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Malaunay, showing the way to socio-ecological transition?

Elisabeth Lehec ¹, Margot Pellegrino²

Abstract

The case of Malaunay allows exploring the implementation methods of a territorial project born of an institutional impulse, in a top-down logic. The strategy of the municipality is to act itself in its buildings to show the example to the inhabitants. It is meant to be an example not only regarding the other actors of its territory, but also regarding the State: being the good pupil of energy renovation would help Malaunay to get more national and regional subsidies. The municipal institution is both the project owner and the project manager of the main projects: how did it manage to rally the various actors in its territory around the energy project? What does this seemingly very macro-level organisation of a project do to the organisation of the actors?

Keywords: Malaunay, France; top-down approach, integrated approach, energy efficiency, energy sobriety, systemic approach.

1. Introduction

Malaunay is a municipality of 6176 inhabitants located 13 km north of Rouen (Figure 1). It is part of “Rouen-Normandy metropolis” (urban area: 500,000 inhabitants). The municipality is surrounded by agricultural plots and woods. It is connected to the agglomeration by the Cailly valley, which is urbanized and linked to Rouen by two departmental roads. The heart of the town is located at the bottom of the valley (Figure 2). The town has a typical peri-urban morphology and composition: fairly few local shops in a relatively un-animated town center. There is no public square in Malaunay. The town is organized along one main axis (Figure3). There are several industrial and service activity areas.



Fig. 1. Location of Malaunay and **Fig. 2.** Topographical features of Malaunay. Source : Géoportail

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The commune had its golden age in the 19th century thanks to the textile industry. There was a decline in the 1930's until the 1960s. Malaunay had a new wave of settlements in the 1970's due to the extension of the urban area of Rouen.



Fig. 3. Main street of Malaunay. Source : Elisabeth Lehec, 15/06/2021.

Most of the inhabitants belong to the lower or medium class. More than 30% of the population is retired and 29% of the housing is social housing. Many inhabitants of Rouen moved to Malaunay in the 1970s and 1980s, moving away from the city center: in 20 years, the commune has gained 2500 inhabitants. 63% of the inhabitants of Malaunay are owners.

The town has many municipal buildings and equipment in relation to its size. The town manages: a gymnasium, two football pitches, a tennis center with two indoor courts and one outdoor court, 2 football changing rooms for sports, a socio-cultural center, a library, a day nursery, an auditorium, a dojo, a multi-purpose hall, premises for associations, a leisure center run by the town council with a large building, technical workshops, the town hall, a 60-unit independent residence managed by the CCAS (the “communal social action center”), and 4 schools (2 nursery schools and 2 elementary schools).

2. The genesis of the project and the content of the actions

2.1 Summary of the project

In the early 2000s, some municipal employees started actions to improve the food supplying of the school canteens: new kitchens were built in the Mianney school, which were supplied locally. The municipality then created "eco-citizenship committees": the mayor, the director of the municipality and a few employees would meet on a voluntary basis to reflect on the economic and ecological savings that could be made within the municipality. In 2012, this first initiative led the mayor to conceive a communal energy project, which aims first and foremost to make savings on the energy bill of the municipality. The present study aims to explore the time of structuring and then implementation of a renovation and energy production projects. These projects were initially focused on energy savings and energy bills, and then were extending to environmental issues.

Malaunay's strategy is said to be opportunistic, according to the actors: the project is based on a strategy that would anticipate State subsidies and use the support tools (for example the “Cit'Ergie certification”, which is the starting point of the project).

Several thousand euros in savings were achieved in 2021, as well as a reduction in energy consumption. Since 2018-2019, the energy renovation and local energy production work on the municipal buildings has been

completed. The municipality has been carrying out actions to stimulate the creation of private projects (companies, associations or inhabitants), in order to engage the territory not only in the energy transition but in a socio-ecological transition process

2.2 Background to the project and description of the main actions. From energy renovation to collective self-consumption

Guillaume Coutey is the main driving force behind the energy project. He became mayor in 2012 (after the resignation of the former mayor), after having been first deputy in charge of finance and social action. The first motivation for the project was economic. The director and his team calculated what they call "the cost of inaction", i.e. the anticipation of the future increase in the price of energy. The goal was to allocate more budgets to investment in order to reduce the operating expense in the long term.

This search for savings and the fact Malaunay does not have any sources of energy production, resulted in actions that aimed to be exemplary in terms of energy efficiency (and not energy production).

The approach based on the municipality showing by example is justified by the characteristics of the territory: not being able to produce much energy, the municipality first sought to save energy in the hope of involving other actors. To set up its actions, the municipality used energy scenarios that were already drawn up by specialized institutions and associations, in this case, the Negawatt scenario.

It is possible to distinguish three main types of actions: firstly, the strategy of implementing a tool and seeking subsidies. This strategy was also based on a strengthening of the municipalities engineering staff. Secondly, the actions on the municipal buildings and equipment energy systems. Thirdly, the actions that aim at mobilizing stakeholders.

Implementing a tool and seeking subsidies.

Malaunay has relied on the search for subsidies, choosing its projects according to their guiding. The strategy thus consisted of seeking subsidies and implementing a communication strategy to convince funders (Figure 4). The Cit'Ergie label was the first step in this process; it is not a funding but a tool to implement a long term environmental project. A Cit'Ergie advisor (who belongs to a consultancy firm commissioned by the local authority) helps a municipality to define its environmental strategy and an action plan. The territory is then awarded every four years following an audit. The reference system was conceived by engineers to be able to check the real effectiveness of the actions. 176 actions are planned as part of the Cit'Ergie label. The town's commitment to the Cit'Ergie approach is an essential part of its strategy to mobilise institutional tools to structure its action and win the confidence of funders to support such a small town. In 2015, the town obtained funding under the Positive Energy Territory for Green Growth (French acronym: TEPCV) call for projects, which in turn gave it access to regional grants.



Fig. 4. Communicating the facilities as part of the municipality's strategy. Source : Elisabeth Lehec, 15/06/2021.

The actions on the municipal buildings and equipment energy systems

The town of Malaunay has undergone several major construction phases (Figure 5):

- 1) 1980s: the community's property was heated with fuel oil, a reflection was undertaken after the oil crisis, to be less dependent on oil. All the installations were changed for gas boilers.
- 2) In 2007, more extensive renovation and insulation work was carried out. This included the replacement of the window frames in a school building with 2800 square metres of heated area.
- 3) At the beginning of 2010: first insulation project for the "combles perdus" (lost roofs, part located just under the roof of a building and which is empty) on the municipal buildings.
- 4) 2013: Gymnasium: 40% primary energy savings achieved (of the 60% planned) and 60% savings.
- 5) From 2014 onwards: objectives and projects achieved through TEPCV (see below).

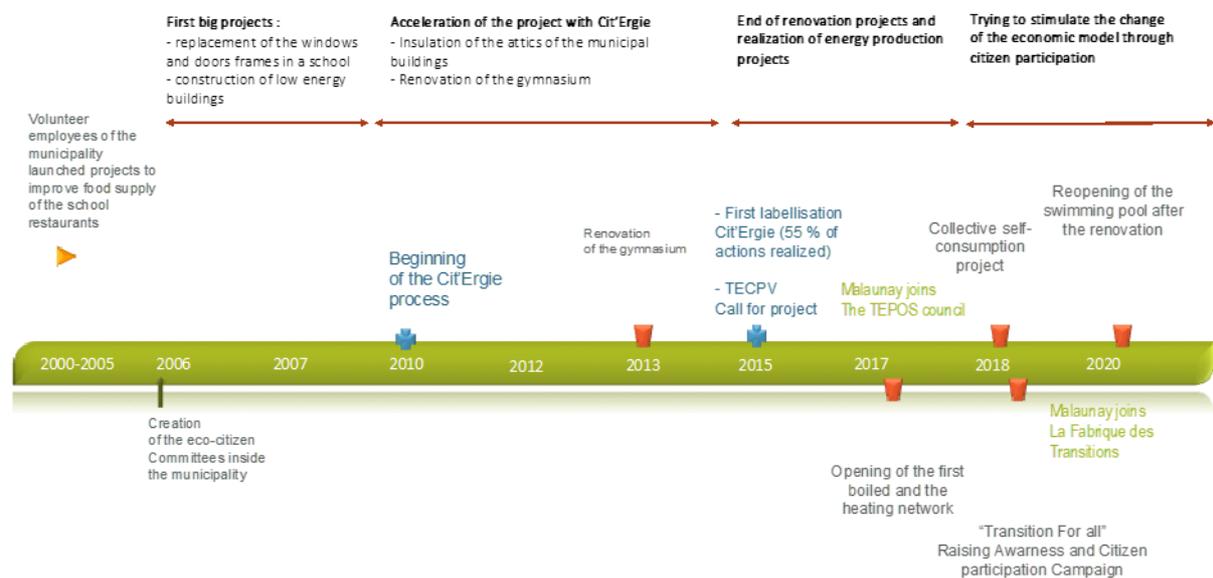


Fig. 5. Timeline of Malaunay's energy project and main actions of the project. Source: Elisabeth Lehec

Lists of actions undertaken on energy renovation and energy production (Table 1):

- the gymnasium, the town hall, the crèche,
- systematic use of LEDs,
- three biomass boiler and a heating network,
- two renovations of the Brassens and Mianney schools,
- the renovation of the municipal swimming pool, BBC level in terms of renovation with the idea of covering 100% of energy needs by ENR for both heating and electricity,
- Solar roofs: 11 roofs + a "smart flower", i.e. 12 production units (Figure 6). The smart-flower is a device mainly designed for awareness raising, located just in front of the town hall of Malaunay. It does not produce much energy, according to the municipality's engineer in charge of energy,
- the fight against fuel poverty: thermography with a y drone. Setting up of a special service to combat fuel poverty, the "SAME": organisation of free home visits, with a socio-technical diagnosis of the home and consumption patterns (consultation of bills, thermography, help in seeking subsidies from the ANAH, the department. 70 visits were made).
- The renovation program of the independent residence for elderly people and the constructions with the "Habitat 76 landlord": creation of 31 dwellings where common and shared spaces were envisaged and developed for the inhabitants of the two residences, with a logic of "intergenerational sharing", the sharing of spaces, etc. The residence produces 200% of its energy needs.

	<u>Dates</u>	<u>Management</u>	<u>Investment budget (euro)</u>	<u>Annual energy production (MW/h) / Annual energy saved ((MW/h)</u>	<u>Financing</u>
<u>Energy renovation of municipal assets (town hall, gymnasium, swimming pool, schools, etc.)</u>	2010-2019	Client: Malaunay Municipality, public works contracts.	5 million	325	80% TEPCV / Region 20% equity Energy saving certificate
<u>Installation of solar panels on the roofs of municipal buildings</u>	2010-2017	Owner and manager of the panels: Malaunay Municipality	980 000	218	80% TEPCV / Region 20% equity public borrowing from the population (50,000 euros)
<u>3 biomass heating plants and a heating network</u>	2016-2021	Client: Malaunay Municipality	1.5 million	10 MW/h/hectare of oilseed rape	80% TEPCV / Region 20% equity
<u>Collective self-consumption</u>	2016-2021	Malaunay Municipality / Enedis (3 agreements)	Included in the installation of the panels	No energy savings: lower energy bills	Not applicable

Tab. 1. Main actions of Malaunay energy project



Fig. 6. Solar energy production in Malaunay: school, church, smart flower, building. Source : Elisabeth Lehec, 15/06/2021

The City of Malaunay also uses urban planning tools to act on the territory's energy project:

- a) Incentives: land discount for public landlords who are proactive in energy matters, refusal to building permits for private landlords if the projects are not sufficiently proactive. This incentive is not made on a legal basis but on informal negotiations with landlords.
- b) permanent visits by a thermal architect within the framework of an agreement with the the departemental Architecture, Urban and Environment Council (*Conseil d'Architecture, d'Urbanisme et de l'Environnement*, CAUE in France) , who comes twice a month to spend an afternoon looking at the petitioners, inviting them to make the right choices in terms of exposure, uses of renewable energy, performance of their building, etc. This is financed by the town.
- c) public landlords: since 2008, carried out or accompanied public landlords in the renovation of their housing stock or the construction of new housing.
- d) revision of the Local Plan of Urbanism (*Plan Local d'Urbanisme*, PLU in France): 30 hectares made non-constructible (returned to agriculture). Territory that is practically unbuildable at the bottom of the valley (tightening of the PPRI).
- e) BIMBY project (densification): "build in my backyard", 30 houses built on private plots since 2014, the equivalent of a housing estate.

The Municipality also went through partnerships with with Enedis³ and Enercoop⁴, implementing some pioneering actions such as the collective self-consumption⁵.

Apart from energy, the municipality has installed several rainwater recovery tanks, notably at the church (Figure 7) and in the commune's technical warehouses. Two 15,000-litre tanks were installed near the church, at a cost of 12,000 euros: according to Arnaud, the engineer in charge of energy, the objective here is not financial optimization (the devices are very expensive per litre of water), but environmental awareness.

The actions that aim at mobilizing stakeholders.

Since 2017, the territory, believing that it had proved its worth on its own buildings and in its services, has committed itself to spin-off projects, with the territory's economic or private actors (the inhabitants). The idea is to move on to a "more deeply political" action. This position is part of the turnaround which was taken by the municipality, from 2017, and which consisted in ensuring that its own projects (renovation, good practices within the municipality's services) spread throughout the territory thanks to the involvement of its actors.

Some examples of actions for inhabitants are the creation of the SMAC⁶, the implementation of events to encourage meetings between residents, associations and companies, to create meetings so that initiatives can then come from the residents⁷, the realization of thematic actions, such as "Malaunay gets on a bike" and the creation of "eco-association" challenges⁸.

Malaunay also encouraged actions for associations and economic sector, such as a project consisting of making the municipality's funding to associations conditional on their participation in their "proper" functioning⁹.

³ Enedis is an independent subsidiary of the EDF Group since 2008

⁴ Enercoop is a French electricity supplier from renewable sources. Its main objective is the development of renewable energies in France.

⁵ It is legally possible to run a collective self-consumption project within a radius of 1 kilometre. The self-consumption projects first started between the church and nearby sanitary facilities: the aim was not to directly reinject the excess KW/h produced into the grid, but to send it to other municipal facilities, in this case, sanitary facilities. Technical and regulatory support was therefore required (regulations are changing rapidly in this area). Malaunay has been a testing ground for Enedis

⁶ Municipal service of citizen initiative, very recently, which aims to collect the proposals of the inhabitants then to accompany them. A budget has been set aside to help them, and elected officials are monitoring the project.

⁷ Example: the citizens' forum

⁸ To label associations: the local authority proposes a series of transition actions, the idea being to act each time on practices and on production or energy saving devices, by calling on new suppliers/partners or suppliers. The leisure centre was recently awarded the "eco-centre" label.

⁹ For example, the sports associations occupying the gymnasium (a flagship project in Malaunay, the building was renovated in 2014 and is now BBC) always leave the doors open and the lights on. From 2021, they will have to attend awareness meetings if they want to get the grant.

Finally, as of 2017, Malaunay has joined various networks: TEPOS, the network of “Peer Cities”, the Fabrique des transitions (The transitions workshop), the European Institute of the Functional Economy, the INEE club (Norman Initiatives for a New Economic Model).

2.3 Malaunay energy balance

The Malaunay project was focused on municipal buildings and infrastructure, which were the target of the main concrete actions in the energy sector: the overall impacts show a slight decrease in energy consumption and an improvement in the energy performance of municipal buildings and infrastructure after they were brought up to standard.

The energy renovation and production project has made it possible to contain energy costs and to marginally reduce energy consumption, considered in a global way. But the energy management service (EMS), which allows for a detailed monitoring of the production and consumption of electricity in the municipality's buildings, highlights the indirect causes of energy consumption in the area. The energy performance has improved over the last ten years in the buildings of the town of Malaunay. But the upgrading of buildings, several breakdowns and the failure to take into account the actual use of equipment in the design of technical devices can lead to a one-off increase in energy consumption. The projects to mobilise the stakeholders have made it possible to create a good knowledge of the municipal project on the part of the stakeholders in the area and to carry out some concrete actions. However, the municipality does not always take into account the temporalities required for the implementation of participatory projects.

Electricity consumption

Malaunay consumed 747,521 kw/h of electricity in 2020 and produced 208,000 kw/h, i.e. approximately one third. If we take into account Covid and therefore look at the figures for 2019, we can see that electricity consumption has fallen from just over 700,000 kw/h to 600,000 kw/h, i.e. a 15% drop in consumption, bearing in mind that the swimming pool was closed for construction in 2019. The electricity consumed in 2019 is therefore also underestimated. The first months of 2020 - before the health crisis - tend to show a stable consumption compared to 2010 - adding the self-consumed electricity, because if we stick to the energy savings, there is no reason to exclude it from the calculation (Figure 7).

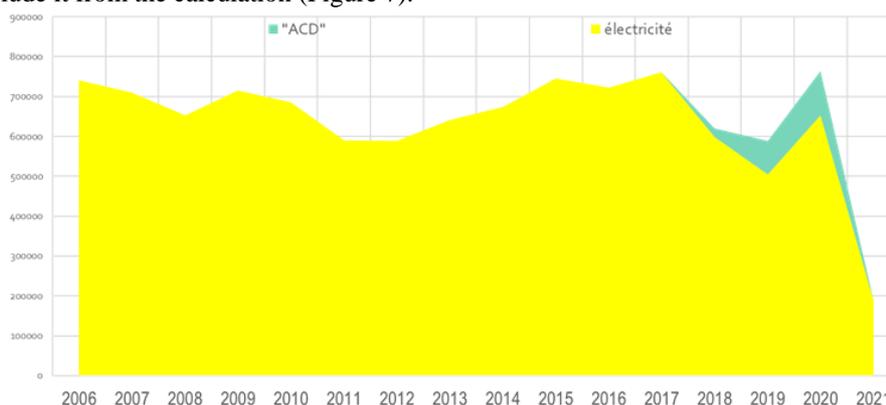


Fig. 7. Evolution of electricity consumption between 2006 and 2020, Malaunay (ACD (self-consumption deduced) Source: Malaunay Municipality

Paradoxically, it is not easy to estimate the extent to which consumption has fallen or risen in absolute value, as there are many parameters to be taken into account: in the following diagram (Figure 8), for example, it can be seen that the targets for 2020 have not been met.

Indicateurs	Définition	Unité	Référence	2020	Objectifs 2020
IPE 1	Consommation en électricité du patrimoine Bâti	kWh/an	735 686	747 521	720 000
IPE 2	Consommation total du patrimoine Bâti corrigée (DJU chauffagiste) en énergie finale	kWh/m ² /an	231	191	117
IPE 3	Consommation en chaleur du patrimoine Bâti corrigée (DJU chauffagiste)	kWh/m ² /an	126	174	
IPE 3.1	Consommation en chaleur du groupe Miannay corrigée (DJU chauffagiste)	kWh/m ² /an	188	250	161
IPE 3.2	Consommation en chaleur Piscine corrigée (DJU chauffagiste)	kWh/m ² /an	852,5	769	470
IPE 3.3	Consommation en chaleur du groupe Brassens corrigée (DJU chauffagiste)	kWh/m ² /an	87	103	82
IPE 3.4	Consommation en chaleur Boris Vian corrigée (DJU chauffagiste)	kWh/m ² /an	155	111	150
IPE 4	Production d'énergie électrique issue du soleil corrigée (enseillement annuel)	kWh/an	1025,9	208 000	220 000
IPE 5	Consommation de la flotte véhicule	kWh/100km	118	132	100

Fig. 8. Targets and achievements (energy consumption and production). Source: Malaunay Municipality

The construction of the swimming pool temporarily increased electricity consumption and the upgrading of the swimming pool resulted in an increase in heat consumption - in particular due to the installation of a dual-flow air handling unit, which allows for increased air renewal. Energy production did not reach the expected levels due to the failure of half of the photovoltaic system on the church and a delay in the commissioning of some of the equipment. Consumption related to the use of the vehicle fleet has increased, as the municipality has acquired a new truck. In addition, renovation work and upgrades to various standards have also led to an increase in electricity consumption. The renovation of the gymnasium resulted in a 40% saving in primary energy (and we do not have the figures) and a 60% reduction in costs.

Electricity generation in 2020

The coverage rate of energy production has increased, except for heat production (Figure 9).

Indicateurs	Définition	Unité	IPE Référence	IPE 2019	IPE 2020	Objectifs 2020
IPE 6	Taux de couverture des besoins en électricité du patrimoine grâce aux panneaux photovoltaïques (autoconsommation)	%	14%	13 %	34 %	25 %
IPE 7	Taux de couverture des besoins en chaleur du patrimoine par la biomasse	%	0	45 %	41%	50 %
IPE 8	Taux d'autoconsommation de l'énergie produite par les centrales photovoltaïques	%	100	51 %	77%	75 %
IPE 9	Taux d'émission carbone du patrimoine bâti	tCo2eq/an	631	455	145	650

Fig. 9. Energy coverage rate. Source: Malaunay Municipality

Lower energy bills

The municipality has made significant savings on its energy bill: from 260,000 euros in 2010 to 210,000 in 2020 (water, electricity, fuel and heating), despite a significant increase in the maintenance costs of the various electrical production facilities. Maintenance costs represent more than 120,000 euros in 2020, out of 362,000 euros of operating costs, i.e. one third. The town hall is also experiencing operating problems with the devices (Figure 10).

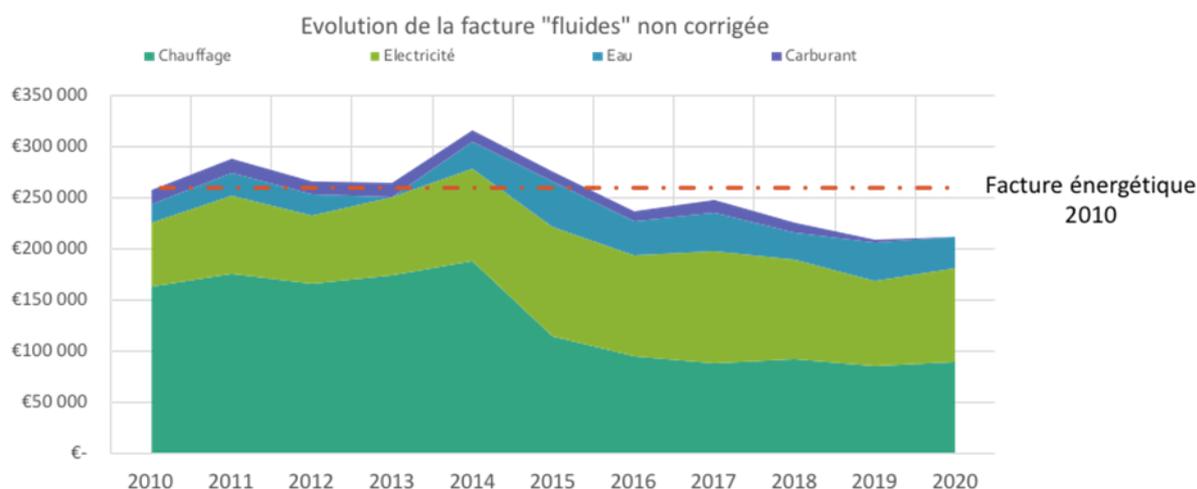


Fig. 10. Energy bill of the municipality between 2010 and 2020. Source: Malaunay Municipality

Increased energy efficiency and financial savings

We can therefore deduce that the municipality has improved the energy performance of its buildings. However, this has not resulted in a drastic reduction in consumption. The difference is made by the Energy Officer, who distinguishes between saving energy and increasing energy performance. Energy performance is the ratio between the service provided and energy consumption. He explained that the swimming pool's energy performance was better but its electricity consumption was slightly higher. In the schools, the improvement in air quality (according to the energy manager, it was made possible by the installation of air treatment equipment), increases electricity consumption, but heat consumption has fallen slightly because batteries have been installed that allow part of the heat that was lost with natural ventilation to be recovered. The project manager often insists on the savings made, particularly, once again, on the gymnasium: for example, 60% of the facility's energy bill has been saved since the work on the gymnasium.

The various systems installed or even tested in the municipality allow financial optimisation (this is obvious in the case of collective self-consumption) of energy management rather than a reduction in consumption in absolute terms.

3. Stakeholders interaction in the project implementation process

The town of Malaunay is part of a so-called top-down approach in several ways: on the one hand, it uses national tools itself (Cit'Ergie, for example), and responds to the specifications and incentives of state or metropolitan institutions (ADEME, the Metropolis, etc.); on the other hand, its ambition is to encourage local stakeholders to follow its example. The City's position is rather ambiguous. It is very much an incentive for civil society to take initiatives, but it is proposing a transition model that is quite prescriptive.

Malaunay is therefore not a planning authority that supervises the production and consumption of energy throughout its territory, nor is it simply a manager of flows and services, but an actor that sets an example to follow. It has become more competent on the energy issue and benefits from significant technical expertise, but above all it is at the service of its own assets.

There are two tensions in the position of the municipality. Firstly, in terms of governance: the town is both a promoter of the tools implemented by the State, such as Cit'Ergie, which strongly frames the town's trajectory. But the city also shows a determination to allow civil society initiatives to flourish, in a logic that is bottom-up, alternative. In terms of the economic model, Malaunay is both a stakeholder in the energy market (see in particular the development of collective self-consumption, the partnership with Enedis) and a promoter of a model that aims to transform the logic of growth and value creation (promotion of sobriety, economy of functionality, etc.).

3.1 Strong mobilization of personal networks and national actors in supporting the initiative

Malaunay strategy largely relies on nation actors and networks (Figure 11). The role of ADEME is crucial, Cit'Ergie serving as a stepping-stone to the TEPCV as it allowed a 2 billion euros funding. This recognition was also facilitated by the territory's almost direct links with the Minister of Ecology, Ségolène Royale (via the mayor of Malaunay, who was a former parliamentary).

Finally, Rouen-Métropole is taking very proactive action on climate and energy issues. The Métropole is committed to environmental issues since the beginning of the 2000s, first with an Agenda 21, then with the Climate and Energy Plan. Rouen-Métropole quickly joined a Cit'Ergie approach, shortly after Malaunay and with another municipality in the Rouen agglomeration, Petit Quevilly. These three towns have taken steps to deal with energy and then with transition in general, as a "guideline for public action". Since 2021, the Metropole's environment department, which was initially attached to the technical departments, has been transferred to the general services department. The missions of the environment department have gradually opened up to questions of mobility, citizen participation, etc.

The idea of creating a local COP 21 then emerged, starting in 2018, to create a link across the whole territory and concretely extend the energy issue to that of transition. Guillaume Coutet, the mayor of Malaunay, is a COP21 ambassador for Rouen-Métropole.

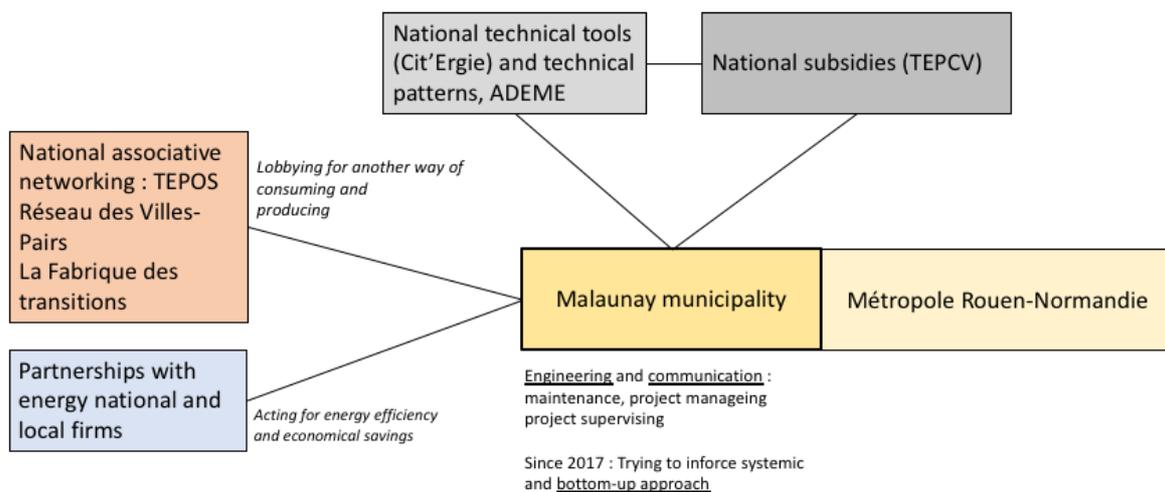


Fig. 11. Diagram of the actors involved in Malaunay project. Source: Elisabeth Lehec

3.2 Strengthening engineering and new management practices within the municipality

The transformation of municipal services is often difficult to implement and is a key element in the implementation of energy / transition projects. Malaunay has undertaken internal restructuring. It offers numerous training courses, and has been able to hire new engineers, in particular to respond to calls for projects. Three communication positions were also created (which is very important for a municipality of this size).

The idea is to link the service project with the political project, which is to say to raise awareness of environmental issues among staff.

The agents are strongly asked to become ambassadors of the transition in their service and their territory. The project was based on human resources management and a specific internal reform: voluntary commitment of the agents (at the beginning of the project), remuneration partially indexed on the implementation of actions to assess the transition. The agents are thus considered as links in a chain going from the elected representatives to the inhabitants, as facilitators of the ecological transition.

The staff is therefore mobilized even beyond their work, since they are financially encouraged to take action in their private life. As early as 2006, eco-citizen committees were even organised outside of staff working hours.

3.3 The municipality: a model to be followed, a “project leader”

The municipality of Malaunay uses the tools made available by the State (Cit'Ergie in particular) and has oriented its territorial project in such a way as to capture the subsidies. The municipality is thus a sort of Trojan horse for the State's energy policy - the "good pupil of the energy transition". It then expects the inhabitants to act, following its example. Indeed, if the municipality wishes to remain attentive to the gradual restoration of the inhabitants' ability to (re)become actors in the territory. The logic of action and relationship between the state, the municipality and the inhabitants is therefore top-down. At the same time, however, the local authority now wishes to become a melting pot of initiatives by its inhabitants. Beyond energy, the municipality favours collective initiatives with potential effects on consumption practices and the exchange of goods and services

Malaunay's environmental policy has greatly strengthened the political and operational weight of the institution in the conduct of environmental actions: strengthening of project engineering, but also of the technical team (the town hall being both project manager and project supervisor for several projects and ensuring the maintenance on its own). The strategy for improving energy efficiency and its monitoring has led the territory to bring buildings and equipment up to standard and to bring uses into line, from a fairly normative angle as well: there are good uses and bad uses of buildings, more or less efficient use (this efficiency of use is measured by the ability of the buildings to comply with the regulations in force). But Malaunay is also strengthening its public service offer, particularly through the energy renovation support service and the various groups of residents and entrepreneurs that it is trying to develop.

The city is a figurehead for energy autonomy: the idea is to encourage the territory's actors to become energy producers themselves, and not to regulate the latter.

3.4 Malaunay: a lobby for the socio-ecological transition or an actor of a conventional energy model?

The city has developed important links with energy stakeholders, mainly Enedis and Enercoop. It has become an energy producer itself, and a legal entity at the head of a collective self-consumption system. Through the creation of an ad-hoc structure, the city could sell kw/h on the energy market - this is not the intention of the mayor, who wishes above all to consume as much of the energy produced as possible. But as an Enedis official points out, there is nothing to prevent a legal entity from trading in the surplus energy produced within the framework of a self-consumption system. And in fact, self-consumption is above all a way for the town of Malaunay to optimise its bill by taking advantage of the energy market. Malaunay is both an energy entrepreneur and a figurehead of a political project to transform the current socio-ecological model.

The municipality is therefore an entrepreneur of the energy transition, except it works for the public interest. It does not seek profit but the multifunctionality of its infrastructures. A solar roof thus becomes in a way a "political issue".

This "political issue" is achieved through a narrative of the territory and the development of national networks aimed at transforming economic models (notably through the Fabrique des transitions). As the local authority does not have the leeway to act on all sectors of activity, it seeks to infuse the idea of a global transformation. As the municipality cannot act directly on all the sectors, it stands as a lobby for the socio-ecological transition.

Conclusions

The Malaunay project is emblematic of a strategy for local implementation of the energy transition, which relies on calls for projects that allow access to large but one-off subsidies. Therefore, it raises questions about the possibility of sustaining the model in the long run.

This case also shows that energy renovation itself has an environmental cost, which could perhaps call into question the systematic nature of this emblematic and seemingly indisputable action of energy projects on a local scale.

Finally, the municipalities appear to be dependent on national action guidelines, embodied in labelling criteria or which condition the success of applications to calls for projects. These guidelines do not really promote projects whose primary objective is energy sobriety, i.e. the avoidance of energy production. The municipalities are not really encouraged to integrate into their actions the social practices of the actors in their territory (which sometimes show that the production of energy is not always necessary, as in the example of the gymnasium), even though these municipalities are the first institutional network and therefore the one which more in contact with the users (and the most likely to tailor their actions to the social practices and real energy needs of the inhabitants).

Questions

- Explain why Malaunay can be considered as a Top down approach, and what are the specific features of such an approach?
- What kind of problems does this type of approach raise?
- What are the systemic interdependencies among the different actions?
- How do these interdependencies reflect on the cooperation between the stakeholders?