



ENERGee Watch

D2.2 Curriculum and learning material development for all four Learning Courses

WP2.2

August 2022



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Preface

The overall aim of ENERGee WATCH is to launch an easy and replicable peer to peer learning program to enable regional and local authorities to timely and accurately define, monitor and verify their sustainable actions. The learning will focus on regional/provincial authorities and their agencies that are responsible for collecting and overseeing the monitoring of mitigation and adaptation measure indicators in order to empower them to make use of best practices. The learning programme is structured in four (4) courses: i) data collection, ii) monitoring & verification, iii) indicators for adaptation to climate change, iv) data display, dissemination and validation by final users. ENERGee Watch will launch 4 courses per year (one per each topic, twelve in total) with a total of 72 participating mentees. The learning program will entail tools, such as mentoring, site visits, tailored guidebooks and guided practice exchange will enable the proper matching of peer groups, and proper knowledge replication.

No	Participant Name	Short Name	Country Code	Logo
1	Institute for European Energy and Climate Policy (IEECP)	NETHERLANDS	NL	
2	European Federation of Regions and Energy agencies (FEDARENE)	BELGIUM	BE	
3	Technoeconomics of Energy and Environmental Systems Laboratory – University of Piraeus (UPRC – Teeslab)	GREECE	GR	
4	Auvergne-Rhône Alpes Energy Environment (AURA-EE)	FRANCE	FR	
5	Energy Agency of Savinjska, Šaleška and Koroška region (KSSENA)	SLOVENIA	SI	
6	Ile de France Regional Energy and Climate Agency (IAU IDF)	FRANCE	FR	
7	3 Counties Energy agency (3 CEA)	IRELAND	IE	
8	Energy Agency of Plovdiv (EAP)	BULGARIA	BG	
9	Alba Local Energy Agency (ALEA)	ROMANIA	RO	





10	Cyprus Energy Agency (CEA)	CYPRUS	CY	 Cyprus Energy Agency
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Executive Summary

Throughout the planning and delivery period, several setbacks were experienced, the main one being that of the restrictions imposed by the COVID-19 health crisis. Nonetheless, ENERGee Watch went ahead, with some adaptations being necessary.

This document intends to highlight the main processes undertaken to organise and deliver a successful training program, no matter the subject and no matter the location. Such topics discussed include the identification of participants (mentees), what impact COVID had on the project and how we adapted to this, the development of the learning materials and, finally, how the learning courses were delivered throughout the first learning cycle.



1. Step 1: Needs Assessment

1.1 Activities

To offer a targeted programme to local and regional authorities and their agencies, the ENERGee Watch project required, as one of its first activities, to carry out a needs assessment exercise. A survey was launched at the end of 2020 to identify the needs and barriers, public authorities and their support organisations face in developing and monitoring their energy and climate plans. The ENERGee Watch needs assessment survey had several objectives:

- Provide a detailed analysis of the needs of participants in each of the areas identified by the analysis of the Covenant of Mayors survey.
- Within each potential learning course, identify the topics for which the respondents would need the most support.
- Define the delivery preferences of the learning programme.

1.2 Challenges

The survey was sent to a list of European energy agencies and public authorities. As usual with surveys, we were required to contact them individually to be sure that they respond to the survey. Analysis of the results also proved a bit difficult as many of the respondents showed a strong interest in almost all of the topics.

1.3 Results

The first overall analysis of the answers from the interested organisations showed strong needs in most topics for each learning course. It led us to carry out an analysis per type of organisation to better understand their specific needs and how to best meet these needs through the ENERGee Watch learning programme. We also used this as an opportunity to inform and recruit mentees, or participants, for the peer-to-peer learning programme.

The results and detailed analysis of the survey is available in the document [*"D2.1 Results of the needs assessment"*](#).

2 Step 2: Formatting the courses and adapting to the COVID-19 crisis

2.1 Activities

The second cycle of the peer-to-peer learning process had to be slightly adapted to the COVID-19 crisis.

The original plan was to undertake one masterclass in person in Brussels, Belgium, the conduct individual study visits to each partner organisation's respective country for the four different learning courses.

This was adapted to allow for travel constraints due to the COVID-19 crisis.

The Masterclass was once again, as in the first learning cycle, conducted online. The learning courses, however, were able to be conducted in-person, except for one course, which required long distances to be travelled by participants which would have exceeded the agreed budget available, which dissuaded the participants. This course were therefore conducted online, as in Learning Cycle 1.

2.2 Challenges

Finding the most appropriate format to ensure good quality exchanges was the main challenge. Many discussions took part between mentors to find the best approach. Possibilities were various, all with pros and cons:

- Finding the best number of sessions and their duration
- Tools to be used online and in-person
- Adapting the learning course content to be delivered over 2 days rather than a week or across several months

2.3 Results

After many discussions, it was decided to:

- Organise the masterclass online for all mentees, with a breakout session per course for the mentees
- Every course will be conducted over a 2-day period. One of the courses online via a web conference tool, and three in-person at the headquarters of the organisation.
- Organising sessions throughout June and July
- Dates were selected between mentees and mentors during the break-out sessions after the masterclass
- Mentors are responsible for their course and sessions and keep a certain flexibility to organise sessions with their mentees



3 Step 3: Development of the Handbook Template

3.1 Activities

Firstly, it was necessary to identify the key points of communication required in a learning course handbook. The aim was to create a document that was relatively concise, one per learning course, presenting the reader with the context of the project, a description of who will be delivering the course and an overview of what will be taught.

To do this, as a group of contributors, we proposed multiple ideas as to what was to be included based on what we wanted the reader to clearly understand to decide whether such a learning course would suit their organisation or not.

From this base, different options were considered and presented to the wider project group to determine the most appropriate sections. These were efficiently selected and integrated into a final draft handbook template.

This template, once completed with the relevant information, was then passed over to another project partner to modify the formatting and colours to make it more presentable to readers.

3.2 Challenges

Throughout this process, challenges were rarely faced. One challenge was that of deciding on the best sections to include in the handbook where there were some conflicting ideas between project partners.

These conflicts were resolved simply through conversation and dialogue on what the reader should understand from this handbook.

3.3 Results

The resulting template was an effective and clear representation of what we intend the reader to understand from each learning course.



4 Step 4: Development of learning materials and handbook content

4.1 Activities

After completion of the final handbook template, a copy was sent to each of the course leaders to complete each section with the relevant information. Each course leader took around two weeks to complete their handbook, including the different topics that they were to cover, which were then sent back to a central contact who re-read all of them to ensure consistency and that there were errors.

Once this step was complete, and the period in which the learning course sessions were to be delivered, the course leaders could focus on the development of the learning materials to be covered throughout the project. These learning materials took the form of presentations.

These materials were completed progressively, before each of the topic's sessions and independently by the learning course leaders.

4.2 Challenges

The key challenge was to coordinate each course leader to ensure the delivery of the learning materials before each course, however this was not problematic in the delivery of the courses.

4.3 Results

These efforts resulted in complete learning materials being produced alongside a high-quality handbook to the agreed timeframe.



5 Step 5: Further learning materials, planning and inclusion of guest speakers

5.1 Activities

Additional activities and learning materials include the preparation of videos to accompany the learning courses, questionnaires to test the participants on their knowledge and online tool demonstrations.

Each learning course leader had freedom to prepare the learning material that they deemed appropriate to deliver the course content. This was very effective and provided the learning course leaders the independence and control over their course content.

Such content was prepared alongside the initial course presentations.

5.2 Challenges

The challenge throughout this part of the learning course preparation was similar to the preparation of the key learning course materials, to keep track of the development of the learning materials and to ensure that it will be delivered on time.

However, thanks to regular learning course leader meetings, this proved not to be an issue with no resulting problems.

5.3 Results

The result of this additional step to prepare complimentary learning materials was a successful, and well-prepared learning course, well understood by all project partners thanks to regular communication opportunities.

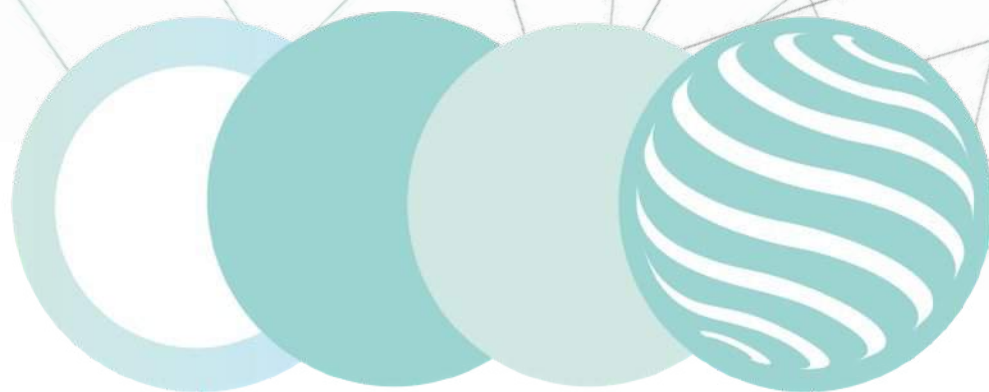




6 Appendix – Course handbooks

Learning Course handbooks for the four learning courses.



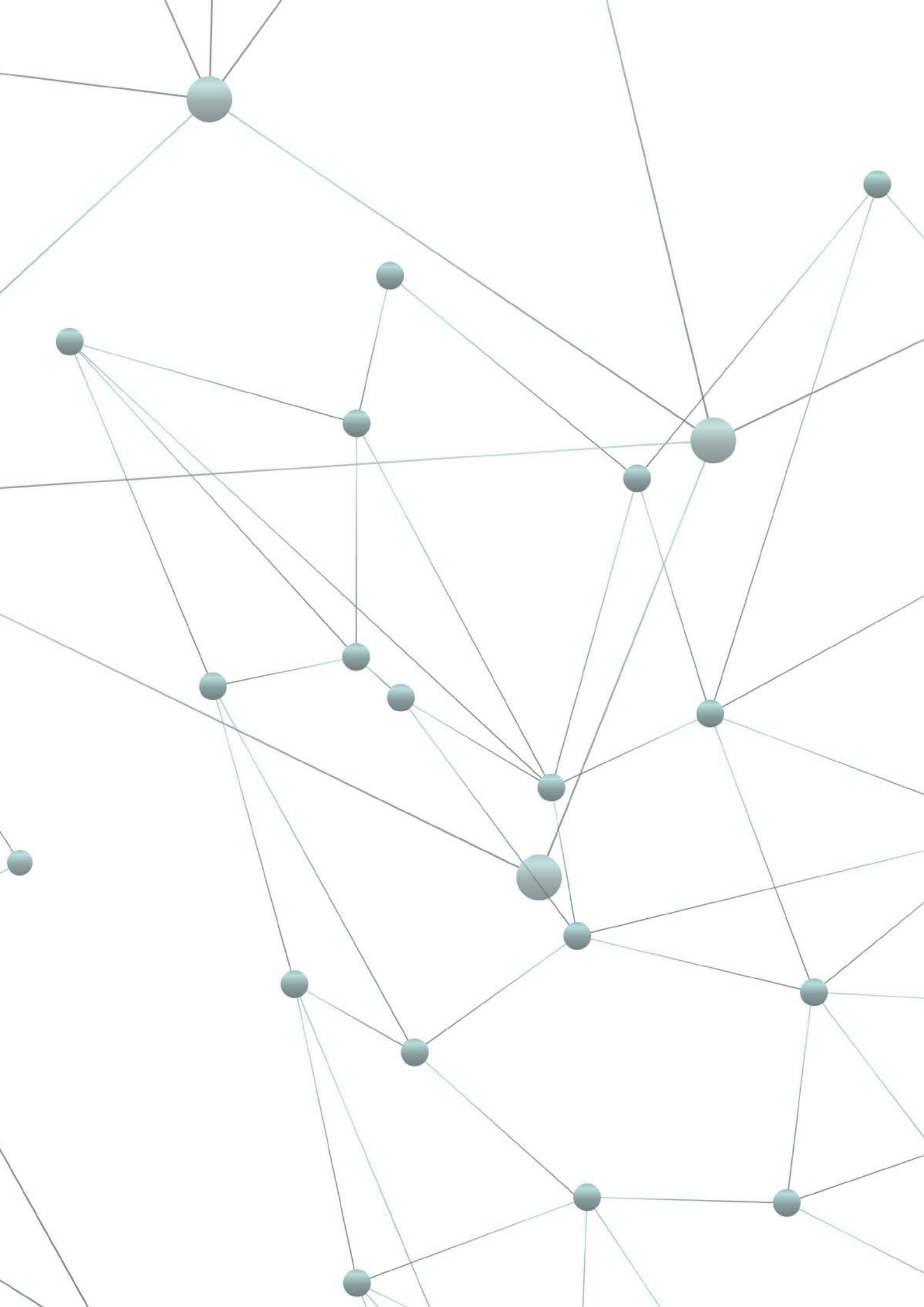


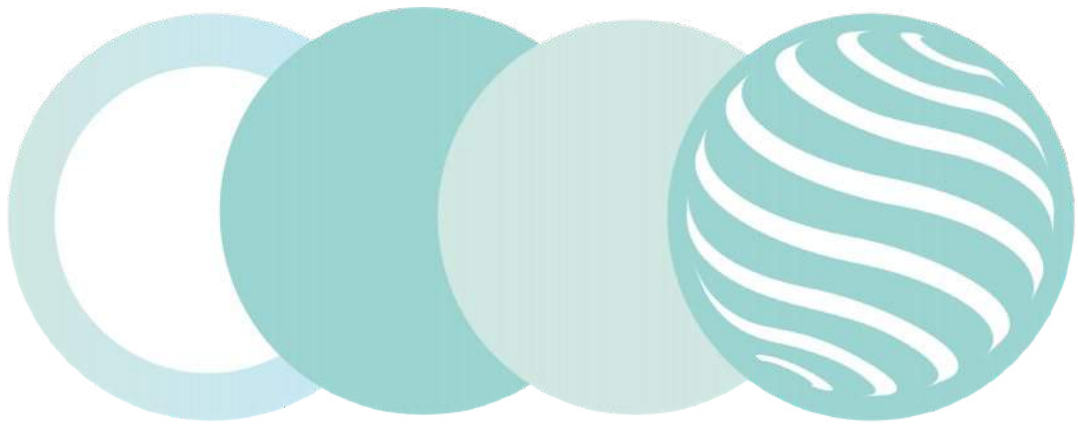
ENERGee Watch

Curriculum and learning material for Course:
Data Collection
(acquisition and treatment)

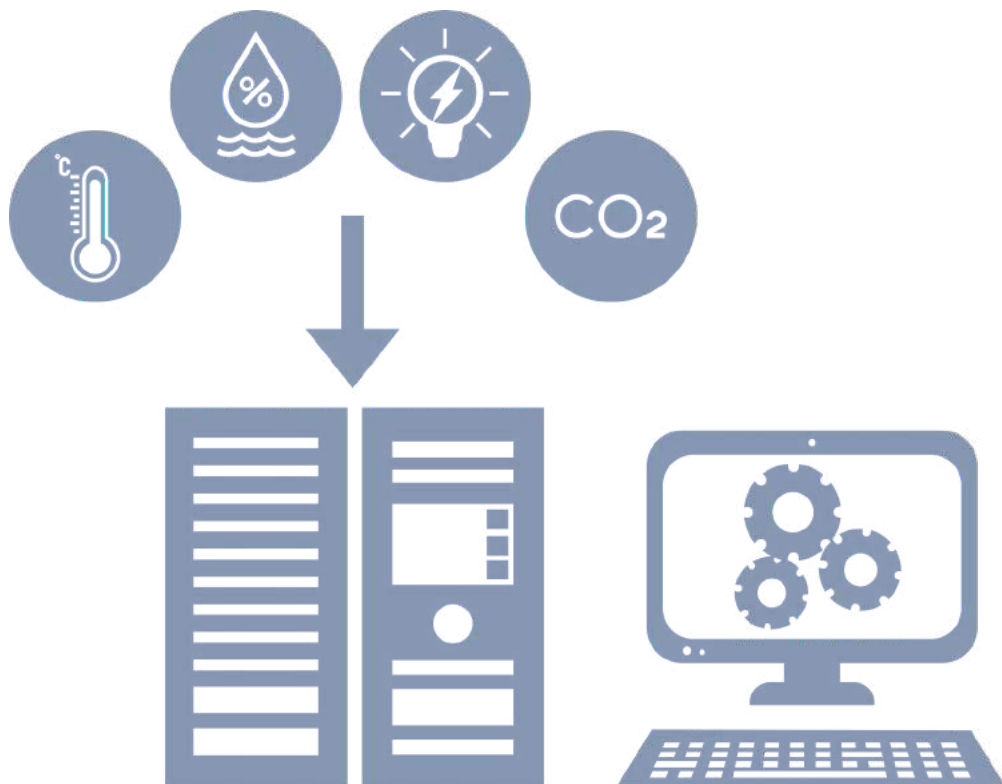


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Data Collection (acquisition and treatment)



Introduction

The ENERGee Watch project stems from the existing informal European network of regional greenhouse gas emission observatories managed by FEDARENE whose mission is to collect, monitor, and report Greenhouse gas (GHG) Emissions and implement energy saving strategies and policies.

Many of the structures are governed by a local consortium gathering at least several public authorities and energy data suppliers. They are very often supported by public authorities and integrated within existing regional organisations such as energy agencies or public departments. The value that this type of structure can provide stems from their expertise in data gathering, data analysis, and energy planning.

These observatories contribute strongly towards building a representation of the territorial impact on climate change and a framework for identifying areas of responsibility and priority areas for action. To best serve society, the observation of GHG emissions is a prerequisite before taking any appropriate action. The tasks of an observatory are very diverse. An observation system primary task is to provide data – most often free of charge – and improve knowledge about the territory's current and future situation with regards to impacts caused by climate change (energy and information related to GHG emissions). In some cases, air quality, social, economic or environmental effects on climate change are included. As a result, an observatory will characterise the current situation and the challenges on climate change, identify trends and influencing factors, and define various scenarios to meet any long-term energy and climate targets.



Another role is to analyse and monitor the development of the territory's situation on climate change, by identifying the challenges and by keeping an account of GHG emissions and energy consumption in order to measure the progress. To this end, an observatory will determine both quantitative and qualitative objectives, identify resources and opportunities to take action. Moreover, an observatory provides expertise and advice in policy development and in the decision-making process. Indeed, it tracks progress against fixed objectives, adjusts efforts and focuses on climate action. Lastly, it evaluates the impact of climate action in terms of energy saved and GHG emissions avoided, then providing local stakeholders with a forum for sharing knowledge and experience gained.

The overall aim of ENERGee WATCH is to launch a peer-to-peer learning program to enable regional and local authorities to timely and accurately define, monitor and verify their sustainable actions. The learning process targets regional and/or provincial authorities and their agencies and observatories that are responsible for collecting and overseeing the monitoring of mitigation and adaptation indicators in order to empower them to make use of the best practices learnt.

Regional observatories are powerful tools to implement efficient strategies at local and regional levels. Through ENERGee Watch, the objective is to increase the capacity of data observation across Europe to best support local and regional decisions makers in their fight against climate change.

Data Collection (acquisition and treatment)

Overall description of the course

Introduction

Course Data collection is dedicated to understanding the importance of systematic, timely and periodic gathering of energy data. Data collection and management is crucial for identifying trends, defining and monitoring strategies and prioritizing energy efficiency improvements. As collection of reliable and complete energy data often shows to be a difficult task, this course will help participants to learn how to establish an effective energy management system for public sector, as well as how to identify sources and facilitate access to territorial aggregated, and non-identifying energy data.

More specifically, throughout this course participants will be able to better assess their needs for establishing EMIS that would serve their needs and capacities, learn tools for successful data mining and accessing robust energy data, learn methodologies to make quality energy estimations, learn how to establish a win-win collaborative agreements with data providers that would assure timely access to energy data and last but not least, learn to elaborate BEI, which is of critical importance for evaluating the impact of climate action.

Course objectives

In this course, mentees can achieve the following learning objectives:

- Objective 1: To understand the importance of systematic, timely and periodic gathering of energy data
- Objective 2: To understand the need for improving data sharing
- Objective 3: To be able to contribute to improving data sharing through agreements and collaborations
- Objective 4: To be able to use tools and methodologies for data retrieving, quality energy estimations and BEI calculation

Topics

Baseline Emission Inventory

- Basic principles: territorial principle and the polluter pays principle
- Approaches and recommendations for the elaboration of BEI
- Practical exercise

Energy management

- Assessing the need for energy management system
- How to elaborate building inventory

Energy supply and production

- Data mining and making quality energy estimations
- Improving data sharing: mapping key stakeholders and establishing collaboration models
- Analysing and evaluating gathered data

Transport

- Methods to estimate emissions in urban and other road transportation

Target

This course is aimed at professionals at regional and local level, that are responsible for energy data collection and would like to learn more on how to tackle challenges connected to gathering quality and comprehensive energy data. It is aimed at those who should or could play a key role in improving data sharing in order to accelerate achieving of EU climate goals.



Mentors

Boštjan Krajnc, CEO of Energy Agency of Savinjska, Šaleska and Koroška Region (KSSENA), has 16 years of work experience in the field of RES and RUE. Initially a project technologist responsible for the design and implementation of investment projects for power technologies implementation and environmental solutions, Boštjan Krajnc became a CEO of KSSENA in 2008. Boštjan Krajnc acquired the accreditation of the European Energy Manager from the Jožef Stefan Institute under the IEE project Eurem in 2009, as well as the official license from the Building and civil Engineering Institute ZRMK for issuing Energy Performance Certificate's. As member of the NALAS (Network of Associations of Local Authorities of South-East Europe) task force for Energy Efficiency he built an extensive experience in working with municipalities from South-East Europe. In his professional career Boštjan Krajnc has performed more than 50 trainings on energy management, energy efficiency and renewable energy sources, financial mechanisms (ESCO) and on transferring EU Energy efficiency directive into national legislations.



Boštjan Krajnc

CEO of Energy Agency of Savinjska, Šaleska and Koroška Region (KSSENA)

Topic 1

Baseline emission inventory

Description of the topic (what)

A Baseline Emission Inventory (BEI) is a quantification of the amount of CO₂ emitted due to energy consumption in a specified territory within a given period of time (the EU recommends base year being 1990, but can be chosen individually, too). It allows identifying the principal sources of CO₂ emissions and their respective reduction potentials.

Elaborating a BEI is of critical importance, as the inventory will be the instrument allowing the local authority to measure the impact of its actions related to climate change. The BEI will show where the local authority was at the beginning, and the progress towards the objective. Emission inventories are very important elements to maintain the motivation of all parties willing to contribute to the local authority's CO₂ reduction objective, allowing them to see the results of their efforts. There is no legal basis for a BEI elaboration, except the self-commitment of communities to protect the environment and save energy.

Balances can follow two basic principles, as they can either be based on territorial principle or on polluter pays principle. The territorial principle considers all consumptions within a spatial territory, hence, also energy consumption of tourists and transients are to be regarded. The polluter pays principle considers all consumptions of inhabitants of a spatial territory no matter where the consumption happens (e.g. mobility in other territories), hence, also e.g. the energy consumption of citizens during their vacations in other municipalities.

ENERGee Watch Partner Expertise

Energy agencies across Europe use different approaches in elaboration of BEI. In Slovenia, for example, national handbook for preparation of LEK (Local Energy Concept) and Covenant of Mayors guidebooks are used. In practice, local authorities in Slovenia usually focus on calculating BEI for areas where data is available and local authorities have the potential to implement changes. Data from private industry, aviation or agriculture are hard to obtain and thus not so relevant in a way, that local authorities usually have little power to make the change.

Relevant methods / tools (how to)

Results from energy flows are only comparable among different territories in case they follow the same methodology, meaning, as far as possible, the concepts, methodologies and definitions in internationally agreed standards shall be followed. Local authorities are thus encouraged to use emission factors that are in line with those of the Intergovernmental Panel on Climate Change (IPCC) or European Reference Life Cycle Database (ELCD), but it is given the flexibility to use any approach or tool that it considers appropriate for the purpose. In Europe, several descriptions and recommendations on the elaboration of BEI exist, that are mainly given by networks, such as Covenant of Mayors, European Energy Award, 2000-Watt Society and Climate Alliance.

Link(s) with other courses

Elaboration of BEI is a core activity for future energy planning and climate change adaptation. There are several different strategic documents (Local energy concepts, Sustainable energy and climate action plan, etc.) which are based on BEI elaboration. In this scope elaboration of BEI is closely connected to all learning courses.



Practices in other European regions

Climate Alliance for example has designed rules, tools and methods for BEI elaboration to facilitate municipal efforts for different regions, namely for countries like Germany, Italy, Luxemburg, Belgium, Austria. Also several calculation tools for BEI exist in EU, such as Climate protection planner (Germany), Ecospeed (Germany, Switzerland, Austria, Italy, Luxemburg) and Bilan Carbone (France).

Topic 2

Energy management

Description of the topic (what)

Under the Energy Efficiency Directive, EU Member States are required to use energy more efficiently at all stages of the energy chain, from its production to its final consumption. Member States shall encourage public bodies, including at regional and local level, to adopt an energy efficiency plan with clear goals and objectives as well as putting in place an energy management system as part of the implementation of their plan.

An EMIS (Energy management information system) is one of the key elements of a comprehensive energy management program. It provides accurate and timely information to key individuals and departments and enables data visualization, automatic report generation, simple process for manipulating, analysing, and storing data for future reference, as well as capability to provide more accurate projections of energy use in the future or under changed circumstances.

The inventory of the building stock presents the main area of the EMIS database. The information for the database can be retrieved mainly from energy audits and established monitoring systems of energy consumptions in public buildings as well as other methodologies for data collection.

Relevant methods / tools (how to)

The primary methods used would be to understand the benefits of applying EMIS systems, such as saving time and personnel capacity and especially provision of accurate and timely information. There are several specific applications of EMIS that can substantially vary in complexity and capability, therefore it is important to know the end user, their capacities and needs.

At the start of a long-term renovation strategy for all public buildings – independent of the size of the public body – it is essential to have concrete data about the buildings. A comprehensive building inventory is at the centre of EMIS and serves as a baseline for the next steps, like selection of priority buildings and benchmarking to assess the necessity and possibilities. Several data groups will be defined, that should define the structure of building inventory, as well as methodologies for data collection that will assure successful set up of building inventory and continuous data collection.



ENERGee Watch Partner Expertise

The establishment of an energy management system may be an administrative act as a demonstration of political will and fulfilment of a legal obligation, but with the aim of establishing a solid foundation which would ensure that such a system functions effectively and efficiently, municipal instances must meet a series of preconditions. In Slovenia some of the main prerequisites in this context are:

- Declaration of determination
- Creating organizational structure
- Approval of the rules of procedure of the EMS
- Appointment of Energy manager
- Appointment of SME team
- Approval of the municipal energy framework

To collect energy data for public buildings KSENA uses the E2 Manager tool that enables analysing energy consumption, resulting in automatically created reports, elaboration of CO2 footprint, creation of energy profiles, and possibility of benchmarking different buildings.

Practices in other European regions

Under the Energy Efficiency Directive, EU Member States are required to use energy more efficiently at all stages of the energy chain, from its production to its final consumption. Member States shall encourage public bodies, including at regional and local level, to adopt an energy efficiency plan with clear goals and objectives as well as putting in place an energy management system as part of the implementation of their plan.

Link(s) with other courses

This topic is connected to course (Monitoring, reporting, verification) as periodically gathered data enables efficient monitoring of the progress and reduction in energy use following energy efficient improvements, and to course (Data display, dissemination and validation by local authorities) as EMIS opens possibilities for different data visualisation options.

Energy supply and production

Description of the topic (what)

Since the liberalisation of gas and electricity market, the number of actors has increased, and the data related to energy consumption is becoming commercially sensitive and therefore more difficult to obtain from energy suppliers. The access and exchange of territorial aggregated, and non-identifying data needed for effective sustainable energy planning presents a major challenge as there is no obligation within EU legislative for TSOs and DSOs to share local energy data with third parties. As a result, data exchange is implemented on a voluntary basis, resulting in availability and accuracy of energy data varying from country to country and from one territorial unit to the other.

Many data on energy production and consumption per sectors, fuels, etc. are available from energy statistic reports and databases periodically published by energy providers and agencies. All missing data and information need to be gained either by estimations or by complex surveys among energy providers, fuel traders, large and industrial enterprises, and other large-scale consumers. The most effective data sharing involves establishing win-win collaborative partnerships between public authorities and data providers (e.g., energy utility companies).

ENERGee Watch Partner Expertise

In Slovenia 5 key areas for data mining can be outlined in general, that each require specific approach:

Electricity: grid operators have data on overall electricity consumption in the area, as well as on consumption related to specific groups (residential etc.).

Natural Gas and district heating: grid providers have all necessary data.

Solid biofuels, heating oil, liquid gas: usually acquired by questionnaires and statistical databases.

Renewable energy sources: national or regional hubs of data related to renewable energy production exist, or in case it does not, data can be obtained by questionnaires and other statistical databases.

Waste: this data can be accessed through public utility companies (relevant data is energy efficiency of waste water treatment, use of external waste heat from waste water, energy from waste, biowaste etc).

Relevant methods / tools (how to)

Several typical problems in data sharing will be discussed, such as lack of commitment, competences, skills and as well as data privacy. Focus will be on data mining, as in many cases, data can be collected from several databases and statistics reports. As data availability, data quality and data homogeneity differ greatly in the different countries and territorial units, estimation methodologies in case of missing or low-quality data (e.g., estimations based on number employees in certain industry branches) will be discussed as well as how gained data needs to be managed, analysed, and evaluated in order to calculate the final energy consumption.

How to improve data sharing will be discussed, including mapping of key stakeholders that may provide or facilitate access to energy data, as well as establishing collaborative agreements, that would bring benefits to both parties and most importantly, periodic updating of data.

Link(s) with other courses

Energy production and consumption data are especially connected to Course Data display, dissemination, and validation by local authorities as well as with Course Monitoring, Reporting, Verification: follow up on implementation of actions.



Practices in other European regions

Netherlands and Denmark have since long developed tools which provide energy and climate data per activity sector, broken down at least at municipal level. Cyprus Energy Agency has also developed a tool, which provides the local authorities with all the energy consumption data required to establish their CO₂ inventory.

DATA4ACTION and ENERGee Watch projects are active on establishing Regional Energy and GHG Emissions Observatories as a third party one-stop shop services gathering, analysing and providing energy data from many sources to the local authorities.

Topic 4

Transport

Description of the topic (what)

As the amount of greenhouse gases of anthropogenic origin in the atmosphere increases intensively due to increasing emissions, especially due to the energy use of fuels. The largest share of GHG can be contributed to transport, with road transport as the source of the vast majority of emissions. The number of road motor vehicles, as well as the power and volume of their engines are constantly increasing, while infrastructure development, especially in urban areas, is unable to keep up with such growth and road congestion is becoming more frequent. In recent years, the growth of road freight transport, especially transit freight, has also been very acute.

Road transportation in the territory of the local authority can be divided into two parts:

- Urban road transportation, which includes road transportation on the local street network that is usually in the competence of the local authority. The inclusion of this sector in the BEI is strongly recommended.
- Other road transportation, which includes road transportation in the territory of the local authority on the roads that are not in the competence of the local authority. An example of such road transportation is transportation on a highway that goes through the territory of the local authority.

To calculate road emissions, a lot of data needs to be obtained, which is oftentimes not complete.

For that purpose specific methods exist, that can be used to estimate emissions of both urban and other road transportation.

ENERGee Watch Partner Expertise

Data on emissions from fuel combustion are mostly calculated using statistics on fuel use, fuel values and emission factors. To calculate emissions from road traffic a range of other data is used, most importantly fleet data (registered motor vehicles) and the mileage data. The recommended methodology in Slovenia is the one provided by Intergovernmental Panel on Climate Change (IPCC), which makes GHG emissions data internationally comparable.

Relevant methods / tools (how to)

The activity data for the road transportation sector is the amount of fuel consumed in the territory. Usually, the amount of fuel used is not equal to the amount of fuel sold, therefore, the estimation has to be made based either on mileage driven in the territory of the local authority, on vehicle fleet in the territory (cars, buses, two-wheelers, heavy and light-duty vehicles) or on average fuel consumption of each vehicle type.

The EMEP/EEA Guidebook (2009) and the 2006 IPCC Guidelines provide detailed guidance on the estimation of activity data for the road transportation sector. Even though the focus of these guidelines is on the national level, the information can be useful also to understand the principles for calculation of emissions at local level.

Link(s) with other courses

The transportation data are important and directly connected to all courses.



Practices in other European regions

In Germany, TREMOD is used, which is the expert model used by the Federal Environment Agency, the Federal Ministries, the German Association of the Automotive Industry (VDA) and Deutsche Bahn AG to calculate air pollution and greenhouse gas emissions from motorised traffic in Germany. In Italy e.g., the national environmental protection agency ISPRA monitors the emissions, also from the transport sector. The model GAINS-Italia is used to estimate emissions from transport mainly at regional level.

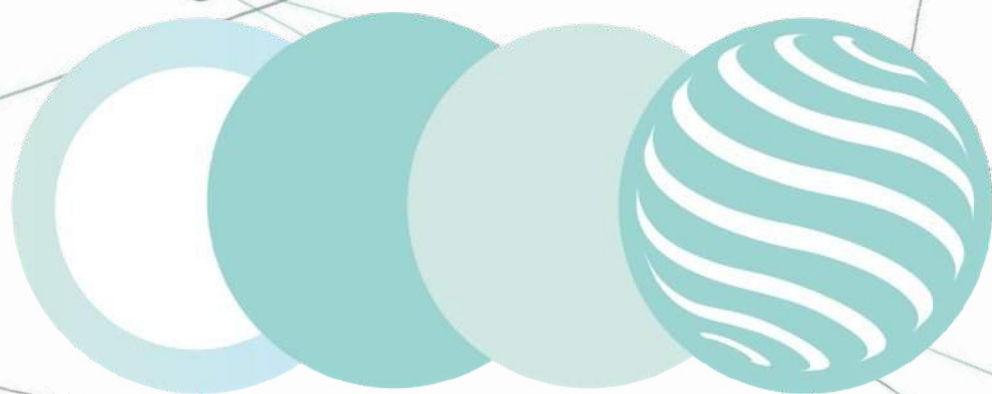
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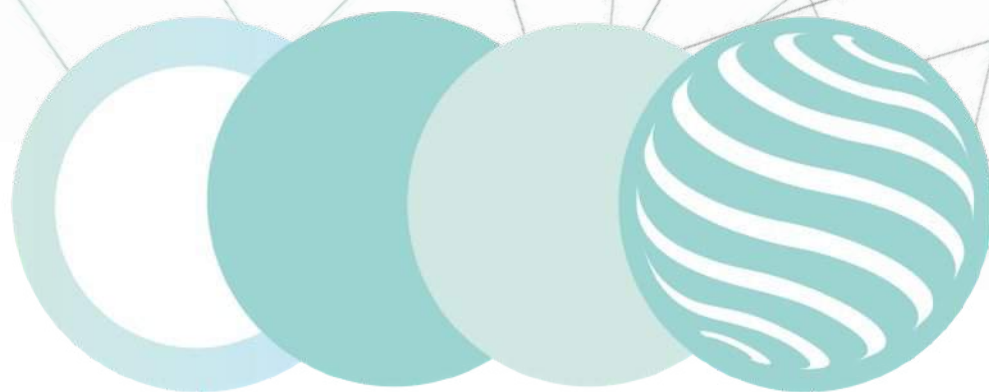
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ENERGee Watch



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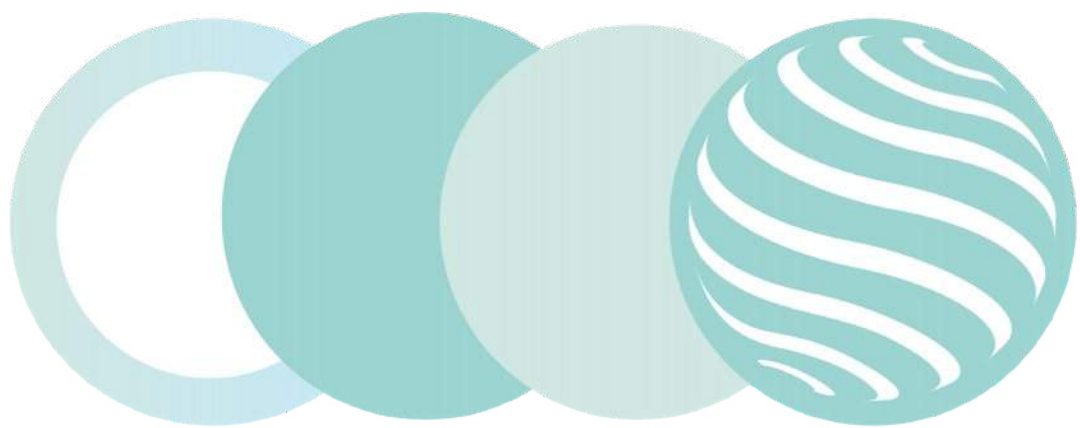
ENERGee Watch

Curriculum and learning material for Course:
Monitoring, Reporting, Verification



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Monitoring, Reporting, Verification



Introduction

The ENERGee Watch project stems from the existing informal European network of regional greenhouse gas emission observatories managed by FEDARENE whose mission is to collect, monitor, and report Greenhouse gas (GHG) Emissions and implement energy saving strategies and policies.

Many of the structures are governed by a local consortium gathering at least several public authorities and energy data suppliers. They are very often supported by public authorities and integrated within existing regional organisations such as energy agencies or public departments. The value that this type of structure can provide stems from their expertise in data gathering, data analysis, and energy planning.

These observatories contribute strongly towards building a representation of the territorial impact on climate change and a framework for identifying areas of responsibility and priority areas for action. To best serve society, the observation of GHG emissions is a prerequisite before taking any appropriate action. The tasks of an observatory are very diverse. An observation system primary task is to provide data – most often free of charge – and improve knowledge about the territory's current and future situation with regards to impacts caused by climate change (energy and information related to GHG emissions). In some cases, air quality, social, economic or environmental effects on climate change are included. As a result, an observatory will characterise the current situation and the challenges on climate change, identify trends and influencing factors, and define various scenarios to meet any long-term energy and climate targets.



Another role is to analyse and monitor the development of the territory's situation on climate change, by identifying the challenges and by keeping an account of GHG emissions and energy consumption in order to measure the progress. To this end, an observatory will determine both quantitative and qualitative objectives, identify resources and opportunities to take action. Moreover, an observatory provides expertise and advice in policy development and in the decision-making process. Indeed, it tracks progress against fixed objectives, adjusts efforts and focuses on climate action. Lastly, it evaluates the impact of climate action in terms of energy saved and GHG emissions avoided, then providing local stakeholders with a forum for sharing knowledge and experience gained.

The overall aim of ENERGee WATCH is to launch a peer-to-peer learning program to enable regional and local authorities to timely and accurately define, monitor and verify their sustainable actions. The learning process targets regional and/or provincial authorities and their agencies and observatories that are responsible for collecting and overseeing the monitoring of mitigation and adaptation indicators in order to empower them to make use of the best practices learnt.

Regional observatories are powerful tools to implement efficient strategies at local and regional levels. Through ENERGee Watch, the objective is to increase the capacity of data observation across Europe to best support local and regional decisions makers in their fight against climate change.

Monitoring, Reporting, Verification

Overall description of the course

Introduction

The Local Authorities are facing significant barriers when it comes to implement actions included in the SECAPs: Limited competences, Limited financial resources, Difficulties to access European funds, Limited capacity (technical knowledge).

The peer to peer learning program on “Monitoring, revision and verification of data” will give emphasis to enhance the capacity of local authorities to implement sustainable projects through the:

- Development of internal administrative structures for the successful implementation and monitoring of sustainable energy action plans (roles, support, prioritization, budgeting, and tools)
- Process to verify energy data
- Data quality improvement
- Development of business plans, feasibility, and environmental analysis for sustainable energy Projects

Course objectives

In this course, mentees can achieve the following learning objectives:

- Objective 1: To create vision and establish the proper internal administrative structures.
- Objective 2: To know the key actions needed to ensure political and administrative support for the successful implementation of a SECAP.
- Objective 3: To perform an energy data verification process.
- Objective 4: To establish methodologies to improve data quality.
- Objective 5: To develop energy modelling and elaborate future scenarios.
- Objective 6: To understand the key financial indicators.
- Objective 7: To visualise sustainable energy project ideas on Sustainable Business Model Canvas.
- Objective 8. To elaborate feasibility and environmental analysis for energy projects.
- Objective 9: To plan and monitor the progress and the impact of SECAP actions.

Topics

The training course will cover the following topics:

- Vision setting
- Establishing an Energy & Climate Team
- Data Processing and Verification
- Energy Modelling and Scenarios
- Sustainable business model canvas and financial feasibility analysis
- Implementation & successful monitoring

Target

The training course is addressed to a) local authorities' staff which are directly related to the SECAP implementation and to b) support structures (energy agencies) who provide technical support and expertise. The candidates will have the opportunity to empower their knowledge in critical issues for successful implementation of the SECAPs.



Mentors



Savvas Vlachos

Director of the Cyprus Energy Agency

Savvas Vlachos started his professional career in 2004. He is Environmental Engineer graduated from the Polytechnic School of Crete, Greece, and he acquired his master's degree on Civil Engineering at the Polytechnic Department of the University of Cyprus. At the beginning of his career, he worked as an environmental engineer and he was responsible for preparing environmental impact assessment for development projects as well as designing waste treatment facilities.

He joined the Cyprus Energy Agency in 2009 as an Energy expert and he was involved in studies, audits and certifications related with energy efficiency in buildings, Sustainable Energy Action Plans for local authorities and Renewable Energy Sources technologies. He has professional skills on Energy Auditing of buildings, street lighting, harbors airports, industries and agriculture sector. He is a qualified Energy Auditor and a Qualified Energy Expert to the official governmental registries. In addition, he is experienced for the use of technical equipment such as Infrared Camera, power analyzer, gas analyzer etc. He is also a certified trainer by the Human Resources Development Authority of Cyprus with previous experience on training for various technical subjects such as photovoltaic technology, energy efficiency of buildings, feasibility studies, project management, environmental policies and buildings energy performance certification.

Since September 2016, he is the Director of the Cyprus Energy Agency and he is responsible for the operation and the strategic development of the Agency. He has participated in more than 40 EU funded projects as project manager and he is currently the coordinator of a 2.7 M€ funded project (eea and Norway grants) on youth employment with 10 international partners. He is also the Project Manager of a contract for Project Development Assistance (funded by the European Commission) to be provided to the Ministry of Education, Culture, Sport and Youth of Cyprus in order to trigger investments of 7.5 M € in upgrading 25 school buildings into Nearly Zero Energy Buildings. Since January 2017, he is also the Local Manager of the Programme Pioneers into Practice in Cyprus which is funded by the Climate – KIC and the European Institute of Innovation and Technology (EIT).



Charis Kordatos is a Forester/Environmental Scientist, he has graduated the Aristotle University of Thessaloniki in 2006 and holds MSc in Environmental Biology of the same University. He joined the Cyprus Energy Agency in 2009 and has been specialized in matters concerning the environmental impacts of installing RES in different types of landscape, the utilization of wood biomass and has been trained in the Geographic Information Systems (GIS). He has extensive experience in the realization of Environmental Impact Assessments (EIAs) regarding the installation of large-scale RES projects and he is responsible for the overall co-ordination and implementation of the undertaken EIAs.

He is familiar with the Covenant of Mayors methodology for Sustainable Energy and Climate Action Plans (SECAPs) and supports local authorities for implementing sustainable actions and projects towards the climate adaptation. He is involved in the Green Public Procurement (GPP) support structure of the Agency providing guidance and training to public/local authorities and he is participating in different GPP networks and forums. He participates in many co-funded EU and national projects as an expert and project coordinator, related to sustainable use of RES, environmental management and green policies.

Myrto Skouroupathi is a qualified Environmental Engineer and a member of the Scientific and Technical Chamber of Cyprus. She completed her Masters of Engineering in Environmental Engineering with First Class Honours from University College London (UCL) in 2016. She has worked on community level projects on sustainable infrastructure and renewable energy.

She joined the Cyprus Energy Agency in 2017 as an Environmental Engineer and she is involved in European co-funded projects as a technical expert and educator. She is managing a mobility scheme on climate innovation, a project to reduce youth unemployment through green jobs, and provides technical assistance to projects on circular economy, energy efficiency and climate change addressing and adaptation..



Charis Kordatos

Climate Change and Environment Expert –
Team leader of the Cyprus Energy Agency



Myrto Skouroupathi

Environmental Engineer

Topic 1

Vision setting

Description of the topic (what)

A further step to undertake and to make your municipality in line with the Covenant of Mayors' energy and climate objectives is to establish a vision. The vision for a sustainable future is the guiding principle of the local authority's SECAP implementation roadmap. It points out the priorities and the pathway in which the local authority aims to follow. A comparison between the vision and the local authority's current situation is the basis for identifying what actions and developments are necessary to achieve the goals set. The SECAP includes the information and highlights the activities for a systematic approach to gradually meet the vision of the municipality.

The vision serves as the uniting component that all stakeholders can refer to; meaning everyone from leading politicians to citizens and interest groups. It can also be used for marketing the local authority to the rest of the world.

The vision needs to be compatible with the EU climate action and the European Green Deal and with the Covenant of Mayors' commitments, i.e. it should imply that the 55% GHG emission reduction in the 2030 target will be reached (at the minimum) and that the city will gradually become resilient and adapted to the impacts of Climate Change. However, it could also be more ambitious and ensure the 2050 EU's climate neutrality objective will be enhanced at local level (European Climate Law).

The vision should be realistic but still ambitious. It should describe the desired future of the city and be expressed in visual terms to make it more understandable for citizens and stakeholders.

ENERGee Watch Partner Expertise

Many Local Authorities in Cyprus have joined the CoM and implement Sustainable Energy Action Plans to meet 2020 objectives. As many of the local authorities from Cyprus have proven their commitment to move forward and meet their 2030 objectives, further CO2 reductions, Climate Change Adaptation, improved resilience, and energy poverty confrontation are expected to synthesise their long-term vision. The municipalities of Strovolos and Lakatamia are the first two municipalities from Cyprus that through workshops, public consultations and meetings with stakeholders have managed to set the city's vision based on which their approved SECAP was elaborated.

Relevant methods / tools (how to)

The training course will provide guidance to the mentees on how to set the vision towards a sustainable future and for a step by step on process of setting energy and climate objectives and targets.

Visioning should include a large diversity of stakeholders ensuring sustainability, climate resilience and well-being. The methodology will follow the "visual story" and consist six parts describing different aspects of the future-vision and the process to achieve it: Cover, Radical Ideas, Quotes, Headlines, Stack of Papers, Images [Source: Visual story tool – EIT Climate KIC].

Link(s) with other courses

Vision setting is a process that could also be performed in other courses, especially those include the establishment of a long-term strategy such as "Adaptation to Climate Change", and communication and outreach of city's priorities and vision sharing.



Practices in other European regions

The vision of the European cities is more ambitious than the EU MS. On average EU-28 cities have committed to a 31 % emissions reduction by 2020 from 2005 levels, ten points higher than the minimum target required. Next stop 2050 and climate neutrality.

Establishing an Energy & Climate Team

Description of the topic (what)

Devising and implementing a sustainable energy policy is a challenging and time-demanding process that must be systematically planned and continuously managed. It requires collaboration and coordination between various departments in the local administration, such as environmental protection, land use and spatial planning, economics and social affairs, buildings and infrastructure management, mobility and transport, disaster response, budget and finance, procurement, etc. In addition, one of the challenges for success is that the SECAP process should not be conceived by the different departments of the local administration as an external issue, but that it has to be integrated in their everyday life: mobility and urban planning, management of the local authority's assets (buildings, municipal fleet, public lighting...), internal and external communication, public procurement etc.

A clear organisational structure and assignment of responsibilities are prerequisites for the successful and sustainable implementation of the SECAP. A lack of coordination between the various policies, local authority departments and external organisations has been a considerable shortcoming in the energy or transport planning of many local authorities. This is why 'Adapting city structures, including allocation of sufficient human resources' is a formal commitment of those signing the Covenant of Mayors.

Relevant methods / tools (how to)

The training course will provide guidance to the mentees on how to adjust administrative structures and improve local capacity, how to ensure external support from supporting structures and energy agencies and how to engage citizens and stakeholders into the SECAP's decision-making process.

Covenant of Mayors' technical guidelines on setting the adequate administrative structure [Source: How to develop a Sustainable Energy Action Plan Guidebook – European Commission] as well as methods to map, analyse and engage stakeholders [Source: Stakeholder Mapping tool – EIT Climate KIC] into SECAP will be thorough explained.

Mentees will also be familiarised with examples and best practices from Covenant Signatories in Cyprus and Europe in general.



ENERGee Watch Partner Expertise

All the Local Authorities participating in the Covenant of Mayors and committed to reach the 2020, 2030 energy and climate targets, had been set up internal structures for the completion of the SEAPs-SECAPs.

Examples and best practices from the experience gained by the Cyprus Energy Agency during the elaboration and implementation of SEAPs and SECAPs in small and medium size municipalities in Cyprus between 2010-2020, will feed the training content of this course.

As an example, depending on the size of the municipality, the structure showcased in **Table 1** is proposed to be adopted.

Practices in other European regions

The “team” is the alpha and omega for successfully implementing the SECAP. The City of Aberdeen has established a concrete team for achieving the targets defined. City of Barcelona has internal structures that can run multi - sectoral projects like “superblocks”, which are related with climate, urban mobility, green infrastructure, and biodiversity plans and commitments.

Table 1
SECAP internal structure

Energy & Climate Plan	Position in the LA	Duties	Advisory Committee
Head of Charge	Mayor / City Manager	Supervision and Decision Making	
Coordinator	Officer	Coordination, implementation, monitoring and communication	
Member 1	Officer	Support	
Member 2	Environment, CC Officer	Support in climate change issues	
Member 3	Technician	Technical Support	
Member 4	Municipal Councillor	Representation of Municipal Council. Participation in meetings.	
Member 5	Citizens	Citizens' Representative. Participation in meetings	

Link(s) with other courses

The Energy & Climate team is fundamental for the successful implementation and monitoring of the SECAPs. It is relevant to data acquisition, Climate adaptation actions and SECAP communication and therefore it links with all EnergEEWatch training courses.

Data Processing and Verification

Description of the topic (what)

Baseline and biannual monitoring review and emission inventories creation require energy and CO2 emissions data acquisition at the local level. It is not enough just to collect data: data needs to be analysed and interpreted in order to inform policy. The data's quality is dependent on many factors and the therefore data processing and verification is important to ensure accurate and clear picture of 'where we are?', and 'where we go?', a description of the city's current and future situation in terms of energy and climate change.

ENERGee Watch Partner Expertise

The Cyprus Energy Agency, developed an excel based tool called LOCAL ENERGY BALANCES for the calculation of local (Municipalities and Communities) Energy Balances in Cyprus (in toe) and energy modelling and forecasting. The use of this tool has been very useful not only for the creation of baseline emission inventories of the Municipalities, but also in data verification and monitoring the impact of the implementation of local action plans.

Relevant methods / tools (how to)

The training course will provide guidance to the mentees on how to process and verify energy and CO2 data.

Covenant of Mayors' technical guidelines on data processing [Source: How to develop a Sustainable Energy Action Plan Guidebook – European Commission] as well as examples from Cyprus Energy Agency's data processing and energy modelling tool will be thorough presented and explained during the training.

Link(s) with other courses

This course is directly linked and complementary to the Course "Data Collection".



Practices in other European regions

Data reliability is crucial for the development of the Baseline emission inventory and for the monitoring procedure. Member States, such as the Netherlands, Denmark and Cyprus, as well as the UK, have developed a central database and/or tool to provide specific data to local authorities. The main aim of these tools is to assist the local authorities in implementing and monitoring local energy and climate action plans (Meshartility, 2014).

[Climate Monitor, Netherlands](#)

[Municipal Carbon Inventory Tool, Denmark](#)

[Cyprus Energy Agency](#)

Energy Modelling and Scenarios

Description of the topic (what)

Based on the data collected, their quality and on the different sets of hypothesis, it is important to establish scenarios: how would energy consumption and CO₂ emissions evolve under current policies, what would be the impact of the projected actions, etc.? It is appropriate to build a Business as Usual (BAU) scenario, to forecast the level of energy consumption and CO₂ emissions during the target year(s) in a scenario without SECAP. If there is an increasing trend, the local authority will need to make a greater effort to counterbalance it. To the opposite, in case of a decreasing trend, the local authority should consider setting a more ambitious reduction target than the minimum set by the Covenant.

Thus, it is recommended to perform energy modelling and elaborate additional scenarios with different level of ambition and success factor, in order to forecast which of those will lead to the 2030 goal achievement and under which circumstances. During the implementation of the SECAP, a municipal council might decide to switch from one SECAP scenario to another based on the progress achieved and the corrective actions needed to be taken.

ENERGee Watch Partner Expertise

The Cyprus Energy Agency developed an excel based tool called LOCAL ENERGY BALANCES for the calculation of local (Municipalities and Communities) Energy Balances in Cyprus (in toe) and energy modelling and forecasting. The use of this tool has been very useful not only for the creation of baseline emission inventories of the Municipalities, but also in scenarios elaboration and monitoring.

Relevant methods / tools (how to)

The training course will provide guidance to the mentees on how to perform an energy modelling and elaborate Business As Usual and SECAP scenarios.

Covenant of Mayors' technical guidelines on data processing [Source: How to develop a Sustainable Energy and Climate Action Plan Guidebook – European Commission] as well as examples from Cyprus Energy Agency's data processing and energy modelling tool will be thorough presented and explained during the training.

Link(s) with other courses

This course is directly linked and complementary to the Course "Data Collection".



Practices in other European regions

Energy modelling and Scenarios are essential for selecting the appropriate actions and the most fitting pathways. Countries that have developed central databases and energy tools mentioned in Topic 3 have the possibility to provide different energy scenarios for achieving the 2030 target or beyond.

Topic 5

Sustainable business models and financial feasibility analysis

Description of the topic (what)

Even If the SE(C)AP is an important tool to set the road-map for the energy transition and climate resilience, there is a clear implementation gap that is linked to the lack of knowledge on technical/financial viability and the most suitable business model of sustainable energy projects.

Choosing appropriate organisation, partnership and/or business model for implementation of actions could affect the economy/feasibility of energy actions and their implementation. A business model describes the rationale of how an organization creates, delivers, and captures value.

This topic aims to increase trainee's knowledge on key financial ratios and on proven successful forms of partnerships and business models for bankable energy projects. It will address factors that influence bankability of projects implementation, demonstrating successful forms of partnerships and business models.

Relevant methods / tools (how to)

The training course will provide insides to the mentees on how to perform a financial feasibility assessment of energy projects and on how to calculate the Internal Rate of Return, the Net Present Value, the Life Cycle Cost, the Cost-Benefit ratio and the simple payback.

It will also introduce the participants to the Sustainable Business Model Canvas that supports the development of an idea into a viable business model. The methodology follows a holistic approach regarding the relationships within and outside the organisation/business. Besides economic criteria it focusses on ecological and social consequences of the activity. It aims at maximizing positive and avoiding negative impact on society and nature. Therefore, sustainability is integrated into the core business of the organisation. The visualization on the canvas fosters coherence of the concept and clarification among the team members. It further supports communication with third parties and prepares for a solid business plan.

ENERGee Watch Partner Expertise

Examples from technical and feasibility assessment of sustainable energy projects in Cyprus will be demonstrated. These are related to energy efficient street lighting projects and energy renovation of public buildings.

Link(s) with other courses

This course is somewhat linked to the Course "Data Collection".



Practices in other European regions

Sustainable Business models are needed for introducing and supporting viable, green, innovative projects and solutions. Aradippou municipality (Cyprus) has promoted innovative financing solutions (combination of private and public funds to develop incentives) for installing photovoltaics and energy efficiency actions in the city. Other example is Local Energy Cooperatives which offers citizens the possibility to jointly own and/or participate in renewable energy and energy efficiency projects on municipal sites and infrastructures. Cities of Ghent and Mouscron (Belgium), Krizevci (Croatia), Barcelona (Spain) have already used this approach.

Topic 6

Implementation & successful monitoring

Description of the topic (what)

The implementation of the SECAPs is the main activity which leads to sustainable policies, projects and actions. Time, effort and financial means are needed; thus, the mobilisation of stakeholders and citizens is important. Monitoring is an essential step for identifying the progress of the main targets, individual projects, best practices, barriers and mistakes. It allows a continuous improvement of the process through the period implementation.

Relevant methods / tools (how to)

The successful implementation of the plan/project follows some basics steps:

- Identify priorities (e.g. per sector)
- Smooth internal communication
- Identify key stakeholders
- Feasibility analysis/Business model
- Financial resources (Local, National, EU)
- Timeframe

Monitoring of the SECAPs performances relays on the CO₂ savings (Energy Part) compared to the baseline emissions inventory and the CoM signatories commit to submitting a "Monitoring Report" every second year following the submission of the SECAP "for evaluation, monitoring and verification purposes". The CoM procedure will be detailed explained.

ENERGee Watch Partner Expertise

Monitoring reports and examples from the progress of Cyprriot Covenant cities will be demonstrated.

Link(s) with other courses

This topic is directly linked to the Course "Data Collection".



Practices in other European regions

The city of Vila Nova de Gaia (Portugal) was the first to submit its monitoring results to the Covenant of Mayors in July 2014. One of the main challenges pointed out by the energy agency in charge of monitoring the results relates to the fact that the data is too disperse and needs to be gathered from different bodies. To face this situation, the agency has developed an Excel tool for data collection and analysis as well as a web-based tool specific to collect energy consumption data from all municipal buildings and facilities.

Colmar City (France) carries out an evaluation every six months in order to measure the progress in their SECAP implementation, using both qualitative and quantitative indicators. Based on this, the project team and steering committee analyse the results and decide on potential changes to the plan.

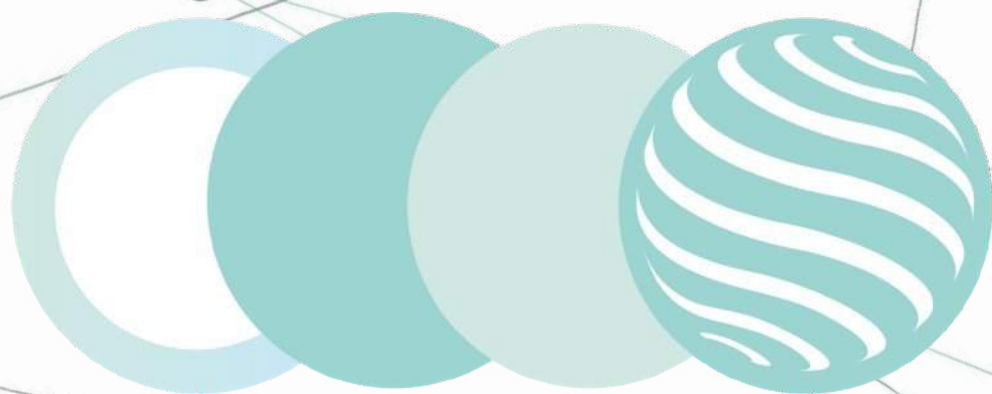
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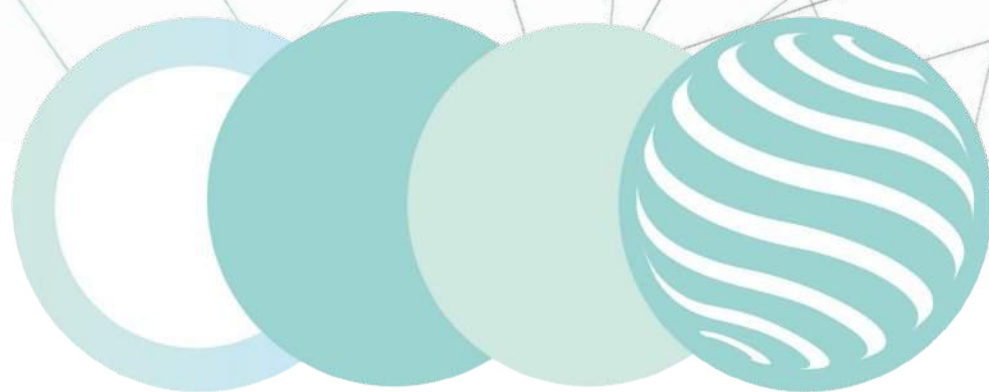
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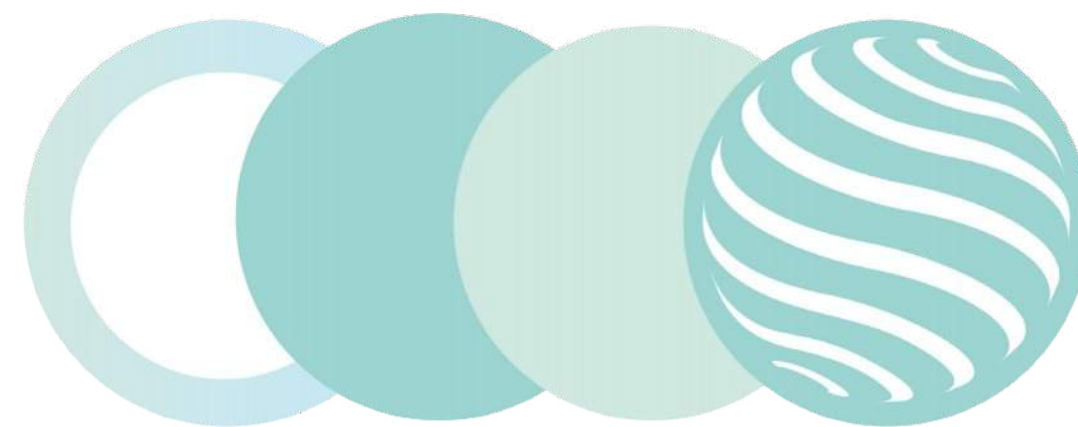
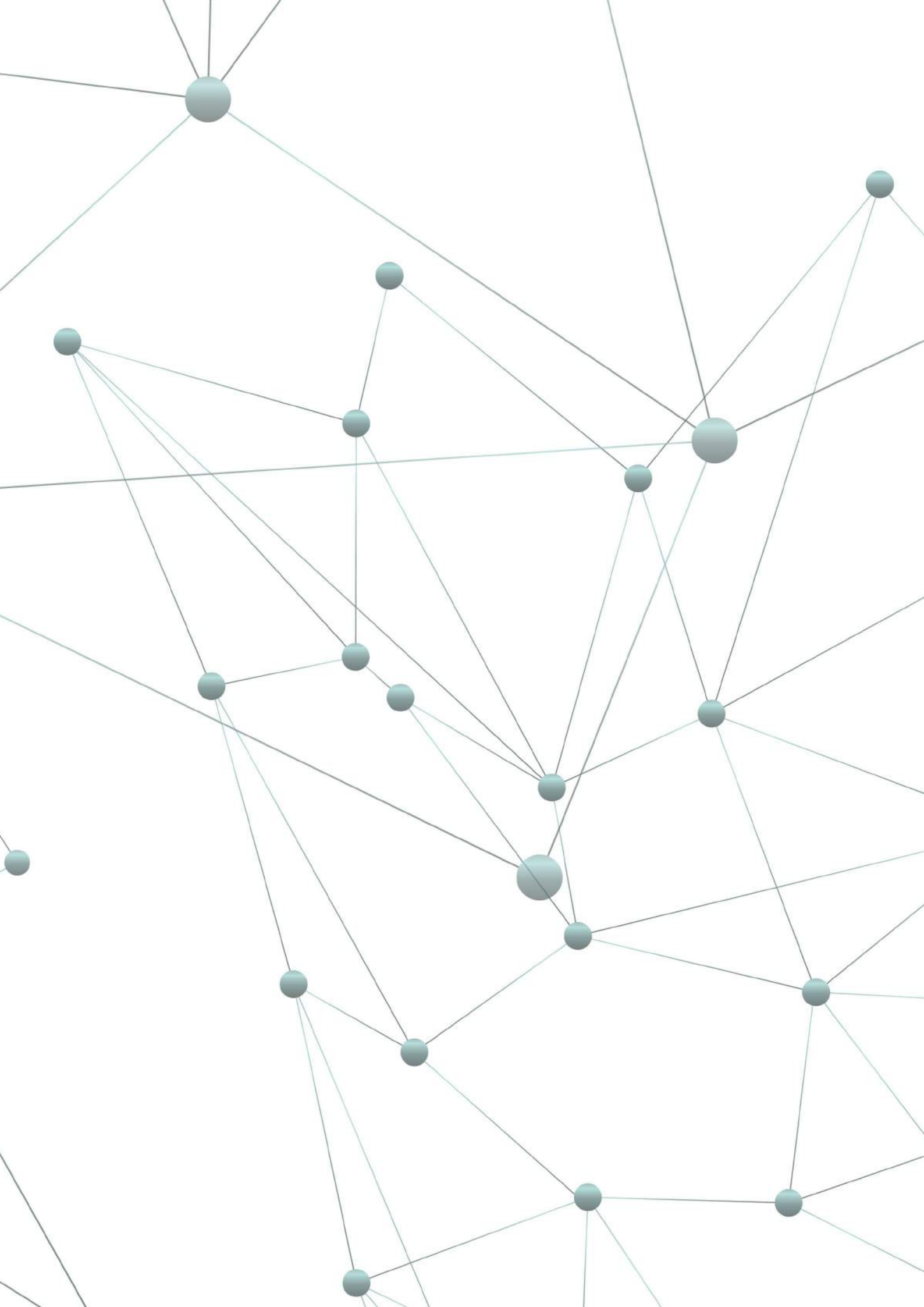


ENERGee Watch

Curriculum and learning material for Course:
Indicators and strategies
on adaptation to Climate Change



The ENERGee Watch project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under grant agreement no. 892089.



Indicators and strategies on adaptation to Climate Change



Introduction

The ENERGee Watch project stems from the existing informal European network of regional greenhouse gas emission observatories managed by FEDARENE whose mission is to collect, monitor, and report Greenhouse gas (GHG) Emissions and implement energy saving strategies and policies.

Many of the structures are governed by a local consortium gathering at least several public authorities and energy data suppliers. They are very often supported by public authorities and integrated within existing regional organisations such as energy agencies or public departments. The value that this type of structure can provide stems from their expertise in data gathering, data analysis, and energy planning.

These observatories contribute strongly towards building a representation of the territorial impact on climate change and a framework for identifying areas of responsibility and priority areas for action. To best serve society, the observation of GHG emissions is a prerequisite before taking any appropriate action. The tasks of an observatory are very diverse. An observation system primary task is to provide data – most often free of charge – and improve knowledge about the territory's current and future situation with regards to impacts caused by climate change (energy and information related to GHG emissions). In some cases, air quality, social, economic or environmental effects on climate change are included. As a result, an observatory will characterise the current situation and the challenges on climate change, identify trends and influencing factors, and define various scenarios to meet any long-term energy and climate targets.

Another role is to analyse and monitor the development of the territory's situation on climate change, by identifying the challenges and by keeping an account of GHG emissions and energy consumption in order to measure the progress. To this end, an observatory will determine both quantitative and qualitative objectives, identify resources and opportunities to take action. Moreover, an observatory provides expertise and advice in policy development and in the decision-making process. Indeed, it tracks progress against fixed objectives, adjusts efforts and focuses on climate action. Lastly, it evaluates the impact of climate action in terms of energy saved and GHG emissions avoided, then providing local stakeholders with a forum for sharing knowledge and experience gained.

The overall aim of ENERGee WATCH is to launch a peer-to-peer learning program to enable regional and local authorities to timely and accurately define, monitor and verify their sustainable actions. The learning process targets regional and/or provincial authorities and their agencies and observatories that are responsible for collecting and overseeing the monitoring of mitigation and adaptation indicators in order to empower them to make use of the best practices learnt.

Regional observatories are powerful tools to implement efficient strategies at local and regional levels. Through ENERGee Watch, the objective is to increase the capacity of data observation across Europe to best support local and regional decisions makers in their fight against climate change.

Indicators and strategies on adaptation to Climate Change

Overall description of the course

Introduction

The course dedicated to adaptation aims to clarify the concept, provide keys to understanding this discipline and shed light on the methodologies, systems and tools to support public actors. The aim of the exercise is to guide participants in building their own roadmap to ensure that adaptation to climate change is fully integrated into energy-climate action plans. To this end, the adaptation course will be organised in three sessions:

- Session 1: Setting the basics: climate change adaptation and assessment
- Session 2: Establishing the diagnosis: methods and data
- Session 3: Drawing up a strategy and action plan: methods and roles of indicators

Each of the 3-hour sessions will, in turn, be divided into two highlights to optimise the pace of the training.

In addition to the contribution of knowledge, particular attention will be paid to interacting with the participants, taking advantage of feedback from actors involved in this field and ensuring a group dynamic.

The territorial examples and tools mentioned in this document are illustrative and do not reflect the completeness of the initiatives.

Course objectives

In this course, mentees can achieve the following learning objectives:

- Objective 1: to appropriate the concepts and notions associated with adaptation to climate change.
- Objective 2: to understand the challenges in one's territory, to understand the climate impacts and associated effects
- Objective 3: to be able to prefigure an adaptation to climate change policy on its territory
- Objective 4: to draw on the associated methods and tools, in particular to assess the adaptation policies

Topics

Content development will be organised as follows:

Setting the basics: climate change adaptation and assessment

- The fundamentals of adaptation to climate change
- The fundamentals of assessment for adaptation

Diagnosis: methods and data

- Drawing up the diagnosis
- Tools associated with the diagnosis (representation, deliverable, sharing)

Designing a strategy and an action plan: methods and roles of indicators

- Strategy development
- Your roadmap

Target

The course is particularly aimed at territorial public actors responsible for energy-climate policies and the structures (e.g. local energy agency) supporting them in the deployment of these policies. The objective is to facilitate inclusion of adaptation to climate change and the transition to action in order to face the current and future challenges for the territories.

Mentors

Sandra Garrigou has been assisting local authorities in drawing up their climate plans since 2008, primarily as a consultant (mission to support climate plans elaboration, at local scale, in the Haut-de-France Region, assistance to Rennes metropolitan area in its project "Covenant of Mayors"...) and then at the Institut Paris Region (organisation of technical workshops cycles on the integration of air quality in the climate plans, on monitoring and assessment in the climate plans...). Some teaching aids were produced for each workshops cycles. Sandra has developed an expertise in the field of adaptation to climate change, particularly in the framework of a partnership agreement with ADEME (e.g. projects: organisation of territorial workshops to raise awareness among local authorities, analysis of actions related to adaptation in climate plans, organisation of visits...) . Sandra is also a doctoral student on this subject at the "Territories, cities, environment & society" research unit at the University of Lille.

Erwan Cordeau, senior expert in the field of adaptation to climate change, supports the design of the course. His work has focused on urban heat and on the development of territorial diagnosis in the field of adaptation.

Agnès Parnaix, senior expert in the field of public policy assessment, will contribute to the session dealing with evaluation, data processing and the choice of indicators. Agnès has participated in the work on the assessment of regional planning.



Sandra Garrigou

Chargée de projets Plans climat et adaptation



Topic 1

The fundamentals of adaptation to climate change

Description of the topic (what)

This first part of the training aims to set out the elements and main messages that structure the other topics. Indeed, several concepts are associated with adaptation to climate change, including transformation and resilience. If the aim is to go back over its definition, the objective is also to understand to which notions and contextual elements the commitment to a strategy of adaptation to climate change refers in particular:

- The necessary complementarity between adaptation and mitigation strategies
- A dynamic and adaptive approach to project management
- Integration of the systemic effects of climate impacts (environmental, economic and societal)
- Taking into account the characteristics of the territory. Adaptation to climate change is a local matter, and the solutions deployed are at this scale
- The management of uncertainty and the articulation of different temporalities

Sharing these elements is an opportunity to provide the participants with keys to understanding in order to facilitate the emergence of operational responses that are consistent with their territories.

Relevant methods / tools (how to)

The IPCC reports set out the definitions and conceptual approaches associated with adaptation to climate change, which are shared internationally. They will be an essential reference for this sequence: <https://www.ipcc.ch/>

In addition, the documents associated with the standardisation of adaptation to climate change (ISO 14090:2019: Adaptation to climate change - Principles, requirements and guidelines, ISO 14091:2021 Adaptation to climate change — Guidelines on vulnerability, impacts and risk assessment and ISO 14092:2020 Adaptation to climate change — Requirements and guidance on adaptation planning for local governments and communities), Sendai Framework for Disaster Risk Reduction 2015-2030 will consolidate the contents of this sequence, respecting the use of those documents.

ENERGee Watch Partner Expertise

The various territorial awareness-raising workshops on climate change carried out in Île-de-France have made it possible to capitalise on these concepts.

In addition, guidelines on adaptation: <https://www.arec-idf.fr/nos-travaux/publications/adaptation-au-changement-climatique-et-plan-climat-1.html> provide a first accessible introduction to these subjects.

Through these practices, we wish to demonstrate to the participants the importance of creating a common “culture” on adaptation to climate change via different tools. The step of knowledge sharing is the moment when we understand how the participants have made those concepts their own.

This representation of concepts also applies to the representation of the vulnerabilities that each participant will have in his or her territory, a crucial point in the diagnosis phase to determine the issues at stake.

Practices in other European regions

To illustrate the proposed contents on the capacity to elaborate different operational trajectories according to different climatic scenarios, the testimony of the Environment Agency of the United Kingdom, on the construction site of the century concerning “the Thames barrier” would be interesting <https://www.gov.uk/government/publications/thames-estuary-2100-te2100>

In the same way, ADEME (French Environment and Energy Management Agency) has produced a number of technical sheets highlighting exemplary initiatives and approaches. One of them addresses a strategy for adapting the coastline at Lacanau (France).

The approach aims to study the technical, legal and operational feasibility of relocating assets and activities and to compare several adaptation strategies for the Lacanau coastline in order to inform political leaders.

https://www.ademe.fr/sites/default/files/assets/documents/ademe-fiche_lacanau-web.pdf

Link(s) with other courses

To a certain extent, links could be sought with course, “Data display, dissemination and validation by local authorities”, in particular on the representation, the uses in the field of energy and climate.



Topic 2

The fundamentals of assessment for adaptation

Description of the topic (what)

During this sequence, the aim is to put into perspective the evaluation methodology for adaptation to climate change. In the dynamics of the adaptation project, it will be necessary to understand which needs the data will meet: to draw up the diagnosis, to communicate and raise awareness, to have indicators for monitoring and assessment, etc.

As part of the evaluation process, this sequence will allow the participant to grasp different aspects and generic points of attention:

- Which evaluation questions do we want to answer?
- What demonstrations are sought?
- When should the evaluation be carried out?

These elements can be echoed in the session dedicated to the strategy development process. In addition, this sequence will also be an opportunity to understand - according to the set of skills specific to each country - who are the action's leaders. The action initiator also conditions and frames the expected evaluation requirement.

Relevant methods / tools (how to)

Several methodological references support this topic:

- UKCIP, Oxford, UK: AdaptME toolkit Adaptation monitoring & evaluation: <https://www.ukcip.org.uk/wp-content/PDFs/UKCIP-AdaptME.pdf>
- ADEME: Monitoring and evaluating climate change adaptation at local and regional levels: Learning from international experience to develop an M&E methodology: <https://climate-adapt.eea.europa.eu/metadata/guidances/monitoring-and-evaluating-climate-change-adaptation-at-local-and-regional-levels-learning-from-international-experience-to-develop-an-m-e-methodology>

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Institut Paris Region contributes to various assessment exercises of regional strategic documents that can inspire the contents of this sequence, such as the assessment of the implementation of the SDRIF (regional development plan for the Ile-de-France region).

<https://www.institutparisregion.fr/nos-travaux/publications/bilan-de-la-mise-en-oeuvre-du-sdrif.html>

Link(s) with other courses

Complementary links and approaches are to be sought with the course "Data collection course" and the course « Monitoring, reporting, verification: follow up on implementation of actions ». Cross-linked lessons on how to apprehend the indicators associated with mitigation and adaptation could be useful for a global approach to the evaluation of an energy-climate plan. This is an opportunity to assess the specificities of each of its components.

Practices in other European regions

The new EU strategy on adaptation to climate change illustrates the wide range of areas affected by climate change, including at the social level so as not to generate or exacerbate inequalities. The approach is intended to be systemic and highlight the articulation of different level skills:

<https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52021DC0082&from=EN>

In the same context, the European Environment Agency has established a report focused on monitoring and evaluation of national adaptation policies throughout the policy cycle. The report provides an overview of country developments in terms of strategies and plans for climate change adaptation (CCA) and their implementation in a context of global and European policy frameworks. The report brings together lessons learned — at the national level — on adaptation monitoring, reporting and evaluation (MRE), future directions and opportunities for mutual learning on evaluating CCA strategies and plans at national and European levels.

<https://www.eea.europa.eu/publications/national-adaptation-policies>

The evaluation of France's first national plan on adaptation to climate change provides some initial insights into how the evaluation has been approached in this area.

https://www.ecologie.gouv.fr/sites/default/files/ONERC_Rapport_evaluation_mi-parcours_PNACC_VF.pdf

<https://www.adaptation-changement-climatique.fr/centre-ressources/adaptation-au-changement-climatique-1>

https://www.ecologie.gouv.fr/sites/default/files/ONERC_Rapport_2016_EvaluationNap_EN.pdf

Topic 3

Drawing up the diagnosis

Description of the topic (what)

The main subject of this sequence concerns the elaboration of the diagnosis. This will include understanding the method associated with vulnerability analysis, which articulates the notions of hazards, exposure/sensitivity and capacity to reduce risk.

A benchmark based on the work of the observatories at different territorial scales will shed light on the most commonly used data and those specific to the characteristics of the territories. It will also be a question of understanding the circuit of data sources and the role of the stakeholders contributing to this vulnerability analysis.

This time dedicated to the diagnosis, will be an opportunity to understand the various climate impacts at European level and to identify the resources and capitalisation elements available to European regions.

Following this sequence, the mentee will have the keys to approach the elaboration of this diagnosis and to assess the sources of information that can help him/her in this exercise.

Relevant methods / tools (how to)

The ISO-norm 14091:2021 Adaptation to climate change — Guidelines on vulnerability, impacts and risk assessment contains guidelines to conduct a diagnosis. This standardisation provides a framework for assessing the vulnerability of a territory.

Different approaches are possible, as shown by the publication of the European Environment Agency: <https://climate-adapt.eea.europa.eu/metadata/publications/adapting-to-climate-change-european-countries-assess-vulnerability-and-risks>

The TACCT methodology developed by ADEME could be reused for this sequence. This tool proposes a methodological approach to identify the consequences of climate change on a given territory and to formulate priority objectives for action. This methodology also helps in the development of a monitoring-evaluation process for climate change adaptation policies. It should enable a local authority to measure and monitor the progress of its policy as well as to evaluate its performance with a view to improvement and policy coherence.

In addition, the ADEME report "Indicators of a territory's vulnerability to climate change" - a collection of international literature - will consolidate these content elements.

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-Ile-de-France region and ADEME carried out a study on vulnerabilities in the Ile-de-France region, highlighting systemic effects.
<https://www.teddif.org/sites/teddif/files/fichiers/2019/04/impacts-socio-economique-adaptation-changement-climatique-0.pdf>

Practices in other European regions

-The testimony of Climate-Adapt referent, the European resource platform on adaptation to climate change, is awaited. <https://climate-adapt.eea.europa.eu/> This would be an opportunity to apprehend the data and knowledge accessible through this one-stop shop for knowledge at European level.

-The testimony of AURA-EE would illustrate the structuring of climate database at a local scale (identify, collect and consolidate the data):

<https://www.orca-e-auvergne-rhone-alpes.fr/methodologie/climat/indicateurs-climat>

-Some observatories rely on the PER (Pressure-State-Response) method to characterize indicators. These elements may contribute to the contents of this sequence: <https://hal.archives-ouvertes.fr/hal-00794558>

Link(s) with other courses

A link can be made with the course "Data collection course", in particular on aspects related to access, quality and regular / periodic update of data.

Topic 4

Tools associated with the diagnosis (representation, deliverable, sharing)

Description of the topic (what)

This sequence will enable the different tools associated with the diagnosis to be assessed both in terms of content and the associated sharing. In the content elements, the cartographic representation tools to express the territories' vulnerabilities enable the effects of the climate (urban heat, floods, drought, etc.) to be materialised and contribute to raising the awareness of elected representatives. This will be the opportunity to question the associated means to deploy this cartographic work.

The scope of the diagnosis is all the more significant as it is shared by the greatest number to build this common vision of the territory's stakes and to initiate the elaboration of an associated strategy. This sequence will refer to the practices associated to collective intelligence (from the construction of the unfolding of a typical workshop to the methods of animation to reach the desired objective). At the end of this sequence, the participant will know a first panel of tools to consolidate the elements of diagnosis and to valorise it.

Relevant methods / tools (how to)

The methodologies dedicated to collective intelligence will be reference elements for this sequence. They allow a structured approach and make us reflect on the desired purpose of these collective times. Some organizations describe these practices as examples:

- <http://www.artofhosting.org/>

- <https://www.arec-idf.fr/nos-travaux/publications/la-concertation-energie-climat-1.html>

The SWOT analysis will also be discussed in the diagnosis sharing elements during this sequence. This classic method for representing the stakes makes it possible to associate a temporal approach between today's observations and what could happen in the future.

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-The various territorial awareness-raising workshops on climate change carried out in Île-de-France have made it possible to capitalise on the way in which these collective times are conceived in order to ensure that the diagnosis is shared in the best possible way. One exercise concerns the prioritization of the main stakes linked to climate change via "game cards" called "Climate at stake": https://www.arec-idf.fr/fileadmin/DataStorageKit/AREC/Ressources/Outils/KO_plansclimat/cartes_jeux_vf.pdf

In order to do this, several groups mixing local mandate authorities and stakeholders were set to perform. They agreed on a shared vision of the issues.

-This sequence will be also an opportunity to visualise the issues in a cartographic form and to rely on examples of territorial diagnosis such as the one of the PCAEM: <https://www.metropolegrandparis.fr/fr/plan-climat-air-energie-metropolitain-76>

In particular, Institut Paris Region contributed to the diagnosis by producing cartographic representations, notably those on the effects of a heat wave.

Practices in other European regions

-CO-designing the Assessment of Climate CHange costs (COACCH), project funded by the European Union's Horizon 2020 research and innovation programme, is an interesting reference of intelligence collective tool. One of his specific goals is to develop a challenge-driven and solutions-orientated research and innovation approach involving stakeholders in the co-design, co-production and co-dissemination of policy driven research:

<https://www.coacch.eu/>

-The CERDD (environmental agency for the Hauts-de-France region) has conducted design thinking workshops with elected officials to raise their awareness of territorial issues and co-construct the most appropriate tools for their peers and facilitate the transition to action: <http://www.cerdd.org/Actualites/Changement-climatique/Adaptation-et-elu-es-un-dispositif-innovant>

Link(s) with other courses

To a certain extent, links could be sought with course, "Data display, dissemination and validation by local authorities", in particular on how to disseminate data.

Topic 5

Strategy development

Description of the topic (what)

Once the diagnostic elements and the associated challenges have been identified, the aim of this sequence is to understand the tools and methodologies associated with the development of the climate change adaptation strategy. At the end of this sequence, the participant will be able to understand the different types of actions that can be implemented and the prioritisation work to build adaptation paths. The review of the indicators and data associated with this stage will be part of the content provided during the sequence. These elements guide the resulting analysis work for those responsible for climate change adaptation policies. Even if the measure concerns the effects of the actions, it is also valuable to apprehend it with a qualitative perspective, for example on the means deployed or the governance associated with the strategy.

Relevant methods / tools (how to)

At the international level, under the Nairobi programme on impacts, vulnerability and adaptation to climate change was developed a report reviewing different assessment approaches and methodologies and shares best practices and lessons learned, which could inspire the adaptation pathways:

https://unfccc.int/resource/docs/publications/pub_nwp_costs_benefits_adaptation.pdf

The European Commission has financed the Life Sec Adapt which contains some guidelines to conduct an adaptation strategy:

http://www.lifeseadapt.eu/fileadmin/user_upload/ALLEGATI_LIFESEADAPT/EXCHANGE/C3_Adoption_of_Local_Climate_adaptation_strategy_and_plans_through_SEAP_integration/Methodology_Strategy_and_Action_Plan.pdf

In addition, the documents associated with the standardisation of adaptation to climate change (standard ISO 14090:2019: Adaptation to climate change - Principles, requirements and guidelines and ISO 14092:2020 Adaptation to climate change — Requirements and guidance on adaptation planning for local governments and communities), the TACCT methodology (ADEME) will consolidate the contents of this sequence.

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The testimony of the City of Paris will illustrate the contents of this sequence. The City of Paris has been committed to a climate plan since 2007 and has been implementing a resilience strategy since 2018. One of the emblematic actions of the Paris strategy is the transformation of schoolyards into oases. The aim is to contribute to the refreshment of the city by making schoolyards watertight. Beyond the technical considerations, this action opens the reflection on multi-functional spaces and on the awareness-raising accompanying the project with teachers, parents and students.

Practices in other European regions

Approaches and strategies for adapting to climate change are emerging at European level, through sectoral or territorial entries (some elements available on <https://climate-adapt.eea.europa.eu/>). We can refer to the following feedback as illustrations:

-Adaptation in winter tourism in Spessart (Germany): the objective of the region of Spessart is to develop touristic offers towards all-year activities, compensating the winter losses in the "skiing" sector that occurred due to reduced snow and snowfall security resulting from changes in climatic conditions.

-Climate-adapted management of the Körös-Maros National Park (Hungary): a park was created for the protection of birds. The impacts of climate change on this environment can be significant and varied. They also exacerbate other forms of pressure. In order to deal with these impacts, a specific climate change adaptation management plan (which includes management strategies and measures, restrictions, barriers, indicators and stakeholder engagement methods) has been created.

Link(s) with other courses

To some extent, links could be sought with course "Monitoring, reporting, verification: follow up on implementation of actions", in particular, on the monitoring of the implementation of actions.



Topic 6

Your roadmap

Description of the topic (what)

The objective is to be able to draw up a first version of the roadmap. Each participant will be able to draw on the lessons learnt during this cycle and lay the foundations for the first elements of the framework:

- What actions would you like to implement following this training?
- To meet what objectives?
- What would be the steps to achieve them?

To facilitate this exercise, a framework document will be available at the first topic of the learning course. This document integrates some structural questions in links with the main contents of each topic. The mentee will have the possibility to answer during the session or between the sessions.

This sequence will be split in 3 steps:

- Finalize the framework document and fill 2 actions sheets. The latters will formalize the first intentions of the mentee to prefigure an adaptation strategy depending his position in the territory
- Sharing inside the group
- Collective feedback to complete each mentee's roadmap

Relevant methods / tools (how to)

Several tools could be articulated: framing note, specification sheet, model of an action sheet in order to facilitate and structure the guidance for the sequence. We will pay a particular attention to the methods of collective intelligence to share and advance everyone's thinking in a limited amount of time.

ENERGee Watch Partner Expertise

The various territorial workshops to raise awareness on climate change carried out in Île-de-France have made it possible to capitalise on the way in which these collective times are conceived, and in particular how they help structure the local authority roadmap.

The specific tool for framing PCAET approaches could be adapted to a reflection on adaptation to climate change processes.

https://www.arec-idf.fr/fileadmin/DataStorageKit/AREC/Ressources/Outils/KO_plansclimat/Outil_de_cadrage_du_PCAET.xlsx

Practices in other European regions

-Interreg Alpine Space: The Alpine Space programme is a European transnational cooperation programme for the Alpine region. It provides a framework to facilitate the cooperation between economic, social and environmental key players in seven Alpine countries, as well as between various institutional levels such as: academia, administration, business and innovation sector, and policy making.

Within this framework, a governance mapping has been developed to visualise the interactions between actors, planning documents and actions. It sheds light on the strengths and weaknesses of the approach and on the adjustments to be made in the roadmap for each of the stakeholders.

<https://www.wsl.ch/gov-vis-cca/>



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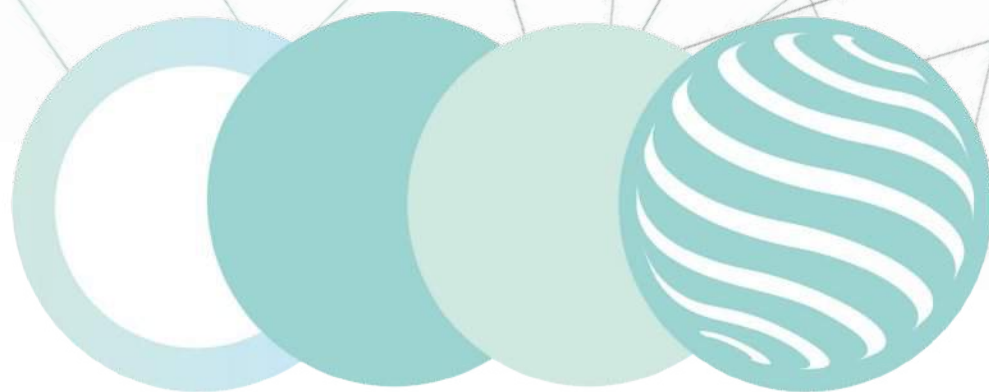
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The logo for ENERGee Watch features four overlapping circles. From left to right: a light blue circle with a white crescent, a solid teal circle, a light teal circle, and a teal circle with white wavy lines. Below the circles, the text "ENERGee Watch" is written in a bold, teal, sans-serif font.

ENERGee Watch



The ENERGee Watch project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under grant agreement no. 892089.

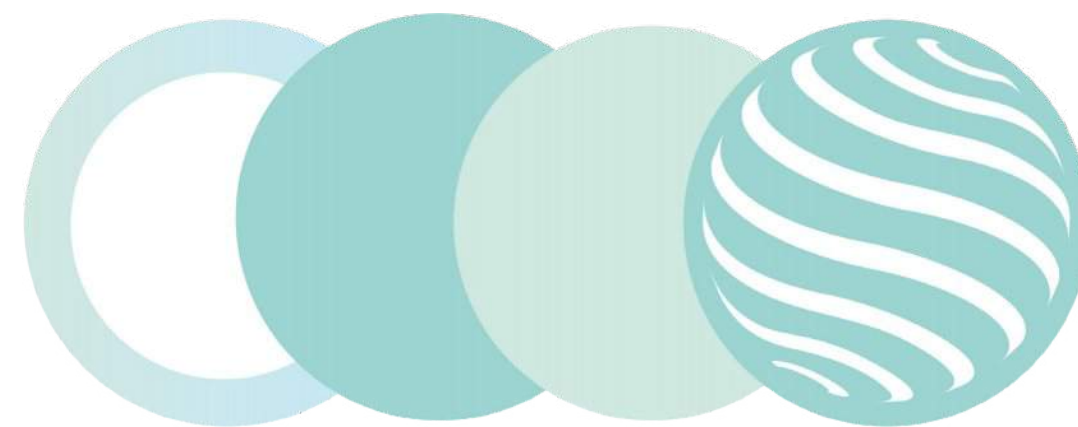
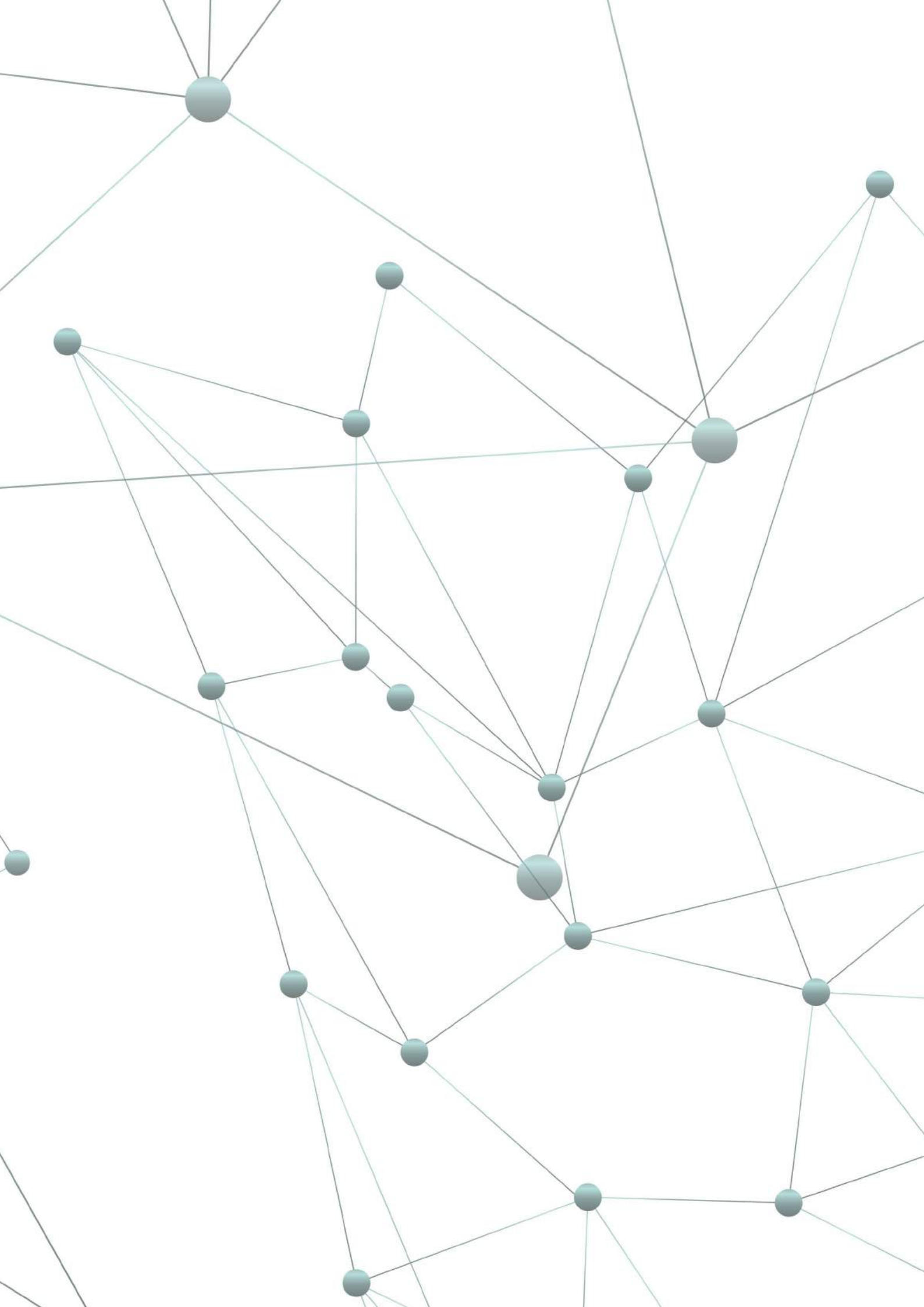


ENERGee Watch

Curriculum and learning material for Course:
Data display, dissemination
and validation
by local authorities



The ENERGee Watch project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under grant agreement no. 892089.



Data display, dissemination and
validation by local authorities



Introduction

The ENERGee Watch project stems from the existing informal European network of regional greenhouse gas emission observatories managed by FEDARENE whose mission is to collect, monitor, and report Greenhouse gas (GHG) Emissions and implement energy saving strategies and policies.

Many of the structures are governed by a local consortium gathering at least several public authorities and energy data suppliers. They are very often supported by public authorities and integrated within existing regional organisations such as energy agencies or public departments. The value that this type of structure can provide stems from their expertise in data gathering, data analysis, and energy planning.

These observatories contribute strongly towards building a representation of the territorial impact on climate change and a framework for identifying areas of responsibility and priority areas for action. To best serve society, the observation of GHG emissions is a prerequisite before taking any appropriate action. The tasks of an observatory are very diverse. An observation system primary task is to provide data – most often free of charge – and improve knowledge about the territory's current and future situation with regards to impacts caused by climate change (energy and information related to GHG emissions). In some cases, air quality, social, economic or environmental effects on climate change are included. As a result, an observatory will characterise the current situation and the challenges on climate change, identify trends and influencing factors, and define various scenarios to meet any long-term energy and climate targets.

Another role is to analyse and monitor the development of the territory's situation on climate change, by identifying the challenges and by keeping an account of GHG emissions and energy consumption in order to measure the progress. To this end, an observatory will determine both quantitative and qualitative objectives, identify resources and opportunities to take action. Moreover, an observatory provides expertise and advice in policy development and in the decision-making process. Indeed, it tracks progress against fixed objectives, adjusts efforts and focuses on climate action. Lastly, it evaluates the impact of climate action in terms of energy saved and GHG emissions avoided, then providing local stakeholders with a forum for sharing knowledge and experience gained.

The overall aim of ENERGee WATCH is to launch a peer-to-peer learning program to enable regional and local authorities to timely and accurately define, monitor and verify their sustainable actions. The learning process targets regional and/or provincial authorities and their agencies and observatories that are responsible for collecting and overseeing the monitoring of mitigation and adaptation indicators in order to empower them to make use of the best practices learnt.

Regional observatories are powerful tools to implement efficient strategies at local and regional levels. Through ENERGee Watch, the objective is to increase the capacity of data observation across Europe to best support local and regional decisions makers in their fight against climate change.

Data display, dissemination and validation by local authorities

Overall description of the course

Introduction

This course on data display, dissemination and validation by local authorities will educate and provide a sound knowledge base and understanding of the principles and best practices of data communication and presentation. Throughout the course, the participant will learn how to best identify their target audience and the key considerations to make in order to communicate a message, through the use of data, most effectively. Alongside this, the key modes of data communication will be identified with a detailed breakdown of how these modes can be replicated for any respective geographic area and audience.

More specifically, this course will cover how to identify the key factors that determine how to disseminate data (regulations, targets, usage, etc.), how to identify the key recipients and stakeholders, identifying their needs and expectations, collecting data and getting it into the required format, some methods and tools to represent and illustrate data patterns and messages in data (graphs, Sankey diagrams, maps etc.) and finally how to efficiently disseminate this data and the subsequent messages (technical reports, newsletters, online tools, etc.)

Here in Auvergne Rhône-Alpes, within the association, our purpose is to serve the territories as a reliable and impartial source of information relating to the performance of the region on climate and energy-related topics.

Course objectives

- To know your audience and their ultimate needs
- To better appreciate the role that data can play in making decisions
- To recognise how data visualisation can be a persuasive tool
- To assess the best data display method for the objective, audience and desired response
- To manipulate data to suit different representation styles
- To understand the different data dissemination and display options available

Topics

The topics are organised in a way to accompany the participant from a general understanding of the key principles behind communicating and presenting data, to being able to implement certain data representations themselves in a range of styles to meet a variety of needs.

What determines effective communication of data?

- Requirements imposed and regulations for data distribution and communication.
- Who are the stakeholders and what audience is being targeted? What level of knowledge do they have?

Identifying the information needs of the end-users

- What type of information is important?
- At what level of detail?

Data manipulation and presentation in an effective manner

- What types of data presentation are there?
- Identifying the positives and negatives of each type of data presentation.
- How to best prepare data to be manipulated and communicated for these modes of data display.

Implementing data display tools

- A step-by-step instruction of how to generate specific types of data display and the tools required.
- Specific examples of implementation (charts/graphs, Sankey diagrams, geographical representation, online display).

An insight into TerriSTORY®, an online tool to accompany territories in following and achieving their energy and climate objectives

- TerriSTORY® and its creation.
- Key data inputs required.
- How can this tool be used at a European level for other organisations and territories.

Different modes of data dissemination

- How to evaluate the best method to communicate data
- Different types of data dissemination available
- What to consider when creating a communication package (newsletter, technical reports, etc.)

Mentors

Thomas Knight is a project manager in the Territorial Intelligence and Observatory team at **Auvergne Rhône-Alpes Energie Environnement** (AURA-EE) since the beginning of 2020. Thomas is responsible for the quality and accuracy of the energy-related and economic calculations for the regional energy and climate data observatory (ORCAE) and is an active participant in the development of an online data tracking tool for the territories of the region; **TerriSTORY®**.

In his role as a project manager, he is regularly faced with data presentation challenges. In working on multiple tools such as TerriSTORY® and the data observatory, it is necessary to think about who the recipient of any publication will be and how to best present data, whilst fitting any pre-defined requirements.

Target

This course is for professionals that work regularly with data and are either required to, or wish to learn more about how to, present data in a succinct and detailed manner. The aim of this course is to identify how to best communicate a dataset or to portray certain messages in the data.

Throughout the course we will treat the key topics necessary to ensure effective and complete communication of data and information. Some current challenges that this course could rectify include; a lack of interaction with recipients of datasets, the misunderstanding of datasets, difficulty in portraying messages that are in the data, a requirement for datasets to be communicated in a particular way, a need to find more innovative/representative data visualisation methods or simply an interest to develop links with existing innovative tools.



Thomas Knight

Territorial Intelligence and Observatory team
Project Manager at AURA-EE



Topic 1

What determines effective communication of data?

Description of the topic (what)

This topic concerns the initial identification of the best and most effective mode of data display, dissemination and validation for a given recipient. The basis is to firstly identify any regulations or impositions on the collection and processing of data in a particular region or area and to identify the best practises.

Following this, it is of great importance to target the stakeholders who should be considered and/or who are affected by any dissemination and communication of data. It is necessary to keep in mind their contributions, needs and the potential consequences.

Finally, identifying the audience is crucial in communicating a dataset or information of any kind. If this is not outlined well, then there can be rather large consequences, notably a loss of time and money.

Relevant methods / tools (how to)

For this topic, the key is really to understand the needs of your own organisation, the stakeholders, and to know the users/market into which the data will be communicated.

To develop a good understanding, one must ask the important questions of those responsible for disseminating the data and of those that validate its communication.

Next, the recipients of the communicated data and information must be considered. For this, the desired result must be taken into account. If the information is destined for local territories for example, the information needs to be detailed and in line with any regulations or objectives specific to a local territory. If, however, the information is to be distributed to company directors, it is necessary for the information to be succinct, clear and with the main conclusions well presented.

These are the key approaches to be covered in this topic.

Practices in other European regions

Across France there are many different organisations that take into account the points of view of the stakeholders and users of datasets. A specific example is that of the Network of Regional Energy and Environment Agencies (**RARE**). This group is intended to address the key concerns of the energy agencies, considering the most appropriate methodological approaches, how data is best presented and communicated, and how to best serve the users of this data, notably the territories.

ENERGee Watch Partner Expertise

In order to serve the territories well as a reliable and impartial source of information, it is necessary to understand what the regional government, the regional ministry of energy (Ademe), our members and the territories want and need. Throughout the year, we undertake many workshops to adapt what we offer to best suit the needs of these stakeholders. For example, there are various working groups for our online tool, TerriSTORY®. These regular meetings between stakeholders (internally called "Pilot Committees") cover many topics including;

- Which climate and energy indicators are the most relevant.
- How to integrate territorial strategies into the tool to allow territories to better track their contributions to national and regional targets.
- Which areas are required to be further developed (indicators, sectoral coverage etc.).

Integrating the ideas of the key stakeholders reinforces the power that an organisation has in sharing data and information. The better the understanding of what the stakeholders and users need, the more effective the data dissemination and usage.

Link(s) with other courses

Across all of the four learning courses, the presentation and communication of data is not only present, but necessary. In the collection and verification of energy or climate data, the identification of who is concerned is of critical importance to ensure that the correct data is collected and treated in an adequate manner, taking into account the end-users.

Topic 2

Identifying the information needs of the end-users

Description of the topic (what)

Topic 2 builds upon what was learned throughout the first topic; identifying and communicating with the stakeholders and end-users and helps to identify what type of information, and at what level of detail, is most important.

As previously identified, it is important to align the type of data display to the audience and those of whom will utilise the information communicated. Depending on these needs and requirements, the information needs to be processed and presented in a clear and concise manner.

Particularly for the end-user, the use of the information needs to be considered. For example, if data is intended for a group of territories to adapt their energy and climate planning, the information communicated needs to be relatively specific. Whereas, if the information is to provide a general overview the detail is not as important as providing the key messages that the information provides.

We will use a couple of examples currently in use to identify how data presentation can differ depending on the recipient.

ENERGee Watch Partner Expertise

To identify an example, the energy and climate data observatory (ORCAE) that is produced by AURA-EE produces various publications for different needs of the end-users whether that be short newsletters or in-depth profiles for each territory or for specific energy and climate matters.

Relevant methods / tools (how to)

Ideally, the participant will already have identified the target audience for the data presentation and communication. If this is the case, more focus can be put on adapting the data presentation to the type of recipient (company, local territory, politicians, etc.).

The primary methods used would be to understand the information the most important to these target groups or end-users. In doing so, this will help to construct a framework for how to best display information for each respective end-user.

Practices in other European regions

There are various other observatories in France and across Europe with similar approaches; allowing the needs of the user to guide the dissemination and presentation of data. Some examples include the regional observatory of Brittany (OEB) in France, the Technical Chamber of Greece Energy Observatory ([link](#)) and the setting up of a Regional Steering Committee as part of the Zlin Region Energy Monitoring Centre in Czechia ([link](#)).

Link(s) with other courses

In determining the needs of the end-user, there is a strong link between this course and Course: Indicators, and strategies on adaptation to climate change, due to its complex content and the high demand for climate adaptation information.



Topic 3

Manipulating and presenting data

Description of the topic (what)

Throughout this topic, the different forms of data representation will be identified, detailed and their benefits and drawbacks assessed depending on each use case.

With such a large array of data display and communication options available, it is necessary to understand the approach in choosing the most effective and the message wishing to be communicated. This will be accompanied by an evaluation of the strengths and weaknesses of each mode of dissemination.

These modes of data communication and representation will be explained in detail from developing simple charts and graphs to creating detailed systems analyses, including Sankey diagrams and mapping data points.

Finally, participants will be educated in how to best prepare a dataset to be used in such forms, including the validation of all data requirements, the format and the final presentation.

ENERGee Watch Partner Expertise

At AURA-EE, we use a combination of online tools and in-house expertise for such things as the Sankey diagram or graphical representations, as seen in TerriSTORY® and ORCAE.

More specifically in **TerriSTORY**, there are large databases of data inputs and assumptions to which we apply code in order to create the online graphical and mapping visualisations.

Relevant methods / tools (how to)

The primary tools and methods that will be identified and discussed will be directly linked to each mode of data representation. For such presentation modes as a Sankey diagram or through our online tool TerriSTORY®, there will be a need to firstly manipulate the data into the correct format, then to use a specialised tool to create such representations. At AURA-EE, to create Sankey diagrams, we utilise the tool **e-Sankey**. Alternatively, the representations in TerriSTORY® are created from scratch using a combination of data series and coded scripts.

Practices in other European regions

Throughout France, there are multiple regions that are now aligning their data dissemination practises with, and integrating them into, TerriSTORY® to best serve the territories they represent. These so far include the regions Occitanie and Nouvelle Aquitaine, both of which are coming to the end of development, with increasing interest from other French regions.

Link(s) with other courses

This topic has a strong link with all three other courses, where the management of data is present in all courses, particularly the collection and validation of data.

Topic 4

Implementing data display tools

Description of the topic (what)

The primary objective of this topic is to clearly identify and demonstrate different modes of data display and representation. From simple graphs and charts to more complex methods such as linking data with an interactive map.

To best explain how to implement these different options, it is also necessary to know how to manipulate the data into a suitable format (Topic 3). This will facilitate the process of developing and replicating different data presentation options.

Throughout, the topic will provide a step-by-step guide as to what is efficient data presentation, best practises, and the implementation of:

- Graphs and charts
- Sankey diagrams
- Visual representations of energy potentials
- Geographical mapping
- Integration of an online visualisation tool (TerriSTORY®)

ENERGee Watch Partner Expertise

In Auvergne Rhône-Alpes, all representation methods are employed across a variety of mediums. Firstly, TerriSTORY® demonstrates a host of data representation options from key energy and climate indicators combined with geo-location, simple charts and graphs, interactive graphs and its integration into an online platform.

The observatory (ORCAE) makes use of primarily graphical representations and tables to express the messages within data sets.

Relevant methods / tools (how to)

To best implement the most effective data representation, the most effective tools are necessary. Tools used include Microsoft excel, e-Sankey and sometimes complex coding. Dependent on the mode of representation, different tools and approaches must be used.

Practices in other European regions

Across French energy and climate observatories, these graphical methods have been identified for some time as the most efficient data communication methods. Within Brittany, the observatory has undertaken a **geographical analysis** of the actions and the costs of waste management by grouping of communes. Meanwhile, Nouvelle Aquitaine have managed to visualise the combined energy and climate action plans made by each commune in the region and what that means when compared to regional energy objectives.

Link(s) with other courses

The primary link here would be with Course: Indicators, and strategies on adaptation to climate change, where the development of graphs and maps would be shared within the courses.



Topic 5

TerriSTORY®, a deeper insight

Description of the topic (what)

The focus of this topic is the primary online data visualisation tool of AURA-EE, TerriSTORY®. This free to use online tool was created to fill a gap in the market for a simple to use, bottom-up energy and climate data tracking and visualisation tool made for the region by the regions.

TerriSTORY® requires many data inputs to create the diverse data display. These key inputs and the processes required will be identified and discussed as well as the primary functions of the tool, starting from early on in its development, to where it is today.

The tool is there to facilitate the integration of multiple regions, to provide a broader picture of the energy and climate situation in each region or country, comparing this to desired objectives

ENERGee Watch Partner Expertise

TerriSTORY®, as identified, is an all-round tool with a wide array of data visualisation examples. In Auvergne Rhône-Alpes, it has been functioning since 2018 and since then has developed many new functionalities.

Relevant methods / tools (how to)

The methodology used within TerriSTORY is relatively complex with each function requiring separate analysis of data with a specialised approach ([TerriSTORY® presentation](#) – in French).

In developing this online tool, many hours of discussions have taken place with key stakeholders, who make up a consortium of members, to identify the role that TerriSTORY plays and what developments are to be made ([Signature of the consortium](#) – in French).

Practices in other European regions

Currently, TerriSTORY is active in two other regions, Occitanie and Nouvelle Aquitaine, both at different stages of development. The addition of these two regions was thanks to the service that TerriSTORY offers to territories in tracking and easily visualising the current and future trajectories of the region and the territories that it is made up of.

There exist other online data visualisation tools. One such example is that of [Energiluppen](#), created by the northern Sweden energy agency ([Energikontor Norr](#)).

Link(s) with other courses

This topic has potential links with that of the data collection and verification courses, due to the need for the appropriate data and the assurance that it is in the necessary format to be processed and implemented in TerriSTORY®.



Topic 6 Data dissemination

Description of the topic (what)

Throughout this topic, the modes of data and information dissemination will be highlighted as well as the important role that it plays. It is important to first identify the needs of the end-user (as previously covered in Topic 2) and choosing the mode of representation (Topic 4), before identifying the best medium for the information to be communicated. This also depend on who the end-user is (politician, student, expert etc.). Other considerations are such things as the timeframe of delivery and the financial budget available.

Multiple modes of communication are to be covered including textual documents (newsletters, technical reports, etc.) to presentations and more data heavy publications (excel data sets).

Each of these considerations require different approaches and preparatory steps to ensure the information and message is communicated in an effective and clear manner to the user.

ENERGee Watch Partner Expertise

Within Auvergne Rhône-Alpes, we publish many forms of documents of a range of platforms.

Within ORCAE, there are technical reports written at a regional level and a territorial level to details the key figures and trends over the past years, this is accompanied by simple historic datasets to support the messages communicated.

Covering multiple work areas, newsletters also serve the public to inform them of advancements in certain projects or to provide an update of any changes that can be expected in the future.

Alternatively, the agency website has a multitude of resources to discover, alongside TerriSTORY, the online tool available to all, free of charge.

Relevant methods / tools (how to)

Depending on the type of data dissemination, the method and tool requirements differ. For newsletters and reports, a good standard of writing in a detailed fashion is necessary, simply using a tool such as Word. Yet an ability to simply summarise the messages in the document is also a necessity to ensure that those not wanting to go into the details of a report can extract the key points discussed.

When communicating data sets, depending on how much the data has been processed, Excel will allow the organisation of the data. Such data nonetheless needs to be presented in a clear and concise manner.

Practices in other European regions

Similarly, other regional energy agencies choose the mediums of newsletters, datasets, and websites to best communicate the information. This is not a consistent practise with some regions better than others.

Link(s) with other courses

This topic has links with all other learning courses. As the dissemination of information is so important for all energy data matters, there is a strong common interest for all participants and course leaders.

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The logo for ENERGee Watch features four overlapping circles. The first circle on the left is a light blue ring. The second circle is a solid teal color. The third circle is a light teal color. The fourth circle on the right is teal with white wavy lines. Below the logo, the text "ENERGee Watch" is written in a bold, teal, sans-serif font.

ENERGee Watch



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