HYBRID ELECTRIC ENERGY SYSTEMS IN LOW DENSITY URBAN ENVIRONMENTS

Energy for Low Density Urbanized Areas. Comparative Perspectives on Energy Projects and Policies in Suburban, Semi-rural and Rural Territories

Organized by the City and Energy transversal group and the Diffuse Cities & Urbanization research Network (Labex Urban Futures research network) this study day is devoted to investigating energy transition processes in low-density urban environments by means of analysing policies, infrastructure projects and urban design proposals with examples from the global North and global South.

Date : Monday 25 June 2018.
9:00 – 16:00
Venue : Campus de la Cité Descartes, 14-20 boulevard Newton, Champs-sur-Marne, 77455 Marne-la-Vallée, France. « Bienvenue » building, rooms B017-B020.
Access map: http://www.ifsttar.fr/fileadmin/redaction/6_nous-rejoindre/plan-acces/bienvenue-plan_acces-en-v4.pdf
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In the global North and South, diffusely urbanized areas and rural territories are the most affected by changes in the demand and supply of energy, and by issues regarding energy poverty and justice. To respond to these challenges, a variety of energy sources and systems come into play, thus leading to complex socio-technical interactions which affect political, economic and legal contexts. By gathering scholars, energy sector professionals, governmental and non-governmental agency representatives this series of study days offers complementary perspectives in view of understanding the outcomes of this urban and energy sector co-evolution, thus helping to help better identify the relevant inquiries for scientific research.

How do problem issues that characterize low-density urbanized areas structure energy policies and energy markets? When developing energy projects, to what extent do public policies, entrepreneurial, NGO and citizen initiatives take into account the specific needs in these suburban, semi-rural, and rural territories? What can we observe in projects carried out in these territorial contexts?

The second study day of our research seminar will respond to these enquiries from three different perspectives (thematic sessions):
1/ Natural environments and landscape under the prism of renewable energy: policies, economies, metabolism;
2/ Energy vulnerability and new forms of solidarity;
3/ Decentralized territorial development and energy production: a social project.

Presentations will offer a comparative reading on territorial contexts, actor approaches, economic circumstances, political frameworks, etc., in the global North and/or in the global South, with insights into specific projects.

PROGRAMME

9h30 *Introduction*
on behalf of the 'City and Energy' transversal group and the Diffuse Cities & Urbanization Network (Labex Urban Futures).

SESSION 1: NATURAL ENVIRONMENTS AND LANDSCAPE UNDER THE PRISM OF RENEWABLE ENERGY

Research in social sciences shows that the transformation of landscape is a promising perspective for the observation of energy transition challenges, essentially when it comes to renewable energy integration. Beyond the social acceptance of energy production units and the shift of energy geographies, research also questions issues around land use and territorial metabolism, thus addressing a variety of socio-economic and environmental issues. In the context of climate policy, the interlocking of multiple scales of decision-making outlines the question of territorial development. What does the landscape reveal in terms of how actors decide on the future of the territory? What are their criteria? To what extent can co-evolutions between energy governance and territorial development lead to a both socially equitable and ecologically viable landscapes and natural environments?

9:45 *Beyond Oil: Designing the Transition.*

CAROLA HEIN, Architect, Professor of History of Architecture and Urban Planning - Department of Architecture, Chair of History of Architecture and Urban Planning, researcher at Delft University of Technology.

(Presentation in English)
How do energy use configurations relate to the genesis of urban typo-morphologies? Such is the starting point of the research project 'Decentralisation and Energy' led by Carola Hein and her colleagues at the Delft University of Technology. This presentation will give some insight into this ongoing research, the ambition of which is to provide a prospective reading of those architectural and urban transformations that large-scale renewable energy promotion will bring about.

10:15 *Low-carbon Reinvention of Suburbia. A Thought Experiment.*

DAN VAN DER HORST, Geographer, Professor of Environment and Society, Deputy Director of Research, School of Geosciences, University of Edinburgh.

(Presentation in English)
Geographers of yesteryear were good at thought experiments of place and space. The 'isotropic plane' was a trope for thinking through how intertwined are: spatial heterogeneity of the bio-physical landscape and the material and economic evolution of societies. Suburbia has been critiqued and maligned on many grounds, and certainly it's sustainability credentials have always been very low; high spatial and environmental footprint, car dependence etc. whist it's social credentials have fared no better. I remember that in German language class in secondary school (1980s), there was an essay called Grune Witwe (green widows) – describing the predicament of suburban housewives staying behind as their husbands drove to work in the morning.
I have written and thought about energy landscapes, but mostly this was drawing my attention towards the more rural end of the spectrum, i.e. more about the hinterland to the city rather than the urban in-between-ness of suburbia. Quite separately, I have also done some work on peri-urban areas from an ecosystem services perspective, trying to bridge the technology-ecology divide (a clunky dualism predating our recognition of the Anthropocene). In this talk, I will seek to draw on both of these literatures to develop more specific questions for the future of suburbia in the light of 21st century challenges to cities in the global north.

10:45 *Panel session 1.*

11:15 *Coffee break.*

SESSION 2: ENERGY VULNERABILITY AND NEW FORMS OF SOLIDARITY

It has been demonstrated that urban sprawl and the diffusion of urbanization tend to increase the energy vulnerability of households, both regarding domestic needs and mobility. Energy, its cost and access to it, appears as a factor describing territorial inequalities. How can public policies deliver a fairer energy system and decrease the vulnerability risk? Changes in national regulations, the integration of renewables into energy production systems and the development of technological innovation (such as smart meters and peer-to-peer trading) appear to bring about new modes of energy consumption, as well as new relationships between energy producers and consumers, between territories. If these processes take place at the interface of rural, suburban and dense urban areas, could the diffuse city (the edge city) be the starting point for an energy transition that will foster territorial solidarity?

11:30 *Leading the Lyons Metropolitan Area's Energy Transition. The Current Situation, Challenges and Opportunities.*

JÉRÉMIE TOURTIER, officer for the Lyons Agglomeration Authority's Studies and Programming Union (SEPAL), in charge of developing the Territorial Coherence Plan (SCOT), notably with regard to energy management.

(Presentation in French)
This presentation will provide insight into current actions in the field of everyday mobility, economy-territory interactions, and climate change mitigation in the Lyons metropolitan area. Particular attention will be paid to ongoing and future collective action in terms of efficiency, frugality and renewable energy promotion in view of fostering the energy transition in territories governed by the Lyons metropolitan area's Territorial Coherence Plan.

12:00 *20 Years of Ensuring Access to Electricity by Means of Renewable Energy Sources in the Global South.*

YVES MAIGNE, engineer in energetics, director of the NGO Fondation Energies pour le Monde.

(Presentation in French)
In the majority of countries in the Global South, access to electricity rarely exceeds 20% of the population. Providing power in the large cities has been a tough experience for the energy operators. In suburban and rural areas, upper socio-economic classes benefit from electricity generating units, while the less well-off use LED lamps, which is an improved version of the traditional kerosene-fueled hurricane lamps. To what extent do renewable energies and the digital revolution provide real opportunities for change? Can the transformation foster local development? If so, how and where can we find the necessary funding? What roles do national governments and municipalities play in the process? And what kind of territorial development are they pursuing?

12:30 *Panel session 2.*

13:00 *Lunch in Champs-sur-Marne.*

SESSION 3: DECENTRALIZED TERRITORIAL DEVELOPMENT AND ENERGY PRODUCTION: A SOCIAL PROJECT

The equipment of households in village communities and urban areas with decentralized energy production systems (for a first access or an improved access to electric energy) is not the only motivation of cooperatives, non- governmental solidarity associations and other players in this field in the North and South. Local energy production can become a means to rethink how territorial development prospects (economic growth, social equity, gender equality, etc.). The history of urban utopia offers a myriad of blueprints where diffuse urbanization rimes with political and economic autonomy, as well as decentralized resource management schemes. Research shows, however, that there are as many cases where local democracy has been strengthened in this way, as there are situations where conventional players (decisionmakers and corporate actors) have been the only true winners in the process. Today, a new storyline seems possible. Geographical, demographic and use configurations in low density urban areas seem particularly favourable to managing energy demand and supply and developing a new perspective on the resource issue. But what does the study field reveal?

14:00 *Solar Energy and Territorial Development Projects. HESPUL's Current Activities in the Lyons-Confluence Sector and in the Positive Energy Territory Romans Agglomeration.*

BRUNO GAIDDON, engineer in energetics, chief of network conception and planning department at the HESPUL association for the promotion of solar energy.

(Presentation in French)
Since the publication of the French Law on the Energy Transition for Green Growth (LTECV) in 2015, inter-municipal unions with a population of over 20 000 inhabitants have been obliged to study the possibilities for renewable energy promotion in their respective territories. These studies reveal that solar photovoltaic energy is a resource that can effectively respond to local needs. However, actors who desire to deploy technical equipment face many challenges: in urban areas it can be difficult to mobilize real estate, whereas in rural territories electricity distribution networks are often insufficient in terms of capacity. In this presentation, Bruno Gaiddon will explain how local actors in the Lyons-Confluence sector and in the Romans Agglomeration respond to these challenges.

14:30 *Territories, Energy and the Digital Revolution.*

ANTOINE VEYRAT, business manager for the French consultancy firm Energies Demain, in charge of smart grid projects in urban areas.

(Presentation in French)
Energies Demain is an engineering consultancy firm with a 10-year expertise in implementing policies in favour of energy efficiency and climate change mitigation. This presentation will give an insight into the firm's experience in providing local authorities not only with guidlines for managing annual energy consumption, but also with tools for renewable energy integration into the "local" mix.

15:00 *Panel session 3.*

15:30 *Closing remarks.*