International Conference

From Eco-districts to Smart Cities:
Which Role for Mobility?

Experimenting Smart Communities in Europe and Japan

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Sciences-Po Lyon, Amphi Leclair

Free event
Registration required:
http://smartmob.sciencesconf.org

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Organized by:
The Institute of East Asian Studies, (CNRS-UMR5062, ENSL, Sciences-Po, Lyon2)
Transport Economics Laboratory, (CNRS-UMR 5593, Lyon 2 University)

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From Eco-districts to Smart Cities: Which Role for Mobility?
Experimenting Smart Communities
in Europe and Japan

Detailed Programme

2015, September 16th

10:00 Opening Session

Chaired by:

Christine DETREZ, deputy director at Ecole Normale Supérieure de Lyon, vice-presidency of research

Welcome speech by: Ryuichiro KOBAYASHI, Consul of Japan in Lyon

Ryuichiro KOBAYASHI joined the Ministry of Foreign Affairs in Japan in 1994. He worked in the Embassy of Japan in France, in the Embassy of Japan in Guinea and in the Embassy of Japan in Ethiopia. Since September 2014 he has been appointed as Consul, Head of the Bureau Consulaire du Japon à Lyon

Opening words by:

Pierre TAILLANT – ADEME

Economist at transports and mobility department at the French environment and energy management agency (ADEME). He is in charge of socio-economic and prospective studies on passengers mobility, poverty and mobility, and environmental efficiencies of transports

Nicolas BAUMER – Grand Lyon Métropole, Head of the Lyon Confluence Smart Community project

In charge of the Lyon Smart Community project for Grand Lyon Métropole. He started his career as external relations officer for the French Association of Innovative SMEs, and then as project manager at Pacte PME. He has an international academic background in philosophy.

Chaired by: Paul SCALISE - University of Duisburg-Essen, IN-EAST

Senior Research Fellow at the IN-EAST School of Advanced Studies. He is Research Manager of the group: Institutional Innovations in East Asian Energy and Low-Carbon Markets. Specialized on public policy, agenda-setting, and interest groups in Japanese and comparative politics, his recent work focuses on global electric power restructuring and energy policy.

Patrick CRIQUI – PACTE-EDDEN, CNRS – University of Grenoble

Senior researcher at CNRS and director of the Economics of Sustainable Development and Energy research group. His researches have initially explored the economics of solar energy and the modelling of international energy markets. He then developed a world long term energy model, POLES, currently used by the European Commission and by different administrations and companies in Europe to analyse the economics of climate policies. Lead author in IPCC's Working Group 3 (Nobel Peace Prize in 2007). Member of the Economic Council for Sustainable Development since 2008, he has been expert on Scenarios for the National Debate on Energy Transition (2013) and for the National R&D Strategy on Energy (2014)

Technological, institutional and behavioral challenges for smart energy systems in the French energy transition

The law on energy transition for green growth, passed by August 2015, defines a new framework for the energy and climate policy in France. While the Factor 4 reduction in GHG emissions has been part of these policies since 2005, the goal of reducing the share of nuclear energy in power production to at most 50% imposes new orientations. In particular the accelerated development of highly efficient energy systems, of renewable electricity sources and of low CO_2 transport appears as three key priorities. Smart energy systems at the local level are certainly a powerful way to integrate energy efficiency, renewable sources and low carbon transport. This requires however a paradigm shift in terms of technological, institutional and behavioral innovation. The challenges are huge and the presentation will try to connect the national energy transition scenarios with a better identification of these threefold challenges at the local or community level.

Yveline LECLER – University of Lyon- Sciences Po Lyon, IAO

Emeritus professor at Sciences-Po Lyon (University of Lyon) and research fellow at the Institute of East Asian Studies (CNRS-UMR5062, ENSL). Specialized in Asian political economy, mainly Japan, she has published several books and numerous papers in international academic journals such as recently: Promoting Next Generation Vehicles in Japan: the Smart Communities and their experimentations (with B. Faivre d'Arcier), in *International Journal of Automotive Technology and Management*, n°3/4, 2014.

Energy transition in Japan and the smart communities' experiments

Japan' vulnerability in terms of energy security explains why the country has started early to launch research on renewables and to enact numerous laws focussing on energy saving or promotion of alternatives to oil. Since the late 90s-00s these laws have been complemented to include climate change imperatives or more recently, post-Fukushima related concerns such as Feed-In-Tariff or the electricity sector's reform. Among the numerous and often overlapping schemes implemented by the Japanese government, the program for the "Demonstration of Next-Generation Energy and Social System" launched in 2010 by METI holds even more attention since Fukushima. Having given birth to smart communities, the program which intends to test all elements of urban life is linked to the New Growth Strategy and also aims at facilitating the development of new green technologies and the reconversion of Japanese flagship industries.

After discussing the Japanese energy strategy through the evolution of the legal and policy framework, the communication will briefly introduce the 4 smart communities selected under this program, which actions and results will be discussed more in-deep during the conference.

Takanori IDA –Kyoto University, Graduate School of Economics

Vice Dean, Professor of Graduate School of Economics, Kyoto University. Ph.D. (Economics). Research Field: Applied Economics; Smart Grid Economics, Telecommunications Economics, and Behavioral Economics. Ida, T. (2009) Broadband Economics: Lessons from Japan, Routledge (Taylor & Francis Group): London, pp.290, January 2009.

The Demand Response in the Japanese Smart Communities and their results

In light of the March 11 earthquake and the Fukushima crisis, a radical reconsideration of Japanese energy policy is now being discussed. The smart grid consists of home appliances equipped with ICT technology, connected to the power grid, and can achieve energy saving and cost reduction. The Ministry of Economy of Japan started an experiment called the smart community program in four cities from 2011 to 2014: Yokohama, Toyota, Kyoto, and Kyushu. I worked as an economic advisor to investigate the economic consequences and manage the social experiment by introducing Smart meter, Home Energy Management System, and Smart Community.

Main results are given as follows. Firms and governments often use moral suasion and economic incentives to influence intrinsic and extrinsic motivations for various economic activities. To investigate the persistence of such interventions, we randomly assigned households to moral suasion and dynamic pricing that stimulate energy conservation during peak demand hours. Using household-level consumption data for 30-minute intervals, we find significant short-run effects of moral suasion, but the effects diminished quickly after repeated interventions. Economic incentives produced larger and persistent effects, which induced habit formation after the final interventions. While each policy produces substantial welfare gains, economic incentives provide particularly large gains when we consider persistence.

Chaired by: Yveline LECLER – University of Lyon- Sciences Po Lyon, IAO

Emeritus professor at Sciences-Po Lyon (University of Lyon) and research fellow at the Institute of East Asian Studies (CNRS-UMR5062, ENSL). Specialized in Asian political economy, mainly Japan.
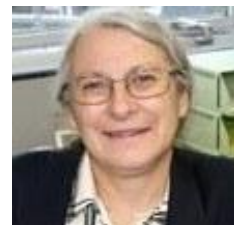
Christophe DEBOUIT – NEDO Europe

He has been working at the European representative office of NEDO in Europe since 2002. He has been in charge of coordinating Lyon Smart Community project since the early stages of the project in 2009.

Smart communities: from concept to implementation of international cooperation projects

Lyon Smart Community is Japan's flagship smart community project abroad ; based on the initial concept promoted by NEDO, the project could emerge and develop on the basis an efficient public / private ecosystem, gathering a variety of partners with different stakes around clear and shared objectives, which is the key to efficient and successful cooperation projects.

Eymeric LEFORT – Grand Lyon Métropole

Graduated from Ecole Polytechnique (2002) and Ecole Nationale Supérieure de l'Aéronautique et de l'Espace (2003). He worked 6 years for the car industry at PSA Peugeot Citroen. Since December 2011, he joined the Grand LYON conurbation authority as Energy Director, with the aims of defining, organizing and deploying the « Energy » strategy of Greater Lyon so as to reflect a genuine urban policy in terms of energy. In charge of city energy planning and Smart Grids experimentation project, he developed a vision based both on concept and field results on how to coordinate societal and technical issues to reach local energy transition

From sustainable actions plan and Energy Planning to the Lyon Confluence Demonstration, and in return

15:15 Session 3: Smart communities in Europe: objectives and challenges in Lyon Confluence

Chaired by: Hervé RIVANO – INRIA, INSA Lyon CITI Laboratory/UrbaNet

INRIA researcher. He is the head of the UrbaNet team, which is a common team between INRIA and the CITI Lab of INSA Lyon. UrbaNet focuses on the networking problems fostered by the urban environment and digital cities. His research interests include capacity/energy tradeoff for urban cellular and mesh networks design.

Jessica BOILLOT – Toshiba Systèmes France

Experienced in international projects in the domains of renewable energy, mobility and smart cities, in particular in cooperation between France & Japan. She started her career with UBI France (French Embassy Trade Commission) in Tokyo taking care of smart transportation projects. Since 2011 she has been working as project coordinator for Lyon Smart Community Project. As such, she has contributed to the success of the project from its very beginning to today.

Between Technology and Human Relationships:
Toshiba, Helping to Build a Smart Community

Lyon Smart Community is a cooperative French-Japanese project between Grand Lyon and NEDO, the Japanese governmental agency which entrusted Toshiba as the industrial operator to coordinate this demonstration project for 5 years.

Participating to the challenge of tomorrow, the roles of Toshiba's smart community are numerous: setting up and organizing the ecosystem of the demonstration project, coordinating the various partnerships required to bring the Lyon Smart Community into being and providing diverse energy production, regulation and storage solutions, as well as energy management systems for tertiary and dwelling area.

Nevertheless, the technology is not the only key of success for creating a smart community, but also taking care of human relationships by bringing, for instance, Japanese Hospitality (*"Omotenashi"* in japanese) and spirit also belong to Toshiba's motto and objectives for this project.

As the fourth pillar of Lyon Smart Community Project, the Community Management System (CMS) that has been developed especially for this project, mainly focused on energy has been gathering many data coming from diverse fields (energy, infrastructure, dwellings, or mobility. The CMS provides both management and forecasting. It uses detailed measurements of overall energy use throughout the Confluence district in order to give urban stakeholders a global view – facilitating planning in terms of energy resources and requirements.

Jérôme Clement – Bouygues Immobilier

Technical Manager, in charge of the HIKARI Project

Hikari, a group of mixed-use positive energy buildings

[Title to be confirmed]

Olivier Delassus – Proxiway

Managing Director of Proxiway (Transdev Group, subsidiary of Caisse des Dépots Group). Proxiway is the subsidiary of Transdev dedicated to e-mobility, car-sharing and electric cars fleet management. Proxiway develops and operates these new mobility solutions for public bodies as well as private companies. Proxiway services are integrated in the Transdev global solutions for public transport

Sunmoov EVs carsharing system in Confluence

17:00 Session 4: NEDO smart communities' projects abroad: objectives and challenges in Malaga, Manchester and Los Alamos

Chaired by: Charles Raux – CNRS , Director of the Transport Economics Laboratory, LET

Civil Engineer and Economist, Director of the LET. His research interest concerns new approaches in modeling land use and transport, the use of transferable permits and psycho-economic incentives to manage transport demand and greenhouse gas emissions, road user charging and economic incentives to manage transport demand and financing of transportation in urban areas.

Ricardo J. García Colino – Mitsubishi España

Industrial Engineer in the field of Electronics and Electricity in the University of Leon (Spain) as well as Mechanical Engineer at VIA University College (Denmark). After getting experience in the renewable energies field, he joined Mitsubishi España in 2012 in order to coordinate for Mitsubishi Corporation Zem2All, the Smart Community project founded by NEDO and CDTi to be developed in Malaga inside the JSIP collaboration frame.

Zem2All, a successful Smart Community project in Malaga, Spain

Zem2All is one of the biggest electric mobility Smart Community project supported by both Japanese and Spanish governments and realized by a consortium formed by first level Japanese and Spanish companies, as utilites, tech and business development companies. The project targets the following :
- Test electric mobility in a real scenario
- Develop a charging infrastructure fitting user needs.
- Develop a frame platform for eco-friendly mobility
- Develop VAS directly linked to electric mobility

In the presentation, we will see how Zem2All was developed and the challenges it faced in order to become a successful Smart Community project.

Matt ROBERTS – Wigan & Leigh Homes, Greater Manchester

Director of Asset Management and Development for social housing provider Wigan and Leigh Homes in Greater Manchester (22,500 homes). Responsible for maintenance, refurbishment and development, including the retrofitting of existing homes and the building of new energy efficient properties. Currently chairs the North West Housing Providers Low Carbon Group (Greater Manchester Combined Authorities Low Carbon Hub)

Smart Community Demonstration Project in Greater Manchester

The presentation provides an overview of the greater Manchester's development of a Low Carbon Hub to deliver its Climate change Strategy and the opportunity to become involved in the NEDO Smart Communities project in Greater Manchester.

The hub model works in partnership with key local businesses the universities and national government to deliver change, focussing on buildings, energy, transport, natural capital and sustainable production and consumption.

The changes required to move to a low carbon economy will place unprecedented requirements of our energy system. Electricity demand continues to increase and the electrification of transport and heat will see an increased demand for electricity adding to the peak demand on our current distribution network.

The project considers and tests two key areas:
- The introduction of advanced air source heat pump technology to shift heat generation in the home from gas to electric and cut carbon emissions
- The introduction of an ICT aggregation system to help balance the local generation of renewables with demand and grid capacity making more use of off peak power at lower tariffs and test business models based on revenues generated by the sales of aggregated demand.

Installation phase commenced in October 2014 with over 150 ASHPs now installed. Home gateways and tablets are planned to commence in September 2015 with demand response testing commencing in October 15. Key milestones, lessons learnt from the first 12 months are discussed along with next steps for the project.

Wenjie WANG – University of Kyoto

Postdoctoral Research Fellow, Graduate School of Economics, Kyoto University. His research fields are: Theoretical Econometrics, Applied Econometrics, and Behavioral Economics. His last article: Wang. W and M. Kaffo (2015), Bootstrap Inference for Instrumental Variable Models with Many Weak Instruments, R&R for Journal of Econometrics.

A Field Experiment on Dynamic Electricity Pricing in Los Alamos: Opt-in Versus Opt-out

We use a field experiment to examine how consumers respond to distinct combinations of default options (opt-in versus opt-out) and framing of economic incentives (gain versus loss). A randomized controlled trial (RCT) is implemented to investigate the demand reduction performance of three dynamic electricity pricing programs - opt-in critical peak pricing (CPP, incentive framed as loss), opt-out CPP, and opt-out peak time rebate (PTR, incentive framed as gain). We find that the opt-in customer enrollment rate is much higher than those documented in the literature are; our subjects' high education levels and technology related experiences may have contributed largely to the mitigation of the opt-in default effect. In addition, we obtain precise estimates of the average treatment effects, with the treatment effect being most pronounced for customers assigned to the opt-in CPP group. This result is largely attributable to the high opt-in CPP enrollment rate and to the customer inertia generated by opt-out procedures. Furthermore, an "option to quit" effect is found among PTR customers. This finding is consistent with a growing behavioral literature highlighting that incentives framed as losses loom larger than those framed as gains.

10:00 Session 5: Smarts communities in Japan: objectives and challenges

Chaired by: Helmut DEMES – University of Duisburg-Essen, IN-EAST

Executive Director of the IN-EAST at the University of Duisburg-Essen since 1997. Trained as economist (Free University of Berlin), he has worked at several research institutes in Germany and Japan (Science Center Berlin (1987), German Institute for Japanese Studies Tokyo (1989-1994), Hagen University (1994-1997) before joining the University of Duisburg-Essen.

Benoit GRANIER – University of Lyon, IAO

Junior research fellow at the Lyons Institute of East Asian Studies and PhD candidate in Political Science at the University of Lyon. He is lecturer in Japanese Studies at Sciences Po Lyon. His research focuses on citizen participation and behavior change policies in the field of energy policy.

Reducing peak consumption through social experimentation in Yokohama, Keihanna and Kitakyushu

In 2010, the Japanese government selected four « Smart Communities » within the "Next-generation energy and social system" program in order to experiment new technologies and services related to smart grids. Yokohama Smart City Project, Kitakyushu Smart Community Project, Toyota Smart Merit and Keihanna Science City have accordingly been implementing energy management systems at different scales. In each project, local governments (the municipality or the prefecture) cooperate with private actors (firms and NPO) under the supervision of the Ministry of Economy, Trade and Industry (METI). Although the reduction of peak consumption of electricity was part of the objectives since the beginning of the program, this issue became increasingly important after the March 11 earthquake and the subsequent nuclear accident of Fukushima. Indeed, managing the energy demand of the residential sector is now a key issue for ensuring the energy security and for reducing green-house-gases emissions.

This presentation aims at explaining and analyzing the strategies of the experimentations led in Yokohama, Keihanna and Kitakyushu in order to reduce peak consumption of electricity. While each project relies on similar demand-side management rationales, different types of schemes and settings are tested by the municipality and the private actors involved. First, Kitakyushu's initiative shows the peculiarity in experimenting an actual dynamic pricing system. Second, in Yokohama, various kinds of demand-response schemes such as Time of Use (TOU), Critical Peak Pricing (CPP), Peak Time Rebate (PTR) and Capacity Commitment Program (CCP) have been tested. Third, the demand-response led by Keihanna's stakeholders includes innovative services such as energy saving consultations and "go-out" (*gaishutsu*) schemes in order to maximize the effect of economic incentives. The presentation will highlights the peculiarities of these three projects and discuss their results in terms of peak consumption reduction.

Nicolas LEPRÊTRE – University of Lyon-ENS, IAO

Junior research fellow at the Lyons Institute of East Asian Studies and Ph.D. Candidate in Political Science at the ENS de Lyon. He is lecturer in Japanese Studies at Sciences Po Lyon. His works are on the governance of smart communities in Japan, as a part of a research program funded by the ADEME (GO 6, PREDIT 4) and by the Japan Foundation.

The governance of smart communities' demonstration projects in Japan: Case studies in Yokohama, Kyoto and Kitakyushu

To face economic, energy and environmental issues, the Ministry of Economy, Trade and Industry conducted in 2010 a large scale program called "next-generation energy and social system", aiming at experimenting new technologies to manage energy such as smart grids, energy management systems at different scales (HEMS, BEMS, CEMS) as well as next-generation transportation system. Four demonstration projects, called "smart communities", have been selected: Yokohama, Toyota, Kyoto Keihanna and Kitakyushu. A particular feature is the great number of companies involved in these experimentations, which questions the governance of the overall project, both between private firms and with public actors (municipality, prefecture, national government). Also, an important stake is to understand the strategies of the firms regarding two new issues: on a one hand, the stabilization of the grid during peak time after the 3.11 disaster and the shutdown of nuclear power plants; and the liberalization of the electricity market in 2016 that will reshuffle the energy sector.

To illustrate actors' coordination and firms' strategies, I will focus on three case studies: Yokohama, Kyoto Keihanna and Kitakyushu. First, I will highlight the role of the project leader, the energy company, and the local government in the overall coordination of each project, as well as the fragmentation of initiatives in the three case studies. Second, I will explain the multilevel governance of the projects, stressing on the relationship between national and local governments, for example on issues such as regulation and subsidies. Finally, I will emphasis on technologies implemented in each demonstration project, shedding a light on the strategies of the main firms involved. The multisector approach and the diversity of energy management system, services and social system seem to be key aspects of smart communities and highlight diverging strategies for the future.

Stéphane PÉAN – Toyota Motors Corporation

15 years of expertise in various sectors related to the field of future mobility such as Intelligent transportation Systems (ITS), automotive industry and shared mobility. 10 years in Japan and currently based at Toyota Motor Corporation's headquarters. In charge of Toyota's multimodal carsharing solution - Harmonious Mobility Network (Ha:mo) - and its current deployment in Grenoble City (France). Graduated from Sciences Po Paris (town planning), Ecole des Ponts et Chaussées (ITS) and GLOBIS Management School in Japan (MBA).

Toyota city Smart Melit project

In Japan, Toyota Motor Corporation was committed in a Smart Cities national program during the period 2010-2015: Toyota City for Low Carbon Society System Field Test Project. The purpose of this field test was to study how to optimize energy use at home and within a community as well as to implement a low carbon urban transportation system based on ultra-compact electric vehicles. The purpose of this project was to achieve eco-friendly lifestyles without strains and waste, and by preserving quality of life.

13:30 session 6: The role of electrical vehicles and new mobility services

Chaired by: Lourdes DIAZ-OLVERA – MEDDE, Transport Economics Laboratory, LET

Senior researcher of the Ministry of Ecology, Sustainable Development and Energy (MEDDE), at the Transport Economics Laboratory. Her research interest travel behavior analysis and methodological issues concerning data collection and analysis, particularly in developing countries

Gregory NOBLE – Institute of Social Science, University of Tokyo

Professor in the Institute of Social Science at the University of Tokyo. Among his publications are *Collective Action in East Asia: How Ruling Parties Shape Industrial Policy*; *The Asian Financial Crisis and the Structure of Global Finance* (co-edited with John Ravenhill); "The decline of particularism in Japanese politics," and "Executioner or Disciplinarian: WTO Accession and the Chinese Auto Industry."

Building infrastructure for next generation vehicles in Japan

Japanese auto companies, supported by the Japanese government, have demonstrated a sustained commitment to staking out a leadership position in creation of next-generation motor vehicles ranging from hybrid cars to electric and hydrogen fuel-cell automobiles. The last five years, however, have witnessed a sharp shift in emphasis. Whereas in 2009-2010 the government subsidized creation of electric recharging stations and consumer purchase of electric vehicles, by 2014 the government announced both a basic energy plan and a "Roadmap" for hydrogen fuel-cell vehicles that envisioned spending hundreds of millions of dollars to accelerate the transition to a "hydrogen society." This striking switch is puzzling, for fuel cell vehicles still face an array of daunting obstacles, including high prices for both fueling stations and vehicles, severe fiscal conditions constraining the Japanese government, significant doubts about the environmental and energy security advantages of hydrogen-fueled vehicles, and a much more severe "chicken-and-egg" dilemma (who will build infrastructure for a tiny number of vehicles; who will buy vehicles without the infrastructure to support them) than that facing electric vehicles. This paper argues that the formidable infrastructure requirements that at first glance loom as major barriers are paradoxically particularly attractive to politicians, bureaucrats and a wide range of industries. Because support for fuel-cell vehicles can plausibly be linked to sustaining and expanding Japan's role as a leading automotive country, it can therefore justify, at least for a time, major subsidies from national and local coffers. The Japanese market is more of a test bed than an ultimate goal, however, so Japanese taxpayers could end up paying a great deal to subsidize infrastructure for vehicles ultimately destined for North America and Europe.

Hiroaki INOKUCHI – Kansai University

Associate Professor, Department of Civil, Environmental and Applied System Engineering, Kansai University, Japan. The specialty is transport planning. Study theme is an evaluation of the road traffic environment by the traffic simulation model, toll setting of the urban expressway, analysis of running properties of the electric vehicle, the ultra-light-weight vehicle.

Takamasa AKIYAMA – Kansai University

Professor, Faculty of Environmental and Urban Engineering Department of Civil, Environmental and Applied System Engineering. His research fields are Civil engineering project/ Traffic engineering, and more specifically Travel Behavior Analysis with Intelligent Information Processing, Traffic Management for Urban Transport Network and Effective Planning of Traffic Safety Countermeasures

Impact estimation of transport policies for low carbon society in urban area

Recently, the transport policies have been proposed to create low carbon society in urban area. In the study, the sustainable share of transport modes is discussed for creating low carbon societies in urban area. In terms of vehicles on the road, hybrid vehicle (HV), electric vehicle (EV) and ultra-light vehicle (ULV) are recommended as advanced clean energy vehicles. On the other hand, the balance between the public transport and private vehicles should be an important issue for future urban transport systems. The city of Osaka is focused to demonstrate future low carbon society. It corresponds to the large scale city with sufficient public transport service in Keihanshin district. In the analysis, the urban transport system in Osaka city is summarized. Furthermore, the questionnaire survey has been taken concerning with the low-carbon transport policies. The study aims at considering the future possibility of EV increase with the demand of trip makers.

Finally, the effective promotion approaches of EV and ULV are summarized concerning with improvement of vehicles performance and unification of smart house and clean energy vehicles.

Bruno FAIVRE D'ARCIER – University of Lyon, LET

Engineer and economist, presently Emeritus Professor in city planning at the University Lyon 2 and researcher at the Transport Economics Laboratory. Specialized in urban and regional transport studies, his recent research is focused on Public Transport Funding and on Behavioural Changes and New Mobility Services

Electric vehicles and new mobility services in the Japanese Smart Communities

In the Japanese Smart Community Demonstration projects, transport and mobility are quoted as activities responsible for energy consumption and CO_2 emissions. In coherency with national policies, a focus is made on the development of Next Generation Vehicles (NGV), with local financial incentives for EV and PHEV purchase, and the development of charging stations. With the uptake of the NGV market, the demand for electricity will rise rapidly, and this has to be taken into account in the global strategy of energy management in cities. If normal charging is expected during the night, with lower tariff, the implementation of quick charging stations in public areas could generate troubles especially in the peak period: a connection to the Community Energy Management System is requested to master this specific demand.

Moreover, the development of V2X systems, such as Vehicle-to-Home (V2H), Vehicle-to-Building (V2B), Vehicle-to-Grid (V2G) let hope to consider the batteries of NGVs as an additional storage capacity: by giving back electricity to the building of the grid, and with the possibility to store more renewable energy, V2X systems appears to be an emergency solution in case of electricity shortage, or a solution for reducing the purchase of electricity on the network.

NGVs can also lead to the development of new mobility services such as car-sharing for short trips in cities or in complement with Public Transport. The development of micro mobility with low consumption electric vehicles is also tested in several smart communities, as a complement to measures taken by cities to reduce energy consumption and CO_2 emissions.

Gilles VESCO – Councilor, Grand Lyon Métropole

Councilor and Member of the Board of the Greater Lyon Metropole, of the PT Authority and the Public Parking Authority. He promotes clean and shared mobility by fostering 'active' modes of transportation, and by supporting intelligent mobility such as the "Velo'v" rent-a-bike system, the "Bluely" electric-car sharing service, the "Optimod" GPS personal navigator and the "Onlymoov" mobility platform.

Grand Lyon strategy for multimodal information: the Optimod System

For the purpose of promoting a sustainable mobility, cities have to provide new services to citizens, to be costly-efficient and to foster city's attractiveness and companies' settle down. Multimodal information is a way to optimize travel conditions in relation to travel behaviors. The development of the open data is an opportunity to improve the management of multimodal information, through innovative processes implying the private sector, able to create an added value for users.

The paper will present the Optimod real-time multimodal journey planner developed in the Grand Lyon Métropole and will discuss the ways to ensure business developments based on mobility data reuse.

Chaired by: Bruno FAIVRE D'ARCIER – University of Lyon, LET

Emeritus Professor in city planning at the University Lyon 2 and researcher at the Transport Economics Laboratory - LET.

Mr. Bruno CHARLES
Vice-President in charge of Sustainable Development, Grand Lyon Métropole

Mr. Ricardo J. GARCÍA COLINO
Project Coordinator
Smart Community Business
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Mr. Takanori IDA
Professor
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Mr. Alain KERGOAT
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Mr. Matt ROBERTS
Director of Asset Management and Development, Wigan and Leigh Homes, Greater Manchester

Mr. Maxime VALENTIN
Project Head
SPL Lyon Confluence