

Main Challenges of the Transversal ENERGON Project

The Energy Transition in the Human Environment Observatories

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Transversal ENERGON Project, November 19th 2024, Lyon

Context

- By warning of anthropogenic climate change, the IPCC has highlighted the need to move away from fossil fuels in order to reduce GHG and move towards carbon neutrality.
- Energy transition (ET) refers to this complex, multi-faceted and much-debated process.
- ET is one of the CNRS's 6 societal challenges.
- Our territorial approach to ET through socio-ecosystems (SES) aims to understand how they are reconfigured.

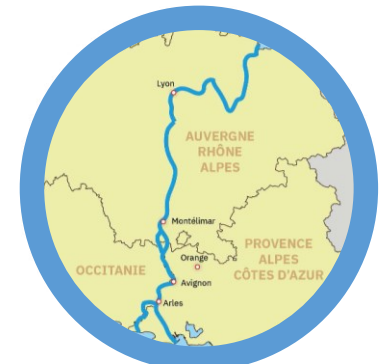
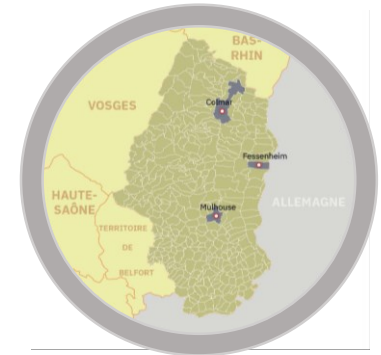
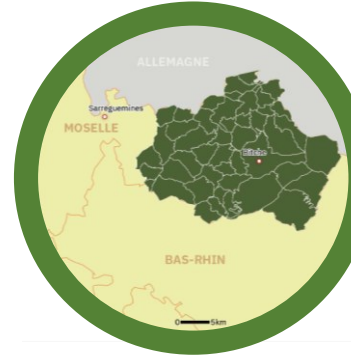


Highly contrasting geographical environments and scales of analysis



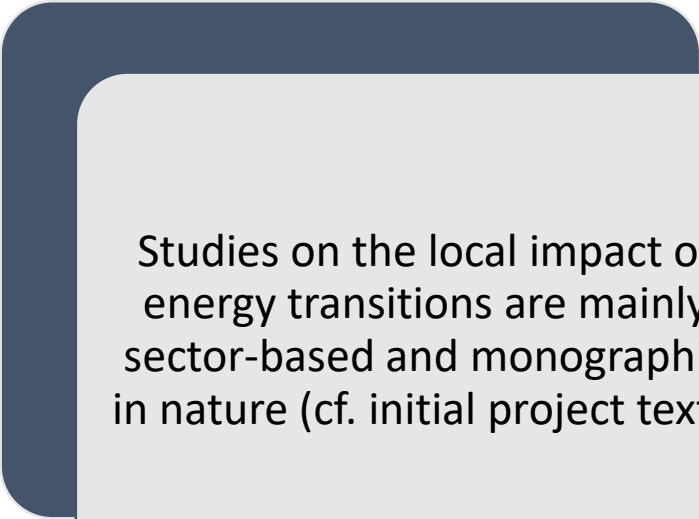
- Contrasts in
- major climate zone
 - population density
 - area size
 - ...etc...

but common thread: territories facing an energy challenge

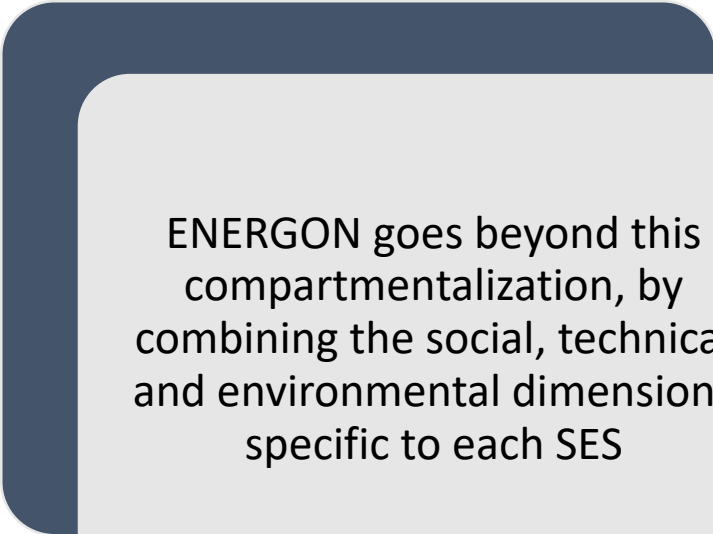




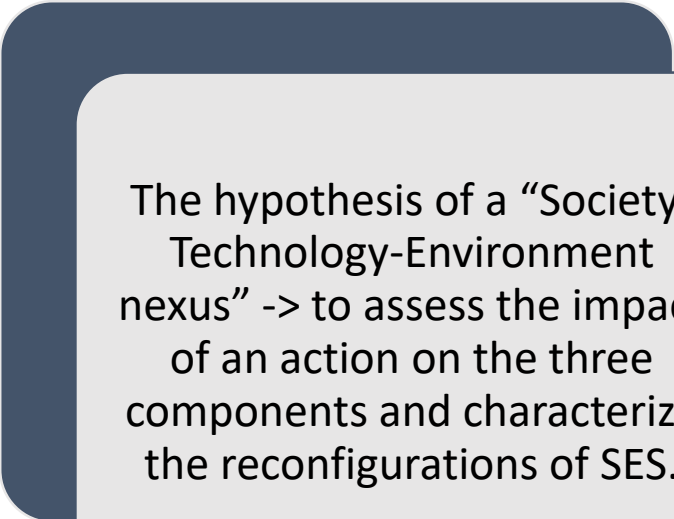
Argument and main hypothesis



Studies on the local impact of energy transitions are mainly sector-based and monographic in nature (cf. initial project text).



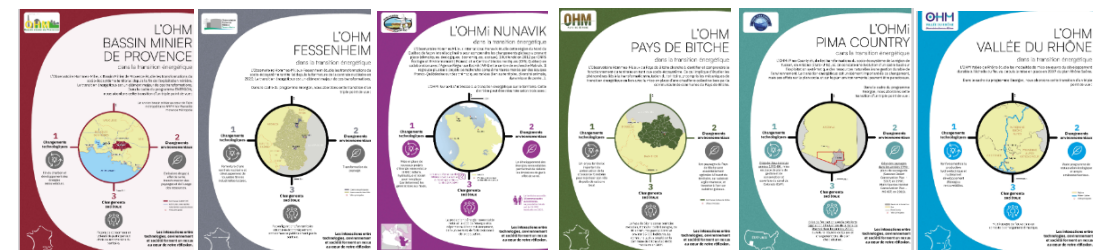
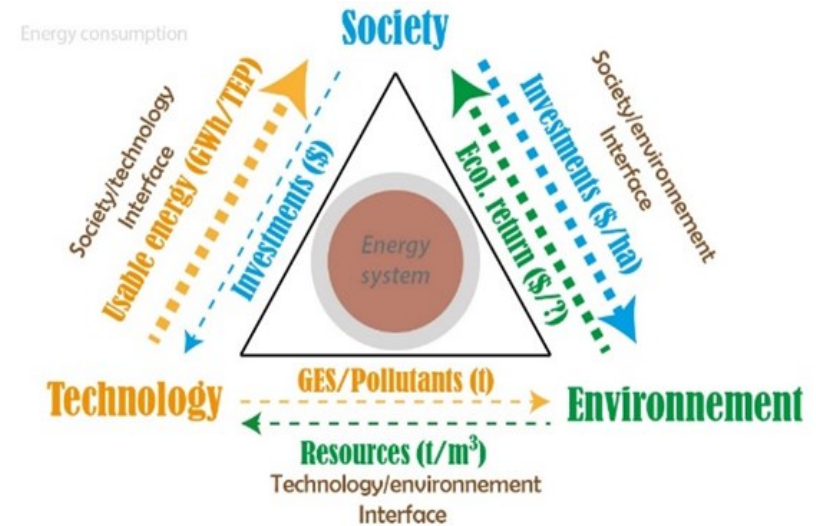
ENERGON goes beyond this compartmentalization, by combining the social, technical and environmental dimensions specific to each SES



The hypothesis of a “Society-Technology-Environment nexus” -> to assess the impact of an action on the three components and characterize the reconfigurations of SES.

Methodology

- **The nexus approach** (along the lines of the Water-Energy-Food nexus, the subject of international work since 2011).
- **To study the interactions** between Society, Technology and the Environment (STE) = an integrated methodology, adapted to the territorial scale and interdisciplinary approach
- **Each team chose to study a transition project in the local energy system.** The choice of project may have changed as the research progressed (Nunavik, BMP, Fessenheim).
- **Thematic seminars** on the perception of ET by the media and public consultation have also fed into this nexus approach.
- **Quantitative & qualitatifs data** (Cf territorial data sheets)



OHMs are ideal study sites for analyzing the reconfigurations brought about by changes in energy policies.

In two OHMs faced with the closure of an emblematic power plant, ET is at the heart of the disrupting event.

- coal-fired power station for OHM-BMP
- nuclear power plant for Fessenheim



OHMs are ideal study sites for analyzing the reconfigurations brought about by changes in energy policies.

ET also appears as a new input in other OHMs, through the arrival of new energies or infrastructures :

- dam project on the Rhône (Rhônergia),
- but also in Nunavik (Inukjuak dam),
- photovoltaics in Pima County,
- wood industry in the Pays de Bitche.

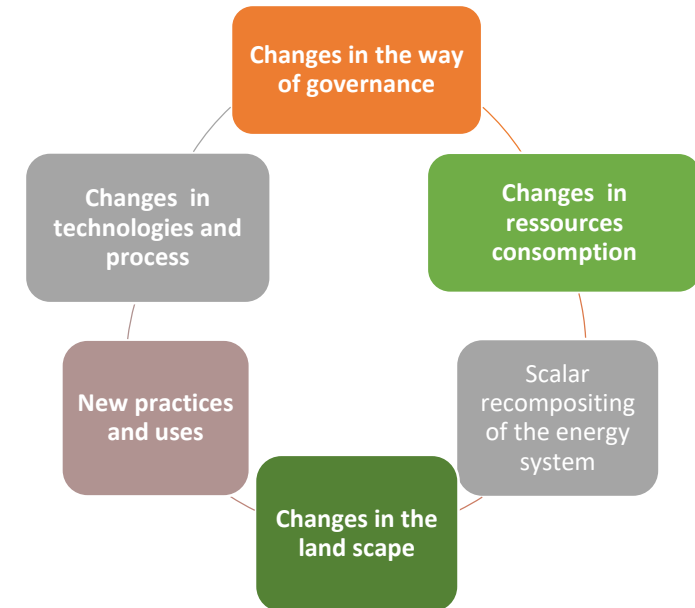


However, the 6 regions are not all faced with the same need to decarbonize their energy systems (T0)
VR already has a low-carbon system, and Fessenheim is losing a low-carbon power plant; not all territories have the same relationship with the concept of ET

The ET prism calls into question acquired equilibria and the adaptation of socio-ecosystems

- **Systemic change** What is the impact of new technologies? Changes in the landscape? Scalar recompositing of the energy system? How will the transition be governed? Are we seeing acceptance or conflict? What role should sobriety play?
- **The aim is to define transition trajectories** based on these different parameters, crossing the social, technical and environmental dimensions specific to each socio-ecosystem.

Deconstruction/reuse of infrastructures



Added value for territories and research; 4 examples

- **(1)** As part of her thesis, Sascha Perroux was associated for a year with the “Mission Transition” of the Aix-en-Provence sub-prefecture (implementation of the Gardanne-Meyreuil Territorial Pact).
- **(2)** As part of the Rhônergia project consultation process, OHM VR submitted a “cahier d'acteur” (special contribution)
- **(3)** Following Almudena Plichon's dissertation on lithium projects in Alsace, CRESAT was awarded a junior professorship with the aim of studying the territorial metabolism of SES via its actors, places and flows
- **(4)** Territorial data sheets for each OHM



Restitution d'ENERGON le 19 novembre 2024

Programme des interventions

- **09H00-9H10** Présentation des enjeux d'ENERGON par *S. Daviet*
- **09H10-9H25** Perception de la transition énergétique et médias par *T. Meyer*
- **09H35-9H50** Acteurs, conflits et débat public par *C. Barthélémy et S. Perroux*
- **10H00-10H15** L'expérience d'un travail interdisciplinaire autour du mémoire de Robin Chaubier par *T. Meyer*
- **10H25-10H35** Présentation des fiches territorialisées réalisées par chaque OHM sur la TE par *Y. Noack*

10H40-11H00 pause

- **11H00-11H15** TE et nexus STE par *François-Michel Le Tourneau (en ligne)*
- **11H25-11H40** TE et trajectoire des OHM par *S. Daviet*
- **11H50-12H00** TE et perspectives de recherche pour les OHM par *S. Velut*
- **12H00-12H30** Discussion générale

Using local media as a proxy to discuss energy transitions as moment of socio-ecosystem's reconfigurations

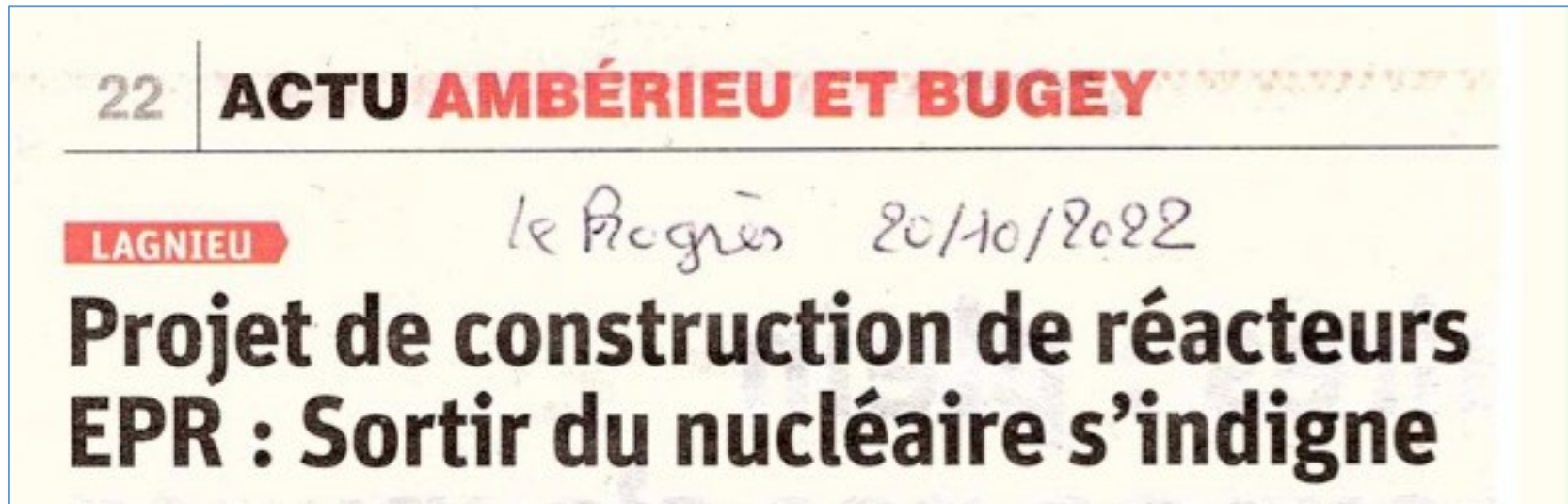
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Energion faced four structural issues



How should we implement our comparative approach ?



How should we actually do interdisciplinary research ?



How could we maximize the different competencies involved in each OHM ?



How could we handle the unequal accessibility of the OHM's fieldwork

How to proceed ? Defining common research questions

Handling cases' diversity: an interactive journey

- From an interest in energy transitions' *représentation*...
- ...to a focus on « scales »

Theoretical framework: the politics of scaling

- How are scales produced and solidified in our representations, discourses and practices ?
- What are the concrete processes behind the politics of scaling ?

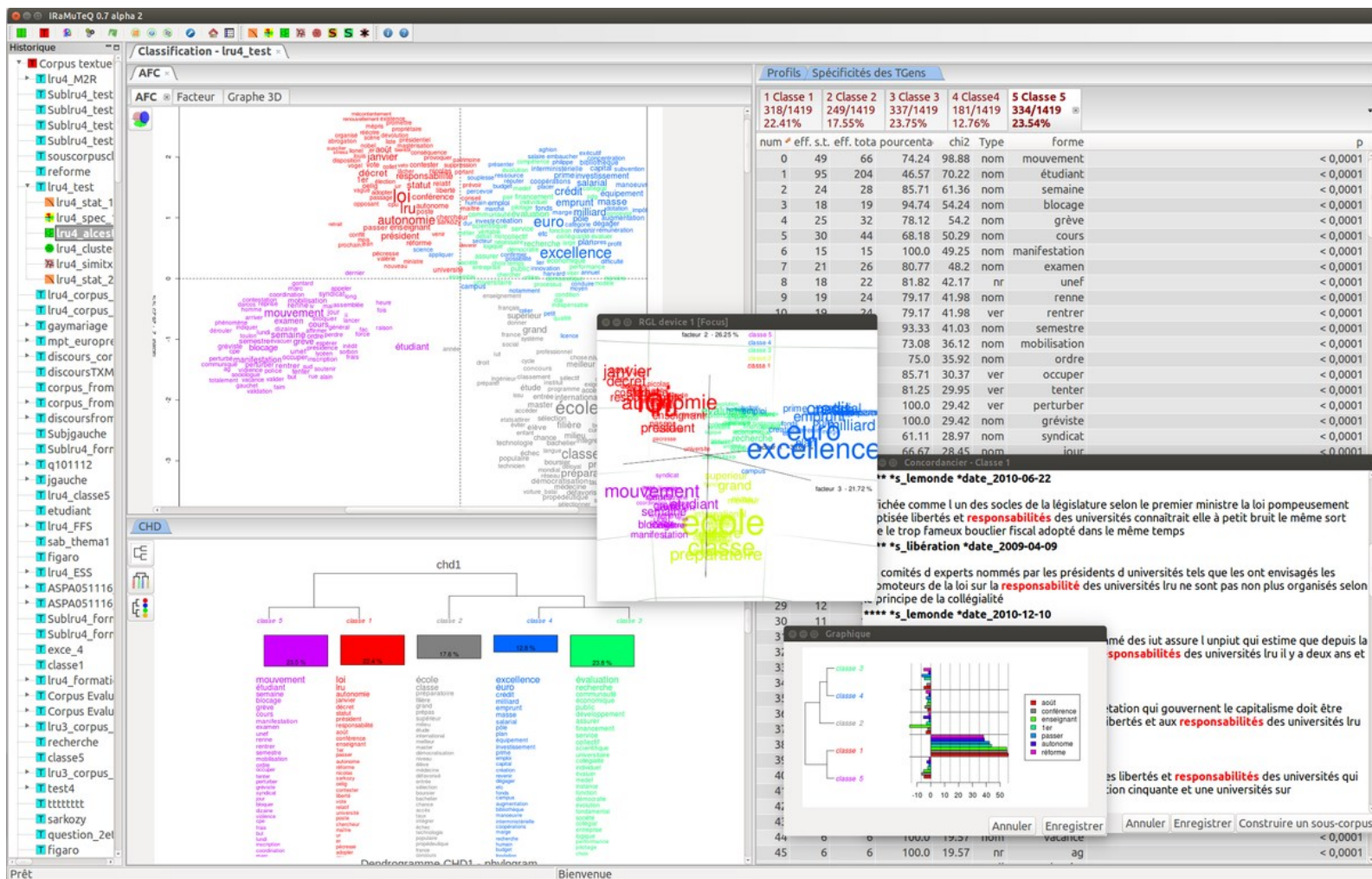
Research question

- How do media narratives intervene in the politics of scaling ?

Hypothesis

- Hypothesis 1: *Media discourses frame certain energy transitions issues at particular scales*
- Hypothesis 2: *Energy transitions issues are assigned at different scales of newspapers publication*

23 février 2023: atelier de formation des membres d'Energion à l'utilisation d'Iramuteq par Emeline Comby (UMR 5600 EVS)



How to proceed ? Defining a common corpus and a common coding strategy

Corpus from the 6 OHM

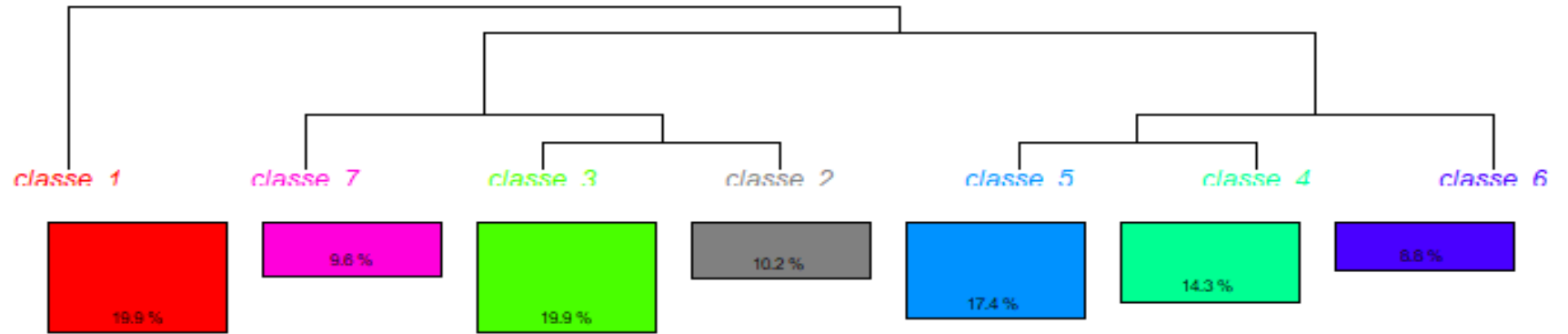
OHM	Size of corpus	Sources and kind of newspapers	Key words	Collection period	Local newspaper	National newspaper
OHM Fessenheim	248	Europress + Dernières Nouvelles d'Alsace	Lithium + Alsace	2018-2023	59	189
OHM Vallée du Rhône	112	EuroPress (Le Monde, Libération, Actu-environnement, Le progrès etc.)	CNR (Compagnie Nationale du Rhône) + Hydroelectricité	2018 - 2023	34	78
OHM Nunavik	169	General Press : Le Devoir, La Presse, Le Journal de Montréal etc.	16 mots clés : energy, sustainable, environment,	juin 2017 - décembre 2022	129	40
OHM Pima County	89	ProQuest	Photovoltaic, solar	1990-2023	44	45
OHM BMP	94	Europress (20 min, La Croix, La tribune PACA, Actu-environnement, La Provence)	Hynovera + Hybiol	2018-2023	64	30

 *code_xxx
 *year_xxxx
 *newspapers_xxxx
 *scale_xxxx
 *section_xxxx
 *OHM_Fessenheim

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Hypothesis 1: the press assigns specific issues to each scale

OHM Fessenheim



Descending hierarchical classification

- Toponyms
- Other spatial terms

séisme, reichstet, associati, fonroche, vendenne, maire, événement, mercredi, eurométror, retraite, programme, pluriannuell, président, loi, géothermie, municipal, préfecture

eau, profonde, mètre, saumure, chaud, faille, fossé, rhénan, roche, contenir, surface, chaleur, pomper, salé, circuler, sel, remonter

procédé, centrale, eramet, pilote, rittershoff, és, lithium, extraction, geolith, partir, carbonate, électricité, laboratoire, soultz, sous, installer, start_up

france, australien, vulcan, arverne, energy, nord, allier, lever, kaolin, mine, imerys, recherche, allemagne, déposer, pedailles, ledoux, permettre

chine, pays, réserve, métal, rare, dépendanc, producteur, europe, consomma, réduire, mondial, australie, ue, européen, etats, industrie, marché

électriqu, batterie, voiture, véhicule, fabrication, automobile, moteur, exploser, thermique, tonne, ion, demander, panneau, constructeur, emmanuel, téléphone, équiper, cobalt

euro, milliard, investiss, gouvernem, stellantis, sln, renault, volkswagen, emploi, appel, dédier, verkor, varin, lauréat, approvision, contrat, bénéfice, relancer

Risks and politics
(mostly local scale,
but also national
scale)

Extraction
technic and focus
on geology,
regional scale

Extraction technic
and focus on the
chemical process,
local scale

Actors,
international
scale

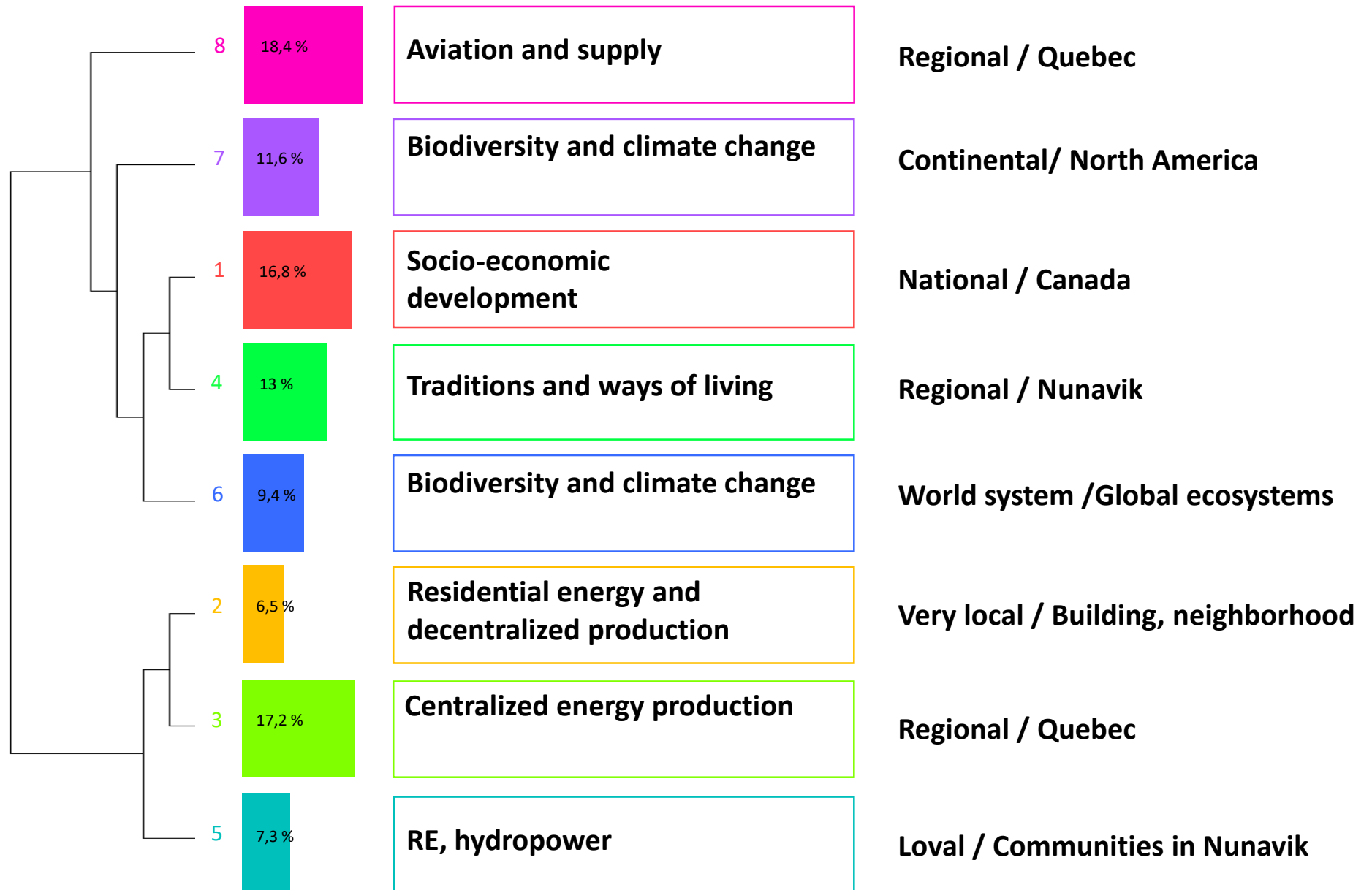
Politics and
dependency,
european and
global scale

Outcomes,
mostly electric
mobility, no
scale

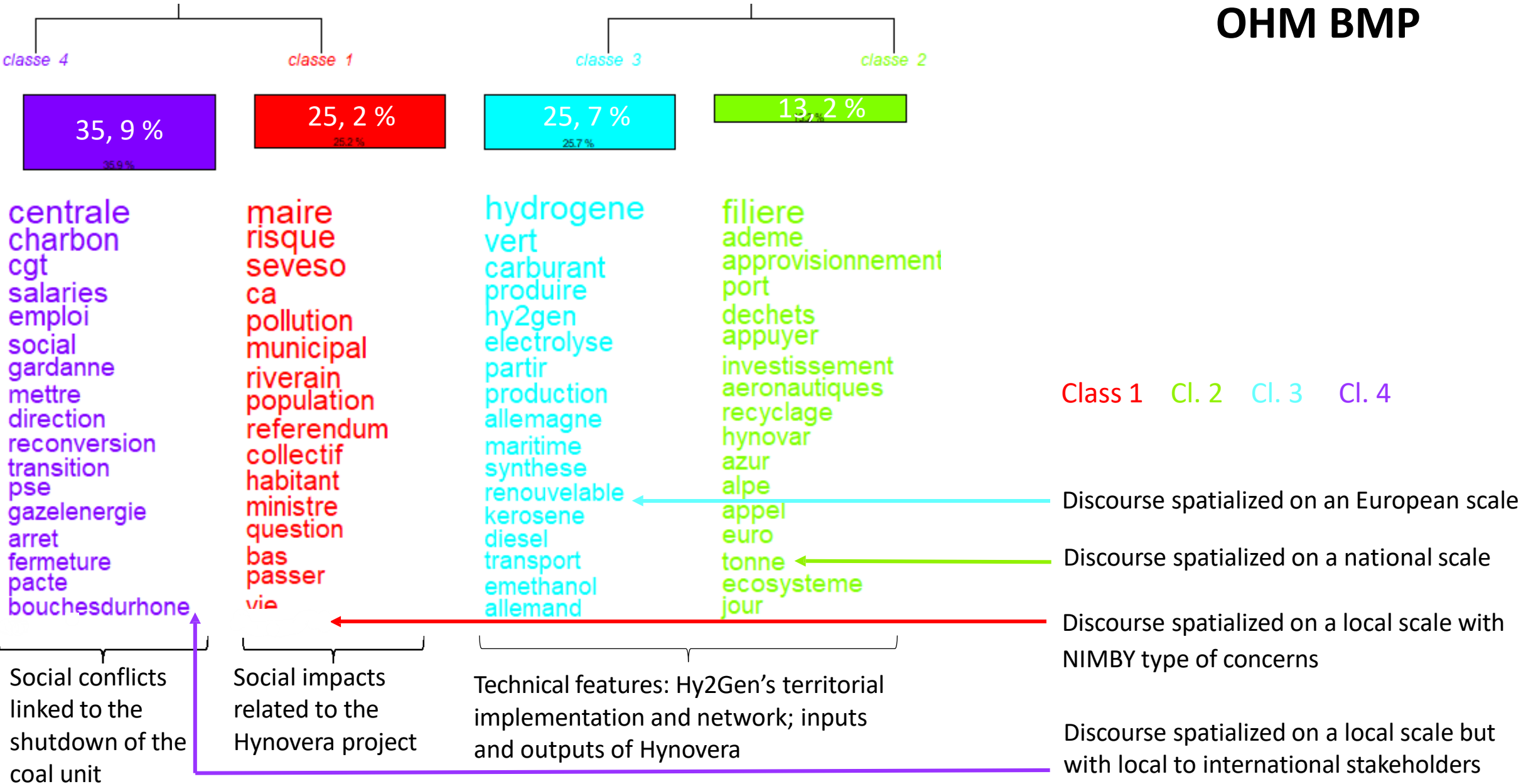
Financial aspects,
governmental
scale

Hypothesis 1: the press assigns specific issues to each scale

OHM Nunavik

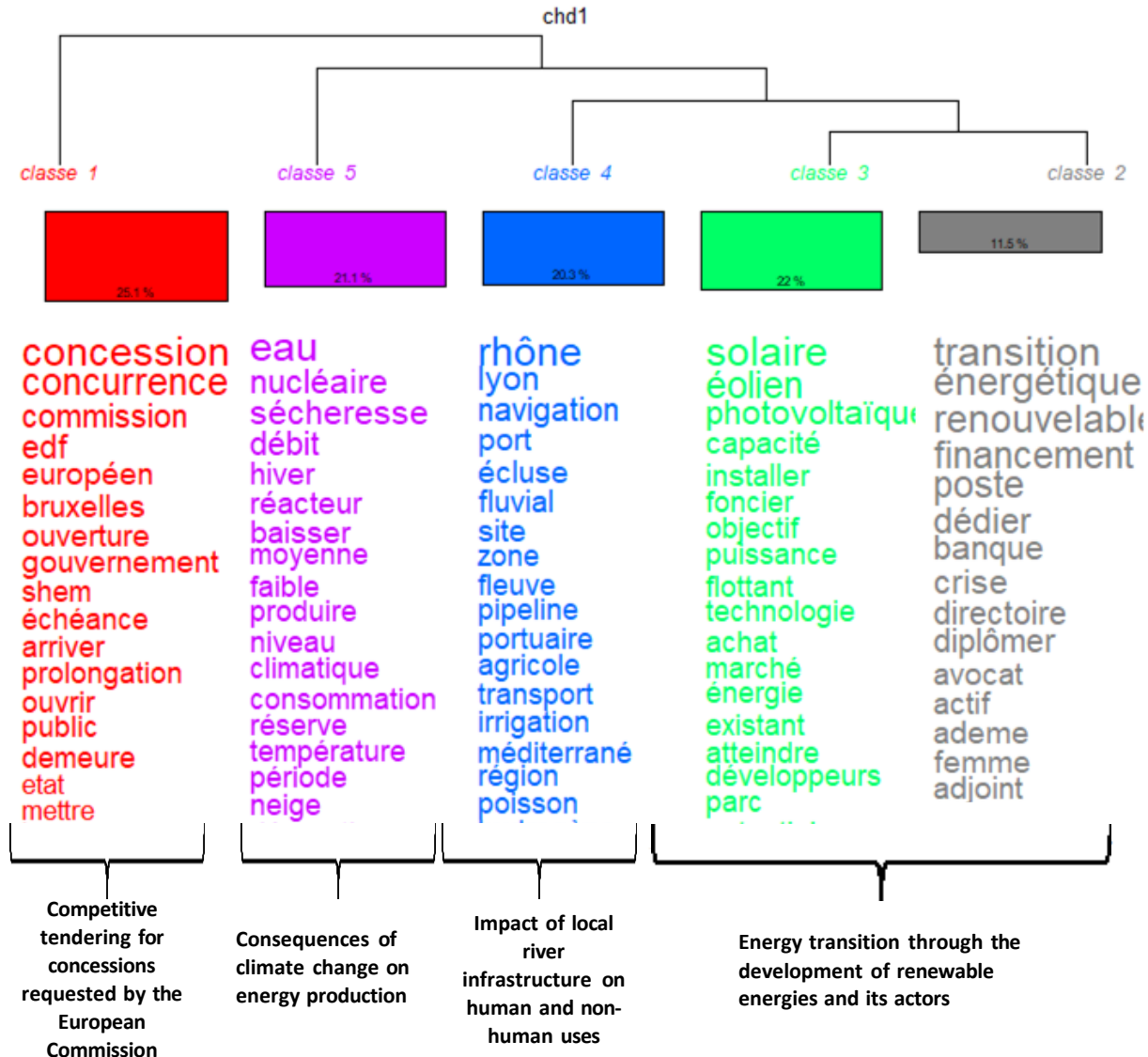


Hypothesis 1: the press assigns specific issues to each scale



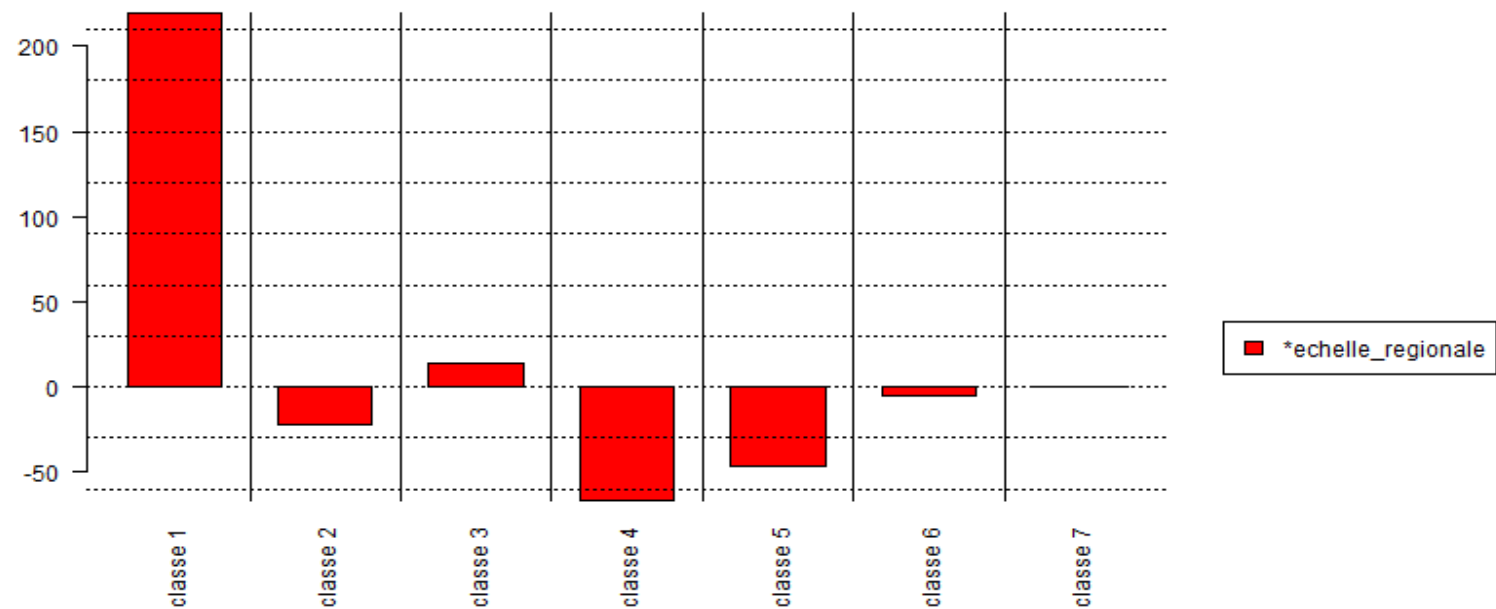
Hypothesis 1: the press assigns specific issues to each scale

OHM VR

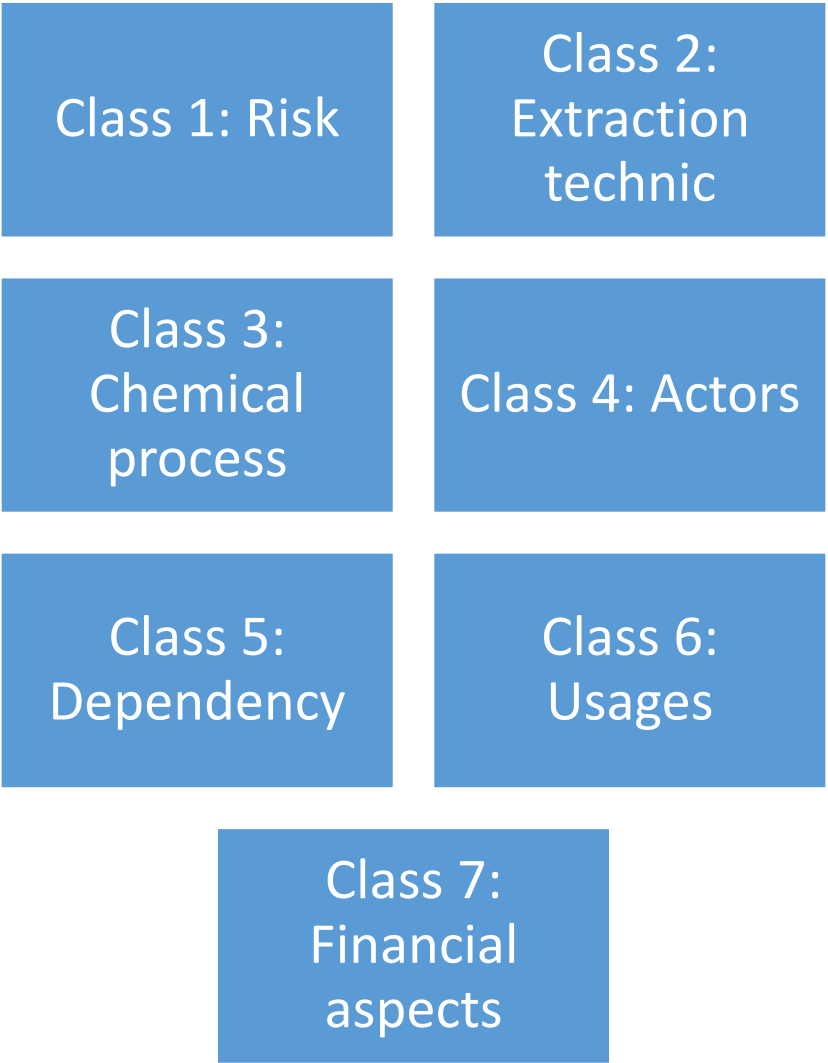


Hypothesis 2: issues are assigned to specific scales of press circulation

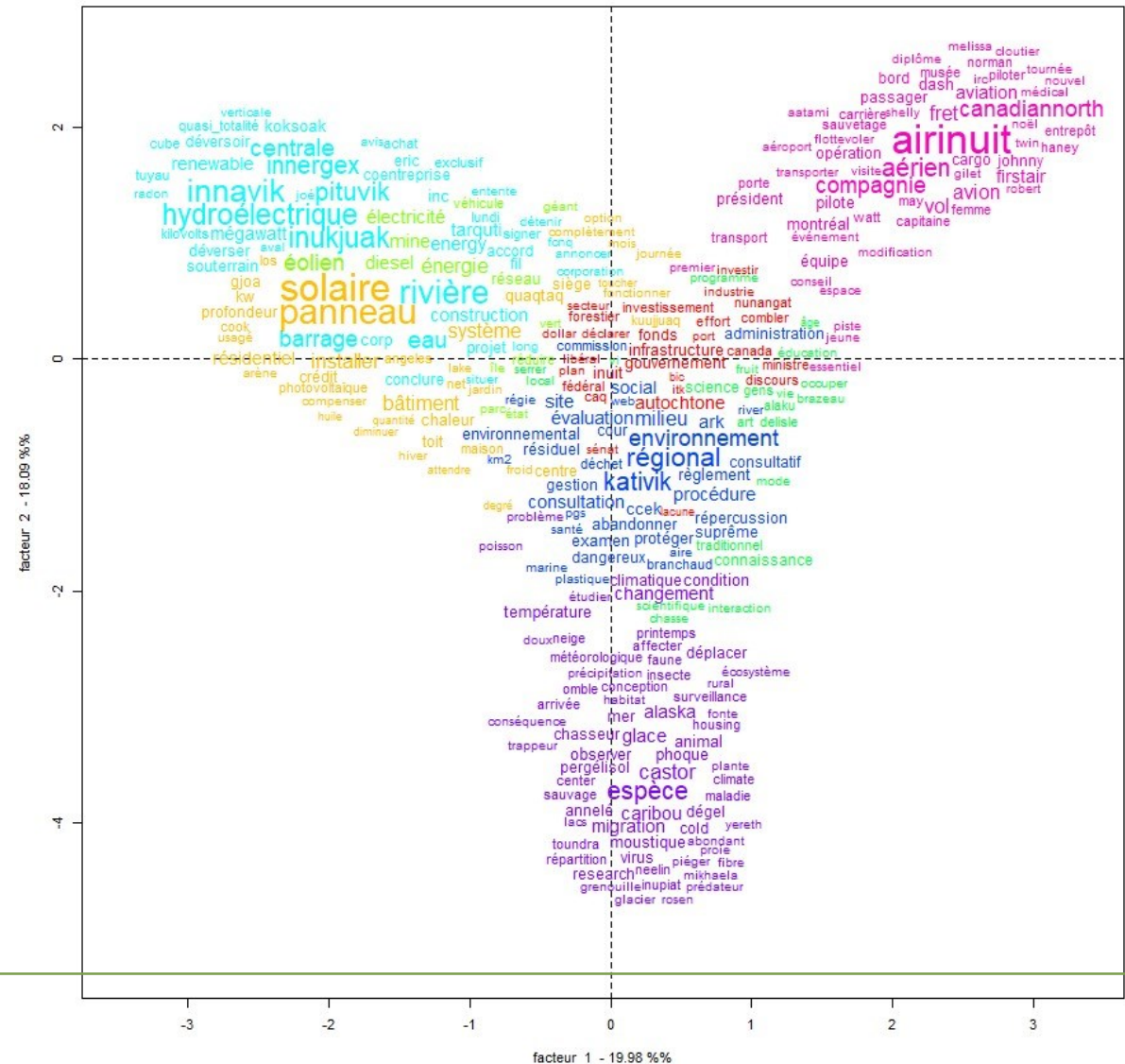
OHM Fessenheim



Chi-square test



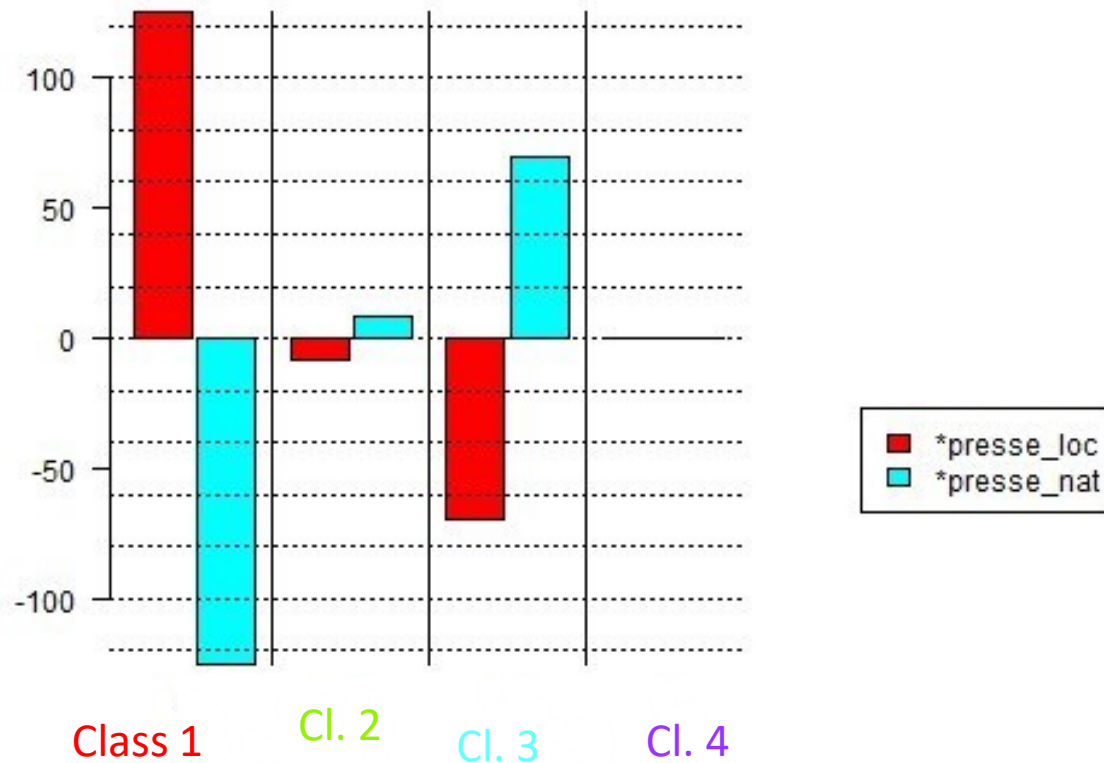
OHM Nunavik



Hypothesis 2: issues are assigned to specific scales of press circulation

OHM BMP

Chi2 modalities of the variable *press



Class 1: Conflict triggered by the closure

Class 2: Impact of the transition

Class 3: Technical features

Class 4: Metabolism

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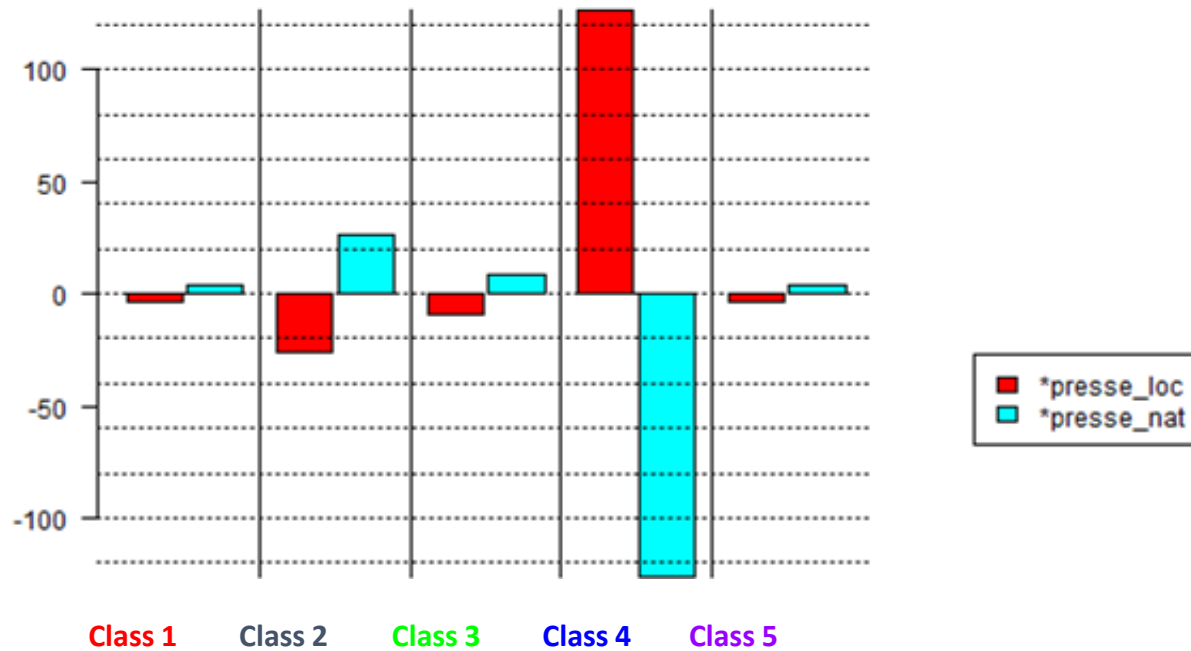
Transversal Projects feedback Seminar of LabEx DRIIHM
Inter-Disciplinary Research Facility on Human-Environment Interactions - ANR-11-LABX-0010

November 18th-20th, 2024 – Lyon (France)

Hypothesis 2: issues are assigned to specific scales of press circulation

OHM VR

Chi2 modalities of the variable *press



Class 1:
Competition in
energy production

Class 2: DVP of the
renewable sectors

Class 3: Technical
features

Class 4:
Anthropisation of
the river

Class 5: Climate
change

Discussion: What's comparable in our results ?

When talking about the energy transition, local newspapers...

Hypothesis 1

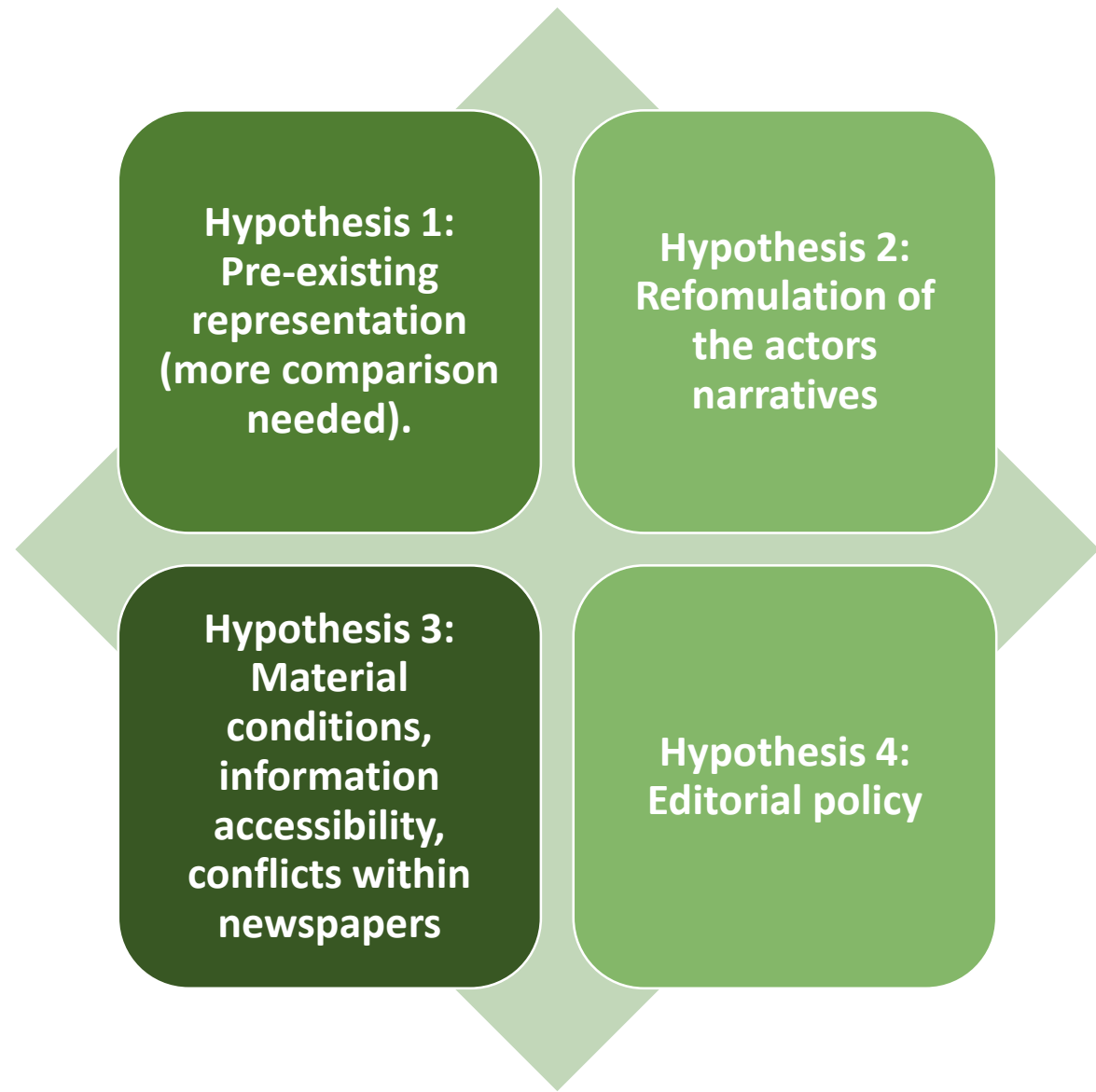
- Frame issues over risks at a very local scale
- Frame technical choices at the national scale
- Frame financial issues at an international scale

Hypothesis 2

- Local/Regional circulation: risk, conflict and technical features
- National circulation: finance, geopolitical aspects, actors' system

Conclusion

Next steps:
explaining
these
processes



Actors, debates and conflicts about energy transitions

A comparison Bassin Minier de Provence / Vallée du Rhône

Carole Barthélémy¹

Sascha Perroux²

¹LPED, Marseille, France.

²TELEMME, AMU, CNRS, ADEME,
France.



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Introduction

ENERGON: comparison of energy transition projects and their effects on the areas concerned.

How can the OHMs provide an effective arena for analysing local and regional resistance to energy transition ?

- 1) A comparative approach : multiple territories, multiple projects, different time frames
- 2) Emergence of consultation with the National Commission for Public Debates (CNDP) → a great source of data

Methodology

- Study of official documents accessible on the consultation sites :
 - presentation of projects and meetings,
 - reports of the guarantors,
 - stakeholder's booklets,
 - individual contributions
 - verbatims
- Attendance at public debate meetings
- video recording of meetings
- semi-directive interviews.



Two public debates on the Rhône

- 1) **2019 : extension of the Rhône Concession** established in 1933 ending December 31, 2023, extended for 18 years
- 2) **2023/2024 : project of a new dam called « Rhônergia »**

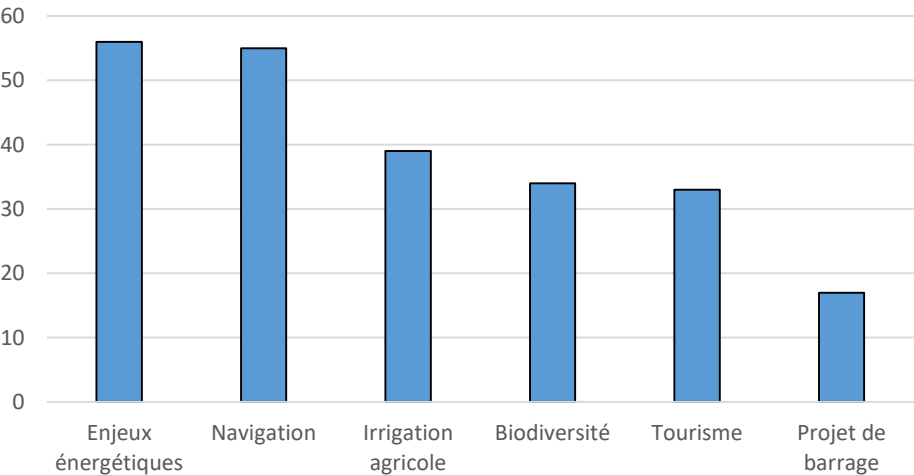


Stakeholders who have written a stakeholder report

Types d'acteurs	Prolongement de la concession de la CNR	Concertation préalable projet barrage Rhôneergia
Communes, intercommunalités, syndicats de gestion	20	8
Associations environnementalistes	15	29
Acteurs du monde agricole	7	2
Collectifs scientifiques	1	3
Agences, chambres industrie	5	8
Syndicats, partis politiques	6	4
Autres acteurs	13	
Total	67	54

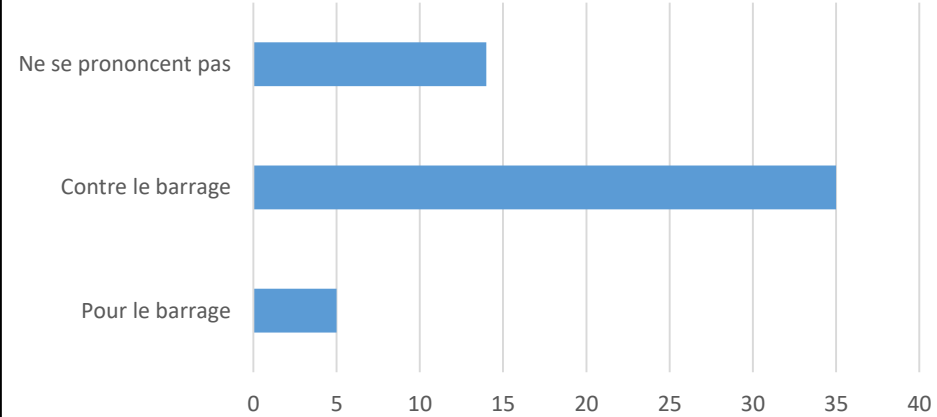
Source : Barthélémy, Comby et al., 2023.

Topics covered in the stakeholder papers 2019



Source : Barthélémy & Comby, Concertation et engagement autour de la prolongation de la concession de la Compagnie Nationale du Rhône CONCERTEG, Rapport OHM Vallée du Rhône, 2023, https://hal.science/OHM-VALLEE_DU_RHONE/hal-04555281v1

Views expressed in the 54 stakeholder booklets on the Rhôneergia dam project



The 2 public debates did not attract the same stakeholders or the same discussions

- Extension of the concession: expression of collaboration with the CNR
- Rhôneenergia project: opposition to the dam

Which trajectories?

- Structuring an association still committed to the river
- Dam : abandoned project / reinvestment of planned financing from CNR?
- Consultation in 2025 for the construction of 2 EPR 2 on the Bugey nuclear site



OHM BMP : a public debate on an industrial project

Closure of the coal-fired power plant of Provence in 2021 :
discussions on industrial **conversion projects**.

Since 2018 : **Hynovera** project under study (hy2gen)

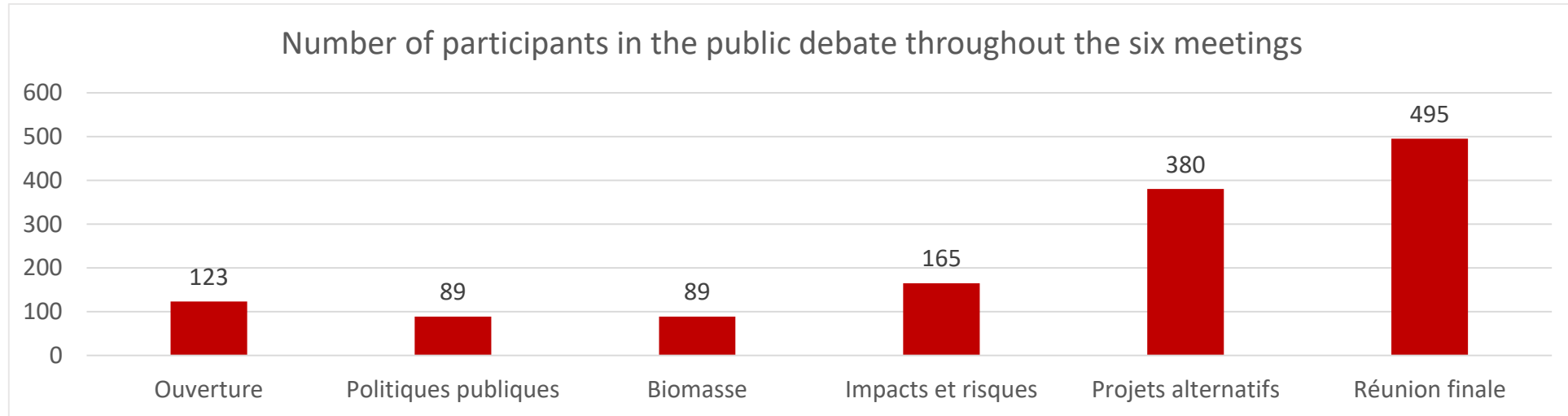
→ To produce **synthetic “renewable” biofuels** for aviation and marine applications, with intermediate production of hydrogen.

Large-scale project (25 000 t/y kerosene and 70 000 t/y methanol) exploiting **local resources**: regional biomass, water from the Canal de Provence, renewable electricity...

→ Justifies a **public debate** en the immediate surroundings of the plant (nov 2022)

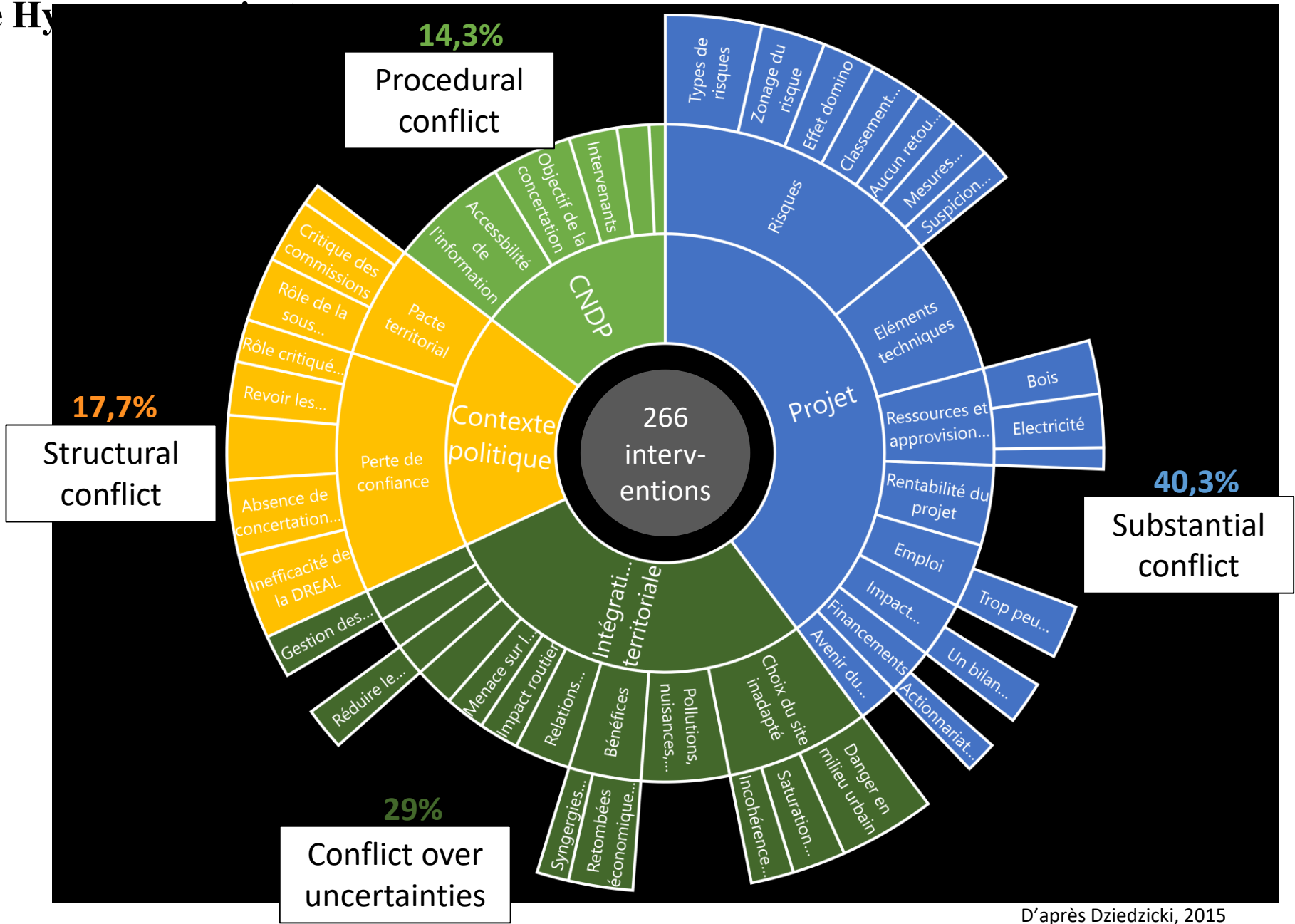


The public debate in BMP, an arena for discussion ?



- Elected officials and local authorities
- Absence of the worker's unions
- Mainly local residents and environmental associations
- Many newcomers and long-time residents (mostly working people and retirees)
- Large mobilization in parallel with the debate (leaflets, discussion groups, posters, manifestations...)

The four main themes of public input during the public concertation on the Hy



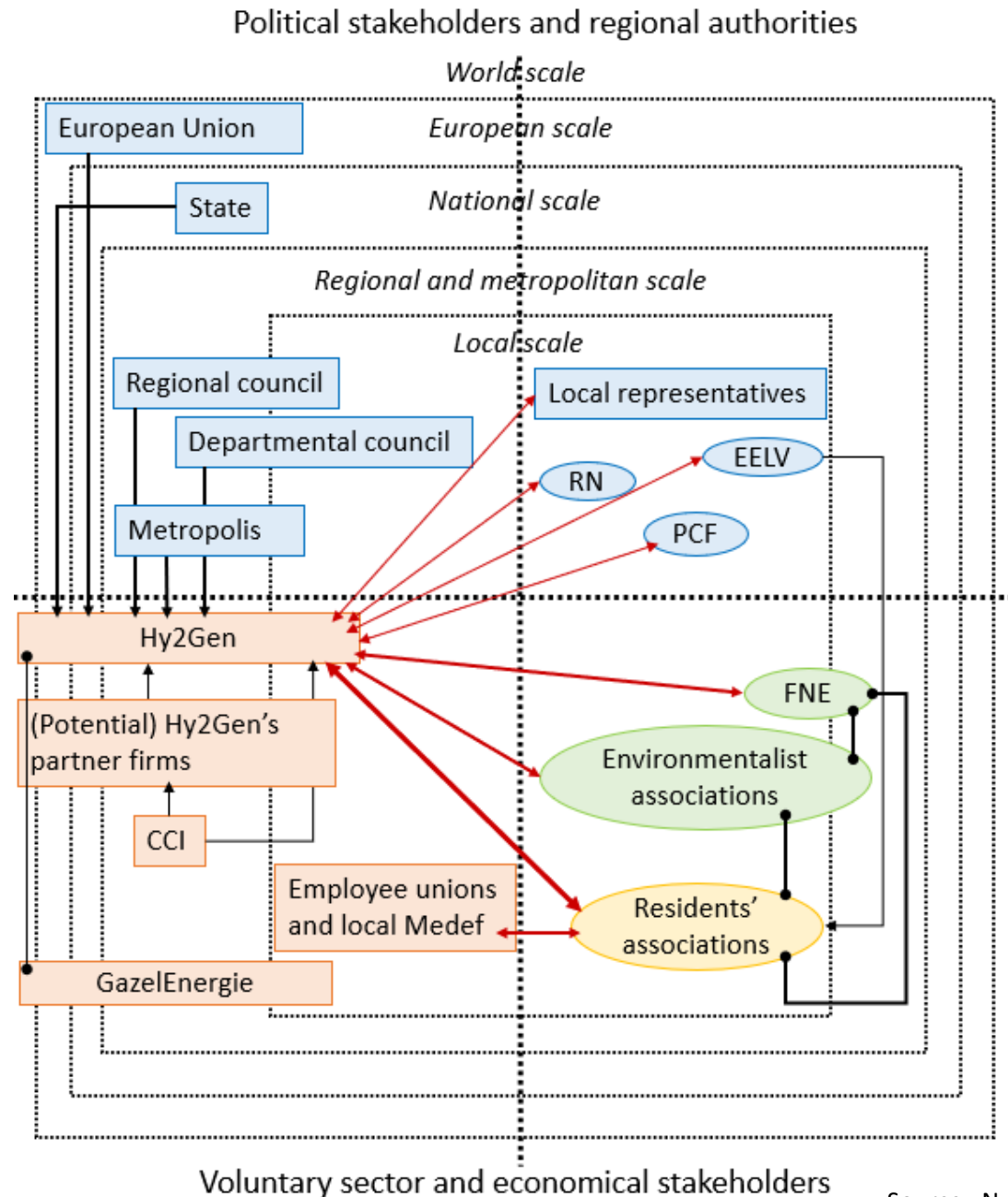
The complexity of the stakeholders at play

- A project strongly rejected at a local scale
- Activation of new stakeholder networks
- The mobilisation of multiple stakeholders reveals the multi-scalar issues involved in carrying out the project

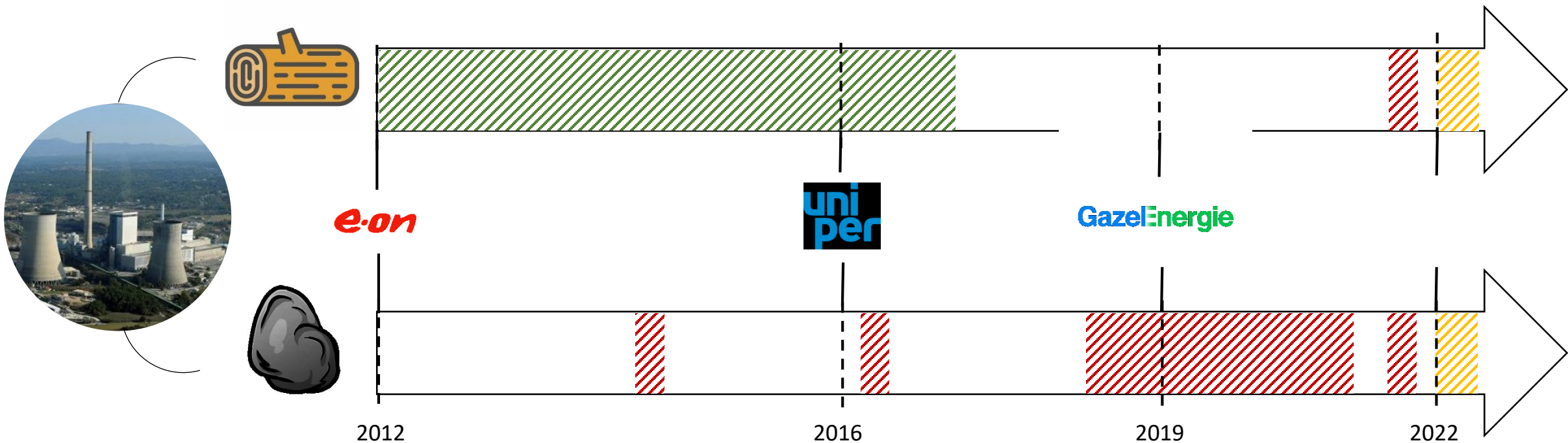


Project partisans

Project opponents



BMP : An industrial site that has been the focus of conflict for over ten years



3 kinds of conflict



Conclusion

- Energy transitions shape the trajectories of territories.
- Public consultations and various mobilisations are restructuring social groups and relations between stakeholders.
- These case studies recognise the OHM's skills and legitimacy in dealing with these issues.
- The public debates shed light on the obstacles and challenges of the energy transition, a fact that has been a cornerstone of the OHM for 20 years.

Merci pour votre attention

Putting interdisciplinarity into practice.

Using discourse analysis to identify indicators of the energy transition in Nunavik



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³Université de Pau et des Pays de l'Adour, LATEP, fr

⁴CRESAT (UR3436), Mulhouse, Fr

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It takes two to tango:

Finding the right intern to do interdisciplinary research

- Engineer l'Ecole Nationale Supérieure d'Electricité et de Mécanique (ENSEM) – Nancy
- Masters in environmental engineering, Ecole de Technologie Supérieur (Montréal)
- Two years internship in Energon
- Volunteer for multiple local Climate NGOs

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Research problem and objectives

Research Problem

How can we integrate social sciences into an indicator selection method to characterize the energy transition and its spatial specificities while also addressing its multidimensional nature?

Objective 1

Proposing a multidisciplinary method to construct a set of indicators for monitoring the energy transition.

Objective 2

Building a set of indicators to monitor the energy transition adapted to the Nunavik context.

Identified Gaps in Using Indicators to Assess Energy Transition

Issues (Shortall & Davidsdottir, 2017)

Five flaws :

- Definition ambiguity
- No integration of stakeholders
- Unbalanced focus
- Absence of context
- Opacity of the methodology



Most existing series have one of these flaws.

Issues (Gunnarsdóttir et al., 2020)

Six evaluation criterias:

- Transparency of the indicators' selection
- Transparency in the use of the indicators
- Conceptual and analytical framework
- Multidimensionality
- Interrelations between factors
- Evaluation by the Stakeholders



Most existing series do not meet these evaluation criteria.

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Robin's use of Gunnarsdóttir et al. (2021) analytical Framework

Description

- Adapting Gunnarsdóttir et al. (2021)
- Objective : Build a thematic conceptual framework to structure indicator selection.

Stakeholders' integration
Semi-structures itw

Analysis of the interview

Large-n questionnaires

Identification of thematics

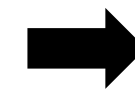
Identification of indicators

Gathering the indicators

Final analysis

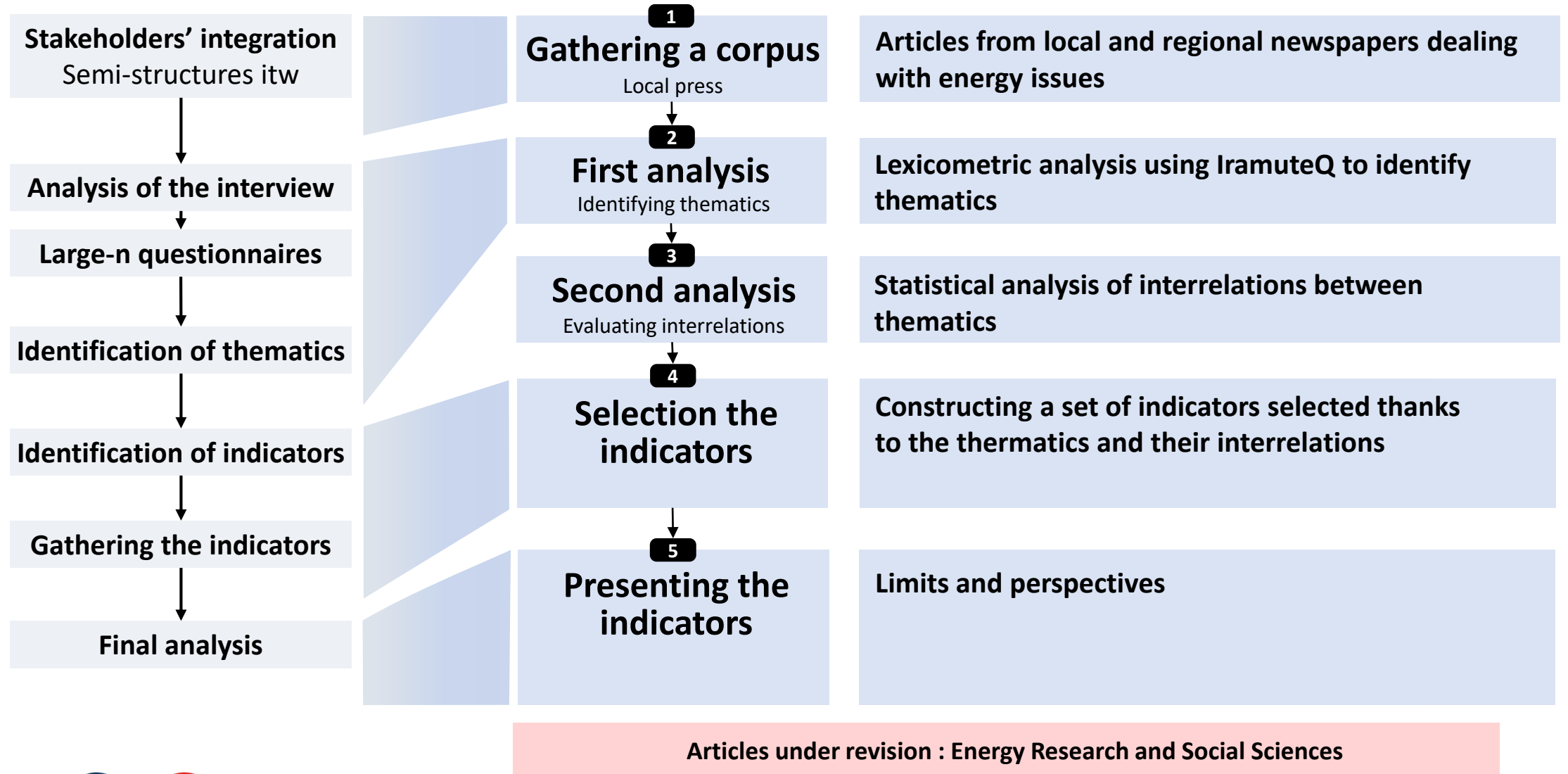
Limits

- How to access stakeholders ?
- Costly
- Ethics issues



How to integrate stakeholders' perspective ?

Robin's own methodological framework



Step 1: Building the corpus

1

Gathering a corpus

Local press

How to select them ?

Research : 19 keywords

Cadre de sélection

Timeframe : Summer 2017 →
December 2022

Sources : 7 medias

Local

Taqralik
Magasine



Nunatsiaq
News



Provincial

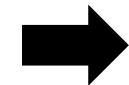
ICI  RADIO-CANADA

LE JOURNAL
DE MONTRÉAL

LA
PRESSE

LE DEVOIR

National



Step 2: Conducting the thematic analysis with IRaMuTeQ

2

First analysis

Identifying the thematics



Objective : Bulding a thematic frame of energy transition

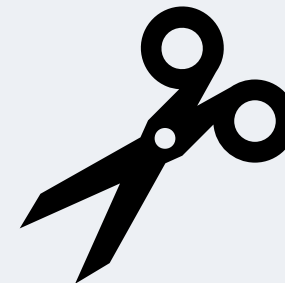


Tool : IRaMuTeQ textometric analysis



Material : Textual corpus

Workflow



Segment



Lemmatisation

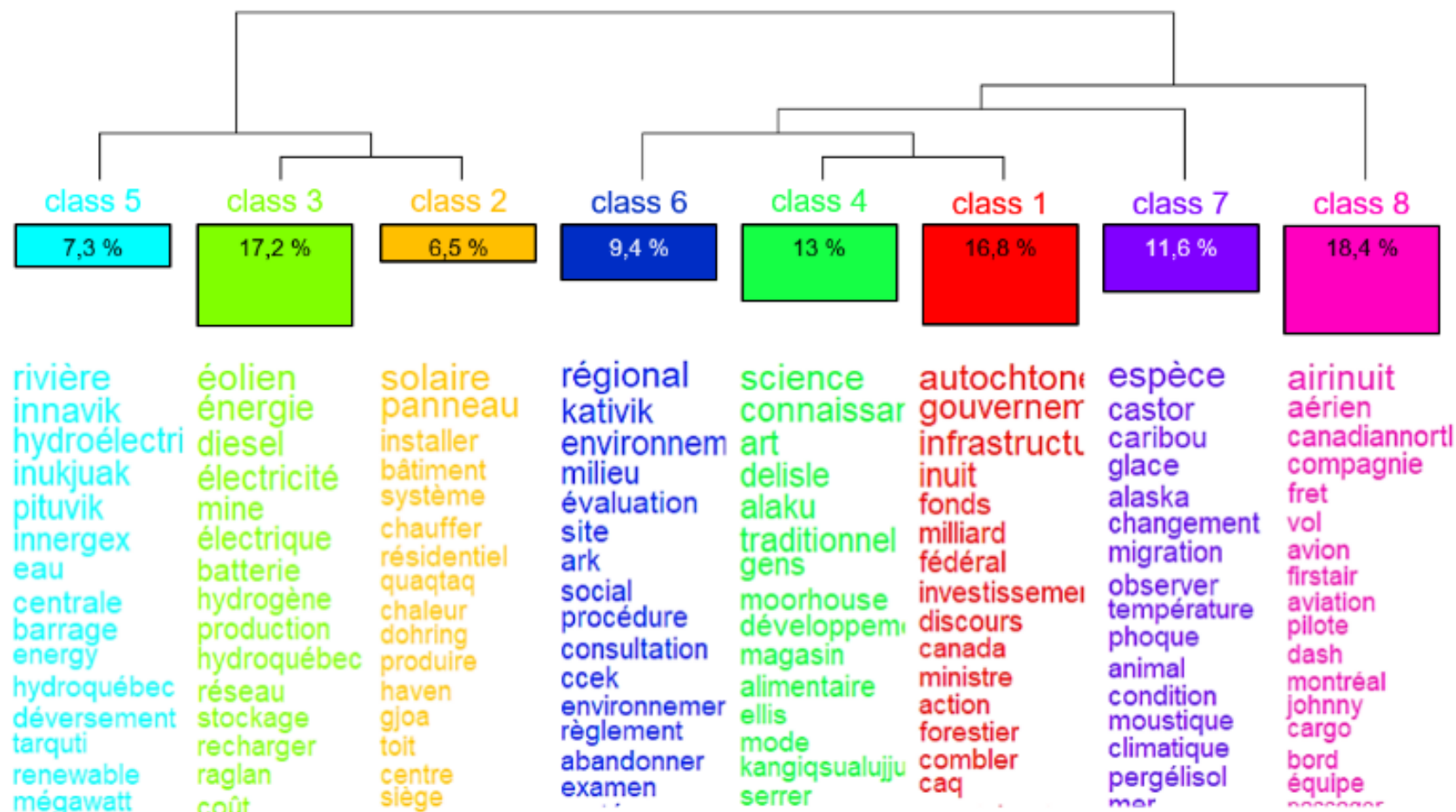
Step 2: Conducting the thematic analysis with IramuteQ

Revue de presse

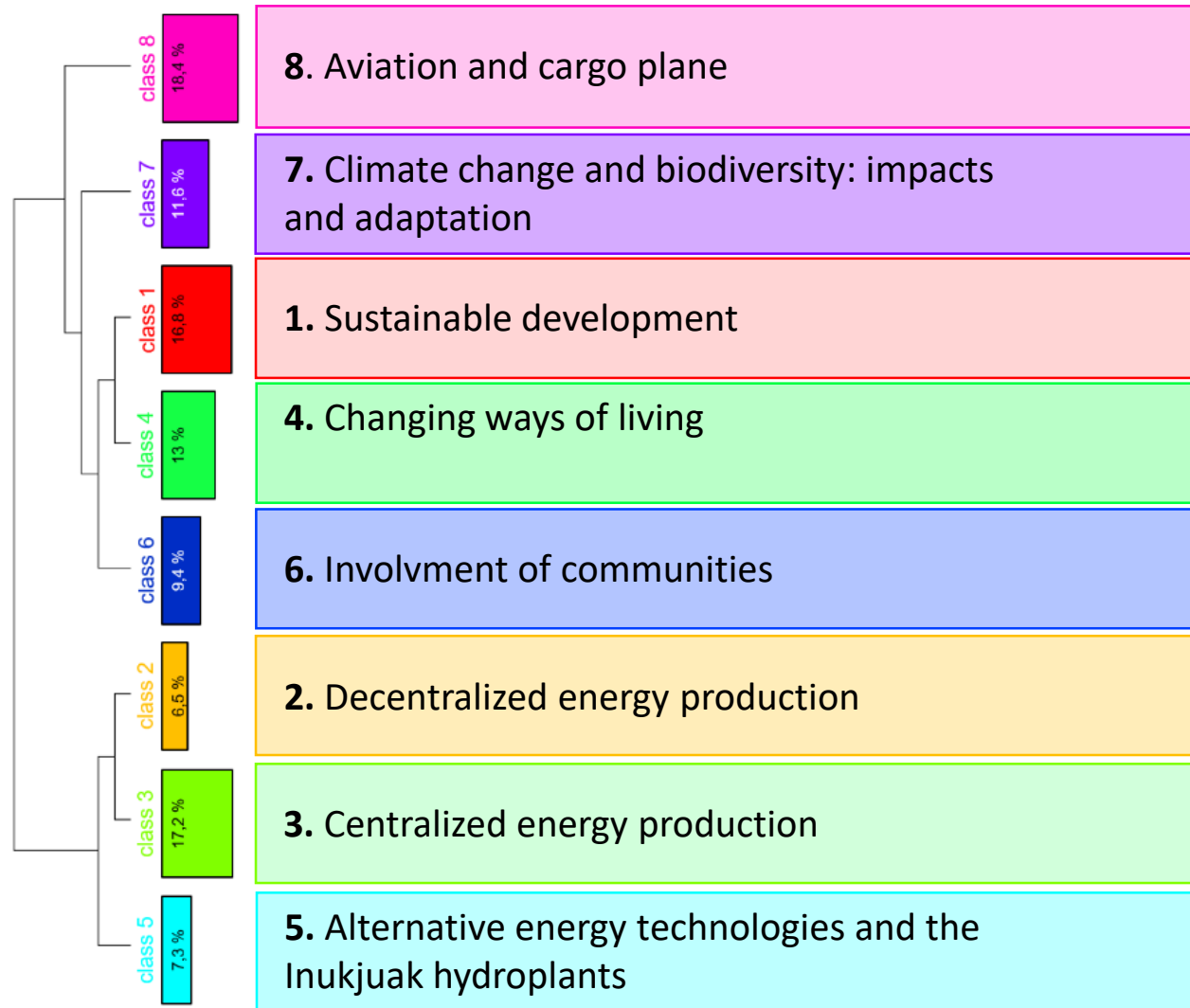
- Total : 164 texts
- Local press
- Taqralik = environ 50%
- Increasing coverage

Classification

- 8 primary classes
- 33 sub-classes




Step 2: Conducting the thematic analysis with IramuteQ



Step 3: Finding interrelations within thematic with Python

 **Objective** : Identifying interrelations between thematic

 **Tools** : coding with Python construit pour l'occasion

 **Material** : IRaMuTeQ first analysis

3

Secondary analysis

Evaluating interrelations

Formes
caractéristiques

Classe A		Classe B	
Forme	χ^2	Forme	χ^2
science	212.59	solaire	212.59
connaissance	179.23	panneau	179.23
art	158.03	bâtiment	156.0
traditionnel	143.48	chauffer	143.48
développement	104.21	résidentiel	122.13
magasin	96.51	chaleur	104.21
serre	39.36	serre	24.91
communautaire	37.11	communautaire	22.48

 **Lexical
echo**

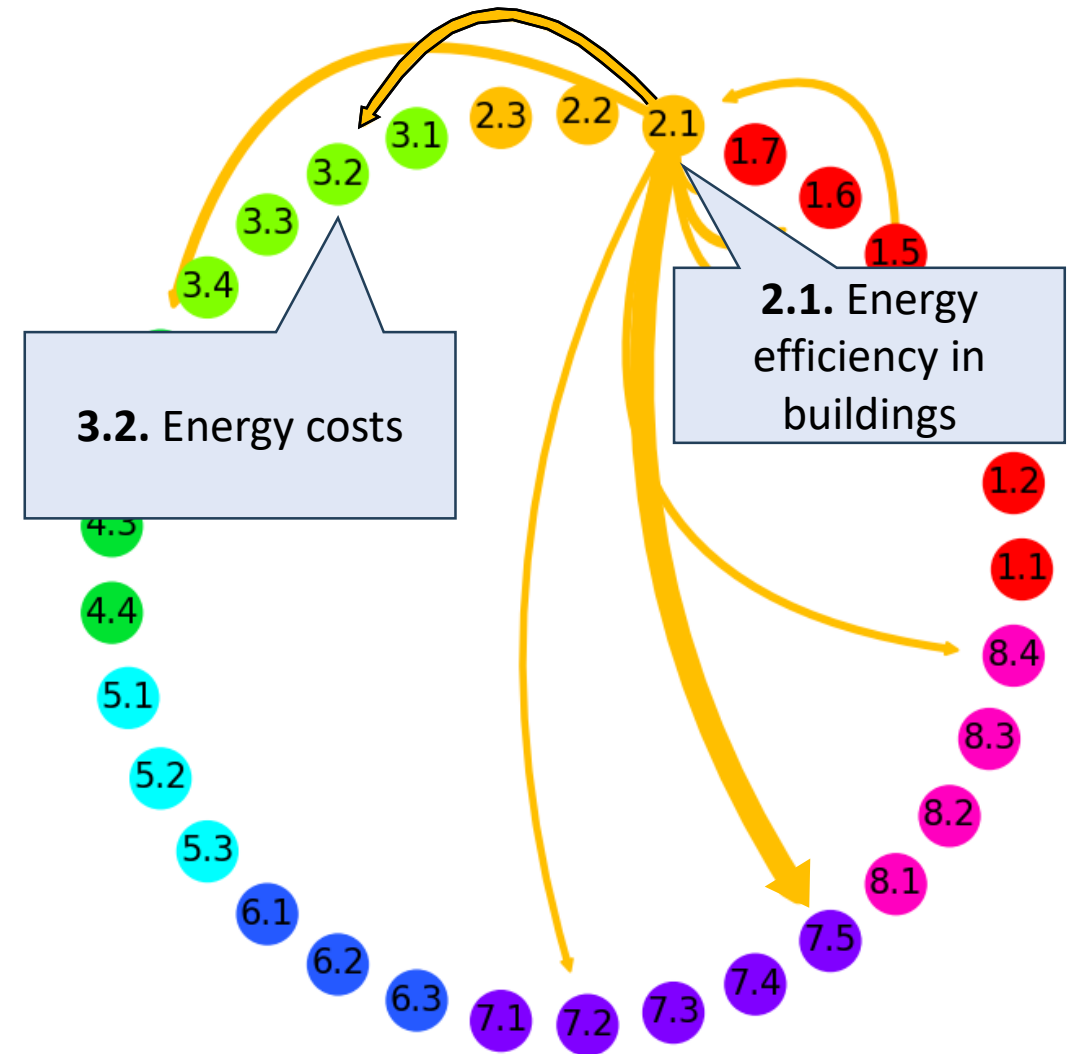
Step 3: Finding interrelations within thematics with Python

Résultats

- **370 interrelations**
- **91 interrelations** just for classes 2 and 3

Enjeux liant les classes 2.1 et 3.2

- **Cost of services**
- **Cost of living**



Step 4: Selecting the relevant set of indicators



Objective : Selecting the indicators



Main idea : Using the results of steps 2 and 3

4

**Selecting the
indicators**

Workflow

1. Using existing sets of indicators
2. Suggesting strategy for new indicators
3. **Creating new indicators when possible**

Step 4: Selecting the relevant set of indicators

Initial Indicators' selection

212 indicators

6 categories

Exemple of indicators' selection

Total : 29 indicators

**2. Énergie résidentielle et
production décentralisée**

13 indicateurs

**3. Production d'énergie
centralisée**

16 indicateurs

Obstacles à la sélection

Context

➔ Few available indicators

Statistical coverage

➔ Gaps in Nunavik

Références utilisées

12 existing indicators

3 found in the litterature

14 created

➔ **Different types of indicators**

Robin's discussion over his work

Anticipated limits

Press analysis

- Is it a good proxy
 - representativity ?
 - absence or overrepresentation ?
- Partial
 - biases ? gaps ?

Discourse analysis

- Integration of stakeholders ?

Limits appearing during the process

Thematic frame

- Potential biases
 - ex : Aviation

Difficulties in finding indicators

- Few existing indicators' sets
- Statistical coverage

Territorialized presentation of the energy transition for the different OHMs in the ENERGON project

LA TRANSITION
ÉNERGÉTIQUE
DANS LES
OBSERVATOIRES
HOMMES-MILIEUX

Projet transverse ENERGON,
une initiative du labex DRIIHM



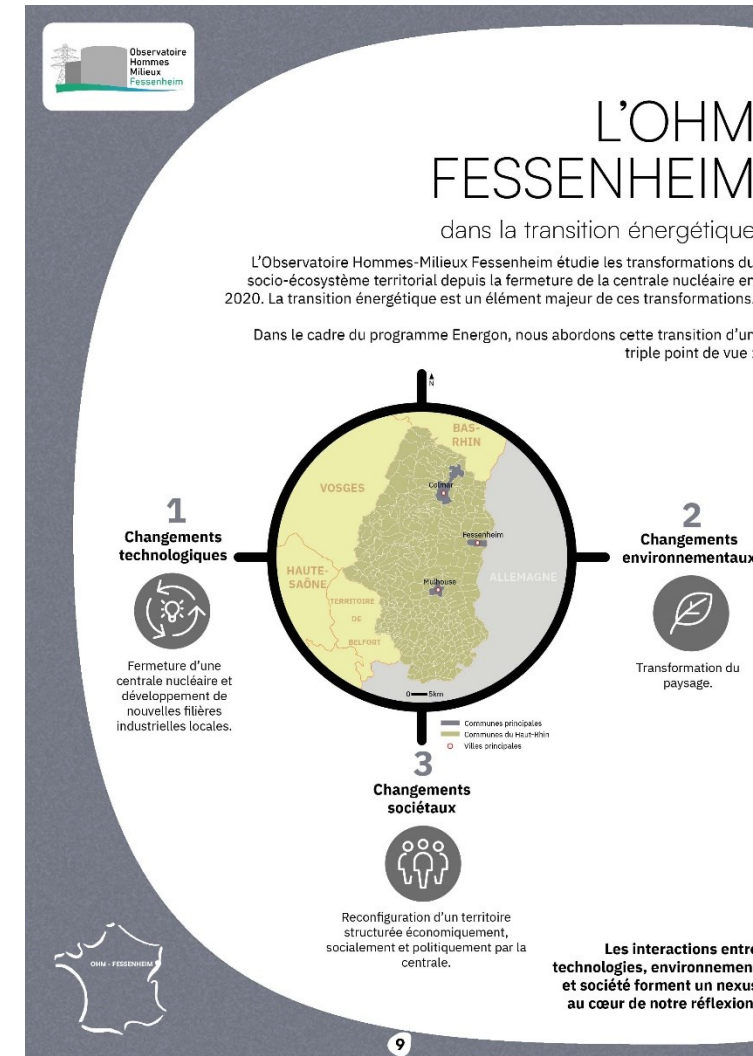
Territorialized presentation of the energy transition for the different OHMs in the ENERGON project

- This booklet presents the major characteristics of the energy transition in the six OHMs participating to the ENERGON project.
- The first page is a short abstract of the objectives of the ENERGON project
- Each OHM is described with a four pages chapter



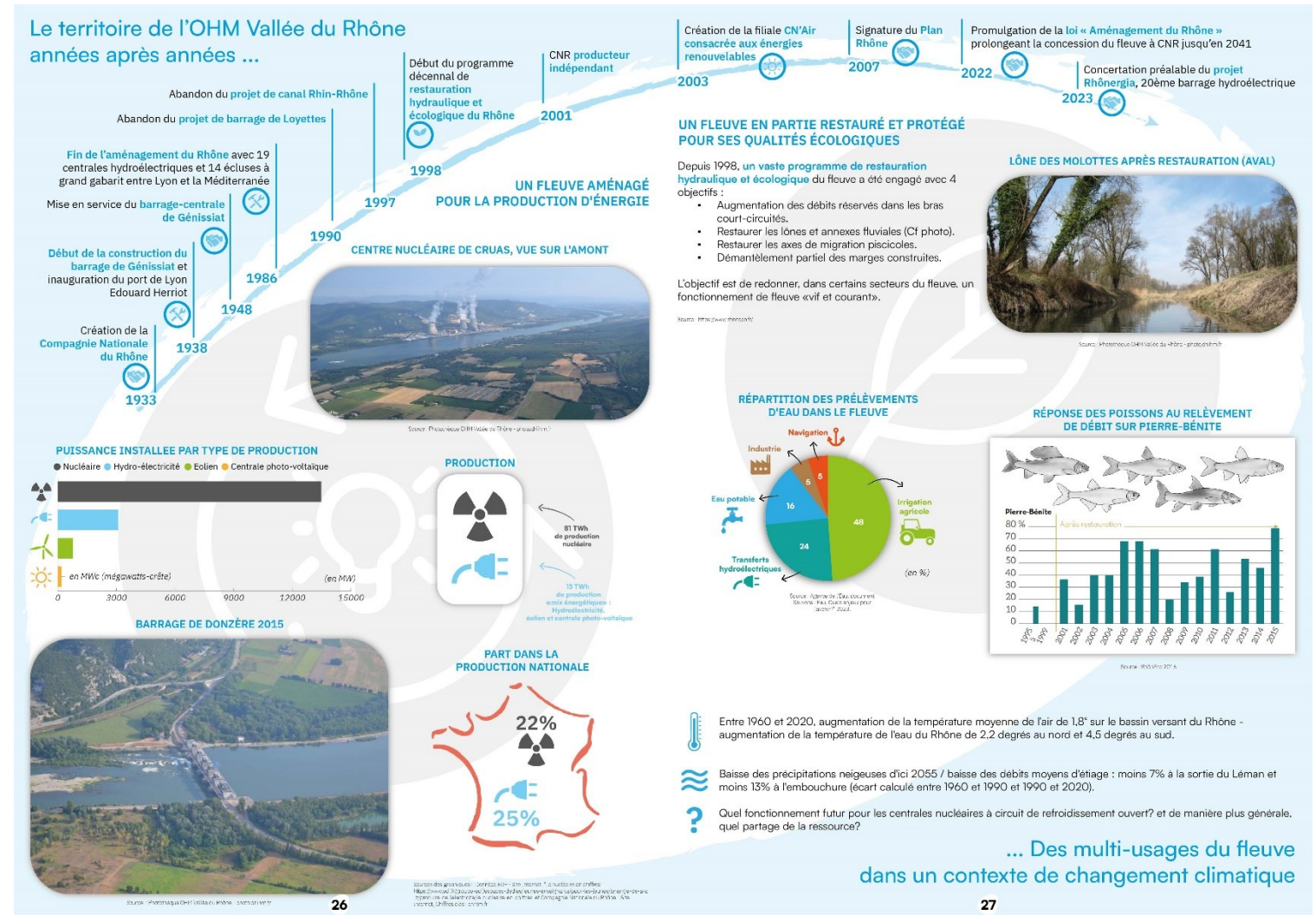
Territorialized presentation of the energy transition for the different OHMs in the ENERGON project

- The first page outlines the technological, environmental and societal consequences of the energy transition for the OHM territory



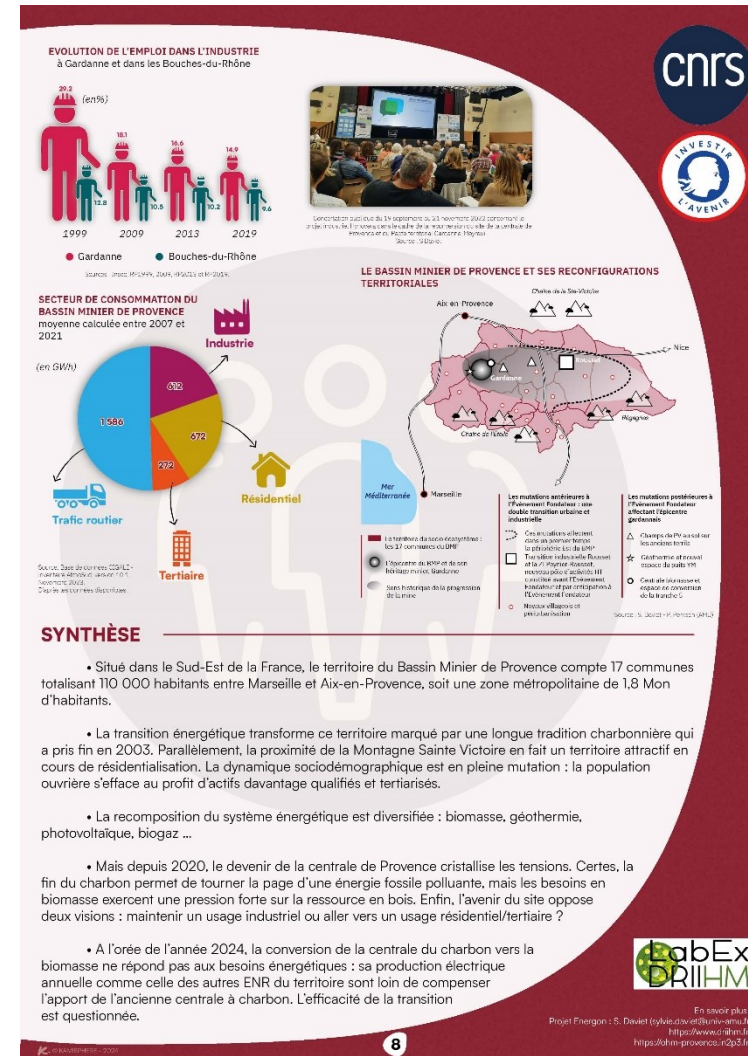
Territorialized presentation of the energy transition for the different OHMs in the ENERCON project

- The second and third pages present a chronological evolution of the energy transition in the OHM territory and some technological and environmental characteristics of this transition



Territorialized presentation of the energy transition for the different OHMs in the ENERGON project

- Societal characteristics and synthesis of the more important results of the ENERGON project for each OHM are present in the last page



**Territorialized presentation of the energy transition
for the different OHMs in the ENERGON project**

To read the [booklet](#)

Energy transitions and the Society/ Technology/Environment Nexus

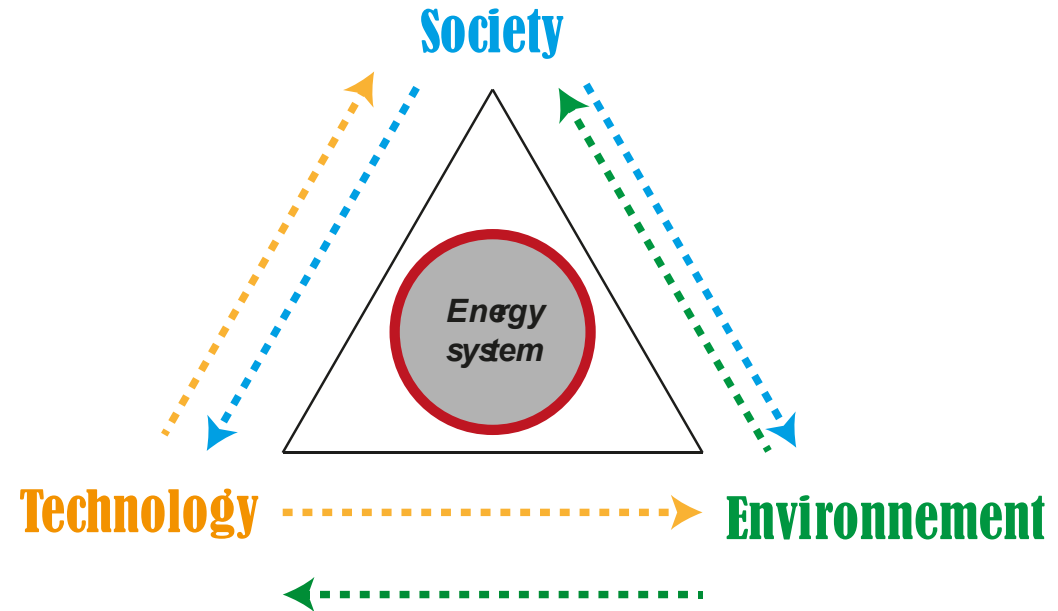
François-Michel Le Tourneau¹

¹CNRS, São Paulo, Brazil.

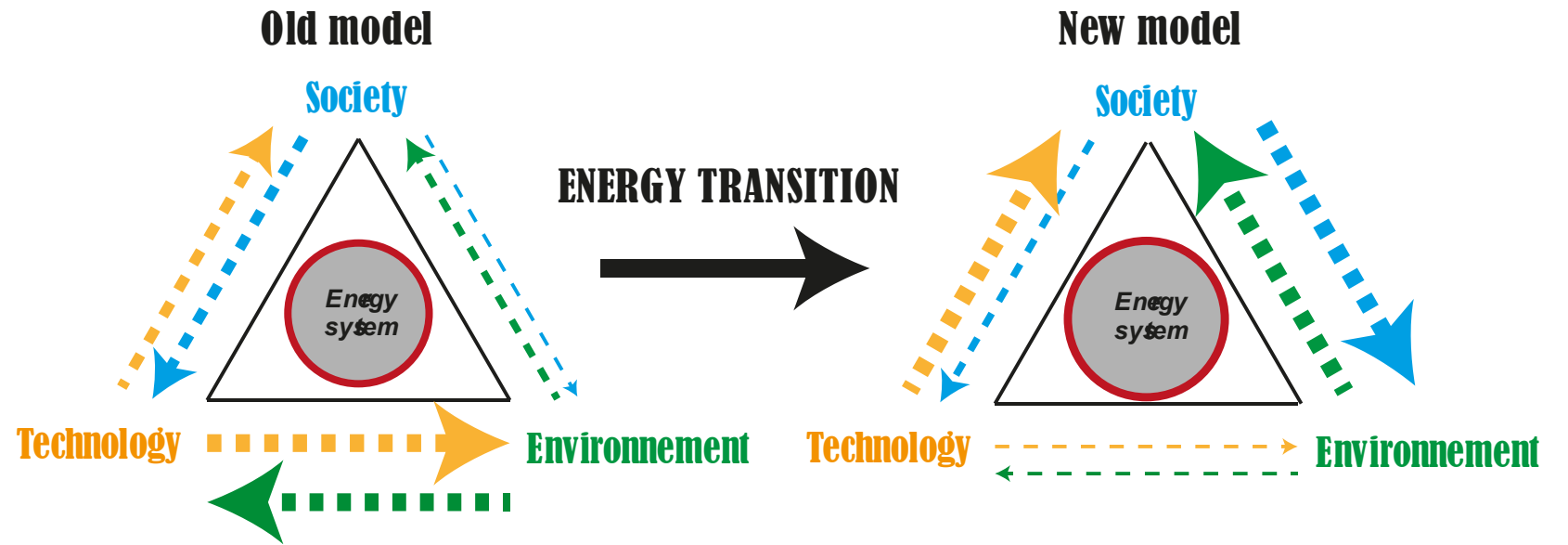


Transversal ENERCON Project, November 19th 2024, Lyon

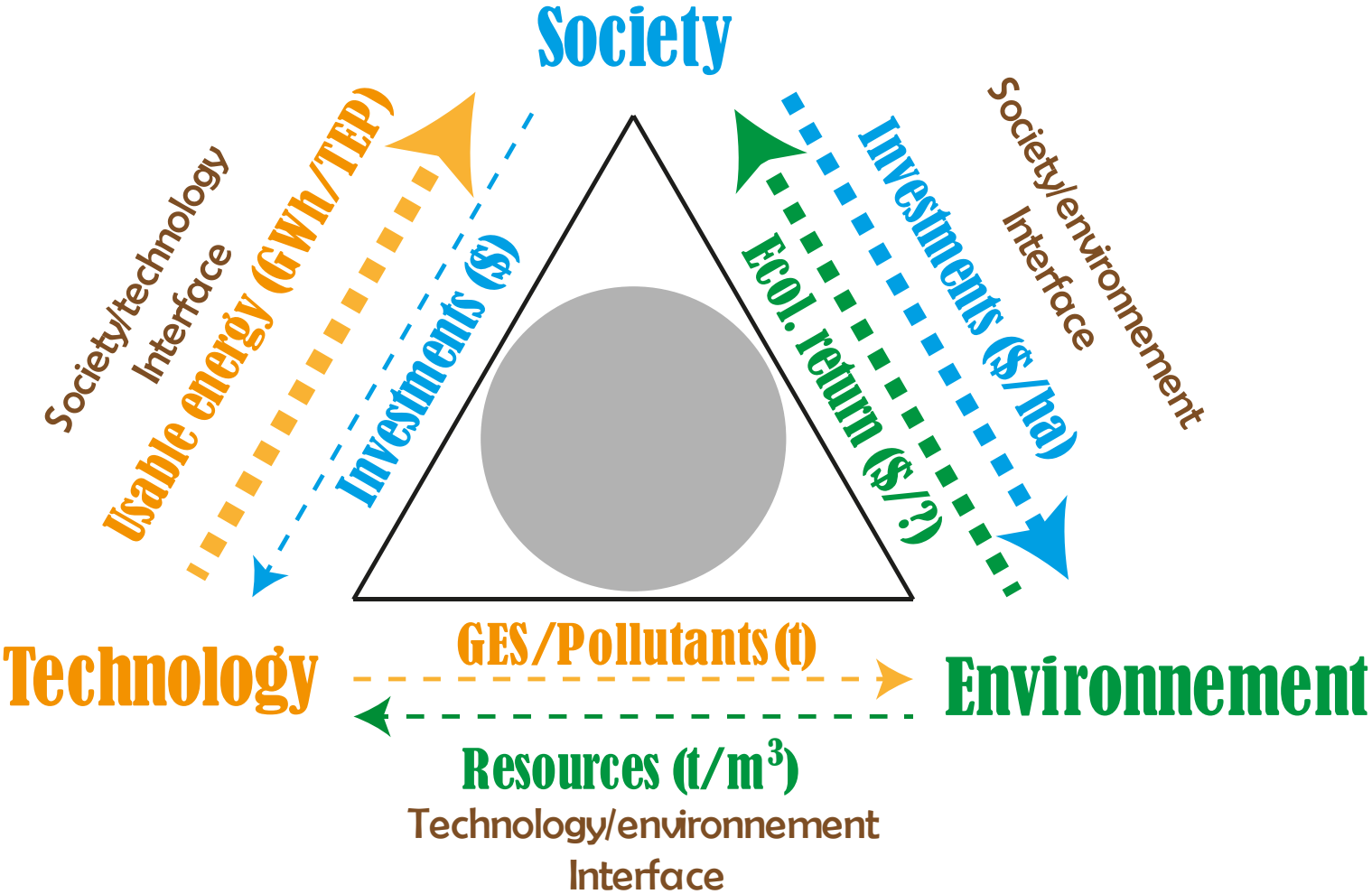
1. Defining Nexus and the STE Nexus



2. ET and the STE Nexus



3. Interfaces and quantification

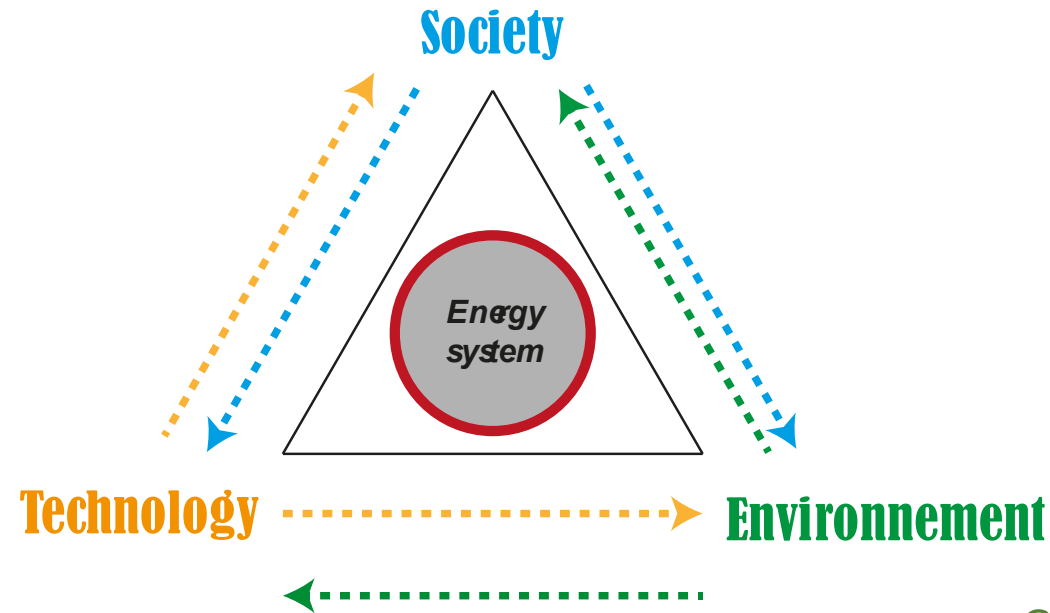


Case studies

Observatory	Region/Country	Type of energy transition	Scale
Pima County	Arizona/USA	Switch from fossil fuel-based electricity production to photovoltaic, at the level of the local utility (centralized generation) as well as individual homes. Objective is to save 70% on GHG emissions for electricity generation by 2035.	Regional
Provence Coalfield	Provence/France	Partial reconversion of the local coal-powered to biomass and smaller initiatives based on renewable energies for electricity production. Objective is to comply with lower emissions from the generation of electricity and to comply with the elimination of coal as a primary source	Regional
Bitche county	Moselle/France	Switch from gasoil or natural gas-based heating to the use of firewood, both for county buildings or individual homes	Local
Inukjuak community	Nunavik/Quebec/Canada	Switch from oil-based power generation to run-of-river powerplant	Local
Rhône river valley	Ain/France	Construction of a new dam on the Rhône river to fulfill the national decarbonation of energy production program	Regional/ National
Fessenheim	Haut-Rhin/France	Shutdown and deconstruction of a former nuclear powerplant	National

Analyzing by dimension

- Positive or negative impacts on socio-economic situation
- Cultural aspect of energy
- Resistances

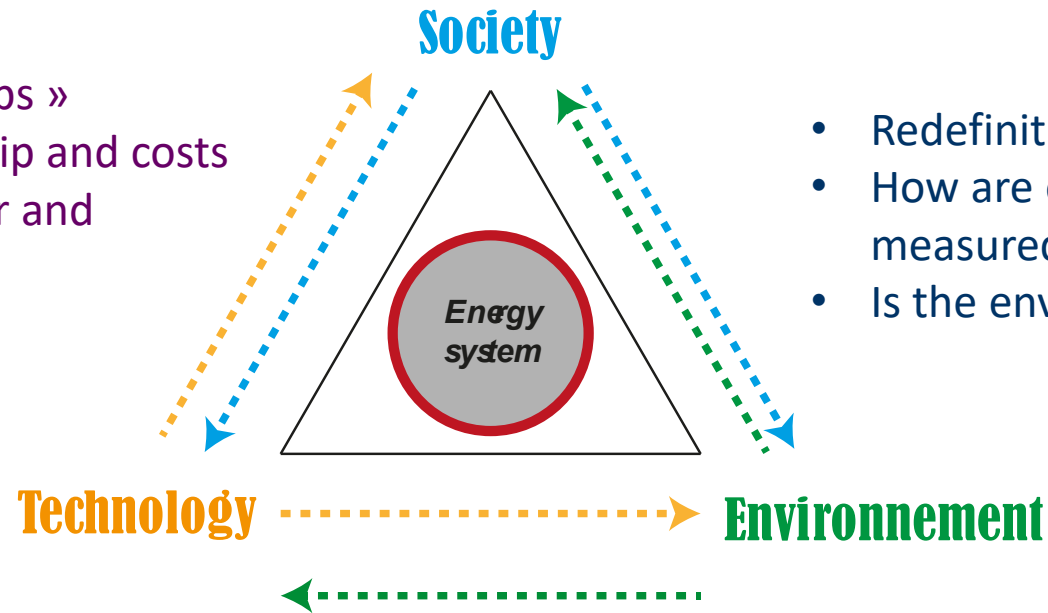


- Costs in the short run
- Technological gaps still exist (storage, recycling)
- Path dependency

- GHG emission reduction is the main goal
- Colateral damages?
- NIMBY syndroms caused by change in the production geography

Analyzing by interface

- Inequality / « poverty traps »
- Redefinition of relationship and costs between energy producer and energy consumer
- Scale of decision



- Redefinition of winners and losers
- How are environmental benefits measured and valued?
- Is the environment a real motivation?

- Sobriety is not an option
- Impact and resilience in relation to global warming
- Efficiency?

Conclusion

- ❑ The 3 dimensions of the STE Nexus are inherently present in each and every TE process
- ❑ The ENERGON project provided a perfect benchmark of the utility of the Nexus
- ❑ The STE Nexus approach unveils the following points:
 - *social issues frequently overshadowed by technology aspects*
 - *the cost of transition and how it will be shared is a key issue*
 - *environmental benefits are not always local, leading to acceptability issues*
 - *the real balance of environmental effects is not completely clear, especially in the long run*
 - *ET is more often accepted/wanted if/because it provides economic benefits*



Energy transition as a moment for renegotiating the SES trajectory

A look back on the OHM conceptual framework



Daviet Sylvie

AMU, Aix-en-Provence, France.

Transversal ENERCON Project, November 19th 2024, Lyon

ET and SES: Some analysis criteria

- 1) The impact of energy policies on local energy systems
- 2) The role of centralized/decentralized generation
- 3) Institutional framework, governance of ET, methods of public debate
- 4) Expression of local civil society on the future of projects
- 5) Energy transition as a time for renegotiating the SES trajectory
- 6) Flux, scales and SES perimeter

The impact of energy policies on local energy systems



Closure decision = shock event
Dismantling/reuse of
infrastructure
(path dependency)
collapse of energy system

1

Transitional dynamic
with the gradual emergence
of new energies, in a context
of heavy dependence on
fossil fuels.

2

Low dependence on
fossil fuels,
dam and EPR projects
**reinforce existing
energy system**

3

In two OHMs, PC and PdB, the transition involves a dual production system:
centralized generation for consumers

individualized
production by
consumers



individualized
production by
consumers



Pima County: photovoltaics
New practice
Generate electricity and return surplus
to the grid

distributed generation

Pays de Bitche: Wood energy
Ancestral practice
Heat production without
return to the grid

In the other OHMs, there is essentially centralized production: infrastructure -> network -> consumer.
NB Note in relation to the literature of the 2010s, the end of illusions?

Institutional framework, governance of ET, methods of public debate

Gazele



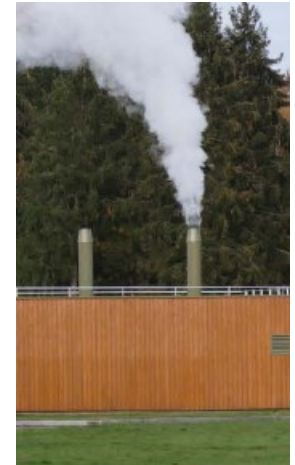
EDF



CNR EDF



TEP



“Territorial Pact” and
concertation via CNDP

“Projet d’Avenir du Territoire”
and concertation via CNDP

CNDP concertation on CNR and
CNDP concertation on dam

Consultation Committee
on electricity prices

Nunavik Plan
negotiated by the Inuit

Deliberation of the
Community of Communes

Governance largely exogenous (state authorities) with large energy companies influencing the management of ET

ET is more under the control of
the local community (Comcom for
PdB; Inuits for Nunavik).

Expression of local civil society on the future of projects



Rejection of heavy industry
during consultations

Failure of the PAT ongoing
consultation on the
"Technocentre"

Rejecting the dam in the
name of biodiversity

Conflicting situation; The debate is about infrastructure
choices, not the price of electricity.



Energy insecurity
for populations
unable to make an
individual PV
investment

Debate on
electricity prices



Dam 50%
owned by
Inuit



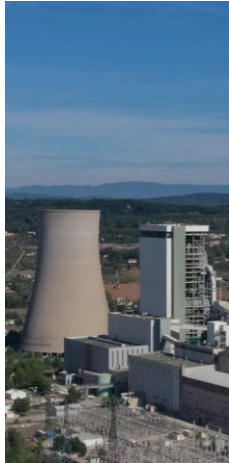
Wood-fired
boiler owned
by the
municipality

Appropriation of ET
through ownership of the
means of production

Energy transition as time for renegotiating the SES trajectory



Local community in shock over closure
The Technocentre revives divisions between anti-nuclear and other groups The post-DE trajectory remains difficult to define



ET revives tensions between deindustrialization/residentialization trajectory (new CSPs) and maintaining industrial/energy capacities (public p. and unions)



ET and the dam revive a confrontation between a trajectory where the Rhône is a space for planning and production, and a trajectory dedicated to restoration

ET refers to SES tensions (rupture/bifurcation) and to ante and post DE trajectories.



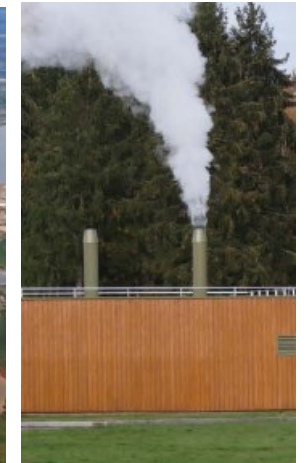
ET redefines the relationship between the electricity utility and citizens
TE -> deregulation
Motivation of local community more linked to economic issues and less to ecology

Does the ecological awareness generated by the mine project still exist?



Controlling ET reinforces local communities' desire to control their resources and is in line with the Nunavik Plan, which renegotiates the Northern Plan (DE).

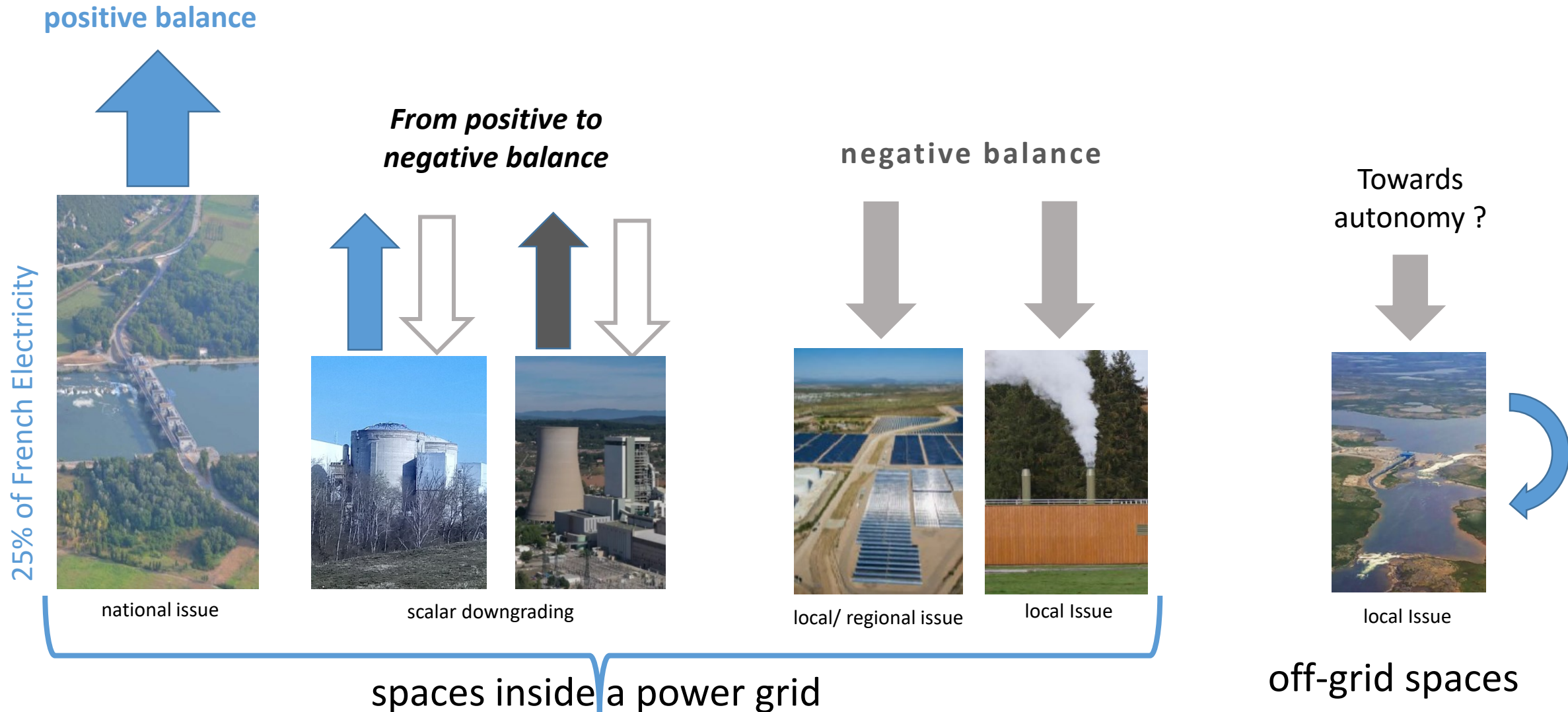
Control of ET, a calming factor, a trajectory on which there seems to be a consensus



local governance of ET makes the SES resilient in relation to the trajectory resulting from the DE (demographic decline continues, but some municipalities are resisting)

Flux, scales and SES perimeter

Spaces in a position to export or import energy on the grid
Energy as a factor of multiscale interdependence between SESs
TE in a position to question the perimeter of SES



Joint publications in progress

- Publié ou en cours de publication
- Soumis en cours d'évaluation
- Article en projet

Transversal Articles (2 submitted +1 project)

- Le Tourneau, F-M, Barthélémy, C., Chaubier, R., Daviet, S., Haillot, D., Meyer, T., Robin, V., « Analyzing Energy Transitions Through the Prism of the Society/ Technology/Environment Nexus », *Sustainable Futures Journal*, pré-print soumis
- Paranthoën J-B, Aubert N, Barthélémy C., Comby E., Daviet. S, « Les échelles médiatiques de la transition énergétique. Mise à l'agenda et cadrage médiatique de deux projets d'infrastructures énergétiques », soumis à *Développement Durable et Territoires*
- Enjeux énergétiques et concertations : les cas de Fessenheim, de la vallée du Rhône et du Bassin minier de Provence*

Other articles (2 accepted + 1 submitted + 1 in project)

- Chaubier R., Gibout. S, Meyer T., Haillot D. "Building a set of energy transition indicators as it is perceived : exploring a press discourse based approach on Nunavik case study"; *Energy Research and Social Science*, article avec comme objectif de soumission janvier 2025
- Daviet S., Perroux S., 2024, "Transition bas-carbone : vers une hybridation des modèles ? Enjeux et territoires dans la métropole d'Aix-Marseille", *BAGF n° 101-1*, pp 45-51
- Daviet S., Velut S., Perroux S., "Modernisation écologique, territorialisation et gouvernance de la transition", soumis aux *Annales de Géographie*
- Le Tourneau FM, Balaesque L, De Carvalho G, 2024, "La modernisation écologique vue sous le prisme du nexus technologie-société-environnement : le cas de l'électricité solaire à Tucson (Arizona, États-Unis)", *Développement Durable et territoire*, à paraître

Internships and master theses

BMP	Nina Aubert MNHN	<i>Territorialisation de la transition énergétique et acceptabilité sociale dans le BMP</i>
BMP	Fleur Gauche Sorbonne NELLE	<i>MASSHYLIA, étude d'un projet de transition énergétique au sein d'un territoire industriel</i>
Fessenheim	Almudena Plichon ENS Lyon	<i>Les projets de production de lithium en Alsace : une controverse environnementale ?</i>
Nunavik	Robin Chaubier ETS Montréal	<i>Indicateurs de transition énergétique à l'échelle locale : approche basée sur l'étude du discours et cas d'application au Nunavik</i>
P de Bitche	William Landverlin Unistra	<i>Le chauffage au bois dans le pays de Bitche entre identité et ressource</i>
P County	Laetitia Balaesque Ens Lyon	<i>Vers un paysage solaire ? Transition énergétique et recomposition territoriale dans le Pima County</i>
P County	Gabriela de Carvalho Bezerra EHESS	<i>Un avenir solaire dans le comté de Pima ? Des intérêts divergents et le paradoxe des discours dans l'expansion de l'énergie solaire en Arizona</i>
VR	Aurélien Pertuson EVS Lyon	<i>Le Rhône: quelle conciliation entre production d'énergie décarbonée et préservation écologique ?</i>

Thank you
for your
attention



Local observation of energy transitions

Results and prospects from the ENERGON project

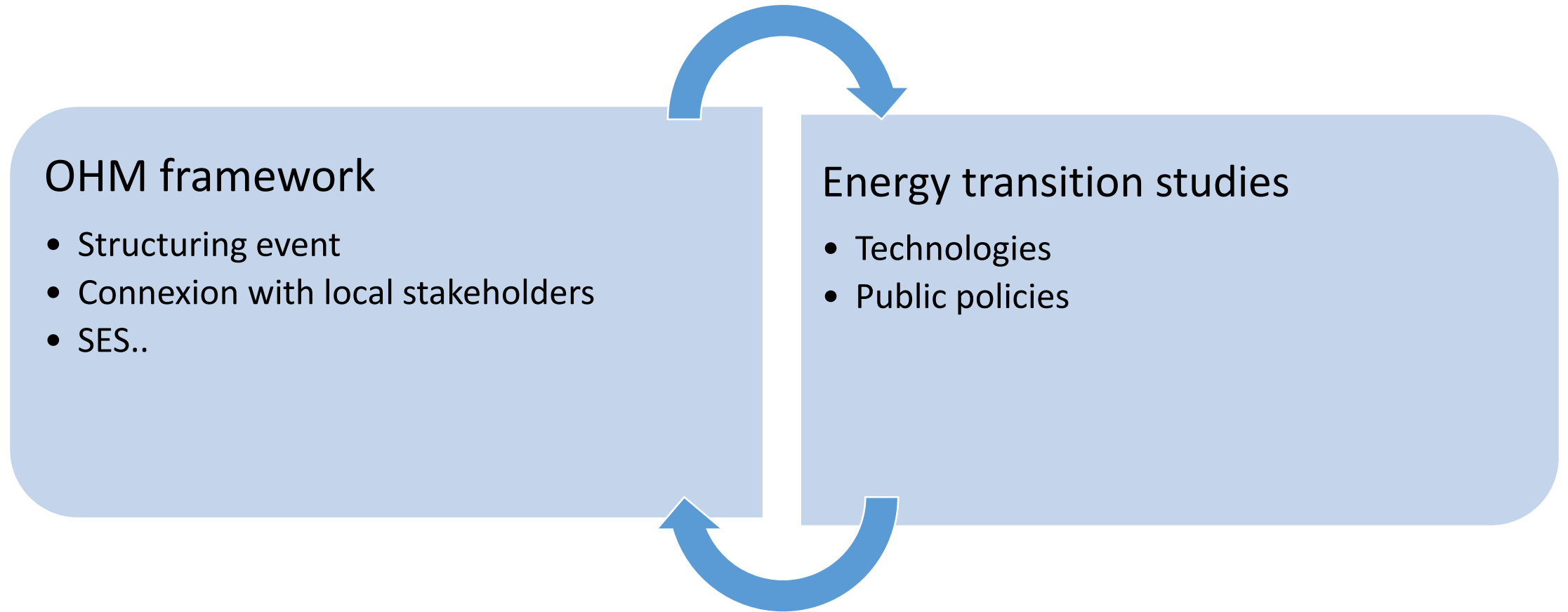
Sébastien Velut

CREDA, USN-CNRS, Paris



Transversal ENERGON Project, November 19th 2024, Lyon

A bilateral relation

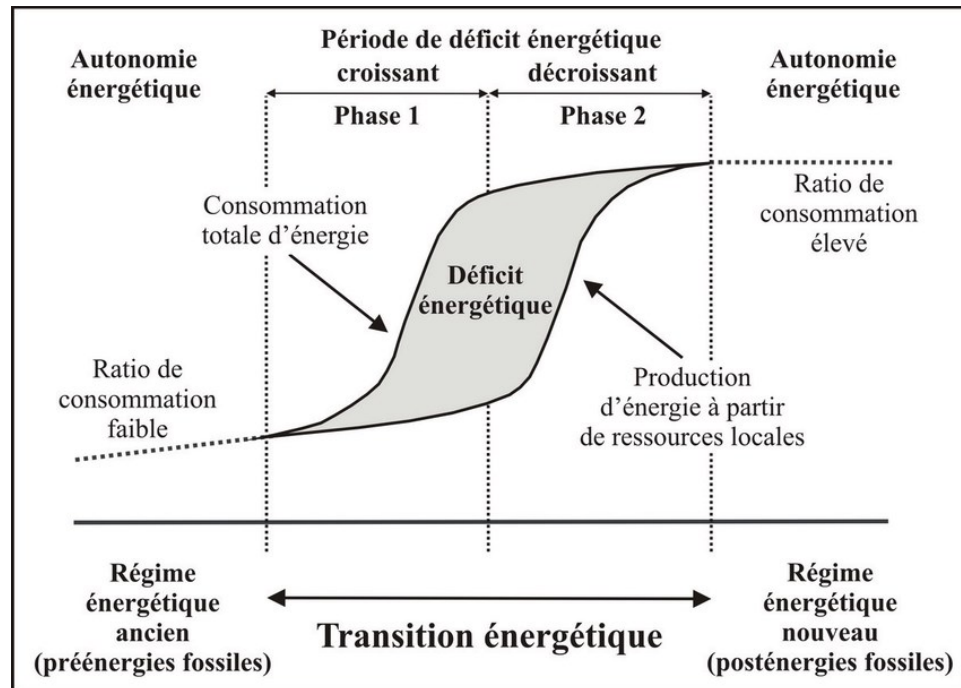


Capturing the energy transition from the OHM

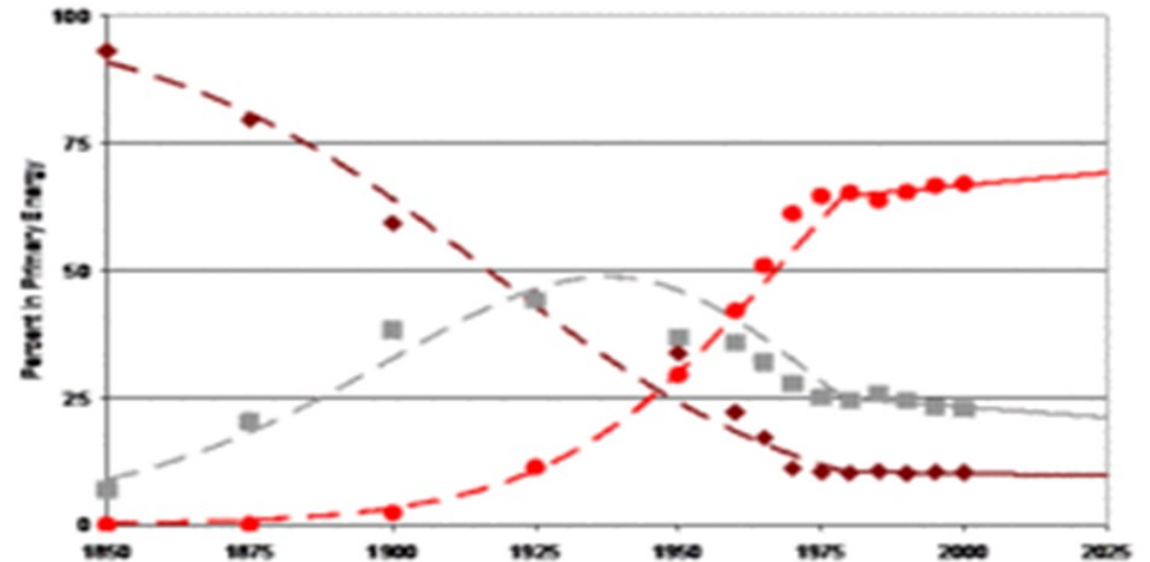
- The so called « energy transition » is not easy to define...but in all observed territories something is changing about energy.
- ET is not only about more renewables
- Problem of scales
 - Global scale
 - Scale of energy systems
 - National scale / national policies
 - Regional and metropolitan issues
- In existing littérature, ET is generally considered from a perspective public policies and technology



- Time as social production: social processes \Rightarrow temporality \Rightarrow spatiality.
- Time as relations : spatiality produces its own temporality
- Discordance vs Concordance of times
- Rhythm + space = **choreography**



Bouchard, 2009



Including technologies

- Technology is not clearly addressed in the OH framework...
- But all relations between society and their environment are mediated by technologies
- ET tends to be driven by technology. The fine grained vision from the local perspective helps to unpack technology challenges.



New questions for the energy transition

- Social justice
 - Costs and benefits of the energy transition
 - Social demands : debating about energy
- Environment
 - New uses and pressure on environmental resources (land, water, minerals)
 - Local and global environment
- Decarbonation : a new vision of ET
 - CCUS
 - biomass



Challenges and prospects

- Revisiting the framework of OHM
- The connection between society and the environment observed from the vantage point of energy transition
- Making the best out of comparisons of local situations
- International perspective

