FONDATION TUCK
The Future of Energy

Energy community ecosystems

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GRENOBLE ECOLE DE MANAGEMENT
BUSINESS LAB FOR SOCIETY

Outline

1. Introduction
2. Research design
3. Developing energy community typology
4. Review of communities drivers & barriers
5. Challenges faces by French energy communities
6. Mapping the energy community ecosystem
7. Conclusion
8. Dissemination & research agenda

1- Introduction

Energy sector under transformation

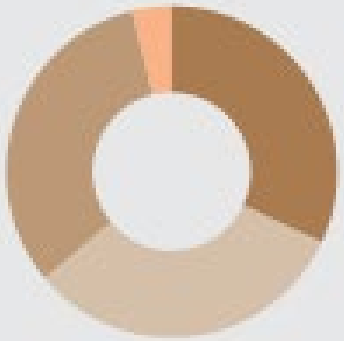
From a centralised governance

- Energy sector has been organised for decades around long-term decision
- Decides by few dominant actors
- Various developments indicates it is evolving

Towards a citizen-led governance

1,2,3 Soleil
LUC-SUR-AUDE

Investissement total :
312 845 €



- Apport citoyen bonifié : 100 000 €
- Autres apports citoyens, collectivités, entreprises : 100 000 €
- Apport Région : 100 000 €
- Commune Luc-sur-Aude : 12 845 €

PUISSANCE :
250 KWc

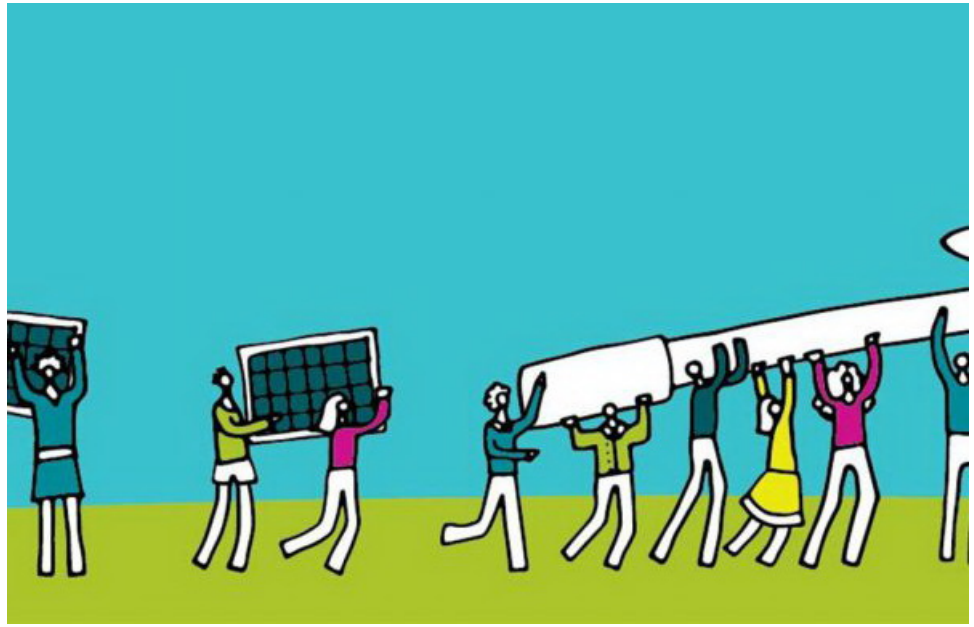
SURFACE DU PARC SOLAIRE :
< 8000 m²

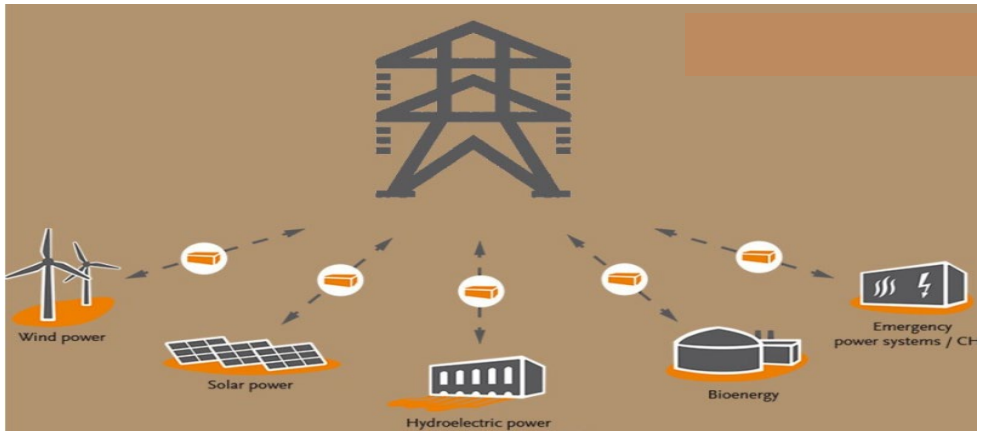
PRODUCTION ANNUELLE :
320 000 kWh
soit la consommation de 220 personnes (hors chauffage)

IMPACT CLIMAT :
32 tonnes
d'équivalent Co2 évitées par an
3,5 kg de déchets nucléaires à vie longue (> 10 000 ans) évités par an.

J-C Pons, Mayor of Luc-sur-Aude

Energy communities - our definition and focus in pics





Depending on the community type:

for you.
not for profit.

Objectives of our research

Understanding

- what are energy communit**IES**
- what are the main drivers and barriers that energy communities are facing
- better the French energy communities

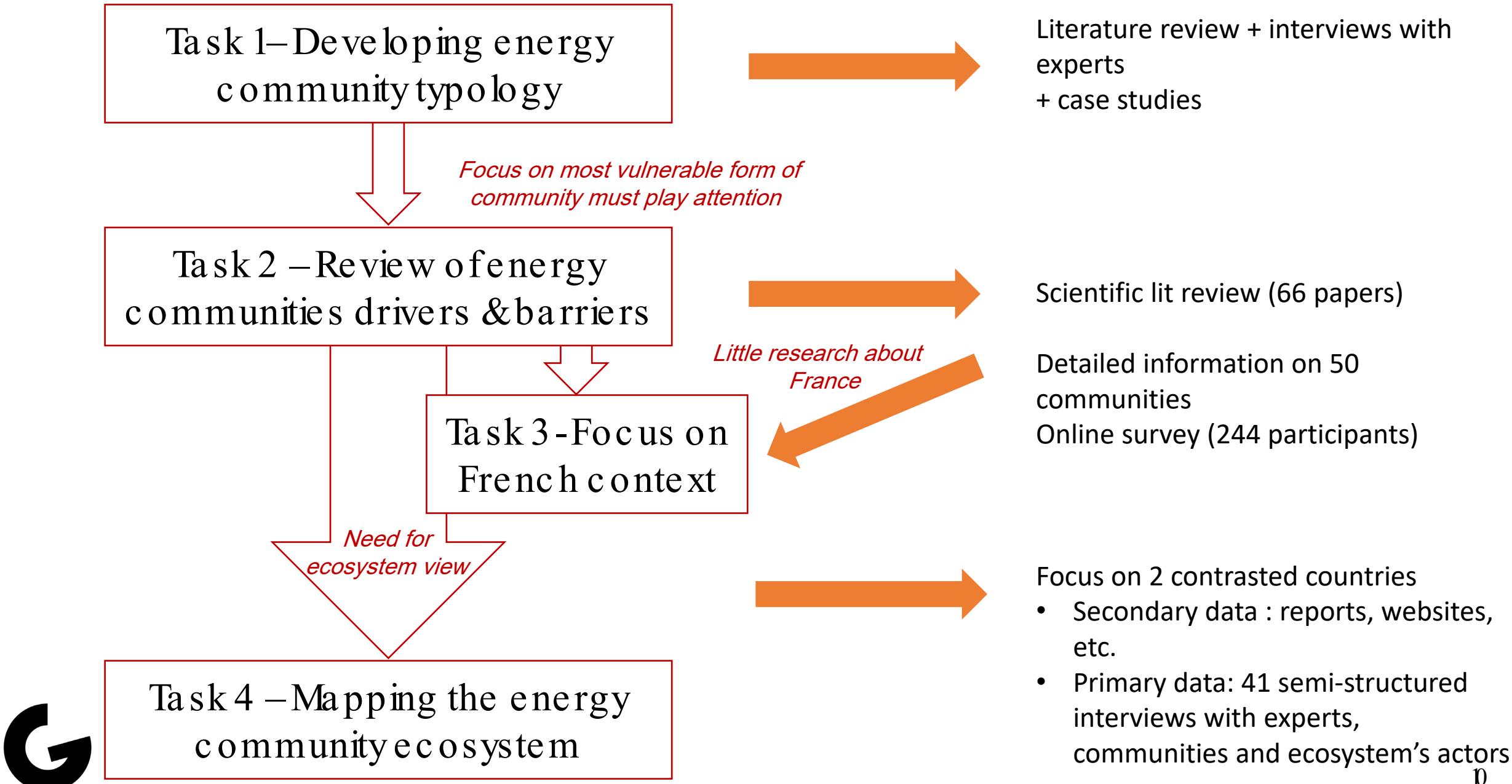
Objectives of our research

Why some communities work better than others? How to develop further?

- Assumption: communities are fragile alone but robust collectively

➔ Study in particular the ecosystem that supports their creation and growth

2- Research design


Task 1– Developing energy community typology
Literature review + interviews with experts
+ case studies
Focus on most vulnerable form of community must play attention
Task 2 – Review of energy communities drivers & barriers
Scientific lit review (66 papers)
Little research about France
Detailed information on 50 communities
Online survey (244 participants)
Task 3 - Focus on French context
Need for ecosystem view
Focus on 2 contrasted countries
• Secondary data : reports, websites, etc.
• Primary data: 41 semi-structured interviews with experts, communities and ecosystem's actors
Task 4 – Mapping the energy community ecosystem

Type of interviews and use in analysis

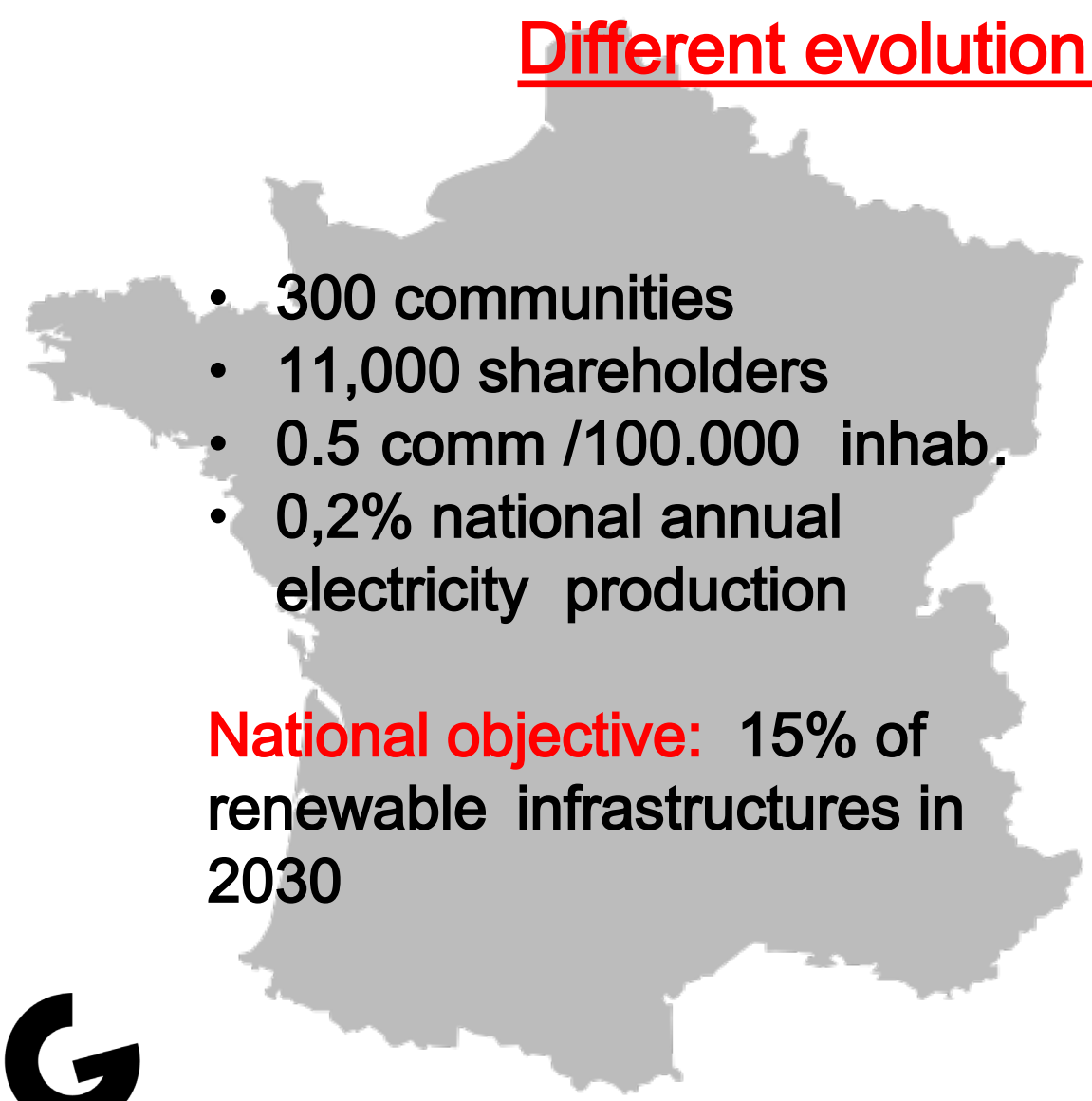
Actor	Use in Analysis
Experts	Understand global national dynamics Highlight main challenges faced by energy communities Identify ecosystem actors
Energy Community	Understand how they work and are organized Clarify what their ambitions are Highlight the barriers they face to reach their ambitions Identify ecosystem actors they rely on and what for
Supporting organizations	Understand how they support or interact with energy communities, how this has and may continue to evolve Clarify how they finance their activities Highlight how they describe the challenges faced by energy communities

Benchmarking between France and The Netherlands

- France has a strong centralised energy market :
  - National incumbents EDF, Enedis, RTE
  - New players - in particular Enercoop
  - Electricity production dominated by nuclear
  - Ambitious targets on REN and consumption reduction
- Completely liberalised market for more than 15 years in The Netherlands
  - Higher climate emergency and energy dependence
  - 18% of Dutch households changed energy supplier in 2018

Benchmarking between France and The Netherlands

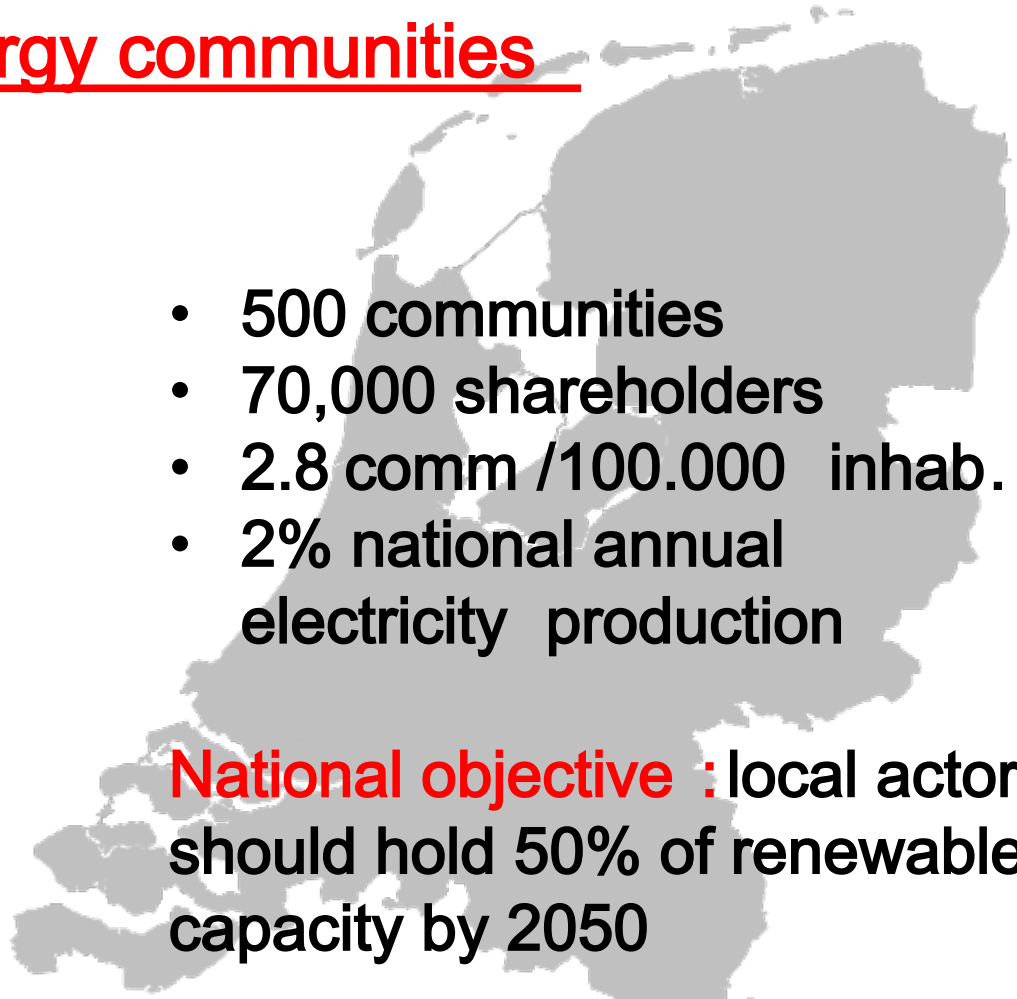
Different evolution of energy communities



- 300 communities
- 11,000 shareholders
- 0.5 comm /100.000 inhab.
- 0,2% national annual electricity production

National objective: 15% of renewable infrastructures in 2030

Source: Energie Partagée



- 500 communities
- 70,000 shareholders
- 2.8 comm /100.000 inhab.
- 2% national annual electricity production

National objective : local actors should hold 50% of renewable capacity by 2050

Source: HierOpgewekt

3- Developing a typology

Taxonomy of energy communities, a literature review

Not a unique and broadly accepted definition

- Seyfang et al. (2013:988): "*This is a highly diverse sector representing many types of actors and organisational form, multiple sets of objectives (not all of which related to energy) […] and many different practical strategies and technologies to achieve their goals. It is therefore exceedingly difficult to pinpoint specific features of the sector as a whole*".
- Becker, Kunze, & Vancea, (2017:26): "*Community energy covers a variety of empirical phenomena, yet a systemic operationalisation of its different organisational features is still at an early stage*"

➔ difficult to define what is an energy community

Taxonomy of energy communities, a literature review

Scholars attempted to clarify these various forms

- Differences in related processes ("who the project is by") and outcomes ("who the project is for") (Walker & Devine-Wright, 2008)
- 1) the number of users; 2) the number of real estate parcels that the microgrid serves; 3) the ownership of the parcels; 4) whether or not the grid infrastructure crosses public streets (Bronin and McCary, 2013)
- Distinction between geographically local communities; sector-based communities; interest-based communities; virtual communities (Heinskanen et al., 2010)
- Place-based or non-place based communities & shape solely for energy purposes or with a wider range of objectives (Moroni, et al, 2019)

Taxonomy of energy communities, a literature review

Our proposition

- Non ideological definition
- Communities do not have to have a strong geographical anchorage
- Some communities focus mainly on citizens, other can target private firms

Axe 1: whether the community has a ***citizen*** or public (like municipalities) governance, i.e. "citizen-centric", or an initiative with private governance that targets the non-residential (e.g. C&I) or aggregated customers, i.e. "***business*** centric";

Axe 2: whether the energy community manages its grid or exchanges at the local level (e.g. local grid ownership or prosumerism), i.e. "***physical***", or whether members or resources are geographically dispersed, shared and using existing national infrastructures, i.e. "***virtual***".

Proposed typology of energy communities

	Citizen centric	Business centric
Physical	**1- Collective self-consumption** 1.1 Local integrated energy community 1.2 Neighbouring energy community	**2- Local utility** 2.1 Private micro utility 2.2 Neighbouring energy utility
Virtual	**3- Cooperative** 3.1 Asset sharing energy community 3.2 Energy sourcing community	**4- Facilitator** 4.1 Virtual community 4.2 Energy sharing community

Proposed typology of energy communities

1.1 Local integrated energy community

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- Early development made of small-scale electricity systems, "public services" companies managed by local authorities or cooperatives.
- Activities are either concentrated on narrow (i.e. electricity only) or wider scopes (i.e. multi-utility). In the future, these communities may play an increasing role in the EV fleet management, storage management..This model - which has a strong community DNA - has survived quite unchanged in many places.

Example: Stadtwerke in Germany

Proposed typology of energy communities

1.2 Neighbourhood energy community

	Citizen centric	Business centric
Physical	1-Collective self-consumption 1.1 Local integrated energy community 1.2 Neighbouring energy community	2-Local utility 2.1 Private micro utility 2.2 Neighbouring energy utility
Virtual	3-Cooperative 3.1 Asset sharing energy community 3.2 Energy sourcing community	4-Facilitator 4.1 Virtual community 4.2 Energy sharing community

- Citizen initiatives with strong local roots. The success partly depends on whether people know and interact with one another (at the local level).
- Local champions that can help maintain some equipment and provide technical support to their neighbours (ex Buurkracht).
- In Europe, it is referred to as "Community self-consumption" (called sometimes "collective self-consumption"), while in North America the terms "shared solar" or "virtual net metering" prevail.

Example: Sunchain in France

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2.1 Private Micro Utility (PMU)

- Large infra customers allowed to own and operate private systems serving multiple business customers over large private areas.
- PMU can be seen as an extension of community model and are applicable mainly for industrial or commercial parks.
- Governance private actors such as ESCO or utility-affiliated companies (Vattenfall)
- European policy makers have classified those networks as "private networks", However in North America, such systems are called "community energy systems" or community microgrids"

Example: IDNO (Independent Distribution Network Operator) in UK

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2.2 Neighbouring energy utility

- It differs from "neighbouring energy community" by its management that is led by a private collective self-consumption.
- It can allow peer to peer trading of electricity by people living in the same neighbourhood, like for instance in Norway Smart Energi

Example: Mieterstom in Germany

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3.1 Asset sharing community

- Investing in local energy production that is (partly) financed via crowdfunding campaigns, offering local people the possibility to participate by buying shares.
- Involved volunteer citizens and different public actors compose the core group of this community. Most of the citizens that buy shares do not participate.
- French communities: "Centrales villageoises". The origin of this community type has been developed first in Germany and Denmark as cooperatives.

Example: Buxia Energies in France

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3.2 Energy sourcing community

- At regulated retail market, like Community Choice Aggregations (CCAs) in the USA that are local governmental entities that procure electricity on behalf of retail electricity customers within a certain geographic area

COMMUNITY

CCAs serve retail electricity customers within a given city, county, or group of jurisdictions.

CHOICE

CCAs choose their own electricity portfolio, which may include renewable energy in excess of state RPS.

AGGREGATION

CCAs aggregate numerous retail electricity accounts for the purposes of procuring wholesale electricity.

Proposed typology of energy communities

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4.1 Virtual campus

- Community-related organization enabling economies of scale and maximising self-consumption for commercial and industrial customers over utility wires, i.e. not bound to a physical restricted territory.
- Virtual campus administrates either multiple sites owned by single corporation (e.g. a commercial retail chain with more than 100 sites over a large territory) or multiple independent companies owned by various corporations.

Example: Urban Solar Energy in France

Proposed typology of energy communities

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4.2 Energy sharing community

- Facilitate the creation of a community composed of people that are not acquainted with one another but that do share a common objective. There are 2 types.
- First, firms that develop platform-type business models to connect customers to one another and allow them to engage in peer to peer interactions with each other in the community (Vandebron, in Netherlands or Beegy in Germany, both at national level)
- Second, firms that act as aggregators and connect people to a joint energy production (Windcentrale in the Netherlands)

Example: Sonnen in Germany, E On Solar cloud

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4- Main drivers & barriers

Review of communities drivers & barriers

Focus on *new* citizen-centric communities

Energy communities in EU:

- ~3,000 energy communities
- linking over 1,250 cooperatives & one million citizens.

European Commission estimates that by 2030:

- more than 50 GW of wind and more than 50 GW of solar could be owned by energy communities, representing respectively 17% and 21% of installed capacity.

By 2050, almost half of all EU households could be involved in producing renewable energy, about 37% of which could come through involvement in an energy community (CE Delft, 2016).

Review of communities drivers & barriers

Raison d'être

- Common understanding : "solving energy issues requires integrated solutions at all societal and institutional levels" (Klein & Coffey, 2016).
- Financial contribution from citizens where government or utilities are failing
- ~carbon free, or towards efficient and sustainable consumption.
- Strong willingness of citizens to produce energy independently to the centralized distribution and generation grid in a collective action, via a cooperative for instance.
- "the energy transition to energy democracy" as defined by Rescoop.

Review of communities drivers & barriers

Drivers

- Increase citizen acceptance and mitigate resistance against new local infrastructure and technologies related to energy transition.
- Educating people about energy, empowering and promoting actions for the more vulnerable consumers, energy community can also fight for energy inequalities and energy poverty
- Reply to this vow of energy independence ➔ new disruptive model where social welfare is distributed and managed by citizens + the creation of new local jobs, cheaper energy, self-sufficiency, community cohesion and energy security.

Review of communities drivers & barriers

Motivations

- "willingness to volunteer was higher than their willingness to invest money" survey in German Kalkbrenner and Roosen 2015
- "more about the community than the energy" in UK survey Seyfang et al, 2013 .
- In Ireland, motivation was higher for wealthier households that matters particularly to investment in the technology Curtin et all (2019).
- Examine cultural influences such as the anti-technology (e.g. nuclear, wind, etc) and alternative energy movements (Breukers and Wolsink, 2007; Enzensberger et al., 2003; Toke et al., 2008; Johansson and Laike, 2007; Liebe and Dobers, 2019; Karnøe and Jørgensen, 1995).

Review of communities drivers & barriers

Barriers

- Exogenous factors:
  - Strong dependence on the national policy and legal framework (Herbes, Brummer, Rognli, Blazejewski, & Gericke, 2017; Mirzania et al., 2019; Oteman, Wiering, & Helderman, 2014).
  - Adequate rules for grid connection (Bolinger, Wiser, Milford, Stoddard, & Porter, 2001; Breukers & Wolsink, 2007).
  - Predominated led by public policy such as the feed-in tariffs (FIT) or other public incentives (Herbes et al., 2017) – UK example
  - Biophysical conditions (e.g. wind speed, solar hours, ..) and the local planning (urban versus rural) (Kooij et al., 2018).

Review of communities drivers & barriers

Barriers

- Endogenous factors:
  - High dependence on member's willingness to participate.
  - Citizens led by hedonic motivations (Dóci & Vasileiadou, 2015) and the idea of being part of a local social movement (Kalkbrenner & Roosen, 2016; Seyfang, Park, & Smith, 2013).

➔ problem of availabilities (lack of time), professionalism (insufficient level of knowledge and skills), social and economic changes (ageing of volunteering force), etc. (van der Schoor & Scholtens, 2015)

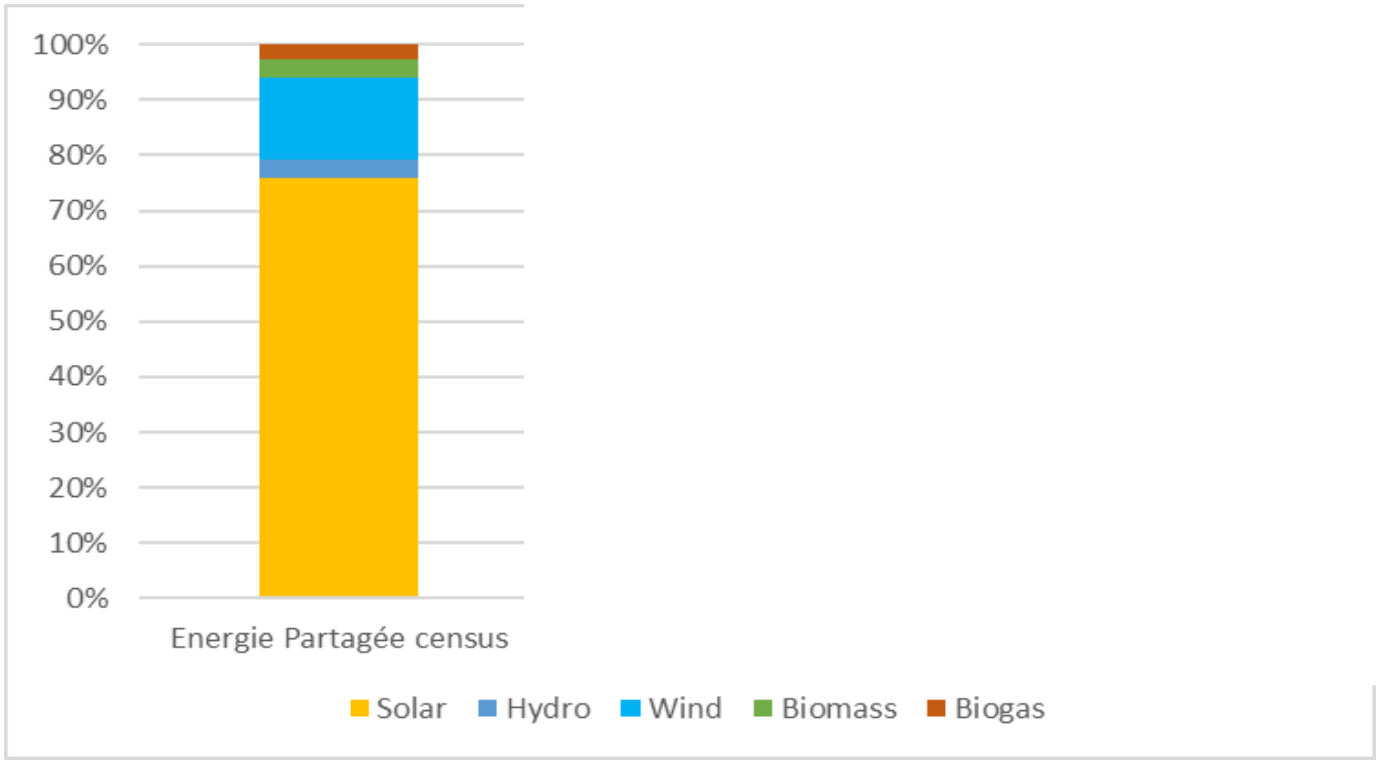
Filling the gaps of the literature review

- Focus on individual energy communities by conducting longitudinal case studies.
- This analysis reveals two gaps in the literature.

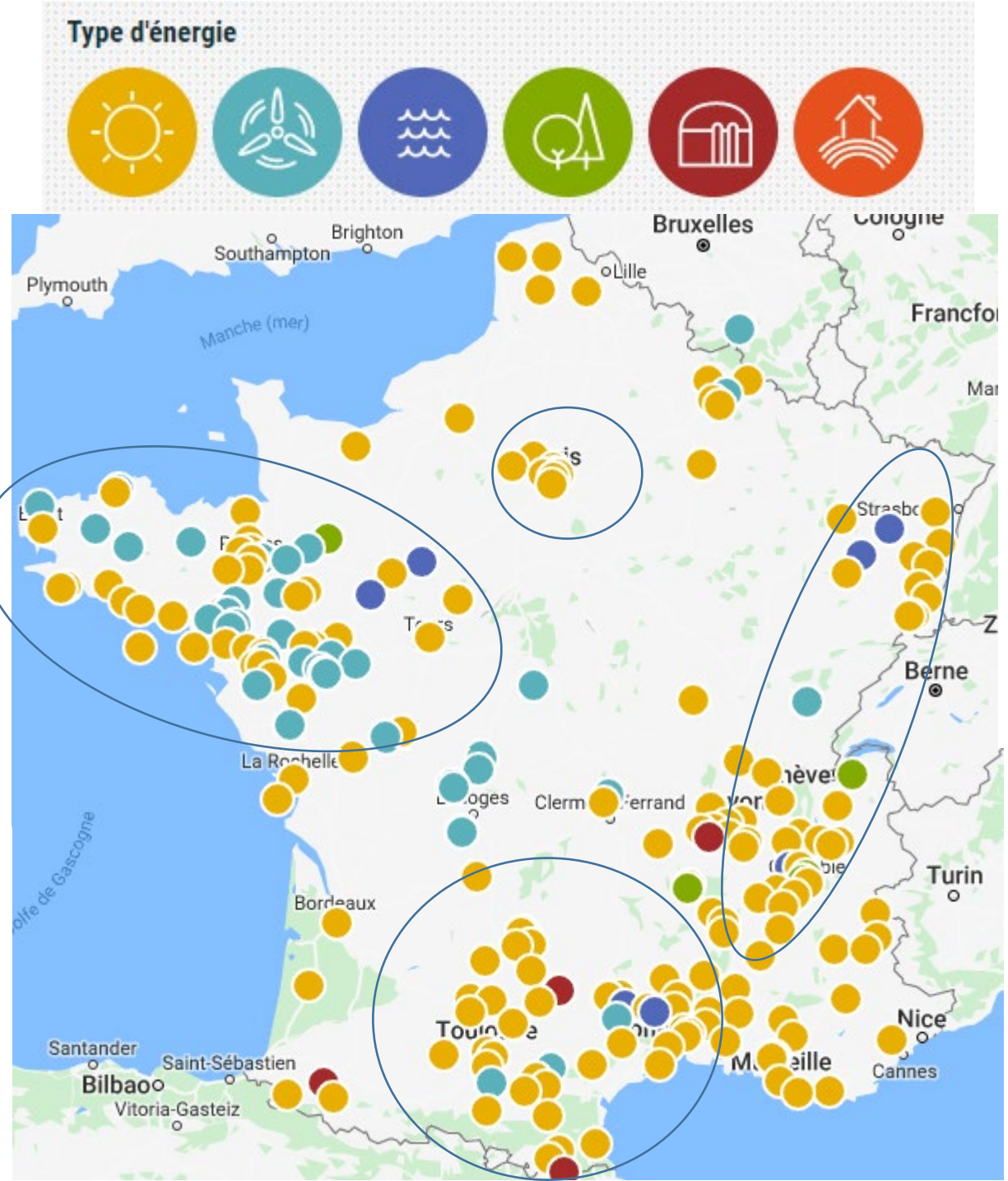
1. Very little publication focused on the French context.
2. Some scholars highlighted the importance of "inter-organisational" actions among cooperatives (Bauwens et al., 2016) and the need for energy communities to coordinate their actions (Proka, Hisschemöller, & Loorbach, 2018) little is known about how this support is organized and structured.

5- Focus on French communities

French energy communities – state of development



- 75% of the projects are rooftop solar plant.
- Wind power plant represent 15% of the projects.
- Small PV rooftop project can be launched with 40 members; Larger projects need minimum of 150


Type d'énergie
Bruxelles
Brighton
Southampton
Plymouth
Lille
Manche (mer)
Berne
Turin
Bordeaux
Nice
Cannes
Santander
Saint-Sébastien
Bilbao
Vitoria-Gasteiz

French energy communities – Challenges

Strong dependence on public policy schemes

- Current window from project is between 36 kWc and 100 kWc to benefit from feed-in tariff.
- Above they need to reply to call for tenders from the CRE
- New development around AMI
- Small projects have become hardly profitable (between 1 and 2% of ROI)

French energy communities – Challenges

Grid connection – a recurring problem

- Many interviewee mentioned grid connection as the first and most important barrier.
- Important geographical differences exist and rural areas where projects may make sense locally but are too costly when considering need to upgrade the grid.
- Energy communities may collaborate with municipalities so that they include grid upgrading in other urban development projects

French energy communities – Challenges

Managing human resources

- Being volunteer based, a key challenges come from the "need to renew the volunteer workforce and to maintain it on the long term
- Important geographical differences with rural areas having less difficulties to find and maintain volunteers.
- Double hat phenomenon very common
- Difficulties attracting people with non technical skills

French energy communities – Challenges

Energy communities – what for?

- Difficulty communicating about energy communities to a broader public

Raising money – a problem of low ROI and credibility

- Profitability between 1% (more than livret A) and 4% depending on the size of the project and the philosophy. Investment is more understood as a donation.
- No possibilities to link with investors own energy bill

French energy communities – Challenges

Local authorities – between support and constraints

- Municipalities are important contributors (buy share, provide roof, facilitate local communication, help finance grid connection)
- Municipalities, especially the bigger ones that require interacting with various departments can create additional barriers : "the urbanism department blocks us, the juridical department blocks us, the architects first says yes and then no".

French energy communities – Challenges

Managing risk

- Early phases of projects are risky (feasibility studies have to be paid with non uncertainty that project can go through).
- Solution in fund like EnrCIT (only for big projects) or local regional funds for smaller ones

Finding insurance

- Many interviewee had difficulties finding affordable insurance

6- Mapping energy communities ecosystems –comparing French and Dutch ecosystems

Why taking an ecosystem perspective?

- Energy communities alone are rather fragile – together they can be very disruptive (Lacement and Cadre, 2018)
- To achieve their goals, energy communities need support (networking, lobbying, financial and technical)
- To have an impact on the energy sector, energy communities need to coordinate their actions (Proka et al., 2018)

Introducing the ecosystem concept

- An ecosystem refers to a group of organizations that interact with one another and are **interdependent** (Jacobides et al., 2018). These organizations have a **"shared fate"** (Iansiti & Levien, 2004)
- This interdependence comes from the fact that organizations develop **assets that complement one another** and increase each other's market value (Brandenburger & Nalebuff, 1997)
- For the ecosystem to succeed actors have to **coordinate** themselves and may also need to engage in joint innovation activities (Adner, 2012).

Introducing the ecosystem concept

- Members of the ecosystems may be customers, suppliers, technology providers, business associations, and knowledge sharing platforms.
- Key concepts:
  - **Keystone**: health of the ecosystem depends on keystones' success in creating common complementary assets (Iansiti & Levien, 2004)
  - **Co-evolution**: when organization have symbiotic relations and reinforce one another

Introducing the ecosystem concept

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Energy communities ecosystem: question raised

- **Ecosystem function** : what kind of support do ecosystem actors provide? At which trophic level is this support provided?
- **Resources:** how much resources are available and how do they flow in the ecosystem? Does the energy community ecosystem compete with incumbent for resources or are there symbiotic relations?
- Ecosystem structure: what type of organization composes the ecosystem? Are keystone players present?

Results 1. Comparing French and Dutch energy communities

Three main differences

1. **The type of activities they organize.**
   - FR: focus on collecting investments of citizens in order to buy and install local renewable energy capacities
   - NL: very diverse activities including energy production, energy efficiency, energy literacy, collective buying of electricity and sometimes even electric mobility

Results 1. Comparing French and Dutch energy communities

Three main differences

2. Revenue model

- FR: selling kWh and benefiting from FIT. Attractiveness of investment depends on size of projects (hardly attractive below 100 kW)
- NL: more diverse. Selling kWh. Two schemes available (FIT + postcode roos). Size is not a differentiating factor + membership fee + local energy suppliers pay a fee per member

Results 1. Comparing French and Dutch energy communities

Three main differences

3. Raison d'être

- FR: alternative to fight against supremacy of national champion; bring citizen at the heart and offer an alternative to nuclear.
- NL: present themselves as a movement for "positive energy" with strong focus on moving away from fossil

Results 2. comparing ecosystem functions and actors

Four categories of functions

1. **Lobbying to be recognized by policy makers as an important actor**
   - FR: two sister organizations: Energie Partagée and Enercoop.
   - NL: consolidation under Energie Samen. All lobbying for renewable energy and energy efficiency together behind the idea of promoting active participation of citizens

Results 2. comparing ecosystem functions and actors

Four categories of functions

2. **Knowledge sharing and networking to overcome high entry barriers**
   - FR: two competing structures (Energie partagéee Association and Centrales Villageoises) both promoting homogeneous energy communities. Financing through membership and public support (regional or national via ADEME)
   - NL: Hier opgewekt (and energy incumbents) as a place to question identity and purpose (e.g. pros and cons of collaborating with incumbents). Hier opgewekt is financed by Dutch DSOs.

Results 2. comparing ecosystem functions and actors

Four categories of functions

3. Financial support to collect and manage citizen funds

- FR: One crowdfunding platform stands out as facilitator: Energie Partagée Investissement.
- NL: distributed with many platforms operating on this market

Both countries have (or are planning to) set up special fund to finance the development of energy communities projects (in FR EnRCiT managed by Energie Partagée; in NL announced in 2018)

Results 2. comparing ecosystem functions and actors

Four categories of functions

3. Operational and technical support

- FR: Energie Partagée Association ; Enercoop; Centrales Villageoises
- NL: Energy suppliers (greenchoice, Eneco, Engie), Cooperatives (financed by energy communities) that help energy communities supply electricity to their members; Ecode as tailored made ICT platform; HOOM specialized about energy efficiency.

Results 3. Cooperative of communities as local catalysers

Four ways to catalyse local initiatives

1. **Centralise and mutualise information:**
   - Reason: realising project is highly demanding and volunteers do not always have the will to develop other projects after realisation of first projects,
   - Solution: cooperative of communities are often set up to ease the burden for other project initiators

Results 3. Cooperative of communities as local catalysers

Four ways to catalyse local initiatives

2. Intermediary between initiators and supporting ecosystem:

- Reason: success of initiator strongly depends on personal network of active members.
- Solution: cooperative of communities as a way to provide access to network to those who do not belong yet

Results 3. Cooperative of communities as local catalysers

Four ways to catalyse local initiatives

3. To initiate large projects:

- Reason: energy communities are too small to initiate large projects
- Solution: Join forces with other energy communities and create an overarching structure. Eg. Chamole wind energy project as a joint project between SEM Énergies Renouvelables Citoyenne, la SCIC Jurascic, la commune de Chamole, ERCISOL et Énergie Partagée

Results 3. Cooperative of communities as local catalysers

Four ways to catalyse local initiatives

4. Energy community trustee:

- Reason: energy communities are volunteer based and lack credibility with local partners
- Solution: cooperative of communities can act as trustee by taking care of some of the operational tasks; by taking over the management of projects if project initiators leave and are not replaced

In NL cooperative of communities manage to be partly financed directly by energy communities while in France they either do that on a volunteer base on depend on public fund.

7- Conclusion & recommendations

Ecosystem diversity

In the Netherlands

- There are national keystones for lobbying and networking activities but not for other functions where there is a lot of competition
- The ecosystem appears as a single phenomenon at a high level but with a lot of diversity at the local level
- Ecosystem favourable to innovation as supporting actors have to innovate to differentiate themselves and be more attractive towards energy communities.

Ecosystem diversity

In France

- Two organizations act as keystones for all the functions (Energie Partagée and Enercoop)
- Stimulated by policy development, these keystones drive a co-evolution process that leads to an homogeneisation of the energy communities.
- The process of homogeneisation may be detrimental to innovation

Cooperative of communities as important local keystones

- We argue that local keystones are necessary to catalyze the development of energy communities.
- They have the potential to create jobs and more sustainable structures
- They have to find their own optimal size balancing economic demands and social demands

Link with incumbents

In France

- Ecosystem develops as an independent entity that interacts with incumbent actors only by necessity.
- Incumbents hardly contribute to the ecosystem
- French energy community ecosystem develops as a separate niche that competes for resources with the rest of the sector.

Link with incumbents

In the Netherlands

- A Contrasted situation.
  - Part of the ecosystem aims to empower energy communities to do things on their own.
  - Part of the ecosystem collaborates with incumbents if it facilitates access to complementary assets (e.g. specific expertise) or allows increasing revenues
- Having both competing and symbiotic relations is more likely to transform the sector by inducing change in the dominant logic of actors in the industry

Recommendations

For France

- Steady policies (FIT; EnCIT) should not favour inscresingly bigger projects:
  - All types have value for energy transition. We should avoid homogeneisation and not impose a unique philosophy
  - To allow replication and decrease frustration or reluctance towards the system
  - Because communities have a role to play beyond energy production
  - Allow a diversification of revenues
- Allowing direct link between citizen energy production and conception to allow appropriability

Recommendations

For the Netherlands

Assist communities in managing healthy relations with incumbents (risk of being eaten)

For both

Support cooperative of communities so that they can become sustainable over time

8- Dissemination & Research agenda

Paper presented at conferences:

- Sebi C., Vernay A.-L., Doutre J., 2019. Mapping the energy community cooperation chains, ECEEE Summer Study 2019, ECEEE, France
- Doutre, J. Vernay A.-L., Sebi C., 2019. Barriers and opportunities for French citizen led energy communities. International Conference on New Pathways for Community Energy and Storage, 6-7 June 2019

Publications in (online) media:

- Vernay A.-L., Sebi C., 2019. Communautés énergétiques : quand les citoyens bousculent le marché de l'électricité. The Conversation : online. 16 May 2019. https://theconversation.com/communautes-energetiques-quand-les-citoyens-bousculent-le-marche-de-lelectricite-116848
- Vernay A.-L., 2019. Transition énergétique et pouvoir du citoyen. 8 April 2019. https://rcf.fr/actualite/environnement/transition-energetique-et-pouvoir-du-citoyen
- Alternatives Economiques – Octobre 2019, « Reprendre la main sur l'énergie » with Carine Sebi
- Sebi C, & Vernay C. 2019. Quel écosystème pour soutenir les communautés citoyennes énergétiques ? Xerfi Canal – Date à définir (décembre 2019)

Presentations in public event

- Vernay A.-L. 2019. Communauté énergétique, vraie ou fausse révolution. Presentation given during the « Rencontre de l'énergie » on the 10th of April 2019
- Sebi C., 2019. Experience the Future of Energy – EFEX Conference 2019 "The role of energy communities in energy trabsiution", 25th September 2019
- Sebi C., Vernay A.-L., Workshop about energy communities organised during Sharing Grenoble on the 5th of April 2019
- Vernay A.-L. 2019. Communauté énergétique, vraie ou fausse révolution. Participation to a panel during Enerplan's second annual summer school on self-sufficiency on the 12th of September 2019.

Reprendre la main sur l'énergie

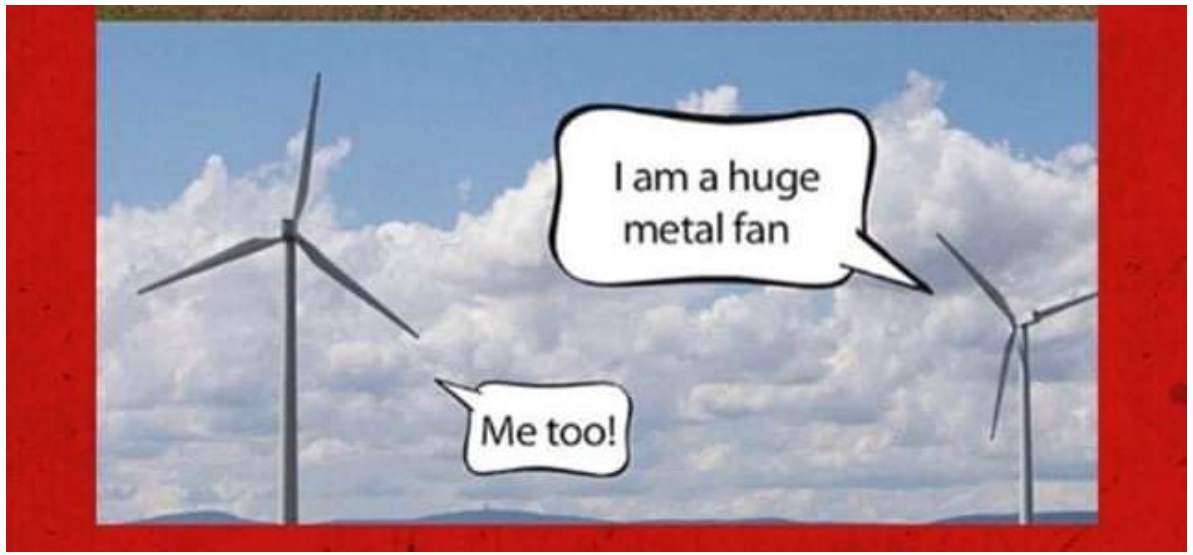
AGIR

Et si j'installe mes propres panneaux solaires ?

Poser un panneau solaire sur son toit ou une petite éolienne dans son jardin n'est pas considéré comme de l'énergie citoyenne. Si ces actions sont louables, la démarche purement individuelle de l'autoconsommation – c'est-à-dire le fait de consommer autant d'énergie que celle qu'on réinjecte dans le réseau grâce à son installation ou celui de consommer directement sa propre électricité dans le cas de sites isolés – exclut en effet toute cohérence territoriale. Mais la frontière est parfois floue, et ces actions isolées peuvent finir par revêtir une dimension plus collective. *« C'est le cas à la Buisse (38), où après avoir équipé leurs domiciles isolément, une poignée d'habitants s'est regroupée au sein de Buxia énergies et a convaincu leurs voisins et la mairie de les imiter »*, explique Carine Sebi, professeure d'économie à Grenoble Ecole de management et membre de cette communauté villageoise. Un changement d'échelle essentiel à la prise en main citoyenne de la transition énergétique.

Articles to be published in peer -reviewed journals

- Vernay A.-L., Sebi C. Energy communities and their ecosystems. A comparison of France and the Netherlands. To be submitted to technology Forecasting and Social Change (submission expected in November 2019)
- Sebi, C., Vernay A.-L., and Mallot, A. A typology of energy communities. To be submitted to Energy Policy (Submission expected in spring 2020)
- Sebi C., Vernay A.-L., French energy communities – an overview of state of development and challenges. To be submitted to Energy Policy (Submission expected in spring 2020)
- Gauthier C., Sebi C, & Vernay A.-L., Understanding citizens‘ motivation tob e part of energy communities in France? To be submitted to Energy Policy (Submission expected in spring 2020)



Thank you for your attention

Any questions?

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Proposed typology of energy communities

1.2 Neighbourhood energy community : Sunchain

- A community of six consumers in Prémian (Occitanie) is sharing the solar power generated by a PV system under a self-consumption regime administered by the local municipality.
- Transactions through blockchain technology.
- €52,000 investment by the municipality, which is supplying power to the six consumers for free. Participants contribute to the costs of plant operation through a membership fee to an ad-hoc association which passes it on to the municipality. Surplus power is sold by the municipality to local renewable energy provider Enercoop at a rate of €0.04/kWh.

Proposed typology of energy communities

	Citizen centric	Business centric
Physical	1-Collective self-consumption	2-Local utility
	1.1 Local integrated energy community	2.1 Private micro utility
	1.2 Neighbouring energy community	2.2 Neighbouring energy utility
Virtual	3-Cooperative	4-Facilitator
	3.1 Asset sharing energy community	4.1 Virtual community
	3.2 Energy sourcing community	4.2 Energy sharing community

4.1 Virtual campus – Urban Solar Energy

- Provide short-circuit energy by bringing production areas closer to urban consumption areas. In order to guarantee 100% self-consumption for its customers, Urban Solar Energy has created and developed virtual storage: "THE ideal battery".
- The company believes it is possible to bring a better profitability to photovoltaic installations if the surplus produced is used more efficiently.
  Surplus can be used for the supply of other consumers located nearby that allow you to reuse it during periods of night or low sunlight.

  The price of virtual storage, 1€ HT per kWp will be charged per month for a battery with no time limit.

Source: Urban Solar Energy