LOCAL ENERGY OWNERSHIP IN EUROPE

AN EXPLORATORY STUDY OF LOCAL PUBLIC INITIATIVES IN FRANCE, GERMANY AND THE UNITED KINGDOM

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«Bringing back privatised public utilities and networks into communal ownership, or the setting up of new public utilities, is the fundamental precondition for rapid energy change»[1]

Hermann Scheer, German MP and founder of the International Renewable Energy Agency

«Cities have become one of the places where what is presented as the emergence of a new form of energy governance is taking place»[2]

François-Mathieu Poupeau, researcher at the CNRS

« Local and community energy are vital to achieving an affordable, secure, low–carbon future and creating other wide–ranging economic, social and environmental benefits. Many local authorities are pushing the boundaries of what is possible in the current system. Most of the UK's biggest cities have pledged to run entirely on green energy by 2050»[3]

Harry Armstrong, Nesta UK

[1] Scheer, Hermann (2010): Der Energet(h)ische Imperativ: 100 Prozent jetzt, wie der vollständige Wechsel zu erneuerbaren Energien zu realisieren ist, München, Kunstmann. Traduction par l'auteur.

[2] Poupeau, François-Mathieu (2013): Simples territoires ou actrices de la transition énergétique? Les villes françaises dans la gouvernance multi-niveaux de l'énergie. Les Cahiers du Développement Urbain Durable.

[3] Armstrong, Harry (2015): Local Energy in an Age of Austerity. Nesta.

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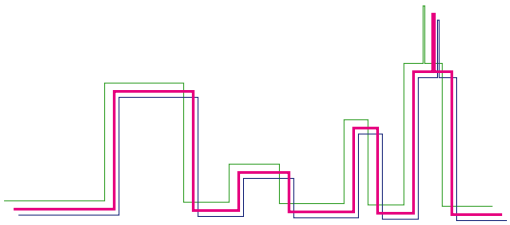
Introduction



"Cities should be at the heart of the energy transition". This statement from the International Energy Agency's latest report entitled Energy Technology Perspectives speaks for itself: with more than half of the global population and about 80% of the world's GDP, cities account for about two-thirds of primary energy demand and 70% of total energy-related CO2 emissions (IEA, 2016).
But cities are not just major centres of energy consumption, they are also formidable breeding grounds for innovative and ambitious energy transition initiatives. Embracing this leadership, an increasing number of players are committing themselves to going beyond EU and national energy transition objectives in order to implement the transition towards post-carbon[4] or 100% renewable cities (Energy Cities, 2016; IDE, 2014).

It is indeed at the local level that most of the energy transition challenges and solutions are to be found. Firstly, because the potential of decentralised renewable energy sources cannot be harnessed without taking strong local action establishing new synergies between urban and rural areas (Energy Cities, 2016). Secondly because, in terms of energy efficiency, the thermal renovation of buildings is fundamentally a local issue that involves engaging several millions of stakeholders (property owners, tenants, tradespeople, etc.) through coordinated local action plans (URBACT, 2013). Finally, because the transition towards sustainable mobility involves disseminating new technologies, influencing citizens' behaviours and making proximity the cornerstone of urban planning (EC, 2013; Transform, 2013).

All these factors call for a cross-cutting, decentralised approach as close as possible to local players and territories. **Aware of the urgency of the situation, an increasing number of local authorities are expanding their role, no longer simply acting as planning authorities but becoming operational stakeholders and driving forces for the local energy transition.** New integrated municipal companies in Germany, public energy suppliers in Great-Britain or local investment operators in renewable and energy efficiency projects in France: a growing movement of local authorities taking ownership of the energy transition is clearly under way.

Although the emergence of smart decentralised energy systems should tip the balance in favour of more local energy management, a number of challenges lie in the way in the European context. In most countries, local energy resources (especially RES) are mainly operated and managed centrally by one or more non-local (public or private) organisations. And at EU level, two partially contradictory logics regulate the development of local energy governance.

[4] For further information about "post-carbon" or zero-emissions cities, see EU-funded projects like POCACITO (www.pocacito.eu) and SmartEnCity (www.smartencity.eu) or the federal "100% Climate Protection Masterplan" in Germany (Ziesing, 2010).

On the one hand, **the importance of local action in favour of energy transition is increasingly acknowledged in political messages** connected to increasing demands for greater policy legitimacy (essentially for reasons of social acceptability) and because of the innovative initiatives implemented by the local players themselves. Well established rhetorically[5] , this trend, however, has two major limits. First, it is not sufficiently supported by legal texts, especially in terms of measures specifically aimed at promoting local action. The second reason is the embryonic stage of the debate on energy transition governance, whose normative scope is still limited. Consequently, although national and European energy transition strategies refer abundantly to "*citizens' projects*", the "*vital role of cities and local authorities*" and to "*citizen participation*" initiatives, these are too seldom translated[6] into a strategic vision with concrete objectives. All Member States have long-term greenhouse gas emission reduction and renewable energy development objectives, yet none has defined strategic targets regarding the share of RES projects owned by community cooperatives or the number or market share of local energy companies.

On the other hand, **local energy ownership opportunities are strictly regulated by EU energy and climate legislation** along two main structuring lines: firstly, a clear (and rarely questioned) normative position in favour of a competitive approach and stronger integration of the energy markets at EU level, as exemplified by the Communication on the "Energy Union" (CE, 2015) or the Guidelines on State aid for environmental protection and energy (CE, 2014); and secondly, an especially abstract and technocratic vision of these regulations, as these only define standards and instruments with no normative vision of governance and no consideration of their impacts on the various categories of stakeholders, which are grossly referred to as the "States" and the "market".

Given this background, the present study aims to provide an initial exploratory analysis of the local energy ownership momentum in Europe by examining local initiatives in Germany, France and Great-Britain in order to illustrate the influence of national legal contexts. The study is divided in four sections:

- The first section aims to clarify and define the concepts used as regards local energy ownership;

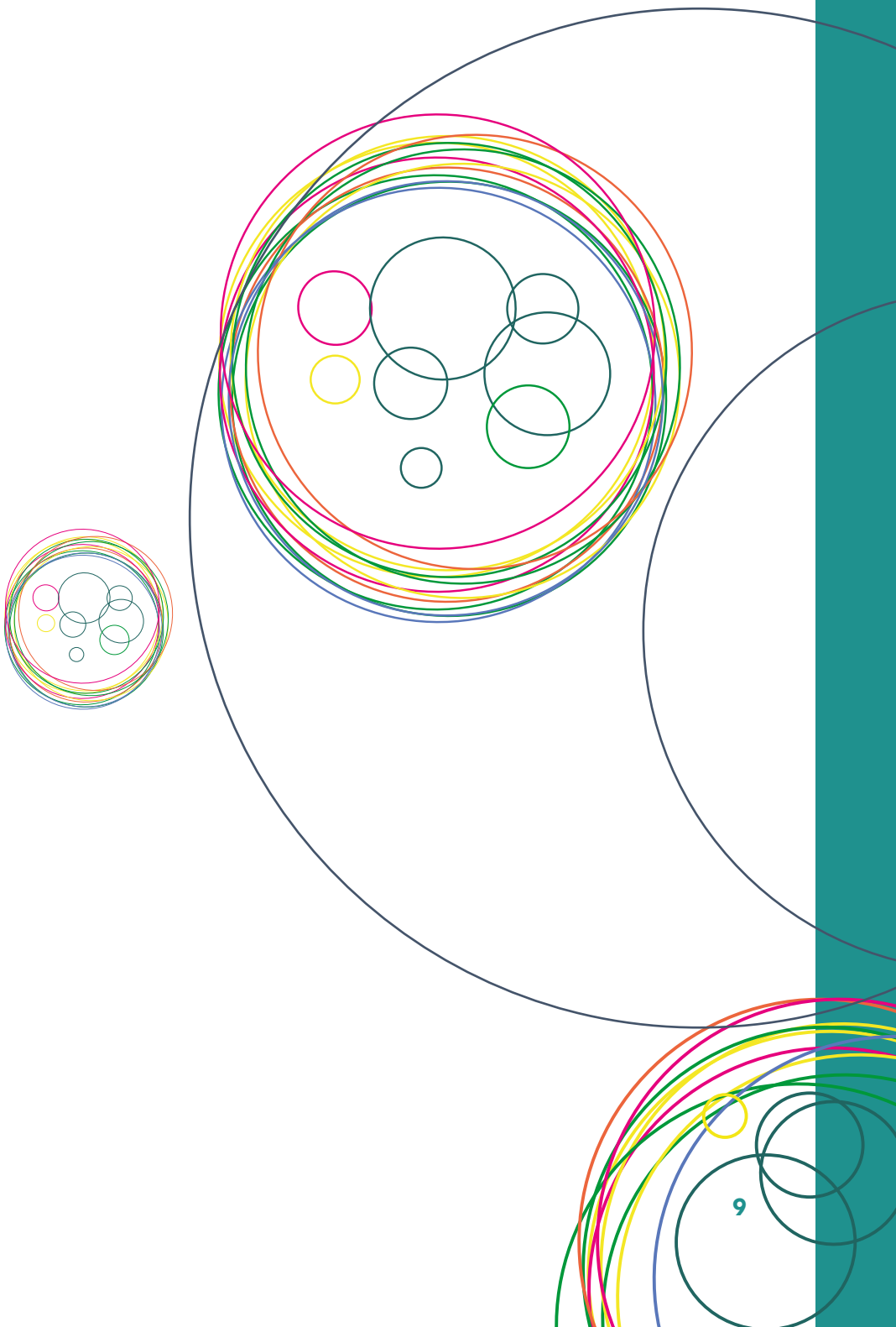
[5] See for example the Communication on the Energy Union: "Most importantly, our vision is of an Energy Union with citizens at its core, where citizens take ownership of the energy transition" (CE, 2015), or the executive summary of the National Debate on energy transition in France, which refers to "A transition by all and for all" (CNTE, 2013).

[6] The 2009 Danish law on renewable energy is an exception: it sets a minimum of 20% "local" participation obligation for investments in wind projects. Often considered to be a good practice worldwide, this measure must be placed in its historical context: in 2000, 80% of wind projects in Denmark were owned by citizens or cooperatives, but this share rapidly dropped due to an unfavourable legal frame. The 20% rule therefore only aimed at preserving this "niche" for community and participative projects, with no ambition of restoring local ownership to its pre-existing levels (Gotchev, 2015). Scotland also set an objective of developing 500 W of community or locally-owned renewable energy projects by 2020, a target that was attained in 2016 (Scottish Government: Energy in Scotland 2016).

• The second is an analysis of the reasons and motivations put forward to support bringing back the operational management of energy systems under local control;

• The third is a review of the main hurdles and risks faced by local authorities wanting to regain control of their energy systems and identifies potential solutions to overcome these obstacles;

• Finally, the last part sums up the main lessons learned and aims to open up avenues worth exploring to go further in developing a local public energy service in Europe.



1 Clarification of the concepts

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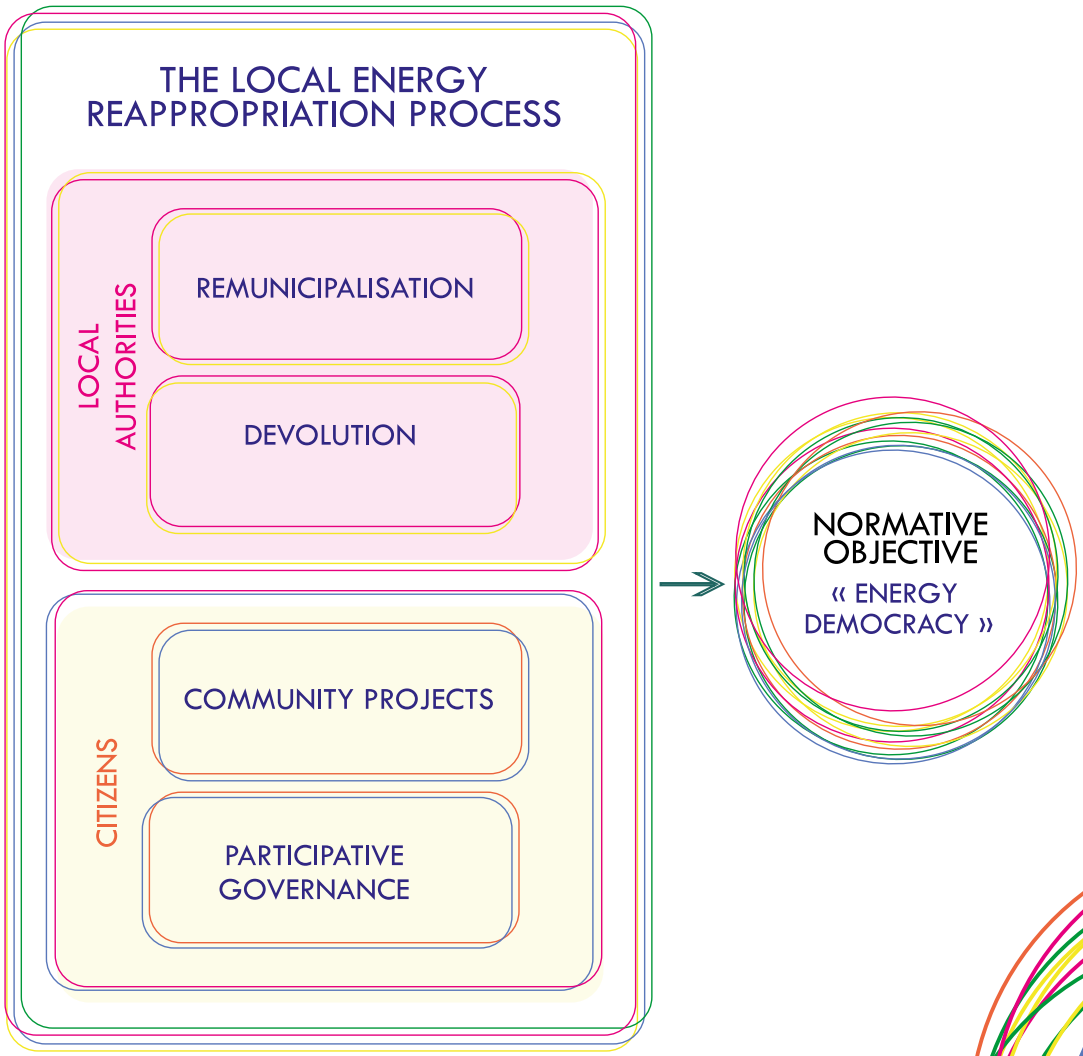
The debate on local energy governance involves a multitude of concepts whose content is not always very clear. Notions such as "re-municipalisation", "devolution", "ownership" or energy "democratisation" have become strong symbols, rallying cries for a more political and local vision of the energy transition. However, although commonly used, these concepts are not always clearly defined. For the sake of clarification, the present section will be dedicated to mapping these various concepts, before defining and delineating more precisely the remunicipalisation concept referred to in this study.

1.1 Concept mapping

It may appear at first sight that the notions of "remunicipalisation", "devolution", "ownership" and energy "democratisation" evoke more or less the same reality, i.e. processes and initiatives aimed at promoting a more locally-oriented type of energy governance.

In order to clarify the matter however, these notions can be placed within a schematic mapping as illustrated below.

Figure 1. The concepts related to local energy governance



A number of processes can be identified :

LOCAL ENERGY OWNERSHIP

encompasses all the initiatives and processes undertaken by local authorities and citizens to promote local energy governance; these fall into the following four categories

REMUNICIPALISATION

refers to the operating role of local authorities and the economic decisions (setting up or taking over local energy companies, managing and developing energy infrastructure, etc.) they make to increase municipal control over energy management

DEVOLUTION

covers the strategic and political role of local authorities through the transfer of powers from the national government, notably regarding the preparation and implementation of energy planning and regulations

COMMUNITY PROJECTS

include all projects directly initiated by citizens (independently or in collaboration with local authorities), these usually concern renewable energy projects

PARTICIPATIVE GOVERNANCE

refers to all the tools implemented to promote direct democracy and the influence of citizens on energy and climate policies: discussion forums, participative budgets, co-building of planning schemes, etc

1.2. Energy remunicipalisation

Remunicipalisation cannot be properly understood without referring to its opposite, i.e. privatisation. Historically, based on the experiments carried out in the energy (Insert 1) and water (Insert 2) sectors, remunicipalisation refers to returning operational activities and/or infrastructure considered to be public services and previously outsourced to private organisations to local public authority control. This definition, however, should be widened to include the following aspects:

- **Geographical scope considered:** strictly speaking, the term refers to the geographical area covered by a municipality or district. In many cases, however, return to public management is uniformly referred to as "remunicipalisation" when it takes place at subnational level (including at inter-municipal or regional levels) (Halmer & Hauenschild, 2014; Kishimoto, Lobina, & Petitjean, 2015).

- **Reference to a previous situation:** stricto sensu, remunicipalisation only refers to the return to public control of organisations or activities historically managed by the local authority. Yet the establishment of new local companies is often assimilated to the phenomenon of remunicipalisation[7]. The return to a pre-existing situation also has little relevance in the case of energy since the historical situation whereby a monopoly operator covers the whole value chain cannot be restored for reasons linked to the new competitive organisation of the markets.

- **Operational scope:** In its limited acceptance, remunicipalisation covers all energy management activities historically run by local authorities, usually as a local monopoly (production, distribution, supply). In view of the deep changes brought about to our energy systems by the energy transition, this scope must now be extended to new areas of activity, such as energy efficiency services or the development and management of smart networks.

- **Notion of transfer of ownership:** remunicipalisation (like privatisation) is still often associated with the transfer of infrastructure ownership, as is the case for energy in Germany (Libbe, 2014)[8] . But a transfer of ownership is not always a necessary and sufficient condition for the remunicipalisation of an activity, as illustrated by the energy distribution networks in France. As a matter of fact, French local authorities have always retained de facto ownership of their networks, which implies that remunicipalisation has more to do with these local authorities bringing back operational management under public control.

All the above points mean that two schematic definitions of the phenomenon of remunicipalisation can be established, according to whether the term is given a limited or broader definition. In this study, the concept of remunicipalisation will be considered in its broader meaning to cover a wider range of case studies and national specificities.

[7] The example of water (re)municipalisation in Nice is interesting in that the return to local authority control put an end to 150 years of continuous contracting out to one and the same private operator (Kishimoto, Lobina, & Petitjean, 2015).

[8] In Germany, both public and private concessionaires usually have to buy the network infrastructure they manage, a serious obstacle for many potential candidates (including public utilities established to this end). In the case of energy remunicipalisation in Hamburg, the new local authority-controlled company will have to lay out close to 2 billion euros to buy the electricity, gas and heat networks.

Figure 2. Characteristics of the notion of energy remunicipalisation depending on its definition

	RESTRICTIVE DEFINITION	OPEN DEFINITION
Activities considered	Operational activities in the energy sector	
Geographical scope	Only activities at the municipal level	Subnational level
Reference to a pre-existing situation	Services historically managed by the local authority	Any activity under public management
Scope of activities	The whole value chain historically covered (production, distribution and supply)	Any operational activity of the local authority in the energy sector
Ownership of the infrastructure	Return to public ownership	Focus on operational management

INSERT 1. ENERGY REMUNICIPALISATION IN GERMANY

Historically, municipal utilities (Stadtwerke) have played a central role in the provision of local public services in Germany, their activities covering public services that use local infrastructure (distribution and supply of electricity, gas and heat, drinking water supply and wastewater treatment, telecommunications, public transport) and waste management[9]. In the energy sector, Stadtwerke used to have the monopoly of local distribution network management and supply to end-users. But their market share gradually declined following the privatisations initiated in the 1980s to alleviate the financial difficulties of municipalities, and then under competitive pressure made even keener by the liberalisation of the energy markets in the 1990s (Meyer, 2015). During this period, many municipal utilities were taken over or absorbed by the main four energy companies in Germany (i.e. the "Big four": RWE, E.ON, EnBW and Vattenfall), who also won most of the concession contracts for electricity and gas distribution networks (Berlo & Wagner, 2013; Libbe, 2014). More recently, the renewal of the vast majority of the over 20,000 concession contracts for managing electricity and gas distribution networks opened a window of opportunity for the remunicipalisation of these services.

A 2013 study by the Wuppertal Institute counted 70 new municipal utilities as well as 200 cases where the electricity grid concession contract was awarded to municipal utilities already in operation in 2005 (Berlo & Wagner, 2013)[10]

[9] Some Stadtwerke provide all the above services, whilst others only a few or just one. According to the German federation of local public utilities (Verband kommunaler Unternehmen, VKU), the 1,400 municipal utilities account for the following market shares (supply to end consumers): 54% for electricity, 56% for gas, 85% for drinking water, 67% for heat and 40% for wastewater treatment.

[10] The authors of the study (Kurt Berlo and Oliver Wagner) and other experts (including Jens Libbe) were interviewed in early 2017: according to them, the number of newly established Stadtwerke operating in the energy management sector had probably exceeded 100 by then.

Energy remunicipalisation initiatives were launched in a number of large cities like Berlin, Hamburg and Stuttgart but also in much smaller municipalities, like Titisee-Neustadt.

In addition to the award of new concession contracts, a number of factors have contributed to this remunicipalisation momentum: strong political and citizen mobilisation in favour of bringing these activities back under public local control, increasing dissatisfaction with private operators' management and the desire to better coordinate and boost the local energy transition (see section 2).

INSERT 2. THE GLOBAL WAVE OF REMUNICIPALISATION IN THE WATER SECTOR

Even more than energy, water is a basic necessity which has become a major local policy issue. Not only is drinking water vital to health, the environment and the economy (especially agriculture), but its physical and economic characteristics explain its highly local profile. Drinking water is indeed dealt with on a small geographical scale (urban or drainage area) in a "closed" circuit and (usually) as part of a monopoly covering the whole value chain, from groundwater reservoirs to treatment plants, distribution networks and consumer supply. It therefore differs from energy (and notably electricity) which is distributed over national network infrastructure, sometimes with cross-border interconnections, all conditions that favour the creation of a competitive market involving a number of producers and suppliers.

Historically managed by public organisations, drinking water services experienced a first wave of privatisation across the globe (notably in developing countries) promoted by international institutions (World Bank, International Monetary Fund).

But in many cases, the early hope brought by privatisation rapidly gave way to growing disillusion with private management. Underinvestment in infrastructure, sudden tariff hikes, unsatisfactory quality and disregard of environmental standards have led many local authorities worldwide to take back control of their water services since the beginning of the 2000s. Encouraged by emblematic cities like Buenos Aires (2006), Paris (2009) or Berlin (2013), this new wave of remunicipalisation has spread to 235 cities in 37 countries, serving a population estimated at over 100 million (Kishimoto et al., 2015)[11] . A notable feature of this remunicipalisation momentum is that it was particularly intense in two water privatisation champion countries, namely the United States (58 cases) and France (94 cases) (Kishimoto et al., 2015)[12] .

The water case also demonstrates the critical role played by citizen involvement in the success of remunicipalisation initiatives, as illustrated by the "water war" in Cochambamba, Bolivia (2000) or the national referendum in Uruguay (2004), which led to water service privatisation being prohibited by law. In Europe, similar initiatives have emerged, in particular "Right2Water", an initiative campaigning for a right to water and for excluding water services from liberalisation which collected over 1.8 million signatures throughout Europe and received the support of the European Parliament [13] .

[11] For an updated list, see the interactive map of all on-going or completed water remunicipalisation initiatives worldwide on the www.remunicipalisation.org website.

[12] For a critical analysis of the prospects of public and municipal water management in France, see (Laimé, 2016).

[13] www.right2water.eu

2 An analysis of the motivations and factors behind energy remunicipalisation

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To better understand the new local energy ownership momentum initiated by local authorities in Europe, an in-depth analysis of the objectives and motivations behind these initiatives as well as of their facilitating or triggering factors is necessary. Leaving aside local challenges and specific national contexts, a number of cross-cutting issues can be identified. This section aims to provide an exploratory analysis of these issues and objectives grouped in four categories:

- Increasing political influence over local energy management
- Ensuring that economic flows benefit the local area
- Reinforcing links with citizens
- Taking advantage of potential synergies between the various sectors and players

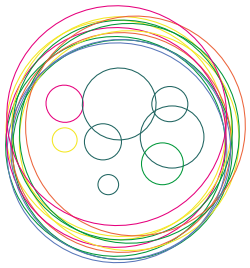
INSERT 3. PLACING THE MOMENTUM FOR LOCAL OWNERSHIP INTO THE NATIONAL CONTEXT

Besides intrinsic motivations, the emergence of remunicipalisation initiatives is strongly correlated with external factors and windows of opportunity boosting the development of such a momentum in specific national contexts.

In Germany, three external factors have contributed to the recent wave of energy remunicipalisation. The first one is that a large number of concession contracts for gas and electricity networks had reached their expiry date: up to 60% between 2010 and 2015 according to estimates (Libbe, 2014). The second factor concerns financing conditions: over the same period, local authorities had access to long-term, inexpensive financing either through soft loans from the German public bank KfW or low-cost capital raised from institutional investors looking for low-risk investments after the financial crisis (Berlo & Wagner, 2013). Finally, the political momentum generated by the implementation of the Energiewende legislative package following the Fukushima accident in 2011 also proved an influential factor by confirming that decentralised renewable energy, CHP and energy efficiency projects would benefit from public support.

In France, local public energy companies are quite a recent phenomenon directly linked to a series of national energy transition initiatives - the Grenelle Acts in 2008, the national debate on the energy transition in 2013 and the eponymous Act in 2015 – which created a political window of opportunity. These laws acknowledged the role played by local authorities and stakeholders and also contributed to reinforcing local powers in the energy field, in line with part 3 of the devolution process (Izard, 2016). They also gave a legal basis to and facilitated the dissemination of innovative models, such as renewable energy community projects and public third-party financing tools.

In the United Kingdom, local authorities' growing interest in the energy transition can be explained by two complementary factors. On the one hand, the emergence of fuel poverty as a serious political issue has prompted increased thinking on local authorities' capacity for action, resulting in the establishment of a number of local public energy suppliers (NEF, 2016). On the other hand, the U-turn in British politics regarding the energy transition after the change of government in 2015 (cancellation of the Green Deal programme for thermal retrofitting, drastic decrease in feed-in tariffs for renewable energy) instilled a new sense of responsibility among local authorities, which did not want to break the initial momentum.



2.1. Increasing and reaffirming political influence over local energy management

Politics is certainly the main driving force behind a local public energy ownership initiative, whatever the country in question. Indeed, there are no examples of energy remunicipalisation initiatives or newly established local public companies purely motivated by economic reasons, with no political vision of the added value brought about by reinforcing public energy management, usually associated with an ambitious local energy transition strategy (Berlo & Wagner, 2013; Libbe, 2014).

This overall concern about reasserting the role of local authorities in energy management may have two motivations: making the general interest once again the cornerstone of public service management and giving local authorities greater leverage to implement their energy transition strategies locally.

a) Reinstating public intervention and the logic of the general interest in local public service management

The remunicipalisation of public services in Europe and other parts of the world may be interpreted as a paradigm shift. The assumption, prevailing since the 1980s that entrusting the management of public services to the private sector would inevitably lead to reduced costs, more efficiency and higher quality, is now seriously undermined (Bauer, Büchner, & Hajasch, 2012; Becker, Beveridge, & Naumann, 2015; Halmer & Hauenschild, 2014; Kishimoto et al., 2015). According to David Hall on the contrary, this has led to a "pendulum swing" in favour of direct management of public services by local authorities, which are showing increased confidence in the necessity and merit of expanding their operational scope and in their capacity to compete with other players in a competitive market (Hall, Lobina, & Terhorst, 2013; Libbe, 2014).

Dissatisfaction with the privatised experiment has therefore proved a powerful trigger as illustrated by the many cases of remunicipalisation in the water and energy sectors (see Insert 4). This momentum is also supported by the desire of local authorities to make the general interest once again the cornerstone of public services, whether to avoid excessive profits being made to the detriment of quality, to reinforce environmental aspects (including energy transition ones) or to recreate a link with consumer citizens. (Halmer & Hauenschild, 2014).

INSERT 4. PROPOSING AN ALTERNATIVE TO INEFFICIENT PRIVATE MANAGEMENT

Serious issues with private management have acted as a catalyst for the remunicipalisation of public services. In the case of water, the often unjustified tariff hikes, latent under-investment and declining service quality are the main reasons given for taking back control of a public service, as was the case in Buenos Aires, Uruguay, Berlin or Potsdam (Bauer et al., 2012; Kishimoto et al., 2015).

In the same way, the initiatives aimed at establishing new local energy suppliers in the United Kingdom were first motivated by providing a "social" alternative to growing distrust of large energy companies and recent tariff hikes (NEF, 2016). According to an opinion poll, 68% of British citizens consider that energy should be run in the public sector, and 83% feel that suppliers maximise profits at the expense of consumers. In Nottingham, the over-riding motivation for setting up the municipal energy supplier Robin Hood Energy (a non-for profit public company) in 2015 was clearly to reduce the energy bills of local consumers (NEF, 2016). Social justice is also the motivation put forward by similar initiatives such as Our Power in Scotland, Bristol Energy or Switched on London, a campaign to set up a public energy operator in London which should materialise in 2017.

b) A strong local commitment to the energy transition

The desire of local authorities to give their energy transition commitments more concrete expression is another essential driving force. Since the energy transition opens up new opportunities in terms of decentralised production and local projects, this explains why ambitious local and national energy transition strategies are the main deciding factor behind remunicipalisation initiatives (Insert 3).

In the context of the energy transition, the willingness of local authorities to better control energy management is a determining factor for remunicipalisation initiatives, as illustrated by an opinion poll carried out by Leipzig University: 94% of German municipal decision-makers wanting to re-establish a municipal utility stated that this was their main motivation, the divergence of objectives between private operators and public authorities only coming second at 44 % (Lenk, Rottmann, & Albrecht, 2011). In their reference study on energy remunicipalisation, Berlo and Wagner also identified the stance taken in favour of the energy transition to be the main strategic motivation for remunicipalisation initiatives: "The responsibility for implementing the energy transition at the local level represents an unprecedented challenge in the history of public local energy management. Seeing it as an opportunity is a chance for Stadtwerke to become transition pioneers and to decisively influence the structural transformation of our energy system". (Berlo/Wagner 2013: 44).

This is also supported by facts: **energy remunicipalisation initiatives are never just about recovering ownership of network infrastructure; they also nurture the ambition of strategically positioning the local authority as a major player along the whole value chain and make it a central instrument of its local energy strategy**, as can be seen with the examples of Stuttgart, Bristol and the Occitanie Regional Council below (Berlo & Wagner, 2015; Libbe, 2014)[14].

In addition to ensuring consistency between policy planning and local energy management, energy ownership initiatives also have another major benefit: **the internalisation and development of economic and technical skills on energy issues.** By taking back control of the various energy management areas, local authorities' departments acquire useful resources for developing planning strategies and implementing new political tools including human resources, as well as knowledge of the local energy landscape (data) and economic parameters (project costs) indispensable for negotiating public procurement contracts (Berlo & Wagner, 2015; Libbe, 2014). This phenomenon can be observed in France, where the majority of the local authorities who historically had a local distribution company (LDC) have become local energy transition pioneers, mainly because they already had significant resources and skills in this field, which other local authorities still have to acquire. (Gabillet, 2015).

INSERT 5. THE "POSITIVE ENERGY REGION" APPROACH OF THE OCCITANIE REGIONAL COUNCIL

The new President of the Occitanie Regional Council, in the south of France, has made making Occitanie the "first positive energy region in Europe" a priority of her mandate. This ambitious project was formally launched in November 2016 with the vote of a resolution by the Regional Council setting out its main objectives: reducing energy end-use per capita by 50% by 2050 (i.e. a 33% reduction in absolute terms, given the strong population growth) and increasing threefold the production of renewable energy in the region to cover all energy requirements (Région Occitanie, 2016).

To give concrete expression to its political decision and anchor public action locally, the Regional Council has decided to set up a "Regional energy and climate agency". This agency will become the spearhead of its regional energy transition policy in its capacity as public energy investment operator and project manager with a mission to "simulate and support renewable energy generation, the thermal retrofitting of buildings, sustainable mobility and climate change projects" (Région Occitanie, 2016).

[14] This is also supported by a poll of municipal utilities conducted by TU Berlin, the development of renewable energy and decentralised solutions being, by far, their first strategic priorities for the medium-term (Graebe & Jäschke, 2014).

INSERT 6. ENERGY REMUNICIPALISATION IN STUTTGART: TOWARDS A CARBON-NEUTRAL CITY

In 2011, Stuttgart City Council set up the municipal utility Die Stadtwerke Stuttgart (SWS) as a subsidiary of Stuttgarter Versorgungs- und Verkehrsgesellschaft, in charge of public transport. The remunicipalisation process ended with the take-over of the distribution networks (gas and electricity) in 2014, just 12 years after the privatisation of the former Stadtwerke TWS in 2002[15] . The energy remunicipalisation initiative was immediately backed up with an ambitious energy transition and citizen engagement agenda and a highly symbolic partnership: the setting up of a green electricity and gas supplier jointly with Elektrizitätswerke Schönau (EWS). EWS is a community cooperative of about 5,000 members and one of the pioneers of energy remunicipalisation in Germany. In 1991, the cooperative bought the local distribution networks and became one of the first green electricity community suppliers serving over 160,000 customers.

According to the terms of the municipal energy transition strategy, SWS should become " the prime energy transition stakeholder in Stuttgart" (Stuttgart, 2016). The climate plan sets an objective of a "zero-emission" city by 2050, through reducing primary energy use by 65% and covering the remaining 35% with renewable energy. SWS applies the same logic to all its activities: renewable offer for consumers (100% renewable for electricity, 10% currently for gas)[16] ; energy efficiency advice service and bonuses for the purchase of highly efficient equipment; an exclusive focus on the development and operation of renewable power plants with the objective of producing enough green electricity to cover the whole city's demand; and development of smart networks and network management favourable to RES expansion.

INSERT 7. BRISTOL ENERGY: FOR A LOCAL ENERGY TRANSITION

The City of Bristol in England is known for being a breeding ground for local and community initiatives in favour of an ecological transition, which earned it the title of "European Green Capital" in 2015. Not only has the city council set ambitious energy transition objectives –reducing energy use by 30% and CO2 emissions by 40% between 2005 and 2020- but the first results are extremely encouraging, with a 20% drop in energy use and an 18% decrease in CO2 emissions recorded in 2013 (Bristol, 2015).

Inspired by the experience of the German Stadtwerke and with European funding from the ELENA programme, Bristol designed an ambitious strategy to take back control of energy at the city level (Energy Cities, 2015). This strategy led to the setting up of a municipal energy company, Bristol Energy in 2016. The first priority for Bristol Energy is to tackle fuel poverty by delivering fair prices to the population. In the future, the municipal company intends to develop local renewable energy production and energy efficiency services (NEF, 2016). As a complementary approach, Bristol also emphasises the contribution of community energy projects. In 2010, the city helped create the Bristol Energy Network, an organisation supporting community renewable energy initiatives, which in turn developed a local community strategy for energy in 2013 (Bristol Energy Network, 2013). The city then launched a fund to finance renewable community projects, the Bristol Community Energy Fund and took an active part in setting up the Bristol Energy Cooperative, a community cooperative which has already raised 10 million pounds for local projects[17] .

[15] The take-over of the gas and electricity networks was made through a joint-venture with the former owner and concessionaire EnBW. The City of Stuttgart has a majority interest of 74.9% in the new semi-public company Stuttgart Netze Gmbh.

[16] Its green electricity offer earned Stadtwerke Stuttgart the "local supplier of excellence" award (Top-Lokalversorger) by the independent comparison portal www.energieverbraucherportal.de in 2014, 2015 and 2016.

[17] http://www.bristolenergy.coop/

2.2. Energy: a driving force for the local economy

Because it is a vital component of the economy in general and due to the massive investments it requires in related infrastructure, energy is a major local economic issue. The economic flows generated by the energy sector are not only significant in volume, they also have a qualitative dimension in that most of them can be used to reinforce two trends that are specific to the local energy transition (Rüdinger, 2015) :

- **The substitution of operational costs (OPEX) for capital expenditure (CAPEX):** by reducing energy end-use, investments in renewable energy and energy efficiency help curb fossil fuel imports (gas, oil, coal), thus limiting "capital flight". In Europe energy imports are estimated at over 700 euros per year/capita (2010). This means that a total of 355 billion euros leaves the continent without benefiting the European economy.

- **The creation of new virtuous loops at the local level:** because of their economic characteristics (long-term capital-intensive projects in highly job-intensive sectors[18]), energy transition projects can have a huge multiplier effect on a given territory, generating added value and sustainable jobs. The impact on the local economy directly depends on the capacity of local authorities to control energy transition investments by encouraging local stakeholders (especially households) to invest their savings in this sector and by ensuring that most of the added value thus generated remains in the local community.

[18] PERI's Green Growth report gives a job content (per million of dollars invested) of 14.6 for energy efficiency and 13 for renewable energy (Pollin, Garrett-Peltier, Heintz, & Hendricks, 2014). Similarly, Quirion rates job intensity at 16 (full-time jobs per million of euros invested) in the building trade and between 13 and 14 for wind and solar energy (Quirion, 2013).

a) Snowball effect: creation of added value and local jobs

The economic potential of the energy transition in terms of growth, added value and jobs is now well established (Callonnec, Landa, Maillet, & Reynes, 2013; OECD, 2011; Pollin, Garrett-Peltier, Heintz, & Hendricks, 2014). Energy transition projects can therefore be important drivers for the local and regional economy as illustrated by the example of the Hanover Stadtwerke (Insert 8).

In addition to these general economic effects, the benefit of local ownership can also be appreciated by the impact of various project development models on the share of added value that remains within the local area. This share may vary by a factor of 8 to 10 depending on whether the project is entirely financed and controlled by local operators or by an external developer, leading to the "flight" of related financial flows (Insert 9).

As local economic driving forces, local public companies can play a pivotal role in keeping monetary flows within the local economy:

- Rather than contributing to capital flight, their profits return to the local area in the form of public revenue that can be used to develop local public services;

- As direct investors, by raising funds for new local projects

- As facilitators (project management assistance, co-financing, etc.), local public companies can encourage and support investments from other local stakeholders;

- They can impose criteria aimed at maximising local added value by awarding contracts to local companies to maintain and create jobs[19] and attract new businesses (manufacturers, developers, consultancies, etc.);

INSERT 8. THE FINANCING OF INNOVATIVE ENERGY TRANSITION TOOLS BY THE HANOVER STADTWERKE, ENERCITY [20]

With a turnover of 2.4 billion euros, Hanover's municipal utility, Enercity, is one of the 10 biggest local public energy suppliers in Germany. Capitalising on its success, Enercity developed the ProKlima fund in 1998 as an innovative tool for financing measures aimed at reducing greenhouse gas emissions.

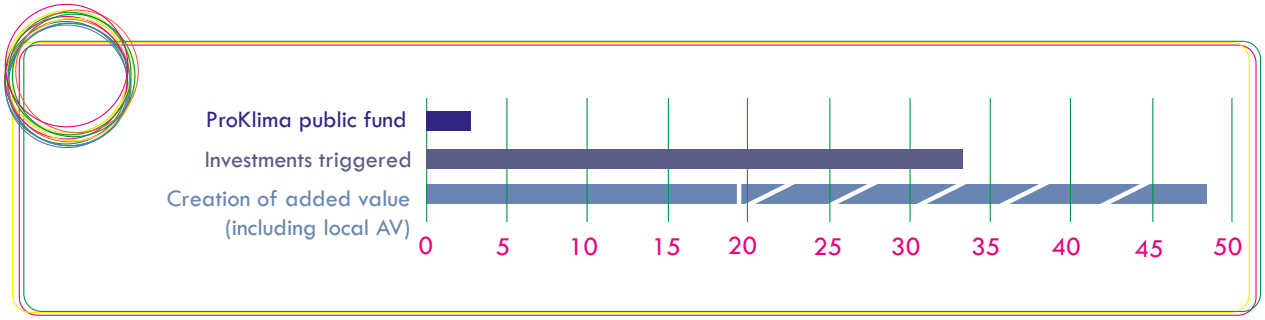
The fund has a 5.5 million euro annual budget financed through a tax included in the city's gas tariff (1 million euros annually), the allocation of part of Enercity's profits (3 million euros) and contributions from other participating authorities (Enercity, 2016). The fund is used to support energy efficiency measures in buildings (renovations and the construction of passive houses) and electricity uses, the development of renewable energy (solar and wind), the connection to heating networks and educational activities related to climate change.

[19] In Hamburg, the municipal energy and water management company reports that 536 out of the 850 million euros of added valued generated in 2015 remained within the city area (Hamburg Energie 2016: Geschäftsbericht 2015).

[20] For a more detailed description of the ProKlima fund, see (Energy Cities, 2014, p. 33).

Between 1998 and 2015, 60 million euros of subsidies were paid out by the fund. The cross-cutting dimension of the measures supported and its innovative financing model explain the fund's significant leverage: a study has established that each euro of public money injected as subsidy in 2010 triggered an average of 12.7 euros in investments (Günther, 2011). This means that the 2.6 million euros of subsidies paid out in 2010 generated 33 million euros of investments, creating 47 million euros of added value, of which 42% directly benefited the Hanover area.

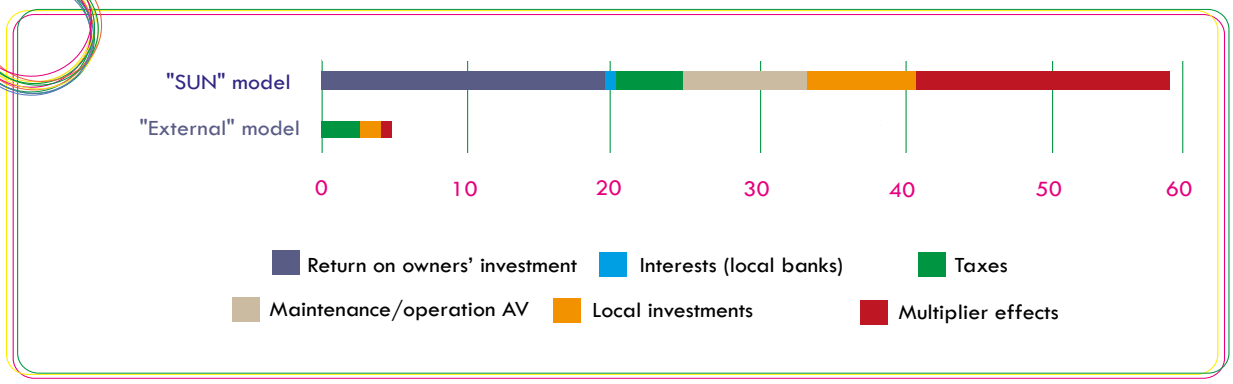
Figure 3. Economic leverage of the ProKlima fund in 2010 (in millions of euros)



INSERT 9. MAXIMISING THE LOCAL ADDED VALUE OF RENEWABLE ENERGY PROJECTS

The Institute for Decentralised Energy Technologies (IDE) in Germany carried out a study to assess the influence of the various wind farm development models on the distribution of added value (AV), including the share of AV remaining in the host area (IDE, 2016). Using actual economic data applied to a standardised 7-wind turbine (21 MW capacity) project, the study compared two scenarios. In the first scenario, investment and operation are in the hands of an external developer. Local AV is then limited to the (relatively small) investments made locally and to local taxes and amounts to about 7 million euros over the lifetime of the project (approximately 7% of total project AV). Conversely, the second scenario considers maximum local AV conditions: the project is run by the local municipal company (SUN) with a direct financial contribution from citizens and co-financing from local banks. In addition to tax revenues, most of the investments and profits made are re-injected locally, with multiplier effects on the local economy. According to this study, the second scenario generates 8 to 10 times more local AV than the "external" model, between 58 and 68 million euros over 20 years. According to the authors, each euro invested in the project generates €1.54 of local added value thanks to the multiplier effects on the local economy. (IDE, 2016, p. 9).

Local added value in millions of euros generated over the lifetime of the project according to the model



Source : IDE 2016

INSERT 10. A NEW LEASE OF LIFE FOR LE MENÉ, A FRENCH RURAL AREA

With 6,500 inhabitants, the Community of Communes of Le Mené in Brittany is a good example of rural energy transition in France. This association of municipalities was one of the pioneers and founders of the positive energy territory (TEPOS) network. In the early 2000s, the association commissioned a survey of local renewable energy potential (biogas, wind, solar, wood biomass, etc.) which resulted in the publication in 2005 of a strategic plan aimed at reaching 100% renewable energy by 2025. On the initiative of local elected representatives, farmers and citizens, the association successively bought a CHP plant producing biogas from slurry and biowaste (a 15 million euro investment), a vegetable oil fuel plant (rapeseed), a community wind farm (8 million euros), two district heating networks, wood boilers and a number of solar plants and energy-neutral social housing units. To encourage local economic development, the association of communes has also created a business incubator (Menerpôle) as well as an energy business park.

INSERT 11. BOOSTING ENERGY RETROFITTING WITH THIRD-PARTY FINANCING: SEM ENERGIES POSIT'IF [21]

In order to boost the energy retrofitting market, the Ile-de-France Regional Council created in 2013 SEM Energies Posit'IF, a public investment operator established as a semi-public company (SEM) with a number of local authorities and private partners. SEM Energies Posit'IF provides technical assistance (project management) and financial engineering for ambitious energy retrofitting projects in large multi-residential buildings (condominiums). Endowed with an initial capital of 5.3 million euros, the semi-public company signed 30 contracts in 2016 to renovate a total of 4,500 housing units, representing over 50 million euros of investment. Its originality lies in its focus on high energy performance (30-70% energy savings per operation) and the use of third-party financing: initial investment is paid by SEM Energies Posit'IF, the owners paying back the cost of the renovation from the savings made on energy costs.

[21] www.energiepositif.fr. For a detailed description see: Energy Cities (2014, p. 32-37): Financing schemes increasing energy efficiency and renewable energy use in public and private buildings.

b) Budgetary effect: providing more leeway to improve public services s

The economic interest of setting up a local public operator can also be seen from a budgetary point of view. The direct link between the local authority and the company ensures that all the profits generated by energy management activities (production, distribution, supply) are re-injected locally, instead of being siphoned off by a distant company, and used to finance other public service missions benefitting all citizens.

Although these budgetary effects are not the prime motivator for engaging local ownership initiatives, they may be significant as illustrated by the case of energy remunicipalisation in Hamburg (Insert12).

INSERT 12. THE ECONOMIC OUTCOME OF THE ENERGY REMUNICIPALISATION PROCESS IN HAMBURG

The energy remunicipalisation initiative in Hamburg is one of the most emblematic in Germany both in terms of its scope and by the grassroots involvement that it generated. In 1999, the privatisation of the former municipal utility HEW had been widely criticised by part of the opposition and by citizens. In 2009, the city council decided to re-establish a public energy supplier, Hamburg Energie, fully owned by the municipal water company. The new company experienced rapid growth, recording 100,000 customers for its gas and renewable electricity offer and positive financial results after just 5 years in existence. But the local people wanted to go further: in 2010, local environmental and charity organisations launched a citizen's initiative, Unser Hamburg – Unser Netz (Our Hamburg – Our Network), to demand a local referendum on the public takeover of all energy networks (electricity, gas and heat). The "yes" had it with 50.9% of the votes, encouraging the initiative to set up a community cooperative (Energienetz Hamburg e.G.), which raised over 50 million euros from the community to help finance the takeover of the networks and develop renewable energy projects. Following this vote (a binding vote for elected representatives), the city council organised the takeover of the power grid by the new operator Stromnetz Hamburg GmbH in 2014, which also became the new concessionaire for the next 20 years. The City also has a minority stake (25.1%) in the private companies owning and managing the gas and heat networks. A full takeover of these networks is planned in 2018 and 2019 respectively.

The economic issues were central to the referendum debate. Those against the takeover put forward the huge cost -almost 2 billion euros in total- of buying back the electricity, gas and heat networks for the city, forgetting that this was not just a cost, but an investment in vital and economically viable physical infrastructure.

A few figures illustrate the economic impact of this remunicipalisation process. In 2014, the public operator generated a 35 million euro profit from managing the electricity distribution network (excluding production and supply activities), in addition to the 60 million euros paid directly to the city as concession rights. Management of the gas and heat distribution networks also generated profits in 2014, 25 and 62 million euros respectively (HGV, 2015).

2.3. Reconnecting with local stakeholders and citizens

As municipally-owned entities, attuned to the notions of general interest and public services, local public energy companies can help reconnect the local authority and its citizens. Indeed, this relationship illustrates a great opportunity for local authorities to reinforce proximity and use it as a comparative advantage in the local energy market. In many cases, bringing energy back into local public ownership is an actual demand coming from citizens, as illustrated by the Berlin, Hamburg or London examples. Last but not least, this relationship also stimulates a new debate on governance democratic models, ensuring the direct participation of citizens in local energy companies and policies.

a) Proximity and trust, a comparative advantage for local public companies

Often mentioned in messages, proximity is also an empirical fact. First of all, it can be tested on a political level: generally, European citizens trust their elected representatives more than their national governments, as regularly demonstrated in the Eurobarometer surveys[22] . But this statement is also confirmed on the economic scale. In Germany, a survey poll showed that 75% of interviewees prefer public services to be provided by local public institutions rather than private companies (Halmer & Hauenschild, 2014). The situation is the same in the United Kingdom, where 68% of interviewees consider that energy companies should be publicly-owned companies (NEF, 2016). In France, the question of public management is not as relevant due to the control exercised by the State over large energy groups. A vast opinion poll conducted on the citizen day organised as part of the 2013 national debate on the energy transition however revealed that French citizens were very much in favour of local energy ownership. To the question: "Imagine we are in 2050. The energy transition has been achieved. What effect would be the most important for you?", the most frequent answer was: "Most of the energy is produced and used within the local area»" (DNTE, 2013b)[23] .

The argument in favour of greater local public intervention in the economy has also been reinforced by the recent economic and financial crisis which has strongly undermined confidence in large companies and "market forces" (Becker e t al., 2015; Halmer & Hauenschild, 2014; Kishimoto et al., 2015; Lell, 2010). Municipal management is therefore perceived as an assurance that citizen value will be placed before shareholder value (Bauer et al., 2012; Berlo, Wagner, & Heenen, 2017; Hall et al., 2013).

[22] In 2013 across Europe, only 29% of interviewees trusted their national governments, against 45% for their local and regional governments. The gap reached 38% in France, against 20% in Germany and 24% in the United Kingdom (ERCAS, 2015).

[23] According to the same poll, interviewees also highlighted their attachment to local policies: to the question "What should be the role of citizens in implementing the energy transition?", their "active role as residents and taxpayers in choosing and implementing local authorities' energy policies" came second just after "their active role through reducing their own energy use" (DNTE, 2013a, p. 29).

Proximity with consumer-citizens, the capacity for local operators to quickly adapt to their needs and the priority given to the general interest are also a major advantage in a competitive environment. As noted in a 2012 report, the brand image associated with proximity and public interest is "the primary resource of Stadtwerke". This brand image is what determines the consumers' energy consumption (Theron, 2012, p. 11).

In Germany, despite their relatively small size, around 1,000 Stadtwerke are operating in the energy sector which represents more than half of the energy supply market (54% for electricity, 56% for gas, 67% of heating networks). In France, the public company Sorégies in the Vienne county has approximately 150,000 electricity and gas customers, UEM in Metz boasts 161,000 electricity customers and runs one of the biggest heating networks in France, whereas GEG in Grenoble has 157,000 customers[24] . In the United Kingdom, municipal energy suppliers have rapidly gained ground thanks to their competitive offers and local engagement.

b) Citizen engagement: a triggering factor for local ownership initiatives

The citizens' engagement can play a crucial role when the remunicipalisation project is not fully supported by local representatives, who may initially be sceptical of this type of initiative (Becker et al., 2015; Berlo et al., 2017; Halmer & Hauenschild, 2014).

INSERT 13. SWITCHED ON LONDON: CITIZEN ENGAGEMENT IN FAVOUR OF A PUBLIC ENERGY OPERATOR

Increasing energy prices and fuel poverty have become major issues in the United Kingdom. Seeing that large scale private energy companies were not looking for a satisfactory solution, a coalition of citizens, associations and trade unions joined forces to create Switched on London in 2016 . This campaign militates for a public energy operator to be set up in the Greater London area as a non-for profit organisation integrating open and participative governance and is aiming to promote renewable energy and deliver affordable prices (NEF, 2016). Relatively unknown at the beginning, the campaign succeeded by making the question of a public operator a major topic of the May 2016[25] municipal elections. The new mayor of London, Sadiq Khan (Labour), who describes himself as the "greenest mayor in the history of London" is committed to create a public energy supplier (Energy for Londoners) for the urban area, which should start operating in 2017.
The campaign inspired similar initiatives in other cities: a citizen campaign (Energy Democracy Greater Manchester[26]) was launched in Manchester in 2016 and Liverpool City Council has committed to setting up its own public supplier, Liverpool Energy Community Company, in 2017 (Murphy, 2016).

[24] The case of French local energy distribution companies is, however, atypical. When they include an energy supply activity, they usually have a de facto monopoly, most private operators considering that entering the market would be too costly and not profitable enough.
[25] http://switchedonlondon.org.uk/
[26] https://www.facebook.com/energydemocracygreatermanchester/

Nation-wide, public energy management in the United Kingdom is also the subject of a national campaign: We Own It[27] . The campaign is fighting to bring the entire British energy system back into local public ownership, arguing that this could save up to 3.2 billion pounds per year (Hall et al., 2013).

INSERT 14. CITIZENS' INITIATIVE REFERENDUMS: A REMUNICIPALISATION DRIVING FORCE IN GERMANY

Citizens' initiative referendums[28] have become an essential direct democracy instrument for German local authorities and have been used over 7,000 times since their introduction in 1956 (Mehr Demokratie, 2016). In many cases, citizens' initiatives have been called to repeal, in the nick of time, public service privatisation projects decided by local elected representatives or to force a decision to bring back energy into public ownership, as illustrated by the two emblematic examples[29] Hamburg and Berlin

Inspired by the success of the citizens' initiative referendum on water (Berliner Wassertisch), associations and citizens in Berlin launched a similar initiative in 2011 (Berliner Energietisch) demanding the return to a public energy operator and the abandonment of privatisation initiated in 1997. Despite an overwhelming vote in favour of the establishment of new municipal utility integrating participative governance (83% of the 600,000 votes), the necessary quorum (25% of registered voters) was not reached by some 22,000 votes. Despite this failure, the citizens' initiative was partly a success: the Berliner Stadtwerke –or a "slimmed-down" version of it, according to the initiative advocates- was created in June 2014 (Becker et al., 2015). Citizen engagement is pursuing through a community cooperative (Bürgerenergie Berlin), which has already collected 12 million euros to buy back the energy network, in cooperation with the city council; an objective that may well be materialised after the 2016 elections[30].

INSERT 15. RENEWABLE ENERGY COMMUNITY AND PARTICIPATIVE PROJECTS IN FRANCE

According to a recent study made by Ademe, renewable energy community and participative projects are quickly gaining ground in France (Ademe, 2016). After a few emblematic advances like the Bégawatts project in Brittany (first French wind farm developed and financed by local citizens), these projects have drawn the attention of lawmakers who integrated a number of provisions in favour of participative projects in the 2015 Energy Transition Act (Poize, 2015).

[27] https://weownit.org.uk/public-ownership/energy

[28] Citizens' initiatives here both refer to the first stage of the process, which involves collecting a given number of signatures on a proposal, and the citizens' initiative referendum itself. In Germany, local citizens' initiatives may relate to a new proposal (voted by citizens or elected assemblies) or a recent decision they want to repeal.

[29] It should be noted that citizens' initiatives were also behind a number of remunicipalisation processes in other sectors, like water and energy management in Stuttgart, or energy in Paderborn and Augsburg.

[30] At the end of 2016, the SPD-CDU coalition was replaced by a coalition between the SPD, Die Grünen (the Greens) and the left-wing party die Linke with the following objective: "aiming at remunicipalising 100% of the power grid with citizen participation […], as well as the gas network, and [examining] the conditions for taking over the heating network" (Berlin, 2016).

More importantly, these community initiatives are also arousing high interest amongst local authorities: they are almost systematically involved (increasingly as initiators) in local projects, bringing credibility (trusted third-party), expertise and financial resources, usually through local semi-public companies[31] . A number of regional councils have also initiated or supported the development of national and regional networks[32] aimed at promoting participative projects or calls for projects to finance new initiatives[33].

c) Cooperation between local authorities and citizens: the challenge of participative governance

As illustrated in the two previous sections, reinforcing the relationship between citizens and local authorities is a central component of local energy ownership initiatives and fits into a wider perspective: reinventing local governance models around the notions of co-production and co-development; in other words: "deciding with citizens rather than for citizens".

An increasing number of examples illustrate the opportunities and merits of direct citizen participation in local public energy companies, which brings many benefits (Insert 16):

- For citizens, direct participation means playing an active role in the company's governance at a local level, a guarantee of increased responsiveness; financial participation in companies and projects run by the local authority also contributes to keeping citizens' savings in the local economy, while making them "meaningful";

- For public companies, direct participation is a guarantee for transparency and legitimacy, and can reinforce the competitive edge induced by proximity, as well as the loyalty of consumer-citizens (VKU, 2016). Citizens' savings can also provide the substantial resources needed to launch new local projects.

The examples of Bristol in the United Kingdom or the regional instruments developed to support community projects in France (Insert 15) show how local authorities can efficiently combine the activity of the public company and community initiatives by playing the facilitators' role and building stakeholders' networks in support of the local energy transition (Insert 7, p. 19).

[31] Examples include: SEM Eilañ in Brittany, SPL OSER in the Rhône-Alpes region, SAS MPEI in the Midi-Pyrénées region and SEM Energie Posit'IF in Ile-de-France.

[32] Energie Partagée at national level, the Centrales Villageoises network in the Rhône-Alpes region, ECLR in Languedoc-Roussillon, Taranis in Brittany, Energie Citoyenne in the Pays de la Loire region, CIRENA in Aquitaine, Catalis in Midi-Pyrénées, etc.

[33] Examples include the "cooperative and community energy" call for projects by the Occitanie Regional Council and Ademe, the "shared energy" call by the PACA Regional council and assistance with the development of RES participative projects in the Grand Est region.

INSERT 16. CITIZEN PARTICIPATION, A NEW LEVER FOR STADTWERKE

In Germany, the participation of community cooperatives in projects run by municipal utilities is an increasingly widespread phenomenon[34]. In most cases, the Stadtwerke bear the development risks during the design phase before opening the capital to citizens and local cooperatives. This was the case for Stadtwerke Union Nordhessen (SUN), a union of municipal utilities in Northern Hesse which acknowledged the importance of citizen participation by selling up to 74,9% of its projects to community cooperatives and neighbouring authorities (SUN, 2015). In total, 70 million euros of renewable projects have been financed thanks to this participative model. In the same way, Augsburg's Stadtwerke appealed to citizens' savings to finance a hydropower project and two solar stations: the utility, whose financing needs had been estimated at 12 million euros, had to close the offering after just four weeks, having already collected 20 million euros (VKU, 2016)[35] .
Furthermore, direct participation by community cooperatives in the capital of Stadtwerke is another possibility. Besides its financial interest, this type of participation also guarantees permanent participation of citizens in all strategic decisions. Wolfshagen's Stadtwerke, for example, contributed to setting up a local community cooperative which provided 3.8 million euros (end of 2016) to the municipal utility, i.e. 25% of its capital. This innovative participative governance model earned the Energy Awards-Stadtwerke in 2015 and inspired many other cities. In Jena, the newly established community cooperative invested 8.2 million euros in the Stadtwerke. Moreover, In Steinfurt, a cooperative with 1,000 members raised 3 million euros for the municipal utility and Haßfurt's Stadtwerke received 1.5 million euros from a community cooperative to co-finance the partial takeover of the energy distribution networks (VKU, 2016).

The public operator in Titisee-Neustadt (Baden-Wurttemberg) is another emblematic case of cooperation between a local authority and its citizens. This town located in the Black Forest, 12,000 inhabitants, decided to engage a remunicipalisation process in 2011. Due to a lack of sufficient financial resources, the city council immediately decided to form a partnership with its citizens: first through a local cooperative (10% interest) and then by supporting EWS Schönau, the historical pioneer of local and community energy ownership of the region. EWS provided 30% of the capital to buy the networks as well as its expertise in takeover and operational management[36].

[34] According to a recent survey of Stadtwerke managers, 39% of municipal utilities have already opened up projects to direct citizen participation. Citizen participation is primarily viewed as a way to improve their image (92%) and increase project acceptance (92%); it is also used to improve communication (85%) and build customer loyalty (82%) (VKU, 2016, p. 29).

[35] It should be noted that a citizens' initiative referendum was also organised in Augsburg in 2015, which succeeded in preventing the partial privatisation of Augsburg's Stadtwerke.

[36] The Titisee-Neustadt remunicipalisation case became famous in Germany because of the legal dispute opposing the city council and the former concessionaire, which went to court on the grounds of alleged "manipulation" in awarding the new concession.

2.4. Adopting a cross-cutting approach by promoting synergies

In terms of strategic positioning, local public operators are often disadvantaged because of their relatively small size. They can, however, compensate this weakness by developing two complementary strategies: adopting a cross-cutting approach by promoting in-house synergies between their energy and non-energy activities[37] and looking for new external partners, notably through networking with other similar operators.

a) Horizontal integration of various activity areas

Another major reason for bringing energy back into public local ownership lies in the potential synergies that can be achieved between sectors and areas of activity . Harnessing this potential involves developing a cross-cutting approach to environmental and energy transition policies at the local level. This means first integrating the various sources of energy (gas, electricity, heat, fuels), previously handled separately "in silos", as is already the case with district heating networks (see Insert 18)[38] . More generally, it also means achieving a better understanding of the "metabolism" of a local area by linking energy to urban planning as well as to water, waste and mobility management. Last but not least, the gradual digitalisation of the energy systems has opened up new avenues for the energy transition and local energy management. Considered to be "the biggest challenge facing Stadtwerke", digitalisation is a formidable opportunity to develop new markets through smart networks and energy services (BDEW, 2016).

This horizontal integration of the various areas of activity of a local public company can also prove itself to be a significant asset at various levels:

- **A politically and operationally coherent cross-cutting approach:** by controlling the various areas of activity, the local company can ensure the coordination of its actions, in line with its political planning process.

- **Interdepartmental integration generates economies of scale:** IT systems (customer base management) common to all the services offered to customers (energy, water, waste, telecommunications, etc.), staff, communications, access to financing sources – in many cases, horizontal integration can make the difference.

- **Developing local public services thanks to cross-subsidisation:** controlled in France and other countries, cross-subsidisation is seen as a major advantage for German public integrated operators: by offsetting the structural deficits of some of their activities against the profits made from others, German Stadtwerke can guarantee the provision of quality of the public services over the long term (Halmer & Hauenschild, 2014).

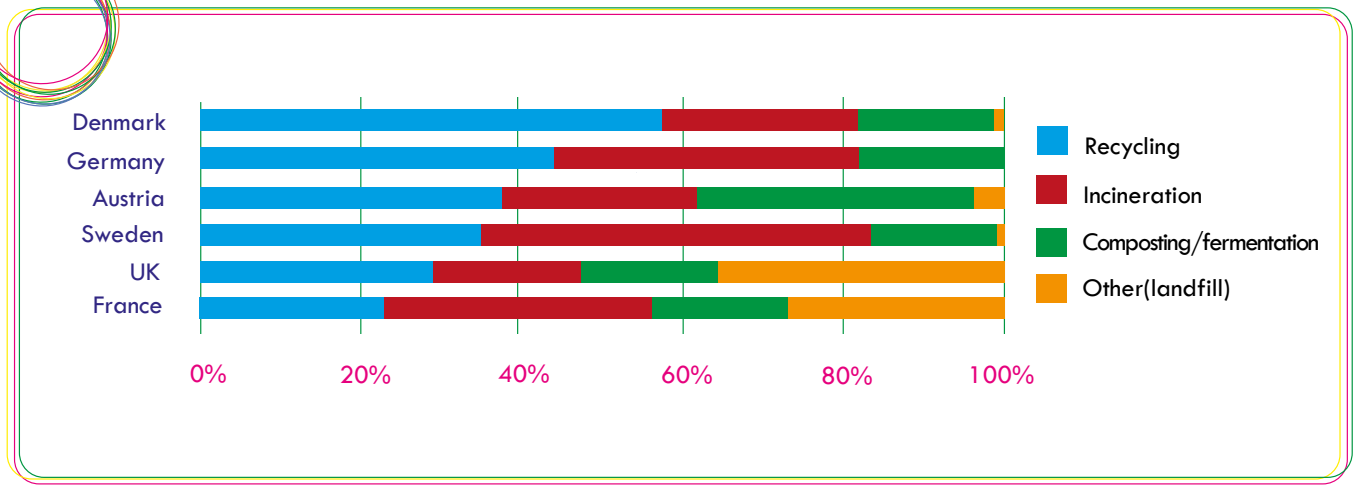
- **Offering integrated services with the same brand image:** in an increasingly competitive environment, being able to provide offers covering essential services (water, energy, telecommunications), possibly combined with a bonus system, can prove to be a powerful advantage for building customer loyalty.

[37] For a detailed description of potential synergies between the sectors, see (in German): (Berlo & Wagner, 2013, p. 35; InfraFutur, 2008, p. 299).

[38] Examples include power-to-gas technologies (the transformation of surplus electricity into hydrogen and syngas), CHP (and even tri-generation, with cooling networks), pumped-heat electricity storage, electric mobility and natural gas vehicle (NGV).

Far from being just a rhetorical argument, potential synergies between various activities have already been successfully exploited by a number of local players. For example, energy recovery from waste or from wastewater treatment sludge is gaining momentum in all Members States, either to feed heat networks or for biogas production (see graph below).

Figure 4. Treatment of municipal waste per type of treatment and country (2013)



INSERT 17. DEVELOPING A CROSS-CUTTING APPROACH AIMED AT EXPLOITING THE SYNERGIES BETWEEN AREAS OF ACTIVITY

In 1992, Munich's utility Stadtwerke München (SWM) implemented a drinking water quality preservation strategy with the support of farmers to encourage the transition towards organic farming and economic diversification policies (support for renewable energy projects), in order to lessen the ecological pressure on soil and water resources associated with intensive farming.

When it introduced waste sorting in 1994, Lille Metropolitan Council decided that biowaste would be collected separately. Since 2017, biowaste has been treated at the organic recovery centre to produce compost and biogas used as fuel by a bus company. The centre was also one of the first to inject biogas directly into the local network.

INSERT 18. DISTRICT HEATING AND GEOTHERMAL ENERGY: A LOCAL POTENTIAL TO DEVELOP

Despite its economic, energetic and climatic advantage, district heating still has significant untapped potential. In France, the over 500 existing networks only make up 6% of total heat supply (against 1400 and 14% respectively in Germany). By way of comparison, district heating covers 64% of heating needs in Denmark and uses 50% of renewable energy (biomass, solar thermal, geothermal energy, waste, biogas and heat pumps).
A recent survey conducted in France by Syndicat National du Chauffage Urbain (SNCU) showed that district heating could be multiplied by a factor of 2 to 38 in the various French regions as opposed to the factor 5 target set in the 2016 multiannual energy planning document for district heating and cooling from

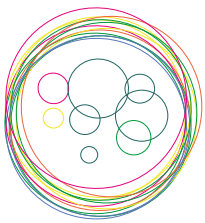
renewable sources (SNCU, 2016). Furthermore, In Germany, a study has demonstrated that "renewable" heat networks could cover up to 70% of total heating requirements, thus making them an efficient solution for decarbonating large cities (Blesl & Eikmeier, 2015).

District heating is also arousing growing interest because of its capacity to integrate various energy sources. CHP is already commonly used to feed heat networks, but these can also absorb surplus electricity generated by wind farms and other renewable plants via heating (and cooling) storage systems as it is already the case in Denmark and Germany. Thermal solar energy connected to heat storage devices and heat pumps could also experience rapid growth with the development of these networks (JRC, 2016).

Geothermal energy is another major decarbonation solution that could boost the development of district heating. In the Parisian area, 29 district heating networks already use geothermal energy to supply heat up to 150,000 housing units. According to a recent survey, the potential of geothermal energy could cover most of Europe's heating needs, up to 75% in Denmark, 37% in France and 50% in Germany (GeoDH, 2014). Moreover, the City of Munich plans to use only local geothermal energy to supply its district heating networks by 2040.

The Paris-Saclay campus project is another example of the possibilities offered by geothermal energy combined with heating and cooling networks. The new campus created by 11 municipalities will house over 70,000 people in tertiary and residential low-energy buildings. 50 million euros have been invested in the campus heating network which has been designed to cover 100% of the campus' heating and domestic hot water requirements. It will also provide cooling. This "smart" network will combine low-temperature geothermal energy (60% of the energy used) with heat pumps, recovered waste heat (from data centres and industries) and connection to a smart power grid (power-to-heat storage, control of heat pumps based on power grid stress) (JRC, 2016).

b) Pooling strategies: cooperating with other players



In addition to the synergies achieved through internal integration, the development of new partnerships can also play a key role in local energy ownership initiatives. Developing pooling and cooperation strategies is indeed the most common solution to alleviate concerns about the lack of efficiency and the loss of economies of scale is often associated with decentralised energy management (Libbe, 2014)[39].

[39] In a context of spreading energy remunicipalisation in Germany, this argument was disseminated by historical operators, but also by the Federal Cartel Office (Bundeskartellamt) and the Federal Network Agency (Bundesnetzagentur) (Berlo & Wagner, 2015; Libbe, 2014)

According to a recent survey, 77% of German Stadtwerke (82% of small to medium-sized utilities) consider cooperation with other players a winning strategy (BDEW, 2016, p. 9). Unsurprisingly, preferred partners are first neighbouring municipal utilities (70%), well ahead of technological companies (32%). Cooperation and sharing experience are the most important in the case of remunicipalisation projects to compensate for the lack of in-house resources and skills, as illustrated by the setting up of geographical "clusters" in Germany (Berlo & Wagner, 2013).

Pooling skills can also enable small public operators to develop new areas of activity, like energy services, or to overcome barriers such as entering new markets, illustrated by the cases of Trianel or Alterna in France (see Insert 19). Finally, the development of partnerships or joining existing public operators is another remunicipalisation lever, a particularly interesting one for local authorities which are lacking the resources in order to set up a new operator (DUH, 2015).

In view of the German experience, the development of energy remunicipalisation initiatives in Great-Britain will largely depend on the stakeholders' cooperation and pooling strategies. To spread their message, pioneer cities like Nottingham or Bristol will have to encourage networking amongst the various players so that they can share experience and pool services. This is especially vital in an energy market currently dominated by large private companies (the "Big 6").

INSERT 19. POOLING LOCAL OPERATORS' STRENGTHS, A MAJOR CHALLENGE

The liberalisation of the energy market initiated by the European Commission in the mid-1990s proved a major challenge for local public operators. The integration of the European wholesale electricity and gas markets, dominated by large energy companies, was another challenge of its own. In 1999, German and Dutch local companies set up Trianel, a joint operator with sufficient critical size to buy and sell on the market. This joint company developed rapidly and the largest cooperation network of local energy companies in Europe, with over 100 members and partners in Germany, the Netherlands, Austria and Switzerland.
The company offers a number of services to its members: wholesale trade, direct marketing of renewable energy generated by its members, retail supplier, project management assistance, power station operation and strategic advice on new activities for local energy operators.

The liberalisation of the energy markets and subsequent phasing out of regulated tariffs have also led fifteen French local distribution companies (LDCs) to set up Alterna in 2005, a joint operator now uniting around 50 LCDs. The company sells electricity and gas at market prices across France, especially to businesses and local authorities. Its members can also benefit from its technical expertise of the wholesale market and management activities (as a balance responsible entity for example).

3 Local ownership risks and barriers… and possible solutions to overcome them

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Although the dynamics trends at work in the three countries studied clearly exemplify the opportunities and successes of local energy ownership initiatives, they also include a number of risks and barriers that must be considered. These risks and barriers may be of different types:

- **Legal**, i.e. the rules and constraints imposed by national and European legal frameworks that may more or less limit the conditions under which a local authority can intervene as an economic operator;

- **Political**, i.e. the necessity to anchor the initiative in a long-term strategic vision with sufficient political support from elected representatives, citizens and stakeholders;

- **Economic**, i.e. the capital intensity of energy projects, the risks associated with setting up a new operator in a highly competitive environment and more generally, laying down "realistic" expectations with regard to the economic performance of a project.

3.1. Legal frameworks

3.1.1. The principles of European legislation

The European legislation relevant for analysing energy remunicipalisation initiatives is composed of somewhat disparate elements. These include texts governing public services (or services of general economic interest, or SGEIs in the European jargon) and public procurement procedures on the one hand, as well as specific legislation dealing with energy and climate issues on the other hand. **At first sight, the European approach to this issue is marked by a tension between two, partly contradictory principles:**

- On the one hand, the willingness to ensure full market liberalisation and competition which has gradually eroded the historical definition of public services[40] ; this explains the strong pressure towards opening up the energy sector and creating an integrated market (Dutton, 2015).
- On the other hand, the sanctioning of "Services of general economic interest" (SGEIs) as a "shared value of the Union", associated with the principle of subsidiarity and the institutional autonomy of Member States (Marćou, 2016). Under these principles, Directive 2014/25/EU recalls (Article 1) that the Member States are free to "define, in conformity with Union law, what they consider to be services of general economic interest" and "how those services should be organised and financed" .

[40] A 1996 report by the European Parliament noted that: "this dual trend of privatisation and liberalisation, bolstered by the very nature of Community integration, presents a challenge not only to public undertakings but also to «public service» itself." (Camenen, 1996, p. 9).

3.1.2. National legal frameworks

Although the European legislation is increasingly influencing the conception of local and national public services, Member States still have significant leeway as to how they organise their public services, especially in terms of their assignment to public or private entities (Insert 20). The specificities of national legal frameworks remain the main explanation for the diverging approaches taken to energy remunicipalisation in the three countries under consideration, leading to different visions of the legitimacy (and, by extension, legality) of the intervention of local authorities in the local economy in view of their responsibility in guaranteeing the provision of essential local public services.

INSERT 20. AWARDING CONCESSION CONTRACTS: A RANGE OF POSSIBLE MODELS

If the liberalisation of the energy markets makes sense for production and end-user supply, it is not so much the case for activities relating to energy network infrastructure, which are naturally monopolies. In fact, only the assignment of such a monopoly can be opened to competition and is regulated by the 2014 Directive on the award of concession contracts, which applies to public services presenting a natural monopoly due to their underlying infrastructure (energy, railway, postal services, etc.). Leeway as to how these rules are interpreted and transposed into national law has however been granted to Member States in order to preserve, at least partly, the historical organisation of their public services.

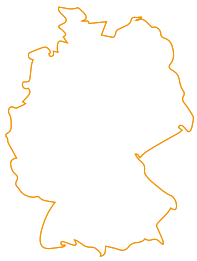
In Germany, the Energy Saving Act requires local authorities to award network concession contracts as part of a competitive, non-discriminatory public procedure. Awarding a concession contract directly to a local public operator is not allowed and concession contracts cannot exceed 20 years (Libbe, 2014; VKU, 2011). The network remains highly fragmented between over 900 electricity distributors, mostly Stadtwerke, 90% of which have fewer than 100,000 customers.

In France, local authorities are responsible for awarding electricity grid concession contracts as organising authorities. However, they cannot choose the operator, which is set by law: Enedis and the 142 local companies operating in the electricity distribution market have a monopoly in their exclusive service areas in accordance with Article 111-52 of the French Energy Code. There is also no limit to the maximum legal duration of concession contracts [41] In the United Kingdom, local authorities have no longer powers over the distribution networks which are directly controlled by OFGEM, the national regulator. The electricity distribution network is split between 14 licensees each belonging to one of the Big Six. No competitive procedure applies.

In Sweden, electricity distribution networks are managed by some 120 local public companies. Concession contracts are not assigned a specific duration and usually run ad vitam aeternam: to enter the market, a new operator has to take over an existing operator.

[41] This statement needs to be qualified: the draft terms and conditions proposed by the FNCCR federation mention a 20 to 30-year duration. But according to French case law, contract duration must be justified on an ad-hoc basis and may be overruled by the judge in the case of a dispute (Seban & Associés, 2015).

Germany



From a legal point of view, German local authorities have certainly more powers than their French or British counterparts. Article 28 of the German Basic Law (Grundgesetz) establishes the principle of municipal autonomy and guarantees them the "right to regulate all local affairs on their own responsibility". German municipalities therefore have "extensive powers as they are the implementing authorities of about 80% of the legislation and of most EU directives" (Bauby & Similie, 2013, p. 5). In the German conception of local public services (kommunale Daseinsvorsorge), municipalities can participate as (economic) operators in a number of sectors, provided this is justified by their general interest mission (Libbe, 2014)[42] .

Two main principles limit this general power. The localisation principle (Örtlichkeitsprinzip) stipulates that the activity of the municipality (or its utilities) must be essentially limited to the geographical area under its administration. And the subsidiarity clause (Subsidiaritätsklausel) means that local authorities can run a public service provided they can do so as efficiently as a third party. Diverging interpretations of these two principles by the various German federal states (Länder) has resulted in roughly stringent control over what economic activities local authorities are allowed to perform[43] . Many authors criticise the unfavourable position of municipal utilities vis-à-vis the large private groups which are subject only to European and national competition rules, whereas local authorities have to comply with both the specific provisions concerning the economic activities of municipalities and the general rules, which constitute a potential competitive distortion, without mentioning the difference in size and market power compared with large private groups (Berlo & Wagner, 2015; Libbe, 2014).

In most Länder, German local authorities are relatively free to set up or return to public control an energy operator involved in energy production, supply or distribution. Regarding distribution, however, the potential conflict of interest between the municipality as the organising authority (responsible for awarding concession contracts) and the municipality as an economic operator (applying for a concession as a candidate), poses major legal risks in the case of remunicipalisation projects. This legal uncertainty has been used many times by private operators to dispute a public takeover (Berlo et al., 2017).

[42] Traditionally: water, sanitation, waste, energy, local transport, health, primary and secondary education, etc.

[43] For a detailed comparison of the provisions applicable to economic activities in each federal state, see Berlo & Wagner, 2013, p. 88.

France

In France, Article 34 of the Constitution guarantees the "self-government of territorial communities, their powers and revenue". However, in terms of their effective powers in the field of local public service management, "the actual scope of municipal devolution is not commensurate with the wealth of constitutional provisions", as noted by Marcou (Marcou, 2000, p. 70). Despite repeated assertions regarding the general jurisdiction extended to local authorities[44] , France has constructed two public service organisation models in parallel. The first one is the central provision of major public services controlled by the State, including energy. The second relates to local public services within the jurisdiction of local authorities, which can be managed by the authority itself or contracted out to a third party as part of a "délégation de service public", a very common practice in France (Bauby & Similie, 2013).

In the field of energy, the development of a national public energy service as part of a centralised policy with vertically integrated operators has left little room for action by local and regional authorities, although municipalities (or their associations) remain the owners and awarding authorities of the distribution networks (Poupeau, 2004). Except for a handful of historical local energy distribution companies, no local authority can currently choose to manage its energy distribution networks by itself, despite the potentially unconstitutional nature of the monopoly granted to Enedis over the remaining 95% of French territory (Rousseau, 2012)[45] .

In the same way, the emergence of local public suppliers (except LDCs) in France faces two main stumbling blocks: from an economic point of view, the market power of historical suppliers (EDF and Engie) is such, that small newcomers find it difficult to survive[46] ; and from a political point of view, the legitimacy and political added value of such an initiative, even presented as the illustration of the local authority's commitment to public local services, would be strongly contested on the grounds that the authority is openly competing with the national public energy service.

[44] The Act concerning the New Territorial Organisation of the Republic (NOTRe Act) of August 2015 in effect removed the general jurisdiction clause applicable to regions and (départements), the clause being maintained only for municipalities.

[45] In 2010, CLER applied for a priority preliminary ruling on the issue of constitutionality, asking for a constitutional review of the monopoly granted to Enedis (formerly ErDF) for infringing the principle of equality between local authorities (with or without a LDC) and their freedom to contract (Rousseau, 2012). The application was however dismissed on appeal by the Paris Court of Appeal in 2013 on a technicality: the law referred to in the initial application had meanwhile been amended (without changing its substance), thus making the application null and void, without considering its merits.

[46] Enercoop, a green electricity community supplier, is one of the few successful newcomers; in 2016, the cooperative had over 40,000 customers and forecasts 150,000 by 2020.

Nevertheless, the adoption of the 2015 Energy Transition Act and implementation of part 3 of the devolution process have led to substantial changes in the allocation of powers in the field of energy (Amorce, 2014; Izard, 2016). As part of their economic action, local authorities can notably:

- Develop and operate renewable energy (RES) installations themselves or participate in financing RES projects

- Implement energy efficiency measures in their own infrastructure and buildings or offer support instruments to local players (citizens, businesses)

- Set-up public companies (SPL) or semi-public companies (SEM) for developing and investing in renewable energy and energy efficiency projects

- Develop and run their own heating networks

In a nutshell, French local authorities therefore have many levers available to participate in the economic and operational management of energy in their local area. Distribution networks excepted, for which their role is still limited to that of an awarding authority, it is not the legislation but rather the economic organisation of the energy market and a lack of resources (political will, financing, technical skills) that limit energy ownership initiatives.

The United Kingdom

Institutional governance in the United Kingdom is made more complex by the fact that each of its four constituent nations (England, Wales, Scotland and Northern Ireland) has its own territorial organisation principles. It should be noted, however, that local authorities have very few powers in terms of public service operational management. The role of local authorities in the provision of local public services (especially energy) and the number of local public service companies have gradually dwindled following a series of nationalisations in the 1940s, the privatisation and liberalisation agenda initiated in the 1980s and subsequent policies aimed at strongly controlling and discouraging the economic activities of local authorities. (Bauby & Similie, 2013).

In 1990, the whole energy sector was privatised and production, transmission, distribution and supply activities were unbundled. Contrary to Germany and France, no local distribution company survived this massive change and local authorities lost their powers and ownership of the distribution networks. It should also be noted that national energy transition policies changed drastically following the change of government in 2015, with the cancellation of the flagship energy efficiency programme known as the Green Deal and the sharp reduction in renewable energy support programmes in late 2015.

To sum up, of the three countries studied, the United Kingdom has currently the least favourable climate for local energy ownership initiatives for reasons linked to its legal context and the organisation of its domestic energy market. It should be noted however that municipal and local energy initiatives are picking up: an increasing number of cities are setting up their own energy operator or supplier (under different conditions) and community energy projects are developing fast, especially in Scotland (Armstrong, 2015; Cowell, Ellis, Sherry-Brennan, Strachan, & Toke, 2017; NEF, 2016).

3.2. Political and economic conditions and risks

The previous section provided a detailed analysis of the main external factors. The present one will focus on the internal political and economic risks inherent in local energy ownership projects. Far from being more obstacles, these factors are fundamental in understanding the conditions for success of such initiatives.

a) The political dimension: a project, a long-term vision, a personality

Although most studies focus on the economic risks of setting up a new activity or public company (Berlo & Wagner, 2013; Halmer & Hauenschild, 2014; Libbe, 2014), the political dimension remains of paramount importance for achieving success in remunicipalisation initiatives.
Ensuring that a remunicipalisation project benefits from a firm political foothold in various areas it is an essential precondition:

- Project preparation: remunicipalisation and, on a broader level, energy ownership initiatives require in-depth preparation work. The first step consists of identifying the needs and defining the objectives of the project in order to determine how it should be implemented. Indeed, there are many remunicipalisation models, each corresponding to a specific local context. This stage should also include a brief strategic analysis of the project (see section 4).

- Timeframe: time is a critical factor with a significant influence on the success or failure of initiatives. Firstly because of the duration of the process, which is usually quite long (at least several years) and requiring long-term investments as well as sound foundations to avoid the project being shelved along the way. Secondly because time is a key factor in anticipating specific windows of opportunity. The renewal of public service concession contracts, for instance, proves to be a powerful trigger in most remunicipalisation cases, whatever the sector in question (Berlo & Wagner, 2013; Hall et al., 2013; Kishimoto et al., 2015).

- Integration into a long-term vision: remunicipalisation is rarely an end in itself but rather a formidable tool and local action driver. Integrating the project into a long-term, strategic local energy transition vision is therefore essential to give it full legitimacy.

- Political alliances and coalitions of players: remunicipalisation initiatives must be supported by an alliance of players (and ideally elected representatives) that is sufficiently broad and representative to withstand the passing of time and political changeovers, two factors that can have a strong impact[47] on projects. Consulting and engaging civil society and economic stakeholders (especially trade unions) -or even linking remunicipalisation to other "right to the city" campaigns- to give it greater legitimacy and support is often mentioned as a major success factor.

[47] In some cases, the departure of the elected representative(s) who initiated the project simply means the end of it, the "personality factor" often being a determining one. Conversely, political changeovers can help unblock a project, as was the case in Berlin in late 2016 when a new SPD-Greens-Die Linke coalition came to power or in London when Sadiq Khan (Labour) became mayor.

- Do not underestimate resistance to the project: in many cases, remunicipalisation is far from being unanimously accepted. Strong opposition may come from existing private operators, elected representatives, political parties, trade unions, and even from part of the population. Communicating with the media and the citizens is therefore crucial, especially in the case of large projects with a high political profile, as illustrated in Hamburg and Berlin (Berlo & Wagner, 2015; Halmer & Hauenschild, 2014)[48] . In Germany, remunicipalisation of the distribution networks highlighted the creativity of existing operators when it comes to avoiding and explicitly discouraging any return to public ownership (Berlo et al., 2017).

b) Economic risks

As for any large-scale economic initiative, energy remunicipalisation involves a number of more or less specific risks depending on the project. A risk analysis should therefore be carried out to determine the most appropriate local ownership model, taking into account the local authority's resources and in-house skills as well as local needs. Several factors can be identified:

- **Acquiring sufficient expertise:** in most cases, and regardless of the country in question, local authorities wishing to bring energy management back under municipal control have limited skills to do so, especially in terms of operational management. It is therefore essential that they rapidly invest in developing these skills, either internally or through external partners (neighbouring municipal companies, consultancies, networks and federations[49]). An analysis of the economic risks and benefits of a return to public management is also essential to help with the decision-making process and counterbalance other analyses. Sound legal and economic expertise is mandatory when the project involves buying assets from a private operator since listing the assets, setting a selling price and defining the terms and conditions can prove a difficult task (Berlo et al., 2017).

[48] According to an article in the press, the Berliner Energietisch community organisation had planned to invest 180,000 euros in a PR campaign prior to the local referendum, against several millions for the private operator Vattenfall (Der Tagesspiegel: "Der stille Kampf von Vattenfall", 30.09.2013).
[49] Such as VKU in Germany, the PDC federation or Amorce in France, the Association for Public Service Excellence (APSE) in the United-Kingdom, Energy Cities or the Covenant of Mayors at the European level.

- **Defining the strategic positioning not too far in advance:** from an economic point of view, this means defining the local authority's strategic position and any changes over time – positioning along the whole chain of value, setting up a public supplier as a first step before establishing a fully integrated operator, network operator, developing in-house RES projects or facilitating other local players' projects, etc. - only after identifying the objectives and risks. Remunicipalisation may take different forms and models which should be carefully examined before identifying which one best suits the local authority's objectives and resources.

- **Being clear on priority objectives and their consequences:** As tempting as winning public support by promising them the moon may be, what really matters is to temper expectations and be extremely clear that one project cannot solve everything: ensuring regular revenues for the city while delivering affordable tariffs to users and making significant investments are objectives that are difficult to reconcile, at least initially.

- **Limiting financial risks for the authority:** in the case of heavy investments (takeover of network infrastructure or development of new projects), the prime objective is to find the most appropriate legal vehicle to limit the local authority's financial exposure as the project holder. Setting up a private law company[50] to benefit from its financial status (including limited liability) seems to be a growing trend to avoid investments in infrastructure being assimilated to local public debt[51].

- **Anticipating financing and partnership needs:** depending on the market positioning selected, remunicipalisation may require high levels of investment that may exceed the local authority's financial capacity. Establishing strategic partnerships may prove to be indispensable and offers a wide range of possibilities like partnering up with public companies from neighbouring territories or relying on citizens and community cooperatives to raise funds (see Insert 16). An association with private partners, including the historical concessionaire, may be a relevant option to preserve technical skills but it also implies constraints in terms of governance and freedom of management (potentially diverging interests).

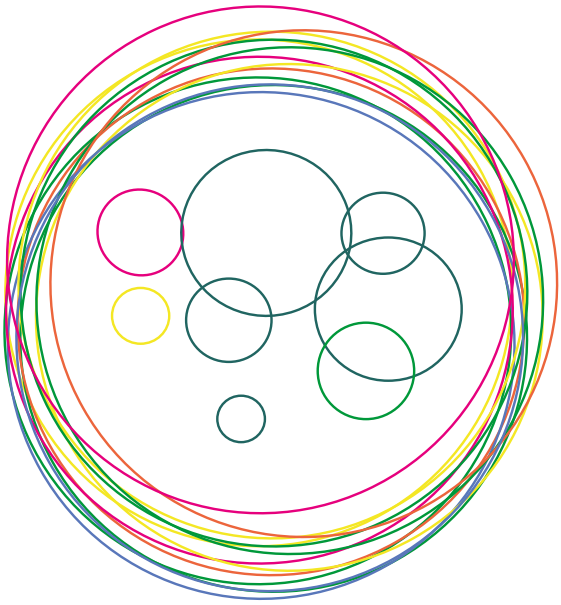
- **Affirming local roots:** an overly large project may lead to legitimacy issues. It appears more appropriate to focus on proximity and local impacts, the main benefits and distinctive features of remunicipalisation initiatives (section 2.3.). Putting forward the "local" brand is all the more important when operating in the supply market, a highly competitive market usually dominated by large private companies (Theron, 2012). This may be done by including local services (advice and in situ energy efficiency audits, bonuses for the purchase of energy efficient equipment, etc.) in supply offers.

[50] Limited liability companies and similar legal denominations in the various countries. It should be noted that in France, semi-public companies (SEM) and local public companies (SPL) are subject to specific public law rules. As joint-stock companies however, they are also subject to French commercial law and their liability is limited to the capital invested.

[51] This is less true in Germany where municipalities are entitled to set up private law companies (GmbH) to borrow money to finance the takeover of distribution networks (up to several billions of euros in the case of Hamburg), without impacting local public debt.

- **Do not underestimate the risks inherent to energy markets:** for a municipal company, operating in the energy management business involves accepting becoming dependent on the energy markets and their sometimes wild swings. This requires thorough knowledge of how the markets work, especially when operating in wholesale markets. Ideally, it should also imply a diversification of the portfolios and related risks. Good knowledge and anticipation of economic and political trends are also indispensable, since the municipal company runs the risk of being affected just like any private market participant. The recent profitability issues of gas power stations on the European market for example had a strong impact on German municipal utilities (KPMG, 2016; Neuerer, 2013). Acquisition of interests in existing projects, setting up projects in partnership with other municipal utilities or shared tools (Insert 19) can also help spread these risks (DUH, 2015).

- **Studying the potential and anticipating the positioning of new markets:** for local companies, new markets provide a unique opportunity to distinguish themselves from traditional participants and reinforce their identity as local innovative players. The digitalisation of the energy market (data analysis and management, smart networks) is of particular interest, it has both an economic (customer service) and political (local energy policy implementation and coordination) value. Developing energy services as a complement or alternative to classic supply offers is also an innovative and differentiating approach in relation to competitors.



4 Strategic summary

After an in-depth analysis of the reasons, interests and risks behind local energy ownership initiatives, this section provides a SWOT analysis of the strengths, weaknesses, opportunities and threats in relation to energy remunicipalisation.
A brief overview of the various remunicipalisation models mentioned in this study is also presented.

4.1. SWOT analysis

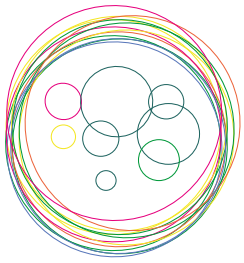
Traditionally used to determine corporate strategies, a SWOT (Strengths Weaknesses Opportunities Threats) analysis is a strategic planning and decision-making tool that can be applied to a number of items (a local area, a project, a technology, a sector of activity, etc.) in order to identify key internal and external factors:

- Strengths: internal strengths, which here relate to the advantages of being a local authority in managing local energy

- Weaknesses: identified weaknesses linked to bringing energy back into local public management in a given territory

- Opportunities: opportunities associated with remunicipalisation, especially with regard to future developments and external factors

- Threats: external identified threats or risks, notably in connection with the development of the (national and European) energy markets and public policies (legal frameworks, national energy transition strategies, etc.).



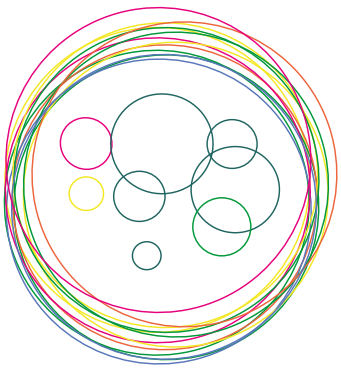


Figure 5. Overall SWOT analysis of energy remunicipalisation initiatives

This illustrative and holistic approach aims to sum up the main structural factors that need to be considered as part of the strategic reflexion process. Given the wide range of possible remunicipalisation models and project-specific local contexts, this analytical method must of course be used on an ad-hoc basis, especially when assessing the various models and strategic options.

4.2. A wide-range of possible models: a strategic guide

At this stage, drawing up a comprehensive "catalogue" of the various remunicipalisation models would not be appropriate given the wide range of possibilities induced by the variety of local and national objectives and specificities. A non-exhaustive overview of some existing models can however be provided based on the case studies presented in this document:

- **Integrated operators, the "enforcing agents" of local energy policies:** this model is commonly found in large German cities with large-scale Stadtwerke; integrated operators operate along the whole value chain (production, distribution, supply) and are integrated into multi-sector public utilities (energy, water, waste, transport, etc.), like Stadtwerke München.

- **Public investment instruments:** in this model, the development of new projects (essentially renewable energy and energy efficiency projects) is given priority through an investment instrument, sometimes associated with project technical assistance (project management). This model may combine the development of in-house projects with facilitation and participation in third-party projects. Most French regional operators in the energy sector (like SPL Oser or SEM Energie Posit'IF) fall into this category.

- **Local public energy suppliers:** these initiatives are mainly focused on the development of local energy offers, usually with a social agenda (tackling fuel poverty) sometimes associated with energy generation projects: examples include municipal initiatives developed in the United Kingdom, like Robin Hood Energy in Nottingham, Bristol Energy or Our Power in Scotland.

- **Distribution network operators:** although possible, this model exclusively dedicated to the management of distribution networks is quite rare in Germany. In France, a few local distribution companies belong to this category.

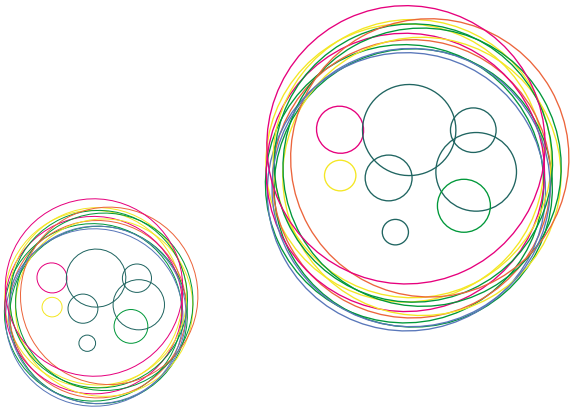
- **Pooling and cooperation initiatives between local companies:** (see Insert 19).

If drawing up an exhaustive typology is not possible, this diversity can be illustrated through the strategic issues used to inform decision-making. Three main conclusions emerge:

- **Firstly, regarding the fact that action is always possible.** Despite legislative constraints and limited resources, the diversity of available models means that it is always possible to find a suitable instrument to do the job.

- **Secondly, regarding the importance of carrying out an in-depth strategic analysis** to identify suitable solutions: such analysis is not a luxury but a necessity to ensure that the instrument selected meets the needs of the local area and is in line with the local authority's priorities.

- **Finally, no one mode is better than another:** each has its own advantages and limits. The most ambitious models seem to be the most attractive in terms of political leadership and political benefits. They are also more difficult to implement and imply higher economic risks.



The graph below sums up the main issues identified to inform decision-making about the most suitable models. Like the SWOT analysis, these issues have either an "internal" or "external" dimension.

The political objectives defined as part of the remunicipalisation project are of course the first strategic issue; the response will vary depending on whether the objective is to develop a multi-sector operator or to meet a specific need.

- **The long-term vision:** this issue refers to the local authority's overall energy transition strategy, whose ambition and priorities will influence the choice of a specific model. A long-term vision should also be developed for the remunicipalisation project itself: the relevance of a public instrument, for example, can be tested out by limiting its scope (e.g. the development of RES projects) before gradually extending it to the whole value chain.

- **Political support:** the ambition of remunicipalisation projects depends on their political base. In many cases, the initiative is the result of the commitment of one or more highly motivated personalities. But the wider the coalition of players, the more likely the initiative is to last.

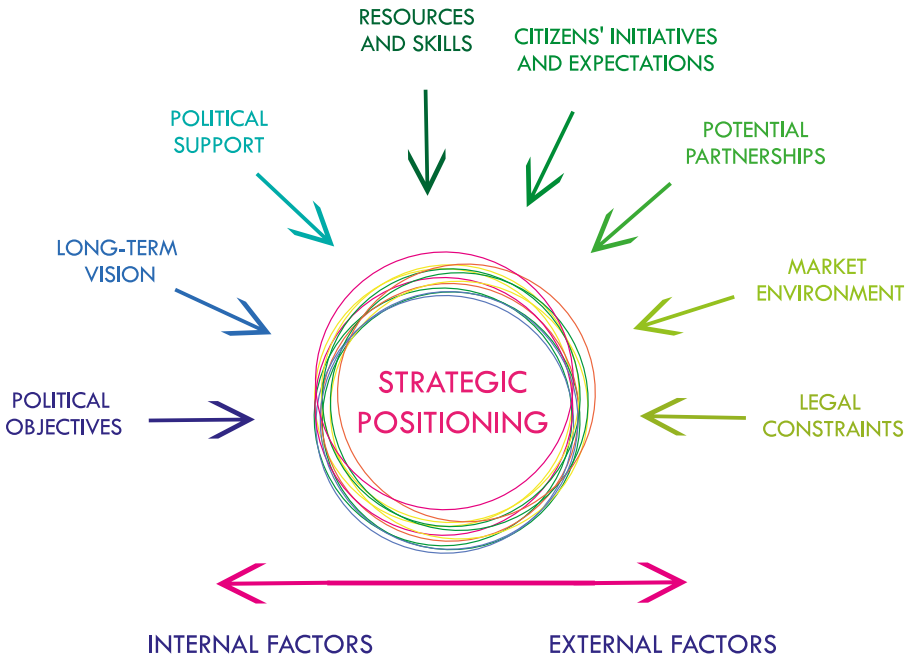
- **The local authority's resources and skills:** the model selected must be commensurate with the local authority's capacities, whether internal or external (through strategic partnerships).

- **Citizens' initiatives and expectations** are an essential strategic positioning factor and largely influence project legitimacy, especially in two areas: cooperation and positioning vis-à-vis community initiatives; and the implementation of transparent, participative governance.

- **Partnerships:** depending on the local resources available, partnerships will enlarge or reduce the range of possibilities. In some cases, joining forces with a pre-existing regional operator will be more appropriate than creating several small local instruments. Last but not least, an analysis of local stakeholder networks can inform decision-making on the role given to the public operator: rather than controlling everything, playing the facilitator's role in third-party projects and striving to maximise the leverage of public spending may prove to be more appropriate.

- **Legal constraints:** constraints limiting local authorities' economic action in the energy sector remain a strong determining factor, especially if the objective is to return the distribution network to public control. Remember however, that legal provisions are not immutable: the institutional order may change and it is only by reasserting their pivotal role in the energy transition, that local authorities will be able to gain new leeway.

Schéma 6. Les enjeux clés du positionnement stratégique



4.3. Conclusion: towards a local public energy service in Europe

The initiatives presented and analysed in this study all point to the same finding: local authorities are increasingly aware of their pivotal role in implementing the energy transition. If Germany remains the most emblematic energy remunicipalisation example, the momentum for public local energy ownership has spread to other European countries, leading increased recognition of local initiatives and the advantages of a locally-rooted approach in terms of reinforcing political influence, reconnecting with citizens and leveraging local economic benefits.

The second finding is the diversity of local energy ownership models in France, Germany and the United Kingdom as a result of the determining influence of national contexts that more or less limit local authorities' freedom of action in the field of energy management. This diversity is also a reminder that selecting the most relevant instruments should be based on locally identified objectives and needs. All these models can be a source of inspiration, but none is directly replicable.

The last finding is that this new local energy ownership momentum should be considered within the context of the EU energy and climate policies. At a time when Europe is considering building an Energy Union, improved integration of local governance issues and highlighting the role of local stakeholders appear essential. The aim is therefore to overcome the dichotomy between the ambition of the European Energy Union to place "citizens at the core" of the energy transition project and political guidelines focusing on (supra-) national levels and the reinforcement of competition in an integrated market, often to the detriment of local players.

Far from being a step backwards, energy remunicipalisation aims to develop a new local public energy service capable of addressing energy transition issues whilst integrating the gains of EU policies and the integrated market.

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ANDREAS RÜDINGER
independent consultant and associate research fellow
at the Institute for Sustainable Development
and International Relations - IDDRI

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@energycities
Energy Cities
info@energy-cities.eu
energycities www.energy-cities.eu

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