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Progress and implementation of ENERAGON transversal project

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LABEX DRIIHM ANNUAL
SEMINAR – 06/20/2022

PROGRESS AND IMPLEMENTATION OF ENERCON TRANSVERSAL PROJECT



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"Transversal projects" session



ENERGON

Energy transition and reconfigurations of socio-ecosystems: mobilizing the OHM to produce and integrated methodology

is carried by 6 OHM

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5 Sub-hypothesis

Central hypothesis:
energy transition has a
reconfiguring effect on
socio-ecosystems

We question the
cross-effects of three
elements of the “Society-
Technical-Environment”
nexus on the socio-
ecosystems studied



Sub-hyp 1: energy transition (ET) leads to a
reconfiguration of the scale of governance and
operation of energy systems



Sub-hyp 2 : ET leads to a reconfiguration of
the local/regional relationship



Sub-hyp 3 : ET has a complex relationship with
climate change and ecological status



Sub-hyp 4: ET is hindered by pathway
dependencies



Sub-hyp 5: ET is a vector of conflicts

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REMINDING OF THE PROJECT STAGES

EACH STAGE LASTS
AROUND 6 MONTHS



STEP 1: Identification of a transition project on each OHM (common Knowledge basis)



STEP 2: Identification of technical, environmental, socio-political aspects (variables issue)



STEP 3: Compilation of T+0 data -> assess the state of the socio-ecosystem before the transition



STEP 4: Production of data T+1 after the transition project

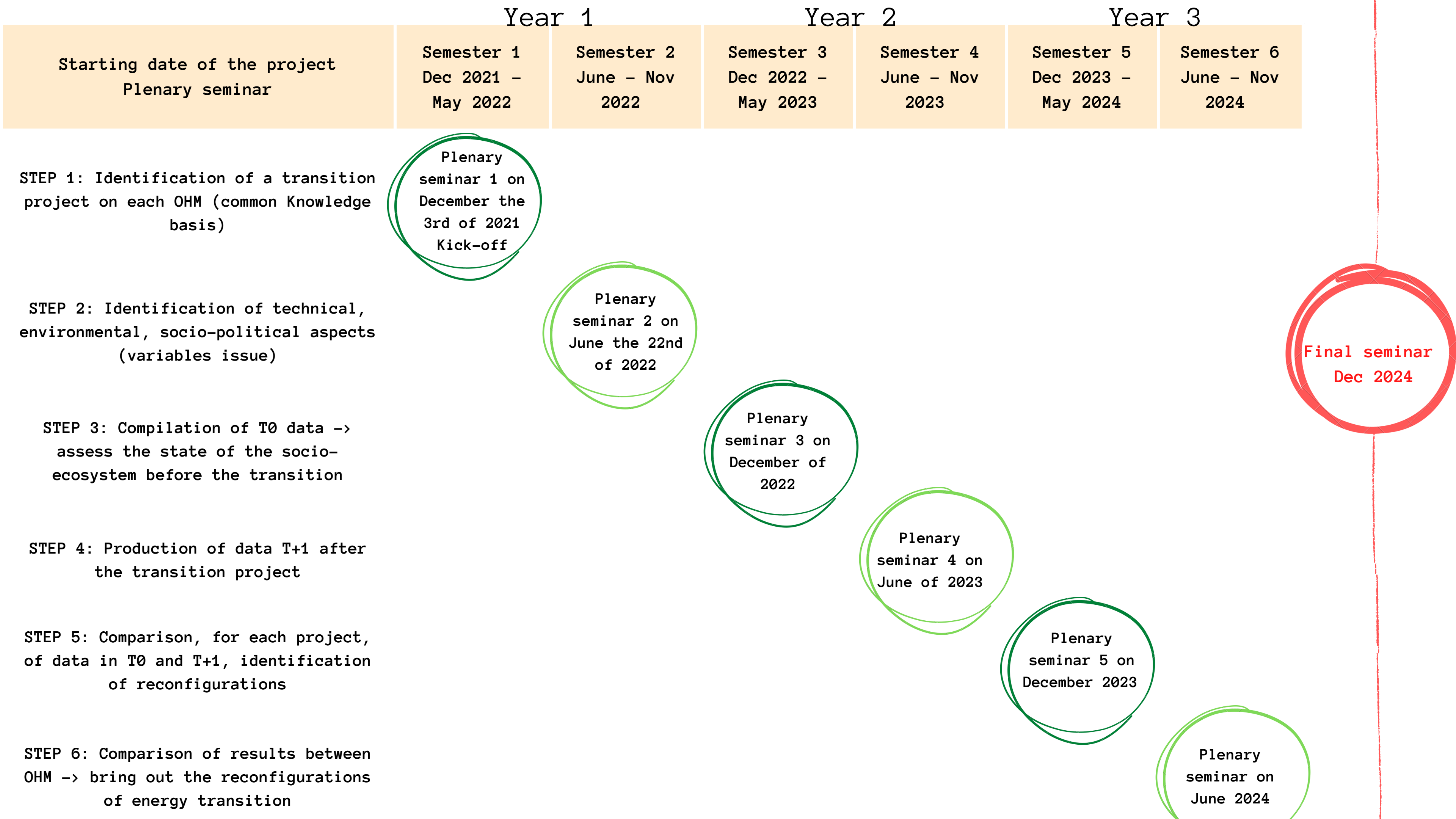


STEP 5: Comparison, for each project, of data in T0 and T+1, identification of reconfigurations



STEP 6: Comparison of results between OHM -> bring out the reconfigurations of energy transition

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**STEP 1:
IDENTIFICATION OF
A TRANSITION
PROJECT ON EACH
OHM (COMMON
KNOWLEDGE BASIS)**

Done ✓

The Postdoc was recruited on November the 1st of 2021

The Kickoff meeting was realized on December the 3rd of 2022

The transition project differs according each OHM, it take the form of a sector that covers the entire territory of the OHM, or is symbolized by a production unit; in any case it will be necessary to study how projects or projects systems carry the transition and act on the reconfiguration of the socio-ecosystem

OHM P de B : the biomass sector throughout the territory

OHM Pima County : the photovoltaic sector throughout the territory

OHM Nunavik: the circumpolar greenhouses

OHM Fessenheim : renewable hydrogen production unit and its emerging sector

OHM VR: the role of hydroelectricity in the energy transition

OHM BMP: the biomass power plant and the project system replacing the coal-fired power plant

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**STEP 2:
IDENTIFICATION
OF TECHNICAL,
ENVIRONMENTAL AND
SOCIO-POLITIC
ASPECTS OF THE
PROJECT
(PROBLEM OF
VARIABLES)**


is launched

 The reflection on data to collect and data management plan (DMP) is launched


 Meeting on June the 22nd of 2022


 Objectives in progress

 Sharing common questions, common data, common methodologies

 Building the energy identity card of each OHM

 To converge taking into account the specificity of each OHM

 In particular the differences in terms of surface, territorial units and data sources

 Each OHM specifies its study area

 New challenges to take on

 Categorizing the technical, social and environmental aspects

 Introduce the concept of nexus

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CONCLUSION
STEP 2
LAUNCHING OF STEP
3

COMPILATION OF T+0
DATA -> ASSESS THE
STATE OF THE SOCIO-
ECOSYSTEM BEFORE
THE TRANSITION

coming

- Two days of plenary meeting in December of 2022
- Ramp up at the end of year one
- Main transversal advances and for each OHM
- Field visit
- Open seminar with guest researchers on energy transition issues
- Joint publication project

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Organization of work and typology of meetings clarified during last month

Plenary seminars
half yearly or
annual
one of 2 days



At each new stage
of the project
Major advances in
transversal
research

Steering committee
Quarterly meeting
Project manager of
each OHM



To share a common
view of each stage
To prepare plenary
seminars

Monthly workshops
of every two months



To share concepts
methodologies
To share field
experiences

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Way of progress in concrete research

Master's internships:

Only 1 OHM initiated the process; the others will launch the process during year 2

Projects selected in the framework of the DRIIHM's latest call for research and in connection with the ENERGON program

- OHM P de Bitche : 1 project
- OHM Pima County : no project
- OHM Nunavik: 1 project
- OHM Vallée du Rhône: no project
- OHM Fessenheim : 5 projects
- OHM BMP: 5 projects

PhD students in connection with ENERGON program

Sascha Perroux (closing the French coal-fired power plant)
and Gaël Bohnert (climate change adaptation strategies)

PROGRAM COORDINATION

TARGETS

Discussion
facilitation and
definition of the
study cases

Making the program
visible

Organising and
supervising

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Discussion facilitation

#1 FACE-TO-FACE PLENARY MEETINGS

#2 RESULTS OF THE FIRST PLENARY MEETING : SELECTION OF PROJECTS TO STUDY

#3 MEETINGS OF THE STEERING COMMITTEE

#4 MONTHLY WORKSHOPS

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#1 Face-to-face plenary meetings

EVERY SIX MONTH

KICK-OFF DAY at the CEREGE Laboratory located in the Technopôle de l'Arbois, on December 3, 2021

Choice of energy transition projects to be studied in each observatory

Common presentation structure to encourage transversality: contextualization, previous research and lists of energy transition projects identified within the OHM, choice of energy transition project

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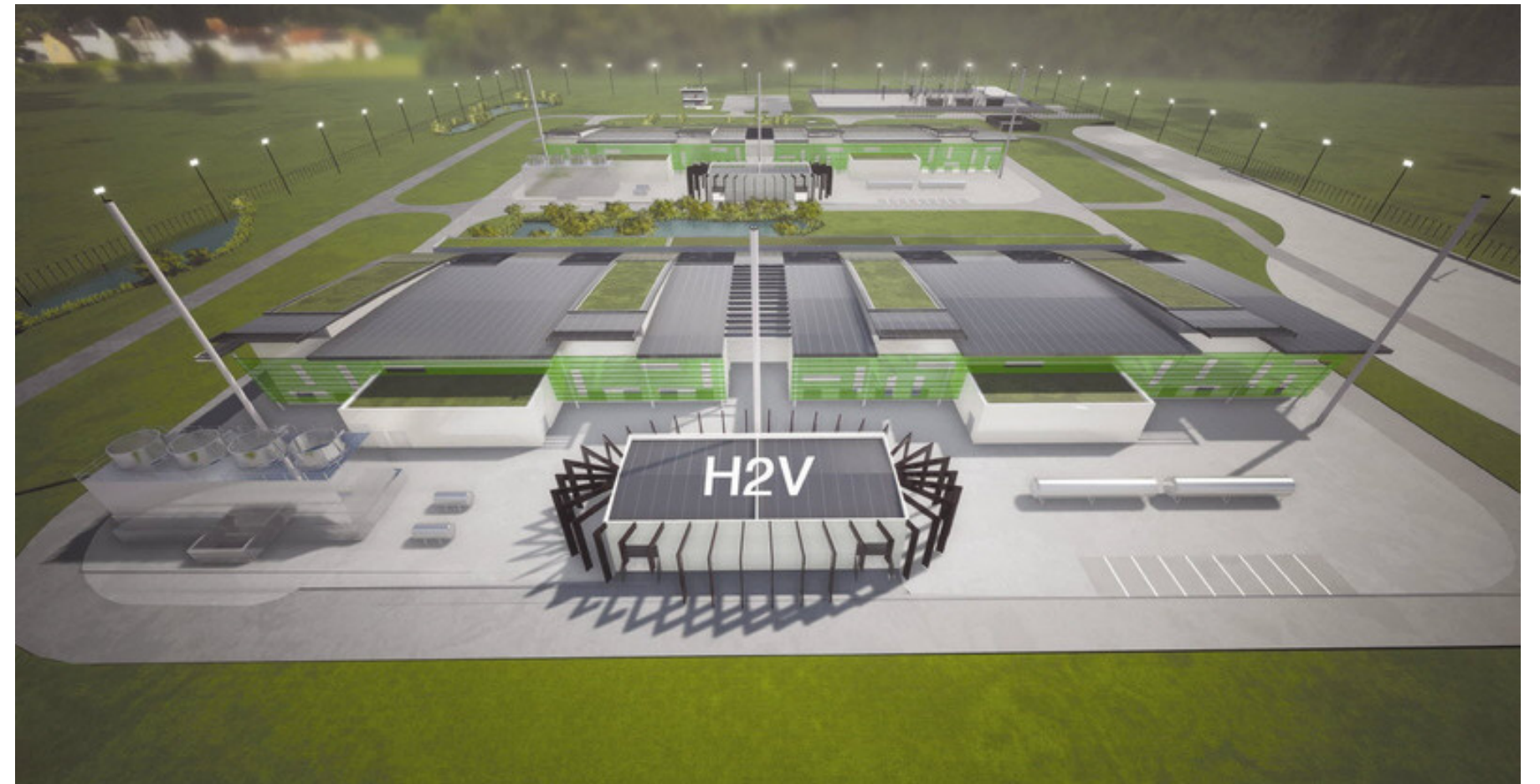
#2 Selection of projects to study

OHM Fessenheim

The development of the hydrogen industry

Construction project of a hydrogen production unit. Promoters: H2V, EDF, local elected officials.

Objective to produce "green" hydrogen for the industrial needs of the petrochemical platform of Chalampé (2 x 100 MW in 2017). Challenges: involvement of industrial partners and German authorities; proximity of industrial consumers; construction of a cross-border distribution network.

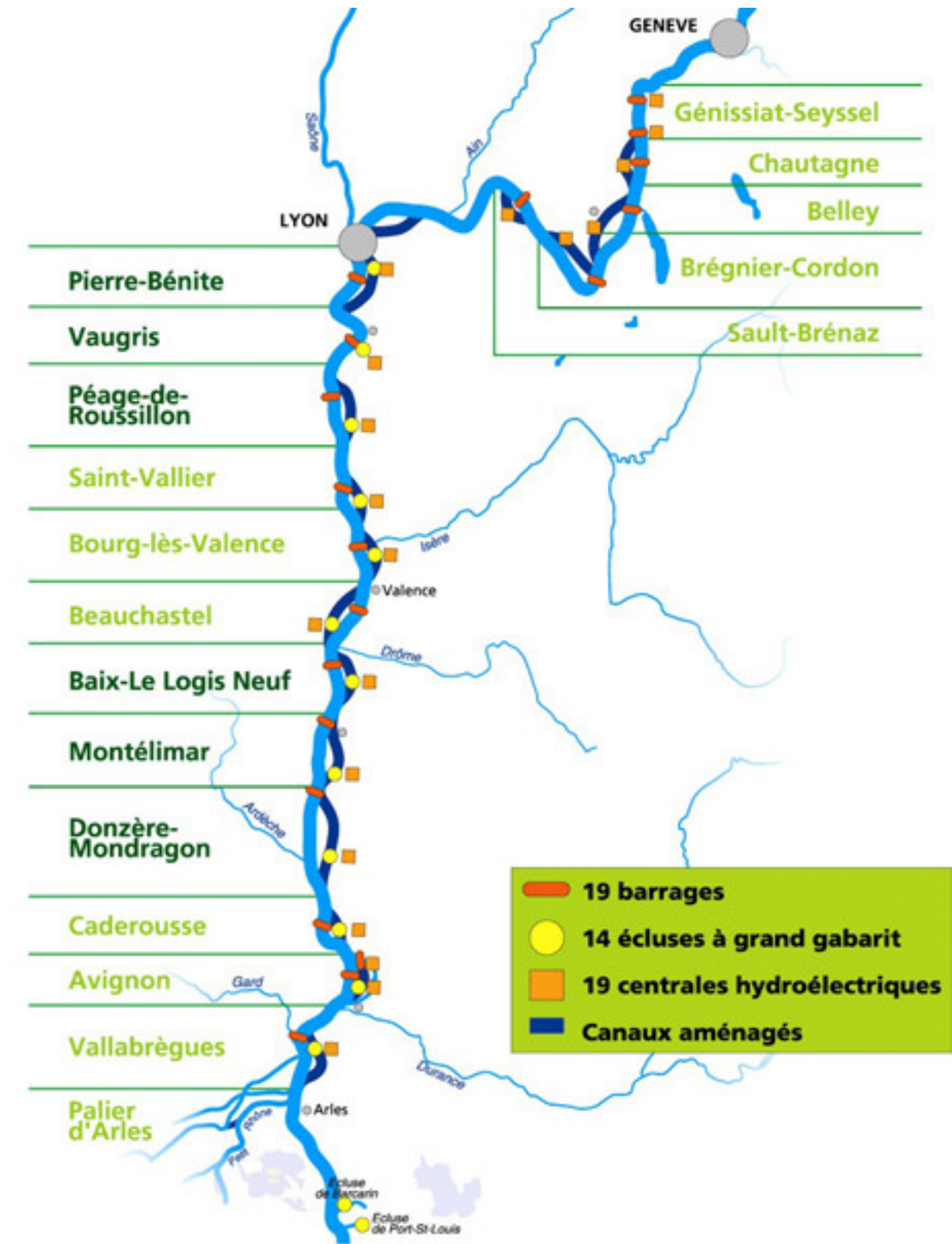


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OHM Vallée du Rhône

The hydroelectric sector

A reflection on the Rhône in terms of energy mix, with the development of the hydroelectric sector. In the context of global warming, the decrease in the river's flow and the increase in temperature has consequences on the various uses of water.



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OHMi Nunavik

The development of Nordic greenhouses

Plan Grand Nord launched in 2011: a vast program for the socio-economic development of Quebec's northern regions.

Financing of community greenhouses, including a system of warm air circulation during the day to store heat in the soil to reduce the day/night thermal amplitude.



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OHM Pays de Bitche

The development of the wood-energy sector

Strong growth in the wood-energy sector, which represents 26% of forestry harvesting at the regional level.

2019: opening of a collective wood heating system, supplying public spaces and buildings.

How does this plant modify access to energy and constitute a lever and/or a lock for individual or collective changes? What are the consequences of these practices in the wood sector on the forests?



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OHMi Pima County

Tucson's energy transition: solar, but which solar?

Tucson Electric Power (TEP): a monopolistic company committed to increasing its share of electricity production from 20% to 70% by 2035.

Massive development of solar energy: choice between a model based on large power plants and a distributed production model, based on the ideal of the self-producing citizen.



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OHM Bassin Minier de Provence

A power plant in conversion, a territory in transition

- Reconversion to the microelectronics industry in the 1980s with ramifications for the energy and digital transition sector
- Energy transition projects following the closure of the coal mine in 2003.
- Conversion of Unit 4 to biomass started in 2012
- Announcement of the closure of unit 5 in 2020 and pact for the ecological and industrial transition of the Gardanne – Meyreuil area
- Social conflict around unit 5 on the way to being resolved?
- Projects planned around hydrogen



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#3 Steering committee meetings and regular one- to-one exchanges

ON LINE, EVERY TWO OTHER MONTH

A space for discussion and exchange among OHM representatives on the appropriate approach to take in addressing energy transition projects.

François-Michel LE TOURNEAU – Geographer, OHM Pima County

Teva MEYER – Geographer, OHM Fessenheim

Vincent ROBIN – Environmental Engineer / Ecologist, OHM Pays de Bitche

Carole BARTHÉLÉMY – Sociologist, OHM Vallée du Rhône

Didier HAILLOT / Robin CHAUBIER – Energy Engineer, OHM Nunavik

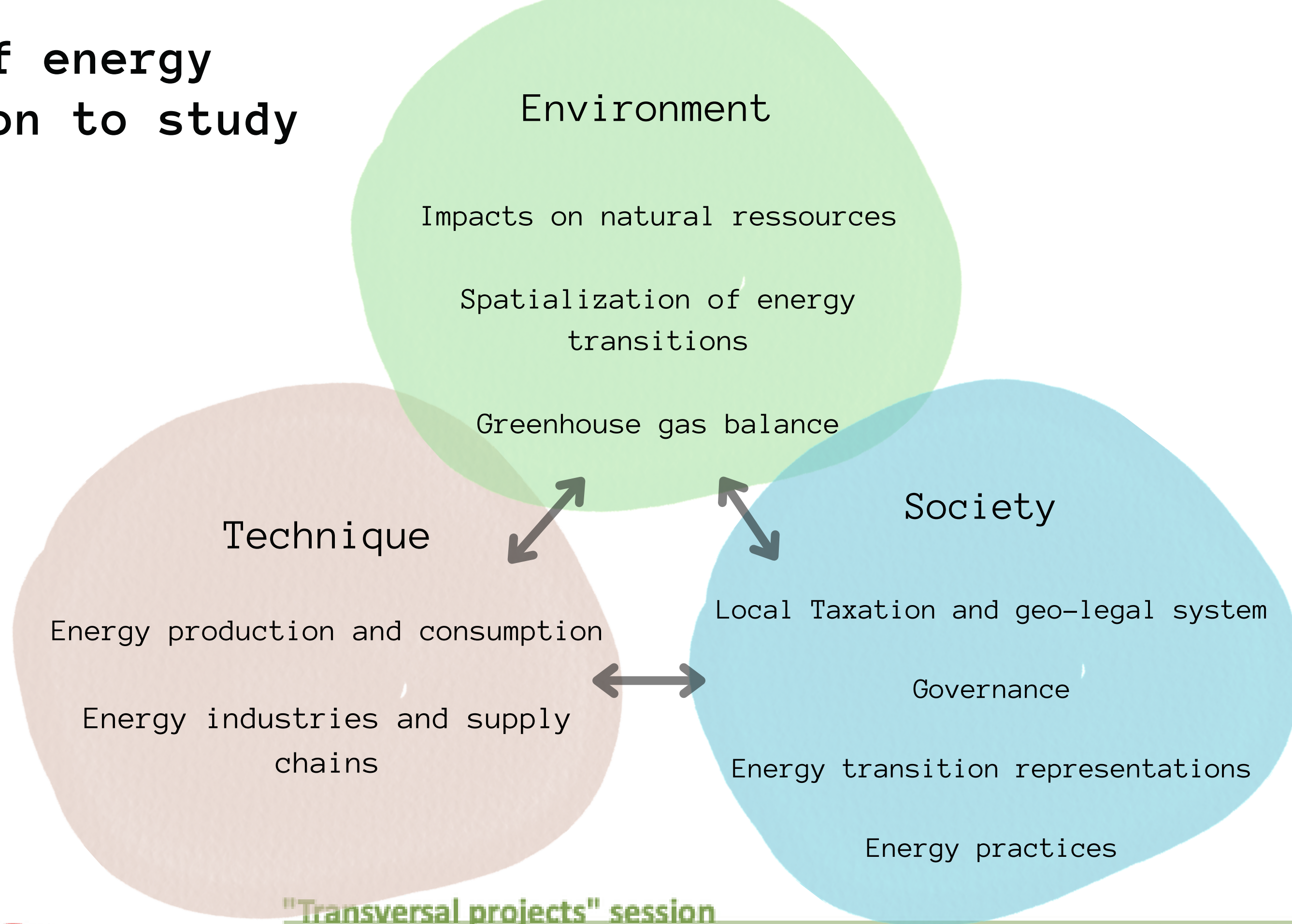
Sylvie DAVIET – Geographer, OHM BMP, Project support

Yves NOACK – Environmental Engineer, OHM BMP

Nina MONTES DE OCA – Geographer, Coordination

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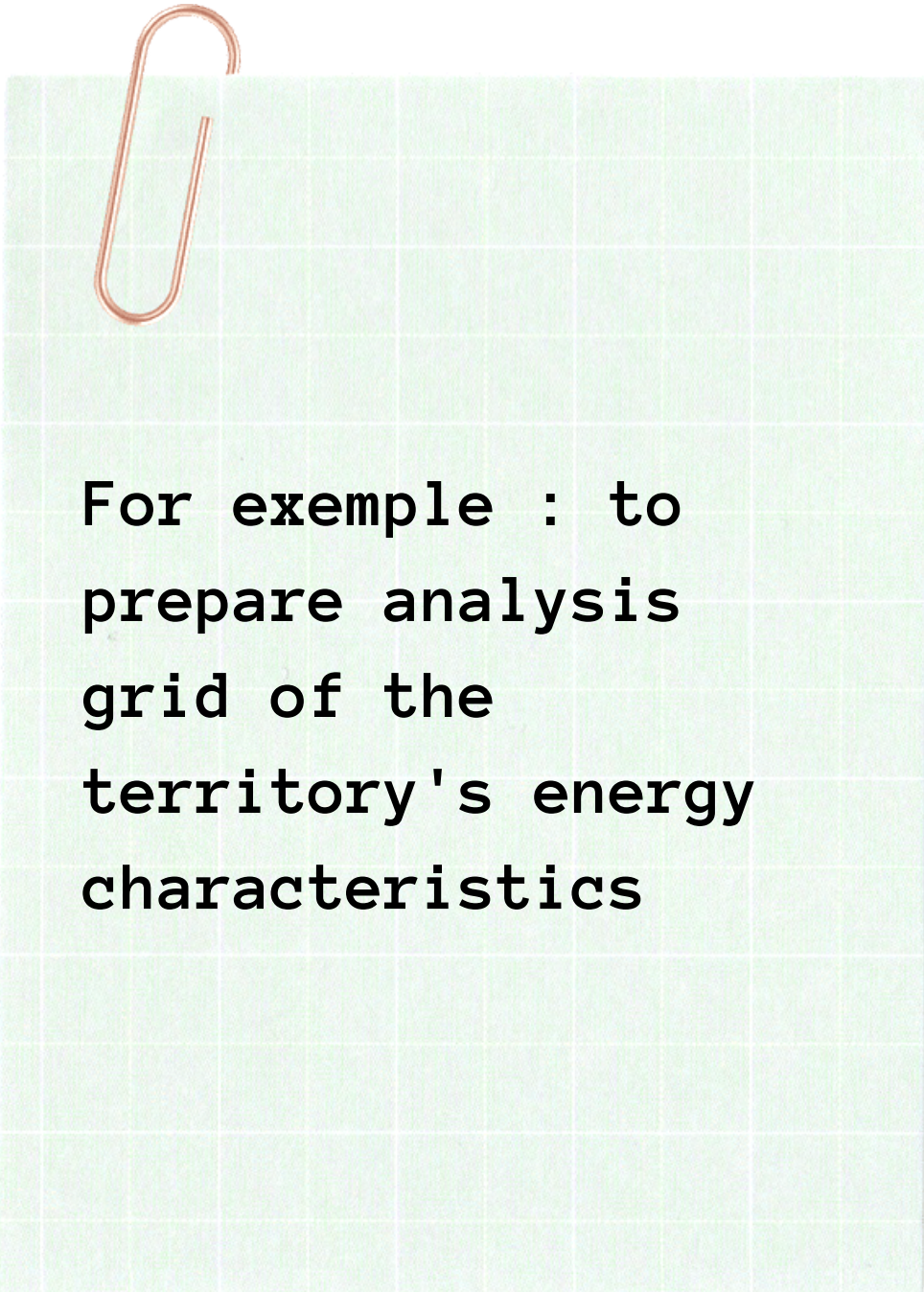
Facets of energy transition to study



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Analysis grid of the territory's energy characteristics

Grille d'analyse des caractéristiques énergétiques du territoire



For exemple : to prepare analysis grid of the territory's energy characteristics

Ressources naturelles mobilisées pour la production d'énergie sur le territoire

Consommation énergétique sur l'ensemble du territoire de l'OHM

- Consommation d'énergie primaire, par type d'énergie en tep¹
- Consommation énergétique par secteur d'activité en tep
- Pour chacun des secteurs d'activité, la consommation énergétique par type d'énergie, en tep
- Mix énergétique primaire² (= répartition en % des différentes sources d'énergies répondant aux besoins du territoire)

Production énergétique sur l'ensemble du territoire de l'OHM

- Modalités de production d'énergie présentes sur le territoire et technologie (photovoltaïque, solaire à concentration, thermique à charbon, hydroélectricité, nucléaire, méthanisation, etc.)
- Production énergétique, par filière, en MWh
- Puissances électriques installées³ en MW selon les différentes sources
- Volumes d'électricité produite, en MWh selon différents types d'électricité

Autres données

- Prix de l'électricité selon différents opérateurs et les différentes sources, si pertinent
- Volume des émissions de Gaz à Effet de Serre produites sur le territoire
- Solde énergétique du territoire, à savoir différence entre importations et exportations d'énergie en Wh

Description du système énergétique de l'OHM

Composantes et acteur du système

#4 Monthly workshops

Identification of useful approaches for the project in order to provide enriching feedback.

Presentations of the researchers focused on :

- research conducted in OHMs, in relation to energy and energy transitions
- Useful methods for the research conducted within Energon

Upcoming workshops : environment-technique-society nexus, energy systems, methods of lexicometry

TWO PRESENTATIONS TO DATE :

- **Nathalie BOUTIN** on "Territorial management and industrial environmental conflicts: in search of biodiversity" (02/05/2021)
- **Carole BARTHÉLÉMY** on the "Methods of analysis of the National Commission of the Public Debate around the renewal of the concession of the National Company of the Rhone" (31/05/2021)

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Making the program **visible**

#1 Program representation

Participation in different seminars

Presentation of Energon in the annual restitution seminar of BMP, on 05/05/2022, Rousset

Presentation in iGLOBES thanks to collaboration with Anne-Lise BOYER

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Energion LabEx DRIIHM

Transitions énergétiques et reconfigurations des socio-écosystèmes



<https://energion.hypotheses.org>

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#2 Scientific blog

HYPOTHESES

Self-training and certified training of the Hypotheses team for the creation of a scientific blog in order to communicate on the scientific advances and events related to the project.

Listed on OpenEdition; ISBN attributed

Visiting card to the actors / means of communication to stay informed

Work in progress

#1 EXTRACT COMPARATIVE DATA

COMMON QUESTIONS and SYNTHETIC GRID
ANALYSIS -> gather baseline information
to begin comparing different OHM
territories and energy transition
projects

#2 ESTABLISH THE DATA MANAGEMENT PLAN

Use of the tool made available by the CNRS,
Opidor, to write the data management plan
which frames the production of data and
their diffusion. Participation in 2 meetings

#3 CO-SUPERVISION WITH THE NUNAVIK OHM

Co-supervision of a Master's student in engineering, Robin
Chaubier, also supervised by Didier Haillet and Stéphane Gibout,
from different disciplines and part of the OHM Nunavik, for the
elaboration of his internship and his research thesis. 1 to 2
meetings per month.

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RESEARCH ON ENERGY TRANSITIONS

RESEARCH ACTIVITIES

Integration into the
research dynamics of
the program

ASTEN Project and
support in other
projects

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Planned field visits

To support research in each OHM

End of 2022 – 2023

- OHM Pays de Bitche
- OHM Fessenheim
- OHM Vallée du Rhône



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Integration into the research dynamics of the OHM BMP

#1 COLLABORATION

Collaboration with Sascha PERROUX's MEDDETEC project and field visits around the Gardanne plant

#2 PARTICIPATION

Participation in the monthly working meetings of the OHM BMP

Preparation of data



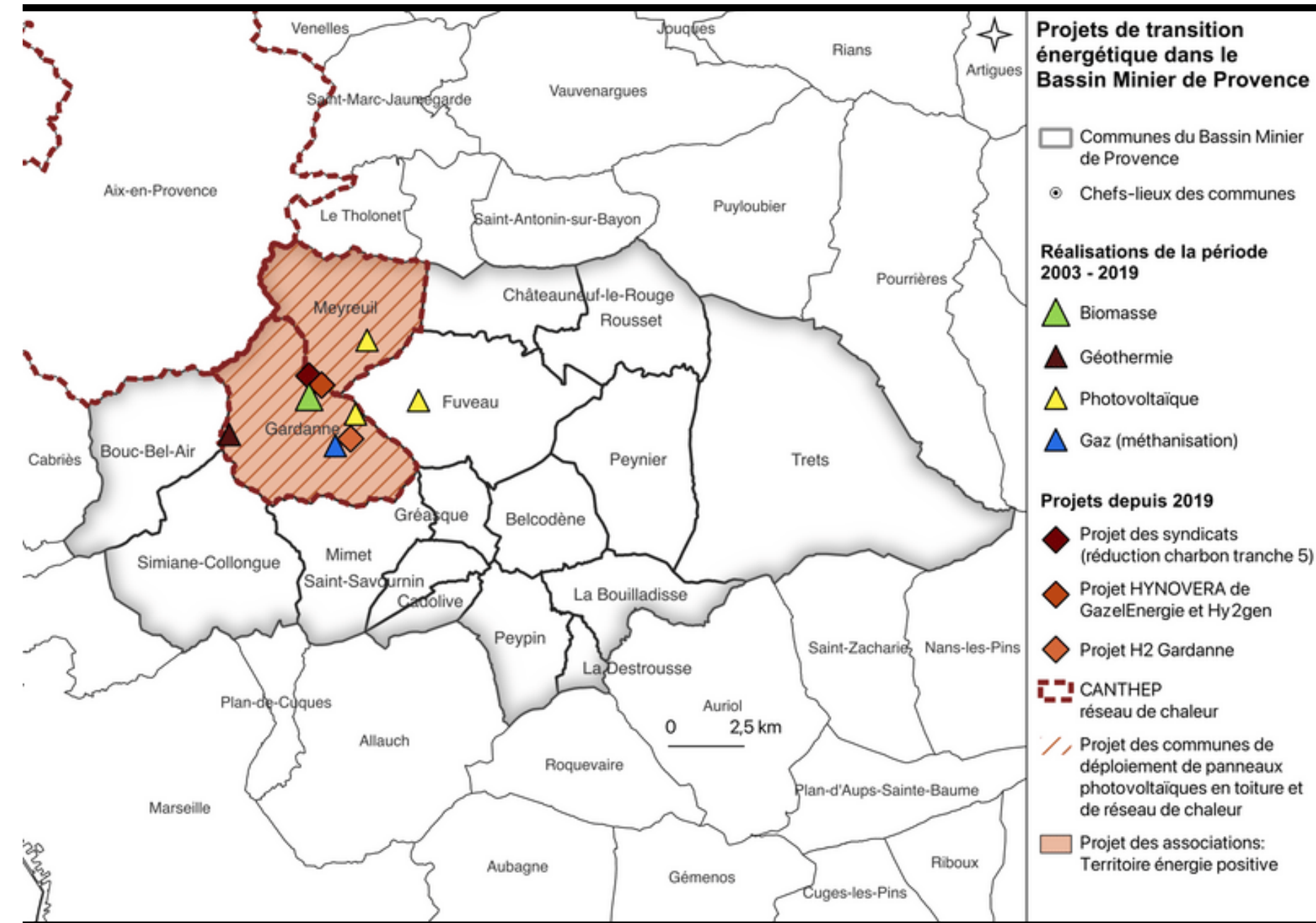
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Project ASTEN

Kick-off day : 6 avril 2022

Expected Results:

- Statistical analysis tool for correlations at the IRIS level : ASTEN-INSEE
- Development of a corpus of thematic maps on energy transitions in the BMP and assessment
- Articles and communications
- Master's degree thesis



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**Thank you for
your attention**

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To follow the news of the
program:

<https://energon.hypotheses.org>

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