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Collaborating in energy data exchange
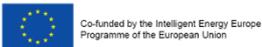
Energy data sharing for sustainable energy planning

Results of the European Project DATA4ACTION

www.data4action.eu   **2017**

D6.9 Final publishable report

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Collaborating in energy data exchange

Executive Summary

With the great number of energy policies and action plans implemented all over Europe (regional, local Sustainable Energy Action Plans - SEAPs…) and the increasing need of accurate energy data for sustainable energy planning and monitoring, the problem of overall energy data sharing at sub-national levels arose and was the main focus of the DATA4ACTION project.

Objectives

The general purpose of DATA4ACTION was the establishment of long-term data exchange models in sustainable energy planning, through a cooperation between public authorities and energy data providers. Long-term collaboration models were implemented through bilateral data exchange cooperation agreements and with the development of twelve regional observatories, representing more than six thousand municipalities.

DATA4ACTION put an emphasis on five objectives:

1. Improve public authorities' access to energy data for the better design and monitoring of SEAPs;

2. Mobilise public authorities and energy data providers in a win-win partnership;

3. Facilitate collaboration through establishing, or further developing, regional energy observatories;

4. Demonstrate active energy data exchange collaboration models in the twelve European partner regions; *and*

5. Support knowledge transfer and replication in other European regions.

Energy data access can be challenging for many actors because of data ownership, commercial sensitivity, the lack of accuracy or resources. DATA4ACTION, by identifying transferable models of collaboration, explores ways to improve the access of public authorities to energy data for a better implementation and a better monitoring of Sustainable Energy Action Plans.

We are sharing the findings and recommendations from our project in the hopes of supporting further cooperation between public authorities and data providers to facilitate the access to energy data.

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Our partnership

DATA4ACTION gathered:

✓ Regional level Public Authorities, willing to support local energy planning by facilitating energy data sharing and the creation of regional "one-stop" shop data centres
- Regional Council of Hauts de France, France,
- Piedmont Region, Italy
- Metropolitan City of Torino, Italy
- and Kent County Council, United Kingdom.

✓ Regional Energy Multipliers: all strongly linked with regional public authorities, with technical knowledge in sustainable energy planning and networking capabilities (regional energy agencies, cluster), thus facilitating the implementation of collaborative models between public authorities and data providers.
- Regional Energy Agency of Liguria Region (IRE) from Liguria, Italy,
- Energy Agency of the Zlin region from the Czech republic,
- Regional Energy Agency of Liguria Region from Liguria, Italy,
- Basque Energy Agency, Spain,
- Basque Environment Agency, Spain
- North Sweden Energy Agency, Sweden,
- Alba County Energy Agency, Romania
- Energy agency of Plovdiv, Bulgaria
- Carlow Kilkenny Energy Agency, Ireland
- Energy Environment Local Development SA, Greece
- and Rhônalpénergie-Environnement from Auvergne-Rhône-Alpes, France.

✓ Additionally, the European Federation of Agencies and Regions for Energy and Environment (FEDARENE) joined the consortium as a European level network partner who helped disseminate the project results and coordinate the European network of regional observatories called ENERGee-Watch.

Achievements

- Seven new regional data centres providing data services to public authorities were created and five existing ones were further developed
- Policy recommendations about data access were formulated and shared with EC representatives and key data stakeholders during EU conference and roundtables – available on the web site
- More than sixty Local Authorities and thirty Data Providers were involved in the project and showcased advanced collaboration models
- Online capacity building tools addressing issues such as partnership management, SEAP monitoring, data processing and data dissemination, were developed and widely disseminated through capacity building workshops at EU and local levels
- The free access EU network of regional data centres, ENERGee-Watch.org, was strengthened. This is supported by FEDARENE and has to date more than thirty members.
- Fourteen joint experience exchanges about advanced data collaboration models were carried out with organisations outside the consortium.

Three lessons learnt

✓ **Effective collaboration models** between data providers and public authorities need to be **based on win-win data exchange scenario** taking into account the motivation factors and barriers perceived by both parties.

Energy data providers can engage in win-win data exchanges in order to:

- Develop strong commercial relationship with public authorities (one of their main customers)
- Participate in local and joint efforts against climate change (common interest)
- Better estimate future local needs through access to local data (in relation with SEAP actions) and propose new services (ESCOs) or optimize the energy network infrastructure (TSOs, DSOs)
- Comply with European regulatory framework for instance in:
- Implementing energy efficiency obligation schemes for energy retailers (Energy Efficiency Directive: 2012/27/EC)
- Empowering consumers and providing accurate and frequent billing (EED)
- Free exchange of environmental public data (INSPIRE Directive 2007/2/EC)

✓ The implementation **of long term and meaningful collaboration models** at regional and or local levels are facilitated by the setting up of regional **supporting structures or observatories** who will assist public authorities in:

- 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 SEAP 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

➢ Energy planning facilitator can efficiently improve access to energy data for energy planning purposes. The importance of forming an energy observatory is key to highlight – as this type of structures **ensure the continuity and sustainability of actions** that

facilitate access to energy data. A number of **key success factors** underpin the creation of energy observatories:

- Incorporate the observatory activities as smoothly as possible into existing current activities and link them to existing strategical documents, plans and policies.
- Make the monitoring and data collection from municipalities as easy as possible.
- Demonstrate benefits to municipalities; provide them with additional energy planning services like the introduction of energy management within their facilities, etc.
- Show benefits to data providers, share with them existing regional policies so that they could create better idea of their own future plans and developments. Stay transparent at any occasion at the same time.
- Show the differences between the past and the current situation, what is happening without proper monitoring and evaluation of SEAP actions and how the new approach is helping to better planning, and what benefits, including money savings, it brings.

DATA4ACTION in brief

Please visit our website for more tools and recommendations: http://data4action.eu/en/

- ✓ Partnership: Fifteen partners representing twelve European Regions and covering a geographical area with more than 5 000 municipalities

- ✓ Topic : *Collaborating in Energy Data Exchange for Sustainable Energy Planning*

- ✓ Duration : March 2014 to February 2017

- ✓ Co-funded by the **Intelligent Energy Europe (IEE) programme** and managed by **EASME**

The data sharing challenge

A major challenge in climate change mitigation is the timely access to energy data that can underpin local and regional sustainable energy policies and plans. Energy data access is challenging for most public authorities that are developing SEAPs because of data ownership, commercial sensitivity and the lack of accuracy or resources.

The challenge demands a collaborative solution.

The key gatekeepers of energy data include

- Public Authorities, as they are major consumers of energy;
- Energy Planning Facilitators, including Regional Energy Observatories and academic institutions; and
- Energy Data Providers, including major energy producers, consumers, Transmission System Operators and Distribution System Operators.

Robust collaboration and partnership between public authorities, statistical offices and energy data providers will be paramount in ensuring a systematic and structured approach to sharing periodically local energy data and establishing achievable local sustainable energy action plans. Collaboration models should involve a wide range of data providers depending on the data needed by public authorities, as illustrated in the table below.

SEAP activities	Type of data needed	Example of data sources
Defining targeted SEAP action and decision making	**Detailed energy consumption** by sector/type of consumers/geographical areas. **Estimated energy savings** and Greenhouse gas (GHG) reductions for each invested euro. **RES production.** **Socio-economic indicators** (jobs created, impact on fuel poverty)	Energy utility companies Statistical offices Energy service companies Housing associations Professional organisations Consumers' associations Local surveys Smart metering
SEAP monitoring (performance based indicators in addition to Monitoring Emission Inventories)	**Progress based indicators** allowing evaluation of the SEAP action (e.g: kms of biking ways, number of public passengers per year)	Wide range of data sources involving all of the above

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Data sources can usually be differentiated between the ones providing aggregated data at National level that can be used for a **top-down Baseline Emissions calculation** and the ones with data available at regional or local levels (local energy retailers, power plants, district heating associations,..) for **a bottom-up approach**. Both types of sources are usually needed in order to correlate data and estimate local energy consumptions and GHG emissions.

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 Action 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 Transmission System Operators and Distribution System Operators 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.

Policy Improvements

The DATA4ACTION partners have identified a number of policy gaps that can be bridged 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'*[1].

They were derived by identifying gaps in existing legislation and defining key elements that could be introduced in future or revised legislation in order to facilitate the exchange of energy data.

Recommendations for improving existing policy are summarised as follows:

At a European level, recommendations can inform the review of Directive 2012/27/EU on energy efficiency that focuses on Articles 1, 3, 6, 7, 9-11, 20 and 24. They also consider Directive 2009/28/EC on renewable energy, Directive 2010/31/EU on energy performance of buildings, Directives 2009/72/EU and 73 on internal markets in electricity and gas, Directive 95/46/EC on the protection of personal data, Directive 2007/2/EU on Infrastructure for Spatial Information in the European Community (Inspire), Regulation (EC) No 1099/2008 on energy statistics.

- Sustainable energy legislation needs to have provisions that facilitate easy access to energy data by all Public Authorities;
- National legislation of Member States should recognise the importance of data access for sustainable energy planning at regional and local levels;
- Member States must include provisions so that energy data providers (including energy providers, Transmission System Operators and Distribution System Operators) provide disaggregated energy data in a suitable format for use in local and regional sustainable energy planning;
- 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;

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[1] www.data4action.eu/wp-content/uploads/2016/02/D4A__EU-Recommendations_vf.pdf

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- 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;
- Member States must clarify confidentiality rules to facilitate access to aggregated data; and
- Member States must incentivise Energy Data Providers to engage with data sharing initiatives within their energy efficiency obligation schemes.

Case study: **France, new data sharing legislative framework**

Provisions for the sharing of territorial energy data for sustainable energy planning are embedded in the energy transition legislation (art 179 of the Energy Transition Law for Green Growth). The law includes measures for instance for:

Addressing commercial sensitivity of energy consumption data by facilitating the disclosure of this information to Local Authorities
Ensuring Transmission System Operators and Distribution System Operators provide access to territorial aggregated energy data to Las

Case Study: **Data Sharing Voluntary Schemes**

Several European Distribution System Operators such as ENEL Distribution in Italy, ENEDIS 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 Distribution System Operators have expressed a strong need for a better definition of their roles in this regard.

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Exploring ways to improve data collection

Our Method

The first phase of the project included the exploration of ways to improve public authorities' access to energy data by:

❑ Identifying SEAPs data requirements from public authorities and data exchange practices in the partner regions
❑ Analysing the European, National and Regional regulatory frameworks pertaining to data access for SEAPs
❑ Initiating joint discussions between public authorities and energy data providers to help identify win-win conditions for future mutual agreements
❑ Providing guidelines and tools to project partners for implementing data exchange collaboration models in the represented regions

For that matter, project partners carried out a thorough review of other EU related projects such as Meshartility, SEAP PLUS and CLIMACTREGIONS. A special attention was paid to the following topics that were further addressed during the course of the project:

❑ availability of local and accurate energy data for SEAPs
❑ key stakeholders that may provide or facilitate access to energy data
❑ driving forces for engaging energy data providers
❑ energy data issues as perceived by the public authorities and related for instance with :
▪ Data "ownership"
▪ Data commercial sensitivity
▪ Data privacy
▪ Access to data
▪ Quality of data
▪ Regular and periodic update of data
▪ Approach (if any) to top-down and bottom-up data correlation
▪ Processing, analysis and communication of data
❑ Possible win-win data exchange collaboration scenarii between energy data providers and public authorities

Roundtables were held at European and Regional levels during which Partners examined their regional regulatory frameworks, analyzed the availability of local and accurate energy data for SEAPs, identified key stakeholders that may provide or facilitate access to data and the driving

forces for engaging data providers or issues that may be perceived as critical by the stakeholders, such as quality of data, commercial sensitivity or privacy. Results are available at http://data4action.eu/key-issues-on-data-sharing-for-sustainable-energy-in-the-territories/

The above-mentioned report collects and summaries the factsheets prepared for each participant region.

An intranet online toolkit was developed as an internal tool for experts to help project partners create or develop their "one-stop shop" data centre as well as support the project replication activities.

Existing collaboration models:

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 Action Plans.

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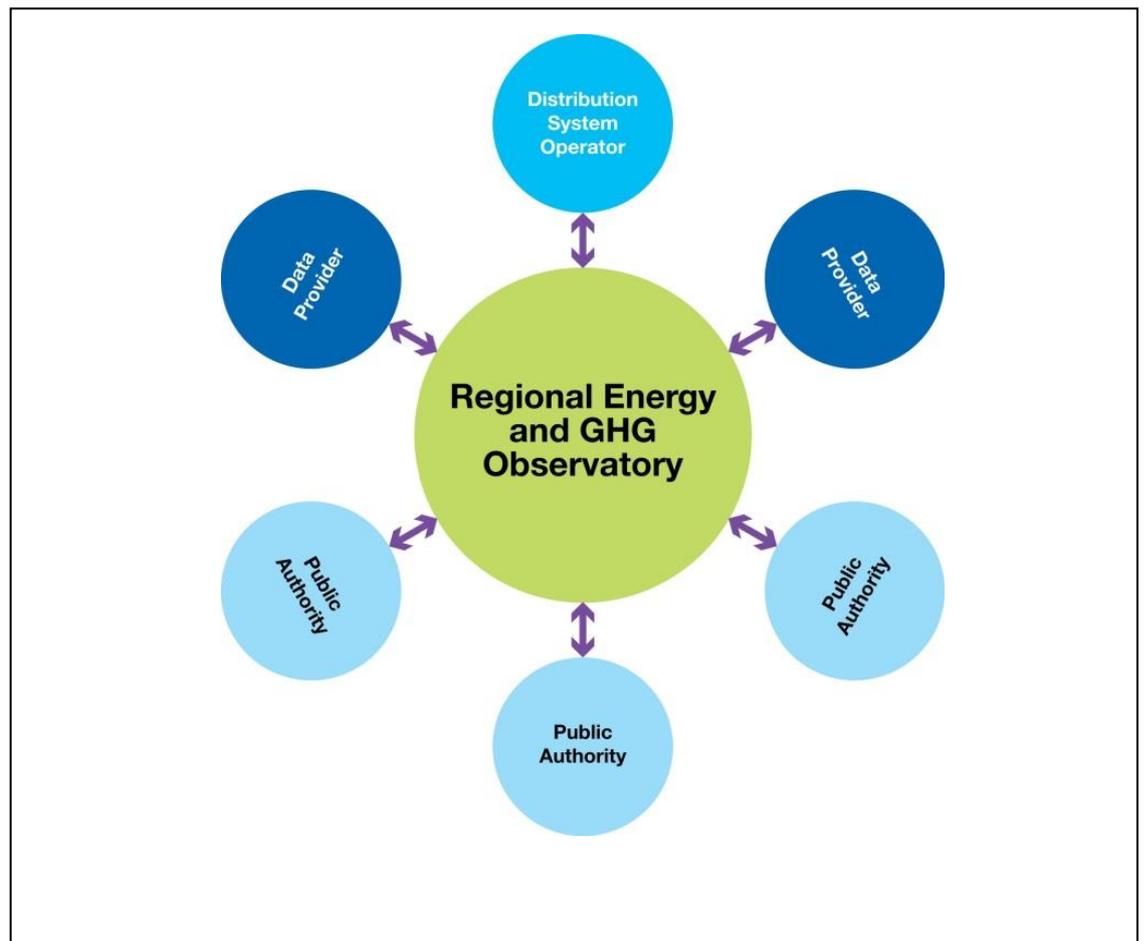
Developing **win-win collaborative partnerships** between Public Authorities and data providers, such as Energy Utility Companies (including Distribution System Operators, and Transmission System Operators) will facilitate energy data sharing and the preparation of sustainable energy action plans. There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

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 above 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.

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📍 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 - Ihobe-Basque Local Sustainability Observatory (Udalsarea 21)
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
23 Technical Chamber of Greece Energy Observatory

📍 Other Observatories
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 Dupitacíon 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
37 REAC in Crete

📍 Networks
1 FEDARENE
2 Climate Alliance
3 ICLEI Europe

www.energee-watch.eu

See Appendix for contact details of Agencies and Observatories

Across Europe, more than twenty such structures have been identified, providing regional and local support.

In DATA4ACTION twelve data centres were developed, more specifically seven new observatories in Bulgaria, Czech Republic, Greece, Ireland, Italy, Romania and the UK, whilst five existing ones were further developed in France *Auvergne-RA, Hauts-de-France*. The free access network, ENERGEE WATCH, coordinated by FEDARENE, was strengthened in the scope of the project, so that planning experts can better share their experiences in GHG emission and energy data collection and analysis.

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Mobilizing Energy Data Providers and Public Authorities

Our method

The implementation **of long term and meaningful collaboration models** at regional and local levels was facilitated by the regional steering committees set up in each partner region, involving both data providers and public authorities.

The steering committees provided strategic guidance to observatories for setting up and developing advanced collaboration models, thus enabling the observatories to act as **supporting structures/organisations** assisting public authorities in:

❑ Processing (aggregating or disaggregating) and modelling raw data provided by data providers at national, regional and local levels
❑ Identifying data sources and data communication tools for SEAP monitoring
❑ Designing and implementing collaboration agreements with energy data providers that benefit numerous public authorities located within the same region (multiplier effect)
❑ Providing periodic updates of energy and GHG emissions profiles for Baseline/Monitoring Emission Inventories at regional or local community levels

Several DATA4ACTION partners such as IRE SPA, EKNORR, RCNPC, RAEE have already successfully implemented similar structures within existing organizations with strong links with public authorities. They shared their experience with learning partners during the course of the project through **peer learning activities**. Peer learning workshops were organized based on a detailed analysis of partner's needs and experiences, covering the following areas:

▪ **Partnership management**
Organizing governance, designing and implementing collaboration agreements, funding, etc.
To learn more about the topic, key insights and recommendations, go to: http://data4action.eu/wp-content/uploads/2014/10/D4A-WP3-D3.2-PWS2-partnership-management_Bilbao.pdf

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▪ **Data management**

Data privacy and regulation, processes and tools for collecting, processing and modelling local and accurate SEAP data
To learn more about the topic, key insights and recommendations, go to:

http://data4action.eu/wp-content/uploads/2016/02/D4A-WP3-PWS2-data-management-Plovdiv20052015.pdf

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- ▪ **Data dissemination and use**

Processes and tools for data communication to public authorities, understanding of public authorities' needs for successful implementation and monitoring of SEAPs
To learn more about the topic, key insights and recommendations, go to:
http://data4action.eu/wp-content/uploads/2016/01/D4A-WP3-D3.4-PWS3-Data-dissemination-Torino_18112015.pdf
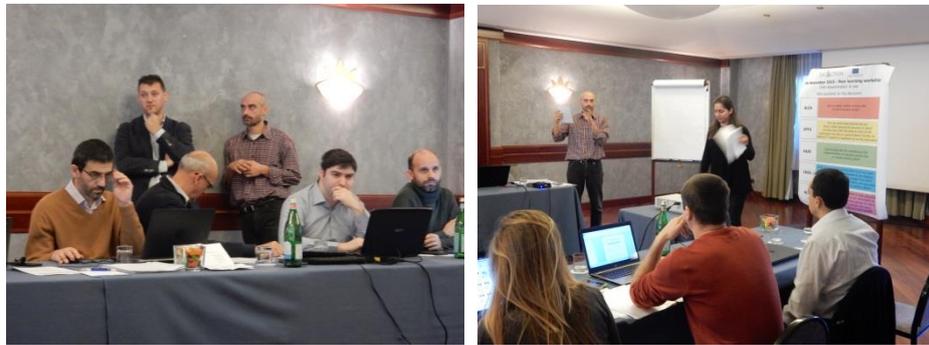
Additional peer learning was organized through bi-lateral partner's exchange.

Forty significant data exchange collaboration agreements were signed between energy data providers, public authorities and/or energy data facilitators during the course of the project that will contribute the sustainability of the collaboration models.

Our recommendations

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; it is better to have a first data set now than many data sets in the future;

3. Institutional *support* is not enough, active **involvement** is needed;

4. 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;

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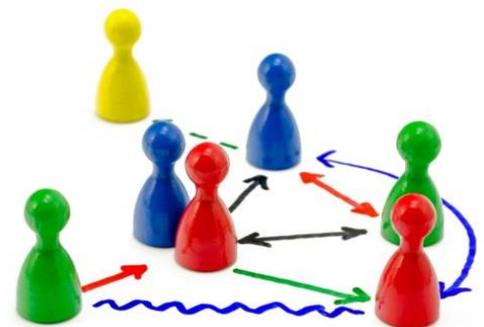
5. Engage with key actors and make them part of the process, for example when validating *'official data'*;

6. Pay attention to (future) needs with regards to energy planning, but also of key actors and target groups;

7. Be reactive and acknowledge collaboration: show that the data provided are useful;

8. Be smart: use the most reliable data, even if not official;

9. Be transparent: inform your target groups and actors regularly;

10. Be aware that the liberalisation of energy markets makes it more difficult to access reliable energy consumption and GHG emission data;

11. Involve Regional Energy Agencies when establishing cooperation with energy providers;

12. 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;

13. Cooperate with national and regional institutions that can provide additional data;

14. Engage with the right person(s) within data providers´ administration/staff;

15. Use existing tools and methods that work well;

16. Engage target groups/actors and design the data exchange process together; *and*

17. 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.

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Case Study: Metropolitan City of Torino Energy Observatory

The Energy Observatory of the Metropolitan City of Torino collects energy data from Municipalities, from some sixty 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.

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Creation of regional "one-stop shop" data centres: regional observatories

What is an Energy observatory?

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

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

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

What kind of services do they offer to public authorities?

Data Collection	Data Processing	Data Analysis	Data Dissemination
Standard Digital Files (MS Excel)	MS Excel Files	Sankey Diagrams	Web Platforms
Surveys and Questionnaires	Relational Database	Mapping GIS	Brochures
Digital Data Tools	Multi-Dimensional Database Systems	Charts and Infographics	Informational Media
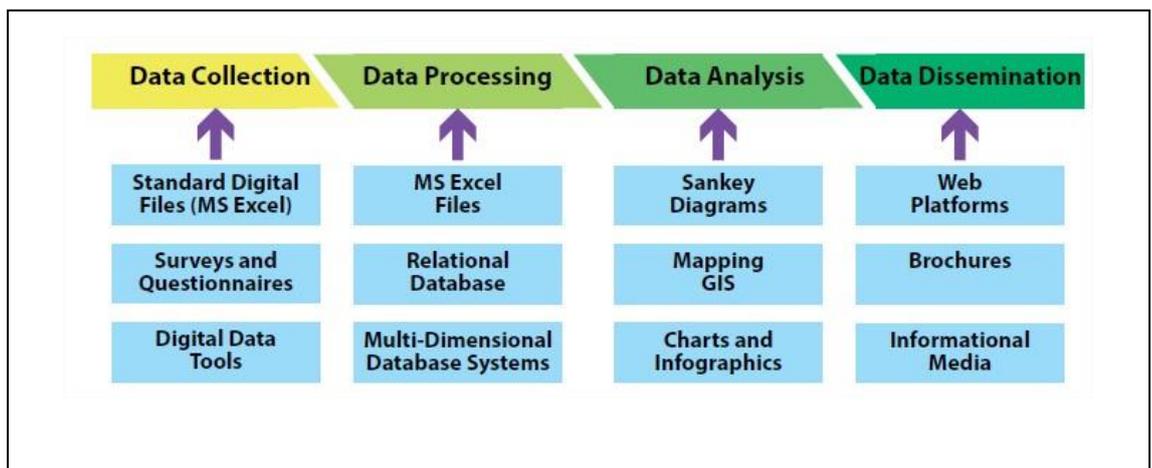
❑ Data in different formats (baseline emission inventories, monitoring emissions), occasionally targeted data, focused on specific actions with progress based indicators. The key benefit of such a structure is that it will create and manage partnerships with regional and local actors and mainstream the data collection and analysis process.

❑ Going beyond providing data: data modelling. At a European level, there are numerous proposed methodologies for accounting GHG emissions which such structures follow.

How do they operate?

Typically, an Observatory is supported by public authorities and in some cases it is integrated within existing regional structures, such as energy agencies or a Regional or Local Authority. This introduces synergies and brings together high level technical skills 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.

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

The Observatories commonly provide 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.

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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. Engagement with a Regional Observatory can better inform decisions around strategies that might reduce energy consumption and further develop renewable energy sources.

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.

The DATA4ACTION observatories

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Twelve regional energy observatories were created or developed within the course of the project and are listed below. A description of their respective profile is provided in appendix.

Member State	Regional Observatory	
Bulgaria	**ROECC -Regional Observatory for Energy, Environment and Climate,** Energy Agency of Plovdiv 139 Ruski Blvd of 301, Plovdiv www.observatory.eap-save.eu/	
Czech Republic	**Zlin Region Energy Monitoring Centre,** Energetická agentura, Zlínského kraje, Třída Tomáše Bati 21, 761 90 Zlín www.eazk.cz	
France	**Observatoire Climat Du Nord – Pas De Calais** CERDD Site du 11/19 Rue de Bourgogne 62750 Loos-en-Gohelle www.observatoire-climat-npdc.org	
France	**OREGES** on behalf of Rhônalpénergie-Environnement 18 rue Gabriel Péri F-69100 Villeurbanne www.oreges.rhonealpes.fr/	
Greece	**Technical Chamber of Greece Energy Observatory** 4 Nikis str. 105 63 Athens //portal.tee.gr/portal/page/portal/SCIENTIFIC_WORK/grafeio_symfonou/Tab9	
Ireland	**Carlow Kilkenny Energy Agency Ltd.** Kilkenny Research and Innovation Centre Burrells Hall, St Kieran's College, Kilkenny www.energyhub.ie	
Italy	**Osservatorio Energia,** Città metropolitana di Torino, Corso Inghilterra 7, 10138 Torino www.cittametropolitana.torino.it/cms/ambiente/risorse-energetiche/osservatorio-energia	
Italy	**Osservatorio,** Regione Liguria, Via d'Annunzio 111, 16121 Genoa www.banchedati.ambienteinliguria.it	
Romania	**ANERGO,** Str. Trandafirilor 9 510119 Alba Iulia www.anergo.alea.ro/	
Spain	**Udalsarea 21 -Basque Network of Municipalities for Sustainability,** Alameda de Urquijo, 36- 6a planta 48011 - Bilbao (Bizkaia) www.udalsarea21.net	
Sweden	**Energiluppen, Energikontor Norr AB**, Kungsgatan 46, SE - 972 41 Luleå www.energiluppen.se	
United Kingdom	**Kent County Council**, County Hall, Maidstone, Kent ME14 1XQ www.kent.gov.uk/	

DAT4ACTION

Demonstrating collaboration models in data exchange

Our Method

Close collaboration was demonstrated between technical staff of both energy data providers and local authorities, with the support of project partners and the one-stop shop data centres developed.

Training the experts:
The technical capabilities of project partners and regional data centre personnel were strengthened through the organization of three European thematic workshops focusing on the following themes of collaboration:

- **Energy data for inventories in transport**

To learn more about the topic, key insights and recommendations, go to:

http://data4action.eu/information-systems-for-sustainable-energy-and-mobility-planning/

- **Progress based indicators for SEAP monitoring**

To learn more about the topic, key insights and recommendations, go to:

http://data4action.eu/monitoring-process-of-sustainable-energy-action-plans-in-plovdiv/

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- **Energy data quality analysis and communication**

To learn more about the topic, key insights and recommendations, go to:

http://data4action.eu/proceedings-of-the-workshop-promoting-sustainable-energy-data-quality-to-support-local-action/

Regional capacity workshops and assistance to local authorities:
Regional capacity workshops were organized in each partner region with the objective to create awareness of the advantages of collaboration between public authorities, statistical offices and energy data providers. This was achieved by providing concrete examples to the participating municipalities and illustrating that problems can be solved through collaboration, according to the models developed in DATA4ACTION. More than 70 local authorities participated in the workshops and 145 SEAP actions were monitored with the support of project partners and the regional data centres.

Local practitioners' meetings were organized in order for local authorities to mutually share their experience on monitoring their SEAP actions and provide feedback to their regional observatory.
DATA exchange collaboration models were promoted by project partners through the organization of 12 Energy Info Days.

Our recommendations

The evaluation of the collaboration models has led to the development of the following recommendations for further improving collaboration models.

Promote the usefulness of the collaboration

- ❑ A dedicated supporting structure such as an energy observatory, which pursues collaboration models and provides data, can significantly facilitate access to local energy data and support local authorities' efforts in energy planning. Such a structure is also cost and time effective, compared to bilateral collaborations.

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❑ It is important to show as soon as possible that data provided are useful and answer questions fast. It can also be valuable to monitor money spent on energy actions by local authorities.

❑ Highlight the benefits from utilizing data and the evidences generated by energy observatories to inform policy formulation as well as decision makers and stakeholders. To ensure the long term support of the energy observatories, it is important to raise awareness of the benefits, regarding energy planning and fighting climate change, for the communities.

❑ It is sometimes necessary to assist local authorities in meeting their commitments on sustainable energy planning.

Plan and organize the collaboration appropriately

❑ Observatories should train or hire people with strong energy-management competences. A working group or a steering committee, which includes energy providers and public authorities, can also significantly encourage the active involvement of stakeholders in setting up collaboration models.

❑ Build an expert community, with municipal representatives, which focuses on data collection and processing.

❑ Effective collaboration models require continuous efforts. It is not sufficient to sign an official collaboration agreement. The cooperation needs to be actively and regularly pursued at multiple levels to ensure an effective collaboration and data exchange.

Implement the collaboration

❑ If not already done, create a dedicated structure (one-stop-shop data centre). The data must be kept up to date and the most reliable data should be used. Observatories should continuously improve the process of gathering and analysing data. Data requirements required by basic strategic municipal documents should be specified and appropriate methodologies should be developed. Regular communication with local authorities and stakeholders about new data and how the data is used, is important.

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❑ Technical support on data collection, analysis and interpretation should be provided regularly to municipalities. Share knowledge and experience with local authorities by organising personal expert meetings, workshops, training sessions and seminars. Support your municipalities and help them to understand and use the information provided.

❑ Many observatories need to improve top-down estimates, because these normally do not reflect local circumstances. In most cases it is better to substitute these with estimates based on local information. With a bottom-up approach it is possible to more accurately detect and quantify the needs of local authorities and stakeholders. Data can be aggregated, as needed to more efficiently work on common/similar solutions. For monitoring the use of energy in municipal buildings and facilities, it is sometimes necessary to get consumption data directly from the electricity distribution companies or providers. This way each point of connection to the electrical grid can be better monitored.

❑ Since this is a developing field, investigate and, if beneficial, adopt innovative tools and approaches for collecting, analysing and providing data. For instance, developing an integrated data exchange e-platform could create an efficient environment for facilitating the exchange of energy data. Investigate successful and failed energy efficiency and renewable energy actions implemented by your municipalities, and communicate key lessons learnt to the other municipalities.

❑ Pay attention to future needs. Inform stakeholders about new and proposed regulations. To ensure the sustainability of the data exchange, pursue formal commitments, such as collaboration agreements. Form a steering committee with representatives from key stakeholders that can facilitate collaboration agreements and support the formulation of energy policies. Ensure regular meetings of the steering committee.

- ❑ Promote the Covenant of Mayors initiative and support all interested municipalities and regions in adhering. This might increase the available external resources, and enabling the wider exchange of knowledge. Municipalities may also help each other overcome similar obstacles or even benefit from synergies, for example by coordinating measures and actions. This can also benefit the monitoring process, especially for common actions.

- ❑ If possible, it is recommended that the observatory's staff participate in national working groups focusing on energy, environment, climate and local sustainable development planning. Highlight at a national level the necessity to oblige energy data providers to provide the requested data in the needed format.

Concerning the energy observatory community

Support is key for newly established energy observatories. Both new and old energy observatories need inspiration and support that encourages their development and facilitates know-how exchange, e.g. by organizing thematic meetings & workshops.

The new Covenant of Mayors for Climate and Energy requires signatories to choose and report on climate indicators. All energy observatories should consider how to integrate this in their

tools.

Replicating collaboration models

Our method

DATA4ACTION's mission has been **to share good practices and promote collaboration models to facilitate data sharing**. As suchDATA4ACTION partners organised and implemented **knowledge transfer activities with other regions** in Europe, beyond those participating in the project.

The key activities included:

1. Identification and selection of beneficiary partners;
2. Establishing bilateral learning partnerships; and
3. Evaluation of the bilateral transfer activities.

The first activity focused on understanding the needs of beneficiary regions and how DATA4ACTION can best support them, whilst the other two focused on developing, implementing and evaluating joint actions to meet the needs identified.

The activities were realized based on a six staged transferability model, summarised in the figure below

Beneficiary Needs Analysis	**STEP 1**	Self-evaluation of D4A partners to describe their areas of expertise
	STEP 2	Identifying beneficiary partners through an Open Call
	STEP 3	Identifying suitability, expectations and needs of the beneficiary regions through a questionnaire
	STEP 4	Evaluation and selection of beneficiary partners using the results of steps 1 through to 3
Implementation and Evaluation	**STEP 5**	Preparation of transfer activities through development of an action plan
	STEP 6	Evaluation of transfer activities

A total of fourteen beneficiary regions were supported, following tailored action plans developed, which outlined bilateral transfer activities that included stakeholder workshops, partnership and technical support exchanges.

TARGET	ACHIEVED
12	14

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Beneficiary (joint) partners

- Energy Agency Mälardalen - SE
- Diputación de Barcelona (joint partner with IHOBE) -ES
- Diputación de Barcelona (joint partner with EVE) - ES
- BSREC - Black Sea Research Energy Centre - BG
- Region of Crete – Regional Energy Agency of Crete (REAC) - GR
- ILSpA- Infrastrutture Lombarde-Energy agency of Lombardia Region - IT
- SPL Energies Réunion - FR
- Regional Council of Corsica- FR
- Province of Savona - IT
- Province of Treviso - IT
- Biomasse Normandie - Observatoire Bas - Normand de l'énergie et du climat - FR
- AEEPM Bucharest - RO
- Medway Council -UK
- City of Dublin Energy Management Agency (CODEMA) - IE

Overall all beneficiary regions were seeking to identify and utilise energy data, particularly energy consumption data for different sectors, such as transport or public buildings, which can be used in sustainable energy planning. Common challenges in achieving this related to:

Availability of data: Often, there are insufficient data available for energy planning purposes or for improving the energy efficiency of public and domestic sector buildings. Sometimes, aggregated data are available, such as data at a national or regional level and not at the required local/municipal level. Commercial sensitivity and data privacy can also hinder the collection and use of data.

Technical knowledge: Technical skills in sustainable energy planning and in utilising energy consumption and generation data varied across the beneficiary partner regions.

Resources: Insufficient resources in terms of time, costs or tools to undertake energy planning and systematically monitor and implement actions.

Bilateral exchanges addressed these challenges in a number of ways, for instance by enabling the use of improved data, the formulation of partnerships, the sharing of best practices and technical expertise and the development of monitoring tools at regional levels. Planned activities have been documented within action plans which have been developed and agreed in partnership between each of the DATA4ACTION partners and their respective beneficiary region/organisation.

Key learnings

Key learnings that can inform future funding and projects include:

1. The challenges identified during the replication activities are often overlooked due to other regional commitments or pressures; however by undertaking projects such as DATA4ACTION, these can be addressed.

2. The challenge of using energy data and statistics is complex; continuously engaging with a range of stakeholders is important for raising awareness and understanding data, but also for identifying stakeholder needs and priorities in order to develop tailored and durable solutions.

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3. It is very important to have a mandate from the region to work with and improve the quality and availability of energy data. This helps in assigning resources but also ensures that the data collected can inform particular regional sustainable energy actions and priorities or other key areas, such as economy or health and social care.

4. It may take time to develop the right solution for a region. Initial actions and solutions identified need to go through a process of trial and improvement. Delays may also be incurred when engaging with public sector partners, where work can be dependent on political timescales and may need to link to specific regional/local priorities.

5. Geography can be a barrier to exchange, particularly for the more remote or sparsely populated regions, where distances between regions might be quite large. However, the efficient and frequent use of virtual meeting tools can mitigate this challenge.

6. Cooperation between beneficiary and DATA4ACTION partners should continue if the solutions are to be successful and effective over the long-term. This can be achieved by continuously sharing tools, planning and implementing future experience exchanges, and jointly working on improving SEAPs, by integrating wider or related issues, such as climate change adaptation, economic, health and social considerations.

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 Action 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

Energy Planning Facilitators are those agencies who set up and maintain the Local and Regional Energy Observatories. These bridge the gap between Local Authorities and Data Providers.

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 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:

❑ Maintain public trust and confidence;

❑ Strengthen relationships with stakeholders that support the mission of the organisation;

❑ Generate a greater understanding of the purpose of the Regional Energy and GHG Emissions Observatory; *and*

❑ 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:

❑ Act on stakeholders behalf, for instance via sanctions or other methods of redress, to undertake planned activities;

❑ Explain and report to stakeholders activities undertaken; *and*

❑ 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:

❑ Encouraging local involvement, and recognising local needs;

❑ Encouraging data sharing through collaboration partnerships;

❑ Being inclusive;

❑ Protecting individual voices and viewpoints; *and*

❑ 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:

❑ **Impartiality and Independence:** The Observatory should be impartial and independent and abstain from any preferential treatment on any grounds whatsoever.

❑ **Integrity:** The Observatory must have a commitment to act ethically and honestly in order to:

o Ensure that data provided and published reports are not misleading, or designed to be misleading;

o 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 Collaboration Agreements.

The agreements must define the obligations of Transmission System Operators, Distribution System Operators and other data providers, as well as the obligations of the Regional Energy

and GHG Emissions Observatory, in terms of the type, accuracy and frequency of the data exchanges and the adherence to regional, national and European standards governing energy data disaggregation and accuracy. Additionally, the conditions that govern the use and publication/dissemination of the data must also be clearly defined.

Case Study: Rhône-Alpes Region - OREGES

http://oreges.auvergnerhonealpes.fr/

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

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Tools and guidance to support data sharing

A variety of tools and guidance/informational material were developed within the framework of DATA4ACTION to support public authorities that intend to take a collaborative approach in energy data sharing, using the concept of a 'one-stop shop' regional data centres.

A Guidebook on energy data sharing

This guidebook outlines the DATA4ACTION methodology on how public authorities can work collaboratively with data providers on energy planning and sustainable energy initiatives.

Guidebook online !

Videos

Watch informative videos created throughout the project on different data sharing topics

- DATA4ACTION overview
- Testimonies from public authorities

Factsheets

Download the factsheets for each observatory:

- o ROECC -Regional Observatory for Energy, Environment and Climate, Bulgaria
- o Zlin Region Energy Monitoring Centre, Czech Republic
- o Observatoire Climat Du Nord – Pas De Calais, France
- o OREGES, France
- o Technical Chamber of Greece Energy Observatory, Greece
- o Carlow Kilkenny Energy Agency Ltd , Ireland
- o Osservatorio Energia, Città metropolitana di Torino, Italy
- o Osservatorio Liguria Region, Italy
- o ANERGO, Romania
- o Udalsarea 21 -Basque Network of Municipalities for Sustainability, Spain
- o North Sweden Energiluppen, Energikontor Norr AB, Sweden
- o Kent County Council, United Kingdom

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Library of resources:

We have also developed a range of reports, templates and guidance notes based on the collaborative approaches on energy data sharing that we tested over the three years of the project.

Read the resources online: http://data4action.eu/d4a-library/

Links to other useful projects

We have been able to partner-up with other projects who are also working in the field of energy data sharing. These projects offer a range of assistance with energy planning.

Check out the other projects we've been working with:

www.data4action.eu/en/

www.data4action.eu

CONCLUSION

Conclusion and perspectives for the future

Energy transition and the digital revolution have created new opportunities for energy utility companies to collaborate with public authorities in areas such as data sharing for sustainable energy planning.

The DATA4ACTION project has demonstrated concrete examples of joint working and has been a success in many fields:

- 15 project partners covering an area of more than 5000 municipalities have worked together and fostered collaboration models in energy data sharing for SEAPs
- Advanced and structured collaboration models between public authorities and energy data providers such as regional data hubs or regional observatories have been set up, institutionalized and showcased in 12 partner regions. They provide "one-stop shop" services and assistance and will ensure long term assistance to public authorities in sustainable energy planning
- Policy recommendations were formulated at EU and MS levels to improve data sharing practices
- A list of comprehensive tools was developed and is available to energy planning experts willing to develop better knowledge in energy data access, data processing and data dissemination as well as for the creation of regional data centres.

Moving forward, regional observatories are expected to play a key role in:

- Monitoring the implementation of EU directives at local and regional levels
- Contributing to the review of SEAPs and development of SECAPs
- Analysing real-time data provided by new smart tools for data collection
- Defining predictive models and scenarios in order to meet the 2030 targets and beyond
- Supporting the policy and decision making processes for sustainable energy and climate protection at regional and local levels by providing complementary socio economic data.
- Facilitating integrated planning at regional and local levels by expanding their fields of activities to other environmental areas such air quality, bio wastes, etc.

CONSORTIUM

Consortium

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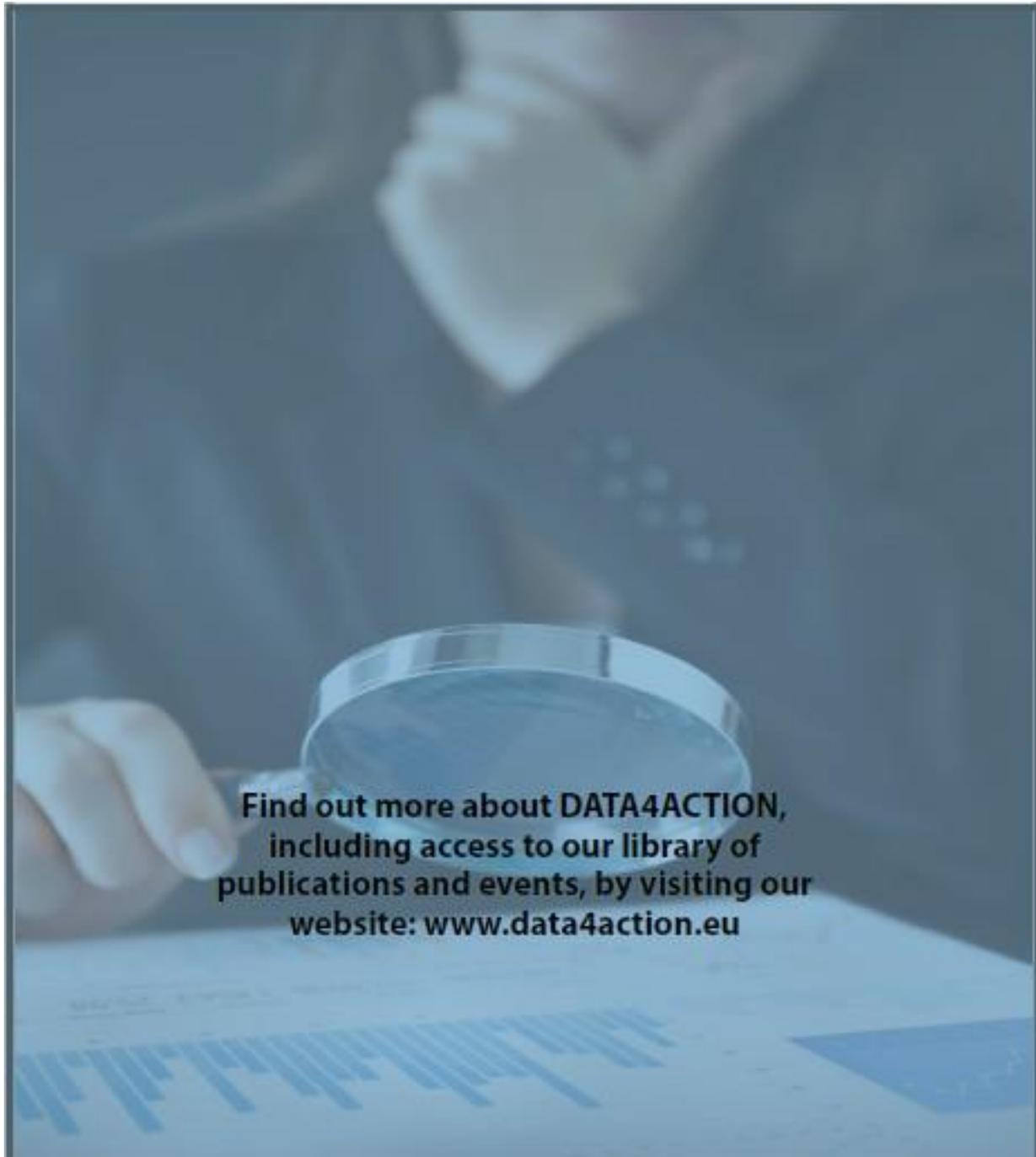
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