



Status-quo Assessment Report

Brasov Agency for Sustainable Development (PP10)

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1. General description of your Region and its Demography

1.1 Land area by type

Located in the central part of Romania, in the South-Eastern part of Transylvania, crossed by the middle course of Olt River and situated within the Carpathian Arc, Brasov County, occupies most of the Brasov and Fagaras depressions.

The County lies at the conjunction of two large mountain chains, the Oriental and the Meridional Carpathians, therefore adjoins with other 8 Counties: Arges, Dambovita, Prahova, Buzau, Covasna, Harghita, Sibiu and Mures.

From the administrative point of view, Brasov County is part of the Centre Region, along with Sibiu, Mures, Covasna, Harghita, Covasna and Alba Counties.

The County width is 5.363 km², representing 2,2% from the whole country, and the population density is 119 inhabitants/km².

Brasov County has a rugged relief, with higher altitudes from the North to the South. In the North are Fagaras and Brasov Depressions separated by the shorter peaks of Persani Mountains, and in the North West is part of Tarnavelor Plateau. In the South of the County is the North Slope of Fagaras Mountain (with over 2000 m altitude), but also Bucegi Mountains, Piatra Craiului, Postavaru, Piatra Mare, Ciucas and Intorsura Buzaului Mountains. The massiveness of the area is diminished by the pronounced transversal bumps brought in the relief by several areas such as Bran-Rucar Corridor, Olt valley and Predeal, Predelus, Bratocea and Tabla Butii Passes.

The location in the middle of the country has provided Brasov County with a very important position, a strategic one in terms of connectivity, accessibility and mobility. The connectivity between Brasov County and the rest of the country, but also other European Countries is insured by the European Roads: E60, E68 and E574, but also by National Roads such as DN 1, DN 13, DN 11 and DN73.

The density of the public roads of the County is 30,6 km/100km²(2019), a little under the national average (36,2/100 km²).

From the total amount of the roads that cross the County, 495 km (30%) represent national roads, 661 km (41%) County roads and 475 km (29%) communal roads.

Brasov County is also an important railway junction, facilitating the connection with all the regions of the country, with the highest density of railways form the Centre Region (62 km/1000 km²).

Despite the strategic positioning and importance of Brasov County, the only existent major transport infrastructure is Brasov International Airport (Ghimbav), which was just opened for the public in June 2023. The rest of the major transport infrastructure like highways and express roads is still in the project phase or in some cases is only partially implemented.

Tourism plays a very important role within the economy of Brasov County. In the last 10 years the whole County has developed a strong strategy, thus progressing towards a very attractive touristic destination, focusing on the tourists interests and market opportunities. As a result, Brasov County takes up the second place (after Constanta County) in the country in terms of the numbers for the accommodation structures and units and it is considered the most important and frequented area in regard to mountain tourism, with a very diverse range of touristic objectives.

1.2 Population density (including population in urban areas/total)

According to the statistics from January 2023 (gathered by The National Statistical Institute and the County Directorate of Statistics), the population of Brasov County is of 639.825 inhabitants (by the place of residence).



The County's population represents 2.92% from the total population of Romania, registering a slight increase in percentage compared to the numbers registered in July 2019, by 0.06%.

The urban area, which occupies 1.234 km² – 23% of the total surface of the County, registers a population of 455.087 inhabitants (71,13% of the total inhabitants), whereas 28,87% of the total County population, 184.738 people live in the rural area – on 4.129 km² (77% of the total County population).

In Brasov Municipality (which is Brasov County capital) lives the largest population of the County, 284.691 inhabitants, which represents 62,55% inhabitants out of the total urban population and nearly a half - 44,50% of the total County population. This situation is due to the numerous development opportunities that exists within the municipality, in terms of education, jobs, state institutions, health facilities, banks, shops, recreational opportunities.

At County level, during the last ten years, the population from the rural area (the 149 villages part of 48 communes) has increased with nearly 8%, while the number of inhabitants from cities and municipalities has decreased by almost 1%.

The increase registered in the numbers of the rural inhabitants, especially in the metropolitan area (the areas nearby Brasov – 17 communities which comprise now about ½ of the County) is connected to the following:

- Large investments in the main infrastructure (such as water, sewage, roads etc.) carried out in the rural area during the last years;
- More affordable housing compared to the urban area, especially in Brasov;
- A lower level of pollution compared to the urban area.

1.3 Municipalities

Brasov County consists of 58 public administrations. Thus, Brasov County comprises:

- 4 municipalities: Brasov, Fagaras, Codlea, and Sacele;
- 6 cities: Zarnesti, Rasnov, Rupea, Victoria, Predeal, and Ghimbav;
- 48 communes with 149 villages.

The administrative local public authorities are the Prefect Institution Brasov, Brasov County Council and the town halls.



Brasov County has a polycentric system of development around its main cities: Brasov, Rupea, Fagaras, therefore these areas are designed to bring major contributions to the decision making, to planning, implementing programs and projects and providing resources and services etc.

Fagaras and Rupea Cities can be defined as average urban centres, whereas Brasov Municipality has the characteristics of an average urban centre, but the attributions of a large one. The areas covered by these three urban centres coincide with the three historical areas from Brasov County („Rupea Country”, „Fagaras Country”

and „Barsa Country”).

Within the urban area of Brasov Municipality, we can mention, as well, the metropolitan area, that is by itself an administrative subregion which consists of the municipalities, cities, and communes near Brasov. The metropolitan area was established to create new business opportunities, to encourage housing and recreational development and identify the most appropriate investment opportunities, and coordinate environment and infrastructure projects for a larger area surrounding Brasov City. The metropolitan area consists of 17 communities both municipalities, cities, and communes (the municipalities of Brasov, Codlea, and Sacele; the cities of Ghimbav, Predeal, Rasnov, and Zarnesti and the communes: Cristian, Sanpetru, Halchiu, Tarlungeni,

Prejmer, Harman, Bod, Crizbav, Vulcan, Feldioara, and Budila) and it comprises about ½ part of the total County area.

Brasov County has the highest degree of urbanization from the Centre Region, with a percentage of the urban population over 71%. Brasov is a major junction for communication and transport, ensuring the connectivity between the northern and southern regions of the country, as well as between the western and eastern regions. Brasov is also an important railway junction; the County has the highest density of railways in the region (62 km/1000 km² compared with the average of 43 km/1000 km²).

2. Regional Factors concerning the theme

2.1 Mobility

2.1.1 Public network of transport system available in Brasov County

The railway traffic from Brasov County needs more investments to improve the infrastructure especially since Brasov represents an important railway junction, facilitating the connection with all the regions of the country. Although it is a good transport alternative, from 2011-2019 the number of passengers for the railway system has decreased by 6.5% passengers/year.

The intra-county public transport (by road) is coordinated by Brasov County Council structures, which establish the necessity and frequency for the relevant routes. Thus, until 2023, the routes which connected the County communities and the ones connecting Brasov County to the neighbouring counties, were serviced by the local and/or national passenger carriers authorized by the county structures (for the local operators) and the central authorities (for the national operators). For the intra-county transport there were 11 private passenger carrier companies authorized to service 76 bus routes with 159 large and small busses. The whole fleet (159 cars) dedicated for the intra-county public transport for passengers was represented by fuel cars (polluting fuels).

Since the beginning of 2023 – until now, in order to reconfigure the whole process of public transport, to evaluate the transport operators and the intra-county routes, Brasov County Council has launched a public procedure for identifying and authorizing new companies willing to provide more efficient and focused public transport services on the intra-county roads. The public procedure is divided into four batches to reduce the number of operators to only 4 companies that will be able to operate 51 different intra-county transport routes for passengers, with 72 cars – busses and minibuses. The Brasov County Council auction also abides by the provisions of the Emergency Governmental Ordinance 71/2021 which established the necessity to promote non-polluting vehicles within the public procurements procedures for transport services, thus stipulating the condition that 18.7% out of the whole fleet involved in the passenger transport, should be non-polluting – such as e-busses, hydrogen fuel busses etc. (with very few exceptions to the rule: -such as large busses with over 22 seats that are exempted from the non-polluting obligation). Until now, only one of the batches was assigned to a carrier, with a fleet of 7 large fuel-based busses (due to the exemption from the non-polluting obligation stated above).

Since intra-county public transport is serviced by fuel-based vehicles, we can conclude that public transport based on combustion vehicles remains one of the main factors for environmental pollution and NOx emissions.

2.1.2 Description and data on current bus fleet (non e-buses) in Brasov and the metropolitan area

The municipal and metropolitan transport from Brasov is ensured by the Brasov Public Transport Operator in cooperation with the Metropolitan Agency for Sustainable Development of Public Transport Brasov (AMDDTPBv) and operates 13 routes within the metropolitan area of Brasov, that include the following areas: Brasov, Cristian, Rasnov, Codlea, Ghimbav, Sanpetru, Bod, Harman, Prejmer, Feldioara, Tarlungeni, Vama Buzaului, Sacele, and Budila.

In order to serve the aforementioned area, The Public Transport Operator from Brasov (RATBV) is equipped with 302 fleet of small and large busses, out of which 169 busses use diesel fuels (56.15% from the whole fleet of busses) and 133 electric busses and trolleybuses (43.85% from the whole fleet of busses) with a capacity of 33.457 passengers. To ensure the charging infrastructure for the electric fleet, there are 89 electric charging stations for busses, out of which 73 slow charging stations and 16 fast charging stations (most of them in Brasov Municipality).

If we were to compare the numbers registered for the municipal and metropolitan fleet since 2019, 94% of the fleet for urban public transport was operated with diesel fuels, whereas only 6% of the same fleet was electric,

we could conclude that in four years there was a dramatic increase of electric vehicles for public transport (with more the 35%), showing an ascending trend towards developing a sustainable and durable public transport for Brasov Municipality by using mostly electric vehicles for public transport and thus contributing in the decrease of NOx emissions.

The interest for public transport shown by the citizens is also growing exponentially, within the last ten or so years, the number of passengers in public transport has increased by 59% compared to the year 2011 (according to AMDDTPBv data).

This sustainable and pro-environmental direction undertaken by the transport operator is sustained by the future projects envisaged for its fleet. Thus, by the end of 2023, RATBV should purchase 15 hybrid buses from its own funds. Also, until 2028, through PNRR funding, RATBV and AMDDTPBv should purchase 88 electric buses (73 for the municipality and 15 for the metropolitan area) and 7 electric minibuses. For the charging infrastructure, the same institutions will purchase 44 slow double charging station (located within the garage area for the buses) and 20 fast charging stations (located along the routes of the electric buses) (according to AMDDTPBv data).

2.1.3 Description and data on current private vehicles (non & electric ones) in Brasov and the metropolitan area

Within the last 10 years the National Institute for Statistics (NIS) has reported an increase by 57% in the number of vehicles registered and in circulation in Brasov County, which leads to a traffic escalation on the County roads, overcrowding of the urban areas, as well as an increase of environmental pollution. The same data source-NIS shows, however, that within the last few years there was also an increase in the number of newly registered electric vehicles in the County.

Brasov Metropolitan Area (which represents almost 50% of the whole County – and the most relevant part of Brasov County) has registered an increase with over 20%, during 2017-2021, regarding the total number of vehicles in the metropolitan area – from 173.596 in 2017 to 209.858 in 2021 (using either polluting or non-polluting fuels). As for the evolution of electric and hybrid vehicles, while in 2017 there were 13 electric cars and 377 hybrid cars registered in the metropolitan area, in 2021 the numbers had increased dramatically: 356 electric cars and 2.757 hybrid cars registered in the area. As we can easily notice, the percentage of electric cars out of the total number of cars registered in the Metropolitan area is quite low – 0,01% in 2017 and 0,17% in 2021, however, it has increased considerably during the last few years. As for the numbers for Brasov County, the statistics from 2019 showed that out of the total number of vehicles registered in the County, 0,8% were represented by electric vehicles.

The interest of the population in purchasing non-polluting and hybrid cars shows an ascending trend, proven by the latest numbers from 2023 provided by Brasov Municipality, namely 801 electric vehicles and 4202 hybrid-plug-in vehicles that are officially registered at the municipality level.

The conclusion that can be drawn is, that the trend registered in the last few years has been an increase not only in the interest, but also in the purchasing habits of the inhabitants of Brasov County towards electric and hybrid - plug-in vehicles as more sustainable means of transport.

2.1.4 Description and data on other modes of e-mobility in the region (e-bicycles)

Over the last few years, the interest of both the locals and tourists for using bicycles and kick scooters has sensibly increased, however the County roads infrastructure is not sufficiently developed and it's rather unsafe for bicycle users, therefore encouraging the replacement of the polluting means of transport to alternative means is rather difficult at this stage. As a conclusion, the legislation regarding the cycling infrastructure and road safety needs improvement and harmonization.

For Brasov Municipality level, there are several projects in implementation that aim to build safe urban infrastructure for bicycles and kick scooters in order to improve the transport alternatives and decrease the use of polluting vehicles in the urban traffic and diminish the NOx emissions.

Due to the fact that Brasov County is one of the most important touristic areas in the country, many businesses actively engaged in diversifying the leisure activities offered to the tourists, therefore purchasing both bicycle and e-bicycle for the numerous bicycle routes (usually offroad routes) developed in the area. Although the interest and the number of bike users has visibly increased both in the urban and rural areas, there are still no

methods and tools for measuring the existing number of bikes and e-bikes in Brasov County, so there are no statistics regarding this particular area.

2.1.5 Description and data on charging infrastructures

The infrastructure for the charging stations in Brasov County is certainly underdeveloped, since the figures for 2023 show that there are only 83 charging stations at County Level (with different number of vehicles serviced/station-from 1 up to 3 cars), most of them (45) are located in Brasov Municipality. There are also unregistered charging stations, that do not show on the map for the charging infrastructure, such as the 6 charging stations (that can service up to 18 cars) from Brasov Airport, not yet fully functional since they were only recently installed. If we were to analyse, for instance, the number of electric and hybrid plug-in vehicles for the most relevant area, Brasov municipality, with over 5000 such vehicles (in 2023), and the number of charging stations at municipality level, 45 stations, we can conclude that the public and private charging infrastructure for electric and plug-in hybrid vehicles is insufficient since it cannot cover the charging needs for all the existing cars. The reality is the most electric or plug-in hybrid car owners use their household electric system to charge their vehicles.

If we were also to consider that Brasov County constitutes a touristic destination with most of the tourists arriving by car in Brasov, and also that the increased interest toward electric cars manifests at national level as well, we could conclude that the electric charging infrastructure is insufficient for the current and future necessities.

The authorities responsible, like Brasov Municipality for instance, already identified the necessity to enlarge charging infrastructure for electric vehicles and they intend in the near future (ten years max) to supplement the said infrastructure, by installing over 250 charging stations for electric and plug in hybrid cars.

2.2 Energy

2.2.1 Availability of renewable energy in the region

The European Union (EU) has taken an ambitious approach to the transition to renewable energy sources in order to reduce environmental impacts and ensure the sustainability of energy resources. Renewable energy sources - wind, hydro, geothermal, biomass and solar - play a crucial role in achieving these goals.

The green energy production potential capacity of Romania is 65% biomass, 17% wind energy, 12% solar energy, 4% micro-hydropower, and 2% voltaic and geothermal and it is distributed according to the different areas in Romania, as follows:

- Danube Delta - solar energy;
- Dobrogea - solar and wind energy;
- Moldova - micro-hydro, wind and biomass;
- Carpathian Mountains - high biomass and micro-hydro potential;
- Transylvania - high potential for micro-hydro;
- Western Lowlands (Campia de Vest) - opportunities for geothermal energy;
- Subcarpathian area - potential for biomass and micro-hydro;
- Campia Romana (Romanian Lowlands) - biomass, geothermal and solar energy.

In terms of geographical distribution of plant biomass resources with available energy potential, Brasov County along with Covasna and Harghita Counties, which are part of the Centre Region, are the poorest in terms of agricultural resources.

According to the National Energy Transmission System Operator (Transelectrica), almost all wind power capacity is concentrated in two counties, Tulcea and Constanța in the South-East of Romania. In this respect, Brasov County, due to its geographical position, in Romania's Central Region, has no wind power potential.

The hydrological potential of the County is also at low capacity of the past years because of the droughts and poor management of the river basins. Therefore, several micro-hydropower plants in Brasov, built on the existing streams in the 1980s, are no longer operational because of low water flow, and some hydropower plants built along Olt River, the largest river flowing through the County, are operating at half capacity or less.

However, Romania has good solar coverage (Figure 1), with 210 sunny days per year and an annual solar energy flux between 1,000 kWh/m²/year and 1,300 kWh/m²/year, compared to other European countries. According to the Solargis map - "Photovoltaic Energy Potential", Romania is divided into three main sunshine areas. The red zone, with about 1,387 kWh/sqm/year, corresponds to Oltenia, Muntenia, Dobrogea and southern Moldova. The yellow zone, 1,168-1,241 kWh/sqm/year, covers the Carpathian and sub-Carpathian regions of Muntenia, the whole of Transylvania, the middle and northern part of Moldavia, Banat, and the blue zone, 1,095-1,168 kWh/sqm/year, covers the mountain regions. Brasov County is located within the yellow zone, which allows it to attract interest in developing photovoltaic systems.

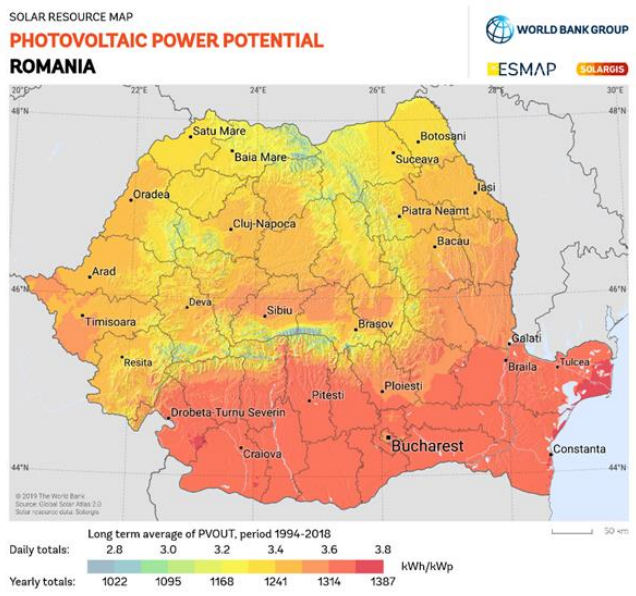


Figure 1: Photovoltaic potential. Romania. Data source: [Global Solar Atlas](#)

2.2.2 Share of renewable energy source in energy production

According to the National Energy Regulatory Authority, the installed capacity of all power generation units in Romania is 18,309 MW (megawatts), or 18.3 GW (gigawatts).

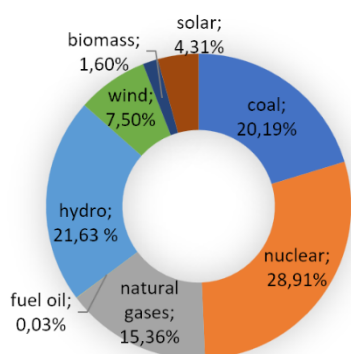
Most of this power is installed in units that produce energy using water (hydropower plants). Thus, at the end of 2022, 36% of the power installed in Romania's power generation capacity was represented by hydropower plants (around 6,600 MW).

Wind farms (with an installed capacity of over 3,000 MW) were on the second place with 17%, and power plants generating electricity by burning coal and hydrocarbons were on the third place with 15% each (around 3,000 MW), however, the latter often reverse their positions in the ranking.

Next in line, the photovoltaic parks (8%, about 1,500 MW) and the nuclear power plant at Cernavoda (8% of the installed power in Romania, with 1,400 MW).

Production type	Value -MW
Biogas	21,36
Biomass	106,27
residual heat	4,10
Coal	2.812,20
Waste	6,03
Wind	3.026,91
Geothermal	0,05
Hydro	6.642,60
Hydrocarbons	2.823,71
Nuclear	1.413,00
Solar	1.522,23
Total (MW)	18.378,45

Reference period: 2022



Primary source of electricity	Supplier electricity Electrica furnizare S A. (%)	Electricity production in Romania in 2022 (%)
total of which	100.00%	100.00%
A. conventional sources	64.95%	56.93%
a1 coal	20.19%	18.69%
a2 nuclear	28.91%	19.98%
a3 natural gases	15.36%	17.22%
a4 fuel oil	0.03%	0.05%
a5 other conventional sources	0.47%	0.99%
B. renewable sources	35.05%	43.07%
b1 hydro	21.63%	26.04%
b2 wind	7.50%	12.75%
b3 biomass	1.60%	1.00%
b4 solar	4.31%	3.27%
b5 other renewable	0.00%	0.01%

Units using biomass, biogas, waste or ground heat (geothermal energy) to produce electricity each account for less than 1% of the total.

According to the EY report and Eurostat data, Romania ranked 10th within EU for electricity consumption from renewable sources in 2019,

accounting for 24% of total consumption. In 2020, our country met the target for electricity production from

these resources. Thus, in 2020, renewable energy production in Romania was based on: 27.6% hydropower; 12.4% wind energy; 3.4% photovoltaic panels.

The largest regional electricity supplier Electrica Furnizare S.A. has published the Label of electricity supplied to final customers in a competitive regime in 2022, showing that during the reference year the supplier's primary source of electricity was composed as follows: conventional source - 64.95% and renewable sources - 35.05%, out of which hydroelectric 21.63%; wind 7.50%; biomass 1.60%; solar 4.31%. As a conclusion, there is potential for increasing the use of renewable resources for energy production and the European trend will most likely encourage the Romanian energy producers and suppliers to focus on identifying and using such resources.

2.2.3 Regional energy market structure (e.g. energy production, electricity grids, transport of energy, energy delivery to customers, ownership and operation)

Romania's largest electricity producers use water, coal, hydrocarbon and nuclear power as a primary source. Together they cover more than 80% of the electricity needs. None of the major electricity producers are located in Brasov County or in the Centre Region.

According to the list of companies in Brasov County that have listed - Electricity production as scope of business – there are 178 small energy producing companies from various resources.

Due to the geographical location and potential, it is obvious that for Brasov County, the use of photovoltaic modules for energy production is a clean solution that may bring us closer to energy efficiency in the County. In this respect, the solar energy area is the most targeted area for investment in green energy generation. This aspect is also reflected in the draft Energy Strategy of Romania 2020-2030, forecasting 2050, which foresees significant increases in electricity production from solar sources from 1,982 GWh in 2020 to 7,357 GWh in 2030.

As of December 31st, 2021, the total installed capacity of accredited photovoltaic power plants in Romania was 1,357 megawatts (MW). For comparison purposes, on the same date, the total installed capacity of wind farms in Romania was 2,959 MW.

The largest solar park in Romania, also known as Livada Solar Park is the photovoltaic power plant in Ciuperceni, Satu Mare County - 56 MW (operated by GPSB Solaris 48 SRL).

Brasov County is among the top of the Autonomous Communities with the largest solar energy parks in Romania:

1. CEF Ucea de Sus 1, Brasov County - 28 MW (Green Vision Seven SRL).
2. CEF Ucea de Sus 2, Brasov County - 18 MW:
The Ucea de Sus 1 and Ucea de Sus 2 solar parks together cover an area of 122 hectares. The parks have been connected since December 2013 to the grid of Transylvania South Electricity Distribution Company. According to a report issued by the company that owns the two solar parks in Brasov County, in 2021 they supplied 81 GWh.
3. CEF Hoghiz, Brasov County - 15.6 MW (VIS Solaris 2011 SRL).

Within the County the electricity is transported by the operator Transelectrica and distributed by Transylvania South Electricity Distribution Company. Both companies are joint-stock companies where the Romanian state owns the majority of shares. The same situation applies for the largest Romanian energy producers:

- Hidroelectrica - is 80.06% owned by the Romanian State through the Ministry of Energy and 19.94% owned by Fondul Proprietatea (the Property Fund);
- Complexul Energetic Oltenia (Oltenia Energetic Complex) - The main shareholders are the Ministry of Energy (77%) and Fondul Proprietatea (the Property Fund) with 21.5%;
- National Company "Nuclearelectrica" SA - The State, through the Ministry of Energy, holds 82.49% of Nuclearelectrica shares. Other shareholders hold 17.50%.

Currently, The National Energy Regulatory Authority has approved 62 electricity suppliers, some of them produce energy through their power plants. Among the regulated suppliers there are also 4 electricity distribution companies. In case a supply agreement is terminated and the final customer risks not having a guaranteed supply of electricity, five last-resort Suppliers have been approved to intervene at National level, 4 of these suppliers operate also in Brasov County.

2.2.4 Description of current state of Energy Communities

Energy communities are a relatively new approach in the energy sector and involve groups of citizens, local businesses or institutions working together to produce, consume or manage energy in a collective manner. Currently, no energy communities are established in Brasov County, although there is a regulatory framework allowing this activity (the Emergency ordinance 143/2021 that introduces for the first time the concept of RECs, and Emergency Ordinance 163/2022 which regulates from the legislative point of view the RECs), as an example the Cooperative Society with Limited Liability (<https://cooperativadeenergie.ro/>) based in Bucharest, established in July 2022 and currently with 924 members and 380 consumers and 2 GWh supplied in 2023.

In this respect, the most extensive activity is aimed at facilitating the production of electricity through the installation of photovoltaic panels, by both private and public companies, as well as by private individuals in domestic conditions on the roof of households. In this context, currently, the Electricity Distribution Company Romania S.A. has granted 385 technical approvals for the connection of photovoltaic power plants for both producers and consumers with a total installation power of about 386 MW in Brasov County.

At the same time, Brasov has become the first city in the country where all the institutions subordinated to the city hall are powered exclusively by renewable sources, as the municipality has signed a contract with the electricity supplier to ensure this particular request. According to the operator, 98.78% of the certified ECO green energy is produced by hydroelectric power and 1.22% by biomass plants. In order to strengthen this position, the City of Brasov has launched a procurement procedure for the installation of a photovoltaic park with a capacity of 20 MW. This green electricity plant will provide 90% of the energy needed for schools, public buildings, and lighting.

2.3 Infrastructures as potential hubs

2.3.1 Buildings and other premises (public)

Brasov International Airport could become a potential energy hub since there are obvious premises for development, such as: plans for development of a photovoltaic park of minimum 3 MW to cover at least the airport's necessities which are already in motion (the feasibility study is already drawn up); the airport already owns more than 10 ha of land that could allow the placement and development of a large photovoltaic park; 6 stations for charging electric vehicles are already in place; and plans for developing an intermodal logistic park near the airport that ensures the connection between the passenger and cargo terminal of the airport, the railway terminals of the future logistic centre and the network road;

Brasov Municipality could become a potential energy hub since the premises of development already exist, such as: the plans of development of a photovoltaic park in order to cover a large part of energy consumption at the municipality level (for schools, public institutions, etc)-20 MW; bike sharing facilities developed; enlarging the charging infrastructure for electric vehicles and intending in the near future (ten years max) to supplement the said infrastructure, by installing other 250 charging stations for electric and plug-in hybrid vehicles; 2000 sqm of infrastructure for green cities developed; 400 km of bike lanes built;

Brasov Municipality in cooperation with RATBV and AMDTBPv could contribute to using renewable resource for energy to diminish the NOx and CO2 emissions, since they have the premises of development, such as: the Metropolitan transport to be extended towards Fagaras area; at the Municipality initiative, Brasov Public Transport Operator received financing for the increase of its current fleet (of 302 buses out of which 133 electric busses and trolleybuses) with other 88 electric vehicles-buses, minibuses and trolleybuses and 66 charging stations for the buses until 2028; 1 route for a metropolitan train should be developed and implemented; 12 km of a railway line should be built for the route - Braşov Airport- Brasov-Ghimbav- Bod – by 2026/2028;

Brasov County could become a potential energy hub since there are several actions towards the use of renewable resources for energy production, such as: 4 projects that use renewable energy resources to be implemented; the depletion by at least 30% of the greenhouse gas emissions by 2030 compared with the numbers from 2018; increasing the share/percentage of electric vehicles in the vehicle park at 25% instead of the current level registered in Brasov County; 10 projects for public awareness raising related to environmental protection and green energy;

Brasov County School Inspectorate – the County authority in terms of education - that encourages and facilitates the procurement by schools/local communities of electric minibuses for the student's transportation to and from the schools within the County localities and encourages at the same time the development of charging infrastructure for electric vehicles; using photovoltaic panels on the school's rooftops to ensure the energy production and energy consumption by the public schools.

2.3.2 Buildings and other premises (private)

- Industrial parks which have the potential to also develop an infrastructure for photovoltaic energy production, thus becoming a hub for at least the companies that rent the logistics area and other facilities.

When considering the potential for becoming hubs we could name several parks that could develop green energy infrastructure:

- **Greenfield parks**, such as:
 - ICCO park which is a private developed Greenfield build-to-suit project promoted by ICCO. Located on the territory of Ghimbav, the park represents a private investment and is operated by the ICCO company. The park benefits from 8 turn-key halls with more than 103,000 sqm, which benefit from all the facilities (access, parking, logistics area, utility, administration services, medical centre etc.) and can be made available to interested companies for rent;
 - Prejmer Industrial Park which is located on 82 hectares in the Prejmer Commune (part of the Braşov Metropolitan Area), is also managed privately by GRAE LLS & LLON CH. The park, set up in 2015, offers for sale land plots with utility as well as security, lighting, sanitation, etc.
- **Brownfield parks**, such as:
 - Metrom Industrial Park - Located in Braşov, on the platform of the former communist enterprise with the same name (brownfield park) on an area of over 6 ha, out of which almost half is built. The management company is subordinated to Brasov County Council.
 - Carfil Industrial Park - Located in the City of Brasov, on an area of nearly 2 hectares, on the former platform of the communist enterprise with the same name. It is a brownfield park managed by a company subordinated to Brasov County Council, which offers spaces for rent, together with related services and utility. Around 50 companies operate in the park, they are generally small, with activities in the field of mechanical processing, thermal treatment, furniture production, textiles, constructions, services etc.
 - ELECTROPRECIZIA Industrial Park that has already implemented a project related to green energy "Photovoltaic plant to produce electric energy from renewable resources". The system that was installed produces 30% of the necessary of energy for the entire industrial park. The system was developed for self-consumption and will contribute to diminishing carbon emissions with 391.5 ton/year.

2.3.3 Open areas

Brasov Municipality and Brasov International Airport own several lands and intend to develop several projects for energy production from renewable resources. Likewise, many localities (like Harman, Prejmer, Halchiu, Sacele etc.) from Brasov County are currently in the process of identifying and/or granting open areas of land for creating photovoltaic parks.

2.4 Environmental

2.4.1 Renewable resources

Several investments in renewable energy have already been implemented by private investors that focused on creating photovoltaic parks, in several locations in Brasov County, for example Feldioara, Codlea, Harman, Halchiu, Ucea, Vistea. However, it's still imperative to carry on with developing and implementing other initiatives for the use of renewable resources at County level (especially solar energy). There are several authorities and institutions (such as Brasov Municipality and Brasov Ghimbav International Airport etc.) that intend in the near future (ten years maximum) to develop photovoltaic parks to cover their facilities' energy demand.

2.4.2 The air quality

The measurements carried out between 2008-2019 by the monitoring stations for air quality from Brasov County, showed a tendency of maintaining high levels of concentration of NOx emissions, way above the allowed upper limit.

Brasov Municipality registers high concentration levels in the emissions of NO2 and PM10, mainly related to the increased number of cars (with over 59% increase in the last ten years) that contribute to traffic pollution, but also to the increase in the number of housing facilities in the detriment of the green areas throughout the city. Fagaras and Victoria cities are also considered highly polluted areas mainly because of the former or still functional industrial platforms.

Brasov County has been affected by the continuous increase of the urban phenomenon (higher numbers of inhabitants and of housing developments), which contributed to a higher level of pollution (with the highest urbanism level from the Centre Region -73% in 2018).

As to the level of greenhouse gas emissions registered for the companies from Brasov County, the measurements show the levels increased by 9% in 2018 compared to 2013.

The Strategy for Sustainable Development of Brasov County 2021 – 2030 developed by Brasov County Council establishes several goals in environmental protection for 2030, such as reducing by 30% greenhouse gas emissions compared with the numbers from 2018.

In 2021, the European Commission advised Romania to take all the necessary steps to decrease the level of pollution in five Romanian cities: Bucharest, Cluj, Iasi, Brasov, and Timisoara, in this particular order, because these cities registered the highest level of pollution in the country (Brasov being the 4-th most polluted city in Romania). The Commission stated that if no steps were to be taken towards decreasing GHG emissions in the ambient atmosphere in these 5 cities, then it would take action by enforcing an infringement procedure against Romania.

Although during the last couple of years, there have been constant efforts and a slight progress towards decreasing anthropogenic (human-caused) emissions of air pollutants, the air quality in Brasov still constitutes an issue for public health, therefore Brasov Municipality took on the role of managing the area for air quality with the main focus to reduce NO₂ and PM₁₀ concentration levels from the ambient air. To diminish the emissions of NO₂ and PM₁₀, Brasov Municipality, set forth several projects that should contribute to the improvement of air quality by decreasing of anthropogenic (human-caused) emissions of air pollutants like: increasing the number of electric vehicles that service public transport in Brasov Municipality and Metropolitan area; developing the bike routes and bicycle infrastructures within the city and between Brasov surrounding areas; developing bike sharing stations; expanding the railway network for the metropolitan train; improving the infrastructure for charging stations for electric cars; setting up parks and green spaces; park & ride areas; developing eco-islands for waste management and a photovoltaic park.

3. Stakeholders

Organization	Involvement	key or non-key stakeholder
1. Brasov County Council	County authority and Policy Holder	Key
2. Brasov Municipality	Renewable energy infrastructure project to support energy consumption by public institutions and author of the practice regarding sustainable public mobility	Key
3. Brasov-Ghimbav International Airport	Potential hub	Key
4. Brasov Public Transport Operator	Operates electric buses and electric charging stations	Key
5. National Energy Regulatory Authority	Autonomous public institution in Romania that applies the regulatory system necessary for the functioning of the energy sector and the markets for electricity, heat and natural gas in conditions of efficiency, competition, transparency, and consumer protection	Key
6. South Transylvania Electricity Distribution	Regional electricity distributor	non-key
7. Transylvania University	Is a local developer in energy, prosumer and consumer	Key
8. Metropolitan Agency for Sustainable Development of Public Transport Brasov	metropolitan transport projects, prosumer, hub potential	Key
9. Metrom Industrial Park	Industrial Park, consumer, potential prosumer	non-key
10. Carfil Industrial Park	Industrial Park, consumer, potential prosumer	non-key

Organization	Involvement	key or non-key stakeholder
11. The Agency for Energy Management and Environmental Protection	ABMEE is the local energy management agency of the Municipality of Brasov, aiming to support energy efficiency, renewable energy sources and sustainable development locally.	Key
12. Electroprecizia Industrial Park S.A	Industrial Park, consumer, potential prosumer	Key
13. The Romanian Association Energy - Cities	Intracommunity Development Association, potential REC developer	Key
14. Brasov Obstetrics and Gynaecology Hospital	Public Hospital (Institution), potential prosumer, consumer	Key
15. ELECON Company	Private company, potential HUB developer	Non key
16. ADEPT TRANSYLVANIA FOUNDATION	NGO, dedicated to biodiversity conservation and rural development in the Transylvanian region	Key
17. Mihai Eminescu Trust Foundation	NGO- dedicated to preserving the local heritage and reviving the villages and communes of Transylvania and Maramureş, two of the most authentic areas in Europe.	Key
18. Inter-community Development Association for Mobility in the metropolitan area of Făgăraş Municipality	Inter-community transport projects, green and sustainable mobility	Non key

4. Legislative and financial environment in support to renewable energy initiatives

4.1 Legislation, regulations etc.

In order to exploit the potential of renewable energy resources and to achieve the targets undertaken in this industry, Romania has created an appropriate legislative and institutional framework regarding the energy from renewable sources (ESR) promotion, in line with the community acquis.

Romania adopted in 2003, the "Strategy for renewable energy resources exploitation", approved by Governmental Decision (GD) 1535/2003. The provisions of Directive 2001/77/EC were transposed into national legislation by GD 443/2003 on the promotion of electricity production from renewable energy sources. GD 1892/2004 established the system for the promotion of electricity production from renewable energy sources, as amended by GD 958/2005, established the system of compulsory quotas, combined with the system for trading green certificates. This green certificate market initially operated based on National Regulatory Agency (ANRE) Order 22/2006 regarding the Regulation on the organization of the green certificate market.

By Law No. 220/2008 and subsequent supplements, the Romanian Parliament established the system for the promotion of renewable energy production. The law establishes a system for the promotion of electricity production from renewable sources based on mandatory electricity quotas obligation combined with trading of green certificates.

On July 10th, 2012, the Romanian Parliament adopted Law No 123 concerning Electricity and Natural Gas, which establishes the regulatory framework for carrying out activities within the electricity and thermal energy sector produced in cogeneration, with a view to making optimal use of primary energy resources and achieving the targets of energy security, competitiveness, and sustainable development under conditions of accessibility, availability, and affordability and in compliance with safety, quality and environmental protection standards. As well as the regulation of activities relating to the production, transmission, distribution, supply, and storage of natural gas and liquefied natural gas, the organization, and operation of the natural gas sector.

The most recent addition to these laws may be found in the Governmental Emergency Ordinance 143/2021 that introduces for the first time the concept of RECs and the Governmental Emergency Ordinance (GEO) no. 163 from November 29th, 2022 regarding the completion of the legal framework for the use of energy from renewable sources promotion, as well as for the amendment and completion of certain regulatory enactments, which states that "Romania shall ensure, collectively with the other Member States of the European Union, that

the energy quota from renewable sources in the gross final energy consumption of the European Union will be at least 32% by 2030".

At the County level, these regulations have not been given a local form or transposed into certain regulations of regional or local character.

4.2 Financial incentives etc.

At the national level, Romania has implemented and continues to implement several programmes to support the use and promotion of renewable energy resources. The most important are:

The "Green House (Casa Verde)" programme in Romania initially started in 2008. This programme was implemented to support energy efficiency projects and the use of renewable energy sources in individual households. Over time, the programme has gone through several stages and changes, including changes in the types of eligible projects and the funding provided, now focusing on photovoltaic power and different heat systems using at least one renewable resource. It is important to note that the Green House programme has periodically been suspended and resumed or undergone significant changes depending on government policy and the availability of funds.

The "Rabla Plus" programme focuses on providing financial incentives in order to encourage the public to purchase electric and plug-in hybrid vehicles. It was launched in 2017 by the Romanian government and implemented by the Administration of the Environment Fund (AFM). This program is mainly aimed at improving air quality by reducing polluting emissions and promoting more energy-efficient vehicles.

5. S.W.O.T Analysis

<p>Strengths</p> <ul style="list-style-type: none"> • The existence of the metropolitan public transport services for the surrounding cities of Brasov Municipality; • The municipal and metropolitan public transport company is focused on increasing the number of electrical vehicles in the total fleet of vehicles with which it operates (it increased from 6% in 2019 to 43.85% in 2023, numbers by Brasov Public Transport Operator); • The existence of Brasov- Ghimbav Airport, improved and provided a different means of transportation for passengers and cargo • The increase in the number of electrical and hybrid plug-in vehicles in the last years within the whole park of cars from Brasov Municipality and Metropolitan Area (from 0,01% in 2017 to 0,17% in 2021); • The increasing number of renewable energy producers and prosumers in the last couple of years (386 technical connection approvals for the installed power of 385 MW have been granted in Brasov since 2010 and the numbers show an increase of requests in the last couple of years); • Favourable geographic position with medium sun exposure that allows the use of solar power for energy production; • The existence of forest resources that could generate biomass; • The Strategy for Sustainable Development of Brasov County 2021-2030, which has been undertaken by Brasov County Council and implemented at the County level, sets forth targets, objectives, and measures for both renewable energy and sustainable mobility; • The existence of several monitoring stations for the air quality in Brasov City shows the commitment of the authorities in establishing the level of polluting emissions that affect the environment and citizens; • The existence of 5 large photovoltaic parks Ucea, Hoghiz, Halchiu, Harman with an installed average power of 60 MW proves the preoccupation of the private sector toward renewable sources for energy production. 	<p>Weaknesses</p> <ul style="list-style-type: none"> • High pollution levels registered especially in Brasov City due mostly to: the overcrowded road traffic; the insufficient development of alternative and environmentally friendly means of public transport; the industrial activities and insufficient green areas within the city; • The underuse of the renewable energy resources by both public and private sector; • Insufficient monitoring of the air quality at the level of Brasov County; • Little investments in applying energy efficiency measures for housing, public lighting and electric charging stations; • Number of vehicles increased exponentially in the last ten years; • The small share of electric vehicles out of the total number of cars registered in Brasov County (only 0,8%) in 2019; • The decrease by 12,7% registered in the last ten years for the trainsets for passengers according to the Brasov Regional Railway company; • The intra-county public transport is still carried out exclusively with fuel-based vehicles; • Lack of renewable resources at Brasov County level such as: waters, thermal waters and wind, that restrict the use of the resources for energy production; • The agricultural farming is focused on products that do not generate biomass resources; • The lack of REC and energy hubs at the Brasov County level and lack of information regarding these types of structures.
<p>Opportunities</p> <ul style="list-style-type: none"> • The interest of the population in purchasing non-polluting and hybrid cars shows an ascending trend; 	<p>Threats</p>

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| <ul style="list-style-type: none"> • The Strategy for the Sustainable Development for Brasov County sets forth the following targets for the year 2030: <ul style="list-style-type: none"> • Increasing the share/percentage of electric vehicles in the vehicle park at 25% instead of the current level registered in Brasov County; • 4 projects that use renewable energy resources to be implemented; • 5 stations for air quality monitoring to be developed and installed at the County level; • The depletion by at least 30% of the greenhouse gas emissions by 2030 compared with the numbers from 2018; • 10 projects for public awareness raising related to environmental issues – the necessity to reduce the pollution phenomenon; • 2000 sqm of infrastructure for green cities developed; • The metropolitan transport to be extended towards Fagaras area; • 40 km of bike lanes to be built; • Other objectives established by the same Strategy: <ul style="list-style-type: none"> • 1 route for a metropolitan train developed and implemented; • increasing the capacity for the electric charging infrastructure in Brasov County for the electric and hybrid plug-in vehicles; • 1 new intermodal logistics park developed; • 12 km of railway line built for the route- Braşov Airport- Brasov-Ghimbav- Bod); • Opportunities that derive from the projects developed by different structures at the County and municipal levels: <ul style="list-style-type: none"> • Brasov Airport plans to develop a photovoltaic park of a minimum 3 MW to cover at least their necessities; • Brasov Public Transport Operator in cooperation with the Metropolitan Agency for Sustainable Development of Public Transport Brasov was granted funds for the increase of its fleet number by 88 electric vehicles-buses, minibuses, and trolleybuses and 66 charging stations for the busses until 2028. • The lack of primary resources in the area such as carbons and hydrocarbons could generate investments in the use of renewable energy, especially solar power, and biomass resources; • Brasov County is a very important junction for energy and public transport; • The increase in the number of investors and companies to produce energy from renewable sources; • The increase in the utility prices established by the utility suppliers (especially those in the energy and gas industry), has generated an increase of individuals installing their own photovoltaic systems for their energy production – the ascending trend manifested itself in the last couple of years; • The enactment within the Romanian Law of the Directive that establishes the setting up of REC could contribute to empowering these types of structures to improve the use of renewable energy resources to produce energy; | <ul style="list-style-type: none"> • Changes in the legislation that could establish restrictions on the ways of using renewable energy resources; • The possible establishment of taxes for the use of renewable resources for energy production; • The devaluation of green certificates could generate difficulties in the return on investment for renewable energy production; • The deepening of the world climate crisis; • The perpetuation of certain habits such as: excessive consumption of energy and primary resources; use of fuel-based vehicles that contribute to pollution; overcrowding with cars and population of the key areas in Brasov County; ignoring the scientific facts for the climate change, which leads to environmental pollution and poor use of resources; • Natural occurrences and unforeseen disasters and accidents; • Changes at the political level that could negatively impact, modify decisions, projects, targets and objectives established by the previous legislators, which ultimately could affect the sustainable development (including sustainable transport and sustainable use of natural resources) • The population resistance/reluctance regarding the measures meant to limit/diminish the road traffic, use alternative means of transportation; use renewable resources, etc. |
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6. READINESS MODEL INDICATOR RESULTS

Category	Drivers	Barriers	Description	Indicator			When red: not ready yet When yellow or green: provide details to justify	Actors involved
1. Legislative	Legislation operative	Several aspects of legislation are still not clear	Status of legislation regarding renewable energy production by Energy Communities (EC)				There is legislation regarding renewable energy production and REC as stated by the EU directives and national legislation - GEO 163/2022, however, the concept of Energy Communities (EC) is very new at national level, and at the County level there are still no local decisions or legal norms that regulate Energy Communities (EC) at local level.	Governmental bodies - Ministry of Energy, The National Authority for Energy Regulation (ANRE) - County level, Brasov County Council;
	Licensing process in place and speedy	Bureaucratic and time-consuming licensing process	Licensing process				The same situation as stated above - there is GEO 163/2022 that states the general regulation for REC establishment, however, there is no methodology for application at a national or local level; the process is rather difficult and bureaucratic since it is compulsory to obtain authorization from different stakeholders. Up until now there is only one REC established in Bucharest since 2022, but none has been established and licenced at County or local level.	Governmental bodies -The National Authority for Energy Regulation - County level, Brasov County Council
	Grid connection facilitated	Grid connection barrier	EC connection to the energy grid				Since there are no REC established at County and local level there is no energy community that provides grid connections. However, the grid connections are provided by local DSOs.	Governmental bodies/DSOs South Transylvania Electricity Distribution
	Legislative incentives to EC establishment available	Legislative incentives to EC establishment absent	Public financial contribution to initial investment costs				Although the national legislation GEO 163/2022 establishes that the local authorities must establish logistical and financial support (minimis schemes, state aid) in order to finance and encourage the establishment of REC, until now no such type of financial aid has been provided for the forementioned structures.	Governmental bodies
2. Behavioural / Organisational	Existence of EC already operational in neighbouring regions	Finding the adequate energy community	n. of EC already in operation in neighbouring regions				As stated above until now there is only one REC established in Bucharest - The Energy Cooperative that could constitute a reliable source of information for establishing RECs. There are no other REC established at local/county or national level.	The Energy Cooperative
	Extensive information available on network area of EC location	Extensive information needed on network area of EC location but not yet available	Adequate information available				The GEO 163/2022 states the need to inform all actors involved and possible stakeholders regarding the rules for the establishment of REC, however, extensive information needed on the network area of EC location is still not available.	Governmental bodies- Ministry of Energy, The National Authority for Energy Regulation - county level, Brasov County Council, DOSs
	Existence of a one-stop-shop approach for	Non-existence of a one-stop-shop approach for	n. of one-stop-shop in the area				There are no one-stop-shop approaches for administrative tasks.	Governmental bodies - Ministry of Energy, The National Authority for Energy Regulation - county level, DOSs

Category	Drivers	Barriers	Description	Indicator			When red: not ready yet When yellow or green: provide details to justify	Actors involved
	administrative tasks	administrative tasks						
	Guidelines, templates etc. already available	Lack of templates for statutes or typical articles of association in a EC creation	n. of guidelines/templates/articles of association doc				There are no templates for statutes or typical articles of association in an EC setting up	Governmental bodies - Ministry of Energy, The National Authority for Energy Regulation - county level, DOSs
	Awareness and capacity building / Information dissemination completed/ongoing/planned	Lack of awareness and capacity building / Information dissemination	n. of communication means in place / planned				Yellow when planned only - NO communication means in place	Governmental bodies Ministry of Energy, The National Authority for Energy Regulation - County level
	Speedy and clear processes	Lengthy processes	duration of grid connection process (n° of days)				Yellow when planned only - NO duration of grid connection process established yet	Municipal authorities - Brasov County council, DOSs
	Grid connection – EC possible in all distribution grids due to a Distributor System Operator (DSO) intervention already in place	Grid connection barrier – EC not possible in all distribution grids due to a necessary (but not mandatory) Distributor System Operator (DSO) intervention	n. of grid connections activated/planned				As there are no regulations for EC there are no rules for grid connection distribution	DSOs
3. Economic	Process completed/in progress	Not yet started	n. of EC already in operation/planned in the region				Yellow when planned only - Not yet started	EC
	Presence of potential players meeting the current regulations for EC establishment	Absence/not yet identified potential players meeting the current regulations for EC establishment					There are several potential public players, however, potential private players meeting the current regulations for EC establishment have not yet been identified	EC potential players -Private companies in green energy production
	Information not yet acquired/available	Information not yet available/not acquired					Information not yet available/not acquired	Media operators
	Operational	Not yet in place	n. of one-stop-shop				Yellow when planned only - NO one-stop shop operational	Governmental bodies - The National Authority for Energy Regulation - County level, Brasov County Council

Category	Drivers	Barriers	Description	Indicator			When red: not ready yet When yellow or green: provide details to justify	Actors involved
			operational/planned					
	Financing available as well as financing entities willing to take on risks	Lack of financing; absence of financing entities willing to take on risks					there is no funding available for EC communities,	Governmental bodies/financial institutions - Ministry of Energy, The National Authority for Energy Regulation - County level, DOSs
	Remuneration schemes in place	Absence or limited remuneration schemes	yes/planned/no				There is no funding for EC communities, however, there are some green certificates insured by the DOSs to the general prosumers but the remuneration for the green certificates is low	Governmental bodies/DSOs-Ministry of Energy, The National Authority for Energy Regulation - County level, DOSs
	Clear procedural requirements for DSOs to facilitate energy sharing	Grid connection barrier – Lengthy processes	yes/planned/no				The grid connection for energy sharing is established for the general prosumers (private and public), but the connection grid infrastructure is insufficient or not yet ready to take over all the energy sharing of the producers - therefore it is quite a lengthy process to share the green energy produced	Governmental bodies/DSOs-ANRE, DOSs - South Transylvania Electricity Distribution
	Established/in progress	Absent	yes/planned/no				There are no energy communities established at the county or local level.	Energy agencies/DSOs/EC
4. Technological	Equipment supply and installers available	Market difficulties due to equipment supply and installers' unavailability	YES				Although there are some equipment supplies available, there are still some components that are unavailable and the installers are insufficient for the necessity expressed on the market from the potential clients	Equipment suppliers /equipment installers- DSOs, private companies in green energy production, and panel installers
	Communication materials in place	Market difficulties due to lack of communication material	PLANNED				Market difficulties due to lack of communication material regarding the REC and the potential clients - either private companies or individuals	Media operators
	Already completed	Need of adaptation of IT processes on the Distributor System Operator (DSO) side	n. of DSOs with IT processes already adapted				There is still a need of adaptation of IT processes on the Distributor System Operator (DSO) side	DSOs -DSOs, private companies in green energy production
	Installed and operational	Smart meters still required to be installed and operating	n° of smart metering /total n. of consumer metering point				Smart meters are still required to be installed and operating	Energy agencies/DSOs - DOSs and The National Authority for Energy Regulation - County level
	Adequate	Low capacity / Congestion of grids					Although the grid connections are available, there is still low capacity of those connection grids that requires an improvement in this aspect - both could be carried out by energy agencies and DOSs .	Energy agencies/DSOs
	Developed platforms for local energy sharing and	Platform/s absent. Discriminatory role of DSOs	n. of DSOs with platforms for local energy				There are no DSOs with platforms for local energy sharing and trading already developed	DSOs

Category	Drivers	Barriers	Description	Indicator			When red: not ready yet When yellow or green: provide details to justify	Actors involved												
	trading. Non-discriminatory role of DSOs		sharing and trading already developed																	
	In existence	Lacking					Lacking software development and IT infrastructure for energy sharing using the public grid	Energy agencies/DSOs												
5. Operation scope and environment. Other features			Percentage of electric public transport means on total (see detail by category by opening the window)				43.85% of the whole fleet of busses for the Brasov Municipality level and the Metropolitan passenger public transport, however, the intra-county transport is carried out with 0% electric vehicles.	Governmental transport data provider - RATBV, Brasov County Council												
			Private motor vehicles (% of electric on total)				0,8% of the total private cars at Brasov County level are electric	Governmental transport data provider												
			Public road transport (% of electric on total)				43,85% of the whole fleet of busses for passenger transportation at the Brasov Municipality level and the Metropolitan Transport, however, the intra-county public transport is carried out with 0% electric vehicles.	Governmental transport data provider - RATBV, Brasov County Council												
			Motor bikes <table border="1" style="width: 50px; height: 30px; margin: 5px 0;"> <tr><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td></tr> </table> (% of electric on total)																There are no data related to the no. of electric motorbikes.	Governmental data provider -
			Bicycles, pedelec (% of electric on total)				There are no data related to the no. of electric Bicycles, pedelec	Governmental data provider -												
			Other ways of local electric mobility: e-taxis, e-ferries, e-light commercial vehicles (% of electric on total)				Although there are no statistics available for e-taxis - a general observation shows that about 1/3 of the fleet for transport sharing (BOLT, UBER, etc) is electric. However, the regular taxi services are provided mostly by fuel-based companies	Data providers - private companies for transport												
	Reduced local emissions	Excess local emissions	Above limit emissions: CO				564439 tCO2 emissions/year, and 1,84711 tCO2/MWh/year (data from 2020 provided by Brasov Municipality) - CO produced by electric energy, gas, central heating system, diesel, petrol, biofuel diesel and petrol	Environmental observatory - the National Agency for Environmental Protection- Brasov level, Brasov Environmental Guard												

Category	Drivers	Barriers	Description	Indicator			When red: not ready yet When yellow or green: provide details to justify	Actors involved
			Above limit emissions: Nox				the average concentration in Nox/year -86,64 ug/m3- 2022 in Brasov Municipality	Environmental observatory -the National Agency for Environmental protection- Brasov level, Brasov Environmental Guard
			Above limit emissions: PM10				the average parameters/year - 24,76 ug/m3 - with a maximum concentration/hour of 130,1 µg/m3 - in 2022, in Brasov Municipality - 53 days with higher concentration than the legal limitations	Environmental observatory-the National Agency for Environmental protection- Brasov level, Brasov Environmental Guard
			Above limit emissions: NMVOC				the average parameters/year - 41,42 ug/m3 - 2022 - in Brasov Municipality	Environmental observatory-the National Agency for Environmental protection- Brasov level, Brasov Environmental Guard
	Renewable energy potential	Renewable energy limitation	Solar				A total of 385 connection notices were granted	Public - Town halls of cities or communes Private - many actors, juridical or physical persons
Wind						The geographic position of Brasov County is not favourable for energy production by wind	Public/private dedicated data providers	
Biomass						The agriculture production is not favourable for providing resources for biomass	Public/private dedicated data providers	
Water						The geographic position of Brasov County is not favourable for energy production by water	Public/private dedicated data providers	
Geo-thermal						The geographic position of Brasov County is not favourable for energy production by geo thermal resources	Public/private dedicated data providers	

RIM Results

Legislative	2	2	
Behavioral	6	1	
Economic	6	2	
Technological	3	4	
Operation scope	4	10	1
TOTAL	21	19	1