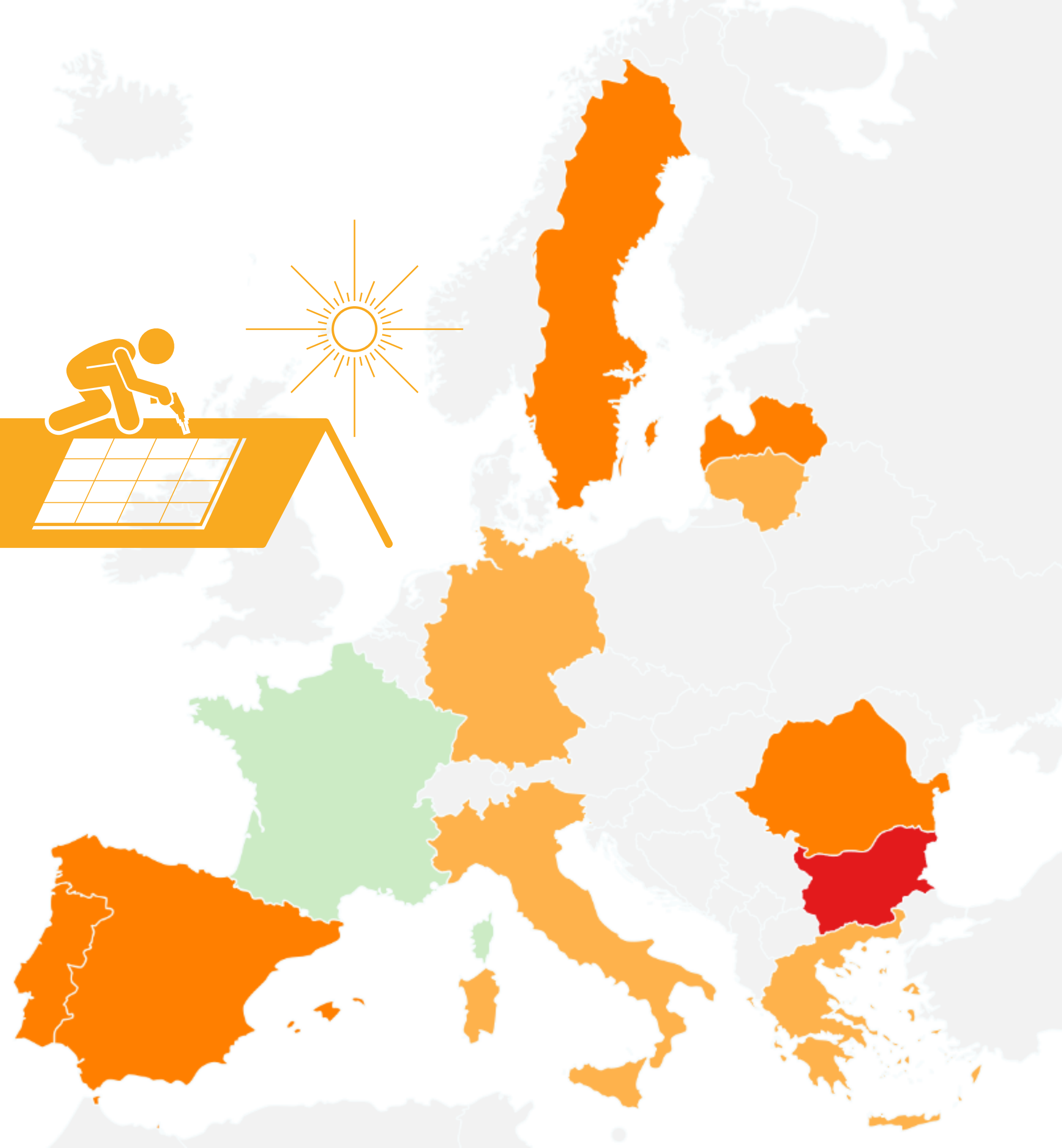




# Rooftop Solar PV Country Profiles

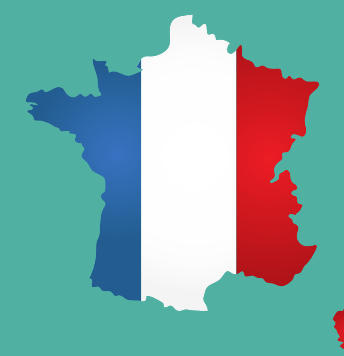
*April 2024*



# Rooftop Solar PV Country Profiles



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# Rooftop Solar PV Country Profiles

## Methodology

The country profiles highlight the good and the bad policies and practices of solar rooftop PV development in each of the eleven analysed countries.

It examines and scores six key areas of governmental performance: governance, incentives & support schemes, permitting procedures, energy sharing schemes, energy communities and additional measures to support solar PV development, regardless of the real uptake and deployment of rooftop solar development in each country.

The scoring is based on a qualitative approach used for communication purposes which incorporates the input and perceptions of national CAN Europe organizations that participated in the report, with some readjustments to ensure comparability and balance between country profiles. It does not in any case attempt to establish an objective quantitative comparability in the performance of the analyzed member states. It takes as a reference the scores of the report published in May 2022. So, progress towards better scoring should be the general rule in most of the countries. However, in some cases, regression is possible due to lack of advancement in areas where progress should be expected taking into account current circumstances of support to rooftop solar PV at European level.

Overall  
Score

7



2022  
Score

4




## Summary

Although there is a slight improvement, Bulgaria still remains the worst performing country in the EU when it comes to the rollout of rooftop solar PVs. Bulgaria's government outlines plans for renewable energy, yet lacks concrete strategies for rooftop solar installations despite the country's high solar potential. While a draft strategy exists, it lacks support for decentralised renewable projects. Incentives do include a solar rebate scheme, but bureaucratic hurdles limit its effectiveness, and recent legislative changes affect surplus energy purchase. Complex permitting procedures hinder small-scale solar adoption, with most installations happening on the ground. Although energy sharing and community initiatives are mentioned in legislation, specifics are lacking. The Renewable Sources Act introduces definitions for energy communities but lacks safeguards against corporate influence. Further actions are needed from the Ministry of Energy to address these issues and promote the development of rooftop solar across Bulgaria.

## Scoring System

This country profile highlights the good and the bad policies and practices of solar rooftop PV development within Bulgaria. It examines and scores six key areas: governance, incentives & support schemes, permitting procedures, energy sharing schemes, energy communities and additional measures to support solar PV development. For this update, we will have the 2022 score to the right as a benchmark:

The scoring system is set out below:

-  Green = 4-5 points
-  Orange = 2-3 points
-  Red = 0-1 points



## Country Profile Bulgaria



## The Good



**Renewable Energy Goals:** A draft strategy for sustainable energy development in Bulgaria until 2030, with a scope towards 2050, has been elaborated, indicating a commitment to transitioning towards sustainable energy sources.



**Solar Rebate Scheme:** The government has launched a solar rebate scheme of €30 million to encourage households to adopt rooftop solar PV systems.



**Legislative Changes:** Recent legislative changes have eased rules for rooftop solar installations, removing the need for construction permits and streamlining the process, potentially facilitating greater adoption.



**Recognition of Energy Communities:** The Renewable Sources Act of 2023 recognises the concept of energy communities and prosumers.



## Country Profile Bulgaria



## The Bad



**Lack of Concrete Planning:** Despite setting renewable energy targets, there is a lack of specific plans or roadmaps for rooftop solar installations as Bulgaria's solar target remains low. PV will only account for 2.6% of electricity production in 2040.



**Bureaucratic Hurdles:** Complaints about bureaucratic processes and excessive requirements for incentive programs suggest that administrative barriers may hinder participation in renewable energy initiatives.



**Complex Permitting Procedures:** Complicated permitting procedures for solar installations, though recently eased, have historically been a barrier to small-scale solar adoption, potentially limiting progress towards renewable energy goals.



**Lack of Specifics in Legislation:** While legislation mentions energy communities, there is a lack of specific details or safeguards to ensure their effectiveness and prevent corporate influence, potentially hindering their development and impact.

**2024 : Governance 1**

**2022 Score : 1**

The Bulgarian NECP in force for 2021-2030 foresees the development of the RES sector to 27%, but it does not set a meaningful roadmap or plan for rooftop installations. In fact, Bulgaria's solar target remains low as PV will only account for 2.6% of electricity production in 2040. Yet Bulgaria benefits from high irradiation rates, notably in the south of the country, and has an important solar potential, which is not reflected in the current target<sup>1</sup>. The first revised NECP draft was published late (December 2023), and yet contains no data on concrete numbers. The modeling of how different scenarios will impact the development of the energy sector and the whole industry was also not included. It is mentioned that by March 2024, the modeling will be presented.

A draft strategy for sustainable energy development for the Republic of Bulgaria until 2030, with a scope towards 2050, has been elaborated, which reflects the ideas and policies of the state for the development of the energy sector. Yet it does not contain any solid approaches supporting the development of renewable energy projects for self consumption, even though it mentions the concept of “decentralized ownership of the electrical grid” which is a new approach.

1. <https://www.solarpowereurope.org/advocacy/national-energy-and-climate-plans>



## 2024 : Incentives 1

2022 Score : 2

In 2023, the Ministry of Energy launched a solar rebate scheme with 30M Euros to help households reduce their carbon footprint and lower their electricity bills. Homeowners can apply for financial support for the installation of rooftop solar PV systems of up to 10 kWp, which may be paired with battery energy storage systems. The PV systems no larger than 10 kWp will be financed up to 70% with the maximum sum of BGN 15,000. In order to receive funding, households must be the applicant's permanent place of residence.<sup>2</sup> However, there are complaints about the whole procedure being too bureaucratic and some of the requirements being excessive, so few people have applied. The second stage from this program is expected to be developed in 2024 with prioritization for energy poor households.

There is a feed-in tariff defined by the Regulator annually. When the energy is also used for self consumption, the excesses dispatched to the grid are purchased at a price equal to the forecast market price defined by the regulator for such installations. However the recent revision of the Renewable Sources Act in 2023<sup>3</sup> has removed the obligation for the Distribution System Operators (DSO) to purchase the surplus energy produced by the prosumers. As a result, many contracts between the DSOs and the prosumers have been discontinued without any notice. Even with the existence of these incentives, there are still not many small rooftop PV projects developed in recent years benefiting from the feed-in tariff and most of the installations are developed mainly by professionals or people who have experience in the business sector, not by customers who lack the necessary knowledge or expertise.

The procedures with public authorities for EU funding is usually administratively burdensome and many businesses prefer to opt out of those. They lack publicity and transparency. On the other hand, the government has not applied for any European funds for the development of energy communities or prosumerism.

2. <https://www.pv-magazine.com/2023/05/11/bulgaria-launches-household-solar-rebate-scheme/>

3. <https://balkangreenenergynews.com/bulgaria-simplifies-procedure-for-rooftop-solar-installations/> <https://www.me.government.bg/bg/library/zakon-za-energiyata-ot-vazobnovyaemi-iztochnici-167-c25-m1515-1.html>

2024 : Permitting 2

2022 Score : 1

The production cost of solar power has fallen to record lows in recent years, but this has been to the benefit of large investors mostly and has not yet reached consumers, due to procedures being too complicated and bureaucratic. This may be the explanation as to why, unlike in other countries, the majority of solar power installations are not on roofs, but on the ground<sup>4</sup>. The procedure of grid connection is developed with the DSO, and until recently, the confirmation of the grid connection was needed to obtain a construction permit. However, a new legislation has been introduced that eases the rules for the installation of rooftop solar systems for own use, and removes the requirement for a construction permit and for the submission of a project for systems of up to 20 kW.

Instead of a building permit, there will be a notification regime, according to which the owner will notify the local authority of their intention to install solar panels and the project will become valid if the municipality does not object within 14 days<sup>5</sup>. The so called “center for administrative service” (one stop shop) was also introduced in the recent revision of the Renewable Sources Act in 2023<sup>6</sup> in order to unify most of the permit related procedures. However, the Municipalities have expressed their concerns in regards to the lack of human resources required to properly implement this new provision. There are also frequent negative grid connection statements by DSOs which are often ungrounded, which can be attributed to lack of transparency issues.<sup>7</sup>

4. <https://balkangreenenergynews.com/bulgaria-to-abolish-limitations-for-rooftop-solar-panels-for-own-use/>

5. <https://www.me.government.bg/bg/library/zakon-za-energiyata-ot-vazobnovyaemi-iztochnici-167-c25-m1515-1.html>

6. [https://www.eclareon.com/sites/default/files/res\\_policy\\_monitoring\\_database\\_final\\_report\\_01.pdf](https://www.eclareon.com/sites/default/files/res_policy_monitoring_database_final_report_01.pdf)

7. <https://balkangreenenergynews.com/bulgaria-simplifies-procedure-for-rooftop-solar-installations/>



**2024 : Energy Sharing 0**

**2022 Score : 0**

Energy sharing was included in the recent revision of the Renewable Sources Act of 2023 as part of the potential actions and measures that the energy communities or the jointly acting self consumer can carry on. As of now, however, there are no specifications or drafts on how the actual sharing will be carried out yet.<sup>8</sup>

8. <https://www.me.government.bg/bg/library/zakon-za-energiyata-ot-vazobnovyaemi-iztochnici-167-c25-m1515-1.html>

## 2024 : Energy Communities 2

2022 Score : 0



<sup>9.</sup> The Renewable Sources Act published in October 2023 introduced for the first time the definitions for prosumers, renewable and citizen energy communities. However, the text is merely a copy paste from the European directives with generic provisions, for instance, that “energy communities should be encouraged by the removal of the unreasonable administrative and regulatory burdens” and that nondiscriminatory treatment and access to energy for vulnerable citizens should be ensured. The new provisions do not specify legal criteria and safeguards to prevent the participation of big energy companies with decisive influence in such communities and there are no regulatory guarantees that end-users of energy will retain their rights versus grid operators and energy suppliers. The Sustainable Energy Development Agency (SEDA) has defined the obstacles and the potential of the development of energy communities and has presented them to the Ministry of Energy, which needs to take action in this regard.

9. <https://www.me.government.bg/bg/library/zakon-za-energiyata-ot-vazobnovyaemi-iztochnici-167-c25-m1515-1.html>

**2024 : Additional measures 1**

**2022 Score : 0**

According to SolarPower Europe, Bulgaria reached 1.5 GW of cumulative installed PV capacity at the end of 2022.<sup>10</sup> There are significant delays in the deployment of solar rooftop by citizens due to lack of knowledge, training programmes and informational campaigns, even though its high potential in terms of solar irradiation. There are also grid issues that have not been properly addressed. In October 2022, Bulgaria's electricity system operator revealed that it had accepted applications to build new renewable energy projects with an aggregate installed capacity of more than 24 GW, which double the country's installed generating capacity, but those projects require a significant expansion of the grid.<sup>11</sup> In 2023, the EIB confirmed a priority investment of almost €160M for modernisation and development of the information systems and physical infrastructure of the grid in Bulgaria.<sup>13</sup> In 2023, Bulgaria achieved a penetration rate of smart meters below 1%.<sup>14</sup> Eurelectric clarified that 34% of the meters in Bulgaria have remote functionalities, but that they do not fully comply with the EU smart metering legislation. Recently in 2023, the European Investment Bank distributed 300 million euros for the roll out of smart meters in Bulgaria, but recent developments show that the distribution companies are not going to make use of them and are going to return the funding.

10. <https://www.solarpowereurope.org/insights/market-outlooks/global-market-outlook-for-solar-power-2023-2027-1>

11. <https://www.pv-magazine.com/2022/10/10/bulgarian-grid-operator-reviewing-connection-requests-for-24-gw-of-renewables/>

12. [https://modernisationfund.eu/wp-content/uploads/2023/06/COMMISSION-DECISION-of-30.05.2023-on-disbursement-of-revenues-of-the-Modernisation-Fund-under-Directive-2003\\_87\\_EC-of-the-European-Parliament-and-of-the-Council-Annex.pdf](https://modernisationfund.eu/wp-content/uploads/2023/06/COMMISSION-DECISION-of-30.05.2023-on-disbursement-of-revenues-of-the-Modernisation-Fund-under-Directive-2003_87_EC-of-the-European-Parliament-and-of-the-Council-Annex.pdf)

13. <https://balkangreenenergynews.com/central-eastern-europe-severely-lagging-in-smart-meters-rollout/>

14. [https://modernisationfund.eu/wp-content/uploads/2023/06/COMMISSION-DECISION-of-30.05.2023-on-disbursement-of-revenues-of-the-Modernisation-Fund-under-Directive-2003\\_87\\_EC-of-the-European-Parliament-and-of-the-Council-Annex.pdf](https://modernisationfund.eu/wp-content/uploads/2023/06/COMMISSION-DECISION-of-30.05.2023-on-disbursement-of-revenues-of-the-Modernisation-Fund-under-Directive-2003_87_EC-of-the-European-Parliament-and-of-the-Council-Annex.pdf)

## Engaging citizens and local communities in the solar revolution

The Rooftop Solar PV Comparison Report update produced by CAN Europe and its member organisations aims to detect barriers at national level that impede a higher uptake of residential rooftop solar PV, highlight best and bad practices, and to put forward concrete policy recommendations for setting up the right regulatory framework to ensure an accelerated uptake of rooftop solar PV.

11 countries were chosen to be assessed and scored on their performance regarding the development of rooftop solar PV within their country.

For the full report, follow the link below:

<http://caneurope.org/rooftop-solar-pv-comparison-report>



Overall  
Score  
**20**



2022  
Score  
**19**

## Summary

France remains one of the top performing countries when it comes to the development of Rooftop solar policy and practices, but deliverables still need to be achieved. France's photovoltaic (PV) policies are developed within the National Low Carbon Strategy and the Energy Programme Decree. The current Energy Programme Decree aims for 20 GW of PV capacity by 2023, rising to 35-44 GW by 2028. Its revised NECP draft includes an increased target for solar PV capacity of up to 60 GW by 2030, adding 20GW more than the NECPs in force. Incentives include differentiated tariffs and bonuses for specific products, but there's instability due to tariff revisions every 3 months. Solar is mandatory for living roofs of commercial and industrial buildings and covered car parks occupying 500 m<sup>2</sup> or more of ground surface. Simplified permitting procedures have been introduced for smaller PV projects, yet, with regard to energy storage, French law and regulations are still inadequate.

Energy sharing and collective self-consumption are encouraged, with flexible regulations supporting prosumers. Energy communities are being promoted, with legislation simplification and encouragement for the growth of citizen energy initiatives. Overall there has been significant growth in PV capacity within France, with around 2,229 MW added to the grid between January-September 2023, reaching a cumulative capacity of 19.0 GW of installed PV capacity. However, there are issues to the lack of construction capacity and training and employment in the sector. In terms of smart meter installations, the rate exceeded 80% in 2023.

## Scoring System

This country profile highlights the good and the bad policies and practices of solar rooftop PV development within France. It examines and scores six key areas: governance, incentives & support schemes, permitting procedures, energy sharing schemes, energy communities and additional measures to support solar PV development. For this update, we will have the 2022 score to the right as a benchmark:

The scoring system is set out below:



Green = 4-5 points



Orange = 2-3 points



Red = 0-1 points







## Country Profile France



## The Good



**Increased solar target:** France has increased the target for PV capacity to up to 60 GW by 2030 in its revised NECP draft, which is 20GW more than the NECPs in force.



**Incentives and Support:** The government has introduced incentives such as differentiated tariffs, bonuses for specific products, and simplified permitting procedures to encourage PV adoption.



**Mandatory solar:** Solar PV is mandatory for living roofs for commercial and industrial buildings or covered car parks occupying 500 m<sup>2</sup> or more of ground surface.



**Power to the people:** France's current policy framework is supportive of collective self-consumption and energy communities, with flexible regulations supporting prosumers. There is now an approved roadmap which sets an objective of 1,000 citizen initiatives by 2028.



**Growth and Progress:** France has seen significant growth in PV capacity, with around 2,229 MW added in the January-September period of 2023, reaching a cumulative capacity of 19.0 GW overall. This indicates positive momentum towards renewable energy goals.



## Country Profile France



## The Bad



**No designated renewables target:** The revised NECP draft does not include a percentage range for renewable energies. Instead, There is a “decarbonised energy” target corresponding to a 58% share of its final energy consumption, thus conflating renewables and nuclear in the same calculation.



**Tariff Instability:** The practice of revising feed-in tariffs and net-billing tariffs for PV installations under 500Kw every 3 months can create instability for PV projects, making it difficult for investors to predict their payback periods.



**Lack of storage:** Despite the significant technical improvements in electricity storage methods, the lack of a specific legal storage regime is preventing this sector from growing – and it may ultimately hinder the momentum of solar and renewable energies.



**No oversight for energy communities:** Despite encouragement for the growth of energy communities from the French government, no authority has been designated to oversee their implementation.



**Skills and Capacity Shortage:** There's a lack of construction companies capable of supporting the growth of the PV sector. Training and employment in the sector need to be addressed to meet the demand for Solar PV uptake.

**2024 : Governance 3**

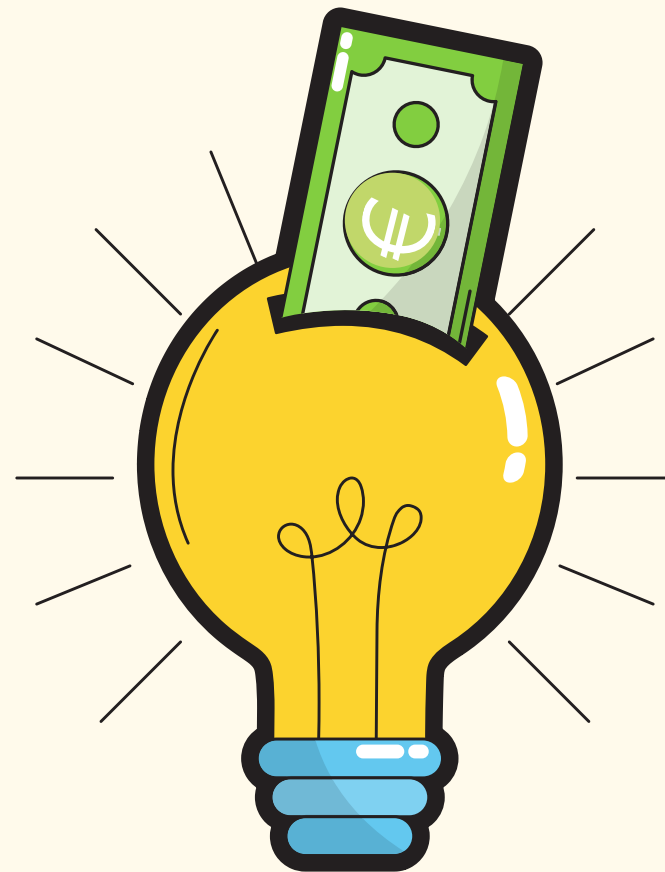
**2022 Score : 3**

The framework for developing photovoltaic policies in France falls within the long term National Low Carbon Strategy (SNBC, 2050 horizon) and the 10-year Energy Programme Decree (PPE). France's NECP in force incorporates self-consumption and energy communities as measures, setting a target of 200,000 PV sites for self-consumption in 2023, 50,000 of which are collective. The current PPE, published in 2020, targets 3 GW to 5 GW per year of new capacity, to reach 20 GW by 2023 and 35 GW to 44 GW by 2028. The government published an Action Plan in November 2021 to accelerate the development of photovoltaics. This plan includes feed-in tariffs for ground based systems under 500 kW on wasteland, a reduction in upfront grid connection costs and simplifications to administrative procedures<sup>1</sup>. France has submitted its revised NECP draft with an increased target for solar PV capacity of up to 60 GW by 2030, adding 20GW more than the NECPs in force, submitted in 2019, which targeted 40 GW of installed solar capacity by 2030<sup>2</sup>. On a negative note, the revised NECP draft does not include a percentage range for renewable energies. Instead, France defined a “decarbonised energy” target corresponding to a 58% share of its final energy consumption, thus conflating renewables and nuclear in the same calculation.<sup>3</sup>

1. National Survey Report of PV Power Applications in France 2022

2. <https://www.pv-tech.org/france-targets-up-to-60gw-of-solar-pv-by-2030-in-updated-necp/>

3. <https://www.euractiv.com/section/energy-environment/news/paris-forgets-renewable-targets-in-its-2030-energy-climate-plan/>



2024 : Incentives 3

2022 Score : 4

The new framework includes differentiated tariffs depending on system size and lump sums for smaller self-consumption systems as well as bonuses for specific building integrated products<sup>4</sup>. Feed-in tariffs and net-billing tariffs for PV installations below 500 kW on buildings is subject to revisions every 3 months depending on the number of completed grid connections, which is perceived as a destabilising factor according to promoters, since they cannot have a clear idea of their payback period<sup>5</sup>. However, tariff reductions were frozen over late 2022/early 2023 and new inflation indexing was introduced.

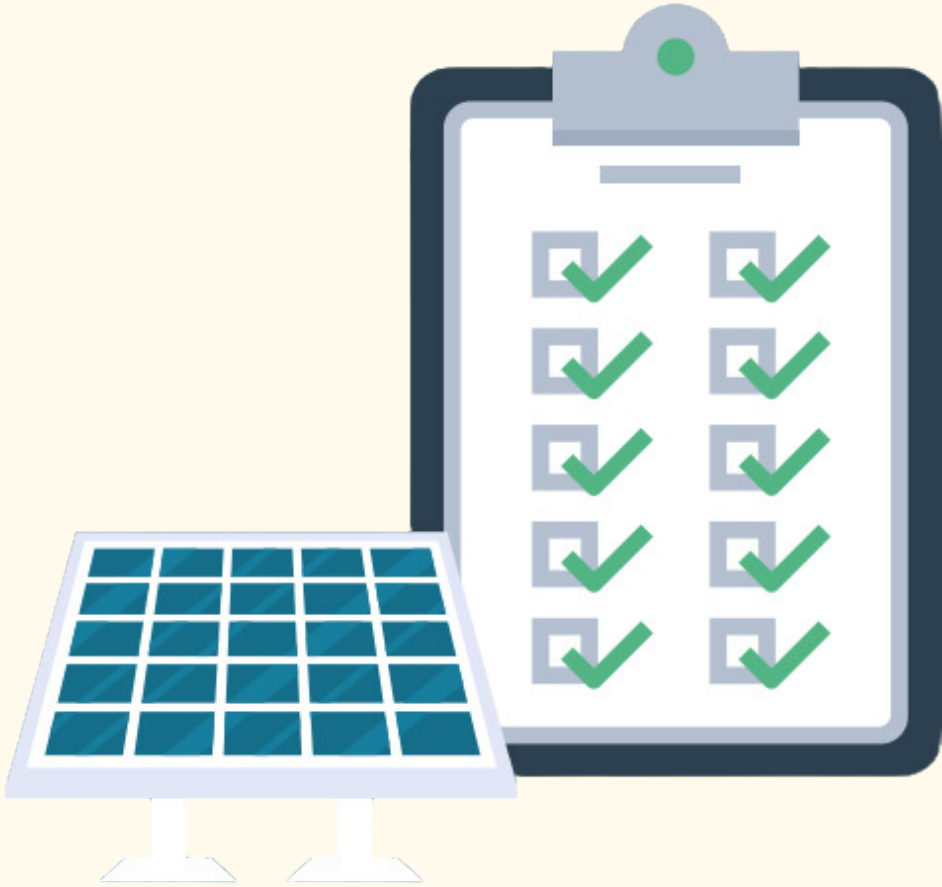
There are mandatory solar for living roofs for commercial and industrial buildings or covered car parks occupying 500 m<sup>2</sup> or more of ground surface. However, there are no subsidies for the development of small-scale storage in France.

4. [https://iea-pvps.org/wp-content/uploads/2022/03/IEA-PVPS\\_Annual\\_Report\\_2021.pdf](https://iea-pvps.org/wp-content/uploads/2022/03/IEA-PVPS_Annual_Report_2021.pdf)

5. [https://www.eclareon.com/sites/default/files/res\\_policy\\_monitoring\\_database\\_final\\_report\\_01.pdf](https://www.eclareon.com/sites/default/files/res_policy_monitoring_database_final_report_01.pdf)

2024 : Permitting 3

2022 Score : 2



The French government has adopted new regulations to simplify the procedure for the environmental approval of PV projects with a capacity of up to 1 MW, withdrawing the environmental assessment requirement for PV installations deployed on rooftops or parking areas.<sup>6</sup> From now on, all PV systems of up to 300 kW will be exempted from a preliminary environmental assessment and installations ranging from 300 kW to 1 MW will be subject to environmental assessment on a case-by-case basis criterion.<sup>7</sup> With regard to storage, French law and regulations are still inadequate. Currently the entity storing electricity is seen by the regulator as an electricity consumer when it stores electricity, and as an electricity producer when it releases the electricity previously stored. This technicality can lead to long and burdensome administrative procedures. Despite the significant technical improvements in electricity storage methods, the lack of a specific legal storage regime is preventing this sector from growing – and it may ultimately hinder the momentum of solar and renewable energies.<sup>8</sup>

6. <https://www.legifrance.gouv.fr/jorf/id/JORFTEXT000046003695>

7. <https://www.pv-magazine.com/2022/07/05/france-simplifies-environmental-permitting-for-solar-up-to-1-mw/>

8. <https://www.dlapiper.com/en-au/insights/publications/2023/05/solar-energy-where-does-france-stand-and-what-are-the-consequences-for-the-real-estate-sector>

2024 : Energy Sharing 4

2022 Score : 4

Solar PV systems in France have the option to participate in collective self-consumption (CEC) projects and the use of the public grid for energy sharing is allowed. Furthermore, France has an absolute limit for CSC at 3MW and uses a spatial limitation of 2 km for its CSC scheme, with exceptions up to 20 km in rural areas with low population density and under specific circumstances, which is a quiet permissive proximity requirement. In general, the regulations for collective self consumption and energy sharing are flexible and supportive to prosumers. As a good practice, a dedicated legal body called PMO (“personne morale organisatrice”) is required to manage a CSC entity, which proposes and validates sharing coefficients and financial terms with electricity generators and off-takers and provides representation for the accounting entities. PMO is the communicative channel between the participants and the DSO.

The French model is also a reference for the implementation of dynamic sharing, which are implemented by default by the DSO on the basis of the consumption of each member at each half-hour, with the support of a software platform that tracks the amounts “sold” and provides a framework for financial transactions.<sup>9</sup> French grid operator Enedis has identified 259 collective self consumption operations in France, as of the end of September 2023. The operations bring together 3,350 consumers and more than 480 producers, generating 17 MW total power capacity, mainly from solar.<sup>10</sup>

9. <https://www.solarpowereurope.org/advocacy/position-papers/framework-for-collective-self-consumption>

10. <https://data.enedis.fr/>

2024 : Energy Community 3

2022 Score : 2



In December 2021, it was approved the Law that transposes the RED II Directive, which simplifies the current legislation and encourages the establishment of Energy Communities and collective self-consumption setting<sup>11</sup>. France has adopted two different concepts for REC and CEC, with eligibility being the most differentiated aspect between them. This means that there are no restrictions for entities to participate in CECs, while strong restrictions are imposed on companies to participate in RECs. In general, the EU criteria and principles of open and voluntary participation, autonomy, and effective control are well reflected in national legislation. However, it lacks provisions on how REC and CEC should relate to each other. An application decree recently approved in December 2023 elaborates which legal entities are allowed to become energy communities, including joint-stock companies, and cooperative societies. On the other hand, French legislation has not designated any authority to oversee the implementation of REC and CECs<sup>12</sup>. There is a Roadmap approved which sets an objective of 1,000 citizen initiatives by 2028 and communicates 10 different measures to make this a reality, but these measures still need to be delivered<sup>13</sup>.

11. <https://www.rescoop.eu/policy/france-rec-cec-definitions>

12. <https://www.rescoop.eu/policy/france-rec-cec-definitions>

13. [https://www.ecologie.gouv.fr/sites/default/files/21191\\_10MesuresEnergiesRenouvelablesCitoyenne\\_def\\_light.pdf](https://www.ecologie.gouv.fr/sites/default/files/21191_10MesuresEnergiesRenouvelablesCitoyenne_def_light.pdf)

## 2024 : Additional measures 4

2022 Score : 3

France's Ministry of Ecological Transition has reported that around 2,229 MW of new PV systems were connected to the French grid in the January-September period of 2023. In the same period a year earlier, the country added 1,923 MW of new PV capacity. In the third quarter of this year, 803 MW of new PV systems were deployed in the country, which compares to 699 MW in the same period a year earlier. France reached 19.0 GW of cumulative installed PV capacity at the end of September 2023. Nearly one in ten individual houses has one or more sections of roof equipped with photovoltaic panels, which demonstrate the inhabitants' commitment to the energy transition. The roofs of larger buildings are also increasingly being equipped with solar PV. However, there seems to be a lack of construction companies capable of supporting the growth of the sector. The issue of training and employment are therefore becoming key aspects to adjust the production and demand sites. In France, in 2023, the smart meter penetration rate has exceeded 80%.

14. <https://www.pv-magazine.com/2023/11/27/france-adds-2-2-gw-of-solar-in-first-9-months-of-2023/>

15. <https://www.smart-energy.com/industry-sectors/smart-meters/smart-metering-progresses-in-europe-but-11-countries-have-barely-started/#:~:text=Thirteen%20of%20the%2027%20EU,reached%20the%2080%25%20penetration%20rate.>



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Overall  
Score

17



2022  
Score

15

## Summary

Germany aims to install 215 GW of PV capacity by 2030, with annual expansion targets to be tripled from 7.5 GW to 22 GW in 2026. Solar Package I, approved in August 2023, aims to accelerate PV installation and enhance citizen participation, albeit, it is still under negotiation within the Parliament. While a solar mandate was considered, it was omitted in the final strategy. Yet, some German states have implemented their own mandates. Despite past successes, reductions in feed-in tariffs and policy complexities have hindered PV growth, but recent adjustments aim to ensure an uptake in deployment.




Permitting improvements include eliminating rooftop PV construction permits and streamlining processes. Solar Package I seeks to further expedite permitting. While concrete measures for energy sharing are lacking, Solar Package I encourages simplified internal electricity usage within buildings. Although Germany lags in transposing EU directives on energy communities, recent amendments foster a favourable environment for smaller citizen-owned solar systems. Some challenges regarding solar PV rollout include shortages of electricians and inverters, limiting market growth, and slow smart meter rollout. A new law mandates smart meter installations for certain consumers and renewable operators by 2025, aiming for broader adoption by 2030.

## Scoring System



This country profile highlights the good and the bad policies and practices of solar rooftop PV development within Germany. It examines and scores six key areas: governance, incentives & support schemes, permitting procedures, energy sharing schemes, energy communities and additional measures to support solar PV development. For this update, we will have the 2022 score to the right as a benchmark:

The scoring system is set out below:

-  Green = 4-5 points
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-  Red = 0-1 points



## Country Profile Germany



# The Good



**Ambitious Renewable Energy Goals:** Germany's aim to install 215 GW of PV capacity by 2030 and is tripling its annual evaluation from 7.5 GW in 2022 to 22 GW in 2026.



**Solar Package I:** The approval of Solar Package I is a step in the right direction towards accelerating solar PV installation and enhancing citizen participation.



**Permitting Improvements:** Efforts to streamline permitting processes, including eliminating rooftop PV construction permits and simplifying grid connections, facilitate easier adoption of solar energy for consumers.



**Energy Community Support:** Amendments exempting smaller citizen-owned solar systems from tender requirements foster a favourable environment for energy communities, encouraging grassroots involvement in renewable energy production.



**Smart Meter Rollout:** Legislation mandating smart meter installations for certain consumers and renewable operators by 2025, with broader adoption goals by 2030, signifies progress toward modernizing energy infrastructure.



## Country Profile

### Germany



## The Bad



**Omitted Solar Mandate:** Despite initial considerations, the omission of a solar mandate from the final strategy hinders efforts to drive widespread adoption of solar energy.



**Feed-in Tariff Reductions:** Reductions in feed-in tariffs and policy complexities like the "breathing cap" have slowed the expansion of rooftop Solar PV.



**No legal framework for energy sharing:** No concrete measures have been adopted to date in regards to energy sharing. Germany still relies only on local self-consumption approaches without energy sharing or connection to the grid.



**Slow adoption of energy community legislation:** Germany is fairly far behind in terms of transposing provisions of the Directives, since it has only transposed the Renewable Energy Community definition and has not provided yet a coherent enabling framework.



**Challenges in Market Growth:** Shortages of electricians and inverters limit market growth and increase costs for smaller installations.

**2024 : Governance 4**

**2022 Score : 3**

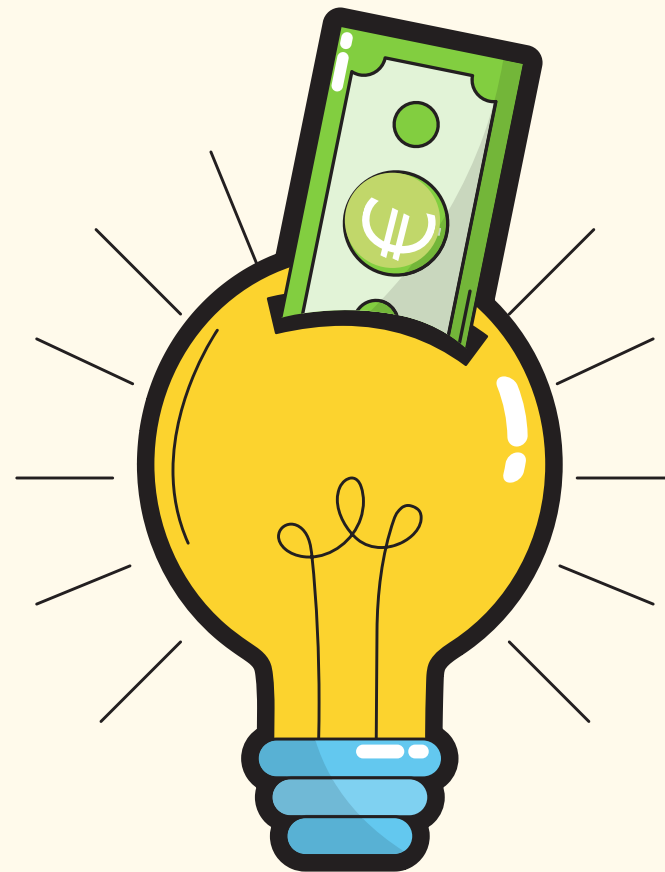
By 2030, 215 GW of PV should be installed in Germany. To this end, annual expansion is to be tripled, from 7.5 GW in 2022 to 22 GW in 2026. Roughly half of the expansion should be on roofs and half on ground.<sup>1</sup> The solar package I, which was approved by the cabinet on August 16, 2023, is a central step towards achieving the ambitious PV expansion goals by 2030. It contains a variety of measures that will accelerate the installation of solar PV both on the ground and on the roof and strengthen the participation of citizens.<sup>2</sup> The package, based on a consultation process with the industry and NGOs, is still under negotiation in the parliament.<sup>3</sup>

In Germany, a rather weak form of the solar mandate was foreseen in the coalition government agreement of 2022 and in the draft of the federal government's solar strategy, but was not released in the final strategy paper. However, some federal states, such as Baden-Württemberg or Hamburg, implemented solar mandates - yet to different extents.

1. <https://www.bmwk.de/Redaktion/DE/Dossier/Energieversorgung/details-solarpaket.html>

2. <https://www.bmwk.de/Redaktion/DE/Dossier/Energieversorgung/details-solarpaket.html>

3. <https://www.bmwk.de/Redaktion/DE/Dossier/Energieversorgung/details-solarpaket.html>



2024 : Incentives 3

2022 Score : 4

In Germany, an incentive system based on a state-guaranteed feed-in remuneration was probably one of the drivers of what we call the first boom in solar PV, and was very successful. However, reductions in the remunerations rates and policy tools like the “breathing cap” have stifled the expansion of rooftop photovoltaic systems<sup>4</sup>. On a positive note, starting in 2022 there were increases in feed-in tariffs for all newly commissioned PV systems and the breathing cap has been provisionally paused<sup>5</sup>. But the tariffs are limited and will continue to be reduced by 1% every 6 to 12 months (depending on the type of solar energy), even though the German Federal Network Agency can adapt the tariffs in auctions when needed in order to secure further deployment as seen in December 2023.<sup>6</sup>

4. <https://www.streem.eu/blog-posts/eeg-2023-important-changes-for-germany>

5. <https://www.streem.eu/blog-posts/eeg-2023-important-changes-for-germany>

6. [https://www.gesetze-im-internet.de/eeg\\_2014/](https://www.gesetze-im-internet.de/eeg_2014/) and

[https://www.bundesnetzagentur.de/SharedDocs/Downloads/DE/Sachgebiete/Energie/Unternehmen\\_Institutionen/Ausschreibungen/Solar2/FestlegungSolarII2024.pdf?\\_\\_blob=publicationFile&v=3](https://www.bundesnetzagentur.de/SharedDocs/Downloads/DE/Sachgebiete/Energie/Unternehmen_Institutionen/Ausschreibungen/Solar2/FestlegungSolarII2024.pdf?__blob=publicationFile&v=3)



2024 : Permitting 3

2022 Score : 3

Germany has made several improvements with regard to permitting, such as the removal of the construction permit for rooftop PV or the establishment of a single contact points for the permitting process, even though “lower authorities do not always, in practice, have all the technical equipment necessary, nor the trained employees, to process permits in a digital form”<sup>7</sup>. On the other hand, several steps towards acceleration of permitting are foreseen in the Solar Package 1, such as the expansion of<sup>7</sup> the simplified grid connection procedure to systems up to 30 kW (previously: 10.8 kW ), or the reduction of bureaucracy of balcony solar systems allowing for a maximum output power of 800 watts.<sup>8, 9</sup>

7. <https://www.solarpowereurope.org/advocacy/position-papers/res-booster-stocktake>

8. <https://www.pv-magazine.com/press-releases/germanys-new-legislation-empowers-balcony-photovoltaic-systems/>

9. <https://www.bmwk.de/Redaktion/DE/Dossier/Energieversorgung/details-solarpaket.html>





**2024 : Energy Sharing 1**

**2022 Score : 1**

In Germany, even though the governmental coalition agreement in 2022 established the clear purpose to provide a legal framework favourable for energy sharing, so far no concrete measures have been adopted to date and still relies only on local self-consumption approaches without energy sharing or connection to the grid. Notwithstanding, the solar package approved in August 2023 by the government will encourage the so-called “communal building supply”, according to which it will be possible to use PV electricity within a building together and unbureaucratically—without having to fulfil all the obligations of an electricity supplier as before<sup>10</sup>.

10.

10. <https://www.bmwk.de/Redaktion/DE/Dossier/Energieversorgung/details-solarpaket.html>



## 2024 : Energy Communities 2

2022 Score : 1

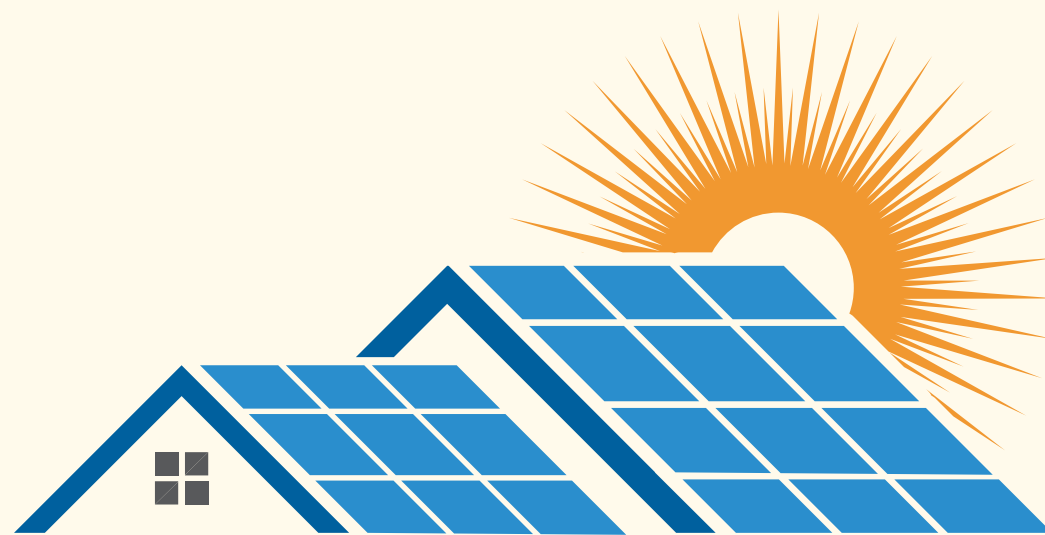
Generally speaking, Germany is fairly far behind in terms of transposing provisions of the Directives, since it has only transposed the REC definition and has not provided yet a coherent enabling framework.<sup>11</sup> But there is a long tradition of energy community engagement based on electricity cooperatives (“Strom-Genossenschaften”) which started in the early 20th century and declined since 2013 due to lower feed-in tariffs and the introduction of tendering in 2017.<sup>12</sup> Fortunately, a recent amendment to the Green Renewable Energy Sources Act (EEG) in 2022, exempting solar systems of citizen energy companies of up to 6 megawatts from the requirement to participate in tenders to be able to receive support, created a favourable environment for energy communities again.<sup>13</sup> This measure was supported by a stricter definition of citizen energy company with the purpose to prevent abuse or corporate capture and ensure that the incentives are assigned for citizen driven energy communities.<sup>14</sup>

11. <https://www.rescoop.eu/policy/germany-rec-cec-definitions>

12. <https://pub.norden.org/nordicenergyresearch2023-03/germany.html>

13. <https://www.rescoop.eu/policy/germany-2>

14. <https://www.rescoop.eu/policy/germany-2>



2024 : Additional measures 4

2022 Score : 3

Germany was back in 2023 as the largest solar market, installing 14.1 GW and surpassing Italy's 12-year-old record of 9.3 GW in 2012. However, the lack of electricians and a lack of availability of inverters is limiting market growth, while raising the costs of smaller installations.<sup>15.</sup> In terms of smart meter rollout, Germany has so far been among the laggards in Europe. In Germany, only around 160,000 of over 50 million metering locations were equipped with smart metering systems by 2021.<sup>16.</sup> However, a new law passed in May 2023 provides for a rollout roadmap with binding targets until 2030, according to which consumers with a power demand from 6,000 kilowatt hours (kWh) per year and renewable operators with over seven kilowatts (kW) of installed capacity will be subject to mandatory installation from 2025.<sup>17.</sup>

15. [https://api.solarpowereurope.org/uploads/SPE\\_EMO\\_2023\\_full\\_report\\_c496546963.pdf](https://api.solarpowereurope.org/uploads/SPE_EMO_2023_full_report_c496546963.pdf)

16. <https://www.ffe.de/en/publications/the-smart-meter-rollout-in-germany-and-europe/>

17. <https://www.cleanenergywire.org/news/electricity-smart-meters-become-standard-german-homes-2032>

## Engaging citizens and local communities in the solar revolution

The Rooftop Solar PV Comparison Report update produced by CAN Europe and its member organisations aims to detect barriers at national level that impede a higher uptake of residential rooftop solar PV, highlight best and bad practices, and to put forward concrete policy recommendations for setting up the right regulatory framework to ensure an accelerated uptake of rooftop solar PV.

11 countries were chosen to be assessed and scored on their performance regarding the development of rooftop solar PV within their country.

For the full report, follow the link below:

<http://caneurope.org/rooftop-solar-pv-comparison-report>



Overall  
Score

18



2022  
Score

13

## Summary

November 2023, Greece submitted its NECP with more ambitious and updated targets for renewables and solar: 23.5 GW for all forms of renewables, from which 13.4 GW came from solar power capacity. However, there is no roadmap or strategy at this time in regards to rooftop solar PV in particular. Incentives for renewable energy projects include feed-in tariffs, feed-in premiums, and financial support for self-consumption projects such as net metering and virtual net metering. Various financial support programs are available, including schemes for rooftop solar panels and solar PV installations with storage, funded by the Recovery and Resilience Fund and the Just Transition Fund.

Permitting procedures for solar development have been hindered by grid availability issues, with many areas facing rejections due to lack of electricity grid capacity. Although, efforts are underway to increase grid capacity. Energy sharing is facilitated through energy communities and Greece is a frontrunner in establishing energy communities, with over 1,600 communities active up until the end of 2023. Recent legislation introduced new types of energy communities, prioritising self-consumption projects and limiting profit distribution to prevent exploitation.

There has been significant progress made in installed PV Capacity. However, there is a need for additional awareness campaigns and the development of information hubs so that citizens can strengthen their knowledge and become more active in the energy transition.

## Scoring System

This country profile highlights the good and the bad policies and practices of solar rooftop PV development within Greece. It examines and scores six key areas: governance, incentives & support schemes, permitting procedures, energy sharing schemes, energy communities and additional measures to support solar PV development. For this update, we will have the 2022 score to the right as a benchmark:

The scoring system is set out below:



Green = 4-5 points



Orange = 2-3 points



Red = 0-1 points





## Country Profile Greece



# The Good



**Raising Ambition:** In its revised NECP draft, Greece has set more ambitious and updated targets for renewables and solar: 23.5 GW for all forms of renewables, from which 13.4 GW come from solar power capacity.



**Incentives for Renewable Energy:** Various incentives such as feed-in tariffs and financial support programs are in place to incentivise the uptake of rooftop solar PV and the installation of battery storage systems.



**Active Energy Communities:** Greece is a frontrunner, when it comes to the community energy movement, with an establishment of over 1,600 active energy communities by the end of 2023.



**Efforts to Address Grid Issues:** Efforts to address grid availability issues through legislative changes and grid capacity expansion initiatives show proactive steps towards overcoming energy infrastructure barriers.



**Growing Citizen Interest:** The surge in citizen interest and requests for renewable energy projects indicates growing awareness and support for solar and renewable technology.



## Country Profile

### Greece



## The Bad



**Grid Capacity Limitations:** Grid availability issues are the main issue that hinders solar development, leading to rejections of applications and slowing down the transition to renewable energy.



**Delays in Smart Meter Rollout:** Legal disputes and administrative delays have hampered the rollout of smart meters, delaying the modernization of the energy infrastructure and hindering efforts towards energy efficiency.



**Underutilization of Energy Sharing measures:** Despite the introduction of legislation for energy sharing measures to be implemented within apartments and common use areas, these measures have not been put into practice yet.



**Low smart meter penetration:** Due to legal proceedings on a specific case with a Distribution System Operator (HEDNO), the installation of smart meters in Greece stalled and is only at a penetration rate of 6%. Although, this will be resolved with financial support from the European Investment Bank.



**2024 : Governance 3**

**2022 Score : 2**

The current NECP (2019) set targets concerning the share of RES in gross final energy consumption (35%) and in gross final electricity consumption (61%). It also foresees the deployment of 19 GW of renewables by 2030 and 7.7 GW (Gigawatt) for solar.<sup>1</sup> Following the REPowerEU Plan, in November 2023, the revised NECP draft was submitted to the European Commission, with more ambitious and updated targets for renewables and solar: 23.5 GW for all forms of renewables, from which 13.4 GW come from solar power capacity.<sup>2</sup> Currently, there is no roadmap or strategy at this time in regards to rooftop solar PV in particular. Policies should be strengthened by setting specific quantitative targets for both individual as well as collective self-consumption (CEC) by 2030 and beyond. The draft NECP does not contain such targets. The recent law (5037/2023) introduces significant amendments regarding various energy related practices especially regarding renewables-based self-consumption and energy communities, among which is the allocation of 2 GW of grid space exclusively for self-consumption projects. Stakeholders' views have been taken into account in developing the new law via public consultation.

1. [https://energy.ec.europa.eu/system/files/2020-03/el\\_final\\_necp\\_main\\_en\\_0.pdf](https://energy.ec.europa.eu/system/files/2020-03/el_final_necp_main_en_0.pdf)

2. [https://commission.europa.eu/publications/greece-draft-updated-necp-2021-2030\\_en](https://commission.europa.eu/publications/greece-draft-updated-necp-2021-2030_en)

2024 : Incentives 3

2022 Score : 3

Energy can be paid as a feed-in tariff or feed-in premium for commercial projects either from enterprises or energy communities, but it gives priority to individual or collective self-consumption projects through reserving 2 GW of grid space and dedicating financial resources to cover part of their installation costs. Self-consumers can also implement projects through net metering or virtual net metering for energy communities. In this case the energy produced from a PV can be used to offset the consumption for a netting period of 3 years, with a maximum capacity of 10 kW (kilowatt) for households and 100 kW for businesses, while in virtual net metering there is no capacity limit.

An additional scheme introduced recently under the same law (n. 5037/2023)<sup>4</sup> is net billing, which provides for simultaneous consumption in real time with production, while self-consumers are compensated for the surplus energy with a feed-in tariff. Virtual net billing can be implemented by households, enterprises and energy communities without any capacity limit.<sup>5</sup>

In terms of financial support, a program for rooftop solar panels<sup>6</sup> complemented with battery storage systems recently started in May 2023. It is funded by the Recovery and Resilience Fund and aims at supporting households and farmers to cover their own electricity needs through net metering. The total budget is €238 million. Besides net metering, the following incentives programmes can be highlighted:

- FiT scheme for small solar rooftop PVs: a new program for small solar rooftop PVs (up to 6kWp) which was established in 2022 with a guaranteed price (of 0.087Euros/kWh), for a 20 year contract. However, in general terms citizens have opted clearly to make more use of net metering and virtual net schemes instead of this program (as announced but not yet implemented).
- Solar PV with storage for municipalities in transition regions: €41,795 million for regions undergoing transition (target capacity of 91 MW), of which €26,845 million are reserved for energy communities in lignite regions under the Just Development Transition Program 2021 – 2027, funded by the just transition fund.
- €100 million will be disbursed from the Recovery and Resilience Fund to municipalities for the establishment of energy communities to meet the electricity needs of vulnerable households.
- A plan to support mountainous communities by installing a total of 142.6 MW PV panels to meet their needs via virtual net metering with a €100 million budget has been announced.

4. [https://www.et.gr/api/DownloadFeksApi/?fek\\_pdf=20230100079](https://www.et.gr/api/DownloadFeksApi/?fek_pdf=20230100079)

5. [https://bernitsaslaw.com/2023/04/07/energy-briefing-special-edition#:~:text=Law%205037%2F2023%20\(the%20New,previous%20general%20limit%20of%203MW.](https://bernitsaslaw.com/2023/04/07/energy-briefing-special-edition#:~:text=Law%205037%2F2023%20(the%20New,previous%20general%20limit%20of%203MW.)

6. Government Gazette 2903/B/02.05.2023

7. EYDAM, 27.09.2023, <https://shorturl.at/jxFX8>

2024 : Permitting 2

2022 Score : 1



Currently, probably the main reason that impedes solar development and that makes administrative procedures long and burdensome in Greece, including rooftop solar, is grid availability. In many areas, applications for solar rooftop PV are being rejected due to lack of electricity grid capacity. To understand the scale of the issue, up until December 2023, 48% of the requested energy communities' renewables projects have received a notification of inability to connect from the Hellenic Electricity Distribution Network Operator (HEDNO)<sup>8</sup>. Additionally, the responsible authorities have been criticised for implementing non-transparent decision-making processes.<sup>9</sup> To address this problem, in summer 2022 after a legislative change by the Ministry of Environment and Energy,<sup>10</sup> HEDNO amended the Management Code of the Greek Electricity Distribution Network, in order to increase the capacity of the existing substations by a total of 2.5 GW. The goal was the allocation of 10 MW to each substation for new net-metering and virtual net-metering systems, as well as for rooftop PVs. 40% was intended for residential systems, 30% for self-consumption by farmers and the remaining 30% for SMEs (up to 10 kW).

8. The Green Tank, 29.02.2024 Energy communities and self-production in Greece and its lignite areas, Review #5 <https://shorturl.at/wyHS3>

9. [https://www.eclareon.com/sites/default/files/res\\_policy\\_monitoring\\_database\\_final\\_report\\_01.pdf](https://www.eclareon.com/sites/default/files/res_policy_monitoring_database_final_report_01.pdf)

10. [https://www.et.gr/api/DownloadFeksApi/?fek\\_pdf=20220100129](https://www.et.gr/api/DownloadFeksApi/?fek_pdf=20220100129)



2024 : Energy Sharing 3

2022 Score : 3

Energy sharing is implemented using the energy community framework via either the virtual net metering or virtual net billing mechanisms by local authorities, farmers or energy communities formed by citizens or businesses aiming at covering their own electricity needs. Since 2023, virtual net-metering is available to high-voltage consumers and regardless of the location where the renewable system is installed, in contrast with the previous framework under which self-consumers were eligible to connect only to low or medium voltage networks. In addition, under the recently voted law (5037/2023), apartments and common areas in the same building are able to share the same solar panels without having to form an energy community. Although these are positive developments on paper, these measures have not been utilized in practice since March 2023 when the new legal framework was adopted. Thus, the effectiveness of this new law remains to be seen.

## 2024 : Energy Communities 4

2022 Score : 3

Greece is a frontrunner in establishing a new type of civil cooperative, the “energy community” (Law 4513/2018), including most of the criteria in the EU directives (effective control, open and voluntary participation, local proximity, etc.).<sup>11</sup> Until December 2023, 1,689 energy communities had been established and were active with 1,624 projects corresponding to a total electrified capacity of 1,178 MW. Under the new law (Law 5037/2023) adopted in 2023, two new types of energy communities were introduced, Renewable Energy Communities (RECs) and Citizen Energy Communities in accordance with the corresponding definitions of the EU directives.

Communities that were previously established in compliance with (law 4513/2018) may be transformed in line with these new types of communities. They should have at least 30 members (made up of either individuals, small to medium enterprises, agricultural partners, local government or non-governmental organisations) or at least 15 members if all the members are small to medium enterprises. For private legal entities, electricity production should not be the main commercial activity. The law provides various benefits for energy communities, including priority in the permitting procedure and the ability to engage in virtual net metering schemes. The new legislation prioritised self-consumption projects (2 GW of electrical space) which include, but are not limited to energy communities.

The law has also established a 20% limit on the profits that can be distributed to the members of the energy communities if they take advantage of priority access to the grid or are eligible for financial support. These measures seek to limit the hijacking of the “energy community” institution which was documented in past years. Specifically power companies and investors collaborated with citizens to form energy communities which exploited the financial incentives set for energy communities (high FiT). Thus, obtaining windfall profits at the expense of citizen energy communities seeking to cover their own electricity needs, while also bypassing steps in environmental permitting, and avoiding the competition with their peers participating in competitive bidding processes.<sup>12</sup> On the other hand, Greece has established a concrete approach to incorporate vulnerable households, offering vulnerable consumers or citizens living under the poverty limit who live in the same district, a right to be involved in virtual net metering schemes.<sup>13</sup>

11. <https://www.rescoop.eu/policy/greece-rec-cec-definitions>

12. <https://www.rescoop.eu/policy/greece-rec-cec-definitions>

13. <https://www.rescoop.eu/policy/greece-rec-cec-definitions>

**2024 : Additional measures 3**

**2022 Score : 1**

In terms of the current status, there are currently 375 MW of small-scale rooftop PV panels (<10 kW), accounting for 5.8% of the total installed PV capacity of 6.3 GW. There has been an impressive progress in installed self-consumption capacity during the last 4 years, which increased by 10 times between 2019 (33.8 MW) and to the current status of August 2023 (337.7 MW). Moreover, the interest from citizens for such projects is sky-high. During the last year (2022-2023) requests for self-consumption through net metering and virtual net metering have increased by 65% (from 15,169 to 35,162 requests).<sup>14.</sup>

However, there is a need for additional awareness campaigns and the development of information hubs so that citizens can strengthen their knowledge on self-consumption and energy communities and become more active in the energy transition. With regards to smart meters roll out, HEDNO carried out a large tender in 2021 to buy 7.5 million smart meters and install them by 2030. However, one of the participants, Swiss company Landis+Gyr, took HEDNO to court for excluding it from the process over missing documentation. It resulted in a two-year delay. Due to this delay, currently there is a penetration rate of smart meters of only 6%.<sup>15.</sup> The full nationwide rollout of approximately 7.5 million smart meters is expected to be completed by 2030 with a deployment rate of approximately 1 million meters per year. HEDNO is receiving support from the European Investment Bank for its 3.12 million smart meters that are planned to be installed by 2026.<sup>16.</sup>

14. The Green Tank, 30.10.2023 Energy communities in Greece's lignite areas, Review #4 <https://shorturl.at/gjGW6>

15. <https://balkangreenenergynews.com/central-eastern-europe-severely-lagging-in-smart-meters-rollout/>

16. <https://www.smart-energy.com/industry-sectors/smart-meters/greeces-hedno-to-deploy-3-1-million-smart-meters/>

## Engaging citizens and local communities in the solar revolution

The Rooftop Solar PV Comparison Report update produced by CAN Europe and its member organisations aims to detect barriers at national level that impede a higher uptake of residential rooftop solar PV, highlight best and bad practices, and to put forward concrete policy recommendations for setting up the right regulatory framework to ensure an accelerated uptake of rooftop solar PV.

11 countries were chosen to be assessed and scored on their performance regarding the development of rooftop solar PV within their country.

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Overall  
Score

18



2022  
Score

16

## Summary

In its revised NECP draft, Italy has set a renewable energy contribution target of 40 % and a goal for the development of solar plants up to 79.9 GW by 2030. Yet, Italy has the potential to do more. In general, Italy lacks a clear roadmap for the development of solar capacity. Financial incentives include tax deductions for PV system purchases and investment subsidies at regional levels, with recent initiatives targeting rooftop solar PV in agriculture and low-income households. However, reductions in tax deductions may disproportionately affect low-income families. Permitting processes for PV installations remain complex, though recent reforms aim to simplify authorization for small-scale projects.

Italy supports collective self-consumption and energy communities, with incentives for renewable energy sharing. Regulatory frameworks limit REC projects to 1 MW and emphasise geographical proximity. The European Commission approved Italy's scheme to support renewable electricity production and self-consumption, with measures including premium tariffs and investment grants. Despite progress, challenges persist, including bureaucratic delays and the lack of a clear strategy to address energy poverty. While Italy has made significant strides in solar PV installations, additional measures are needed to enhance financing, training programs, and public awareness. Additionally, improvements in grid infrastructure are crucial to support the transmission of renewable electricity across regions.






## Scoring System



This country profile highlights the good and the bad policies and practices of solar rooftop PV development within Italy. It examines and scores six key areas: governance, incentives & support schemes, permitting procedures, energy sharing schemes, energy communities and additional measures to support solar PV development. For this update, we will have the 2022 score to the right as a benchmark:

The scoring system is set out below:

-  Green = 4-5 points
-  Orange = 2-3 points
-  Red = 0-1 points



## Country Profile

### Italy



## The Good



**Solar Growth:** Italy has made significant progress in increasing solar energy capacity through bringing online 1,058 MW of solar photovoltaic parks and boosting deployments by 239% on the year.



**Financial Incentives:** Various financial incentives, such as tax deductions and investment subsidies, promote the adoption of solar PV systems, especially in sectors like agriculture and among low-income households.



**Simplified Permitting:** Recent reforms aim to simplify authorization processes for small-scale PV projects, potentially reducing barriers to entry for solar energy.



**Support for Energy Sharing and Communities:** Policies supporting collective self-consumption and energy communities encourage the decentralised production and consumption of renewable energy, fostering community engagement and resilience.



## Country Profile Italy



# The Bad



**Lack of Specificity in NECP:** While the NECP outlines targets and policies, it lacks specificity on certain key aspects such as volumes for rooftop and utility-scale solar PV installations and offers no clear roadmap for the development of solar capacity.



**Reduction in Tax Deductions:** The reductions in tax deductions for PV system from 110% to 90% may discourage low-income households from purchasing solar installations.



**Complex Permitting Processes:** Despite recent reforms, Italy's legal framework for PV installations remains complex, leading lengthy procedures and bureaucratic delays and potentially deterring investment in utility-scale projects.



**Addressing the skill and knowledge gap:** Additional measures are needed in terms of financing training programmes for installers and administrative staff, as well as designing public awareness campaigns that show the benefits and potential of solar PV in order to accelerate its uptake.



**Fighting energy poverty:** There is a lack of a clear strategy for mitigating and fighting energy poverty.

2024 : Governance 2

2022 Score : 1



In Italy, revised NECP draft<sup>1</sup> sets a renewable energy contribution target of 40 % and a goal for the development of solar plants up to 79.9 GW by 2030, without specifying the volumes for PV rooftop and solar utility-scale.<sup>2</sup> However, Italy could have more ambition with regards to solar PVs, which has much more potential capacity than what is currently added in the NECP.<sup>3</sup> The revised NECP draft includes policies and measures supporting self-consumption and renewable energy communities (REC), but it misses a clearer identification of the problems and a more structured and analytical implementation plan with strict timeframes.<sup>4</sup> In general, Italy lacks a clear roadmap for the development of solar capacity, which includes a specific 2030 objective and intermediate milestones, and adequate implementation and monitoring tools is still absent.

1. <https://commission.europa.eu/system/files/2023-07/ITALY%20-%20DRAFT%20UPDATED%20NECP%202021%202030%20%281%29.pdf/>

2. <https://commission.europa.eu/system/files/2023-07/ITALY%20-%20DRAFT%20UPDATED%20NECP%202021%202030%20%281%29.pdf/>

3. <https://caneurope.org/new-report-calls-for-drastic-improvement-of-europes-national-energy-and-climate-plans/>

4. <https://caneurope.org/new-report-calls-for-drastic-improvement-of-europes-national-energy-and-climate-plans/>

**2024 : Incentives 3**

**2022 Score : 3**

The net metering scheme “Scambio sul posto” (“On-site Exchange”), which compensated the value of the energy introduced in the network with the used energy and allowed compensation in euros if the difference was positive for the prosumer, will no longer be accessible by the end of 2023, together with other schemes such as the Credit Transfer to third parties (incl. ESCO, banks or companies). These will be replaced by instruments aiming at promoting self-consumption mechanisms. Other financial incentives will still be in force:

- **House Bonus (“Bonus Casa”):** tax deduction on IRPEF (income tax) of up to 50% on the purchase of PV system
- **Superbonus 110%:** tax deduction of (initially) 110% on expenses incurred. The deduction has since been reduced to 90% by 2023.

Furthermore, there are financial instruments provided at the regional level covering total or partial investment costs (for example in Friuli-Venezia Giulia, Basilicata, Sardegna, Marche, Puglia, Lazio and Sicilia) and in April 2023, the Ministry of Agriculture incentivized the support of rooftop solar PV in the agricultural and agro-industrial sectors, with funding covering up to 80% of the costs, through the funds of the Recovery and Resilience Fund. In November 2023, the Government established a fund of 200 million euros addressed at supporting low-income families in installing PV plants. It will be available for 2024 and 2025 and managed by “Gestore dei Servizi Energetici (GSE)” energy services manager, state owned company under the Ministry of Economy and Finance.

Overall, there are several mechanisms that encourage the purchase of residential PV plants. Nonetheless, the 110% tax deduction, which largely accelerated the installation of small-scale PV plants in the last two years, has been reduced to 90% without the possibility of a credit transfer. This will affect mostly low-income households.

2024 : Permitting 3

2022 Score : 2

The Italian legal framework concerning the installation of photovoltaic systems on roofs remains complex. There are different procedures and regulations depending on whether the installation site is subject to environmental, historical, artistic or landscape constraints or not, and on other parameters, such as whether the system can be visible or not from outdoor public spaces.

The most relevant regulation is Law Decree no.17/2022 that simplifies the authorization process, recognizing the solar PV plant as an intervention of ordinary maintenance that is not subject to permits, authorizations and tedious paperwork. Also the single simplified model for small rooftop renewable installations was introduced for plants up to 50 kW in April 2022. The Ministry will in the upcoming months set the conditions and procedures for extending this simplified model to rooftop installations and buildings with a capacity up to 200 kW. In general, these reforms can be assessed in a positive way for small-scale plants (the permit granting time has been accelerated) and are not sufficiently effective for utility-scale projects.

On the other hand, the policies and measures presented in the draft NECP fail to improve authorization procedures within clear and sustainable timeframes.<sup>5</sup>



5. <https://commission.europa.eu/system/files/2023-07/ITALY%20-%20DRAFT%20UPDATED%20NECP%202021%202030%20%281%29.pdf/>

2024 : Energy Sharing 3

2022 Score : 3

Italy allows the use of the public grid for collective self-consumption (CEC) or energy sharing in 2 ways:

- The collective self-consumption whose perimeter is defined by the building itself.
- The renewable energy community whose perimeter is defined by the primary cabin electricity conversion from high to medium voltage that can reach 30/40 thousand users.

The collective self-consumption, represents a group of at least two self-consumers that are located in the same building and act collectively. A typical example is represented by a multi-family house with a PV plant installed in the sharing area, whose electricity production covers a share of users' consumption and the surplus generation is fed into the grid.

According to the Italian Regulatory Authority for Energy, Networks and Environment (ARERA) the incentives schemes for energy sharing in 2022 has been of 11 cents for each kilowatt-hour generated and consumed within the community, in addition to the market premium<sup>6</sup>. According to GSE (the National Manager of Energy Services), Italy recognised 74 groups for collective self-consumption so far.



6. <https://www.pveurope.eu/markets/smarter-e-europe-energy-sharingother-eu-countries-already-further-along>

**2024 : Energy Communities 3**

**2022 Score : 4**

Italy has transposed both the REC and CEC definitions in the national legislation. The legislation for RECs establishes that they cannot exceed 1 MW (Megawatt) for each REC's project and determines the geographical proximity as consumption points connected under the same medium voltage station. GSE has elaborated an interactive online map for identifying the location of the primary cabin which facilitates the search of the users that can be part of the same energy community, clarifying some of the uncertainties regarding this concept in the past, which can even reach 30/40 thousand users.

In November 2023, the European Commission has finally approved the executive Decree on the Italian scheme for supporting the production and self-consumption of renewable electricity. The scheme aims at promoting energy communities and supports the installations of renewable plants up to 1 MW through two aid measures that can be also combined: A premium tariff on the quantity of electricity consumed by self-consumers and renewable energy communities, paid over a 20-year period. This measure, with a total budget of €3.5 billion, will be financed through a levy on the electricity bill of all consumers.

An investment grant of up to 40% of eligible costs, for a total budget of €2.2 billion financed through the RRF<sup>6</sup>. Eligible projects must become operational before 30 June 2026 to benefit from funding through the RRF and should be located in municipalities with less than 5000 inhabitants. Still ongoing issues are the lengthy procedures and bureaucratic delays, with the ministerial decree detailing implementation requirements still missing, and the lack of a clear strategy for mitigating and fighting energy poverty.

7. <https://www.gse.it/servizi-per-te/autoconsumo/mappa-interattiva-delle-cabine-primarie>



## 2024 : Additional measures 4

2022 Score : 3

Italy brought 1,058 MW of solar photovoltaic (PV) parks in the first quarter of 2023, reaching a cumulative installed capacity of over 26,100 MW, shows data released by the domestic solar energy association, Italia Solare. The total quarterly additions are almost equal to the combined capacity connected to the grid in the first two quarters of 2022 when 1,012 MW of solar farms kicked off operations. More than half of the new installations were plants of less than 20 kW, which accounted for 647 MW. With 569 MW installed, the residential segment, in which plants of up to 12 kW in size are installed, was a major driver, boosting deployments by 239% on the year.

However, additional measures are needed in terms of financing training programmes for installers and administrative staff, as well as designing public awareness campaigns that show the benefits and potential of solar PV in order to accelerate its uptake. With regards to smart meters, Italy has reached a market penetration of almost 100%. According to Solar Power Europe, “one of the biggest challenges of Italy in terms of internal transmission grid development will be the transport of renewable electricity from the South and the islands to the Northern consumption points”<sup>8</sup>. In this context, the revised NECP draft provides clear network planning of transmission capacities until 2030 but does not establish concrete measures to reinforce the distribution grid.

8. <https://www.solarpowereurope.org/advocacy/national-energy-and-climate-plans>

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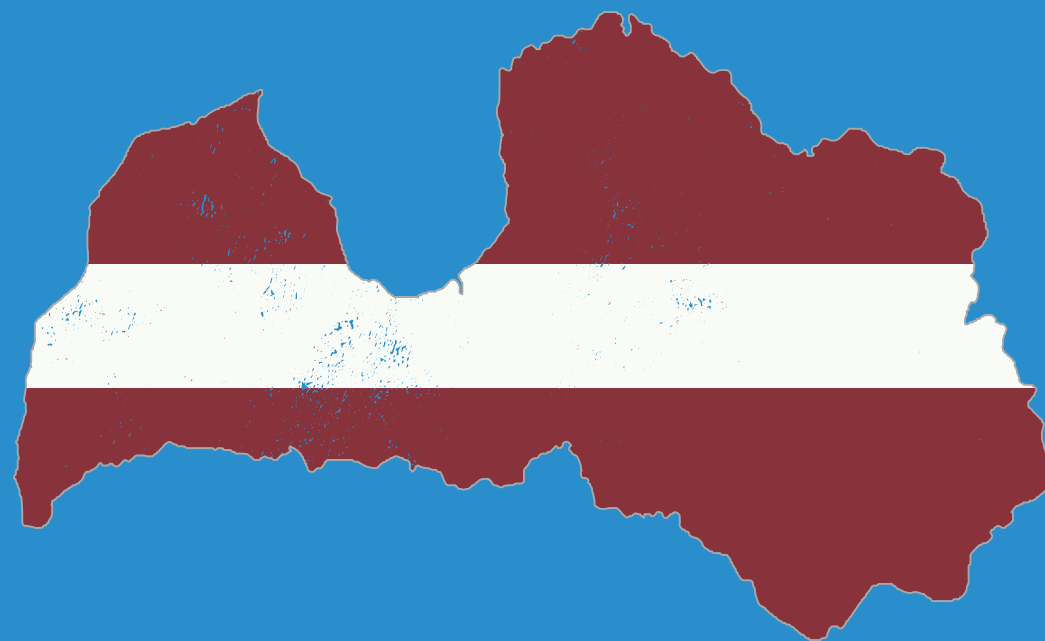
For the full report, follow the link below:

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Overall  
Score

15



2022  
Score

12

## Summary

Latvia aims to increase renewable energy sources (RES) to 50% by 2030, but lacks specific solar targets in its current National Energy and Climate Plan (NECP). While a revised NECP draft has clearer goals, concerns remain about low targets on PV installations (from 19,000 microgenerators in 2023 to only 20,000 in 2030) and a lack of further support measures. However, local governments, like in the capital Riga, are actively engaging in sustainable energy plans, promoting solar PV expansion. Various funding programs support rooftop solar PV installation, but concerns arise over the focus on suburban areas, neglecting densely populated cities.

Amendments to electricity laws introduce net metering and net billing systems, with net metering being phased out by 2029. Permitting for small-scale systems is streamlined, but larger projects may face delays and possible rejections due to grid capacity issues. Energy sharing within housing associations is limited, awaiting regulations for collective self-consumption. Energy communities are recognized in national legislation, but further clarification and enabling frameworks are needed. Solar generation capacity is growing steadily, with a high number of microgenerator permits issued. Smart meter penetration is at 98%, but grid tariff increases in 2023 led to government intervention for temporary compensation measures and tariff revision.

## Scoring System

This country profile highlights the good and the bad policies and practices of solar rooftop PV development within Latvia. It examines and scores six key areas: governance, incentives & support schemes, permitting procedures, energy sharing schemes, energy communities and additional measures to support solar PV development. For this update, we will have the 2022 score to the right as a benchmark:

The scoring system is set out below:



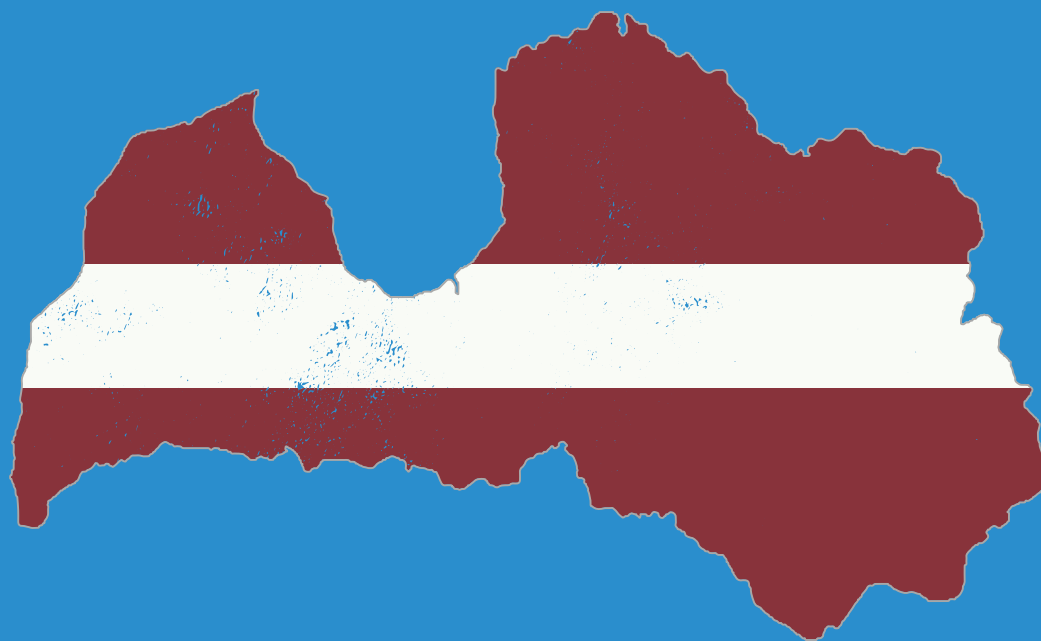
Green = 4-5 points



Orange = 2-3 points



Red = 0-1 points





## Country Profile

### Latvia



## The Good



**Renewable Energy Goals:** Latvia aims to increase the share of renewable energy sources (RES) to 50% by 2030 and local governments have started to take a more active role in energy transition.



**Funding the transition:** Latvia has introduced several recent funding programmes for households which have significantly contributed to the growth rate of rooftop solar PV, including grants, guarantees and technical assistance for installing solar PV.



**Streamlined Permitting:** Simplified permitting processes for small-scale solar installations has allowed for faster and digitalised microgenerator installations.



**Energy communities recognised:** The definitions of energy communities have been included in the national legislation with amendments to the Law on Energy and the Electricity Market Law.



**Solar growth:** Total solar generation capacity is continually increasing, reaching around 300 MW by the end of 2023.



## Country Profile Latvia



# The Bad



**Lack of Solar Targets:** The absence of specific solar targets in Latvia's current National Energy and Climate Plan (NECP).



**Inequitable Funding Allocation:** Concerns over funding programs primarily benefiting suburban areas while not covering densely populated areas raise concerns about equity and inclusivity in Latvia's renewable energy initiatives.



**Grid Capacity Challenges:** Delays and rejections for larger solar projects due to grid capacity issues highlight infrastructure limitations that could impede the scaling up of microgeneration.



**Limited Energy Sharing Mechanisms:** At the moment, there are no practical ways for energy sharing and collective self consumption within Latvia, but there are plans to develop a collective self-consumption regulation.



**Tariff Increases:** In 2023, the grid tariffs increased for customers with larger connection capacities, which caused lots of criticism and the government decided on temporary direct compensation measures for customers.

2024 : Governance 2

2022 Score : 2



Latvia's current NECP in force has set the goal to increase the share of RES to 50% in 2030. However, Latvia is the only country that does not include specific solar targets in its current NECPs<sup>1</sup>. The draft revised NECP (published in November 2023) delineates more clear goals and subtargets, estimating that there will be more than 20,000 active customers in 2030. However, this target value is low because there were already more than 19,000 active customers with microgenerators (up to 11.1kW) at the end of 2023<sup>2</sup>. Furthermore, the NECP draft does not envision any further support measures. As a positive note, local governments have started to take a more active role in energy transition. For example, the capital city Riga has recently prepared its Sustainable Energy and Climate Action plan which entails a progressive vision on expansion of solar PVs through increased citizen participation, availability of rooftop space and technical assistance from the Riga Energy Agency.

1. Eclareon (2022). Barriers and best practices for wind and solar electricity in the EU27 and UK. [https://www.eclareon.com/sites/default/files/res\\_policy\\_monitoring\\_database\\_final\\_report\\_01.pdf](https://www.eclareon.com/sites/default/files/res_policy_monitoring_database_final_report_01.pdf) and RES Policy Monitoring Database <https://resmonitor.eu/en/>

2. <https://sadalestikls.lv/lv/elektroapgades-apskats>

**2024 : Incentives 3**

**2022 Score : 3**

There are several recent funding programmes for households which have significantly contributed to the growth rate of rooftop solar PV, including grants, guarantees and technical assistance for installing solar PV with more than 32 million EUR, with a maximum of 15,000 EUR for each project. However, there are concerns about the funding being targeted only to detached dwellings in suburban areas, not covering the densely populated city. From April 2020, it is possible for private microgeneration (only for natural persons) to retrieve the unused solar electricity from the grid within a period of compensation of one year. Recent amendments to the Electricity Market Law provide that two net systems will be available to electricity producers in Latvia in the near future:

- Net metering system (existing system) in which the amount of energy transferred to the network is recorded in kilowatt hours.
- The net billing system (new system), which is currently being developed by the Ministry of Climate and Energy and in which the amount of electricity transferred to the network will be converted into euros.<sup>3</sup>

The net metering scheme will be replaced by net billing in May 2024, but current participants will be able to use the net metering scheme until 2029.

4. <https://sadalestikls.lv/lv/elektroapgades-apskats>





**2024 : Permitting 4**

**2022 Score : 2**

From 2020, systems below 11.1 kW (Kilowatt) no longer need a permit thanks to a reform according to which the installation of solar panels on the ground or on buildings do not require such permit (there are applicable exemptions)<sup>4</sup>. In these cases, the permitting for microgenerator installations is fast and digitalized. It takes 1.5 days on average to get the approval from the DSO. However, more complex permitting procedures apply for the solar projects above 500 kW and larger projects may encounter rejection and long delays due to grid capacity .

4. [https://www.em.gov.lv/en/permits?utm\\_source=https%3A%2F%2Fwww.google.com%2F](https://www.em.gov.lv/en/permits?utm_source=https%3A%2F%2Fwww.google.com%2F)



**2024 : Energy Sharing 1**

**2022 Score : 1**

Housing associations may use solar PV for their collective consumption in the common premises but the option to distribute electricity to individual apartments is not yet available since solar PV installations can be connected to a single smart meter, yet cannot be shared among the residents as individual clients. It is planned to develop a collective self-consumption regulation that will apply to residential units placed inside one building in the near future, but no practical ways of energy sharing and collective self consumption exist at the moment.



## 2024 : Energy Communities 2

2022 Score : 1

The definitions of energy communities have been included in the national legislation with amendments to the Law on Energy and the Electricity Market Law. An energy community can be an association, foundation, cooperative society, partnership, capital company or other civil law society. The State Construction Control Bureau will run a register of energy communities, ensure its public availability and perform supervision of energy communities. However, there is need to further elaborate certain aspects such as the registration requirements for a Renewable Energy Community or its proximity requirements. A complete enabling framework and special measures for RECs are still not in place. <sup>6</sup>.

6. <https://www.rescoop.eu/policy/latvia-rec-cec-definitions>

**2024 : Additional measures 3**

**2022 Score : 3**

The total solar generation capacity in the distribution system has reached almost 260 MW, and it is expected this could increase to 300 MW by the end of the year (2023). The total number of microgenerators connected to the distribution infrastructure reached about 16,500 at the end of September (2023), and their total production capacity is approaching 140 megawatts (MW). The pace of development of microgeneration, compared to the year 2022, when there was an unprecedented boom in solar panels, has stabilized, but is still relatively high. In nine months, around 5,300 permits were issued for connecting microgenerators, which is still a very large amount.<sup>7.</sup>

There are also residents who want to become members of the net metering system, which was available until December 2023, according to the amendments of the Electricity Market Law explained above.<sup>7.</sup> Latvia has reached a successful smart meter penetration rate of 98%. As a negative note, in 2023, the grid tariffs increased for customers with larger connection capacities, which caused lots of criticism and the government decided on temporary direct compensation measures for customers. The tariff was redefined at the Parliament to achieve a more modest increase as a long-term solution.

7. <https://sadalestikls.lv/lv/elektroapgades-apskats>

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Overall  
Score

19



2022  
Score

18

## Summary




Lithuania's renewable energy targets, particularly in solar PV, have exceeded expectations with 1.2 GW of total solar capacity already installed, surpassing the 2025 goal. The government has set more ambitious targets of 2 GW by 2030, with revised NECP drafts aiming for a 500% increase to 5.1 GW. The nation aims for energy independence, targeting 100% electricity generation from renewables by 2030 and complete reliance on clean sources by 2050. Despite successes, challenges persist, such as resistance to solar mandates in building codes.

Incentives to boost PV installations include subsidies for prosumers and investments in renewable energy communities, backed by EU funds. Legislative reforms aim to streamline processes and encourage growth in prosumer installations. Energy sharing initiatives, including virtual net billing, have gained traction. Lithuania's energy community framework is evolving, with a focus on facilitating participation and oversight. Additional measures are needed to raise awareness and enhance infrastructure, such as the delayed smart meter rollout. As of February 2024, Lithuania boasts over 61,000 prosumers and 800 MW of solar capacity. Moreover, from the 3rd of March 2024 from 12:00 to 14:00, Lithuanian renewable consumption for the first time reached 100%, through the means of national wind and solar production.

## Scoring System

This country profile highlights the good and the bad policies and practices of solar rooftop PV development within Lithuania . It examines and scores six key areas: governance, incentives & support schemes, permitting procedures, energy sharing schemes, energy communities and additional measures to support solar PV development. For this update, we will have the 2022 score to the right as a benchmark:

The scoring system is set out below:

-  Green = 4-5 points
-  Orange = 2-3 points
-  Red = 0-1 points





## Country Profile Lithuania



# The Good



**100% renewable energy aim:** Lithuania aims for 100% electricity generation from renewables by 2030 and complete reliance on sustainable sources by 2050, with solar playing an important role in this as capacity will increase by 500% (5.1 GW) by 2030.



**Stakeholder Involvement:** Civil society organizations have expressed satisfaction with stakeholder involvement in drafting energy plans, indicating transparency and collaboration in the decision-making process.



**Legislative Reforms:** The "breakthrough package" aims to reduce bureaucratic obstacles, creating a favourable environment for accelerated prosumer growth.



**Combatting energy poverty:** Lithuania's revised NECP draft proposes an interesting scheme to support renewable energy communities and to fight energy poverty at city level, there will also be financing for multi-apartment buildings to install solar plants on roofs for common use.



**The rise of the prosumer:** As of February 2024, there were more than 61,000 prosumers in Lithuania. Together they have already installed more than 800MW solar electricity generation capacity.





## Country Profile Lithuania



## The Bad



**Resistance to Mandates:** Despite regulations for solar PV installation on renovated apartment houses, resistance from the Ministry of Environment to introduce solar mandates in building codes could hinder widespread adoption.



**Decreasing Subsidies:** Subsidies for solar PVs are dwindling as costs decrease, potentially slowing down the uptake of solar energy.



**Bureaucratic Processes:** Administrative processes for grid approval and registration fees for larger installations may deter investment in commercial solar plants.



**Limited Framework for Energy Sharing:** While some forms of energy sharing exist, there's no comprehensive legal framework beyond energy communities, potentially limiting the scalability of such initiatives.



**Challenges in Energy Community Status:** Despite favourable legislation, obtaining energy community status from regulators remains burdensome, hindering participation in energy production.

2024 : Governance 4

2022 Score : 3

Lithuania established a goal of solar PV of 0.8 GWp (Gigawatt) in the NECPs in force, but in the meantime the government has set more ambitious goals for total Solar PV: 1 GWp by 2025 and 2 GWp by 2030. The 2025 target has already been surpassed with 1.2 GW total solar capacity already. On a positive note, from the 3rd of March 2024 from 12:00 to 14:00, Lithuanian renewable consumption for the first time reached 100%, through the means of national wind and solar production.<sup>1</sup>

Lithuania has also set clear subtargets. The national energy independence strategy aims to achieve 30 % of prosumers in 2030 and 50 % in 2050 of all consumers. Lithuania aims to generate 100 % of its electricity needs by 2030, with up to 90 per cent of it being produced by local renewable sources. By 2050 all electricity and heat consumed in Lithuania will be produced from renewable and other clean sources.<sup>2</sup> In the recently revised NECP draft submitted to the European Commission,<sup>3</sup> Lithuania has increased its goal to increase solar capacity by 500% in 2030, reaching 5.1 GW. This is a significant rise compared to the current NECPs,<sup>4</sup> making Lithuania the country with the largest increase in solar targets relative to the existing NECPs. Additionally, it's noteworthy that the participation and involvement of stakeholders in preparing the draft NECPs has been deemed satisfactory by the civil society organisations.<sup>5</sup>

Lithuania approved in 2022 the breakthrough package, a package of legislative amendments with a focus on acceleration and stimulation of the development and expansion of green energy through major reforms in Lithuania's electricity sector. One negative development is that the Ministry of Environment refuses to introduce the solar mandate (as of February 2024) for all new buildings into the building code, even though there are regulations that foresee the installation of solar PV on renovated apartment houses (with area above 1500 m<sup>2</sup>) for common use from July 2022.

1. <https://www.vz.lt/pramone/2022/03/25/vyriausybes-planas-2030-m-iki-90-suvartojamos-energijos-turetu-buti-vietine>

2. [https://china-cee.eu/2023/11/07/lithuania-political-briefing-new-energy-strategy-aiming-for-green-and-self-sufficient-electricity-and-heat-production/#\\_ftn2](https://china-cee.eu/2023/11/07/lithuania-political-briefing-new-energy-strategy-aiming-for-green-and-self-sufficient-electricity-and-heat-production/#_ftn2)

3. [https://commission.europa.eu/publications/lithuania-draft-updated-necp-2021-2030\\_en](https://commission.europa.eu/publications/lithuania-draft-updated-necp-2021-2030_en)

4. <https://www.solarpowereurope.org/advocacy/national-energy-and-climate-plans>

5. <https://caneurope.org/new-report-calls-for-drastic-improvement-of-europes-national-energy-and-climate-plans/>

2024 : Incentives 4

2022 Score : 4

In Lithuania, all prosumers are connected to the distribution network of AB Energijos skirstymo operatorius. The prices of services and the percentage for the use of electricity grids shall be fixed once a year. Taxes and fees are not high (~1-5 % depending on the size of solar PV). The revised NECP draft provides a support scheme for prosumers with a total budget from EU funds of €160 million between 2023 and 2029 up to 10kW<sup>6</sup>. Regular calls for solar PV subsidies are made each year. In Spring 2022, for instance, €39.5 million out of €48 million were allocated to Solar PVs on their rooftops. Up to 10 kW, each participant could obtain about 320 Eur/kW, so it is a very strong incentive for the uptake of solar PV.

But support is dwindling since PV costs are decreasing. Additionally, support is envisaged for investments by legal persons, farmers, and renewable energy communities in onshore solar and wind power plants. The revised NECP draft also proposes an interesting scheme to support RES communities and to fight energy poverty at city level, with planned operating grants of €78.5M and provides clear objectives of storage deployment at household level, with the intervention of the EU structural funds for a volume of €3.3B and 20 MWh (megawatt per hour) between 2023 and 2029<sup>7</sup>. There is also financing for multi-apartment buildings to install solar plants on roofs for common use (up to 10 kW).

6. <https://www.solarpowereurope.org/advocacy/national-energy-and-climate-plans>

7. <https://www.solarpowereurope.org/advocacy/national-energy-and-climate-plans>



2024 : Permitting 4

2022 Score : 3

Currently, probably the main reason that impedes solar development and that makes administrative procedures long and burdensome in Greece, including rooftop solar, is grid availability. In many areas, applications for solar rooftop PV are being rejected due to lack of electricity grid capacity. To understand the scale of the issue, up until December 2023, 48% of the requested energy communities' renewables projects have received a notification of inability to connect from the Hellenic Electricity Distribution Network Operator (HEDNO). Additionally, the responsible authorities have been criticised for implementing non-transparent decision-making processes. To address this problem, in summer 2022 after a legislative change by the Ministry of Environment and Energy, HEDNO amended the Management Code of the Greek Electricity Distribution Network, in order to increase the capacity of the existing substations by a total of 2.5 GW. The goal was the allocation of 10 MW to each substation for new net-metering and virtual net-metering systems, as well as for rooftop PVs. 40% was intended for residential systems, 30% for self-consumption by farmers and the remaining 30% for SMEs (up to 10 kW).

**2024 : Energy Sharing 2**

**2022 Score : 3**

There is no legal framework for collective self-consumption and energy sharing beyond the established framework for energy communities. However, it is allowed in multi apartment buildings with a majority of house owners' approval, but in some cases a disproportionate network tariff applies. Also Lithuania has implemented a variation of energy sharing, commonly called “virtual net billing”. Those individuals or businesses that do not have a private rooftop or a yard, are offered to buy solar panels that are installed in so called remote solar parks, and become remote generating electricity consumers. Each individual investor buys and owns a certain amount of electricity generation capacity. This allows citizens, for example, to benefit from the solar installations on their holiday homes while working in the city. Alternatively, they can acquire a share of a power plant, located on the other side of the country. All electricity generated by this power plant is then accounted to the consumer's balance. During the first<sup>7</sup> half of 2023, the number of remote generating consumers more than doubled – more than 13,000 of them were connected to the grid. As of February 2024, there were more than 34 thousand remote generating electricity consumers in Lithuania with a total 202.7 MW capacity.

8. <https://www.solarpowereurope.org/advocacy/position-papers/framework-for-collective-self-consumption>

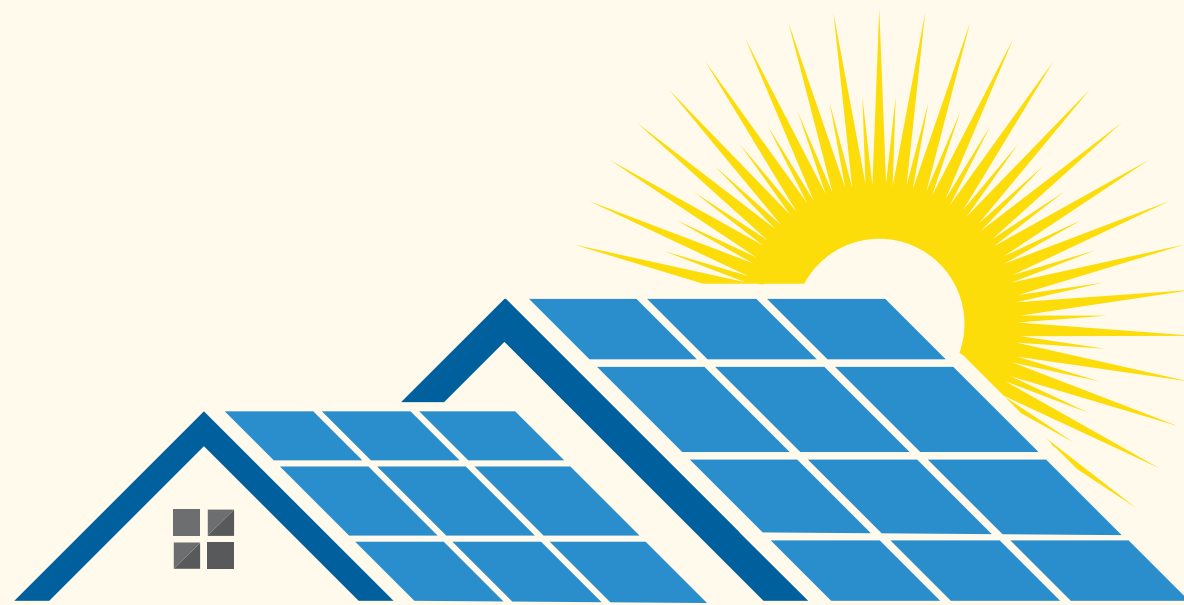
2024 : Energy Communities 2

2022 Score : 3

Lithuania has defined RECs “as non-profit making legal entities who own and develop renewable energy production facilities and have the right to produce, consume, store and/or sell energy in installations”. According to the REScoop tracker “the REC definition, at least on paper, can be considered a good practice. However, there is still further work to be done on the transposition”<sup>9</sup>. The CEC definition has also been transposed. Legislation incentivises energy communities in general by introducing a beneficial framework, without need to have a licence as an independent electricity supplier. The State Energy Regulatory Board will inspect, supervise and control the compliance of RECs and CECs. Notwithstanding, it is still burdensome to get an energy community status from the regulator. As of February 2024, 3 organisations have REC status and 8 CEC status, but none of them produce energy from rooftops.



9. <https://www.rescoop.eu/policy/lithuania>



2024 : Additional measures 2

2022 Score : 2

Once the government has created a more flexible and favourable regulatory framework with subsidy schemes for private individuals, there has been a significant uptick in the number of prosumers, usually on rooftops or in private yards and gardens. As of February 2024, there were more than 61,000 prosumers in Lithuania. Together they have already installed more than 800MW solar electricity generation capacity. However, there is a need for additional awareness campaigns. Lithuania had previously planned to roll out its €1.2 million smart metre installation project in 2021, with the aim of reaching its target by 2023. However, the rollout has been rescheduled and it was expected that by the end of 2023 80 % of all electricity would be accounted for by smart metres. By September 2023, Lithuania had barely started their rollout.<sup>10.</sup>

10. <https://www.smart-energy.com/industry-sectors/smart-meters/smart-metering-progresses-in-europe-but-11-countries-have-barely-started/>

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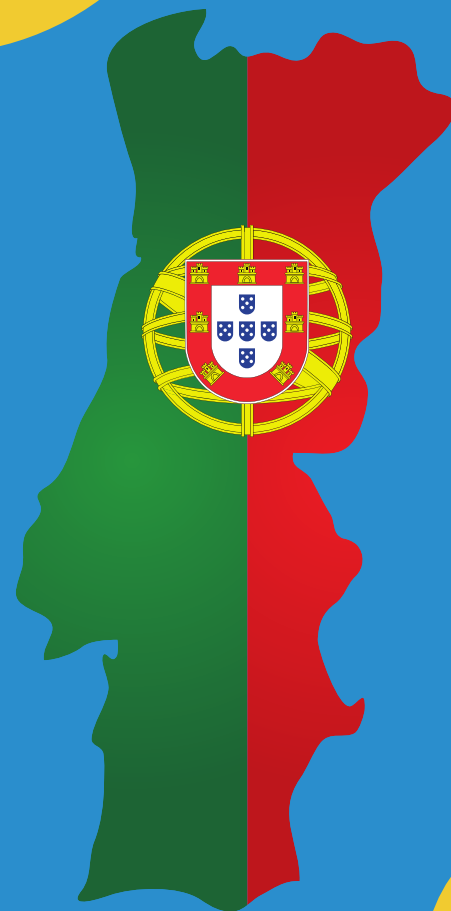
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Overall  
Score

15



2022  
Score

15

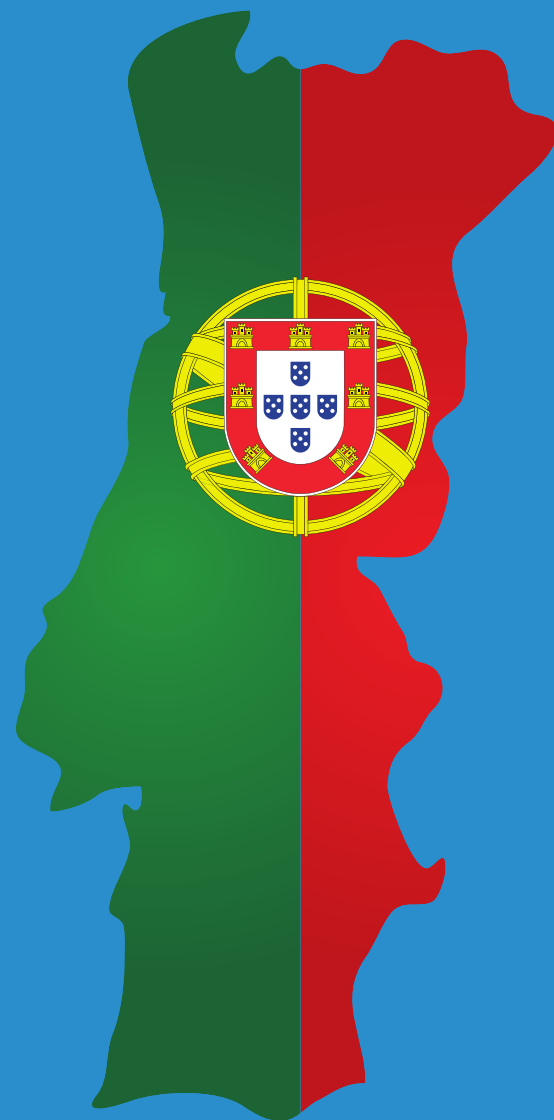
## Summary

While Portugal's revised National Energy and Climate Plan (NECP) and Long-Term Strategy for Carbon Neutrality (LTS) have raised targets for decentralised solar photovoltaic (PV) capacity, they remain below the country's solar potential. Regulatory frameworks, influenced by EU directives, lack feed-in tariffs, posing challenges for economically viable projects beyond self-consumption. Despite incentives like VAT exemptions and partial grid charge deductions for self-consumers, administrative hurdles persist, with lengthy permitting processes and slow responses from authorities.

Energy sharing initiatives allow for collective self-consumption (CSC) and renewable energy communities (RECs), but licensing delays hinder implementation. Portugal's legal framework accommodates energy community definitions, yet lacks comprehensive enabling structures, raising concerns over oversight and abuse. Financial support through government programs aims to bolster renewable energy community projects, but outcomes remain uncertain. Addressing staffing shortages in public administrations is crucial to expedite connection requests and streamline processes. Simplifying regulations and enhancing administrative capacity are essential to fully realise Portugal's renewable energy ambitions.




**Support for decentralised energy production:** Portugal's revised NECP draft provides a detailed analysis of the state of play of self-consumption and includes measures to support decentralised production, including self-consumption, and energy communities.

## Scoring System



This country profile highlights the good and the bad policies and practices of solar rooftop PV development within Portugal. It examines and scores six key areas: governance, incentives & support schemes, permitting procedures, energy sharing schemes, energy communities and additional measures to support solar PV development. For this update, we will have the 2022 score to the right as a benchmark:

The scoring system is set out below:

-  Green = 4-5 points
-  Orange = 2-3 points
-  Red = 0-1 points



## Country Profile Portugal



# The Good



**Support for decentralised energy production:** Portugal's revised NECP draft provides a detailed analysis of the stay of play of self-consumption and includes measures to support decentralised production, including self-consumption, and energy communities.



**Incentive Programs:** Initiatives such as VAT exemptions and partial grid charge deductions incentivize self-consumption of solar energy, encouraging renewable energy adoption.



**Legal Framework:** Establishment of legal frameworks for collective self-consumption and renewable energy communities provides a basis for community-driven renewable energy projects.



**Energy Sharing:** Portugal's permissive geographical boundaries for Collective Self-Consumption, along with financing options and potential business models, facilitate wider participation in renewable energy initiatives.



**Digital Infrastructure:** Progress in deploying smart meters signifies advancements in digital infrastructure, laying the groundwork for more efficient energy management.



## Country Profile Portugal



## The Bad



**Insufficient Targets:** Despite revisions, solar energy targets in Portugal fall below the country's technical and economic potential, hindering full-scale renewable energy integration.



**Regulatory Complexity:** Lack of feed-in tariffs and lengthy permitting processes pose barriers to economically viable solar projects beyond self-consumption, discouraging larger-scale investments.



**Administrative Delays:** Licensing delays for collective self-consumption and energy community projects create uncertainty and frustration among investors.



**Oversight Gaps:** Absence of authorities to oversee energy communities and ensure compliance raises the risk of abuse within renewable energy community projects.



**Staffing Shortages:** Shortages in public administration staffing slow down connection requests and administrative processes, hindering the pace of solar deployment, approvals and implementation.



2024 : Governance 2

2022 Score : 2

The current NECP (pre revision) points to 2,000 MW (Megawatt) of decentralized solar PV in 2030, as opposed to 7,000 MW of centralised, whereas the LTS (Long-Term Strategy for Carbon Neutrality) points to 13,000 MW for both centralised and decentralised in 2050 (26 GW in total)<sup>1</sup>. These objectives are far below the technical and economic potential of solar in the country. The revised NECP updated those numbers to 5,500 MW and 14,900 MW, respectively, which is a capacity share increase from ~22% to ~27%. However, the objective for decentralized PV is still far below the technical and economic potential of solar in the country according to the Joint Research Center of the European Commission<sup>2</sup>. The revised draft provides a detailed analysis of the stay of play of self-consumption and includes measures to support decentralised production, including self-consumption, and energy communities, but it lacks a quantitative assessment of the future uptake of prosumers.<sup>3</sup>

1. [https://unfccc.int/sites/default/files/resource/RNC2050\\_EN\\_PT%20Long%20Term%20Strategy.pdf](https://unfccc.int/sites/default/files/resource/RNC2050_EN_PT%20Long%20Term%20Strategy.pdf)

2. <https://publications.jrc.ec.europa.eu/repository/handle/JRC113070>

3. <https://www.solarpowereurope.org/advocacy/national-energy-and-climate-plans>

**2024 : Incentives 3**

**2022 Score : 3**

The legal regime applicable in Portugal is Decree-Law 15/2022, which also affects renewable energy communities, making the transposition into Portuguese law of the Renewable Energy Directive (EU) 2018/2001. There is no feed-in tariff or feed-in price applicable (surplus is sold at market price), which makes it difficult to make economically viable projects that use rooftops beyond production for self-consumption. There is in place a governmental fund (Environmental Fund) which includes subsidies to rooftop PV solar in the context of the Recovery and Resilience Program, with separate calls for individual units on one hand and CSC (collective self-consumption) and energy communities on the other. At the end of 2022, Portugal published the Decree Law 85/2022, exempting natural or legal persons from the payment of VAT and taxes associated with the sale of surplus electricity from self-consumption electricity production units with an installed capacity equal to or less than 1000 euros per year. Additionally, according to the legislation, self-consumption grid charges by RECs (renewable energy community) and prosumers are partially deducted for the first 7 years. Up until now, the exemption of these costs has been applied to electricity produced by RECs and through collective prosumership.



2024 : Permitting 2

2022 Score : 3

On a positive note, there are no fees up to 30 kWp under the modality of individual self-consumption PV (installed on ground or rooftop). Above 30 kWp, a registration fee and the need for an operating certificate will be required. Only installations bigger than 100 kW will need approval from the grid operator (which is still a lengthy administrative process). Also, Portugal has established a single contact point for the permitting process, and legislation provides for a positive silence for small-scale projects, according to which the absence of a reply by the relevant authorities entails the approval of the permit.<sup>4</sup> However, administrative procedures are still slow (it is taking several months/years) due to very slow responses from the energy directorate caused by a lack of resources, in particular, with the regard to the production of licenses for collective self-consumption and REC, which take more than a year to obtain (at least).

4. <https://www.solarpowereurope.org/advocacy/position-papers/res-booster-stocktake>

**2024 : Energy Sharing 3**

**2022 Score : 3**

Portugal has a legal framework that allows the use of the public grid for CSC or REC. Like France, it has a permissive geographical boundary for CSC. The perimeter is restricted to 2 km on low-voltage, 4 km on medium voltage, 10km on high voltage, and 20 km on very high voltage grids. On medium, high and very high voltage, the CSC needs to be in the same substation. Larger distances may be authorised by the National Licensing Authority (Directorate-General for Energy and Geology) on a case-by-case basis<sup>5</sup>. Furthermore, multiple financing options and potential business models facilitate the installation process for consumers, without restriction for potential participants (corporate or individuals) or regarding the owners/holders of the assets (third parties may own the assets)<sup>6</sup>.

However, there is an urgent need to simplify the processes, since production and grid connection licenses for collective self-consumption take more than a year to obtain even for small scale projects such as those of 3 kilowatts. Due to these complaints, the Ministry of the Environment implemented a new licensing platform in September 2023 to speed up the collective self-consumption process. However, the waiting list is still considerable.

5. <https://www.solarpowereurope.org/advocacy/position-papers/framework-for-collective-self-consumption>

6. <https://www.solarpowereurope.org/advocacy/position-papers/framework-for-collective-self-consumption>



**2024 : Energy Communities 3**

**2022 Score : 3**

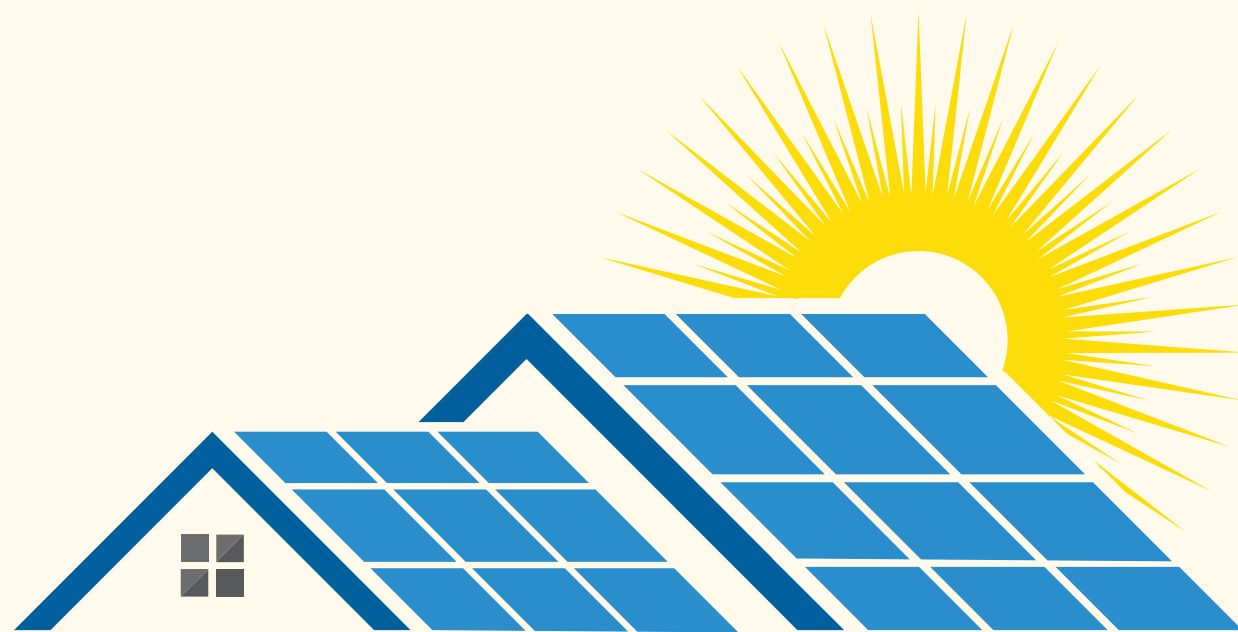
Portugal has introduced in their national legislation both the REC definition, with a very similar wording than the Directive, and the CEC definition. However, it has yet to establish a comprehensive or coherent enabling framework to allow energy communities to develop. According to REScoop, there are a number of gaps that will prevent energy communities from exercising their full rights under the EU directives.<sup>7</sup> For instance, the fact that RECs may assume any legal form provides flexibility for their development, but as there there is no authority to oversee RECs or their compliance with the definitions, there is a high risk of abuse.<sup>8</sup> Additionally, up to date, RECs face considerable delays in the licensing process, causing frustration and uncertainty for investors.

The government has published calls to support the implementation of Renewable Energy Communities and Collective Self-Consumption, financed through the Recovery and Resilience Plan, the first one closed in February 2023, but the results are not yet known. The programme applied to services and commercial buildings, residential buildings and public buildings, with different financing percentages, covering the installation of RES-e generation systems, with or without storage, the performance of studies and consulting services and the acquisition of software and/or smart platforms.<sup>9</sup> Portuguese legislation states that participation in RECs is open to all consumers, including low income or vulnerable households, even though the effective implementation of this provision requires further concretisation.

7. <https://www.rescoop.eu/policy/portugal-rec-cec-definitions>

8. <https://www.rescoop.eu/policy/portugal-rec-cec-definitions>

9. <https://www.fundoambiental.pt/apoios-prr/c13-eficiencia-energetica-em-edificios/c13-i01-02-03-apoio-a-concretizacao-de-comunidades-de-energia-renovavel-e-autoconsumo-coletivo.aspx>



2024 : Additional measures 2

2022 Score : 2

Portuguese national DSO E-REDES has announced surpassing the 5.5 million smart meter mark with meters with active remote services, which corresponds to a coverage of 80% of customers in mainland Portugal. With this update, E-REDES reports being on track to achieve the goal of having 100% of smart meters installed in Portuguese homes by the end of 2024.<sup>10</sup> On the other hand, there is a need for hiring and training additional staff, particularly at public administrations (both at national and municipal level), in order to respond faster to the connection requests.

10. <https://www.smart-energy.com/industry-sectors/smart-meters/e-redes-passes-5-5-million-smart-meter-milestone/#:~:text=E%2DREDES%20reports%20being%20on,by%20the%20end%20of%202024.>

## Engaging citizens and local communities in the solar revolution

The Rooftop Solar PV Comparison Report update produced by CAN Europe and its member organisations aims to detect barriers at national level that impede a higher uptake of residential rooftop solar PV, highlight best and bad practices, and to put forward concrete policy recommendations for setting up the right regulatory framework to ensure an accelerated uptake of rooftop solar PV.

11 countries were chosen to be assessed and scored on their performance regarding the development of rooftop solar PV within their country.

For the full report, follow the link below:

<http://caneurope.org/rooftop-solar-pv-comparison-report>



Overall  
Score

13



2022  
Score

6

## Summary




Romania's revised NECP draft outlines modest growth targets for solar power capacity but this below the country's solar potential and lacks specificity and concrete measures for achievement. Proposed revisions aim to set clearer sub-targets, yet uncertainties remain regarding implementation and grid capacity issues. Incentives for prosumers include exemptions from taxes and green certificate purchases, alongside subsidy programs like Casa Verde Fotovoltaice. However, bureaucratic delays and fiscal consolidation measures pose challenges to the sector's growth. New initiatives such as REPowerEU offer additional financial support, but impending tax increases and bureaucratic hurdles threaten progress.

Permitting procedures for prosumers suffer from slow and bureaucratic processes, contributing to delays in project implementation. Discussions regarding capacity limitations per person and uncertain legislative modifications further compound permitting challenges. Romania lacks explicit legal regulations for energy sharing despite efforts to redefine prosumers and promote direct energy sales. While initiatives exist for energy communities, a clear legal framework is absent, hindering their development and access to European funds. Additional measures include plans for significant solar capacity expansion and efforts to modernise the energy infrastructure, albeit with a low smart meter penetration rate. Financial support from entities like the European Investment Bank aims to facilitate renewable energy integration and grid modernization efforts.

## Scoring System

This country profile highlights the good and the bad policies and practices of solar rooftop PV development within Romania. It examines and scores six key areas: governance, incentives & support schemes, permitting procedures, energy sharing schemes, energy communities and additional measures to support solar PV development. For this update, we will have the 2022 score to the right as a benchmark:

The scoring system is set out below:

-  Green = 4-5 points
-  Orange = 2-3 points
-  Red = 0-1 points



## Country Profile

### Romania



## The Good



**Growth in prosumers:** Romania revised NECP draft foresees the overall installed capacity of prosumers is expected to surpass 1.1 GW by the end of 2023, with the long-term aim to reach a substantial milestone by 2030, reaching 2.5 GW. At the end of 2023, Romania crossed the 100,000 prosumers milestone.



**Incentive Programs:** Initiatives like the Casa Verde Fotovoltaice program and REPowerEU offer financial support to encourage individuals and businesses to adopt solar energy.



**Infrastructure Modernisation:** Efforts to modernise energy infrastructure with support from entities like the European Investment Bank can facilitate renewable energy integration.



**A stepping stone for energy communities:** Transposition of energy communities and declarations from Romania's national regulator to promote their growth is encouraging.



**Regulatory Efforts:** Efforts to revise legislation and define prosumers may lay the groundwork for future energy sharing and community initiatives.



## Country Profile Romania



## The Bad



**Lack of Ambition:** Targets set in Romania's NECP draft lack ambition and do not reflect the potential for solar development in the country.



**Bureaucratic Delays:** Fiscal consolidation measures will significantly reduce aid in 2024 and excessive bureaucracy has delayed several times the implementation of the programs blocking the whole PV sector for many months.



**Grid capacity issues:** There are ongoing discussions regarding limiting potential prosumers from connecting to the grid due to a lack of capacity and concerns the grid may become unbalanced.



**Lack of legal framework:** Local initiatives lack a clear legal framework to set guidelines for the creation, operation and governance of an energy community, failing to ensure transparency, accountability and legal protection for participants.

2024 : Governance 3

2022 Score : 3



The current National Energy Climate Plan (NECP) in force projects growth in terms of installed capacity of solar power from 1.3GW (Gigawatts) in 2020 to 5GW in 2030. However this target lacks ambition and does not reflect the potential for solar development in Romania<sup>1</sup>. It also lacks specific subtargets and clear measures to achieve them. The draft revised NECP submitted in Autumn 2023 describes clearer sub-targets than the NECPs in force. For instance, new installations will progress with 100 MW (Megawatt) each year from 2023 to 2029 and further accelerate to 800 MW each year from 2030 to 2050. On the other hand, there is no clear pathway to reach these goals and the subtargets, which are not backed by concrete measures and incentives after 2025 yet. Some of the subtargets may also be in contradiction with declarations from high ranked energy officials stating that there will be limitations set for prosumers due to grid capacity issues.

1.<https://www.solarpowereurope.org/advocacy/national-energy-and-climate-plans>



2024 : Incentives 3

2022 Score : 2

A new legislation is being discussed, which initially will allow prosumers with installed capacities of up to 400kW to store and sell their energy directly to another person, who is connected to the production installation through a net billing scheme, with the condition to be connected to the same DSO and supplier. Prosumers (physical persons) with a maximum of 400kW installed power are exempted from payment of taxes for the self consumed energy or for the energy which is sold to suppliers; and both companies and physical persons do not need to buy green certificates anymore. However, after its initial approval by the Parliament in November 2023, the President of Romania sent the Parliament a request to re-examine the recently voted law.<sup>2</sup> With regards to incentives, Romania introduced the Casa Verde Fotovoltaice project in 2019 to cover up to 90% of capital expenses of solar systems for residential segments with a minimum capacity of 3 kW. As of 2023, the financing scheme covered up to 4000 euros of an investment in a PV system of minimum 3kW, but in 2024, the amount will probably decrease by half compared to the current one due to fiscal consolidation measures.<sup>4</sup>

On the other hand, It has been announced a new incentive program as part of the REPowerEU, starting in 2024, run by the Ministry of Investments and European Projects, which includes batteries in the scheme: vouchers for up to 10,000 EUR for PVs and batteries - 5,000 EUR for minimum of 3 kW PV installation, and 5,000 EUR for a 5 kWh battery. In January 2023, the government enacted a law to bring down value added tax (VAT) on solar panels and their installation from 5% to 19%,<sup>5</sup> but there have been announcements that it will increase to 9% from the 1st of January 2024.<sup>6</sup> In conclusion, financial support through incentives' programs is in place and it has motivated people to become prosumers while changing their perception of PV technology in a positive way. However, as a negative note, fiscal consolidation measures will significantly reduce aid in 2024 and excessive bureaucracy has delayed several times the implementation of the programs blocking the whole PV sector for many months on each of the three editions of the incentives program.

2. <https://e-nergia.ro/iohannis-retrimite-parlamentului-legea-votata-care-aducea-schimbari-importante-pentru-prosumatori/>

3. ADMINISTRATIA FONDULUI PENTRU MEDIU - CASA VERDE FOTOVOLTAICE (afm.ro)

4. <https://e-nergia.ro/subventia-pentru-instalarea-de-panuri-fotovoltaice-acasa-scade-la-10-000-de-lei-anul-viitor/>

5. <https://taiyangnews.info/romania-lowers-value-added-tax-on-solar-pv-panels/>

6. <https://www.startupcafe.ro/taxe/ministrul-finantelor-taxe-tva-horeca-panouri-solare.htm>



2024 : Permitting 2

2022 Score : 2

Although the overall environment (e.g. legislation, regulations) for prosumers has improved over the last 2-3 years, Romania still suffers from the problem of slow and bureaucratic procedures that pose delays on citizens. As an example, the above mentioned bureaucratic delays and bottlenecks in the implementation of financing schemes. There is uncertainty as well about the final product of the new legislative modifications due to the President's request to re-examine the recently voted law, but also how its outcome is going to be implemented in the ground, including operations and communication channels between DSOs and electricity suppliers. Furthermore, there is an ongoing discussion about limiting the capacities installed per person in order not to unbalance the grid, which probably would have an impact delaying permitting procedures, according to declarations from the Ministry of Energy and officials from the energy regulator (ANRE).



**2024 : Energy Sharing 1**

**2022 Score : 0**

Despite the declarations from the national energy regulator according to which they are working and designing potential models for energy sharing,<sup>7</sup> Romania still lacks explicit legal regulations in this respect. The revised but not confirmed yet definition of prosumer (November 2023) presents potential opportunities to pave the way for energy sharing, including the newfound ability to directly sell energy to another consumer connected to the production facility and the option to offset surplus energy production against consumption at another site, provided it is under the same supplier and distribution operator. But in general, the lack of supportive legal structures hampers prosumers' capacity to fully capitalise on the advantages of self-consumption and energy sharing. While the revised definition of prosumer in November 2023 offers some promising changes, these amendments may not be sufficient to address the broader issues within the existing legal framework.

7. <https://www.energynomics.ro/en/dumbraveanu-we-are-working-on-a-legislative-framework-related-to-citizens-energy-communities/>

## 2024 : Energy Communities 2

2022 Score : 3

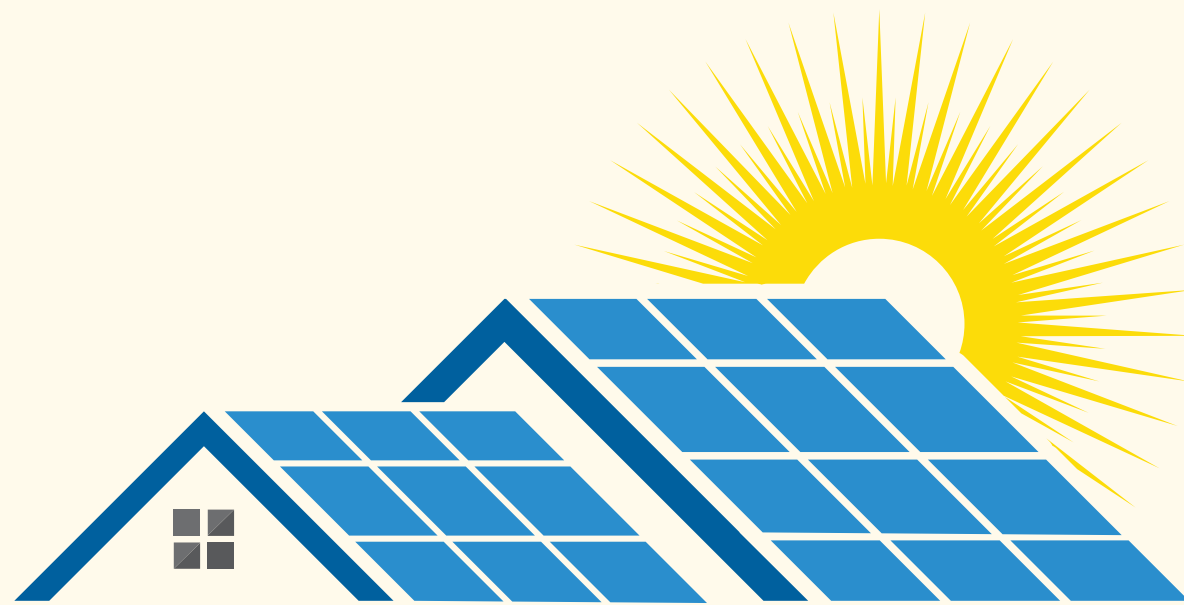
Currently, Romania has transposed the European directives defining Citizen Energy Communities and Renewable Energy Communities (REC), the latter at the end of 2022. For the most part, this legislation has been a copy-paste of the provisions from the Electricity and REC Directives, with some duties provided to the National Regulator, ANRE, to further articulate regulations.<sup>8</sup> In September 2023, declarations from ANRE mentioned their will to develop a set of regulations and a guide that will allow active customers to act on the market and establish themselves in energy communities of citizens, but it has not been approved yet and requires further development.<sup>9</sup> Up until now, Romanian authorities have not yet implemented the provisions assumed by the RED II transposition regarding the creation of an enabling framework for energy communities, or the assessment of barriers and their removal.

Local initiatives lack a clear legal framework to set guidelines for the creation, operation and governance of an energy community, ensuring transparency, accountability and legal protection for participants. There are neither regulations for grid integration and market access of energy communities. Several grassroots initiatives, including municipalities, citizen groups, and organisations, are urging central authorities to accelerate the completion of relevant legislation. The current absence of such regulations poses challenges in securing European funds for these initiatives.

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8. <https://www.rescoop.eu/policy/romania>

9. <https://www.energynomics.ro/en/dumbraveanu-we-are-working-on-a-legislative-framework-related-to-citizens-energy-communities/>



2024 : Additional measures 2

2022 Score : 2

Romania had a total solar installed capacity of 1.8 GW by the end of 2022, which expects the country's to add another 6.1 GW by 2026 in its business-as-usual scenario<sup>10</sup>. At the end of 2023, Romania reached the 100,000 prosumers milestone. This rapid advance has been mainly boosted by the incentives of the Casa Verde Fotovoltaice Program, run by the Environmental Fund Administration, but also as a citizens' response to the uncertainties of the energy prices.

The smart meter penetration rate is of 16%.<sup>11</sup> Already in 2021, the European Investment Bank (EIB) had signed a EUR 120 million loan with the power distribution subsidiary of Romanian electricity supplier Electrica Group to finance network modernization, advanced metering, and renewable energy integration.<sup>12</sup>

10. <https://taiyangnews.info/romania-to-boost-residential-solar-installations/#:~:text=Romania%20had%20a%20total%20installed,business%2Das%2Dusual%20scenario.>

11. <https://balkangreenenergynews.com/central-eastern-europe-severely-lagging-in-smart-meters-rollout/>

12. <https://balkangreenenergynews.com/romanas-electrica-secures-eur-120-million-loan-for-network-upgrades-smart-meters-renewables/>

## Engaging citizens and local communities in the solar revolution

The Rooftop Solar PV Comparison Report update produced by CAN Europe and its member organisations aims to detect barriers at national level that impede a higher uptake of residential rooftop solar PV, highlight best and bad practices, and to put forward concrete policy recommendations for setting up the right regulatory framework to ensure an accelerated uptake of rooftop solar PV.

11 countries were chosen to be assessed and scored on their performance regarding the development of rooftop solar PV within their country.

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Overall  
Score

15



2022  
Score

15

## Summary




The Spanish government has taken significant steps to promote self-consumption of solar energy, including the approval of a road map with over thirty measures aimed at facilitating its deployment and eliminating barriers. However, targets for installed capacity were initially deemed insufficient and have since been revised upward to 19 GW by 2030 in the latest NECP draft. For PV in general (39.2GW), the revised NECP draft increases 95% the target of the current NECPs in force to 76.4GW. Incentives such as simplified compensation for generation surpluses have been introduced, but the absence of a feed-in tariff or premium creates funding instability. Permitting processes have been simplified, but administrative hurdles remain, particularly for collective self-consumption initiatives.

While energy communities are growing, regulatory frameworks are still evolving. Despite a surge in solar installations, challenges such as higher interest rates and delayed subsidies hinder residential adoption and could potentially lead to a decrease of around 25% to 50% in the residential self-consumption market. The Spanish government plans to introduce more dissemination efforts and training programs aim to support customers entering into the self-consumption market. In terms of smart meter installations, Spain has almost reached a 100% penetration rate following a government mandate.

## Scoring System

This country profile highlights the good and the bad policies and practices of solar rooftop PV development within Spain. It examines and scores six key areas: governance, incentives & support schemes, permitting procedures, energy sharing schemes, energy communities and additional measures to support solar PV development. For this update, we will have the 2022 score to the right as a benchmark:

The scoring system is set out below:

-  Green = 4-5 points
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## Country Profile Spain



# The Good



**Promotion of Self-Consumption:** The Spanish government has taken significant steps to promote self-consumption of solar energy, including the approval of a road map with over thirty measures aimed at facilitating its deployment.



**Incentives:** Introduction of incentives such as simplified compensation for generation surpluses and additional funding from European funds for new self-consumption facilities.



**Simplified Permitting:** Simplification of bureaucratic procedures and elimination of the need for certain administrative permissions for smaller installations.



**Energy Community Growth:** The number of energy communities that produce electricity has increased throughout Spain (291 the 4th December 2023), due basically to self-consumption subsidies and the initiative of groups of pioneering individuals



**Dissemination and Training:** Spain is planning to implement more dissemination measures, information campaigns, and training activities to support consumers interested in self-consumption installations.



## Country Profile

### Spain



## The Bad



**Lack of transparency:** Spain did not set up a Multilevel Climate and Energy Dialogue Group to discuss the NECP draft recently submitted to the European Commission as required by the Governance Regulation.



**Funding Instability:** The absence of a feed-in tariff or premium creates funding instability, leading to fluctuations in the rate of installation when European funds and subsidies run out.



**Administrative Hurdles:** Despite efforts to simplify permitting processes, administrative hurdles remain, particularly for collective self-consumption initiatives, leading to delays in activation of solar installations.



**Challenges in Residential Adoption:** Challenges such as higher interest rates and delayed subsidies hinder residential adoption of solar panels, leading to a projected decrease in the residential self-consumption market.



**Issues with Energy Communities:** Despite the growth, issues such as delays caused by electricity distributors and disproportionate administrative requirements hinder further growth of local, collective self-consumption initiatives.

**2024 : Governance 3**

**2022 Score : 3**

A road map for self consumption was approved by the Spanish Government in December 2021 after pressure from NGOs and 2 years of delay. The Road Map includes more than thirty measures to promote self-consumption (mostly solar PV) and "aims to identify the challenges and opportunities of self-consumption to ensure its massive deployment in Spain, as well as to eliminate existing barriers to its implementation and promote its development in all productive sectors ". Even originally there was a lack of ambition in the installed capacity targets for self consumption in 2030 (9 GW) (the CNMC, the Spanish energy regulator itself, warned the Government that the targets would be already reached in 2025).<sup>1</sup> For PV in general (39.2GW), the revised NECP draft increases 95% the target of the current NECPs in force to 76.4GW (Gigawatt) and in particular, for self consumption it increases to 19 GW.

The new draft also introduces an improved quota for citizen-led renewable initiatives and quantified objectives in terms of prosumers' engagement and investment volume for prosumers. A national round table for self-consumption has been set up by CNMC which brings together Distribution System Operators (DSO), electricity suppliers, the industry and Civil Society Organisations (CSO). On a negative note, Spain did not set up a Multilevel Climate and Energy Dialogue Group to discuss the NECP draft recently submitted to the European Commission as required by the Governance Regulation. Also the draft was shared too late with CSOs to provide meaningful input, and scenarios with additional potential policies were not presented.

1. [https://www.eldiario.es/economia/cnmc-preve-autoconsumo-electrico-supere-2025-previsiones-gobierno-2030\\_1\\_8548120.html](https://www.eldiario.es/economia/cnmc-preve-autoconsumo-electrico-supere-2025-previsiones-gobierno-2030_1_8548120.html)

## 2024 : Incentives 2

2022 Score : 3

The Royal Decree 244/2019 introduced a simplified compensation for generation surpluses which consists of a balance in economic terms of the energy consumed in the billing period with either the agreed price from a supplier or the market price; and exempted this modality of self consumption from all types of charges and tolls. The mentioned Royal Decree meant a radical change with regard to former regulations since surpluses are now compensated, but it did not include any type of feed-in tariff or premium. In this mode of self consumption, the maximum installed capacity is 100 kW and no remuneration of surpluses is possible, only compensation from the electricity bill. The government has just approved in November 2023 a line of 500 million euros more of European funds for recovery to encourage new self-consumption facilities thanks to the addendum to the Recovery, Transformation and Resilience Plan.<sup>2</sup>

In general, there is sufficient budget available and self-consumption is being encouraged to a large extent, but there is lack of stability in funding due to the absence of a feed-in tariff or premium. As a result, when European funds and subsidies run out, the rate of installation falls because users prefer to wait for new lines of aid to be opened, due to recent lower energy prices and higher interest rates. Furthermore, more than two years after the first funds began to be distributed from the central government to the autonomous communities, only 44% of the users who requested their subsidy have seen it deposited into their checking accounts according to data provided by the Ministry of Ecological Transition.<sup>3</sup> With regard to taxes, at the municipal level there are bonuses to the Real Estate Tax that can reach 50% of it, which have been applied by 55% of Spanish municipalities according to the Renewable Foundation Report. Self-consumption can also be deducted in the income tax return. The deduction rates contemplated in the legislation are 20%, 40% and 60% of personal income tax on the tax base of the installation and depending on its nature.

2. <https://elpais.com/economia/2023-11-06/las-comunidades-tendran-500-millones-mas-de-los-fondos-europeos-para-ayudas-al-autoconsumo.html>

3. <https://www.20minutos.es/noticia/5189108/0/las-ayudas-autoconsumo-cuentagotas-mas-mitad-hogares-empresas-con-placas-no-han-recibido-todavia-subsencion/>

4. <https://fundacionrenovables.org/documento/incentivos-fiscales-para-instalaciones-de-autoconsumo-fotovoltaico-en-municipios-con-mas-de-10-000-habitantes-2022/>

2024 : Permitting 2

2022 Score : 3

The Royal Decree (244/2019) simplified bureaucratic procedures and introduced a modality of self consumption up to 100 kW in which no local tariffs or taxes for energy sharing are foreseen. There is no need to get administrative permission for connection to the grid regarding installations of 15 kW or lower in urban areas. However, for the other installations, the process of getting access to the grid is long and burdensome, even though Royal Decree-Law (14/2022) establishes a maximum time for the activation of self-consumption facilities covered by surplus compensation of 2 months. In general terms, the administrative procedure needs to be simplified and digitized. The communication processes between DSOs, energy suppliers and consumers are lengthy. There have been delays in the billing system for prosumers due to the need to adapt IT systems to the new legal regime. However, the situation is improving gradually for individual self consumption and currently the biggest problem regarding permitting concentrates in collective self consumption. Until recently, many municipalities required a construction permit which could take 6-8 months to obtain (Mckenzie Banker, 2020). Fortunately, since June 2023, all Spanish Autonomous Communities have removed such requirements and only ask for a prior notice.



**2024 : Energy Sharing 2**

**2022 Score : 2**

Collective self-consumption using the public grid is physically and geographically limited by fulfilling at least one of the following conditions:

- It is located within the low voltage distribution grid derived from the same transformer station;
- It is a maximum distance of 500 meters between production and consumption points or 2 km when located on roofs, industrial land and artificial structures
- It is located in the same cadastral area.

5.

In 2022, the Government increased the distance to 2 km for rooftop solar, after receiving strong criticisms for the 500m limit. It also approved a modification of the Horizontal Property Law that simplified the required majority for approval of solar PV installations in buildings. However, although 67% of Spaniards live in multiapartments and Spain has reached 5.4 GW of installed self-consumption with an increase of 1,200% since 2018, only 1% is collective. The main causes are due to the bad practices of DSOs, which can delay activation of the solar installation by more than a year. According to a recent CNMC report, "Unnecessary and unjustified administrative procedures, delays by electricity distributors and disproportionate and continuous requirements hinder the takeoff of collective self-consumption in Spain." Furthermore, CNMC is investigating Endesa and Naturgy (2 of the biggest DSOs in Spain) for allegedly introducing obstacles to the promotion of collective self-consumption and has created a national table to address this issue with more than 140 identified barriers.

**2024 : Energy Communities 2**

**2022 Score : 1**

The number of energy communities that produce electricity has increased throughout Spain (291 the 4th December 2023)<sup>6</sup>, due basically to self-consumption subsidies and the initiative of groups of pioneering individuals, but not because of a stable regulatory framework, which is still lacking. The national legislator has introduced the definitions for Renewable Energy Communities (REC) in 2020 and Citizen Energy Communities (CEC) in 2023 with almost the same wording given by the Directives as new market subjects. The new legislation establishes that a favorable legal framework both for citizen energy and renewable energy communities shall be established to ensure aspects such as: open and voluntary participation, the right to leave the community, non-discriminatory and proportionate treatment, be subject to fair, proportionate and transparent procedures and charges and accessibility of REC to all consumers, including those from low-income or vulnerable households, among others. However, it is still pending further regulatory development and the design of an effective and more concrete enabling framework.

In this regard, in April 2023, the Government published the “Draft Royal Decree developing the figures for renewable energy communities and citizen energy communities” which, in case of being approved, would represent a step forward. It specifies, among others, the legal forms that REC and CEC may adopt, the minimum number of partners, the proximity requirements for REC and what it means to provide environmental, economic and social benefits to its partners. The results of the national general election in July 2023 delayed the approval of this draft, which seems now more plausible due to the recent left wing coalition investiture agreement that recently made Pedro Sanchez President of the Government. As a positive note, “the “fight against energy poverty” is one of the criteria considered for receiving financial assistance under the umbrella of CE-Implementa, specific to RECs development. Nonetheless, through the involvement of (mainly) municipal administrations in specific RECs, the participation of vulnerable households is prioritised”.<sup>7</sup>

6. <https://informesweb.idae.es/visorccee/>

7. <https://www.rescoop.eu/policy/spain>

## 2024 : Additional measures 4

2022 Score : 4

According to data from Appa Renovables' annual photovoltaic self-consumption report, in 2022, 2,649MW of new photovoltaic power was installed in Spain in self-consumption facilities. This represents an increase of 120% compared to 2021, when 1,203 MW were commissioned, and which in turn already represented an increase of 101% compared to 2020. 61% of this power has been installed in the industrial sector and the remaining 39% in residential homes. However, higher interest rates, lower electricity prices and delays in the payment of public subsidies are hindering the installation of solar panels in homes after the boom that occurred in 2022. Union Española Fotovoltaica (UNEF) estimates that in 2023 the Spanish residential self-consumption market will fall between 25% and 50% compared to last year. Companies such as Holaluz, Solarprofit and Svea Solar are already negotiating Employment Regulation Files.

Several dissemination measures, information campaigns and training activities are foreseen in the Road Map. The Spanish Institute for the Diversification and Saving of Energy has implemented some of those measures: it created an assessment and information website with the aim of supporting consumers who wish to opt for a self-consumption installation, including regulations, technical guides, mailbox of doubts and questions, etc. It also opened in 2023, the first call of the program for Community Transformation Offices (OTC) with an award of 20 million euros to a total of 79 projects spread across a large part of the national territory. The program seeks to facilitate the creation of new energy communities of all kinds (citizens, business, industrial, etc.) with dissemination, advisory and support measures.<sup>10.</sup>

On the other hand, Spain has reached almost 100% of smart meter installations following a government mandate.

9. <https://www.appa.es/wp-content/uploads/2023/02/Informe-Anual-Autoconsumo-Fotovoltaico-2022.pdf>

10. <https://cincodias.elpais.com/companias/2023-09-28/unef-asegura-que-el-autoconsumo-residencial-esta-cayendo-de-forma-dramatica.html>



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Overall  
Score

13



2022  
Score

16

## Summary

Sweden has surpassed its solar energy target of 2.2 GW and is now aiming for 6.6 GW in the revised NECP draft, though overall renewable energy contributions are pending as the Renewable Energy Directive revision process comes to an end. There are concerns over policy consistency due to changes to the government and decisions contradicting climate goals. Incentives favour self-consumption models, but subsidies are lacking, except for private solar PV markets.

Permitting regulations have eased the installation of solar systems under 500 kWp, but larger installations face administrative challenges. Collective self-consumption is permitted within apartment buildings, but energy communities legislation still remains absent. Instead, the Swedish regulator recommends that energy communities adopt the legal form of economic associations. Solar installation rates have grown significantly, yet challenges still persist, including a shortage of trained installers. Nonetheless, Sweden leads in smart meter penetration at 100%.

## Scoring System

This country profile highlights the good and the bad policies and practices of solar rooftop PV development within Sweden. It examines and scores six key areas: governance, incentives & support schemes, permitting procedures, energy sharing schemes, energy communities and additional measures to support solar PV development. For this update, we will have the 2022 score to the right as a benchmark:

The scoring system is set out below:



Green = 4-5 points



Orange = 2-3 points



Red = 0-1 points





## Country Profile Sweden



# The Good



**Meeting Solar Energy Targets:** Sweden has reached its solar energy target (2.2GW) in the current NECP in force and is aiming for 119% higher target (6.6GW) in the new NECP draft.



**Incentives for Self-Consumption:** The country offers incentives (tax reductions) for self-consumption models, encouraging individuals to generate and use their own solar energy.



**Ease of Permitting for Small Systems:** Regulations facilitate the installation of small-scale PV systems (500 Kwp), making it easier for individuals and smaller entities to adopt solar energy.



**Rapid Solar Installation Growth:** There has been rapid growth in solar installations, particularly in rooftop and domestic systems, demonstrating increasing interest and uptake of solar energy in Sweden.



**High Smart Meter Penetration:** Sweden has achieved 100% smart meter penetration, indicating technological advancement and efficient energy monitoring.



## Country Profile Sweden



# The Bad



**Uncertain Policy Landscape:** A change to the government and decisions contradicting climate goals raise doubts about policy consistency and commitment to sustainable energy initiatives.



**Lack of Subsidies:** Except for private PV markets, subsidies for solar energy are lacking, potentially hindering more uptake and affordability.



**Administrative Hurdles for Large Installations:** Larger solar installations face administrative burdens, potentially discouraging investment in larger-scale renewable energy projects.



**Delayed Energy Communities Legislation:** Despite passing the deadline in 2021, Sweden has not adopted legislation transposing energy communities, potentially impeding community-based renewable energy initiatives.



**Skill shortage:** There is a shortage of trained installers, which could slow down the pace of solar energy adoption and implementation of renewable energy projects.

## Governance 2

2022 Score : 2



Sweden has already reached its solar target in the current NECPs in force of 2.2 GW and has established a new target in its draft revised NECPs of 6.6 GW, 119% higher. However, in the draft Sweden has not set an overall national renewable energy contribution, waiting for the RED revision process to come to an end<sup>1</sup>. In general, the targets presented in the draft lack credibility, since there are no additional policies and measures compared to the 2019 NECP, which are not sufficient for the set climate targets. Additionally, there has been a change of government which poses doubts on the capacity to reach the targets since they have adopted decisions like lower fuel taxes or removing the carbon tax for district heating that go in the opposite direction<sup>2</sup>. Sweden lacks a roadmap or strategy on solar PV, but there are some reports by the Swedish Energy Agency including aspects on potential, barriers, roadmaps, etc.

1. <https://caneurope.org/new-report-calls-for-drastic-improvement-of-europes-national-energy-and-climate-plans/>

2. <https://caneurope.org/new-report-calls-for-drastic-improvement-of-europes-national-energy-and-climate-plans/>

## Incentives 2

2022 Score : 3

Sweden has traditionally opted for a model based approach on self-consumption due to the absence of a feed-in-tariff, favouring capital subsidies and feed-in premium schemes, in order to give value to excess electricity. However, as of 2022, no subsidies exist except for the private domestic PV market segment. In general, a PV system owner that sells the excess electricity will receive compensation from the electricity trading utility company and from the grid owner. The compensation varies depending on the grid owner. As an incentive, prosumers benefit from tax reduction schemes for excess electricity injected into the grid, and a tax reduction for the installation of individual solar PV systems. Producers that own PV systems whose total power amounts to less than 500 kWp (Kilowatt) do not have to pay any energy tax for the self-consumed electricity. Additionally, there is an (income) tax reduction of 0.6 SEK/kWh for feed-in electricity up to the amount that is bought, for connections up to 100A; and an (income) tax credit related to the installation cost for private persons, which is equal to an investment subsidy of the order of 10-15% of the total cost. Finally, homeowner's associations or property owners are also granted a deduction for VAT for roof-mounted PV systems<sup>3</sup>.

3. <https://iea-pvps.org/wp-content/uploads/2022/10/National-Survey-Report-of-PV-Power-Applications-in-Sweden-2021.pdf>

## Permitting 3

2022 Score : 3

The current legislation favours in general the installation of self-consumption PV systems which do not exceed 500 kWp. Above this level, holders of the installation have the administrative burden of measuring and reporting self-consumed electricity. As of the first of August 2018, PV and solar thermal system installations on buildings are exempted from building permits in general. Some installations still require building permits if they are located in a valuable area from the historical, cultural, etc. points of view, if it is in an area of national interest to the military, or in general when the equipment does not follow the shape of the current building. The standard procedure for grid connection is quite straightforward. It requires a notification to the grid owner, who has to specify the requirements for the installation. After installation, the electrical company must submit a final report to the grid company and conduct a system inspection. The grid company then replaces the electricity metre at no cost to measure surplus electricity fed into the grid.<sup>4</sup>



4. <https://iea-pvps.org/wp-content/uploads/2022/10/National-Survey-Report-of-PV-Power-Applications-in-Sweden-2021.pdf>





## Energy Sharing 1

2022 Score : 1

Collective self-consumption from a PV system within an apartment building is permitted in Sweden as long as all the apartments share the same grid subscription, but not through the public grid. The standard practice is for the entire apartment building to have a single electricity contract with the utility. In 2022, a legal exception was introduced that allows for the establishment of microgrids for sharing and storing renewable electricity. However, there are legal doubts about how to interpret it and this is delaying implementation on the ground. Virtual self-consumption is not allowed.<sup>5</sup>

6. <https://iea-pvps.org/wp-content/uploads/2022/10/National-Survey-Report-of-PV-Power-Applications-in-Sweden-2021.pdf>



## Energy Communities 1

2022 Score : 2

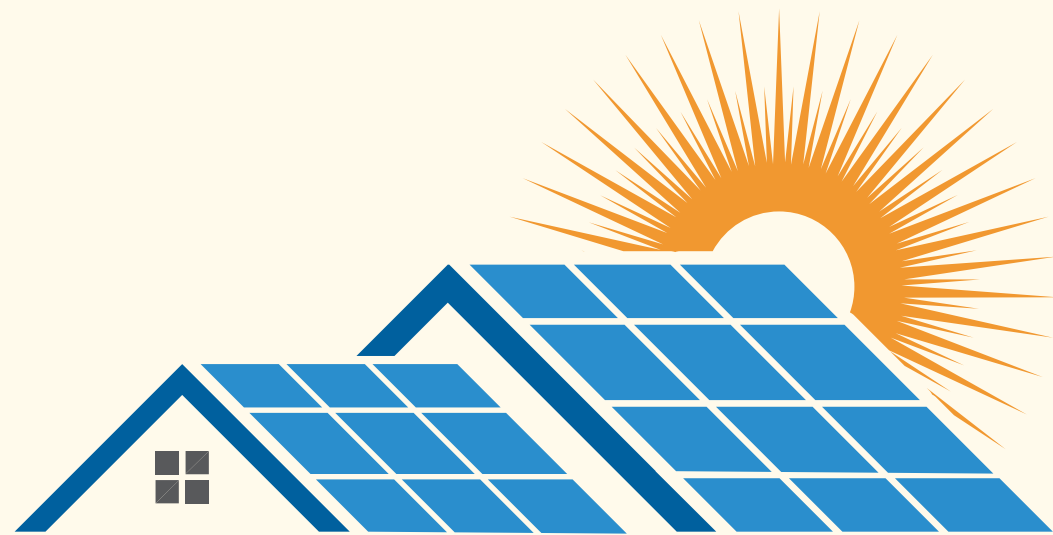
Sweden has not yet adopted nor even proposed any legislation transposing energy communities despite the deadline being June 2021 and most European countries have done so (at least partially or simply copy-pasting Renewable Energy Communities (RED) and Citizen Energy Communities definitions). The Swedish regulator recommends that energy communities adopt the legal form of economic associations (the Swedish version of cooperatives) and adopt an overarching concept with two operative definitions: citizen energy communities and renewable energy communities. This should contribute to promoting a coherent approach. According to the proposal, the energy community must be registered and supervised by the network authority, which may request information and issue orders to ensure compliance.<sup>6</sup>

6. <https://iea-pvps.org/wp-content/uploads/2022/10/National-Survey-Report-of-PV-Power-Applications-in-Sweden-2021.pdf>

## Additional Measures 4

2022 Score : 4

The installation rate of PV continues to increase rapidly in Sweden, particularly rooftop and domestic ones. In 2022, a total of 796.6 MW of grid-connected solar capacity was added, which means a 59% market growth compared to the 499.7 MW installed in 2021. From it, approximately 37.2 MW are estimated to be centralised ground-mounted PV parks, while 759.4 MW self consumption PV systems, meaning that self consumption market expanded by 70% compared with 2021<sup>7</sup>. However, according to the estimates, a lower energy price and higher interest rates have negatively impacted the growth rate of solar panels in 2023. In Sweden, there is often a lack of availability of trained installers. With this regard, the government has promoted the design and implementation of 2-year courses for designing PV systems within the Higher Vocational Education (Yrkeshögskolan) taught by some regional schools together with PV companies. On a final note, Sweden has reached 100% of smart meter penetration, so it can be considered a frontrunner in this regard.



7. <https://iea-pvps.org/wp-content/uploads/2022/10/National-Survey-Report-of-PV-Power-Applications-in-Sweden-2021.pdf>

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