DATACTION
Collaborating in energy data exchange

EU Edition

Data Access Guidebook

For Sustainable Energy Action Plans

December 2016

Co-funded by the Intelligent Energy Europe Programme of the European Union

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Data4Action has the objective of identifying transferable models of collaboration, and improving the access of public authorities to energy data for a better implementation and a better monitoring of Sustainable Energy Action Plans.

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Target group: Energy planning facilitators such as technicians of energy and GHG observatories; technicians of local authorities in charge of developing Sustainable Energy Action Plans.

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Introducing the Data Access Guidebook

This Guide has been produced by the DATA4ACTION partners from various European regions supported by the Intelligent Energy Europe Programme of the European Union.

The partners include a mix of regional and local public authorities, energy agencies and other institutions that are all working to address climate change through the development and implementation of Sustainable Energy Plans. They all share a common goal of improving access to accurate energy data for better planning and monitoring of sustainable energy measures.

DATA4ACTION is led by the Agence régionale de l'énergie et de l'environnement en Rhône-Alpes (RAEE), the regional energy and environment agency of the Auvergne Rhône-Alpes region of France.

Introducing the DATA4ACTION Partners…

Find out more about DATA4ACTION, including access to our library of publications and events, by visiting our website: www.data4action.eu

1: Welcome to the Data Access Guidebook

Energy data is crucial for identifying trends in the economic priority sectors to target energy policies and to ensure energy efficiency improvements and increased renewable energy deployment. These measures can then be built in to sustainable energy policies and plans, and their national and local implementation progress can be monitored periodically.

Our Data Access Guidebook has been primarily developed for:

Public Authorities that are seeking better access to local, accurate energy data within their territory for use in sustainable energy planning;

Energy Planning Facilitators wishing to support the development of advanced collaboration models between public authorities and data providers such as a Regional Data Centre or Energy Observatory; *and*

Energy Data Providers willing to play a positive role in the development and implementation of Regional and Local Energy Policies.

We hope to help you to access key energy data in your Region, and inform your sustainable energy policies, plans and strategies.

This guide can help you to:

- ❏ Identify and access reliable and accurate energy data in your region or territory.
- ❏ Develop and implement win-win collaboration models in energy data sharing.
- ❏ Establish a Regional Energy Data Centre providing data services to public authorities for sustainable energy planning.
- ❏ Develop policies supporting energy data sharing for sustainable energy planning by public authorities.
- ❏ Develop and monitor an informed Sustainable Climate and Energy Action Plan, with energy planning tools that reflect the needs of municipalities and communities in your region.
- ❏ Engage with regional and local stakeholders during the preparation and monitoring phases of your plans in order to get their buy-in and support, thereby ensuring measurable, long-term benefits for your territory.

Useful Resources

Whatever stage you have reached in the preparation of an informed Sustainable Climate and Energy Action Plan for your region there are numerous good practice resources that can help you through the process. We recommend the following, but the list is not exhaustive.

Coopenergy
www.coopenergy.eu

COOPENERGY provides examples of how local and regional authorities across Europe are successfully collaborating with each other to develop and deliver world class Sustainable Climate and Energy Action Plans and initiatives.

www.coopenergy.eu

Covenant of Mayors
for Climate & Energy

Covenant of Mayors for Climate and Energy brings together thousands of Local and Regional Authorities who are voluntarily committed to implementing EU climate and energy objectives on their territory. Members pledge to reduce CO_2 emissions by at least 40% by 2030, and to adopt an integrated approach to tackling mitigation and adaptation to climate change.

www.covenantofmayors.eu

DATACTION
Collaborating in energy data exchange

DATA4ACTION recognises the importance in establishing long-term data exchange models in sustainable energy planning through cooperation between public authorities and energy data providers.

www.data4action.eu

ENERGee Watch

ENERGee Watch is the European Network of Regional Greenhouse Gas Emissions and Energy Watch. It aims to share experiences between Regional and Local Public Authorities in the field of energy and GHG and show how to set up a Local Observatory and involve local stakeholders.

www.energee-watch.eu

access to local energy data Meshartility

The MESHARTILITY (Measure and share data with utilities for the Covenant of Mayors for Climate and Energy) project aims at the development of solutions and tools facilitating exchange of energy data between energy utilities and local authorities.

www.meshartility.eu

50000&1 SEAPs ENERGY MANAGEMENT FOR SUSTAINABLE ACTION PLANS

The 50000&1 SEAPs project provides a coherent approach to integrating Energy Management Systems with Sustainable Energy Action Plans (SEAPs) according to energy management standards such as ISO50001.

www.50001seaps.eu

2: European Framework

In March 2009, binding legislation was adopted through a climate and energy package to implement the 20-20-20 targets. This legislative package established specific policies to reach these goals and annual targets for reducing GHG emissions. Building on this, the 2030 Climate and Energy Framework sets targets for 2030.

Topic	EU Directive
Sub-National Level Energy Planning	Directive 2012/27/EU: **Energy Efficiency** Directive 2009/28/EC: **Renewable Energy**
Consumption Data Access	Directive 2012/27/EU: **Energy Efficiency** Directive 2010/31/EU: **Energy Performance of Buildings** Directive 2009/72/EU: **Internal Market in Electricity and Gas** Directive 2009/73/EU: **Internal Market in Electricity and Gas**
Data Collection by Member States	Directive 2012/27/EU: **Energy Efficiency**
Data Protection	Directive 2002/58/EU: **Privacy and Electronic Communication** Directive 95/46/EC: **Protection of Personal Data**
Environmental Data Access	Directive 2007/2/EU: **Infrastructure for Spatial Information in the EC**

Recognising the crucial role of regional and local governance in reaching the agreed targets, the EU is encouraging its Regions and Municipalities to develop and implement climate change mitigation and adaptation strategies by launching initiatives such as the Covenant of Mayors for Climate and Energy initiative.

The current level of effort in gathering and disseminating data at a national level for energy consumption, production and GHG emissions is generally not sufficient or accurate enough to help the Regions and Municipalities to define and monitor strategies at local level.

2030 Climate and Energy Framework

The EU 2030 Climate and Energy Framework sets three key targets for the year:

1. At least 40% cuts in greenhouse gas emissions (from 1990 levels);
2. At least 27% share for renewable energy; *and*
3. At least 27% improvement in energy efficiency.

In order that the EU 2030 Climate and Energy Framework drive progress towards a low-carbon economy, and achieve its other

related objectives, it is important to create a reliable local baseline against which to measure progress and inform regional and local policies.

Furthermore, local and regional energy planning is imperative for achieving the goal of creating an energy system that ensures affordable energy for all consumers, increases the security of the EU's energy supplies, reduces dependence on energy imports and creates new opportunities for growth and jobs. It follows that investment in the gathering and analysis of regional and local energy data will ultimately result in greater environmental and health benefits, particularly through a reduction in air pollution.

2050 Low-Carbon Economy

The EU has set itself a long-term goal of reducing greenhouse gas emissions by 80-95% by 2050, compared to 1990 levels. The Energy Roadmap 2050 explores the transition of the energy system in ways that would be compatible with this greenhouse gas reductions target while also increasing competitiveness and security of supply.

To reach the 2050 goal through domestic reductions alone, the EU must make continued progress towards a low-carbon society. This will require Europe's emissions to be 40% below 1990 levels by 2030 and 60% below by 2040. Thus, all sectors need to contribute to the low-carbon transition according to their technological and economic potential.

Framework Compliance

The achievement of both the 2030 Climate and Energy Framework and the 2050 Low-Carbon Economy will strengthen the need for smarter regional and local sustainable energy planning. In turn, this will require the establishment and optimisation of collaborative data sharing processes and tools, such as Regional Energy and GHG Emissions Observatories, to better inform and track policies and plans that are designed to contribute to the achievement of the targets.

Energy Data Access

The EU Regulatory Framework concerning the access to energy data is best considered from a number of key thematic perspectives, including the following:

1. National and Sub-National energy targets;
2. Access to Consumption Data;
3. Data Collection by Member States;
4. Data Protection; *and*
5. Access to Environmental Data. Summary EU Regulatory Framework.

3: National Framework

In addition to this European version, the DATA4ACTION Data Access Guidebook is available in a number of European languages. Each version contains a description of the national framework that underpins the energy data sharing structures and requirements in the respective country.

National Data Access Guidebook Availability

	Bulgaria	BG	http://data4action.eu/bg/
	Czech Republic	CZ	http://data4action.eu/cs/
	Europe	EU	http://data4action.eu/en/
	France	FR	http://data4action.eu/fr/
	Greece	EL	http://data4action.eu/el/
	Ireland	IR	http://data4action.eu/en/?cd=ir
	Italy	IT	http://data4action.eu/it/
	Romania	RO	http://data4action.eu/ro/
	Spain	ES	http://data4action.eu/es/
	Sweden	SE	http://energikontornorr.se/data4action-guide/
	United Kingdom	UK	http://data4action.eu/uk/

4: The Data Sharing Challenge

A major challenge in climate change mitigation is the timely access to robust energy data that can underpin local and regional sustainable energy policies and plans. The challenge demands a collaborative solution.

The key gatekeepers of energy data include:

1. **Public Authorities,** as they are major consumers of energy;
2. **Energy Planning Facilitators,** including Regional Energy Observatories and academic institutions; *and*
3. **Energy Data Providers,** including major energy producers, consumers, Transmission System Operators (TSOs) and Distribution System Operators (DSOs).

Whilst EU directives restrict the sharing of individual private data with third parties, the exchange of territorial aggregated, and non-identifying data needed for effective sustainable energy planning and monitoring at sub-national levels is usually not addressed, nor defined.

There are no obligations within most EU and national legislative frameworks for TSOs and DSOs to provide local energy data to public authorities at sub-national level. As a result, data exchange is only implemented on a voluntary basis. However, Public Authorities, including regional and provincial authorities supporting municipalities and the municipalities themselves, need easier access to energy data.

Data Sharing

Several European DSOs such as ENEL Distribution in Italy, ERDF in France, and EON in Czech Republic are already sharing territorial energy data for sustainable energy planning with municipalities.

This is being achieved on a voluntary basis and the DSOs have expressed a strong need for a better definition of their roles in this regard.

In France, the sharing of territorial energy data for sustainable energy planning is embedded in energy transition legislation.

Improving Data Sharing

The concept of collaborative action spanning across Public Authorities, Energy Planning Facilitators and Energy Data Providers may not be easy to achieve for a variety of reasons. DATA4ACTION has identified a number of typical problems and outline recommendations for addressing these if data exchange is to be effective.

Lack of Political Commitment

- ❏ Invest time and resources into raising awareness of the need for Sustainable Energy Planning.
- ❏ Create a collaborative structure that has political support.

Low Data Availability or Quality

- ❏ Initially it may be necessary to use approximations, with a view to replacing with collaborative initiatives.
- ❏ Alternative data sources need to be identified. Independent data quality certification and periodic evaluation are important.

Lack of Collaboration of Data Providers

- ❏ Identify benefits for data providers and communicate these.
- ❏ Define the data exchange process and the data format to facilitate the work of data providers.

Lack of Robust Data Exchange Agreements

- ❏ The nature, process and frequency of the data exchange needs to be formally agreed.
- ❏ Energy data exchange requires multi-party agreements.
- ❏ Establish win-win collaboration agreements between data providers and Public Authorities.

Lack of Regional Observatory

- ❏ Raise awareness of the benefits of establishing and sustaining a Regional Observatory.
- ❏ Pursue political commitment to create a new Regional Observatory.
- ❏ The establishment of a new Regional Observatory will require innovation, investment and time.
- ❏ Sustainability and integrity are key characteristics of successful Observatories, and must be included in the new structures.

Need for Tools, Processes and Skills

- ❏ Encourage the success of Sustainable Energy Planning efforts by promoting these.
- ❏ Transfer tools, processes and skills from successful collaborations elsewhere.

Policy Improvements

The DATA4ACTION partners have identified a number of policy improvements that need to be made at both EU and Member State levels to improve Energy Data Exchange. These are fully detailed in the Data4Action publication *'Policy Recommendations: Improving Energy Data Sharing for Effective Sustainable Energy Planning at Sub-National levels'.*

Recommendations to realise these policy improvements are summarised as follows:

1. Sustainable energy legislation needs to have provisions that facilitate easy access to energy data by all Public Authorities;
2. National legislation of Member States should recognise the importance of data access for sustainable energy planning at regional and local levels;
3. Member States must include provisions so that energy data providers (including energy providers, DSOs, and TSOs) provide disaggregated energy data in a suitable format for use in local and regional sustainable energy planning;
4. Member States must provide clarity on the rights and obligations of energy data providers to provide territorial energy data to Public Authorities for sustainable energy planning;
5. Member States must promote and support best practice in data access and sharing for sustainable energy planning. These measures must include transparency rules, standardised data exchange formats, and support or financing of voluntary data sharing initiatives;
6. Member States must clarify confidentiality rules to facilitate access to aggregated data; *and*
7. Member States must incentivise Energy Data Providers to engage with data sharing initiatives within their energy efficiency obligation schemes.


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5: Collaborative Partnership

A collaborative partnership approach underpins successful sustainable energy planning. Effective data sharing involves practical collaborations between Public Authorities, Energy Planning Facilitators and Energy Data Providers.

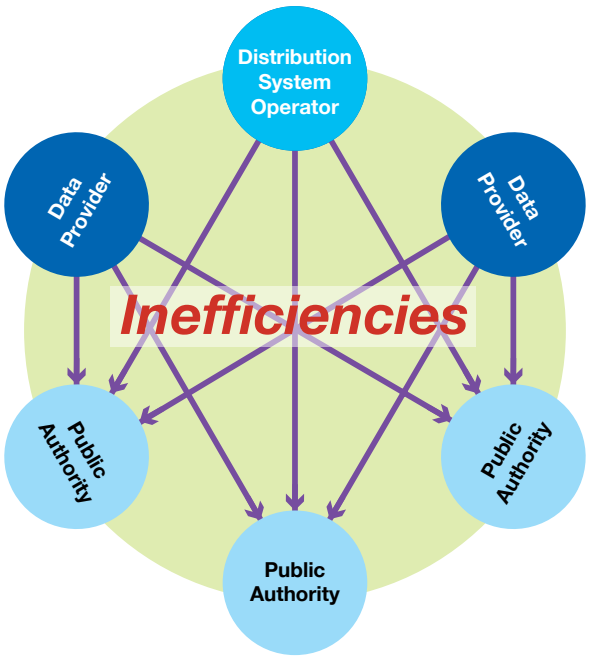
Public Authorities face numerous challenges that inhibit access to energy data. A particular problem results from the need to obtain data from multiple sources to develop and monitor their Sustainable Energy Plans.

Developing win-win collaborative partnerships between Public Authorities and data providers, such as Energy Utility Companies (including Distribution System Operators, and Transmission System Operators) will facilitate energy data sharing and the preparation of sustainable energy plans. There are different types of collaboration models that public authorities and energy planning facilitators may employ, as described in the subsequent section.

Collaboration Models

Simple collaborative partnerships, as were found traditionally in the field of data exchange, result in bi-lateral agreements between Public Authorities and Energy Data Providers as shown below.

Whilst the model provides a working structure for simple data exchange agreements it is inherently inefficient for both the Public Authority and the data provider. Each agreement has to be individually brokered and maintained. This can result in the data provider receiving multiple requests by different Public Authorities for establishing agreements, each with different clauses and data specifications.

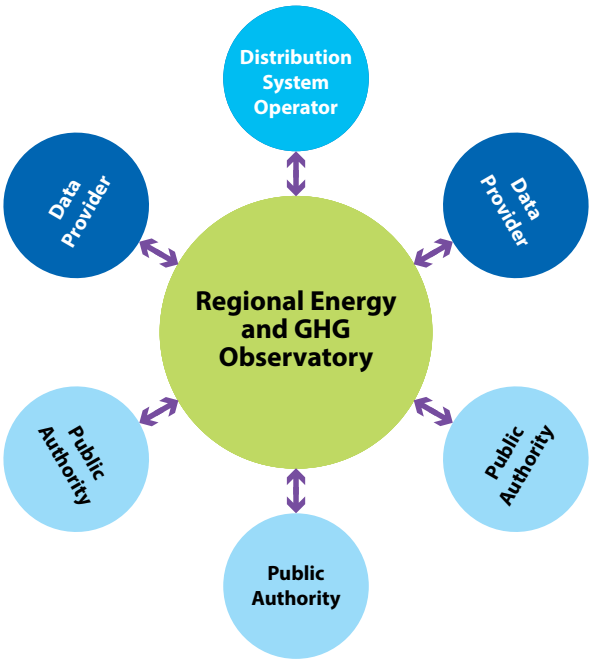


Similarly, the Public Authority must develop, monitor and maintain a number of individual agreements with energy data providers to collect all the necessary data in energy planning. These agreements may be multi-dimensional in nature, engaging equitably with a number of actors.

Multi-lateral agreements have the capacity to address the problem of a proliferation of individual data exchange agreements, as shown below.

In this model, a third party provides one-stop shop services, which could be in the form of a Regional Energy and GHG Emissions Observatory, and is responsible for brokering all collaboration agreements and the data exchange process.

The third party, usually an energy planning facilitator, provides a service by gathering, assimilating and processing energy data from many sources, and providing it to the public authority in a standardised, understandable and accessible format. The model effectively transfers the responsibility of forming detailed agreements on data exchange from public authorities to the specialist third party, and similarly increases data exchange efficiencies for the data provider.



Regional Data Centres / Energy and GHG Emissions Observatories are designed and constructed to suit the prevailing local situation of the region. There are, however, a number of common structural characteristics including:

- Structures governed by a local consortium involving several data providers and Public Authorities with a shared vision;
- Supported by regional level Public Authorities (Covenant Territorial Co-ordinators);
- Often integrated within appropriate existing regional organisations such as Energy Agencies, and Public Authorities. They are sometimes combined with existing monitoring organisations for air and water quality;
- Encompassing technical skills in sustainable energy planning, data access and processing, and multi-dimensional partnership management; *and*
- Provision of territorial data and services to Public Authorities (free-of-charge).

Regional Data Centres

Many Regional Data Centres and Observatories exist across Europe and are supported by Public Authorities. These work closely with energy data providers and energy agencies in order to provide free of charge energy data services to local authorities. An additional twelve European Regional Data Centres are being developed through DATA4ACTION.

Collaborative Partnership Actors

Public Authorities generally have considerable experience of working within collaborative partnerships. Fewer, however, have positive experiences from working pro-actively with commercial organisations. Similarly, industry generally views the role of Public Authorities from a regulatory standpoint.

On the other hand, Energy Planning Facilitators often collaborate with Public Authorities, academic research institutions and ESOs, DSOs and TSOs.

Energy Data Providers are a particularly disparate grouping whose profile will be largely determined by the energy and climate change agenda of the region.

Activities	Type of Data Needed	Examples of Data Sources
Developing Baseline Emission Inventories (BEI) and Monitoring Emission Inventories (MEI).	Energy consumption by sector (residential, services, transport, industry, agriculture, public buildings and equipment).	Energy Management Systems; Energy utility companies: Transport Systems Operator, Distribution Systems Operator, energy retailers; Statistical offices; Ministry (transport, energy, etc.); National and regional statistical offices; Industry Associations; Air Quality Protection organisations; RES Producers' Associations.
Defining targeted sustainable energy actions and policies.	Estimated energy savings, GHG reduction and € invested.	Socio-economic indicators (jobs created, impact on fuel poverty); Energy Utility Companies; Statistical Offices; ESCOs; Housing Associations; Professionals' organisations; Consumer Associations; Local surveys; Smart Metering
Monitoring (PBI in addition to MEI).	Progress based indicators allowing evaluation of the sustainable energy plan (e.g.: km of cycleways, number of public passengers per year).	Wide range of data sources involving all of the above as well as statistical surveys.

Governance Mechanisms

For partnership arrangements between Public Authorities, Energy Planning Facilitators and Energy Data Providers to be successful it is important to adopt the correct governance mechanism.

Partnerships are governed by a number of key relationships. At high level, partners are generally governed by Memoranda of Understanding or Service Level Agreements. Steering and/or Coordination Committees general adopt a formal way of working, whist Technical Groups and Supporting Networks often a adopt a semi-formal partnership arrangement.

Recommended Collaboration Models

The DATA4ACTION partners have developed the following key recommendations for formatting and building partnerships to support local and regional energy planning:

1. Be patient and progressively gain the trust of strategic partners and key actors;
2. Act incrementally;
3. It is better to have a first data set now than many data sets in the future;
4. Institutional support is not enough, active involvement is needed;
5. Marketing towards relevant target groups: e.g. *'The Observatory is the place to be'* – but be sure to highlight the benefits for Energy Data Providers, such as: -
    - ❏ Improved data streams will lead to cheaper operating costs;
    - ❏ Protocols will be agreed to protect commercially sensitive information; *and*
    - ❏ New products and service models might emerge;
6. Engage with key actors and make them part of the process, for example when validating *'official data'*;
7. Pay attention to (future) needs with regards to energy planning, but also of key actors and target groups;
8. Be reactive and acknowledge collaboration: show that the data provided are useful;
9. Be smart: use the most reliable data, even if not official;
10. Be transparent: inform your target groups and actors regularly;
11. Be aware that the liberalisation of energy markets makes it more difficult to access reliable energy consumption and GHG emission data;
12. Involve Regional Energy Agencies when establishing cooperation with energy providers;
13. Be aware that data quality at a local level is likely to be poor and improvement may be necessary. Present this as a joint task for Local Authorities and Energy Data Providers;
14. Cooperate with national and regional institutions that can provide additional data;
15. Engage with the right person(s) within data providers´ administration/staff;
16. Use existing tools and methods that work well;
17. Engage target groups/actors and design the data exchange process together; *and*
18. Consider the provision of data from the point of view of the target group / data provider to address potential issues, such as competition and confidentiality issues.

Metropolitan City of Torino Energy Observatory

The Energy Observatory of the Metropolitan City of Torino collects energy data from Municipalities, from some 60 local energy operators and stakeholders, and from national and regional mainstream institutions. The good working relationships that have been established with the local data providers, together with the constant data updating processes, are the key factors for maintaining a large set of reliable data.

All data referring to the 315 Municipalities of the Metropolitan Area is provided at no cost to interested Municipalities, research institutes and consultants. The data is analysed for the production of Baseline Emission Inventories calculated from the final energy consumption recorded in each Municipality. Energy consumption data are provided for the building sector (private households, tertiary and service) and for the transport sector.

One of the key strengths of an Energy Observatory is the ability to continuously gather and process data consistently. Whilst the data streams come from different sources, the use of reliable and efficient centralised processing makes it easy to provide information to Local Authorities and other stakeholders. It also provides further supports by helping them to interpret and use the information.

To develop its role, the Energy Observatory must always search for new ways to obtain and analyse appropriate data that is otherwise hard to find. This contributes additional credibility and usefulness to the work of the Observatory.

www.cittametropolitana.torino.it/cms/ambiente/risorse-energetiche/osservatorio-energia


Carrots

6: Regional Energy and GHG Emissions Observatories

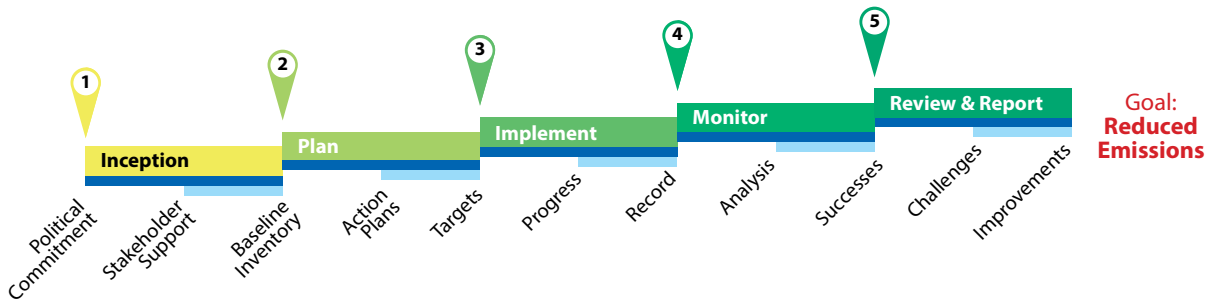
The European Union is leading the global fight against climate change, and has made this top priority. EU countries have agreed on a new 2030 Framework for climate and energy, including EU-wide targets and policy objectives for the period between 2020 and 2030. These targets aim to help the EU achieve a more competitive, secure and sustainable energy system and to meet its long-term 2050 greenhouse gas reductions target.

Public Authorities and energy stakeholders are committed to helping to achieve these challenging targets. Regional Energy and GHG Emissions Observatories are specifically designed to help monitor and interpret the local situation, and reliably inform strategic policy decisions.

An increasing number of Public Authorities are involved in the development of sustainable energy policy and plans. Most start by creating a Baseline Emission Inventory (BEI) to identify the best fields of action and opportunities for reaching an agreed CO_2 reduction target.

Opportunities to improve the level of emissions arise with every new development project being approved by the Public Authority. The impact of missing such an opportunity can be significant and may last for a long time. Therefore an Energy Plan ensures that such opportunities are identified at an early stage, and projects focus on effectively reducing local CO_2 emissions and final energy consumption by public and private sector end users.

The key sustainable energy planning stages are shown below.



Thereafter, an Energy Plan is developed that defines concrete reduction measures, together with time frames and assigned responsibilities, which translate long-term strategic policies into action.

Public Authorities are often expected to play an exemplary role by implementing measures targeting the local authority's own buildings, facilities, and vehicle fleets - Sustainable Energy Planning includes actions related to

energy efficiency interventions on municipal buildings and local electricity production such as the development of photovoltaics, wind power, combined heat and power plant (CHP), the improvement of local power generation, and local heating/cooling generation. In addition, Public Authorities can often positively influence energy consumption through appropriate land use planning, the encouragement of non-motorised mobility, supporting the market for energy efficient products and services, as well as changing consumption patterns by working with community stakeholders.

Regional Energy and GHG Emissions Observatories have a central role to play in informing the development of Sustainable Climate and Energy Action Plans and policies, and measuring their impacts in the community at large. The compelling case for developing and maintaining an Energy Observatory can be seen from the perspectives of each of the three stakeholders.

Public Authorities:

- ❏ Observatories provide the necessary validated data to inform a Sustainable Energy Policy or Plan at either regional or local levels;
- ❏ Observatories provide the necessary data to monitor the policies that have been established at regional or local level. They provide continuous, reliable data, often aggregated from a wide range of data sources;
- ❏ Observatories have the capacity to mainstream data collection and provision across multiple Public Authorities that are seeking the same kind of energy-related data from the same data sources; *and*
- ❏ Observatories will help to harmonise disparate regional data sources and methodologies, producing a comparable data model aligned to national and EU reporting standards.

Energy Planning Facilitators:

- ❏ Observatories will call upon a range of expertise that will create a synergistic collaboration between all actors, particularly Public Authorities and industry;
- ❏ Observatories will tend to create networks of interested parties, both within their geographical area, and across other European areas; *and*
- ❏ Observatories will enable energy planning researchers to develop new tools and identify new methodologies for addressing climate change in a local context.

Energy Data Providers:

- ❏ Energy Data Providers will benefit from an Observatory since it consolidates similar requests for data from multiple Public Authorities, thereby resulting in a reduced workload;
- ❏ Observatories are specialised in data management. Dealing with a single specialist will ensure that information coming from the Energy Data Provider will be processed in a professional and consistent manner in conformity with agreed conditions of use, and methods of dissemination; *and*
- ❏ Involvement through an advanced data exchange collaboration model with Observatories represents a potential social responsibility gain for the Energy Data Provider.

Regional Energy and GHG Emissions Observatories provide a one-stop-shop for energy-related data and information.

What is an Energy Observatory?

Regional Energy and GHG Emissions Observatories are powerful tools for facilitating the development and monitoring of Sustainable Energy Plans and Policies at a regional and a local level.

Local or regional structures, which may represent several public authorities, energy data suppliers or other stakeholders, govern most of the Observatories across Europe.

Typically, an Observatory is supported by public authorities, and in some cases is integrated within existing regional and other structures such as energy agencies or a Regional or Local Authority. This introduces synergies and brings together a high level of technical skill in data gathering and analysis, partnership management and sustainable energy planning.

Overall, Regional Observatories help to build an understanding of regional and local impacts on climate change by developing a baseline inventory of data and information.

A Regional Observatory provides expertise and advice that can be pivotal in policy development, and in the decision-making process. It also provides a mechanism for

Alba Energy Observatory - ANERGO

ANERGO – Alba Energy Observatory was launched in July 2015 as an internal structure in Alba Local Energy Agency – ALEA, a non-profit organisation established through the IEE Programme in 2008, with the aim of contributing to the sustainable development of Alba County in Romania by improving energy efficiency and energy management, and by promoting the use of renewable energy sources.

Local Authorities and Energy Data Providers signed partnership agreements with ANERGO in order to facilitate energy data exchange between local authorities and service providers in energy distribution, public transport, and other sectors.

The set-up of the Observatory was supported by DATA4ACTION, which provided the financial resources required for its establishment and operation. In the framework of the DATA4ACTION EU-funded project, ALEA benefited from tutoring activities provided by Regional Energy Agency of Rhone Alps. ALEA and ANERGO are currently supporting more than 15 Covenant of Mayors signatories in developing and implementing their SEAPs, including municipalities that are outside Alba County.

In order to contribute to an overall decrease of GHG emissions in the region, and to encourage renewable energy production for municipalities, the Observatory has two key targets: facilitating access for Local Authorities to energy data for better implementation and monitoring of Sustainable Energy Action Plans and encouraging public participation in the process.

www.anergo.alea.ro

evaluating the impact of climate action in terms of both energy savings and the level and type of GHG emissions avoided.

The Observatories commonly provides data, most often free of charge, on GHG emissions and energy consumption in order to measure the progress on emission reductions at a local and regional level. In addition, some Observatories complement this service by monitoring energy and sustainability plans to assess the extent to which actions are implemented.

Regional Energy and GHG Emissions Observatories must be in full compliance with statutory requirements, including EU Directives and their transposition at a national level. Compliance will ensure that operations will not conflict with national legislation on matters such as access to data.

The Importance of Energy Observatories

Reducing CO_2 emissions and the final energy consumption by end users is a common aim in a sustainable energy planning process. Regional plans will inevitably include actions that engage with both the public and private sector.

Access to energy data enables the development of sound local and regional Sustainable Energy Plans and evidence-based policies. Additionally, having a dynamic tool to measure the changes that can be attributed to the implementation of the plan or policy strengthens monitoring the success of an Energy Plan or Policy. Hence, access to accurate and timely data is essential.

Regional Observatories operate as clearing houses that can assimilate the various streams of raw data in order to produce accurate and regular profiles that reflect the GHG situation in each respective region. The data can also be used to create data trends that help to identify consumption and production patterns over time. This can better inform policy and plans at local level, as well as key stakeholders.

The following table summarises the importance of Energy Observatories from the perspective of Public Authorities, Energy Planning Facilitators and Energy Data Providers.

Public Authorities	All Public Authorities that are required to address climate change issues will find it beneficial to work with a Regional Energy Observatory. Besides offering technical advice on energy-related matters, the Observatory will be in a position to provide local and regional baseline energy and GHG emission inventories. This is the starting point for all energy plans, and provides the benchmark for evaluating progress in implementing any relevant plan or policy. Public Authorities are generally significant consumers of energy in many forms, and again, engagement with the Regional Observatory can better inform decisions around strategies that might reduce energy consumption.
Energy Planning Facilitators	Whilst having a similar set of objectives in line with EU commitments, Energy Observatories have developed within existing structures or from a wide range of structures that have facilitated their emergence. Some have emerged through direct local and regional government initiatives, whilst academic and sectoral interests have driven others. All Observatories rely upon strong cooperative networks. If a region does not currently have an Observatory and wishes to establish one, a vital starting point is to pursue collaboration with key energy data providers, seek political commitment and secure the support of key regional stakeholders, including industry and academic institutions.
Energy Data Providers	Energy data is crucial for the design, implementation and monitoring of regional and local Sustainable Energy Planning. Although energy data providers encompass a wide range of different stakeholders, the common thread is that they provide direct access to energy generation, distribution and consumption data required by Public Authorities for energy planning. Regional energy data providers include the major energy consumers, the energy suppliers, and the transmission and distribution systems operators. The nature and number of these will differ in each particular region. Traditionally, energy providers mainly used energy data for internal purposes, but this is gradually changing. Energy deregulation, new opportunities for integrated energy services, and the increasing global interest in climate protection set the stage for data exchange collaboration models. By engaging with Regional Energy and GHG Emissions Observatories, energy data providers will potentially benefit from new business opportunities. A better and closer relationship with Public Authorities, through data exchange collaboration schemes may help providers to promote socially and environmentally responsible corporate practices, thereby increasing public acceptance and gaining new customers.

ENERGee Watch Members

The European Network of Regional Energy and GHG Observatories, ENERGee Watch, was established to develop and disseminate best practice in greenhouse gas emissions monitoring, climate mitigation policies, and governance.

A network of approximately thirty Regional Energy and GHG Emissions Observatories was established through ENERGee WATCH. Each Observatory addresses the challenges of energy data exchange with practical solutions. More specifically, all of the Observatories provide energy and GHG emissions data to Public Authorities to underpin sustainable energy planning, implementation and monitoring. Common elements in most cases include the following: -

- ❏ Pursuing widespread political acceptance and raising awareness on sustainable energy and climate issues.
- ❏ Establishing operational partnerships with multiple energy data providers.
- ❏ Facilitating data access, processing and modelling.
- ❏ Providing technical data management services and data accuracy verification services.
- ❏ Employing agreed methodologies for measuring regional and local GHG emissions based upon accepted international standards.
- ❏ Facilitating collaboration with European and international initiatives.
- ❏ Providing Baseline Emissions Inventories.
- ❏ Providing Monitoring Emissions Inventories.
- ❏ Communicating relevant data to Public Authorities and to the general public.
- ❏ Publishing Progress-Based Indicators.

The range of focussed collaborative services provided by these Observatories includes (but is not limited to) the following: -

- ❏ Encouraging local debate on energy-related matters.
- ❏ Preparing Energy Consumption Profiles (Heating, Lighting and Energy).
- ❏ Preparing sectoral profiles (industry, agriculture and others). Preparing Sustainable Energy and Climate Action Plans and other relevant plans.
- ❏ Providing Energy Policy advice.
- ❏ Developing Air-Quality Action Plans.
- ❏ Research into new forms of renewable energy including Solar Panels.

The Regional Observatories that have been established under ENERGee Watch and DATA4ACTION have all developed collaborations with national, regional and local data providers, and have the technical expertise to handle large volumes of energy-related data to produce estimates of energy production and consumption at a local level. In some cases, observatories are also producing regional GHG inventories.

The map below presents some of the Regional Observatories in Europe, and in particular those that are members of ENERGee Watch.

Organisations + Observatories

4 ALEA - Alba Local Energy Agency - ANERGO
5 ARENE Ile-de-France - ROSE Ile-de-France Regional Observatory
6 Auvergne Rhône-Alpes Region - OREGES Rhône-Alpes Regional Observatory
7 Barcelona Metropolitan Area - METROBS - Metropolitan Climate Change Observatory
8 Carlow Kilkenny Energy Agency - Energyhub.ie
9 EAP - ROECC Observatory for Energy, Environment and Climate
10 EAZK - Energy Agency of the Zlin Region
11 Energikontor Norr - Energiluppen
12 EVE - Basque Country Energy Agency - Udalsarea21
13 IRE Liguria - Banche Dati Ambienta in Liguria
14 Kent County Council - Environment Department
15 Metropolitan City of Torino - Osservatorio Energia Città Metropolitana di Torino
16 Provence-Alpes-Côte-d'Azur Region - ORECA
17 Région Centre-Val de Loire - LIG'AIR
18 Région Centre-Val de Loire - OREGES Centre-Val de Loire
19 Region Bourgogne Franche Comté - OPTEER, Franche-Comté Regional Observatory
20 Region Bourgogne Franche Comté - ALTERRE
21 Region Hauts de France - Observatoire Climat Nord Pas de Calais
22 Réunion Island Observatory - SPL Energie Réunion
23 Technical Chamber of Greece Energy Observatory

Other Organisations

24 AEEPM Bucharest Energy and Environment Agency
25 AMEMM - Maramures Energy Agency
26 Cyprus Energy Agency
27 EREN - Castilla y Leon Region, Energy Department
28 BSREC - Black Sea Research Energy Centre
29 CODEMA - City of Dublin Energy Management Agency
30 Diputación de Barcelona
31 Energy Agency Malardalen
32 ILSpA - Infrastructure Lombarde- Energy Agency of Lombardia Region
33 Medway Council
34 Province of Savona
35 Province of Treviso
36 Regional Council of Corsica

Networks

1 FEDARENE
2 Climate Alliance
3 ICLEI Europe

See Appendix for contact details of Agencies and Observatories

Energy and Environmental Database of the Liguria Region

The Energy and Environmental Database of Liguria Region was created in 1997 to assist in the preparation of the regions Energy Balances. These represent the energy flow of a particular area, and provide data about the related energy production, energy transformation, final energy consumptions and CO_2 emissions.

Final energy consumption data is essential for the preparation of BEI- Baseline Emissions Inventory as the first step of developing Sustainable Energy Action Plans. The Energy Observatory is able to provide the following data by sector:

- ❏ Municipal
- ❏ Residential
- ❏ Tertiary
- ❏ Public Lighting
- ❏ Private Transport
- ❏ RES

and by energy source:

- ❏ Natural gas
- ❏ Electricity
- ❏ Diesel (heating diesel and transport diesel)
- ❏ LPG Gasoline Biomass
- ❏ Biogas
- ❏ Hydro energy
- ❏ Wind energy
- ❏ Photovoltaic energy
- ❏ Solar thermal energy

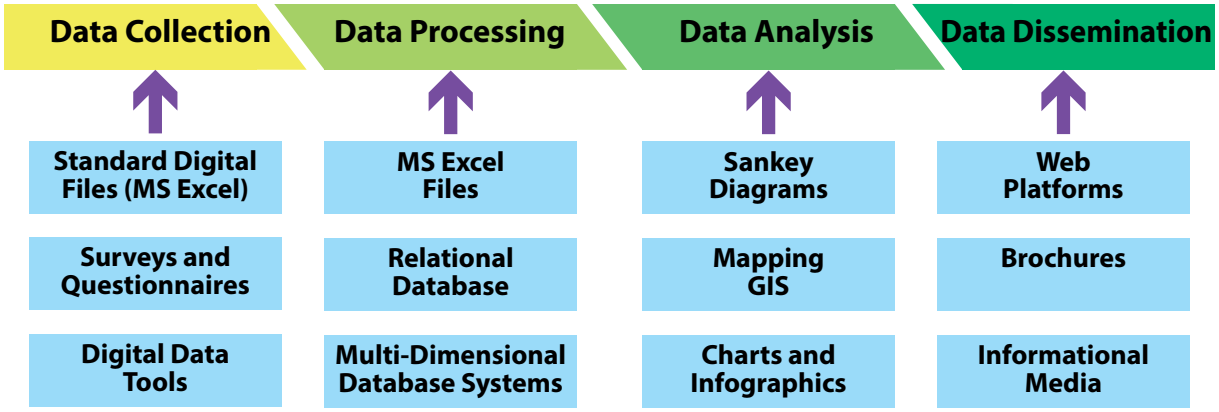
A new tool is being developed called the 'Covenant of Mayors App'. This automatically generates BEIs and MEIs based on Observatory Data and municipal data directly inputted by Public Authorities. As result, the reliability of Regional Observatory data will be improved.

www.banchedati.ambienteinliguria.it

Energy Observatory Tools

Whilst there is no European standard for the data tools used by the Regional Energy and GHG Emissions Observatories, there is a common process that underpins the collection, processing and dissemination of information.

The Energy Observatory tools shown below are defined by the needs of the wide variety of customers for information and data. Most typically, this is determined by the energy data requirements to inform Sustainable Climate and Energy Action Plans.




General Analysis
Annual Analysis
63%
25%
9%
18%
7%
3.5%
9%
11%
50%

7: Success Factors

A number of key success factors underpin the creation of meaningful collaboration models. These can be viewed from the perspectives of Public Authorities, Energy Planning Facilitators and Energy Data Providers.

Public Authority

Engagement with a Regional Energy and GHG Emissions Observatory will help to ensure that Sustainable Energy Plans align with EU, State, Regional and local requirements, and reinforce multi-level governance.

High-level academic support at national and regional level through the work of the Regional Energy and GHG Emissions Observatories can offer enormous potential in terms of developing more sophisticated and accurate methodologies for collecting, analysing and projecting energy data streams.

Within the political domain, the greater the level of understanding of the need for accurate energy data to underpin the energy planning process, the greater the potential for the Regional Energy and GHG Emissions Observatory to grow in capacity and stature.

Energy Planning Facilitators

Key success characteristics include: -

Good Governance Principles: Governance can be defined as the systems and processes that ensure the overall direction, effectiveness, supervision and accountability of an organisation.

Regional Energy and GHG Emissions Observatories may be structures formed as consortia within the realm of Public Authorities, and may involve a range of interested parties. It follows, therefore, that if they are to sustain with their capacity to support partnership collaborations, they must have stable and appropriate internal structures. Therefore, they may include the following good governance principles.

Transparency, needed to:

1. Maintain public trust and confidence;
2. Strengthen relationships with stakeholders that support the mission of the organisation;
3. Generate a greater understanding of the purpose of the Regional Energy and GHG Emissions Observatory; *and*
4. Generate a greater understanding of the need for energy efficiency interventions, sustainability and renewable energy.

Accountability to enable the Regional Energy and GHG Emissions Observatory to:

1. Act on stakeholders behalf, for instance via sanctions or other methods of redress, to undertake planned activities;
2. Explain and report to stakeholders activities undertaken; *and*
3. Consider stakeholder's needs and views and respond to these by examining and, if necessary, revising practices.

Participation: Equality of participation by all is a cornerstone of good governance. Successful Regional Energy and GHG Emissions Observatory demonstrate the

following:

1. Encouraging local involvement, and recognising local needs;
2. Encouraging data-sharing through collaboration partnerships;
3. Being inclusive;
4. Protecting individual voices and viewpoints; *and*
5. Creating flexible structures that are open, accountable and transparent.

Ethical Standards: Given that sensitive data and information will be handled, the following key principles should underpin the ethical standards of the Regional Energy and GHG Emissions Observatory:

1. **Impartiality and Independence:** The Observatory should be impartial and independent and abstain from any preferential treatment on any grounds whatsoever.
2. **Integrity:** The Observatory must have a commitment to act ethically and honestly in order to:
   - ❏ Ensure that data provided and published reports are not misleading, or designed to be misleading; *and*
   - ❏ Disclose all outside interests in conflict or in potential conflict with the business of the Observatory.

Energy Data Provider

Collaboration with Energy Data Providers must be clearly sustainable, and underpinned by appropriate legal agreements, such as Memoranda of Understanding and Service Level Agreements.

The agreements must define the obligations of the Transmission System Operators and Distribution System Operators, and other data providers, and the Regional Energy and GHG Emissions Observatory, in terms of the type, accuracy and frequency of the data exchanged, and the adherence to regional, national and European standards governing energy data disaggregation and accuracy. Additionally, the conditions that govern the use of the data and the extent to which the information can be disaggregated must also be clearly defined.

Rhône-Alpes Region - OREGES

The Regional Observatory for Energy and Greenhouse Gas Emissions (OREGES) of the Rhône-Alpes Region monitors energy consumption and production and greenhouse gas (GHG) emissions at regional and infra-regional level.

Data is available at community level as far as technically and legally possible, having regard to the need to comply with confidentiality requirements.

The Observatory provides Local Authorities with free energy data, and with information sheets such as energy-climate profiles. Since the first publication of energy-climate profiles in 2010, OREGES has provided regular updates, adding new data and incrementally improving both presentation and content.

The shared vision, partnership and enhanced coordination between the national and regional levels are seen as key outcomes of the Observatory. This has led directly to an increase in technical expertise in GHG monitoring.

A long collaboration process was necessary before reaching a working joint agreement. This agreement forms the stable foundation for the OREGES structure. The evidence of this can be measured from the fact that the structure has been functioning successfully for more than a decade. Key to the successful partnership has been the core involvement of Energy Utilities, since this has facilitated the access to the relevant data streams.

www.oreges.rhonealpes.fr/

Appendices

Appendix 1: **Technical Terms**

Source: www.data4action.eu/glossary/

Baseline Emissions Inventory

A Baseline Emission Inventory is a quantification of the amount of CO_2 emitted due to energy consumption in the territory of a Covenant signatory during a baseline year. It allows the identification of the principal sources of CO_2 emissions and their respective reduction potentials.

Data Commercial Sensitivity

Data, whose disclosure could reasonably be expected to result in a material financial loss or gain to the person to whom the information relates, or could prejudice the competitive position of that person in the conduct of his or her profession or business or otherwise in his or her occupation.

Data Management

Data management activities consist in all activities performed during the following phases of data collection, data processing, data modelling and data dissemination. These data management activities are needed to help define, implement or monitor Sustainable Energy Plans.

Data Privacy and Regulation

All necessary precautions required by one of the parties to prevent the disclosure of information (such as confidentiality agreement, data protection for instance through encryption etc.

Data Quality Analysis

Energy data quality analysis and data communication to decision makers are crucial elements for the implementation and monitoring of effective Sustainable Energy Plan actions. Energy data quality at a community level can be affected by many external factors (such as variations in population, economic growth) leading potentially to a wrong analysis of the trends and determinants.

Energy Data Supplier

An energy data provider or data source provides data to public authorities for energy planning. The energy data providers or data sources include: energy utility companies (Transport Systems Operators, Distribution Systems Operators, Energy retailers), Statistical offices, Housing associations, Industry associations, Air quality protection organisations, RES producers associations, and others.

Monitoring Emissions Inventory

An emission inventory that the local authority carries out to measure the progress towards target.

Regional Energy and GHG Emission Observatory

A regional energy and GHG emissions observatory is a structure or a dedicated organisation within an existing structure collecting periodically data from energy data providers, processing these data and providing free energy and GHG emissions data to regional and local authorities or communities for sustainable energy planning. Usually this structure is: -

- ❏ Governed by a local consortium (including energy data providers and local public authorities)
- ❏ Supported by public authorities and often integrated within existing regional organisations (such as energy agencies or public authority department)
- ❏ Technically skilled in data gathering, analysis and processing, partnership management, energy planning
- ❏ Provides free of charge *'community data'* and data services to regional and local public authorities and communities. These services include, for instance: -
  - ❏ Processing (aggregating or disaggregating) and modelling of raw data provided by data providers at national, regional and local levels
  - ❏ Identifying data sources and data

communication tools for Sustainable Energy Plan monitoring

- ❏ Designing and implementing collaboration agreements with energy data providers that can benefit to a larger range of public authorities located within the same region (multiplier effect)
- ❏ Providing periodic updates of energy and GHG emissions profiles for BEI/MEI estimates at regional or local community levels.

Regional Energy Planning Facilitator

Whether they are regional energy agencies, Covenant of Mayors for Climate and Energy regional coordinators, regional statistical energy offices, department of a public authority in charge of data, or consultants in sustainable energy planning, the Regional Energy Planning Facilitators will play a pivotal role in facilitating and organising the cooperation process between energy data suppliers and Public Authorities. They will be able to implement data services and promote the setting up of supporting structures such as observatories.

Sustainable Energy and Climate Action Plan

A Sustainable Energy and Climate Action Plan (SECAP) is the key document in which the Covenant signatory outlines how it intends to reach its CO_2 reduction target by 2020. It defines the activities and measures set up to achieve the targets, together with time frames and assigned responsibilities. Covenant signatories are free to choose the format of their SECAP, as long as it is in line with the principles set out in the Covenant SECAP guidelines.

Appendix 2: **ENERGee Watch Members**

ENERGee Watch currently has more than twenty members (regional Observatories, regional councils, regional and local energy agencies, European and International networks) from 11 European countries.

ENERGee Watch Member Networks

Network	Description
FEDARENE 210 avenue Louise, Brussels, Belgium www.fedarene.org	FEDARENE is the first European network of regional and local organisations that implement, co-ordinate and facilitate energy and environment policies. Regional and local agencies, ministries and departments working in these fields, are represented. FEDARENE, a non-profit association set up in 1990 at the initiative of six European regions, now has member regions from seventeen different European Union countries. FEDARENE participates in many European Projects (among the others: Covenant of Mayors and Managenergy). It is partner of the European Project, Climact Regions, which led to the creation and launch of ENERGee-Watch
Climate Alliance Galvanistr. 28 Frankfurt am Main, Germany www.klimabuendnis.org/	The *'Climate Alliance of European Cities with the Indigenous Rainforest Peoples'* is the largest city network committed to climate protection and preservation of the tropical rainforests. Since 1990, Climate Alliance has supported a total of now over 1,600 members from 20 European countries in attainment of their voluntary commitments to reduce CO_2 emissions by ten percent every five years and to halve per capita emissions by 2030 at the latest (base year 1990). To preserve the tropical rainforests, Climate Alliance cooperates with indigenous rainforest peoples.
ICLEI Local Governments for Sustainability Leopoldring 3, Freiburg, Germany www.iclei-europe.org/	ICLEI – Local Governments for Sustainability (ICLEI) was founded in 1990 (as the International Council for Local Environmental Initiatives) at its inaugural conference, the World Congress of Local Governments for a Sustainable Future, at the United Nations in New York. ICLEI is an international association of local governments and national / regional local government organisations that have made a commitment to sustainable development. More than 1.200 cities, towns, counties and their associations worldwide comprise ICLEI's growing membership, with about 200 located in Europe. ICLEI works with these and numerous other local governments through performance-based, results-oriented campaigns and programmes to achieve tangible improvements in global environmental and sustainable urban development

ENERGee Watch Member Observatories

Observatory	Description
ANERGO OBSERVATORUL ENERGETIC ALBA Str. Trandafirilor, Nr. 9 Alba Iulia, 510119, Alba County, Romania www.anergo.alea.ro	ANERGO - Alba eNRGy Observatory was founded in July 2015 as a structure inside ALEA – Alba Local Energy Agency. The Observatory provides its services for LAs in Alba County, planning to expand to Centru Development Region of Romania: ❏ Support LAs in joining CoM and BEI/MEI completion/submission; ❏ Energy data acquisition for partner Local Authorities; ❏ Online municipal energy database for partner LAs; ❏ Energy data processing/adapting for CoM SEAPs and Energy Plans; ❏ Custom energy analysis based on LAs requests; ❏ Local and regional energy trends, and reporting; ❏ Online energy consumptions journal for individual users.
ROSE Réseau d'Observation Statistique de l'Energie et des émissions de gaz à effet de serre en Ile-de-France 90-92 avenue du Général Leclerc, Paris, France www.roseidf.org/	ROSE Ile de France – Regional Observatory for Energy and Greenhouse Gas Emissions was created in 2008. ROSE Ile de France is involved in the development of the regional plan for climate, and is providing data to local authorities in the Paris region to inform their territorial energy and climate plan. The Observatory monitors the following: ❏ Final energy consumption, energy production (mainly from renewable sources) and energy distribution (district heating mainly); ❏ GHG emissions, including CH_4 emissions from the agriculture sector. The main input data used are: statistical data, average energy consumption rates, GHG emissions rates and real data from regional and local levels. The *'final consumer approach'* is used: the emissions taken into account are not the GHG emitted on the territory but the emissions due to energy consumption on the territory. The figures are computed from determinants (number of inhabitants, road traffic etc.) and average energy consumption rates. More real data of energy consumption is being used to obtain more accurate profiles.
Observatoire de l'énergie et des gaz à effet de serre de Rhône-Alpes 18 rue Gabriel Péri Lyon France www.oreges.rhonealpes.fr/	OREGES Rhône-Alpes was established in 2002 in response to the desire to make available, on a regional and territorial basis, a relevant observation and information tool for members of the general public, local authorities and players in the world of energy. The Steering Committee is co-chaired by the State and the Region, and is financed by the regional Council of Rhône-Alpes and ADEME. Work is conducted by two technical organisations: Rhônalpénergie-Environnement (since 2002) and AIR Rhône-Alpes (since 2009). The organisation developed the regional plan for air quality, climate change and energy (SRCAE), co-designed by the regional council and the regional representation of the national state. The Observatory is in charge of monitoring the impacts of this regional plan.

AMB Àrea Metropolitana de Barcelona C/62, núm 16 - 18 Zona Franca, Barcelona, Spain www.amb.cat/web/medi-ambient/	METROBS was created in 2014 in the context of PSAMB 2014-2020 (AMB Sustainability Plan). The Sustainability Plan's vision is to consolidate the Metropolitan Barcelona's status as a leading example of the implementation of policies with sustainability criteria, enhancing protection of the environment and biodiversity, and alleviating and adapting to climate change, in order to ensure a better quality of life for the city's residents.
energyHub.ie Kilkenny Research and Innovation Centre, Burrell's Hall, St Kieran's College, Kilkenny, Ireland www.energyhub.ie	Carlow Kilkenny Energy Agency Energyhub.ie was established in 2015, and serves the South East Region of the Republic of Ireland. The Regional Observatory provides the following services: - Energy data collection and analysis for two Local Authorities Sustainable energy planning (SEAPs) for Covenant of Mayors for Climate and Energy Calculation of Baseline Emissions Inventory Energy monitoring, verification and management (MEI)
ЕНЕРГИЙНА АГЕНЦИЯ ПЛОВДИВ ENERGY AGENCY OF PLOVDIV save • agency 139 Ruski Bld, 4th Floor, P. O. Box 364, Plovdiv, Bulgaria www.observatory.eap-save.eu/	The Energy Agency of Plovdiv (EAP) has established the Regional Observatory for Energy, Environment and Climate (ROEEC) in the South Central and South East Region with the aim of supporting local authorities in their development, monitoring and evaluation of local actions dedicated to the European 20-20-20 target and other national targets. There are twenty-six Bulgarian municipalities participating in the Covenant of Mayors for Climate and Energy initiative. Nine of the participating municipalities plan to improve air quality monitoring and management.
ENERGETICKÁ AGENTURA ZLÍNSKÉHO KRAJE, o.p.s. Zlínský kraj Třída Tomáše Bati 21, Zlin, Czech Republic www.eazk.cz	In 2015 the Council of the Zlin Region established the Zlin Region Energy Monitoring Centre as the Regional Energy Observatory within the Czech Republic. The monitoring centre is operated as a part of the Energy Agency of the Zlin Region (EAZK). Establishment of the monitoring centre, and the development of its structure, long-term goals and specific targets will lead to an anticipated improvement and development of energy management in towns and municipalities within the Zlin Region. The monitoring centre is an official body through which it is possible to monitor and more effectively implement the Energy Concept of the Zlin Region, the regional energy plans, and those of individual municipalities.

Energikontor Norr ENERGILUPPEN Kungsgatan 46, Luleå, Sweden www.energiluppen.se	Energilkontor Norr provides the following services for 14 municipalities of Norrbotten and 15 municipalities of Västerbotten: ❏ Energy and GHG data on local and regional level; ❏ Can be used for follow-up on local and regional energy and climate policies and measures; ❏ As a support for local stakeholders in defining climate and energy strategies and measures; ❏ Is embedded and supported in the region, and becomes an important contribution to a successful regional development; ❏ Energy data collection and analysis for two Local Authorities; ❏ Sustainable energy planning (SEAPs) for Covenant of Mayors for Climate and Energy; ❏ Baseline Emissions Inventory; *and* ❏ Energy monitoring. Energiluppen is a web-based tool developed by Energikontor Norr.
udalsarea21 basque network of municipalities for sustainability red vasca de municipios hacia la sostenibilidad Alameda de Urquijo, 36- 6a planta 48011 - Bilbao (Bizkaia), Spain www.udalsarea21.net	Udalsarea 21, the Basque Network of Municipalities for Sustainability, is a cooperation and coordination forum to give momentum to the Local Agendas 21 in Basque municipalities and drive the implementation of the Action Plans. IHOBE, the Basque Environmental Agency, as Technical Secretariat of the network, supports the assessment of the Local Action plans and determines the indicators that monitor the progress of municipalities towards sustainability. This information converges in the Basque Local Sustainability Observatory. Ente Vasco de la Energía – EVE provides criteria and data for action in sustainable energy. Among other indicators, the observatory collects or calculates energy use and GHG emissions at municipal level. The inventory has been updated and improved periodically, and now meets the requirements of the Covenant of Mayors for Climate and Energy.
REGIONE LIGURIA Environment Department – Air, Climate and Waste Management Sector, Liguria Region, Via D'Annunzio 111, 16121 Genova, Italy www.banchedati.ambienteinliguria.it	Founded in 1997 to serve the Liguria Region of Northern Italy, the Regional Observatory provides the following services: - ❏ Monitoring GHG emissions; ❏ Following up the Air Quality Plan; *and* ❏ Computing energy balances at different levels (regional, provincial and municipal). In the framework of D4A, the Observatory is developing an application to directly connect the Observatory and the CoM initiative (Baseline Emissions Inventory and Monitoring Emissions Inventory). The owner of the Observatory is the Liguria Region; the other main partners are IRE SpA, ARPAL (Regional Agency for Environmental Protection of Liguria Region) and Liguria Digitale SpA (ICT experts).

Environment Department, County Hall, Maidstone, Kent, United Kingdom www.kent.gov.uk/	Kent's data observatory has been incorporated as a priority within the Kent Environment Strategy. This, along with endorsement of the strategy across all local authorities in Kent, supports the long-term legacy of the observatory. The partnership has identified a number of challenges in terms of environment and related economic and health outcomes, including air quality, energy, transport, water, resources, severe weather, land-use change and biodiversity. As public sector resources are increasingly stretched, it has never been more important to ensure that every decision, policy and project has a clear evidence-based justification.
Corso Inghilterra 7, Torino, Italy www.cittametropolitana.torino.it/cms/ambiente/risorse-energetiche/osservatorio-energia	Founded in 2014 to serve the Metropolitan City of Torino area, the Osservatorio Energia Città Metropolitana di Torino Regional Observatory is responsible for providing: ❏ Metropolitan territory energy balance – reports on biannual basis; ❏ Cooperation with LAs and data providers for data exchange; ❏ Technical support to LAs for developing and monitoring SECAPs; *and* ❏ Development of tools and Web-GIS instruments that help municipalities in monitoring and evaluating energy consumption of public buildings and lighting. The Observatory is now acting with the support of the Piedmont Region. The Observatory is continuously seeking innovative ways to present data. The Observatory implemented an online tool delivering open energy data to all the 315 Municipalities of the local area for the period 2000-2013.
27 place Jules Guesde, Marseilles, France www.oreca.regionpaca.fr/	ORECA Provence-Alpes-Cote d'Azur – the Regional Observatory for Energy, Climate and Air aims to make data and information available to individuals and organisations working on energy issues. The main objective of the Observatory is to follow the level of achievement of the Regional Scheme of Climate, Air and Energy adopted in the region in 2013. It has established a comprehensive database for air quality, climate and energy, and provides data at a municipal level.
260 avenue de la Pomme de Pin, Saint-Cyr-En-Val, France www.ligair.fr/	LIG'AIR - Centre Region Air Quality Observatory is led by ADEME (French Environment and Energy Management Agency), the Regional Council and the DREAL (Regional State services in charge of environment, planning and housing). Lig'Air, the regional air-quality monitoring network for the Centre-Val de Loire Region has responsibility for the Observatory since 2012. The four objectives of the Observatory are to: ❏ Collect, gather, analyse and distribute information on energy production and consumption and GHG emissions. ❏ Support public policies by defining key indicators for the regional energy plans. ❏ Carry out studies on local energy resources, needs and consumption. ❏ Run a network of partners, key regional actors to share the regional energy and GHG information.

 15 rue Mégevand, Besançon, France www.opteer.org/	The OPTEER, Franche-Comté Regional Observatory is a knowledge tool dedicated to energy flows in the Franche-Comté region. The observatory monitors: ❏ Primary energy consumption and energy production (from both renewable and non-renewable sources). ❏ GHG emissions (all Kyoto Protocol gases). ❏ Air quality. It monitors local initiatives to assess their expected impact on GHG emissions and air quality. Impacts of climate change are not within the Observatory's technical scope. Data is managed for the whole region, at municipal level, and includes the following: ❏ Social and economic data ❏ Data on mobility (commuting, leisure, etc.) ❏ Detailed data on housing and buildings This is derived from databases, enquiries or is computed using models.
 La Bourdonnerie, 2 allée Pierre Lacroute, 21000 Dijon, France www.alterrebourgognefranchecomte.org/	Alterre Bourgogne-Franche-Comté aims to contribute to a better balance between people and the environment through the encouragement of sustainable development. The agency has four strategic objectives: 1. Awareness and awareness by informing and being a resource centre. 2. Build a common culture and to assimilate the complexity of issues under the sustainable development by training, education and awareness. 3. Promote the implementation of responsible practices by supporting actor's territories. 4. Bring out the issues and challenges of tomorrow by developing prospective and crosscutting approaches. ALTERRE works with local authorities, associations, social and professional organizations, governments, companies and training professionals - to which it provides educational tools and decision support, and technical and methodological support.

11/19 rue de Bourgogne, Loos-en-Gohelle, France www.observatoire-climat-npdc.org	Observatoire Climat Nord-Pas de Calais was founded in 2012. Currently the opportunity to work with the Observatoire Climat Picardie is being considered, unifying the whole new region Hauts-de-France. The Regional Observatory provides the following services: ❏ Collection, procession and analyse of data; ❏ Hosting working groups on data related subjects within the partner's network; *and* ❏ Dissemination towards the Observatory targets, including partners, public, economic and non-competitive stakeholders, elected representatives, general public, and press. Partner organisations include: ❏ The French State representative (DREAL); ❏ The Nord-Pas de Calais Regional Council; ❏ The Departmental Council of Pas-de-Calais; ❏ The Departmental Council of Nord; ❏ The ADEME (Agency for the Environment and Energy Demand Management). The main objectives of the Observatory are to: ❏ Provide the decision makers with factual and quantified information, mainly at infra-regional scale; ❏ Facilitate public policy monitoring; and Work as a forum for discussion and exchanges among the network of climate and energy observers.
109 bis rue Archambaud, Saint-Pierre, Réunion Island, France www.observation.energies-reunion.com/	SPL Énergies Réunion was established in July 2013. It is responsible for supporting local authorities in the development of projects to address energy-related issues. Areas of interest include the control of energy demand, renewable energy, observation, governance, information and advocacy. Énergies Réunion provides energy balance sheets and reliable indicators in knowledge and observation. It implements related actions, including studies, exploitation, production, management, and training. The Observatory provides information and awareness on the theme of energy, and contributes to international cooperation.
Nikis 4, 105 63, Athens, Greece www//portal.tee.gr/portal/page/portal/SCIENTIFIC_WORK/grafeio_symfonou/Tab9	The TCG Energy Observatory was established in 2015 and is incorporated within TCG's structure. The Observatory provides the following services: ❏ Supports local authorities in Greece in energy planning, especially signatories of the Covenant of Mayors for Climate and Energy (CoM) initiative; ❏ Collects, analyses and provides energy data to municipalities; *and* ❏ Develops Baseline and Monitoring Emission Inventories. TCG is a national public legal entity and a professional organization that serves as the official technical advisor of the Greek state. TCG is also a CoM Coordinator.

Other Organisations

Other Organisations	Description
Str. Gheorghe Şincai, 46 Maramureş, Romania www.amemm.ro/	Maramures County Council created the Regional Energy Management Agency in 2009, with the support of Intelligent Energy Europe. The Agency was created to consider efficiency and renewable energy sources at county level. To this end, the Agency: Promotes the sustainable energy concept and energy management principles at the level of the local authorities, education, health institutions, businesses; ❏ Promotes European Energy Policy at local, regional and national level; ❏ Encourages the local market for renewable and energy efficiency technologies; ❏ Changes the behaviour of energy users.
10-12 Lefkonos Street, Nicosia, Cyprus www.cea.org.cy/Home.html	The Cyprus Energy Agency is a non-profit public organisation, established to promote renewables, energy saving, rational use of energy and sustainable transport. The Cyprus Energy Agency aims to: ❏ Provide information and public awareness; Provide professional training and education; ❏ Promote local, European, international collaborations; ❏ Contribute to research and development; ❏ Protect the environment; ❏ Cooperate with local authorities for SEAPs development and implementation in the framework of CoM and the Pact of Islands.
Energy Department, Avda. Reyes Leoneses, 11 Leon, Spain www.energia.jcyl.es/	EREN is the public Regional Energy Agency of the Castilla y León region in Spain. The agency works enterprises and social representatives on matters relating to energy efficiency through the promotion of renewable energies, and the efficient use of energy. The agency takes into account the best environmental balance, and thus contributes to the sustainable regional development.

Other Observatories	Description
AEEPM Bucharest Energy and Environment Agency www.managenergy.ro	The Local Energy Agency of Bucharest (Agentia pentru Eficienta Energetica si Protectia Mediului Bucuresti – AEEPM) is an independent, apolitical, legal entity. The objective of the Agenc is to: - ❏ Support the local communities in becoming more sustainable through better energy management; ❏ Work with other agencies in Europe to exchange expertise and best practices; ❏ Promote the local interests at regional, national, European and international levels.
BSREC - Black Sea Research Energy Centre www.bsrec.bg	The Black Sea Energy Research Centre is a non-governmental organization in public interest founded in 2007, as a successor of the Black Sea Regional Energy Centre, established in 1995 at the initiative of the European Commission and the countries of the Black Sea Region. BSERC is registered in Sofia, Bulgaria according to the national legislation. BSERC acts as a focal point for energy related activities, aimed at developing the co-operation between the Black Sea region countries and the EU in the energy field. The Centre co-operates closely with all the Black Sea countries in order to be well informed with the national trends and developments. Apart from its international activities BSERC is actively involved in the Bulgarian energy issues, acting as a Bulgarian energy society. BSERC has a wide network of high-level energy experts providing services to the Centre, which enables the good co-operation among the energy market players, including energy sector organizations, ministries, public and private enterprises, and individuals, not only in Bulgaria, but also in the whole Black Sea region, and thus ensures the opportunity to meet the actual needs of the energy market actors.
Region of Crete Energy Agency www.crete.gov.gr	In December 1993 the Region of Crete founded the Regional Energy Agency with the following objectives: ❏ Contributing to the development of the Regional Energy Policy. ❏ Promoting European, Mediterranean and international co-operation. ❏ Providing neutral consultancy services to interested bodies. ❏ Promoting projects, technologies, good practices and related applications. ❏ Organising training programmes to raise awareness of citizens, consumers and energy users. ❏ Coordinating the energy programmes and activities of several regional and local bodies. ❏ Supporting Local Authorities in energy planning as a Regional Coordinator of the CoM.

CODEMA City of Dublin Energy Management Agency www.codema.ie	Codema is Dublin's Energy Agency and was set up as a not-for-profit limited company by Dublin City Council in 1997 under the SAVE II Programme of the European Union. It was one of 14 local energy agencies set up around Ireland to help local authorities meet their energy performance targets through professional development and implementation of good and best practice. CODEMA works with Dublin City Council, Dún Laoghaire–Rathdown, Fingal County Council and South Dublin County Council.
Diputación de Barcelona www.diba.cat	The Diputación Provincial de Barcelona is a public institutions of Cataluña (Spain) which provides services including technical, economic and technological for the 311 Municipalities of the province of Barcelona. Furthermore, organizes and coordinates the municipal services algunos Diputación de Barcelona has its central headquarters in the city of Barcelona.
Energy Agency Mälardalen www.energikontor.se/	Mälarden Energy Agency promotes sustainable development in the region of Mälarden. The agency cooperates mainly with municipalities, public authorities and enterprises at the local, as well as European, level. It contributes to an increased awareness about energy and environment and with applicable knowledge offer cost efficient solutions adapted to existing requirements and needs.
ILSpA-Infrastrutture Lombarde - Energy Agency of Lombardia Region www.ilspa.it	The SiReNa was created in 2007 to monitor energy consumption, production and emissions across the region, since they are crucial for the environmental competitiveness and sustainability. Thanks to the contribution of the Factor20 Project SiReNa was upgraded becoming SiReNa20: a public online system that allows to manage and analyse energy data, at regional, provincial and municipal level and to monitor the Lombardia Region's objectives on Renewable Energy Sources, Energy efficiency and GHG emissions reduction and to provide future scenarios in order to support the Region in the best effective choices towards the 2020 targets. SiReNa is managed by the Energy Department of Infrastrutture Lombarde S.p.A. on behalf of Lombardia Region that is the owner of the Observatory.
Medway Council www.medway.gov.uk/	Medway is a conurbation and unitary authority in South East England. It had a population in 2014 of 274,015.[3] The unitary authority was formed in 1998 when the City of Rochester-upon-Medway amalgamated with Gillingham Borough Council and part of Kent County Council to form Medway Council, a unitary authority independent of Kent County Council.

Province of Savona www.provincia.savona.it	The province of Savona (Italian: provincia di Savona; Ligurian: provinsa de Sann-a) is a province in the Liguria region of Italy. Its capital is the city of Savona, which has a population of 61,529 inhabitants. The province has a total population of 280,707
Province of Treviso www.provincia.treviso.it	The Province of Treviso (Italian: Provincia di Treviso) is a province in the Veneto region of Italy. Its capital is the city of Treviso. The province is surrounded by Belluno in the north, Vicenza in the west, Padua in southwest, Venice in the southeast and Friuli-Venezia Giulia in the east.
Regional Council of Corsica www.aauc.corsica/L-Observatoire-Regional-de-l-Energie-et-des-Gaz-a-Effet-de-Serre-OREGES-de-Corse_a4.html	The Observatory is a collaborative tool for analysis and exchange of knowledge that brings together the different actors of energy and climate. It primarily responds to the need for a centralized place where energy data can be analysed, exploited, formatted and rendered in useful forms for all. The Observatory has three main objectives: 1. Improve and develop knowledge of the regional and sub-regional situation in terms of energy consumption and greenhouse gas emissions: collection of data, indicators, regular quantitative assessments, and specific studies, 2. Be a place of exchange and consultation in order to strengthen collaboration between the various actors (private, non-profit, voluntary, etc.) in the air, energy and climate, conduct joint reflection and foster partnerships and joint action programs. 3. Accompany regional energy policies by developing tools for analysis and decision-making: territorial diagnosis, support of local policies, follow-up of the SRCAE and support of the Climate-Energy Plans.

Energy data is crucial for identifying trends in the economic priority sectors to target energy policies and to ensure energy efficiency improvements and increased renewable energy deployment.

This Data Access Guidebook has been primarily developed for:

- ❏ **Public Authorities** that are seeking better access to local, accurate energy data within their territory for use in sustainable energy planning;
- ❏ **Energy Planning Facilitators** wishing to support the development of advanced collaboration models between public authorities and data providers such as a Regional Data Centre or Energy Observatory; *and*
- ❏ **Energy Data Providers** willing to play a positive role in the development and implementation of Regional and Local Energy Policies.

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