



Eco-SESA
Université Grenoble Alpes



Social expectations and meanings of the contribution of “community” geothermal projects in the urban energy transition in Montreal

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Context of energy imaginaries in Quebec

- Hydroelectricity structures the socio-technical imaginaries and expectations about energy in Quebec
- Local decentralized renewable energy projects much less developed than in Europe
- Energy issues still little integrated in urban planning in Quebec
- The city of Montreal starts to makes energy commitments starting in 2017 (new Office for transition, carboneutrality, charter for eco-neighborhoods)



Objectif Carboneutralité - La Ville de Montréal annonce une première étape pour atteindre la carboneutralité du parc immobilier montréalais



May 7th 2019

In a context of centralized national renewable energy source dominating, what motivates decentralized urban actors to engage in projects of urban energy transition?

Why are urban actors interested in developing geothermal projects and what types of expectations and urban imaginaries they produce?

A study on expectations and urban imaginaries on how geothermal “community” energy projects:

- will develop in the future and contribute to an ecological energy transition
- can shape the *type* of transition urban actors will mobilize for and contribute to,
 - i.e. by which types of actors (ind/coll, private/public/civic), with what socio-ecological commitments, in what vision of neighborhood, etc.

Theoretical framework : dynamics of social expectations in the energy transition

- Sociology of expectations from sociology of science and technology studies (Borup et al., 2006; Joly, 2015; Konrad & Palavicino, 2017; Durand et al., 2020).
- Expectations are:
 - Value-laden and tied to each's actors' position
 - Affected by imaginaries and visions that go beyond the technology itself
 - Performative : they act on the actual development and enthusiasm for a new technology & its model of implementation
 - Enthusiasm often hide heterogeneous meanings & expectations

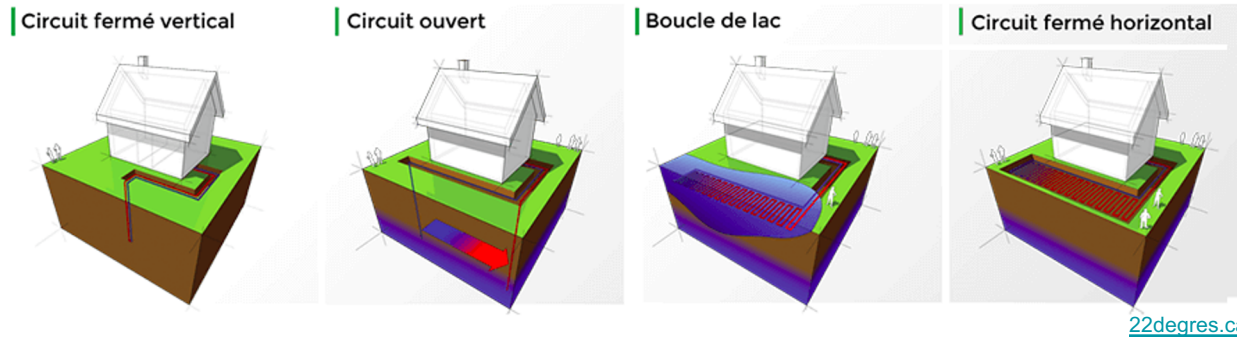
Theoretical framework : community energy

“Community energy” is a very polysemic term

- Defined by Walker & Devine-Wright (2018) as a place-based energy project managed by and for the local population
- Have been analyzed as grassroots innovation ‘niche’ under the socio-technical sustainable transition frame (Seyfang et al., 2014; Smith et al., 2016).
- Initiated and managed by different types of actors
 - Community energy projects in Canada (mostly in Ontario) are owned by municipalities (35%), co-operatives (33%) and then community associations (11%) (Hoicka & MacArthur, 2018).
- **But what types of expectations and heterogeneous meanings do they produce for the urban energy transition?**

Geothermal energy in Canada : *in situ* heating & cooling reserve

- Geothermal energy is not used for the production of electricity in Canada, but rather for heating and cooling buildings directly from heat pumps or water sources (Raymond et al., 2015)



- The geothermal market, for all types of systems, experienced an increase of 50% between 2004 and 2008 and a subsequent decrease in 2010. That increase can be explained by:
 - the growth in the price of oil and gas between 2005 and 2008
 - the implementation of financial assistance programs (Coalition Canadienne de l'énergie géothermique, 2010).

Methods

1. Analysis of the media coverage to identify more generally the meanings attached to geothermal energy in Montreal
 - 2000-2019; local & national newspapers
 - 130 articles with geothermal energy mentioned in introduction or title
2. Identification of projects most discussed in the press
 - 8 featured projects : 5 with shared geothermal infrastructure, 2 public buildings, 1 private residential building
3. Analysis of the broader media representations of the featured projects
4. Analysis of self-promotion documents and web pages

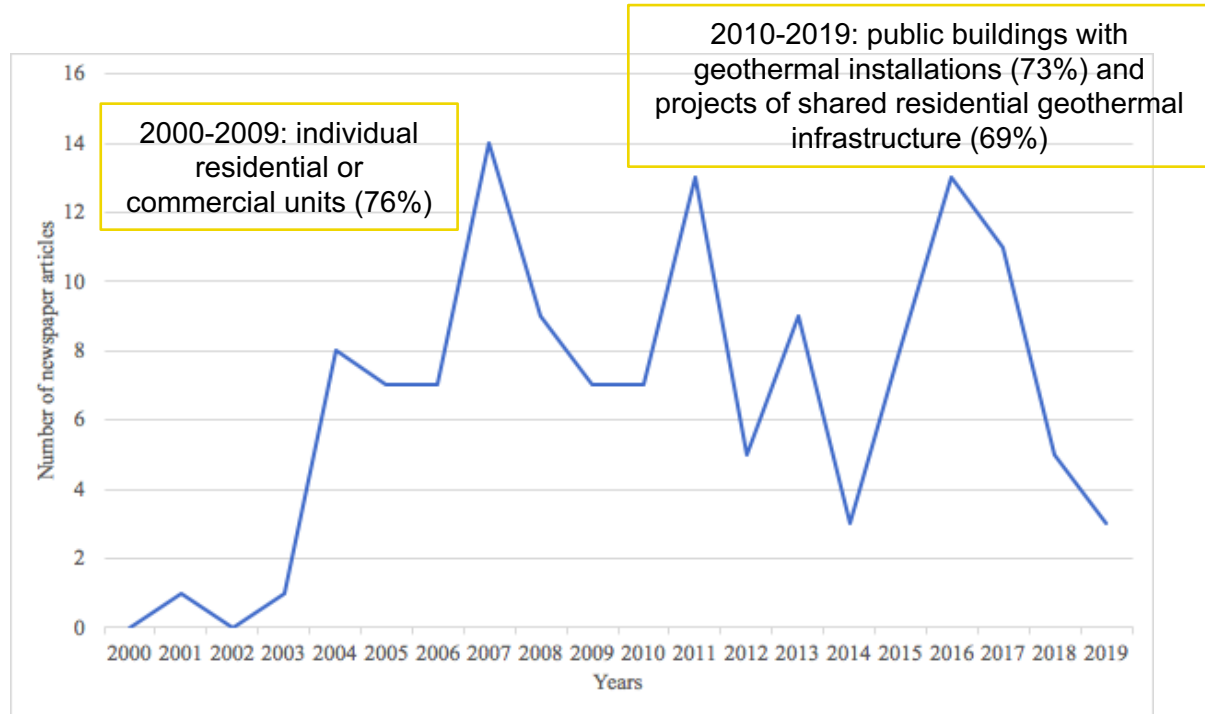
Media representations on geothermal energy in Montreal 1 : a proof of ecological commitment

Integration of a geothermal energy infrastructure in a project is very much presented as an ecological commitment and exceptional “green” practice

- In the list of ecological features of innovative urban projects, often in reference to a certification for ecological buildings (ex: Leed)
- Narratives of “ecological pioneers”, especially in one of the major newspapers La Presse
- Measures used by developers to showcase their ecological commitment for urban projects otherwise contested for other ecological reasons
- The ecological plus value of geothermal energy is assumed more than argued

Media representations on geothermal energy (GE) in Montreal 2: led by individuals and organizations

- GE discussed in the media through projects rather than through debates on energy policies or generic incentives, with an increase of that trend since 2014
- Change in types of projects featured in the press after 2009



Numbers of Montreal newspapers articles featuring geothermal energy in their title or introduction from 2000-2019

Private projects of shared geothermal infrastructure featured in the press : Vistal (2006-2008)

- Two condos towers (300 residential units)
- Property developer self-promotes its “ecological commitment”: setting up “ecological projects that are more energy efficient, healthier and respectful of the environment”

Media representations of the project :

- Ecological, high-end and LEED certification
- Geothermal energy (GE) meeting 35% of the heating and air conditioning needs
- GE presented as an affordable ecological commitment thanks to the developer’s first investment & green loan to the co-owners’ board



(Proment, s.d.)

Private projects of shared geothermal infrastructure featured in the press : Selby - Jardins Westmount (2002-2014)

Condominiums (between 160 and 180 units) by real estate developers

Promotion documents uses the co-owning of geothermal infrastructure as a selling point :

- “ Seasonal underground heat and cold storage allows loft, condos and villas to be heated in winter and cooled in summer. By being a condo owner at Jardins Westmount, you also own this vast source of energy ”
- Part of elements making it a prestige place to live in (with the private pool, garden, etc.)

Developer’s vision portrayed in the media:

- Would have built the largest green residential building LEED certified in Canada
- “ The oil era is over, this is a philosophy to which I adhere when the time has come to build”



(Luxury Real Estate in Montreal, s.d.)

Private projects of shared geothermal infrastructure featured in the press : “Collective” in condominium projects

Definition:

- “[A] form of collective but private governance [...] with decisions made in the collective interests of unit owners” (Rosen & Walks, 2013, p. 168)
- Residential apartments are individually owned while common property includes lobbies, elevators/stairs, etc.

The case of Vistal and Jardins Westmount:

- Structure of common property from condos seem to facilitate the implementation
- Geothermal infrast. contributes to the typical image of the condominium as an attractive, high end and ecological housing option (Rosen and Walks, 2013)
- Co-management of the geothermal installation as well as technical bugs and errors are not emphasized nor in the documents of actors involved nor in the media coverage

Social & coop. housing project of shared geothermal infrastructure featured in the press : Benny Farm (1999-2011)

- Urban redevelopment project with much social & cooperative housing
- Architectural concept chosen because it focused on the conservation of existing buildings and the integration of ecological infrastructure
- Housing associations, architecture firm and community associations work together to set up a local energy cooperative for the project (GEBF)



(Pearl & Wentz, 2014)

Social & coop. housing project of shared geothermal infrastructure featured in the press : Benny Farm (1999-2011)

Actor's vision exposed in documents (consultation and project report):

- Community associations & Energy coop :
 - Geothermal energy and energy efficiency can contribute to affordable housing in reducing the costs associated with heating
 - Social housing can be an avenue of energy transition

Media representations present this vision :

- Possible to create affordable housing for the community and be in the fore-front of energy innovation in Canada
- Reduces the heating and electricity bills of residents by 60%
- Technical difficulties of the geothermal infra. covered in the press

Resident project of shared geothermal infrastructure featured in the press : Celcius (2015 -)

- Infrastructure in back alleys
- Initiated by resident association Solon assisted by non-for profit Coop Carbon (form an energy coop)
- Vision of a bottom-up socio-ecological transition with other parallel projects

Solon's vision on his website:

- Create “a local and renewable energy infrastructure”
- “Reduce dependence on fossil fuels” and “limit greenhouse gas emissions” while improving the living environment of residents of the neighborhood



(Solon, 2020)

Resident projet of shared geothermal infrastructure featured in the press : Celcius (2015 -)

Media representations of the project :

- Project which attracted more media coverage in articles
- Media coverage represent Solon's vision. Environmental and social grassroots objectives are presented
 - "This project comes from a desire of citizens to come together, like kitchen assemblies, to join the knowledge and expertise of its members in addition to solidifying the social fabric"
 - "The environment, which was at the center of our interests, led to the question of energy. We wanted to go further than rethinking the green alley"
- Some challenges are presented about co-ownership

Eco-neighborhood project of shared geothermal infrastructure: Lachine-Est (2017-)

- Urban redevelopment planned as an eco-neighborhood
- Citizen association *Imagine Lachine-Est* presents community geothermal infrastructure as a key component of an eco-neighborhood
 - For the GHG reduction
 - For monetary savings that could help make more affordable housing for “a just energy transition”



La Presse.ca 17 avril 2019

Meaning of ‘community’ for citizens not explained in the media :
= shared infrastructure at the neighborhood scale owned by municipality or third party

Conclusion

- The media produces expectations that:
 - the development of such ecological energy niche happens through motivated individuals, organizations and corporations, and little by state incentives or policies
 - shared geothermal infrastructure is affordable and profitable (for private, community or public gains) - and thus has a high replicability potential
- Heterogeneous meanings given to the community/collective component of the geothermal energy systems put in place by actors
 - co-ownership of GE sold as a form of ecological premium & pride in private developments
 - part of a bottom-up socio-ecological transition led by neighbors
 - a stable, affordable and green energy source for cooperative social housing
 - municipally-owned infrastructure part of eco-neighborhoods

Heterogeneous meanings to community geothermal energy

Where and by whom the local energy innovation is produced	Collective structure for the shared geothermal infra.	Related projects contributing to imaginaries on the type of urban energy transition promoted
Private condominium developments by developers	Boards of condominium co-owners managing the infrastructure	Other condominium projects
Social & cooperative housing groups with architects and community associations	Energy cooperative with residents, and experts working on other sites	Other urban projects with social housing & experiments on renewable energy / energy efficiency
Resident associations in existing neighbors' shared spaces, such as back alleyways	Local energy cooperative with residents engaged in the shared GE	<ul style="list-style-type: none"> - Collective visioning on the redesign of back alleys - Shared cars, bicycles trailers & tools - 'Lab transition' : promote pilot-projects of 'socio-ecological transition' by residents
Local citizen organization demanding GE in redevelopment project	To be determined; perhaps a municipal infrastructure	Part of eco-neighborhood vision (public transit, green spaces, affordable housing...)

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