THE ROMANIAN RENEWABLE ENERGY SECTOR: A POTENTIAL STILL UNTAPPED

Analysing the measures supporting the development of the renewable energy sector

Bankwatch
FOR PEOPLE AND ENVIRONMENT

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The report was published in December 2020.

This publication has been produced with the financial assistance of the European Union. The content of this publication is the sole responsibility of CEE Bankwatch Network and can under no circumstances be regarded as reflecting the position of the European Union.

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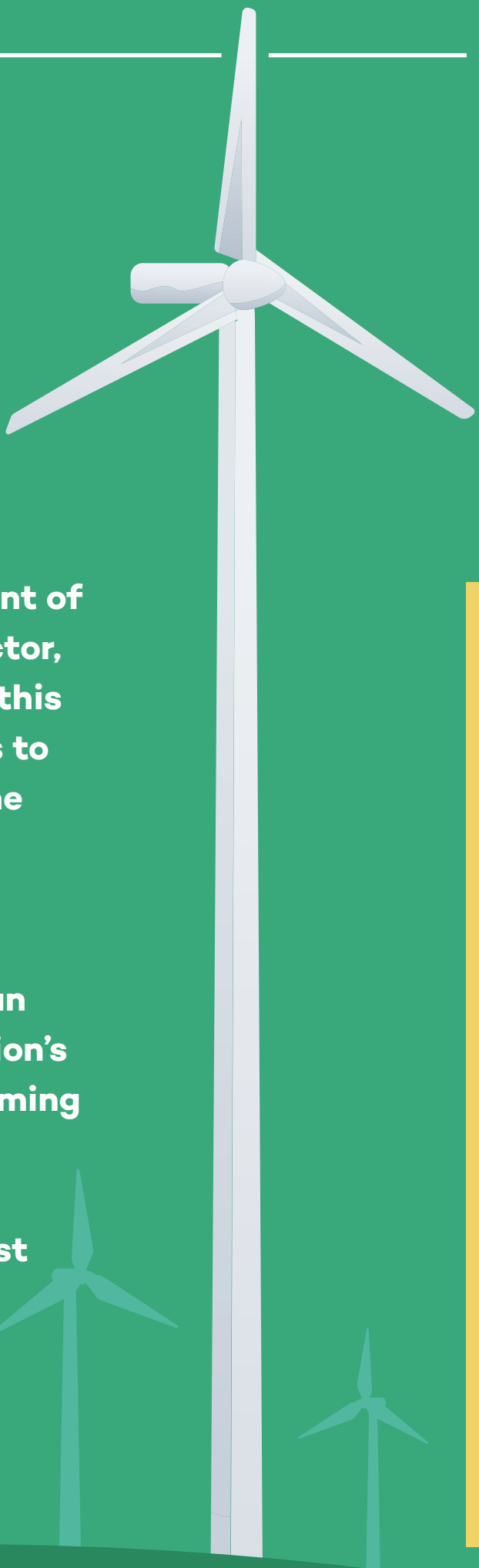
SUMMARY



This report assesses the development of the Romanian renewable energy sector, the main public policies to support this sector and offers recommendations to ensure the sustainable growth of the renewables sector until 2030.

The renewable energy sector is one of the core elements of the European Green Deal, the European Commission's initiative for sustainable growth, aiming to reach a 32% share of renewable energy until 2030 and to reduce greenhouse gas emissions by at least 55% until 2030.

MAIN CONCLUSIONS

Each member state must contribute to reaching these objectives by setting reasonable national targets. Romania set the renewable energy share target at 30.7% (from the current 24%), despite the European Commission recommending 34%, as Romania has a great unused renewable potential. As such, **Romania's 2030 target is lower than the one set in the National Energy Strategy 2007-2020, although renewable energy costs plummeted in this period and they are still decreasing.**

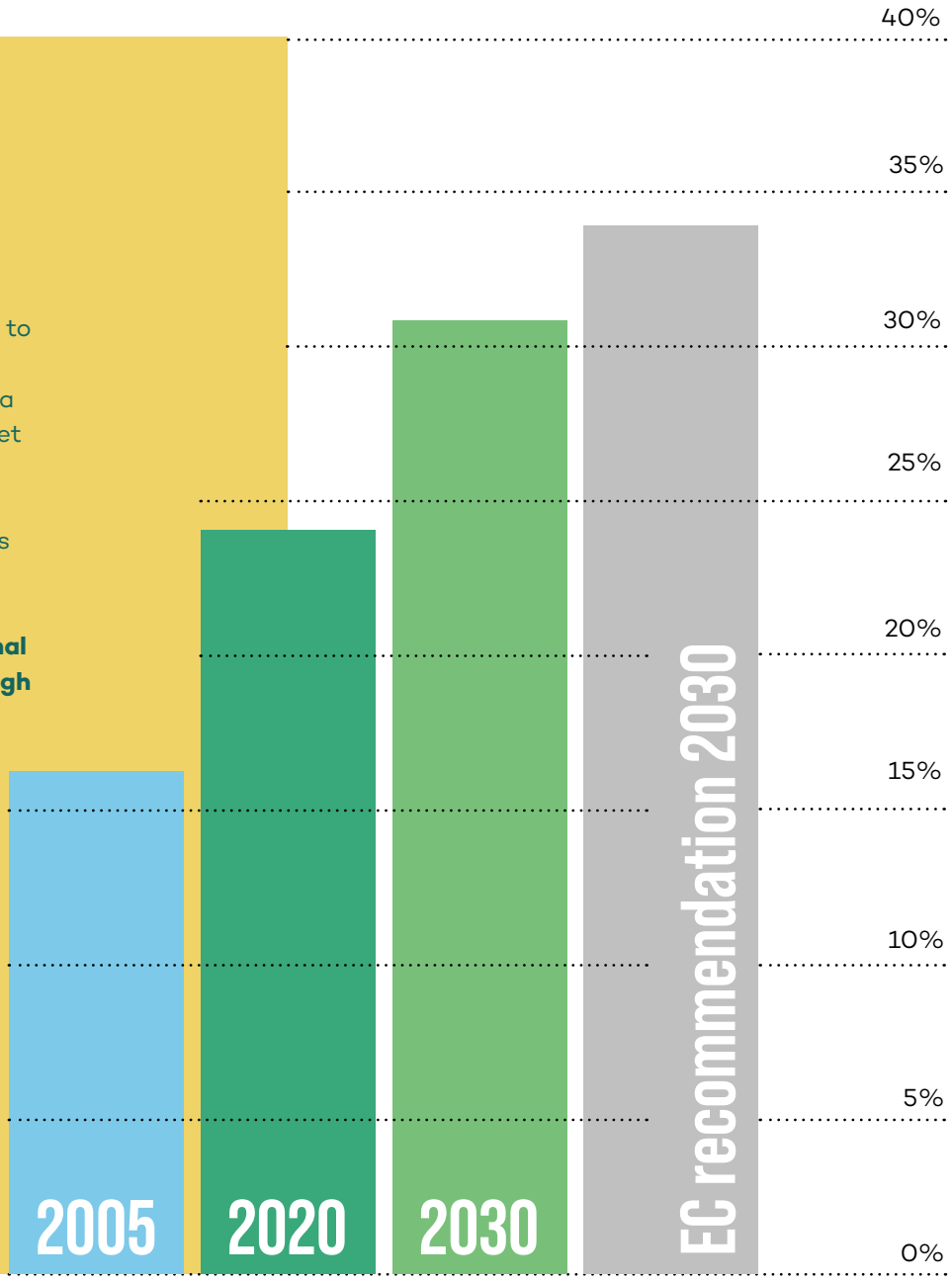


FIG. 1
RENEWABLE SHARE, EC RECOMMENDATIONS

The support schemes for renewable energy were introduced in 2008 and are represented by the mandatory quotas system and the acquisition of green certificates by electricity suppliers. Various legislative changes took place in 2012, 2013 and 2017 aiming to prevent defrauding the system or to increase the predictability of the support scheme. The result was the complete opposite – the support scheme became unpredictable, which led to the decrease in confidence of new investors in renewable energy because of the legislative instability and to limited access of small producers to the energy system. As such, **at the moment Romania has no coherent support system to help reach a 30.7% share in renewable energy**. New capacities were no longer installed after 2015 when Romania met its 2020 target and thus regarded the support scheme unnecessary.

For 2030, Romania's plans to support renewable energy provide for the introduction of Contracts for Difference and re-legitimising long-term power purchase agreements outside centralised markets; these support measures are meant to replace the green certificates mechanism. Introducing legislation on harnessing the offshore wind potential is also looked into. Regarding investments, official documents stipulate improving the technical system to integrate renewable sources, programmes to encourage prosumers and new renewable capacities built by state companies. However, **the official documents lack strategic coherence, even setting different targets for 2030.**

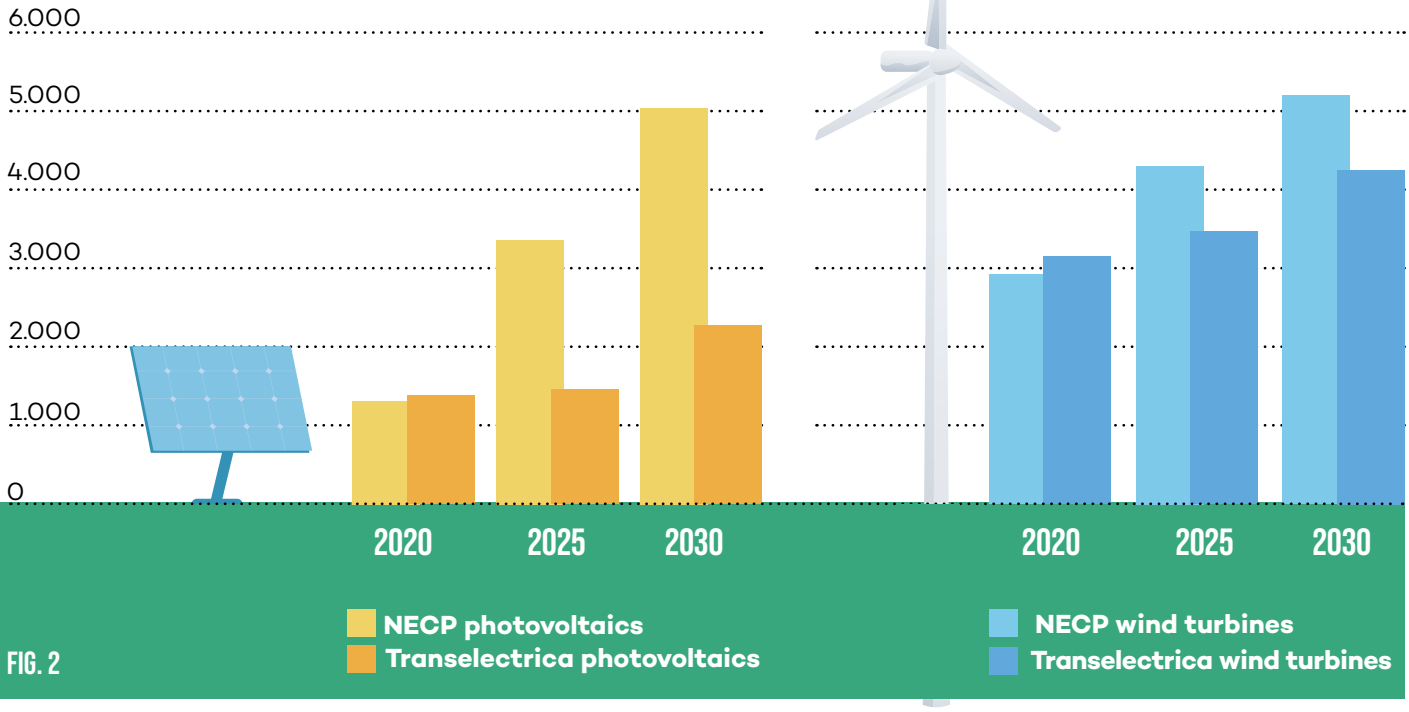


FIG. 2

Given this assessment's conclusions, Romania needs more coherence and an integrated approach to the renewable sector: from legislation, to support measures, to integrating the newest technologies and supporting research and development. The entire energy sector is in dire need of a profound modernisation to support the installation of new renewable capacities, even for the 2030 objective of a mere 6.7% increase in consumption. Romania also pledged to reach climate neutrality in 2050, but the current targets and measures are incompatible with this path. The analysis concludes with some recommendations which can contribute to developing the renewable sector for the transition to a clean energy system.

INTRODUCTION

The entire world is now aware of the effects of climate change and tries to curb the global average temperature increase to only 1.5°C. Under the Paris Agreement[1], 196 states agreed to this common goal by limiting greenhouse gas emissions (GHG). The European Union proposed the European Green Deal (EGD) as a development strategy for the next 30 years in line with the 1.5°C objective. Through the EGD, the EU pledged to reduce greenhouse gas emissions by 55% until 2030 with respect to 1990 and to reach zero net emissions in 2050. However, studies show that global emissions must be reduced by 65% in the next 10 years in order to reach the climate objective[2].

Renewable energy is the technology world leaders count on to replace the polluting energy production capacities and it is also a core pillar of the EGD. Until 2030, the EU pledged to reach a target of 32% energy consumption only from renewable sources.

Romania ratified the Paris Agreement and committed to the EGD targets. As such, from an energy standpoint, it committed to reaching a share of 30.7% for renewable energy in 2030, to reduce emissions by 43% and to increase energy efficiency by 40.4%. The energy sector was responsible for 66% of the total greenhouse gas emissions[3] in 2017 and, in order to meet the decarbonisation objectives, the national energy transition must be accelerated. The first steps towards a successful energy transition are committing to a coherent plan for phasing out fossil fuel from the energy mix and sustainably harnessing Romania's substantial renewable energy potential.

This report assesses the way the renewable energy sector developed in Romania by scrutinising the sector's evolution since joining the European Union, the policies and measures implemented until now to support this sector and their results. The report also looks at Romania's future prospects regarding the proposed objectives, the coherence of official documents regarding renewable energy, of announced measures and the funding sources available in the next years for incentivising the renewable energy sector.

The study's goal is to identify the measures and policies needed to heighten investments in renewable energy sources and widen the available funding sources. These measures and policies are reflected in the recommendations at the end of this report, which, if applied efficiently and in due time, can significantly contribute to developing the renewable energy sector and can pave Romania's way towards the 1.5 °C objective.

1. https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement
2. https://caneurope.org/factsheet-science-shows-65-emission-reduction-by-2030-is-feasible/
3. http://economie.gov.ro/images/transparenta-decizionala/ANUNT%20PNIESC%202020/PNIESC%20revizuit_31%2001%202020.pdf

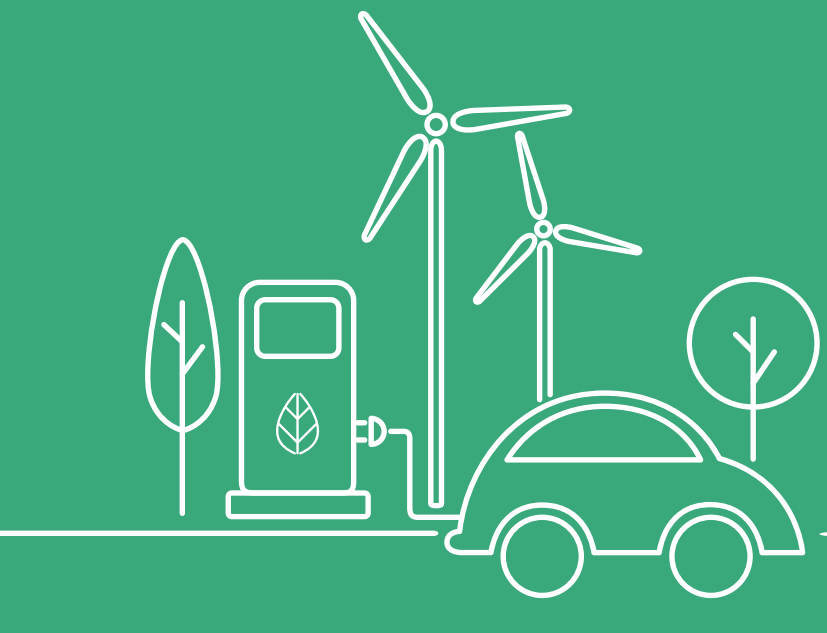
CHAPTER I

THE BEGINNING OF THE RENEWABLE ENERGY SECTOR AT EUROPEAN AND NATIONAL LEVEL

Policies for developing the renewables sector were introduced for the first time in 1997 by the White Paper[4], a strategic document drafted by the European Commission to accelerate the transition of the energy system towards a clean system, without carbon emissions, and to find an answer for Europe's rising dependence on fossil fuel imported from non-EU countries. Through this document, the EU set for the first time an objective to increase the share of renewables in the gross domestic energy consumption by 12% until 2010. The Directive on the promotion of electricity produced from renewable energy sources adopted in 2001 (Directive 2001/77/EC) also set a target to increase the consumption of renewable energy to 21% until 2010[5].

In 2009, the Directive on the promotion of the use of energy from renewable sources (RES Directive 2009/28/EC) strengthened the legal framework dedicated to this sector by setting mandatory targets on increasing the share of renewable energy in final energy consumption to 20% until 2020[6]. This objective is also part of the EU's Climate and Energy Package which sets mandatory targets for reducing greenhouse gas emissions and for energy efficiency.

In 2014 the objectives of the energy and climate sector policies were revised and the target for the share of renewables in the gross final consumption was initially set to 27% until 2030. The new RES Directive (Directive 2018/2001) revised this objective again and set a target of 32% until 2030[7].



4. Communication from the Commission „ENERGY FOR THE FUTURE:RENEWABLE SOURCES OF ENERGY" White Paper for a Community Strategy and Action Plan https://europa.eu/documents/comm/white_papers/pdf/com97_599_en.pdf
5. https://eur-lex.europa.eu/legal-content/RO/TXT/HTML/?uri=CELEX:32001L0077&from=RO
6. https://eur-lex.europa.eu/legal-content/RO/TXT/HTML/?uri=CELEX:32009L0028&from=EN
7. https://eur-lex.europa.eu/legal-content/RO/TXT/HTML/?uri=CELEX:32018L2001&from=EN#d1e1677-82-1

In Romania, the renewable energy sector expansion commenced once EU accession negotiations started and the most important strategic documents aiming to increase the use of renewable energy and to promote this new energy sector were ratified in Romanian law. The next step to incentivise the renewable industry and promote the production of energy from renewable sources was introducing a support scheme based on the mandatory quotas system and on trading green certificates through Government Decision (GD) no. 1892/2004[8] and subsequent amending government decisions[9].

The uniform legal framework for the support mechanism for promoting energy production from renewable sources was provided by Law 220/2008[10] which brought changes to yearly targets and the number of allocated green certificates, as well as distinctions between different energy sources – wind, solar, biomass, biogas, bioliquids, geothermal or hydropower units with an installed capacity of at most 10 MW. Capping the installed capacity of hydropower plants at 10 MW caused a considerable increase in the number of small hydropower plants, mostly built in natural protected areas, without assessing the impact on the environment and existing habitats[11]. The provided legal framework had a series of subsequent modifications which drove a wedge among renewable energy producers.

In order to reach the 20% share of renewables in the final energy consumption in 2020 at European level, each member state had a national target – for Romania this was 24%. The Romanian Energy Strategy 2007-2020[12] committed to this target, which was met much earlier (in 2015[13]), indicating the much greater potential of the country as well as the need to increase the ambitions in the next time period.

In order to meet the new renewables share objective in 2030 at European level, the National Energy and Climate Plan[14] sets the target at 30.7%. This objective was determined by the Romanian authorities by taking into consideration the national energy system stability and security particularities, as well as the influence of investment costs on consumer price, unlike the 2020 target which was calculated by the European Commission according to the provisions of the RES Directive 2009/28/CE, based on the gross domestic product of the member states.

8. HOTĂRÂRE nr. 1.892 din 4 noiembrie 2004 pentru stabilirea sistemului de promovare a producerii energiei electrice din surse regenerabile de energie - http://legislatie.just.ro/Public/DetaliiDocumentAfis/56638
9. HOTĂRÂRE nr. 958 din 18 august 2005 pentru modificarea și completarea Hotărârii Guvernului nr. 1.892/2004 pentru stabilirea sistemului de promovare a producerii energiei electrice din surse regenerabile de energie - http://legislatie.just.ro/Public/DetaliiDocumentAfis/64770 ; HOTĂR RE nr. 1.538 din 25 noiembrie 2008 privind modificarea art. 4 alin. (2) din Hotărârea Guvernului nr. 1.892/2004 - http://legislatie.just.ro/Public/DetaliiDocumentAfis/99939
10 LEGE nr. 220 din 27 octombrie 2008 pentru stabilirea sistemului de promovare a producerii energiei din surse regenerabile de energie - http://legislatie.just.ro/Public/DetaliiDocument/98742?isFormaDeBaza=True&rep=True

11. https://wwfeu.awsassets.panda.org/downloads/wwf_raport_legal_mhc_nov_2013.pdf, pg 19.
12. http://legislatie.just.ro/Public/DetaliiDocumentAfis/87035
13. https://ec.europa.eu/eurostat/databrowser/view/t2020_31/default/table?lang=en
14. http://economie.gov.ro/images/transparenta-decizionala/ANUNT%20PNIESC%202020/PNIESC%20revizuit_31%2001%202020.pdf

CHAPTER II

THE SYSTEM FOR PROMOTING ENERGY PRODUCED FROM RENEWABLE SOURCES BASED ON GREEN CERTIFICATES AND MANDATORY QUOTAS

In order to support the production of energy from renewable sources, several support scheme types are operating at European level, the most common of which are [15]:

THE FEED-IN TARIFF SYSTEM

support mechanism which guarantees the renewable energy producer that the produced energy will be bought at a specific price defined by the regulator;

THE FEED-IN PREMIUM SYSTEM

scheme which provides a bonus for the renewable energy producer for each MWh traded on the energy market;

THE MANDATORY QUOTA AND GREEN CERTIFICATES SYSTEM

15. http://energie.gov.ro/home/informatii-de-interes-public/surse-regenerabile-de-energie-in-romania/glosar-de-termeni/

The main difference between these support schemes is the way in which financial aid is provided to RES-E producers. The feed-in tariff system ensures the RES-E producer can sell the energy fed to the grid for a specific price, and the feed-in premium system grants a bonus in addition to the market price, for each MWh traded on the energy market. Conversely, the mandatory quotas and green certificates system grants the producer the possibility to obtain financial support by trading green certificates awarded for each produced MWh fed into the grid.

Distinctions are also to be made with regards to the effects of those mechanisms on the internal energy market. Research from the Directorate-General for Economic and Financial Affairs of the European Commission[16] mentions the risk of the feed-in tariff system distorting the wholesale energy market by reducing its liquidity. This could occur because the renewable energy produced based on this mechanism is traded for a fixed price outside the day-ahead and intraday markets and the producers take no part in the balancing market, given that the transactions derive from long term Power Purchase Agreements. The feed-in premium schemes and the ones based on green certificates and mandatory quotas are more compatible with wholesale energy markets, as they allow this energy to be traded on several market segments.

Other distinctions arise with regards to these mechanisms' capacity to increase the investors' trust and to decrease financial risks. The feed-in tariff system minimises investors' risk by guaranteeing on the long term a fixed price for the produced renewable energy, but financial risks can multiply in the case of the green certificates scheme, given the uncertainty of the price of the traded green certificates, which can vary, as well as the fact that the produced energy must be traded both on the green certificates and the energy market, which amplifies the risks.

In Romania, **the support mechanism adopted to promote the production of electricity from unconventional sources is the one of mandatory quotas and green certificates**, which was introduced by Law 220/2008, republished, including subsequent amendments and completions[17], and authorised by the European Commission in June 2011 through the Decision C(2011) 4938 on state aid SA 33134 (20011/N) for Romania[18].

To ensure the efficient application of the support scheme, the secondary legislation was consolidated through ordinances of the Romanian Energy Regulatory Authority (ANRE) regarding the accreditation procedure of RES-E producers for applying the green certificates promoting system, the issuing of green certificates, the organisation and functioning of the green certificates market, but also through methodologies for the establishment of annual green certificates acquisition quotas and monitoring the promotion system.

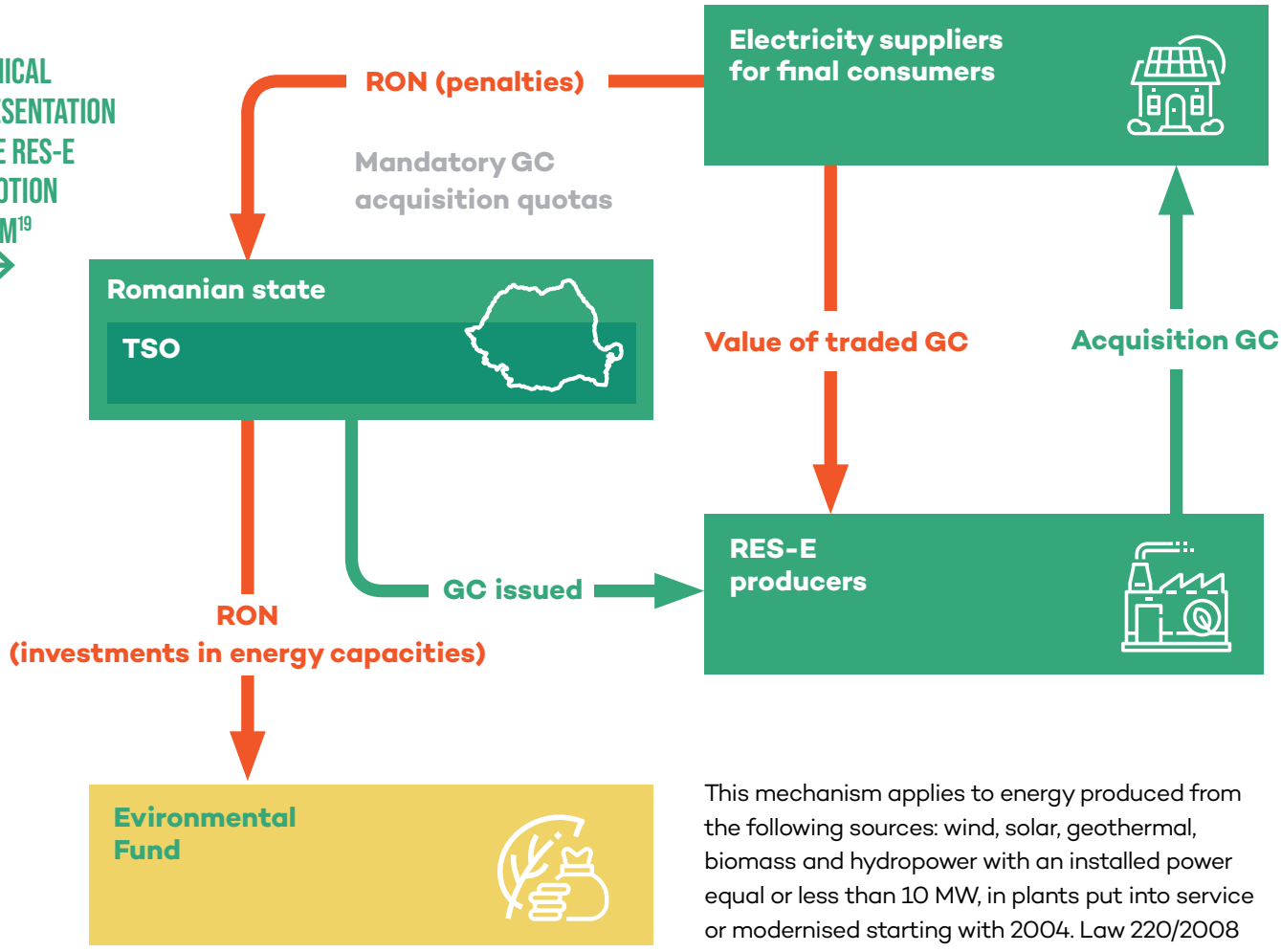
16. https://ec.europa.eu/economy_finance/publications/economic_paper/2010/pdf/ecp408_en.pdf
17. http://legislatie.just.ro/Public/DetaliiDocument/98742
18. http://energie.gov.ro/wp-content/uploads/2016/08/C2011-4938-final.pdf

II.1 FUNCTIONING

The mandatory quotas system imposes a mandatory quota of RES-E to be bought by suppliers and sold to the consumers; the quantity of this type of electricity is proved by purchased green certificates which can be later traded on the national energy markets – the bilateral contracts market or the centralised green certificates market.

Specifically, for each MWh of RES-E fed to the electrical grid, the producers receive from the transport and system operator (Transelectrica) a green certificate to be subsequently traded on dedicated energy markets. The suppliers must fulfil the mandatory quotas by proving them with the number of green certificates purchased each year, calculated as the product of the mandatory yearly quota and the electricity provided in that year. If the energy suppliers do not meet their quotas, they are penalised and the amount of money obtained from the fines is allocated to investments facilitating the access of RES-E producers to the transport or distribution grid.

FIG. 3
GRAPHICAL REPRESENTATION OF THE RES-E PROMOTION SYSTEM[19]



This mechanism applies to energy produced from the following sources: wind, solar, geothermal, biomass and hydropower with an installed power equal or less than 10 MW, in plants put into service or modernised starting with 2004. Law 220/2008 established that this mechanism to be also applied to energy produced from biogas, waste gas or wastewater gas.

19. Raportul de monitorizare a functionarii sistemului de promovare a E-SRE in anul 2010, ANRE - https://www.anre.ro/download.php?f=gKiEgg%3D%3D&t=vdeyut7dlcecrLbbvbY%3D

Until the support scheme was approved by the European Commission, the mechanism operated in accordance with Government Decision 1892/2004 which granted a single green certificate for each MWh produced and delivered to the electricity grid. After approval, Law 220/2008 was amended and republished[20], defining green certificate (GC) allocation for RES-E producers based on the renewable source used, as follows:

3 GCs for each MWh produced and delivered if the hydropower plants are new or 2 GCs for each MWh if they are retrofitted; 1 GC for each 2 MWh is also granted if the power plants are neither new nor retrofitted, but have an installed power of at most 10 MW;

2 GCs until 2017 and 1 GC starting with 2018 for each MWh produced and delivered by wind energy producers;

6 GCs for each MWh of solar energy produced;

2 GCs for each MWh produced and delivered by geothermal, biomass, bioliquids and biogas energy producers;*

1 GC for each MWh of energy produced from biogas, waste gas or wastewater gas;*

* **One additional GC is granted for the electricity produced in cogeneration plants/groups which employ these renewable energy sources;**

One additional GC is granted for the electricity produced in plants using biomass from energy agriculture or from forestry waste.

RES-E producers can only benefit from this support mechanism if the generation capacities are put into service until 31 December 2016.

The centralised green certificates market became operational in 2005, when a first auction session for green certificates took place. The actors involved in organising and operating the green certificates market are:

- The Romanian electricity and gas market operator – OPCOM;
- The electricity transmission system operator – Transelectrica;
- The distribution operators.

20. Legea 220/2008 pentru stabilirea sistemului de promovare a producerii energiei din surse regenerabile de energie – forma consolidată http://legislatie.just.ro/Public/DetaliiDocument/139917

II.2 CHANGES TO THE LEGAL FRAMEWORK AND THEIR EFFECTS

The predictability of the legal framework of the renewable energy sector was impacted by a few amendments adopted since 2012, when a new law for the energy sector was approved[21].
The legal changes started with outlawing energy acquisition contracts outside of the regulated market, also known as Power Purchase Agreements (PPAs).

Renewable energy producers suffered the most following this interdiction, as they were using this type of contract to obtain the necessary funding to start renewable energy production projects. This legal measure was the first step to hinder investments in this sector and was an answer to the abusive practices with this type of contracts, taking advantage of the fact that they were negotiated directly and confidentially between the parties and outside of an organised and regulated market.

A concrete example are the contracts signed by Hidroelectrica (the Romanian state-owned hydropower producer) between 2007 and 2011 with various entities from electricity traders to big industrial consumers in the metallurgy sector (ALRO, Mittal), which were investigated by the Directorate-General for Competition of the European Commission between 2011 and 2012[22]. Most of the contracts were signed for long periods of time (5-10 years) and stipulated buying or selling electricity under market value, favouring these entities; the damages caused by these practices amounted to EUR 200 million per year[23].

Other changes were the temporary postponement of green certificates trading and reducing the number of GCs granted to producers of wind, solar and hydropower, reducing the mandatory GC purchasing quota starting with 2014, decreasing the trading price and the validity period of green certificates or changing the tax provisions for these certificates. These changes were motivated by the uncontrolled increase of prices for final customers, the saturation of the connecting and balancing capacity of the energy system, but also by the altered competitiveness for the industrial sector.

The support scheme officially ended in 2016 and since then no further accreditation for new installed capacities was granted. As such, those who did not obtain an accreditation until December 2016 or producers who installed new renewable capacities after this date were no longer able to benefit from green certificates. Legal changes were later drafted regarding the introduction of a new mechanism to calculate the total GC purchasing quota based on the final energy consumption and the yearly static GC quantity, hoping to prevent major imbalances in the activity of RES-E producers.

21. LEGE nr. 123 din 10 iulie 2012 a energiei electrice și a gazelor naturale - http://legislatie.just.ro/Public/DetaliiDocument/139677?isFormaDeBaza=True&rep=True
22. https://ec.europa.eu/competition/state_aid/cases/244509/244509_1886460_605_2.pdf
23. http://tefuralafactura.ro/cat-te-fura/cat-m-a-costat-coruptia-in-sectorul-energiei-electrice/

The annual static quantity is a fixed number calculated as the annual average of available green certificates at that moment; this means all certificates issued until 2031, as well as those postponed from trading starting from 2013 which will be progressively inserted.

Decreasing the purchasing quota also caused a reduction in the trading price of GCs to the minimum legal level, but this rule was not complied with. According to the report of the Romanian Court of Auditors on the performance of the electricity market between 2010 and 2014, several cases were discovered when the electricity and green certificate transactions took place between the same operators – RES-E producers sold energy to suppliers at a price lower than market value and the same suppliers bought green certificates at a higher value than the trading price. The main effect of these practices was increasing the value of green certificates in the final consumers' invoices and led to benefitting the already integrated operators at the expense of small producers who were forced to sell the certificates to a reduced price as the end of the validity period was nearing, as there was a surplus of certificates on the market and a reduced demand.

Moreover, other legal provisions introduced additional delays to the trading of green certificates, price changes and rule changes regarding their accounting, as well as prolonging their reinsertion period. One of the positive changes was extending the validity period of trading green certificates until 31 March 2032.
This extension was necessary to stop the financial losses incurred by the producers as a considerable number of certificates were expiring because they had not been traded.

2010

Law 220/2008 is republished following the European Commission's approval of the support scheme

2012

Law 123/2012 on electricity and natural gas is published and outlaws energy purchasing contracts outside the regulated market.

2013

Government Emergency Ordinance (GEO) 57/2013 on amending and completing Law 220/2008 is adopted, which delayed, between July 2013 and 31 March 2017, the trading of the following amount of green certificates: 1 GC for new hydropower plants with at most 10 MW installed power; 1 GC for wind plants and 2 GCs for solar plants. Other provisions were capping the number of power plants accredited to an annual decided level, thus limiting the installed capacity, and requiring GCs to be traded transparently on OPCOM-administered centralised markets. By adopting Government Decision 994/2013, the number of green certificates allocated to wind, solar and hydropower producers was reduced to prevent overcompensation.

2014

ollowing ANRE's calculations of a possible overcompensation of the support system, the purchase quota of green certificates was reduced and set to 11% of the gross final energy consumption, under the 15% threshold defined by Law 220/2008. This decrease continued in 2015 as well, intending to reduce the energy price of the final consumer.

According to GEO 88/2011[24], overcompensation is the situation in which, based on specific average technical and economic indicators calculated yearly for each technology and based on the cost-benefit analysis for the total production capacities using the same technology, a 10% greater profitability rate is observed, compared to the value taken into account for that specific technology when the promoting system was authorised.

2016

the access to the support scheme ended in December 2016.

2017

GEO 24/2017 was adopted, which introduced a new calculation for the mandatory quota of green certificates to be purchased by suppliers. Other provisions aimed to increase the predictability and stability of the support scheme by modifying the minimum and maximum trading price, the accounting rules for green certificates as well as the reinsertion period for certificates granted to wind, solar and hydropower.

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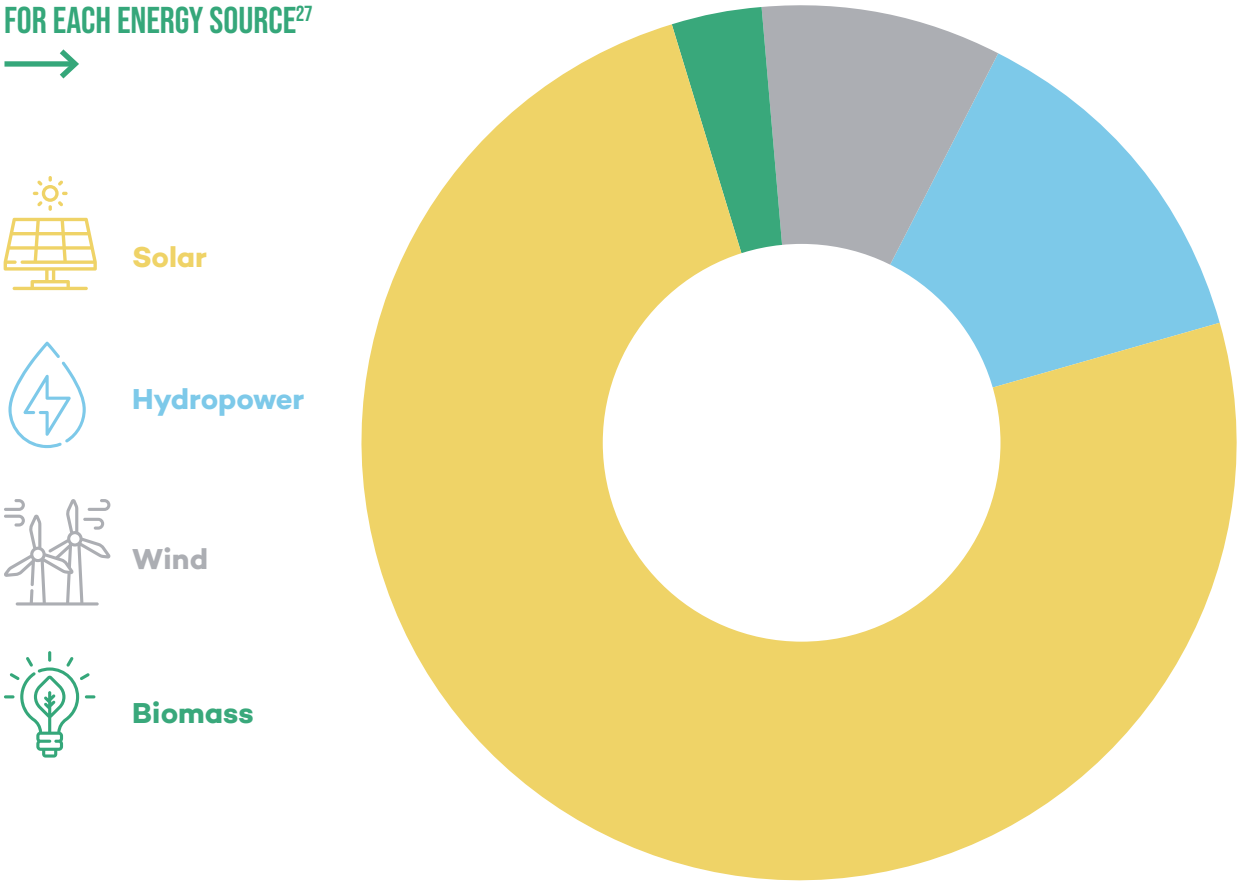
24. OUG 88/2011, art. 1, par.1, lit. af) - http://legislatie.just.ro/Public/DetaliiDocumentAfis/132299

Unfortunately, the successive legal interventions on the support system hindered investments in this sector and impacted the profitability of already operational renewable energy production projects. The financial losses incurred by renewable energy producers were significant. In 2014-2015 alone the wind sector registered losses of roughly EUR 900 million due to disproportionate legal intervention[25]. The support scheme was no longer applied after 2016, as the target of a 24% renewables share in the final energy consumption was met.

According to the latest monitoring report of the sector[26], the number of accredited RES-E producers at the end of 2019 was 770, with a total installed capacity of 4779 MW, distributed by types of energy sources as follows:

FIG. 4
NUMBER OF RES-E PRODUCERS, FOR EACH ENERGY SOURCE[27]



25. https://energy-center.ro/actualitate-news/cat-de-repede-au-trecut-investitorii-in-regenerabile-de-la-extaz-la-agonie-pierderi-de-4-miliarde-de-lei-in-industria-eoliana-in-anii-2014-si-2015/
26. Raport de monitorizare a sistemului de promovare a energiei electrice produse din surse regenerabile de energie în anul 2019, ANRE - https://www.anre.ro/download.php?f=fqd7g6g%3D&t=vdeyut7dlcecrLbbvbY%3D
27. Raport monitorizare sistem promovare E-SRE, ANRE 2019.

Between 2013 and 2019, the evolution of the installed power of RES-E producers benefitting from the support scheme was as follows:

FIG. 5
EVOLUTION OF THE ELECTRICAL INSTALLED POWER, FOR EACH ENERGY SOURCE (MW)[28]

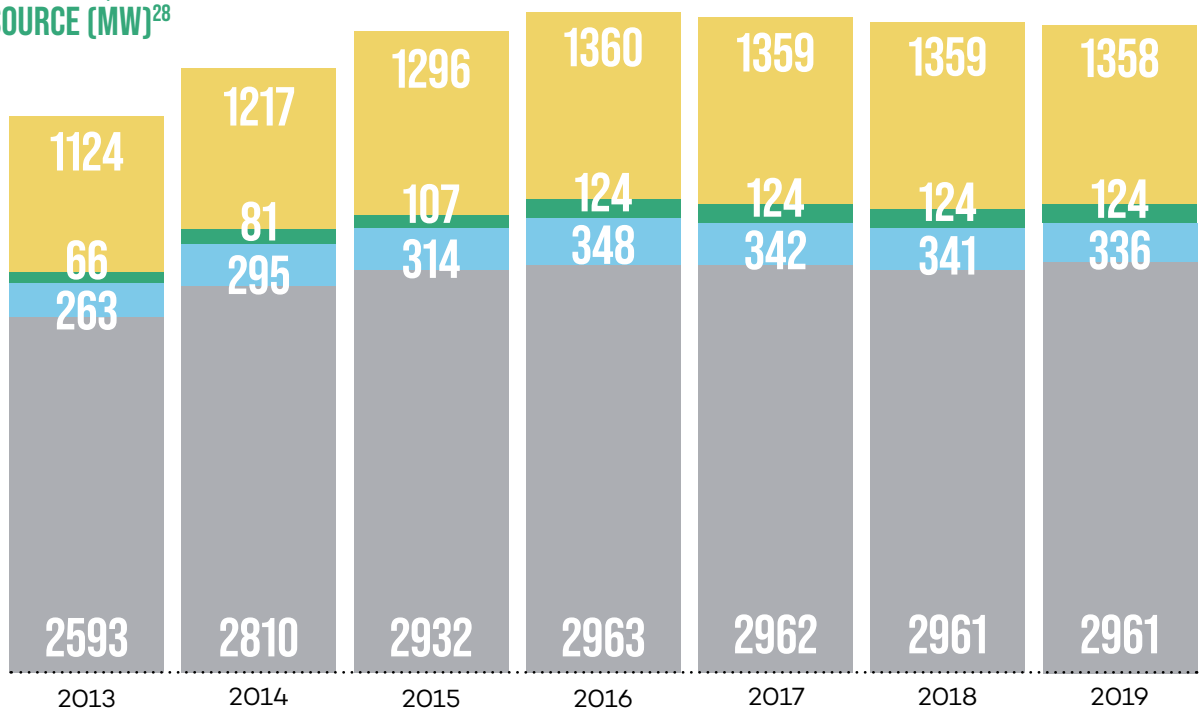
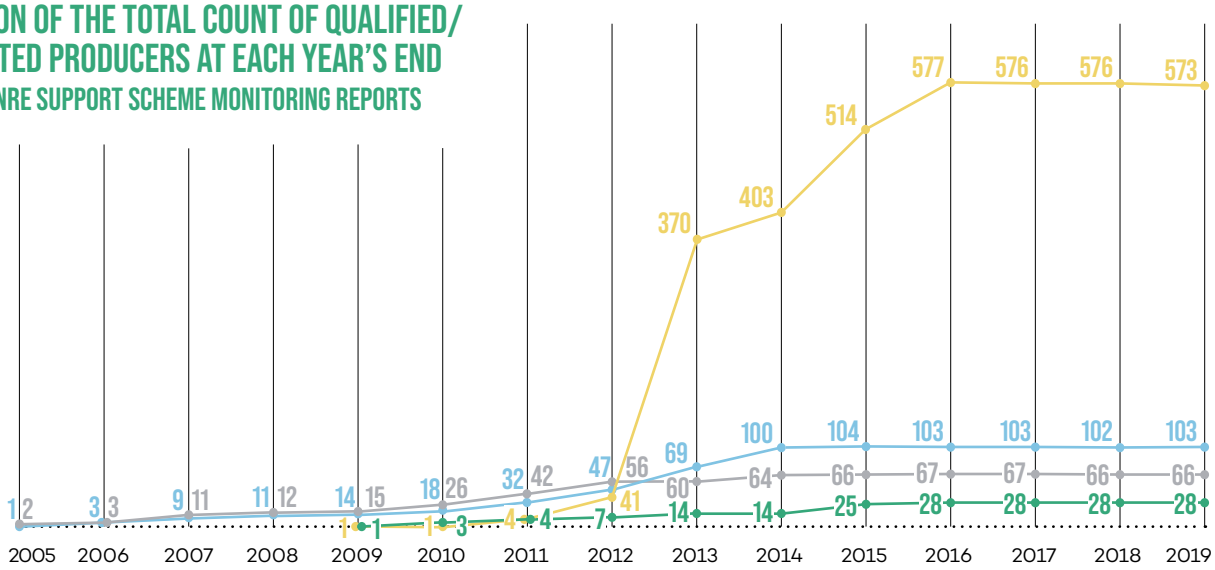


FIG. 6
EVOLUTION OF THE TOTAL COUNT OF QUALIFIED/ ACCREDITED PRODUCERS AT EACH YEAR'S END
SOURCE: ANRE SUPPORT SCHEME MONITORING REPORTS



LEGEND Solar Hidro≤10MV Wind Biomass and wasteges

28. Raport monitorizare sistem promovare E-SRE, ANRE 2019.

CHAPTER III

OTHER MECHANISMS TO PROMOTE ELECTRICITY PRODUCED FROM RENEWABLE SOURCES

Prosumers

The term "prosumer" was first introduced by GEO 24/2017 which defined it as *the final customer who owns energy production units, whose specific activity is not the production of electricty, who consumes and can store and sell the renewable energy produced in his building*[29].

Law 184/2018 on approving the GEO stipulated that prosumers having production units with an installed power of at most 27 kW per consumption place are allowed to sell the energy produced and delivered to the grid to the energy providers they are in contract with. Later, the installed power for production units of prosumers was increased to 100 kW in 2020[30].

According to the provisions, the energy suppliers must purchase the energy produced by prosumers they have contracts with, at a price equal to the average weighted price of the Day-Ahead Market in the previous year, and prosumers are exempt from fiscal obligations deriving from producing and selling electricity, as well as from paying green certificates for the electricity produced and used for their own consumption.

Drafting the legal framework for prosumers was difficult until its completion, as it faced countless institutional hindrances both for defining technical details allowing prosumers to be integrated in the national energy system, and for clarifying some fiscal and administrative aspects to support this type of renewable energy producers.

After drafting the secondary legislation dedicated to prosumers, the new legal framework came into force on 1 January 2019, the same year in which a new prosumer support programme was started by the Romanian Environment Fund Administration (AFM), which grants funding for the installation of photovoltaic panels.

The AFM programme grants an amount of at most RON 20 000(roughly EUR 4 150) to purchase and install photovoltaic panels; the amount represents 90% of the total system value, the rest of 10% is covered by the beneficiary. To register for this programme, the beneficiary must choose one of the AFM validated installers, which will then submit the documentation needed for funding.

Unfortunately this initiative also faced obstacles such as numerous delays of the validation deadline of installers enrolled in the programme, supplementing documents required for registering and reverting on these decisions, but also suspending the programme amid investigations on potential fraud regarding the installer validation applications[31].

29. OUG 24/2017 - http://legislatie.just.ro/Public/DetaliiDocument/187869
30. http://legislatie.just.ro/Public/DetaliiDocument/230504
31. https://www.profit.ro/povesti-cu-profit/energie/programul-casa-verde-pregatit-sa-ajunga-cu-sesizari-de-frauda-la-parchet-si-olaf-a-function-at-doar-6-ore-19121718

Of the programme's total funding of RON 656 million (approx. EUR 115 mil.), RON 536 million are allocated through the Regional Operational Programme 2014-2020 and the rest are allocated through the available resources of the Environment Fund administered by the AFM[32].

Despite interventions to unlock the initiative, in June 2020 out of more than 26,000 applications, only 12,718 were deemed eligible[33]. The approved installers are still facing difficulties due to delays in reimbursing the costs of installing photovoltaic systems. These delays generate financial issues for the installers who cannot complete the installations without the promised funding, as the 10% contribution of the beneficiaries is not sufficient to continue the work.

Applicants rejected because of expired documents took the matter to court against AFM in order to force the institution to revert the rejection decisions, as the expiration of the documents was due to the delayed and inconsistent decisions of the institution in managing the programme. Regarding this matter, in December 2020 the judicial request of a beneficiary to cancel AFM's decision was granted by the Suceava Court of Appeal[34]. Even if the court did not compel the institution to provide funding, the sentence confirms the issues in implementing this programme.

According to data reported by ANRE, the total count of prosumers connected to the electricity grid in May 2020 was

514 of which

individuals

legal entities[35]

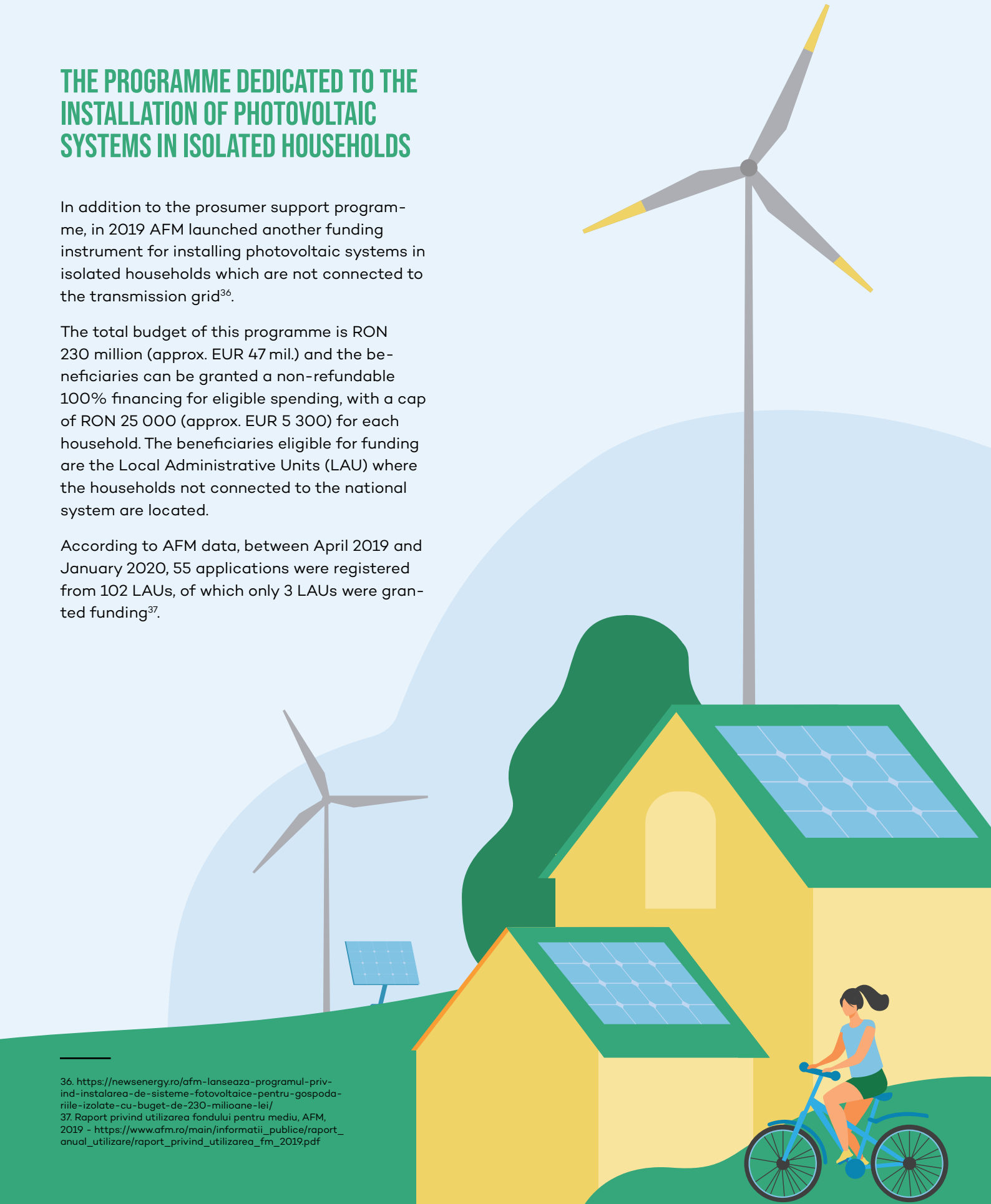
32. https://www.economica.net/panouri-fotovoltaice-acasa-guvernul-a-eliberat-banii-pentru-programul-afm-de-instalare-de-panouri-solare-subven-ionate_172441.html
33. https://www.afm.ro/main/programe/sisteme_fotovoltaice/2020/comunicat_presa-fotovoltaice-2020_06_11.pdf
34. http://portal.just.ro/39/SitePages/Dosar.aspx?id_dosar=3900000000052064&id_inst=39
35. https://www.economica.net/in-romania-sunt-pana-acum-doar-500-de-prosumatori_185020.html

THE PROGRAMME DEDICATED TO THE INSTALLATION OF PHOTOVOLTAIC SYSTEMS IN ISOLATED HOUSEHOLDS

In addition to the prosumer support programme, in 2019 AFM launched another funding instrument for installing photovoltaic systems in isolated households which are not connected to the transmission grid[36].

The total budget of this programme is RON 230 million (approx. EUR 47 mil.) and the beneficiaries can be granted a non-refundable 100% financing for eligible spending, with a cap of RON 25 000 (approx. EUR 5 300) for each household. The beneficiaries eligible for funding are the Local Administrative Units (LAU) where the households not connected to the national system are located.

According to AFM data, between April 2019 and January 2020, 55 applications were registered from 102 LAUs, of which only 3 LAUs were granted funding[37].



36. https://newsenergy.ro/afm-lanseaza-programul-privind-instalarea-de-sisteme-fotovoltaice-pentru-gospodariile-izolate-cu-buget-de-230-milioane-lei/
37. Raport privind utilizarea fondului pentru mediu, AFM, 2019 - https://www.afm.ro/main/informatii_publice/raport_anual_utilizare/raport_privind_utilizarea_fm_2019.pdf

CHAPTER IV

MEASURES AND POLICIES FOR DEVELOPING THE RENEWABLE ENERGY SECTOR

The decarbonisation of the energy system is a widespread goal in the fight against climate change on a national and European level, setting dedicated objectives for the energy sector that must be met until 2030.

Besides reducing greenhouse gas emissions and increasing energy efficiency, the decarbonisation process must be supported by increasing the share of RES-E in the final energy consumption, which must reach 32% at European level in 2030.

In Romania, the National Energy and Climate Plan (NECP) foresees a total share of renewables in the gross final consumption of 30.7%, which included the following sectoral shares[38]:

49,4%
RES-E share in the gross final energy consumption;

33%
RES-E share in the gross final energy consumption in the heating and cooling sectors;

14,2%
RES-E share in the gross final energy consumption in the transport sector.

In order to reach this objective, the NECP defines policies and measures to increase the share of RES-E especially in the electricity and transport sectors.

Regarding the electricity production sector, the drafted measures are dedicated to developing existing infrastructure to support increasing renewable energy production capacities; it is estimated that the wind capacities will increase from 2953 MW in 2020 to 5255 MW in 2030 and the photovoltaic capacities from 1362 MW to roughly 5054 MW, respectively[39]. Desired measures include encouraging the development of storage capacities, implementing demand response measures and digitalising the national energy system through the development of smart meters and grids.

The plan also defines support mechanisms for developing the sector: Contracts for Difference and re-legitimising Power Purchase Agreements (PPAs) – energy purchase contracts outside of centralised markets.

Contracts for Difference (CfDs) are a support instrument for investments in low-carbon electricity generation by ensuring income stability for producers.

38. http://economie.gov.ro/images/transparenta-decizionala/ANUNT%20PNIESC%202020/PNIESC%20revizuit_31%2001%202020.pdf

39. http://economie.gov.ro/images/transparenta-decizionala/ANUNT%20PNIESC%202020/PNIESC%20revizuit_31%2001%202020.pdf

A legal initiative on CfDs was launched for public consultation in 2019[40]; projects benefitting from this mechanism include those on building new nuclear energy production units or building energy production fossil-based capacities with carbon capture and use equipment[41].

Power Purchase Agreements (PPAs) are bilateral long-term energy supply contracts directly concluded between the final client (the consumer) and the energy producer. They allow the consumer to directly negotiate the terms of the agreement with the producer, while the latter will have the guarantee of recovering the investment. PPAs were outlawed in 2012 by several legal changes brought to the green certificates RES-E support scheme.

Regulation (EU) 2019/943 on the internal market for electricity has direct national applicability and allows PPAs to be concluded starting from 1 January 2020. However, national law currently has conflicting provisions regarding this type of contracts: The ANRE Order No. 236/2019 allows market participants to sign PPAs, OUG 74/2020 stipulates producers may sign long-term contracts starting with 1 July, but the modified version of Law 123/2012[42] still entails restrictive provisions on the market participation of some producers.

The project of the 2020-2030 National Energy Strategy with prospects until 2050 (NES) also contains measures to develop the renewable energy sector; these measures include investments to increase renewable energy production capacities, both from wind and photovoltaic sources, as well as from offshore wind sources. Additionally, digitalising and optimising electrical grids and storage and decentralising the energy system are listed as measures optimising the transition towards a clean energy system[43].

Although both strategic documents plan priority actions dedicated to the renewables sector, the proposed measures lack strategic coherence. For example, NECP stipulates increasing wind energy production capacities by 2302 MW in 2030, and solar by 3692 MW (fig.7), but the electrical grid development plan drafted by Transelectrica for 2020-2029 estimates an increase by only 1100 MW of wind capacities and 900 MW for solar capacities (fig. 8) in the “green” scenario[44], which yields a significant difference to the NECP figures.

40. http://energie.gov.ro/wp-content/uploads/2019/03/CONSULTARE-PUBLIC%C4%82-CfD-15.03.2019.pdf
41. https://sgg.gov.ro/new/wp-content/uploads/2020/06/MEMO.pdf

42. Art 23. alin 13 și 14 din Legea 123/2012 a energiei electrice și a gazelor naturale - http://legislatie.just.ro/Public/DetaliiDocument/139677
43. http://www.mmediu.ro/app/webroot/uploads/files/Strategia%20Energetica%20a%20Romaniei_aug%202020.pdf
44. https://web.transelectrica.ro/noutati/noutati/55_2020.08.17_14-30-42.pdf pg. 127

FIG. 7
ESTIMATIVE TRAJECTORY OF INSTALLED CAPACITY, PER SOURCE (MW)[45]

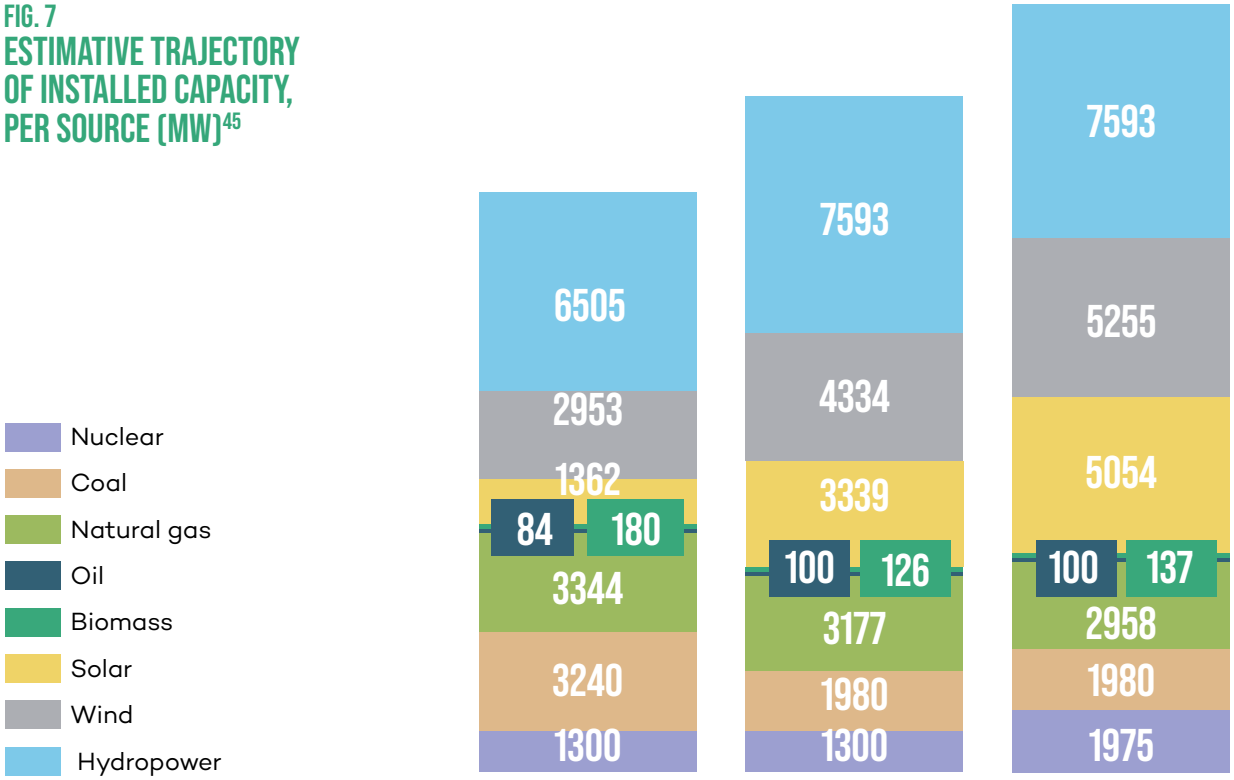


FIG. 8
ADEQUACY OF THE TOTAL PRODUCTION UNITS OF THE NATIONAL ENERGY SYSTEM – GREEN SCENARIO[46]

MW

NATIONAL ENERGY SYSTEM NET POWER	2020	2024	2029
nuclear power plants	**1325**	**1325**	**1990**
conventional thermal power plants	**7101**	**6544**	**6544**
• lignite	3112	3112	3112
• hard coal	1050	430	430
• gas	2939	3002	3002
renewable energy sources	**4779**	**5249**	**7100**
• wind	3200	3500	4300
• solar	1400	1500	2300
• biomass	180	250	500
hydropower plants	**6471**	**6778**	**7778**
pumped-storage hydroelectric power stations	0	0	1000

45. http://economie.gov.ro/images/transparenta-decizionala/ANUNT%20PNIESC%202020/PNIESC%20revizuit_31%2001%202020.pdf
46. Planul de dezvoltare a RET pentru perioada 2020-2029, Transelectrica, pg. 127 - https://web.transelectrica.ro/noutati/noutati/55_2020.08.17_14-30-42.pdf

FIG. 9

INCREASE ESTIMATION OF WIND ENERGY PRODUCTION CAPACITIES, COMPARISON BETWEEN THE RET DEVELOPMENT PLAN OF TRANSELECTRICA AND PNIESC (MW)

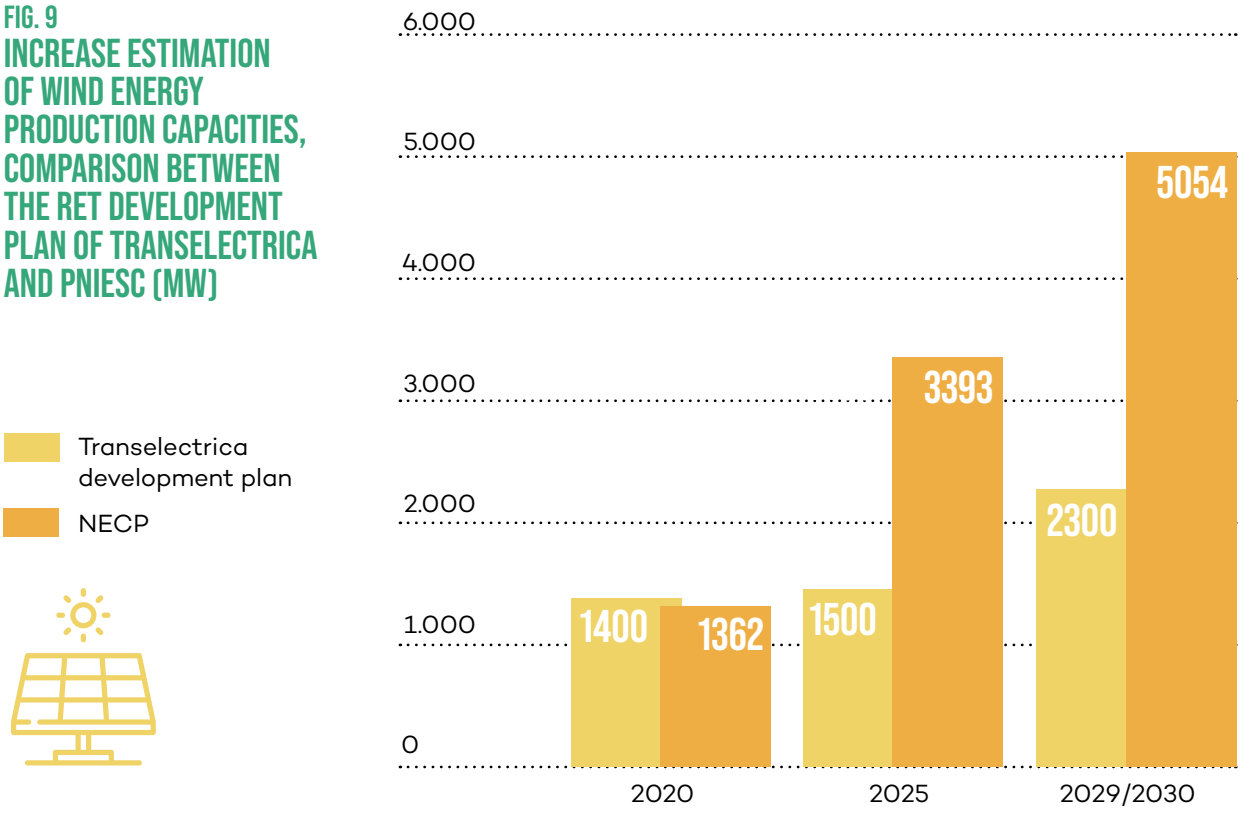
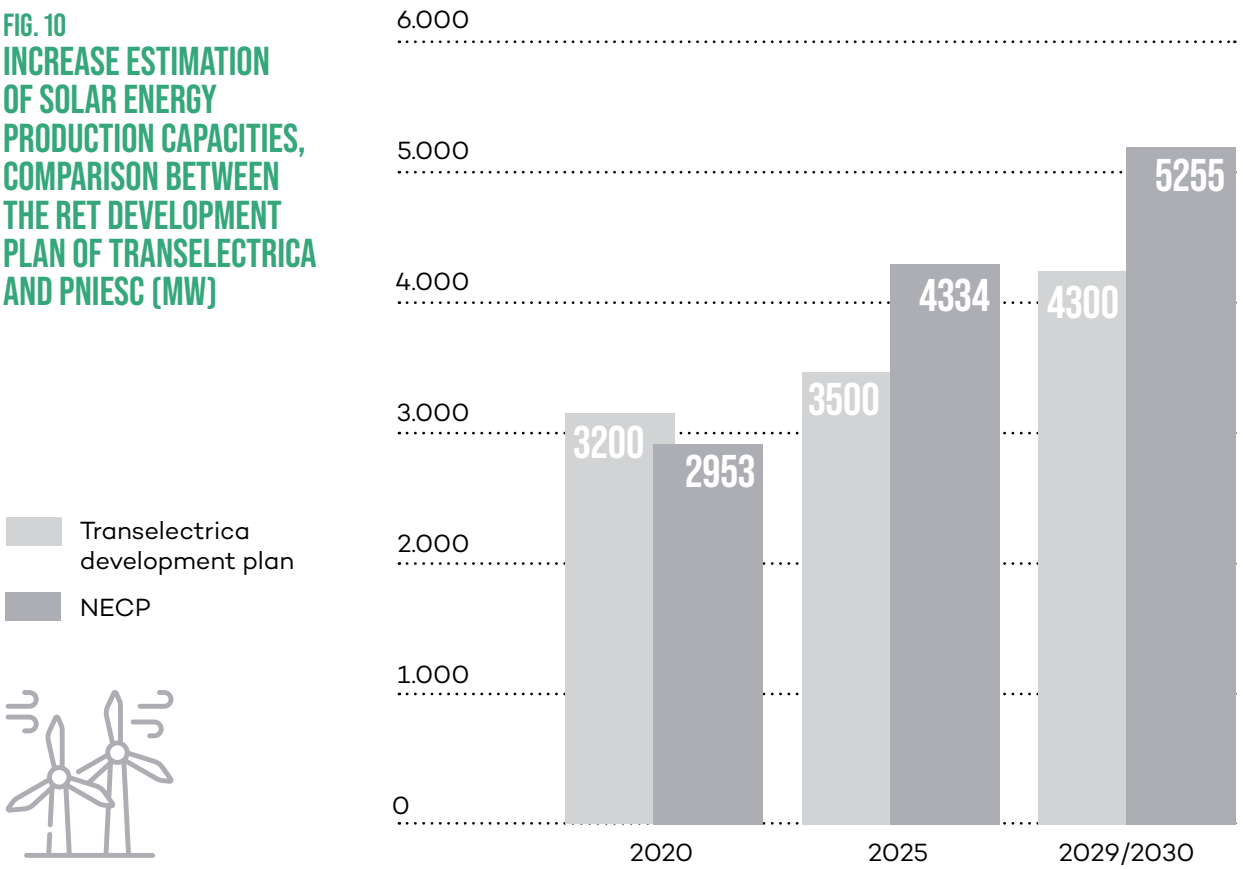


FIG. 10

INCREASE ESTIMATION OF SOLAR ENERGY PRODUCTION CAPACITIES, COMPARISON BETWEEN THE RET DEVELOPMENT PLAN OF TRANSELECTRICA AND PNIESC (MW)



CHAPTER V

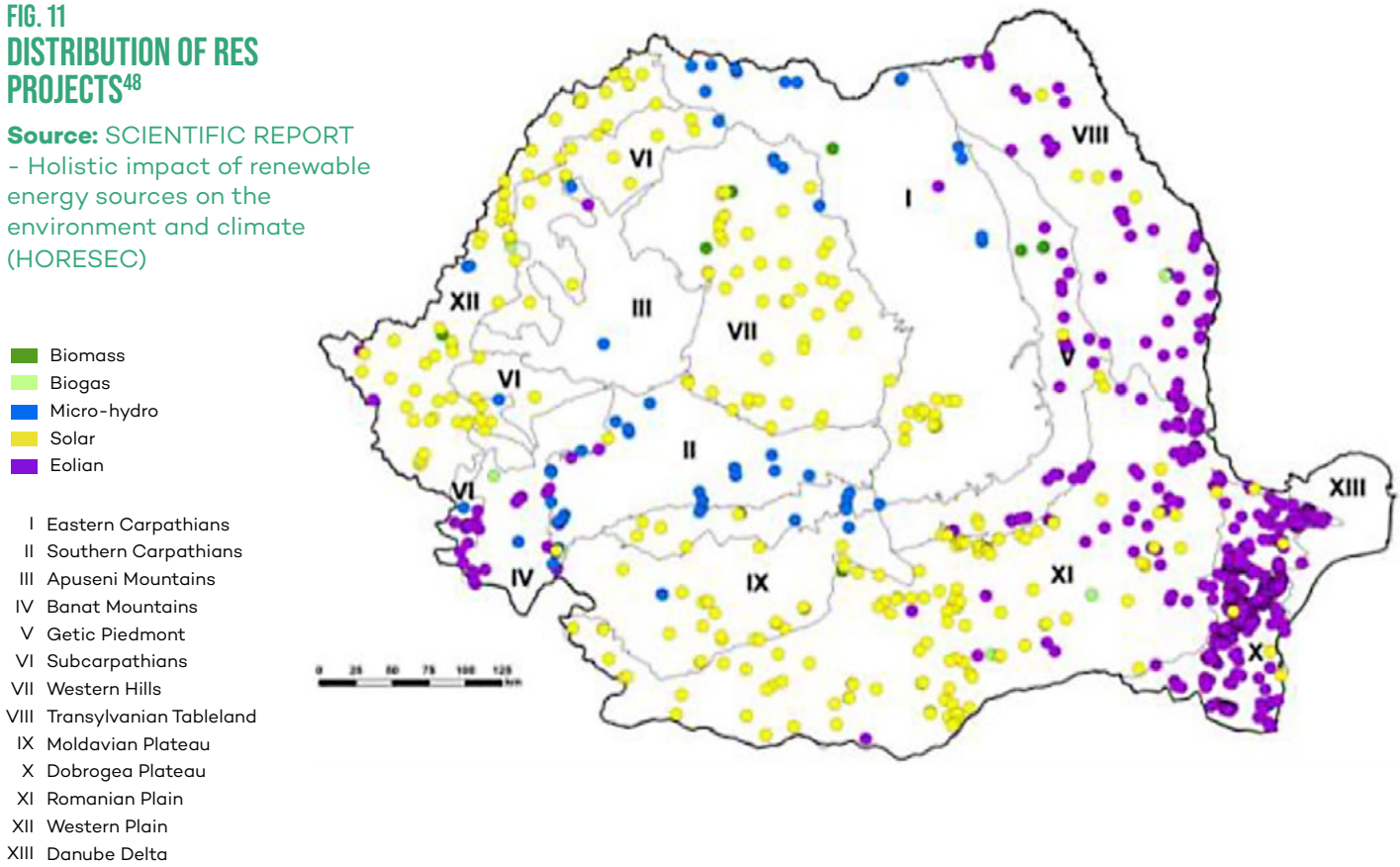
THE POTENTIAL OF RENEWABLE ENERGY

Romania's potential to produce energy from renewable sources is significant. This is proven by the diversified energy mix, as well as by various analyses placing Romania amid the fittest European regions for investments in the renewable energy sector[47].

Of all renewable energy sources available in Romania (wind, solar, hydropower, geothermal, biomass), taking into consideration the distribution of renewable energy production projects, the most widely used are wind, solar and hydropower:

FIG. 11
DISTRIBUTION OF RES PROJECTS[48]

Source: SCIENTIFIC REPORT - Holistic impact of renewable energy sources on the environment and climate (HORESEC)



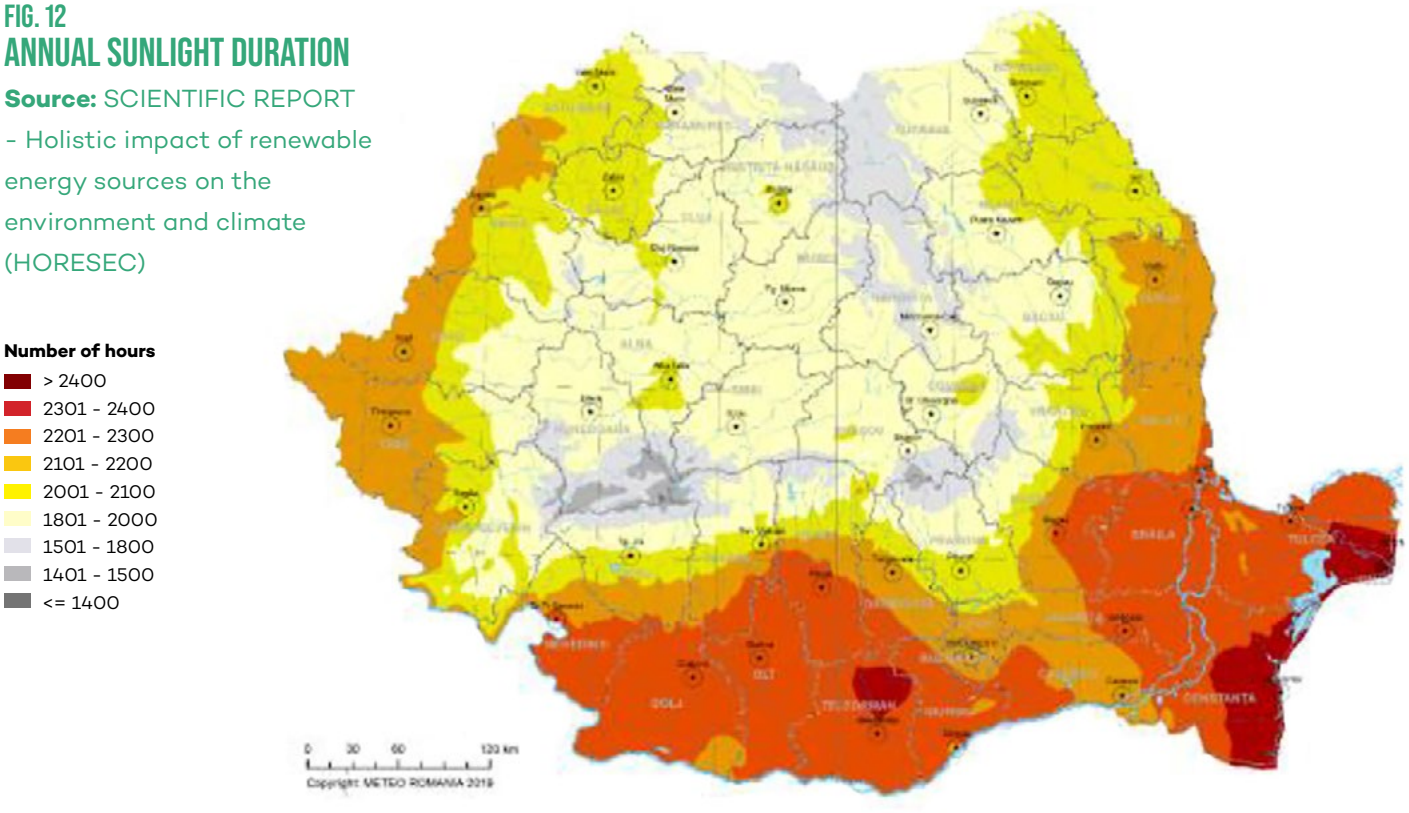
47. https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2017/IRENA_Cost-competitive_power_potential_SEE_2017.pdf
48. https://cmu-edu.eu/horesec/wp-content/uploads/sites/17/2019/12/RST_etapa2_v1.pdf

Solar energy

According to the estimates of the National Energy Strategy, harnessing Romania's solar resources can lead to installing a total capacity of 4000 MW and producing 4.8 TWh of energy per year[49]. However, these estimations are conflicting with NECP predictions which suggest a solar capacity increase to 5054 MW in 2030, which once again shows the lack of coherence between the two strategic documents. Solar resources are mainly found in the West, South and South-East regions of Romania, where sunlight duration is high all year long.

FIG. 12
ANNUAL SUNLIGHT DURATION

Source: SCIENTIFIC REPORT - Holistic impact of renewable energy sources on the environment and climate (HORESEC)



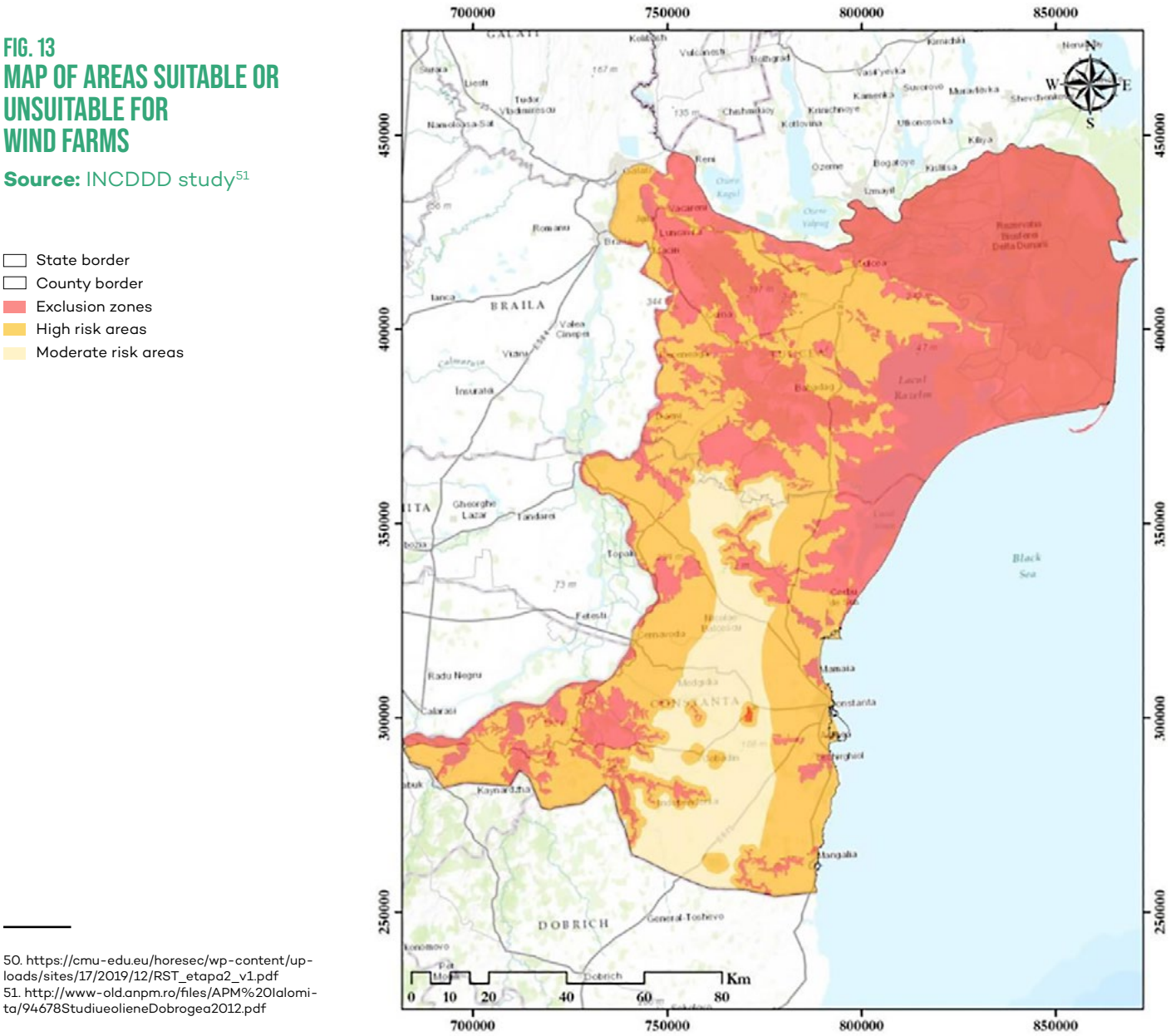
49. http://www.mmediu.ro/app/webroot/uploads/files/Strategia%20Energetica%20a%20Romaniei_aug%202020.pdf

Wind energy

The national onshore wind potential is estimated to 23 TWh/year by installing a total capacity of roughly 14 000 MW; wind speed is the highest in the mountain region, the North of Dobrogea, the Danube Delta and the seaside of the Black Sea[50], as can be observed from the distribution of wind power projects in Fig. 11. However, building wind farms must respect the limits of natural protected areas and the rules in place for their protection so that the potential environmental impact of these constructions is limited. For Dobrogea and the Danube Delta, a 2012 study by the National Institute for Development-Research of the Danube Delta (INCDDD) mapped the areas where wind farms can be placed, taking into account the migration paths of birds (fig.13). Developing wind farms can also be restricted for other reasons such as noise limits or their position close to settlements or public roads.

FIG. 13
MAP OF AREAS SUITABLE OR UNSUITABLE FOR WIND FARMS

Source: INCDDD study[51]



50. https://cmu-edu.eu/horesec/wp-content/uploads/sites/17/2019/12/RST_etapa2_v1.pdf
51. http://www-old.anpm.ro/files/APM%20Ialomita/94678StudiueolieneDobrogea2012.pdf

As for Romania's offshore wind potential, measures to develop this sector are lacking or not sufficiently covered in strategic documents on the energy sector.

According to estimates of the World Bank[52], the technical development potential of offshore wind capacities in Romania is 76 GW, of which 22 GW from fixed installations and 54 GW from floating installations.

Despite these assessments, offshore wind potential is very slowly explored, although the benefits of developing this economic segment are considerable. According to a recent report by the Centre for European Policy Studies (CEPS)[53], launching investments in offshore wind energy production will bring new jobs and qualified workforce, while also contributing to developing adjacent economic sectors.

Offshore wind energy can be a long-term solution for the decarbonisation of Romania's energy sector; this requires a stable and coherent legal framework to accelerate investments, but also measures to support the development of higher education, professional training and conversion programmes and research, technological development and innovation activities in this field.

At the moment, Hidroelectrica is the only state company considering building an offshore wind farm with a capacity of 300 MW to be put in operation in 2026[54] and a bill was initiated in the Romanian Parliament regarding the necessary measures for operations to harness this renewable energy source[55].

52. http://documents1.worldbank.org/curated/en/141221587050442759/pdf/Technical-Potential-for-Offshore-Wind-in-Romania-Map.pdf
53. https://www.ceps.eu/ceps-publications/how-black-sea-offshore-wind-power-can-deliver-a-green-deal-for-this-eu-region/
54. https://www.economica.net/hidroelectrica-investe-te-in-parcuri-eoliene-de-600-mw-din-tre-care-300-in-marea-neagra-vor-fi-gata-in-2026-program-total-de-zeci-de-miliarde_1844-89.html
55. https://www.senat.ro/Legis/Lista.aspx?cod=23008

CHAPTER VI

FUNDING SOURCES AVAILABLE ON NATIONAL AND EUROPEAN LEVEL FOR DEVELOPING AND INTEGRATING RES

After joining the EU, Romania benefitted from cohesion policy funds for the 2007-2013 programming period, which were instruments to eliminate economic and social differences between the regions, also known as structural and cohesion funds.

During this funding period, seven **Operational Programmes were drafted on a national level, of which only the Sectoral Operational Programme "Increase of Economic Competitiveness" (SOP IEC)** aimed at developing the renewable energy sector, part of the funding direction to stimulate the use of renewable energy sources in producing electricity and heating. SOP IEC included a support scheme dedicated to grants for new investments in producing energy from renewable sources, targeting companies.

According to the results recorded at the end of the funding period[56], SOP IEC funded 23 investments projects finalised in 2015, of which:

WIND 5 projects
SOLAR 7 projects
HYDROPOWER 10 projects
GEOTHERMAL 1 project

The projects amount to roughly 140 MW installed power of which 110 MW electricity and 30 MW heating.

For the funding period 2014-2020, the development of the renewable energy sector is funded by the **Operational Programme Large Infrastructure (LIOP)**, Priority axis 6 – *Promoting clean energy and energy efficiency in order to support a low carbon economy*, Specific Objective 6.1 – *Increasing the production of energy from less exploited renewable energy sources (biomass, biogas, geothermal)*[57].

According to the list of projects contracted since 31 September 2020, there was a single project for heating production increase based on thermal waters, with a total value of roughly RON 24 million (EUR 5 million)[58].

56. https://media.hotnews.ro/media_server1/document-2016-04-20-20947917-0-sinteza-raport-curtea-conturi.pdf

57. http://mfe.gov.ro/programe/autoritati-de-management/am-poim/
58. Listă proiecte contractate POIM – 31 septembrie 2020 https://mfe.gov.ro/wp-content/uploads/2020/10/b0aca6566166b6e9b6c0d34cd43868258-1.pdf

CASE STUDY

BEIUȘ – GEOTHERMAL CITY

Beiuș city in Bihor county is the only Romanian city where the district heating system is exclusively fuelled from geothermal energy sources. 103 apartment blocks, 3 high schools, secondary schools, churches and the headquarters of public institutions of the city[59] benefit from the sustainable use of this resource.

In 2019, the project "Beiuș – Geothermal city" was launched and it applied for funding within the Sectoral Operational Programme "Increase of economic competitiveness" 2007-2013, Priority Axis 4 – *Increasing energy efficiency and security of supply, in the context of combating climate change*, Key Area of Intervention 4.2 – *Harness renewable energy sources for producing green energy*.

The project had a budget of EUR 4.3 million[60] and included building a new installation for the underground reinsertion of thermal used water, extending the heating system with 10 km of pipelines, 8 km retour pipelines and 22 new distribution points for heating and hot water.

A new project[61] for increasing geothermal heating production launched in 2020 by signing a European funding contract within LIOP 2014-2020, PA6 – Promoting clean energy and energy efficiency in order to support a low carbon economy, Specific Objective 6.1 – Increasing energy production from less exploited renewable sources (biomass, biogas, geothermal). The total allocated budget is roughly RON 24 million (EUR 5 million), of which European funding is RON 18.6 million and state budget contribution is RON 1.9 million.

The project stipulates building a new heating production capacity from geothermal sources and increasing existing capacity, with an implementation deadline of 2022.

59. http://transgex.ro/index.php/ro/despre-noi/portofoliu-ro/224-beius
60. https://primariabeius.ro/pagina/orasul-geotermal
61. http://transgex.ro/images/Anunturi/2020/Comunicat_de_Presa_MFE.pdf

Promoting renewable energy sources is also a specific objective of the Regional Operational Programme 2014-2020, Priority Axis 3 – *Energy efficiency in public buildings, Specific Objective 3.1 – Supporting energy efficiency and renewable energy use in public infrastructures and the housing sector*. Specifically, this investment priority will fund projects including the usage of renewable energy sources to provide the necessary energy for heating and hot water consumption[62].

According to available data[63], during the European funding period 2014-2020, investments to support the transition towards a low carbon economy were planned with a total value of roughly

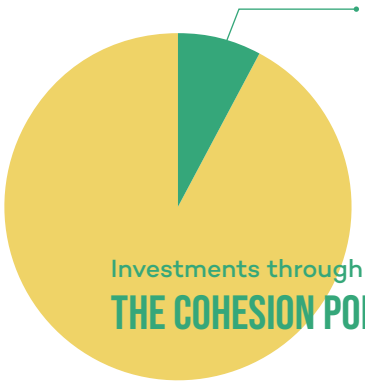
EUR 2,25 billion

of which, until 30 September 2020, only

24% (roughly EUR 531 million)

was covered by grants

Other data indicates that only 7.8% of the investments carried out in Romania through the Cohesion Policy in the budgeting period 2014-2020 involved implementing green energy projects[64].



For 2021-2027, a total budget of

EUR 80 BILLION is allocated to Romania, of which

30,5 BILLION
will be allocated through the Cohesion Policy

30,4 BILLION
through the Recovery and Resilience Facility, the new financial instrument for post-pandemic economic recovery[65]

Concretely, the actions to efficiently integrate renewable sources are defined in the **Operational Programme for Sustainable Development** which will fund projects to develop smart energy systems and storage solutions, as well as projects dedicated to increasing the adequacy of the national electrical grid. The total budget available for this programme is

EUR 4.6 BILLION[66]

In order to access and use the funds of the Recovery and Resilience Facility, Romania must outline necessary investment priorities for economic recovery and undo the negative effects of the COVID-19 crisis in its National Recovery and Resilience Plan. Following preliminary discussions on the structure of this strategic document, the following are specified as key action fields to re-establish the economic balance after the pandemic: the energy sector, digitalisation, energy efficiency, climate change and environmental protection[67].

62. http://www.inforegio.ro/images/Documente_de_programare/Programme_2014RO16RFOP002_6_1_ro.pdf
63. https://cohesiondata.ec.europa.eu/themes/4#
64. https://sandbag.be/wp-content/uploads/2020/02/2020-SB-Financing-low-carbon-transition-in-Romania-1.pdf
65. http://mfe.gov.ro/wp-content/uploads/2020/08/8f9bd61f4b6b251b-4442c4588ff2f9d5.pptx
66. Sinteza Programului Operațional Dezvoltare Durabilă - http://mfe.gov.ro/wp-content/uploads/2020/07/95c37097aeb9a00bcb5c2d5ddde31f38.pdf
67. http://www.economie.gov.ro/30-de-miliarde-de-euro-pentru-a-accelera-revigorarea-economica-in-perioada-post-pandemie-de-covid-19-in-baza-pnrr

A first version of the National Recovery and Resilience Plan was published in November 2020[68] and the necessary investments for economic recovery are structured on three pillars:

PILLAR 1
Energy transition and climate change;

PILLAR 2
Public services, urban development and heritage valorisation

PILLAR 3
Economic competitiveness, digitalisation and resilience.

Investment goals of the energy sector are laid out in Pillar 1, **Investment field for green energy and transition**, with total allocated funds of

EUR 1.55 BILLION

Of this allocation,
EUR 500 MILLION
are dedicated to projects including renewable energy production, transport and distribution.

The plan also provides an investment list for renewable energy production, however this only includes modernising and retrofitting a significant number of existing hydropower capacities. No investments for increasing production from other renewable sources (wind and solar) or for modernising wind production capacities were considered, despite a significant portion of those approaching the end of their operational lifetime. In addition, despite Romania's considerable offshore wind energy potential, the National Recovery and Resilience Plan does not include any investment priorities for this type of energy. Investments in renewable energy production can also be funded from available resources of the Modernisation Fund, a financing instrument created following the revision of the Emissions Trading System Directive (EU-ETS). Eligible investments include renewable energy production, energy efficiency in the energy production sector and storage measures, modernising energy systems and the transition of coal-dependant regions. According to estimates of the competent authorities to collect project proposals, Romania will have roughly

EUR 7 BILLION
available for the period 2021-2030[69].

Developing renewable energy production and storage capacities can also be financed by the Innovation Fund, another financial instrument of the EU-ETS Mechanism, whose budget is derived from auctioning the greenhouse gas emission certificates and which can reach roughly

EUR 10 BILLION
dependant on carbon dioxide price evolution[70].

68. https://mfe.gov.ro/wp-content/uploads/2020/11/587f2474d66bdf5f222009242d23f292.pdf

69. https://www.economica.net/ministerul-energiei-anun-a-apelul-de-proiecte-pentru-finan-are-din-fondul-de-modernizare-mecanismul-10d-ar-fi-disponibile-6-7-miliarde-euro_190610.html
70. http://www.economie.gov.ro/anunt-privind-oportunitatile-de-finantare-oferite-de-fondul-de-inovare

CONCLUSIONS AND RECOMMENDATIONS

Despite the fast development of the renewable energy sector while the support scheme was operational, the latest years saw a halting of investments, despite the technological progress in the field.

The frequent changes of the legal and regulatory framework, the lack of transparency and strategic vision and the administrative system's reduced capacity to adapt to domain trends all led to losing the investment momentum and to a general uncertainty for the renewable industry. Since 2016 no new renewable capacity was installed and producers faced significant capital losses.

Although financial resources in the period 2014-2020 allowed implementing projects for producing energy from renewable sources, only 7.8% of investments regarded this sector. Funding programmes by national institutions could also not boast outstanding results, mainly due to reduced administrative capacity and to decisional inconsistencies in the implementation.

Regarding this industry's future in Romania, the worldwide public support for accelerating actions to fight climate change and Romania's commitments at the European level provide an unprecedented development framework for renewable energy. However, as shown, the lack of coherence of the legislation and of the strategic documents for the next 10 years (National Energy Strategy, NECP and Transelectrica's Development plan) and the capacity of competent institutions to develop RES projects can significantly hamper the sector's evolution.

The following **recommendations**, grouped by national institutions responsible, can contribute to developing the renewables sector in line with the decarbonisation objectives and in an integrated manner by taking into account the other dimensions of the transition towards a clean energy system:

PARLIAMENT, GOVERNMENT AND ANRE

- increasing the stability and predictability of the legal framework by setting clear and fair rules for all parties involved, with practical applicability to the national potential, is a mandatory condition to unlock this sector;
- the needs of the renewable energy market must be addressed by coherent legislative interventions drafted by respecting transparency and public participation principles. It is important that all participants to this market are efficiently consulted and their suggestions taken into account;
- implementing mechanisms to incentivise investments for increasing the renewable energy production capacities: introducing Contracts for Difference (CfDs) which will exclusively apply to renewable energy projects, but also on retrofitting already existing capacities approaching the end of their operational lifetime; clarification of the regulatory framework on signing long-term direct bilateral contracts (PPAs);
- simplifying authorisation, funding and effective implementation procedures for renewable energy production projects;
- defining a clear regulatory framework for democratising the energy system by making extensive use of local energy communities, energy cooperatives and efficiently developing the prosumers sector;
- developing higher education, professional training and conversion programmes and supporting technical research, development and innovation in the renewable energy sector;

TRANSELECTRICA

- intensifying investments in developing and modernising national electricity transmission infrastructure to be able to support the new renewable energy production capacities; digitalising, developing smart meters and networks are priority investments for the evolution of the renewable industry;
- accelerating investments in developing electricity storage capacities and implementing measures on demand response – these actions will contribute to the flexibility of the energy system and to a better integration of energy from renewable sources;

MINISTRY FOR EUROPEAN INVESTMENTS AND PROJECTS, ENVIRONMENT FUND ADMINISTRATION

- defining new sustainability criteria on funding and implementing investments in the renewable industry to remove any negative environmental impact;
- increasing the quality of the administrative capacity to adapt the legal framework to the domain trends in order to attract all funding sources dedicated to investments in renewable energy sources and to implement this type of projects.

ABBREVIATION LIST

ANRE	Romanian Energy Regulatory authority
AFM	Environment Fund Administration
PA	Priority Axis
GC	Green Certificate
CfD	Contract for difference
RES-E	Electricity from renewable energy sources
EU-ETS	EU Emissions Trading System
GHS	Greenhouse gas
GD	Government decission
INCDDD	National Institute for Development-Research of the Danube DeltaObiectiv specific
SO	Specific Objective
OPCOM	Romanian Energy and Gas Market Operator
GEO	Government emergency ordinance
EGD	European Green Deal
DAM	Day-ahead market
NECP	National energy and climate plan
SOP IEC	Sectoral Operational Programme “Increase of Economic Competitiveness”
LIOP	Large Infrastructure Operational Programme
PPA	Power purchase agreement
NES	National energy strategy
LAU	Local Administrative Unit