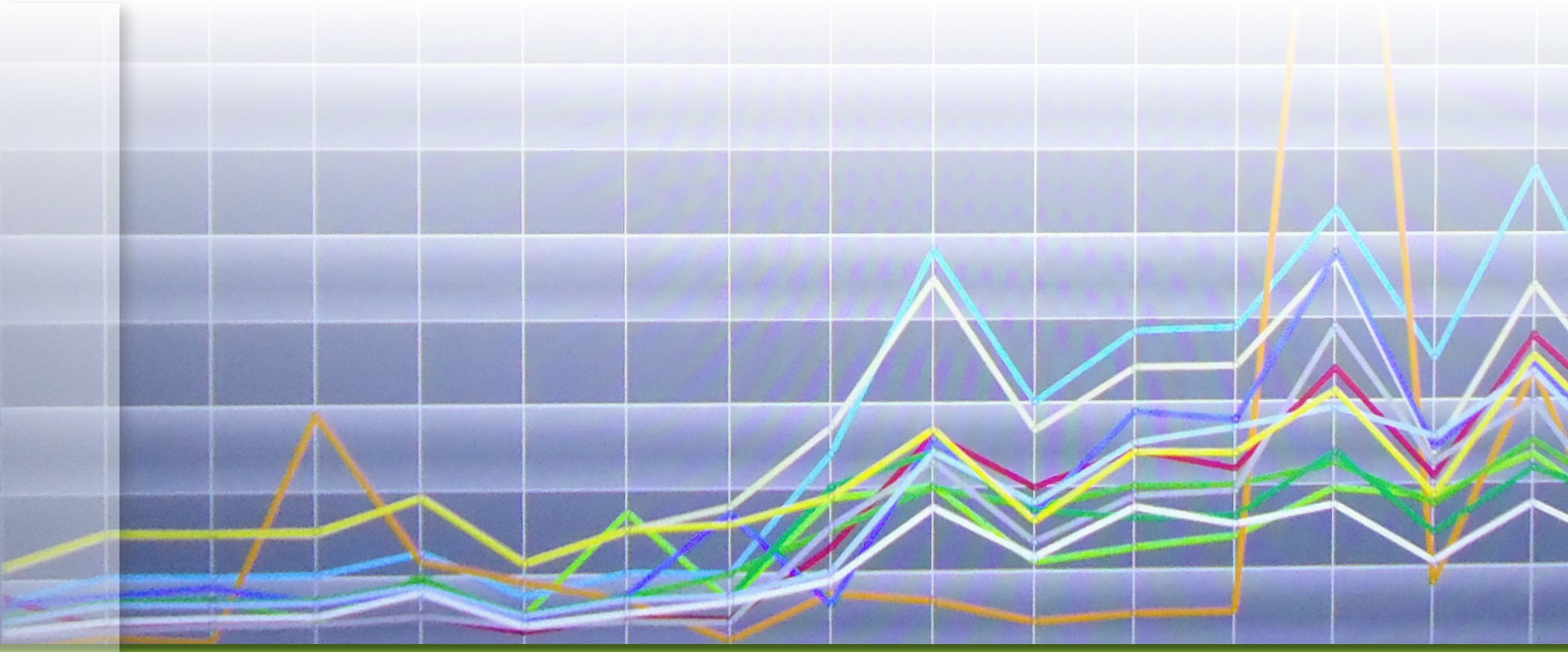

TRANSATLANTIC URBAN CLIMATE DIALOGUE *plus* – WORKSHOP # 1

Catalyzing Neighborhood-Scale Energy and Economic Redevelopment

Berlin, Germany February 17th –19th, 2014
Workshop Proceedings

Editors: Margarita Doneliene
and Petra Schuck-Wersig

Transatlantic Urban Climate Dialogue *plus*

The Project is supported by the Transatlantic Program of the Federal Republic of Germany as Part of the European Recovery Program (ERP) of the Federal Ministry for Economic Affairs and Energy

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The Project

The "Transatlantic Urban Climate Dialogue" (TUCD) is grounded in several model institutional partnerships and precedents of successful exchanges on urban sustainability between German and North American regions. These partnerships are characterized by the inclusion of governmental, academic and commercial partners.

In April 2013 the TUCD received a grant for an extension of the project from the Transatlantic Program of the Federal Republic of Germany as Part of the European Recovery Program (ERP) of the Federal Ministry for Economic Affairs and Energy.

The core structure of "Transatlantic Urban Climate Dialogue *plus*" (TUCD+) is the same as the previous project. The dialogue between elected officials, senior corporate representatives, technical experts and practitioners from Germany, Canada and the United States on the mutually beneficial transfers and applications of Integrated Community Energy Plan (CEPs) among the metropolitan regions of Northern Virginia, Guelph, Stuttgart and the Ruhr Valley will be intensified by two further workshops. TUCD+ runs from October 2013 to September 2014.

The first workshop of TUCD+ took place in Berlin, Germany, February 17–19, 2014. The participants represented the urban regions of Northern Virginia, Guelph/Ontario, Stuttgart and the Ruhr Valley.

The second workshop will take place in Fairfax, Virginia in August 2014.

Again, the Environmental Policy Research Centre (FFU) of the Freie Universität Berlin will oversee the project.

www

www.fu-berlin.de/tucd
www.fu-berlin.de/tucd2

The site visits included:

1 Freie Universität Berlin, Energy and Environment Unit →

2 EUREF-Campus "Intelligent City" →

3 German Bundestag →

1 Freie Universität Berlin, Energy and Environment Unit

Freie Universität Berlin concluded on 17 May 2011 as the first university in Berlin with the State of Berlin a Climate Protection Agreement. This provides that the University lowers their energy consumption by a further twelve million kilowatt-hours until 2015 and thus by about 10% compared to the level of 2010. Based on the output situation in 2000/01 this corresponds to an overall reduction of around 54 million kWh (–33.0% or 17.888 tons of CO_2 (–31.6%).

Tasks and main occupations of the Unit

The Energy and Environment Unit concentrates on the fundamental interdisciplinary fields of climate and environmental protection. In addition to energy management, which plays a key role with regard to operational environmental impact and costs, the most important tasks include waste and water management, as well as advising and assisting members of the university.

Energy and Climate Protection

As an internationally oriented university, Freie Universität Berlin has been dedicated to climate protection for a number of years. Increasing energy efficiency is of great importance. Since 2000, Freie Universität has managed to reduce the university's energy consumption by a quarter – 42 million kilowatt-hours – although the usage of the university grounds remained more or less constant, and through the implementation of a range of different technical and constructional measures, as well as an internal incentive scheme.

Environment

Freie Universität Berlin is one of just a few universities in Germany that orientates its environmental management around the internationally applicable environmental management system standard ISO 14001. In 2004 a few individual locations were certified in accordance with this standard. Between 2007 and June 2013, the entire university was incorporated into the environmental certification. The certification will be continued, after a one-year break, in 2014. The Energy and Environment Unit is currently involved in establishing an occupational health and safety management system. Furthermore, the unit is currently testing increased integration of sustainability aspects and certification in accordance with the international energy management standard DIN 50001.

Energy and environmental management belong to the classic interdisciplinary fields that are well suited to integration into different organizational levels and processes. The regulation of energy and environmental management encompasses, for example, the coordination of the environmental teams from a total of 11 university departments; the execution of annual management reviews that will ensure the continuous further development of energy and environmental management; as well as the execution of internal site inspections (so-called audits) of the university buildings. The audit scope was greatly expanded in 2011 to include the science departments.

Waste

"Avoidance is better than recycling, is better than disposal" – this is a classic principle of waste management, and Freie Universität Berlin is committed to this. Waste management is concerned with separating waste collections and monitoring waste flows, as well as working to ensure the correct and economical disposal of all university-related waste.

In 2011, Freie Universität's disposal costs amounted to around 330,000. Sixty different kinds of waste were disposed of, and around 40 of these had hazardous properties and needed to be disposed of through special channels.

Communication and networks

Change begins with a change in behavior. The support and promotion of sustainable communication with key players both inside and outside the university is, therefore, an important interdisciplinary task for the Energy and Environment Unit; although this involves not only the application and continuous development of various communication tools, but also active participation in both internal and cross-university networks, such as

- SUSTAIN IT! – a joint initiative involving students from different disciplines of the environmental policy research institute (FFU) and Freie Universität Berlin's Energy & Environment Unit.
- UGAF (Unica Green Academic Footprint) – an initiative of the UNICA Network of Universities from the Capitals of Europe. Freie Universität Berlin has been a member of the UGAF Core Group since 2013.
- The SchoolUni Sustainability + Climate Protection which opens the university's lecture rooms, seminar rooms, laboratories, solar roofs, weather station, canteen and botanical garden and gives school pupils and teachers practical experience of what lies behind the terms sustainability and climate protection.
- Environment network at universities and research institutes in the Berlin Brandenburg region being established in 2011 and is a platform for the exchange of knowledge between universities and research institutes in the Berlin Brandenburg region. Network members meet biannually.

Awards

For their exemplary commitment to environmental and climate protection, Freie Universität Berlin has been awarded several times:

- Freie Universität Berlin has received three times the future price of the Berlin energy service GASAG for its activities in the areas of sustainability, climate protection and energy efficiency.
- In terms of sustainability the activities of Freie Universität Berlin were already twice awarded by the Berlin Climate Partners, an alliance of ten Berlin chambers and associations.

2 EUREF-Campus “Intelligent City”

In the middle of Berlin, the vision of an “intelligent city” of tomorrow is being developed at the EUREF-Campus. Ecologically and economically sustainable ideas will make the EUREF-Campus office and science location the only urban district of its kind in Europe in future. Listed brick buildings, sophisticated new office and residential buildings and attractive parks, greenery and open space provide a modern, imposing environment.

The EUREF-Campus revives the former energy and industrial sites around the Berlin Gasometer and makes it a model project for the future. The care concept is based on the basic idea, largely CO_2-neutral to produce the required energy and to make it effective. It was created by the German Energy Agency (dena) and has already delivered a number of practical approaches for climate-friendly and reliable energy supply.

- The central load management by the NBB Network Society Berlin-Brandenburg
- Since January 2011, carbon neutral and efficient generation of electricity and heat with a biogas cogeneration SES energy systems with 200 KW
- Integration of photovoltaic and wind turbines, heat pumps with combined heat and power (CHP) and the solar charging station in the area network since the end of 2011
- Eco-friendly and efficient supply of “Messelbau“ and the transparent event dome of Berlin Gasometer with heat and cold since the beginning of 2011
- Merging of decentralized power generation, storage and consumers to a “Micro Smart Grid“ since March 2012

To the full extension 2018:

- Intelligent networking of all power, cooling and heating systems from Bosch Buderus
- Private site network with local load management
- Demand-oriented and almost CO_2-neutral production of heat, cold and electricity
- Use of geothermal energy
- Commissioning of a large battery for energy storage and heat recovery system

www

www.fu-berlin.de/sites/abt-3/energieumweltindex.html

Urban transport solutions for the Model region Berlin/Potsdam

On the “e-mobility platform“ which is part of the project“ BeMobility – Berlin elektroMobil“, innovative solutions for networking of individual and public passenger transport are developed, tested and shown to the public at the interface of urban mobility and energy systems. The Innovation Center for Mobility and Societal Change (InnoZ) accompanies the complex interactions at the interface between mobility and social change.

- Capital region of Berlin/Potsdam is one of eight “Electromobility Model Regions“
- “BeMobility – Berlin elektroMobil “ laboratory consists of practice, and explanatory Central Forum
- Practice introduction and development of methods on the net and energy load management
- Vertical wind turbine and large batteries integrated into “Micro Smart Grid“
- Operated loading and rental station for electric vehicles with renewable energy
- Car sharing (DB-flinkster) and a bicycle station (DB Call a Bike)
- Charge of up to 30 electric vehicles simultaneously
- Berlin‘s first fast-charging station, which can also be used publicly
- Charging stations Vattenfall, RWE, DB Energy, Schneider Electric‘s energy and Parking
- Testing station for “controlled charging“ and “Wind to Vehicle“
- 630 kVA transformer with its own medium and low voltage distribution system and
- Currently, one-time entry fee for e-Flinkster 50 Euros – with free rail card

Energy Monitoring System

- Examplary for the combination of high quality for offices and residential living with a largely carbon-neutral energy and heat supply is the “EUREF-Campus 12-13“.
- Schneider Electric has integrated its intelligent building and energy management system. The energy management system is designed to react to real time conditions, to isolate problems to study trends and to control loads and generators.
- According to the current performance water savings are equal to 27863.5 bathtubs per year.
- According to the current performance CO2 savings are equal to 3,212 trees planted per year
- According to the current performance savings of heating costs correspond 176 saved cars per day per year

www

www.eurefcampus.de/de

3 German Bundestag

Power, heat, cold: the energy concept of the German Bundestag

The energy generation and supply concept for the buildings of the German Bundestag provides an example of ecologically and economically combinable machinery, installations and transmission systems for energy generation and energy use.

Conceptual specifications for the energy supply of the new buildings of the German Bundestag.

Among other things, the specifications for the renovation of the Reichstag Building for the purposes of the German Bundestag included the demand for extensive use of renewable primary energy and for a high level of availability. At the same time, an energy concept was drawn up for the Parliament buildings in Berlin's Spreebogen district that put clear emphasis on decentralized energy generation.

Machinery used to implement the energy concept

In both the Reichstag Building and the Paul Löbe Building, these specifications were realized by means of four diesel engines that drive power generators. Since, in accordance with the specifications of the energy concept, renewable primary energy was to be used in the Bundestag buildings, the decision was taken to use biodiesel as the fuel. To this end, standard engines were installed, some components of which had to be converted by the manufacturer to permit the use of biodiesel. The exhaust gas emitted by the diesel engines is cleaned in a complex emission control system – comprising particulate filters, reduction catalysts and downstream oxidation catalysts – to such an extent that the requirements specified in the German Technical Instructions on Air Quality Control (TA Luft) are significantly exceeded. The power generated in this way is supplemented by power from Berlin's public supply network.

The heat from the engines and their emissions is sufficient for a minimum supply of heat for the buildings of the German Bundestag. To cover the heat requirement during the winter heating period, four hot-water boilers are available that were designed for peak-load supply and to act as a complete redundant system in the event of engine failure. During the summer, the surplus heat resulting from operation of the motor-driven cogeneration plants can be used to drive three absorption-cooling machines. If neither heating nor cooling is needed in spring and autumn, the surplus heat is pumped into a geothermal storage system, from where it can be recovered as and when necessary.

A regenerative system utilizing the groundwater is also used with top priority for producing cold. Seven compression-cooling machines are available at distributed locations for peak-load cold supply and as redundant systems.

www

www.bundestag.de

Use of renewable energies and ecological building operation

In keeping with the high ecological standard targeted, great importance is attached to the use of renewable primary energies.

Biodiesel

All engines and the boiler in the Reichstag Building run on biodiesel (the correct term is RME to DIN EN 14214). It is in keeping with the ecological objectives of the German Bundestag that the raw material is grown and processed in the close vicinity of Berlin. The raw material used is rape, from the seeds of which rape seed oil can be pressed. The biodiesel is produced in a biodiesel factory by adding methanol. All of the glycerol produced at the same time is sold to customers in the chemical industry. Apart from traces of unavoidable pollutants, a major proportion of the carbon dioxide generated by the combustion process of renewable raw materials, e.g. rape, is absorbed again in the region. Moreover, the use of agricultural produce also indirectly contributes to preserving jobs in rural areas.

Photovoltaic

A total of roughly 3,600 m^2 of photovoltaic elements with different collector designs (some of which are heliotropic) are installed on the roofs of the Reichstag Building, the Paul Löbe Building and the Jakob Kaiser Building. The equipment was installed in the context of a demonstration program of the Federal Ministry of Building. The power generated by the photovoltaic installations is fed entirely into the in-house network.

Heat generation and storage

Surplus heat that is generated in the motor-driven cogeneration plants as a result of the combined generation of power and heat, and which is not needed either for heating in the buildings or for driving an absorption cooling machine in the prevailing weather conditions, is fed to an aquifer in front of the Reichstag Building via two boreholes reaching to a depth of roughly 300 m. To this end, the water stored in the porous rock of this stratum is pumped up through one borehole at its natural temperature of approx. 20 °C, heated by the surplus heat via heat exchangers in the basement of the Bundestag building, and pumped back down to the same depth through the second borehole, some 280 m away. Water with a maximum temperature of 60 °C is pressed into the rock at a maximum pumping capacity of 100 m^3/h and pumped back up during the next heating period at temperatures starting in the region of 55 °C. The feed temperature declines as removal progresses, until economically viable tapping of the heat reaches its limits at approx. 30 °C.

Cold production and storage

The top priority in connection with cold production is to store ambient cold in winter, which is dissipated into the groundwater via heat exchangers. This process is concluded at the end of the cold winter period, after which the cold water is tapped by reversing the direction of flow at the start of early summer, initially being drawn from the respective cold well at approx. 6 °C. Depending on the intensity of use, this temperature rises up to the natural temperature of 11 °C in the course of the summer. If the Bundestag buildings simultaneously require more cold than can be taken from the cold storage wells, this cold is initially generated by conventional cooling machines. If the demand increases even further, and if prolonged demand is expected on the basis of the summer temperatures, the three absorption-cooling machines are operated using the waste heat from the motor-driven cogeneration plants.

Technical equipment

It is part of the concept of ecologically oriented and need-based generation of power, heat and cold that these types of energy are used sparingly in the technical equipment of the buildings. For example, ventilation systems equipped with fans requiring little drive power were designed to this end. In many areas, the circuitry is engineered to give priority to natural ventilation, rather than air-conditioning by means of ventilation systems, if the indoor and outdoor temperatures allow. In addition, passive and active shading, together with thermal insulation of walls and windows, makes a decisive contribution to reducing the input of outside heat into the conference rooms and offices. Lighting is provided by luminaires fitted with high-efficiency lamps, which are switched on and off via a light management system as required.

Optimized use of energies in the energy network

Alongside the resource-conserving use of primary energies, the need-oriented generation of heat, cold and power is also part of the ecological concept. For example, there is the possibility of generating these forms of energy in different areas of the Bundestag buildings and transporting them to other buildings in accordance with requirements. There is a connecting network for 10 kV electricity with transformers in each building for this purpose. Similarly, the generated heat can be pumped in both directions between the buildings at a temperature level of 110 °C. All buildings participate in cold storage, and some can also transport the cold water produced in the cooling machines to the neighboring building as and when needed. This energy network is controlled by a master automation system that permits manual intervention. As the Federal Chancellery also has a motor-driven cogeneration plant, a connecting line to the heat store of the Bundestag energy system has been installed in order to avoid the need for a separate heat storage system. It can absorb surplus heat and also pass it back if necessary.

Operating experience

Energy generating operations were constantly improved in the first few years of operation. The cold store works highly satisfactorily. Roughly 60% of the surplus heat resulting from operation of the motor-driven cogeneration plants and saved in the heat store can be recovered. Scientific studies are carried out to monitor the operation of the cold and heat stores.

Transferability of the energy concept

The energy generation system described for the Bundestag buildings would appear to be transferable to other buildings and consumers only if similar consumption characteristics are present in terms of the simultaneous demand for heat and power or cold and power. Also, underground storage in front of the Reichstag Building is only possible because of the favorable geological conditions and can therefore not be expected to work so efficiently everywhere in Germany.

Panels[1] | Panel I: Raising Public Awareness and Acceptance

"Dialogue creates Future"

Presentation by Kathrin Bimesdörfer, Consultant at the IFOK GmbH

Why is public awareness and participation important?

- The agency "Dialogue Creates Future" is a neutral, free of charge and practitioner-oriented service provider for companies, municipalities, administration and civil society in NRW
- It accompanies a public debate on regional economic competitiveness in NRW
- Dialogue processes require dedicated and continuously updated stakeholder and issue analysis

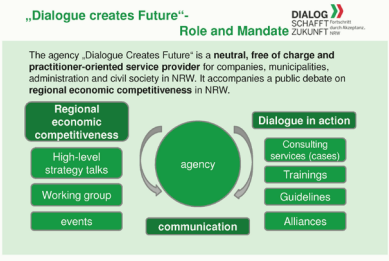
The benefits of structured dialogue processes

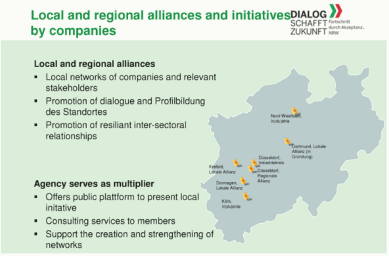
- Easier to explain a project and its purpose and to answer questions personally
- Receive a holistic picture of opinions, ideas, fears and expectations
- Identify "blind spots" in your planning including cost-saving potentials
- Early Warning system – Prevent misunderstanding and planning errors.
- Integrate local knowledge and resources to improve plans and project implementation
- Promote local ownership and mutual trust among stakeholders

Conclusions and recommendations

- Dialogue is more than good PR for local projects: Communicate and show the benefits of structured participation in project development and local planning
- Dialogue improves the quality of project planning and implementation (for both planners and citizens)
- The private sector has a high interest in good relationships with stakeholders and project acceptance

DIALOG SCHAFFT ZUKUNFT Fortschritt durch Akzeptanz. NRW





Awareness, communication and information – The "Energiewende" in Stuttgart Region

Presentation by Thomas Kiwitt, Verband Region Stuttgart

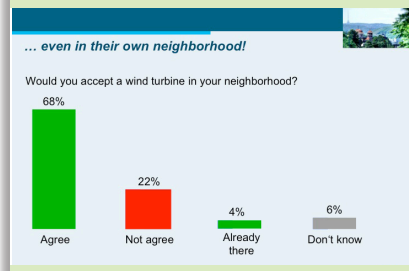
Regional Plan: Procedure

- "Quo vadis Region Stuttgart?" Early debate on general principles – with public and stakeholders
- Public hearings with experts
- (Open) discussion on alternatives/general directions
- Consultation of the public and all stakeholders based on draft Regional Plan
- Transparent procedure: Who can talk when to what aspect? Who decides when on what?
- Final decision by regional assembly – with overwhelming majority

1 The entire presentations of all speakers can be found at www.fu-berlin.de/tucd2.

The Aim of planning procedures: A Plan

- A majority might support climate protection – but does not show up
- Those who show up, may add to the emotional dimension (No alternative to "Death by climate change – or infra-sound") However: the general atmosphere in meetings remained calm
- The audience is very well informed: There are still no answers to many question – be prepared to make clear who is in charge for what here is no 100% consensus in the neighborhood of wind turbines even if company shares are available
- "Experiences supports acceptance" More protest where the use of wind power is new



Core business of elected officials: decision making

- There is no alternative to "Glasnost"
  - Transparency
  - Information on background, content and procedure
- Decisions gain quality and legal security – better results with public input
- "Self-providence": Results from public hearing do not (only) reflect general/ public interest
- Rising awareness = many proposals + different perspectives
- All proposals have to be evaluated, considered – and answered

Outlook

- Energiewende – the change of the national energy supply system – has a local dimension: It takes place in turbines, biomass-reactors, solar-panels, high voltage power lines – but also new power stations.
- Rising awareness for certain objects is easier than for "strategies"
- "Strategies", however, are important to explain the use of measures
  - a clear (supra-) national "big picture"
  - long-term, reliable policy on renewables

City of Guelph – Making a difference

Presentation by Karen Farbridge, Mayor of the City of Guelph

Participation in the Transatlantic Urban Dialogue has been enormously beneficial to Guelph. Certainly, we are proud of our city's leadership in Ontario and Canada when it comes to integrated energy planning. In fact, just last week I accepted a national award from the Federation of Canadian Municipalities for our community energy work. But we recognize that we have much to learn from those of you who are ahead of us, particularly when it comes to implementation.

CITY OF Guelph
Making a Difference

Germany informed the benchmarks of Guelph's original Community Energy Plan, which was adopted in 2007. And the Transatlantic Urban Climate Dialogue has been an important platform for us to learn about sustainable energy and climate practices that work in an urban context. As the only Canadian region in the TUCD, we are committed to taking what we learn this week and sharing it broadly through our provincial and national networks when we return home.

Making a Difference

I often have conversations where someone comments to me that "Guelph is different." It's a common theme - whether I'm talking to a local business owner seeking to attract talent; a person who has chosen to live in Guelph; or someone watching from outside what we're achieving as a community.

Our municipality isn't afraid to take leadership positions – on waste management, water resources, growth planning, health and wellbeing, open government, and community energy. By being ahead of the curve, we create opportunities that benefit our community. We influence provincial and national policy along the way. And, when provincial and national policy changes, we are ready to respond.

The Community Energy Initiative is a perfect example of this. In 2006 and 2007, we developed Guelph's Community Energy Plan in a policy vacuum. Today, we are implementing it in a very different policy context. In Germany, you too have been ahead of the curve on community energy. My observation of your experience is that Feed-In-Tariffs are much more than just a financing strategy. They have led to a significant transformation in your economy. They have unleashed innovation, expertise, and new industries in the energy sector.

Today, you are exporting your knowledge and expertise to others - including Ontario. Places like Guelph are knocking on your door. We want to model ourselves on your success. And in turn, we want to be a model to others in Ontario and Canada.

Canadian Solar

So, what kind of opportunities have we created for Guelph by being ahead of the curve? We recognize that we are competing for jobs, investment, resources, and talent with other municipalities. It's a competitive market – and it's global.

Guelph is seeking to distinguish itself in this market. And the Community Energy Initiative is part of that offering. Our energy plan was a key reason a company called Canadian Solar chose Guelph over other communities in Southern Ontario. It was the reverse of a global trend, with a Chinese company putting its North American headquarters, production facility and 400 jobs in Guelph.

The Canadian Solar story quickly made tangible the economic development potential of the CEI. The CEI is now a key component of our economic development strategy. A growing number of companies, like Würth Canada, are seeing the advantage of locating and taking advantage of the opportunities afforded them by the Community Energy Initiative. At Guelph City Hall, we are re-organizing the way we work to create a platform for continued success.

An Enterprising Platform

The first insight was to re-conceive the City and its various planning, policy and service functions as a platform for economic development and innovation. We believe municipal government can provide a coordinated set of policies, funding and services that can create opportunities for business. Even in areas that don't seem immediately relevant to job creation, there is thought given to how programs can support economic development.

Our approach to energy planning, through the CEI, is internationally branded and it was this file that helped broaden our enterprise approach to economic development. For instance:

- We are leveraging our significant municipal expertise in water and wastewater management to help businesses demonstrate new technologies, thereby opening new markets for them.
- Companies that are providers of products and services in the energy space are seeing Guelph, through its well established CEI implementation strategies, as the forefront of a large and changing market for those products and services. They are coming to Guelph to not only support implementation but to locate their offices and factories.
- And we know new open government policies will stimulate new data mining applications for the private sector.

We are overcoming our own internal silos and building a platform to incubate civic and economic innovation. The goal of the Community Energy Plan that states – "all publicly funded investments will visibly contribute to meeting the other four CEP goals" continues to drive integration.

Advocacy

Advocacy has, and will continue to be, a key part of our overall strategy in implementing the CEI. As I mentioned, we developed Guelph's Community Energy Plan in a policy vacuum back in 2006 and 2007. Strategically, it was important to create a more supportive environment, and develop networks of like-minded policy makers, to increase the success of achieving goals to reduce energy consumption per capita by 50% and green house gas emissions per capita by 60% in 25 years.

TUCD

The TUCD has been an important platform for learning about urban policy and practices to drive energy efficiency and address climate change. It has also led to strong economic development relationships. We are learning from those of you who are ahead of us – and have track records of success.

QUEST

QUEST – Quality Urban Energy Systems of Tomorrow has been a key networking venue for Guelph and has been a critical national advocacy voice for Integrated Community Energy Systems like the CEI. Guelph is a founding member of QUEST – now in its 8th year of operation. QUEST has helped put Guelph and the CEI on the national radar.

House of Commons

QUEST played a key role in having Guelph recognized by the national Council of Energy Ministers in their report "Integrated Community Energy Solutions: A Roadmap for Action." The Federal House of Commons Standing Committee on Natural Resources has invited Guelph to present its work at a future committee meeting. Several members of the committee visited Guelph to learn about the CEI in action.

The Green Municipal Fund as a key partner

The Federation of Canadian Municipalities continues to support cities like Guelph in developing Community Energy Plans and provides funding for not only the planning process but also the implementation of projects. The Green Municipal Fund, backed by the federal government, continues to be a key partner in us moving forward. As I mentioned, FCM just honoured Guelph with a Sustainable Communities Award for our Community Energy Initiative. We are grateful for this national recognition of the CEI.

Queen's Park

The Province of Ontario has a great deal of legislative oversight to everything we do as a city. Energy is no different. Getting the attention of policy-makers and program designers at the Province is critical to the success of the CEI.

Armed with our clear mission to integrate energy into the way we approach city-building we have established a number of key successes in our relationship with the Province:

- The role of communities has been acknowledged clearly in the Ontario Power Authority's (OPA) regional planning activities.
- The OPA has made 18 recommendations to the Minister of Energy after a summer of consultations on the siting of power generation. All of them have been accepted. All of them include real involvement with municipalities and they contain some of the first provincial policy acknowledgements of a role for thermal energy.
- The Minister of Energy announced support programs for Community Energy Planning – Guelph was a key reference for the design of the program.
- City staff have been active members in a number of working groups convened by the Ministry of Energy; the FIT Land-Use Working Group and the Energy Data Working Group among them.

I believe we are entering a new era of municipal involvement in managing and evolving our provincial energy system.

CEP cover

Council set a new policy direction when it approved the Community Energy Plan. It positioned us to show leadership in an emerging area – the leadership that will help us "make a difference" in Guelph.

GMHI

The solutions we develop in Guelph will seed new opportunities in this fast growing part of the economy – and is a new way in which we can distinguish ourselves. Guelph Municipal Holdings Inc. was created in 2011 to oversee the leveraging of city-owned assets toward city-building objectives. In 2012, Guelph Hydro Inc. and its two affiliate companies, Guelph Hydro Electrical Systems Inc. and Envida Community Energy were structured under GMHI and afforded the opportunity to align the objectives of the City and GHI. Envida plays a critical role by taking the lead in developing projects that support the goals of the CEI.

This relationship between the City and GHI is the hallmark of how we are seen by others. We are constantly reminded by voices outside the city that the level of cooperation between the City and its utility is far beyond that of other communities. It is imperative that we establish our governance structure well - to anticipate and support the execution of the CEI. GMHI provides the structure to support the development of a Thermal Utility and any other business entities required to implement the CEI.

Thermal Energy

A thermal distribution network is critical to achieving the goals of the CEI. Our benchmarks are central and northern European cities where district energy typically provides up 90% of the thermal energy needs of cities of similar size to Guelph. The benefits are many and can't be denied.

- → It allows for flexible low-carbon fuel technologies in the future.
- → It reduces costs for customers by eliminating the need for on-site heating and, sometimes, cooling equipment.
- → It creates reliable low-cost energy sources in an age of increasing price volatility for energy.
- → It keeps money in the local economy and increases local energy security.

Our goal is to build a profitable thermal utility, serving the majority of the heat load in the city of Guelph, by 2041. In January, we unveiled the first district energy system in Guelph, located in our downtown at a large City-owned arena and entertainment venue. The pipe for the system is, appropriately enough, located at the spot where our city was founded by John Galt in 1827. It's a major point of residential and commercial intensification in our downtown core. Later this year, the system will be expanded to heat and cool a nearby performing arts centre and other commercial and residential developments. More than just one system, this is a first step toward building North America's first city-wide district energy network.

Our District Energy Strategic Plan identifies other key locations for district energy nodes across the city – including a 675-acre business park. While district energy technology dates back to ancient Rome, and there are individual systems in municipalities across North America, Guelph is the first North American city to establish a plan for an interconnected thermal grid to serve industrial, commercial and residential buildings across an entire city.

GEER

Guelph's Energy Efficiency Retrofit Strategy

Looking ahead, we are working on two other initiatives that – like all of our CEI activities – take the long view. We are about to embark on the development of Guelph's Energy Efficiency Retrofit Strategy (GEER). Building energy efficiency in the city's existing building stock is perhaps the biggest challenge facing the implementation of the CEI. On average, our buildings are half as efficient as comparable building stocks in European cities. It sets the challenge for us. We know the challenge and we know our targets are possible because we know the technologies and partnerships that will get us there. The Guelph Energy Efficiency Retrofit Strategy will set our framework to meet the challenge.

Canada's Innovation Super Cluster

Transportation accounts for approximately 30% of the energy consumed in our city. The CEI acknowledges the challenge of transportation and energy by focusing on two key areas:

1. Alternative forms of transportation such as electric vehicles, car sharing, and bicycle infrastructure. We are seeing increasing activity in all of these areas. We have more than doubled the kilometers of bicycle lanes in the last few years.

2. Our growth plan calls for more mixed use and compact form, thus minimizing the need for traditional forms of transportation and stimulating uptake of alternative forms of transportation – not only within the city but our connection to the region.

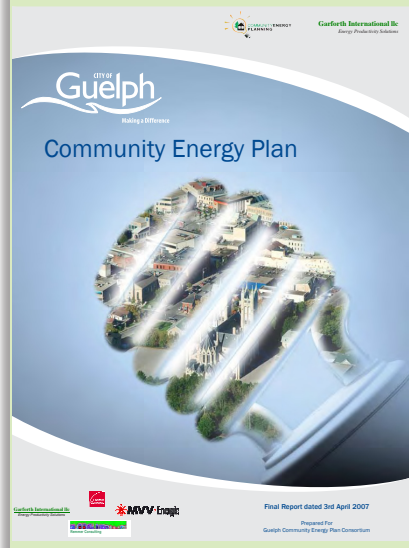
Transportation planning, energy planning and economic development are inextricably tied together – that informs how we work. Guelph has partnered with our neighboring cities of Kitchener and Waterloo on a business case to have all-day, two-way commuter train service between Toronto and our region.

The Toronto to Guelph/ Kitchener/ Waterloo corridor shares remarkable similarities with the San Francisco-San Jose corridor of the Silicon Valley – right down to two international airports book-ending each corridor. We are "Canada's Innovation Supercluster" with a globally-significant cluster of startup companies. The only thing missing in our region? Two-way commuter rail service.

In closing, I would like to return to one last thought on local leadership.

Some might think it odd that the Mayor of a medium-sized Ontario city talking about leadership in areas like energy. Since when did municipalities have accountability for energy? About 20 years ago, a slow shift started. First the federal and then the provincial governments began downloading costs and responsibilities to the municipalities.

Today, both federal and provincial governments are battling deficits and turning down thousands of requests from municipalities for help. When it comes to solving our most critical problems, the message we keep getting is that the ball is in our court. This isn't just happening in Ontario. A profound shift is happening worldwide.



More and more it is being recognized, that urbanization stimulates economic growth, increases rates of literacy and education, and fosters sustainability. Integrated Community Energy Strategies such as Guelph's CEI recognize that successful city building relies on the sustainable management of resources to support a resilient local economy and a healthy city. Energy is no different than water, wastewater, or roads. It turns out, that cities, not nations, are the engines of development and progress. Immigrants come to cities. Entrepreneurs locate in cities. Growth and opportunity are in cities.

Ironically, in the face of globalization, local is becoming king. Place matters. Great places. Great cities. Because global transportation and the Internet are removing geographic barriers, people are free to choose where they live. And where they live is becoming the most important value to them. If we want to attract and retain the most talented people, innovative and dynamic businesses, we as a City have to lead in the areas that matter most:

CEP Goals

This is the century of the city. Location matters to people. We want to take the lead in the areas that matter most to us. Community energy is one of them. As we seek to be ahead of the curve in Canada, it is enormously helpful to learn from those who have gone down this road ahead of us.

We have always looked to Germany as a source of knowledge and inspiration. We did so when we created the benchmarks of the original Community Energy Plan, and we have continued to do so as we move through implementation.

We are grateful for the Transatlantic Urban Climate Dialogue for providing a place to exchange knowledge and practices. I have no doubt that our discussions this week will make a difference in Guelph for years to come.

Talk of Robert W. Lazaro, Mayor of Purcellville, Virginia with Dale Medearis, Senior Environmental Planner at Northern Virginia Regional Commission

Energy on the neighborhood scale

- There are different levels of the neighborhood scale. For example, the important question to ask is how to integrate the citizens with the low income. They seem to lose whether they live in the renovated buildings or not, because the energy costs are generally too high for them.
- Germany has sixteen states that all have their own local policies and in addition to that there is also a German national model for the entire country. Local politicians usually think more in terms of what is good for the local community, and less in terms of what is best for the entire system.

Long-Term Goals

- The important question is how to frame the energy transition debate in Germany. The next phase is important – the real challenge is how to integrate the transition at the different governance levels and to what extend does this process need to be coordinated between the national and the local level.

Henrik Vagt, IHK Berlin (Chamber of Commerce and Industry)

1 Energiewende in Berlin public and private initiatives

Current Situation in Berlin

- Improvement of Energy Efficiency
- Increasing efficiency in energy conversion
- Reason: modern power plants, especially when connected with cogeneration of heat and power

Challenges of the Energiewende

- Explore the potential and limits of the metropolis
- Increase the energy efficiency of existing buildings
- Establish an integrated energy concept with surrounding regions
- Ensure consistent energy planning and coordination

2 Public Initiatives focusing on local business

Activities of the Berlin Senate

- Climate Protection Council
- Berlin Climate Protection Information Office
- 'Berlin saves Energy' awareness week
- Climate Protection Agreements with Companies
- Legislation on Renewable Energy
- Berlin Agency for Electromobility

Climate Protection Agreements with Companies

- Definition of specific emission reduction goals for every company
- Mainly agreements with public and private sector utilities and public housing companies
- Resulting demand of companies for climate protection solutions stimulates investments

Legislation in Berlin

- Objective: carbon neutrality until 2050
- Draft law on the Energiewende
- Integrated Energy and Climate Protection Concept as main instrument to implement measures
- Accompanying feasibility study ‘Carbon Neutral Berlin 2050

Berlin Agency for Electromobility eMO

- Objective: establish Berlin-Brandenburg as the leading metropolis for electromobility in Europe
- Berlin-Brandenburg Electromobility Action Program
- Around 150 projects, more than 500 e-vehicles and over 200 public charging points

3 Private Initiatives Focusing on Local Business

Activities of the CCI Berlin

- Coaching on energy efficiency
- Energy efficiency networks
- Network for Environmental Coordinators
- Training: "European Energy Manager"
- "Stadtvertrag Klimaschutz"
- KlimaSchutzPartner Berlin
- Projects, information supply and events

Incentivising: Coaching on Energy Efficiency

- What to do and where to start?
- Visits to companies as a first “approach“ towards the theme of energy saving – CCI energy coach
- Assessing the potential and implementation options for energy saving
- Display of existing information and aids

Tackling the Issues Together: Energy-Efficiency Networks

- Energy-Efficiency Network = Advice and moderated exchange of experiences
- Energy-efficiency objectives
- Network topics: Cross-section technologies, cost-efficiency, increasing employee awareness, energy management and taxation
- Hub for sharing experiences

GREEN BUDDY AWARD
Umweltpreis des Bezirks Tempelhof-Schöneberg von Berlin

GREEN MOABIT

Sharing Experiences: Network for Environmental Coordinators

- → Information about changes in environmental legislation
- → Exchange of practical experience between companies
- → Dialogue between companies and authorities
- → Presentation of innovations in environmental protection by companies

Qualifying Experts: European Energy Manager

- → Energy expert for companies
- → Specific proposals for improvements within the scope of project report
- → International recognition and an international network of experts (EUREM comprises 19 countries)
- → Additional further training courses

Collecting Best Practices: "Stadtvertrag Klimaschutz"

- → Project from 2009–2013 to motivate companies and citizens for climate protection activities
- → Unique constellation of partners: CCI Berlin, Chamber of Crafts Berlin, BUND Berlin, DGB Berlin-Brandenburg
- → Actions were collected on a website to give incentives for other companies and citizens

Honouring Excellence: Example of KlimaSchutzPartner Berlin

- → Broad-based alliance of chambers, associations and institutions in Berlin
- → Award with the longest tradition in Berlin for climate-protection projects
- → Database with over 120 beacon projects in climate protection in Berlin
- → Figurehead for Berlin‘s largest energy conference

Catalyzing Neighborhood-Scale Energy Transition through Local Initiatives

- → The Energiewende is closely connected to decentralization
- → Berlin is a good example for local energy redevelopment
- → Public and private initiatives raise awareness for climate protection on company level
- → Communal Legislation will not leverage the Energiewende – governance does

Q: **How does the public dialogue make a difference?**

Q: How is local government involved into the dialogue?

- A: The public sector needs to be better integrated. That is an ongoing process. A city council can be a promoter of the project, but the final word belongs to the administration. In this case the administration refers not to the political decision-making, but to the legal decision processes.

- A: Participation is the key. However, although new technologies bring new ideas, Stuttgart remains a great example of how to move through the problems, have a great participation and still have a problem of implementation. Process of learning is extremely important here.

Q: How do we create the business model that can be transferred from German to Canadian (Guelph) model? Guelph has much smaller neighborhood scale and cannot be compared with Berlin.

Q: How to make the topic of the energy efficiency more attractive?

- A: Jurisdictional and financial restrictions along with participation are the topics that need to be covered. The part of the communication problem is that it gets too fragmented both in terms of the economic decisions and in terms of the policy-making process. In order to succeed, the cities have to seek partnership and share experiences and expenses. The future development of such cooperation is the main lesson to be learned within this workshop.

The National Climate Initiative

Presentation by Dr. Hans-Joachim Ziesing, Ecologic Institute

At national level the Federal Environment Ministry supports effective climate protection measures through various programmes and projects in municipalities, in industry, for consumers and in schools and educational facilities.

The National Climate Initiative‘s programmes promote

- climate protection in municipalities, and in social and cultural institutions
- innovative projects in industry and in the consumer, education and municipal sector
- highly efficient small combined heat and power systems (mini CHP systems) and
- commercial cooling and air-conditioning plants.

The Municipal Directive within the National Climate Initiative

- Since 2008, within the framework of the Municipal Directive for Climate Protection in Social, Cultural and Public Institutions, the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB) has supported more than 5,000 climate protection projects in over 2,500 municipalities, with an investment volume of 240 million Euros.
- The support programmes of the Municipal Directive include
- initial guidance for cities and counties that have not yet started
- working on climate protection
- the development of complete and partial climate protection concepts
- funding of investments to conserve electricity
- creation and funding of the position of a municipal climate protection manager.

The Master Plan 100% Climate Protection

- The “Master Plan 100% Climate Protection“ was first offered in 2011.
- To participate in this programme, the municipalities are committed to reduce greenhouse gas emissions by 95 % and cut the final energy demand by 50 % by 2050. For this purpose, a clear political decision of the local council is required.
- The basic idea of a Master Plan 100% Climate Protection:
  - maximum efficiency improvements,
  - closure of the energy, financial and material cycles
  - maximum use of renewable energy and other natural resources on site.
- Benefits for the communities are adding value through increased use locally and regionally available renewable energy resources as well as local services (planning, crafts, etc.). Through long-term savings in energy and raw materials, reduction of cost and independence from fossil fuels.

What criteria qualify master plan communities?

- 33 municipalities have submitted applications for funding under the Master Plan project.
- Relevant criteria for qualification as a master plan community were:
  - the municipality has already developed a strong climate and energy policy profile,
  - the municipality has the know-how and the administration is prepared in accordance to use this knowledge.
- Scope, depth and feasibility of proposed implementation strategies.
- the degree of participation of citizens in the development and implementation of the Master Plan project.
- Only 19 municipalities and counties/regions fulfilled these requirements.

The two implementation phases of the master plan projects

- Phase I (maximum of 1.5 years) :
  - Prepare the master plan that shows how the ambitious goals can be achieved and what technical/organizational measures are necessary.
  - Involve all stakeholders in the master plan process.
  - Appointment of a master plan manager to perform all necessary conceptual and strategic tasks (master plan manager as facilitator).
- Phase II (maximum 3 years):
  - Implement the mitigation measures agreed as a result of phase I.
  - Institutionalize the master plan process as a long term process.
  - Build and strengthen structures to continue participation of the local stakeholders, as well as to inform and integrate the public.
  - Create a regular monitoring process to account for the results of the measures.

Some remarks on specific funding conditions

- Selected climate protection measures will be subsidized as far as a complete “master plan 100 percent climate protection“ is in place.
- These measures must be part of the master plan and have a CO_2 reduction potential of at least 80 percent.
- As a rule, these individual funding is received from a non-repayable grant of up to 50 percent of eligible expenditure, however, is limited to a maximum of 100,000 euros.
- An application for the promotion of climate protection measure is possible only within one year after the start of Phase II.
- To achieve the defined targets by 2050, electricity, heat and mobility need to be based to almost 100 % on renewable energy.
- The project is scientifically assisted by a research group which also initiated from the very beginning a networking process between all master plan communities to perform a common learning process.

The Master Plan – a comprehensive approach

Based on a political decision to reduce greenhouse gas emissions as well as to reduce energy demand the master plan especially includes:

- the introduction of a systematic process management to implement ecologically as well as economically and socially reasonable measures to exploit the potential for increasing energy efficiency, energy conservation, develop sufficiency strategies for a sustainable lifestyle, increase the use of renewable energies, especially from regional sources and close regional economic and material cycles.
- all energy-related sectors on the supply and demand side
- direct territorial as well as indirect greenhouse gas emissions
- emissions like waste, waste water treatment and thermal emissions
- the development of clear monitoring procedures.

The role of the master plan/climate protection manager

The central role lies with the climate protection/master plan manager. He/she

- should have extensive social and communication skills and sufficient decision-making power.
- is the central contact person in which activities are bundled.
- coordinates the climate protection advisory board, in which the key stakeholders come together, as well as the PR work and the citizen participation
- organize the preparation and implementation of the master plan
- constantly checks whether the measures are implemented as planned and intermediate objectives are achieved and whether the results are sufficient to achieve the long-term reduction targets.
- is institutionalized in local government and equipped with adequate funding.
- is responsible for the continuous monitoring and management.

Project and organizational structure – e.g. master plan Hanover

The main actors included in the master plan process

- The local authorities – the municipal council: Decision on the conditions for a master plan municipality and a final decision on the master plan and the policies and measures included.
- The master plan manager in his position as a facilitator with specific competences.
- The advisory boards and working groups with different topics and different stakeholders (business, trade unions, NGO, citizens‘ initiatives, scientists etc.)
- The citizenship with their engagement and participation in the master plan process: information – participation – implementation.
- The external study groups and research institutes which provide the base work for the master plan (empirical data base, potentials, scenarios, policies and measures)

Conditions for a successful and economically, environmentally and socially responsible energy development

- A common understanding of the problems to be solved and the objectives to be pursued. This applies to local politics as well as to the local industry, businesses and citizens.
- Continuous information and participation of all stakeholders and citizens are essential. Support of local networks outside the local administration.
- Involvement of stakeholders and citizens in the development of scenarios and implementation strategies.
- On a political level: Clear policy decisions and responsibilities as well as sufficient and permanent financial and personal resources; consideration of environmental implications at all levels of local administration and administrative procedures.
- The energy transition cannot succeed without the active participation of local communities. But: Without an appropriate policies and measures at the national level, the energy transition is just as impossible. It needs both.

Barriers for an economically, environmentally and socially responsible energy development

- Lack of involvement or interest of stakeholders and citizens and a lack of willingness to make the necessary investments in their own area (e.g. more efficient heating systems, building insulation).
- Concerns about excessive financial burden of the necessary measures to the energy transition, especially regarding the building sector
- Different priorities and conflicting targets within the local government.
- Limited or lack of funds in the municipal budget even lead to insufficient investment in local real estate and exclude financial support for private buildings.
- Financial constraints prevent a steady and sustainable climate change policy. I.e., the necessary financial and personal equipment of the local climate protection management is at risk.
- Administrative problems of managing the appropriate implementation strategies.

Final remarks

- After 20 months of promoting master plan communities' significant progress in the mutual learning processes can already be detected.
- Initiated by a number of working and 5 networking meetings to date, the exchange of the municipalities with each other initially triggered has steadily improved over time.
- In particular, in (regional) neighbouring regions close collaborations have emerged in the course of this process, which lead to mutual learning processes and have also been performed.
- A number of municipalities have already submitted its final master plan which partly are or still have to be approved by the municipal council or city council, so that Phase I is complete and Phase II is ready to start with the implementation of concrete measures.
- The existing master plans lead us to expect that even the very ambitious targets can be achieved.

BMBF-Competition “Energy-Efficient City”

Presentation by Britta Oertel, IZT - Institute for Future Studies and Technology Assessment

- Announced in 2008 by the German Federal Ministry of Research (BMBF) Overseen by a steering committee
- 72 cities submitted proposals, 15 were invited to further develop their proposals
- Five overall winners were announced in 2010
- Winners implement their concepts between 2011 and 2016.
- Accompanying research
- Special emphasis on service innovations with respect to climate protection on the local level.

Starting Points and objectives

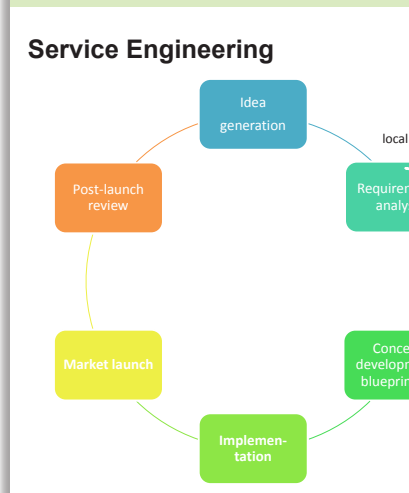
- To spur energy efficiency in German cities and communities
- To integrate energy research, technology innovation and service science
- To address cities and communities of all sizes
- To develop approaches that can serve as models for other cities and communities
- To link know-how of energy and technology experts with service innovations
- To prove that joint efforts of services research und energy research offer a high potential for innovation

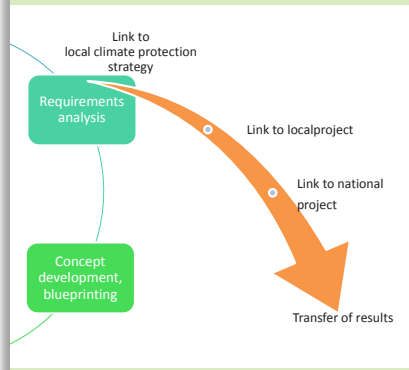
Key Questions

- Which strategies, technologies and service innovations help consumers, businesses and administrations to use energy in the most efficient way?
- Which business models, networking strategies, project designs and procedures reinforce solution-focused approaches to save energy at the urban level?
- How can holistic, interdisciplinary and practical concepts be developed and implemented at the local level?
- How can services-research tools and results be anchored at the local level to support interdepartmental planning and policy?
- How can two major German research programs be brought together that usually work independently of each other in order to allow for joint learning and maximum effectiveness of research funds?

Services under development

- Solar roofing (industrial rooftops)
- Solar panels in public street areas
- Urban Energy and climate protection database
- “Master plan for local authorities“
- Citizen shareholders





Interim Results

- The competition is one of the first German examples for the successful linking of services research with other research disciplines.
- Services research thereby proves that its approaches and results can be transferred to other fields of application.
- Joint and cross-cutting research efforts can and spur implementation processes.
- Services research and Service Engineering contribute towards finding solution to urban challenges.
- Service Engineering fosters urban networking and partnerships among the various players and stakeholders.

National Platform Future City – Experiment Spaces for Urban Technologies

Presentation by Bernd Tischler, Lord Mayor of Bottrop

Background

- The world is urbanized. Every second individual on earth lives in a city – in Germany, already 70% of the population live in cities.
- In order to ensure their sustainable growth, the cities need scientific support.
- In line with the Federal Government's high-tech strategy, the future project "carbon-neutral, energy-efficient and climate-appropriate city" has been developed.
- The goal of the National Platform Future City is for experts from municipalities, science and economy to provide a strategic research agenda until 2015.

Tasks

The National Platform Future City will

- develop and make use of synergies between ongoing research projects.
- develop guidelines for the systemic interconnection of technology development and the cooperation of relevant stakeholders.
- map out the practical implementation of the theoretic research results.
- exploit new fields of research and demands for further development.

Method

- The aim is a coordinated and concerted research program. The Platform creates new possibilities for cooperation in city development for the participants.
- For the practical elaboration of the program the Platform organizes four workshops to which it invites experts to participate. The workshops focus on:
  1. Energy and resource efficiency
  2. The climate-appropriate and robust city
  3. Transformational management and governance
  4. Systems science
- Workshop 1 has recommended the implementation of so-called "experiment spaces for urban technologies".

Experiment Spaces for Urban Technologies

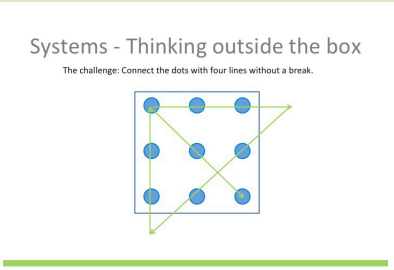
- The transition to a future city will fail when using theoretically prepared measures.
- Change-stakeholders should therefore have the opportunity to test technologies, concepts and tools in practice.
- It would be wise to intensify already existing approaches, for example in the InnovationCity Ruhr in the city of Bottrop.
- Such experiment spaces would facilitate the understanding of complex correlations' implementation.

Integrating Energy Aspects in City Planning – Chances and Obstacles

Presentation by Klaus Hoppe, Head of Energy Department, Stadt Freiburg/Consultancy

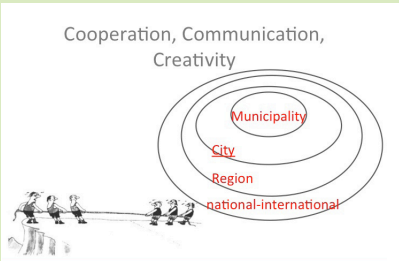
Background

- Introducing Municipal Building Standards
- New Neighborhood Energy Schemes
- Integration of Existing Buildings and Neighborhoods
- Cooperation with Stakeholders
- From Best Practice to Mainstream
- Lessons learned



Mainstream Best Practice?

- Early consideration of passive solar aspects in draft plan; Energy Scheme and c omparison of supply systems; Freiburg Building Standards
- Implementation: development or purchase contracts
- Resolution in Municipal Council



"The right place to make decisions about productivity and economic development is the local level, because local actors have the deepest knowledge about their economies." (Alice Rivlin, Economist, cited in Richard Florida, The Great Reset).

Energy Efficiency

- → Energy efficiency is as important as the quality of life. Therefore, people are interested in its implementation.
- → Institutionalization of the Master plan means the obligation that needs to be implemented. The financing within the administration and networking is seen as an institutionalization as well.

Q: Is that a good idea to force the community or a municipality to commit to a certain plan if there are no certain instruments to implement this plan?

- A: It is necessary to describe what could be important at the local level. The political message for the municipalities is different from the one at the federal level.

Q: How many citizens are coming to the Info-Center in Bottrop?

- A: There are about 50 meetings per week, getting consulted about the energy efficiency. The awareness and general positive attitude of the citizens is very important for Bottrop. The results are better than it was initially expected. This model can be transferred to other cities.

Establishing Standards – Catalyzing Neighborhood-Scales and Economic Redevelopment

Presentation by Dr. Irene Wiese-von Ofen, Agenda21 Forum Essen

Determination and activation of spaces in urban planning practice

The National Climate Initiative's programmes promote

- In the German planning practice functional division is one of the main principles in legislation and practice
- Because of changing production, lifestyle, energy and resource conditions in the last years approach, awareness, access and participation requirements brought a new discussion on the compact city, density and the relation of urban-rural linkages
- Mixed use and shared space are important new topics of planning philosophy and re-development
- Consequently new standards are to be developed for cause of disturbance, inclusion, energy saving and resource efficiency

European Union

- The EU has no competence in national urban planning legislation
- But the EU influences the national planning practice by setting standards and by a system of subsidizing states and the local level through competition and funding
- The EFRE (Europäischer Fonds für Regionale Entwicklung) financing programs are the strongest ones of the EU support for balancing the national differences
- The biggest support of this structural programmatic financial aid system is for agriculture to get finally similar living levels in the different EU member countries
- Social support programs follow
- The EU subsidizes redevelopment of cities and villages as well as transnational nets (digital, energy, traffic)
- The EU demands strongly to implement renewable energies and energy saving strategies and sets goals to reach by the states

State Level

- In Germany the "Länder" have to define Operational Plans (OP)
- The new term for OP's is 6 years from 2014–2020
- The OP's have to contribute a substantial part to the strategies of EUROPA 2020
- EU wants to balance the different social and economic levels
- EU wants the member states to advance inclusion and protect diversity
- EU stands for an open society (no gender, no religious, no ethnic discrimination)

Operational Plans

- Operational plans should set goals and explain research, procedures and implementation, so that the local level is able to work out projects for getting the necessary financial support that comes from the EU Funds via the Länder
- How to reach the reduction of CO_2
- How to achieve the necessary energy efficiency in construction of new buildings and refurbishment
- How to organize the transformation to renewable energy consumption and secure supply
- Explain how to organize mobility
- How to organize participation

Local Level

- Municipalities have to follow these OP's when getting EU funds support
- Private owners and project developers as well as local authorities in case they are owners or developing or re-users of space have to follow the same procedures and rules
- First interest of the municipalities is to get their projects accepted in the OP's
- They are asked to prepare integrated proceeding concepts
- With those concepts they have to take part in a competition procedure
- The "Länder" decide with their affected ministries (spatial and urban planning, culture, economy, mobility, education, social and health) finally on the selection

Strategic Goals

- Sustainable town- and quarter development and prevention
- Revitalising and upgrading of urban areas with social conflicts
- Improvement of the environmental situation and public space
- Amelioration of inner-city green areas
- Initiatives for energy efficiency/energy modernising of the existing building stock
- Strengthening of research and education/vocational training
- Advancing the reduction of CO_2 by changing mobility and production
- Raising the competitiveness of local economy
- Promotion of cluster and innovation centres as well as capacity building
- Mixed use and reconstruction of degraded housing areas which are as well of interest because of affordability as well as (sometimes) heritage qualities
- Support of self-help and personal initiatives, generally support of civil society

Methods and Instruments

- Planning workshops
- Dialogue panels
- Advocating planning
- Open and invited competitions
- Cooperation with universities and other institutions
- Inter- and transdisciplinary approaches by appointing round tables /juries of experts and implementing special administration units
- Adopt civil society resolutions in special cases under strict rules against city council decisions

Criteria

- Benchmarking as well as certification systems have been developed
- Selling reasons were the beginning to certify the building itself (DGNB)
- Meanwhile quarters and boroughs, even whole cities/ regions are certified.
- In Germany these certification processes are in a controversial discussion
- Modernising the building stock versus social problems of the tenants
- National comprehensive social and education programmes may upgrade the living situation, but often they are in conflict to global co^2 reduction goals
- Inhabitants are after modernising no more able to find affordable housing
- Technical perfect solutions are very often not user friendly
- Energy saving standards are successful to be solved through community involvement not by looking only on the single building standards
- New organisational and administrative common responsibilities should be invented- this takes time

Examples of Essen

- There were already since the eighties and nineties of the last century when working for the overall land-use plan relevant policies in the land-use planning and building department:
  - Efficient use and conservation of land
  - Non-development of residential areas in open spaces or landscape areas
  - Cost- and land-efficient residential construction in future settlements
  - Energy concepts and obligatory access in legally binding plans
  - Reduction of parking obligations combined with public transport commitment
  - Pedestrian streets and special delivery concept
  - Sectoral solutions optimising plans for mobility, energy, open space, schools
  - Today the city has a climate reduction plan based on EU standards
  - The city together with 4 other cities in the Ruhr District applies for the Green Capital Award 1915 and the International Climate Exhibition 2020

Strategies of Urban Qualification: Ruhr Region

Presentation by Prof. Christa Reicher, Technical University Dortmund, Dept. Urban Land-Use Planning

Comprehension of space: Definition of Urbanity and Ruhrbanity

Urbanity

- Physical density
- Social density
- Mixture of functions
- Urbanshape

Ruhrbanity - Specific urbanity in Ruhr

Talents and characteristics

- Polycentrism
- Fragmentation
- Focal Points
- Plurality
- Heterogeneity
- Social Mosaic
- Infrastructure
- Inner Fringes

Operational level: Region.City.Quarter

Strategies of urban qualification: RUHR REGION

A Specific urbanity in Ruhr: RUHRBANITY

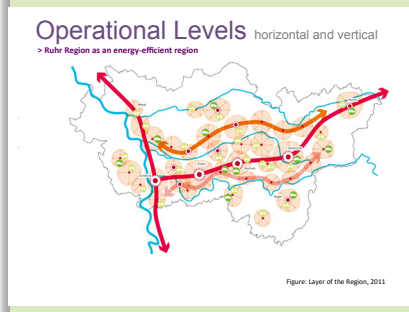
- Comprehension of Space
- Operational level: Region – City – Quarter

B Urban qualification: NEXT RUHR

- Challenges
- Regional guidelines and storyboard

Challenges

- Quality of life
- Population



Regional guidelines and storyboard

1 Managing change instead of large plans
2 Define space categories for a ruhrbanity
3 Incorporate constant and variable spaces
4 Open green/public spaces: expect the unexpected
5 Test new activation and densification strategies
6 Promote temporary densification and permanent adoption
7 Define regional guidelines
8 Use new control opportunities: Digital platforms – Property-Agencies – Citizen's Council
9 Regional monitoring
10 Sharing, Connecting, Experiencing: Landscape – Mobility – Economy

Community Energy Initiative: Energy Planning & Mapping – Drivers of Implementation

Presentation by Peter Garforth, Garforth International LLC/Rob Kerr, City of Guelph

Guelph Community Energy Initiative Supports Growth and Community Values

→ Sustainability is basis of growth strategy
→ Fifth fastest growth in Canada
→ Long-term energy plan adopted in 2007

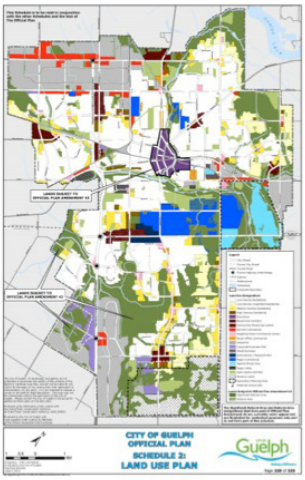
CEI and Overall City Planning

→ Energy and Official and Secondary Plans
→ Provincial Policy Statement (PPS)
→ FIT 2.0 Land Use Working Group
→ 2012 Building Code
→ Blanket Municipal Council FIT Approvals
→ Local Improvement Charge Legislation
→ District Energy Strategic Plan
→ Energy Efficiency Retrofit Business Plan
→ Data Working Group
→ Energy Density Mapping

Community Energy Plan (2007–2031)

→ Competitive energy services
→ 50% less energy use per capita
→ 60% less GHG emissions per capita
→ Population expected to grow by 50% by 2031 to 175,000 persons
→ Decouple energy consumption from population growth

Official Plan



Guelph Community Energy Initiative: Vision and Goals

Guelph will create a healthy, reliable and sustainable energy future by continually increasing the effectiveness of how we use and manage our energy and water resources

- Recognized as a location of choice for investment
- Variety of reliable, competitive energy, water, and transport services will be available to all
- Energy use per capita and resulting greenhouse gas emissions will be less than the current global average
- Energy and water use per capita will be less than comparable Canadian cities
- All publicly funded investments will visibly contribute to meeting CEP goals

Guelph Energy Efficiency Retrofit: Program for Guelph Homes

- Energy Efficiency Retrofit Plan for all existing Guelph Homes in development:
- Covers 2012 to 2041
  - Attractive and easy for the home owner
  - Meets CEI efficiency and emissions goals
  - Acceptable investor returns
  - Acceptable City risk
  - Energy Maps are key
  - Prioritization of areas and home types
  - Census Data also available
  - Similar geographic overlay
  - Will guide marketing efforts

Arlington County CEP Implementation Strategies: Making it Happen in an Urban Environment

Presentation by Aimee Vosper, Northern Virginia Regional Commission

Community Energy Planning – Objectives

- Objective ⇢ Achievable result

Goal 1: Energy Efficiency & Security

- Affordable, reliable energy supplies
- Substantial increased efficiency of end use

Goal 2: Environment

- Improve environment through reduced emissions

Goal 3: Economic Development / Economic competitiveness

- Local jobs – Keep resources in the community
- Target sustainable businesses

Goal 4: Refine and expand transportation infrastructure and operations enhancements

Strategy

- Support MTP General Policies Implementation: Reduce vehicle miles traveled by integrating transportation with land use, developing Complete Streets, and managing travel demand and transportation systems
- Continue to support alternatives to car ownership and use
- Support Federal and State efforts to increase vehicle fuel efficiency
- Increase the fuel efficiency of County and Arlington Public School fleets
- Reduce the carbon produced by County and Arlington Public School fleet
- Operate and maintain traffic infrastructure with an eye toward energy efficiency and vehicle fuel efficiency
- Encourage the purchase and use of lower-carbon producing vehicle
- Increase the availability of reduced-carbon content vehicle fuels
- Work with regional organizations and individual jurisdictions in the DC Metro region to proactively address transportation issues

Goal 6: Advocate and support personal action through behavior changes and effective education

Strategy

- Raise personal energy literacy among all populations
- Be a trusted and leading source of energy information
- Maintain and build partnerships
- Engage the public through electronic and print media
- Collaborate with Arlington Public Schools and local colleges and universities to provide education to reduce energy use
- Partner with stakeholders to develop and provide energy training and courses
- Partner with stakeholders to map workforce development
- Encourage energy conservation and efficiency through recognition of success

Spatial Planning Tools

- Site Plan Development Process – Arlington's special exception process and use of Incentive zoning
- Energy Plan Reviewer and Inspectors – development plan review with attention to energy aspects and field review accountability
- Form Based Code enhancements – already in place for development along the Columbia Pike corridor
- New/Revised site plan conditions – Incentive zoning- proffers with developers
- Arlington County's Horizontal design Guidelines – guidelines for buildings to tie into a district energy system
- Integrated Energy Master Plans – analysis on the economic and technical feasibility of district energy in the most promising areas of Arlington
- DE Infrastructure Plan – identifying and strategically locating future DE infrastructure early- to dovetail with street work

- Crystal City and Columbia Pike Streetcar Plans – opportunities for crossover with prospective combined heat and power systems in the area
- Master Transportation Implementation Plans – provide detailed guidance on how to implement the MTP's six elements: streets, transit, pedestrian, bicycle, parking and curb space management, and transportation demand & system management
- County Government Operations Plan – reducing energy consumption through efficiency and renewables in government buildings

Presentation by Aimee Vosper, Northern Virginia Regional Commission

⁝⁝ The influence and the power of the counties (Bundesländer)

→ Regions in America have the power to recommend and coordinate the policies, therefore regions are very influential on the national level

→ In Germany the cooperation between cities and also international cooperation works on the basis of the self-coordination. These associations mostly work voluntarily, with official obligations. However, they don't have an influence on the European or national policies

⁝⁝ Regional and Local Experiences

→ In Ruhr Area younger people tend to leave the smaller cities and they don't return, so buildings in such cities are changed accordingly to the new owners (mostly older citizens)

→ The level of information has to be increased: it is important to find out how different regional and social factors influence the discussion about the energy efficiency and makes it more rational and less emotional

→ Energy industry needs more communication

Q: The biggest question for all participants: how to integrate the affordable housing for the families with the low incomes?

⁝⁝ A: Behavioral change is needed and education is a key for that; it is important to explain how important the energy efficiency is. Energy efficiency is only partly required in the US. In Germany, in Berlin- there is a different dynamic where city owns most of the buildings (in the US they are mostly owned by private persons)

Q: How willingly do the authorities share the data on energy mapping? Knowledge sharing system is particularly important for the smaller communities. Q: What is being used as overlapping boundaries across the different areas?

⁝⁝ A: The definition of the boundaries is interdisciplinary. It is difficult to observe the regional policies without knowing the local circumstances. The good approach is only possible if one looks at the regional level

Social Business meets Urban Development

Presentation by Timo Munzinger, Deutscher Städtetag (German Association of Cities)

Outline

- Introduction German Association of Cities
- Urban Development on European, national and local level
- Social Business meets Urban Development
- Lessons learnt

German Association of Cities

- The German Association of Cities is the voice of cities and the national local-authority association of cities which are not belonging to a county as well as of most cities and towns within counties
- As a community of solidarity of cities it represents the idea of local self-government to Federal Government, Federal States (Bundesländer), European Union, governmental and non-governmental organizations

Leipzig Charta

- The "LEIPZIG CHARTA on Sustainable European Cities" is a document of the Member States, which has been drawn up with the broad and transparent participation of European Stakeholders
- In the knowledge of the challenges and opportunities as well as the different historical, economical, social and environmental backgrounds of European cities, the Member States' Ministers responsible for Urban Development agree upon common principles and strategies for urban development policy
- The objective is to create and secure jobs and to facilitate the start-up of new businesses. In particular, access opportunities to local labor markets must be improved by offering demand-oriented training. The European Union, Member States and cities are called on to create better conditions and instruments to strengthen the local economy and thus the local labor markets, in particular by promoting the social economy and providing citizen-friendly services.

The Ministers commit themselves:

1. To initiate a political debate in their states on how to integrate the principles and strategies of the Leipzig Charter on Sustainable European Cities into national, regional and local development policies
2. To use the tool of integrated urban development and the related governance for its implementation and, to this end, establish any necessary framework at national level
3. To promote the establishment of balanced territorial organization based on a European polycentric urban structure

Nationale Stadtentwicklungspolitik

- The National Urban Development Policy provides an opportunity for all stakeholders from government, the public authorities, the planning professions, industry and the scientific community to have their say on topics such as cities, living together in cities, urban qualities and good governance. On the one hand, it wants to bring together 'organized voices'. On the other hand, however, it also wants to listen to everyone who is committed to the city and local community
- This policy therefore also addresses civil society groups, trade unions, churches, social associations and the media

Urban Development Promotion Programmes

- The Social City – investments at neighborhood level
- The joint objective is to stabilize and upgrade all aspects of these districts and thus to improve residents' quality of life, to encourage them to socialize and integrate with one another
- An additional aim is to extend cooperation with third parties in the district, for example, by getting companies and foundations more involved, but also by promoting voluntary work

The lessons learnt

- A policy is inevitable to achieve a joint political understanding in the city, to acquire EU, national and local funds to develop strategies and concepts. Based on the policy integrated strategies with a clear implementation orientation for an area or a sector need to be developed.
- The term "integrated" and/or "sustainable" Urban Development needs contents like "Social Business" and a variety of options; otherwise we all get tired of it... – Do what works well and shows rapid AND long lasting impact
- Without participation, involvement and encouragement of owners, local community and the economic sector (cf. Social Business) Sustainable Urban Development becomes an academic exercise – Use any chances to work with the local community and stakeholders (inhabitants, schools, economy, media)
- Also small successes and improvement activities can already reach a lot of impact – Take any chance to celebrate successes with the local community jointly

QUARTIER ZUKUNFT
LABOR STADT

BSR´s Contributions Towards Environment – Protection and Sustainability

Presentation by Michael Tost, Berliner Stadtreinigungsbetriebe (BSR) –
Berlin City Cleaning Company

- BSR is the largest municipal refuse collection service provider in the EU on an area of 890 km² (larger than Munich, Frankfurt and Stuttgart combined)...
- ...live approx. 3.5 million inhabitants ...
- ...in approx. 2 million homes (> 400,000 distributed waste containers) ...
- ...(and approx. 160,000 dogs)....
- ...(with an increasing number of tourists (more than 22 million overnight stays per year)
- ...who each year produce about approx. 1.3 million tons of urban waste ...
- ...and each year produce about 80,000 tons of street waste ...
- ...walk and drive on approx. 136 km² of public space (such as streets, airports) ...
- ...approx. 350.000 trees (>102.000 m³ of leaves)...

The five Pillars of the BSR Energy Strategy

All areas and levels of added value of the BSR Group are aligned with consideration to climate and energy efficiency

- Real Estate
- Traffic
- Generating energy from processes
- Plants
- Renewable energy

New Bio Fermentation Plant

- Input: 60.000 t/a organic waste
- Biogas production: approx. 32,000 MWh/a
- Substitution of Diesel: 2.5 million litres/a
- Sustainability Award in 2012: BSR finished 3rd. in the German Sustainability Award

Energy-efficient Buildings

- Use of solar energy
- More than 3.700 m² collectors installed,
- CO_2 reduction of 150 Mg/a
- Modern heating systems / thermal shielding at 44 locations
- CO_2 reduction of 1.500 Mg per year

Further Expansion of Renewable Energies

- Expansion of photovoltaic plants in Berlin
- Entering the world of wind energy plants
- Transformation of redevelopment sites (e.g. landfills) into energy centres (photovoltaics, wind energy and biogas)
- Utilisation of waste heat of technical facilities for power generation

- → Expansion of carbon neutral concepts for heat supply, e.g. through the use of bio mass
- → Expansion of renewable energies for the use in buildings/building sector

The Use of Innovative Vehicle Technology as Significant Contribution to Environmental Protection

The BSR's vehicle fleet approach contains a number of innovation modules:

- → Utilisation of biomethane gas produced by BSR as fuel for 150 waste collection vehicles
- → Test of hybrid and fuel cell powered engines
- → We changed over to e-mobility with the first passenger cars
- → Consideration of ecological criteria in contract award process
- → Participation in e-mobility the project "Mobility2Grid" where a smart grid enables batteries of e-trucks to operate as a buffer for renewable energy.

Goals of BSR, BVG and TU Berlin in the project "Mobility2Grid"

1 Operational feasibility of the integration of e-trucks into the normal course of operations (BSR)
2 Operational feasibility of the usage of e-trucks and e-buses as an energy storage for renewable energy (bidirectional usage of the battery)
3 Development of mobility concepts
4 Determination of the necessary quantity and dimension structure regarding the energy storage and the smart grid
5 Testing a small fleet of e-trucks and buses under the aspect of bi-directional charging processes in the next project phase

BSR´s Social Responsibility

- → Social incentive activities/projects for orientation and preparation for trainee-ship ~ e.g. for young people with migration background or with learning difficulties
- → Further training and continuing education (~9,150 qualification days, approx. 1,300 internal and external seminars
- → Health and social counselling, prevention, occupational safety (~900 vaccinations, ~1.200 medical examinations, health counseling, psychosocial support and addiction aid, company-facilitated sports activities, ~ 250 work safety instructions)
- → Supporting the children and youth work of sports clubs and organizations (e.g. Hertha BSC, BFV, 1. FC Union, Füchse)
- → Employment of staff with disabilities (~ 740 employees – approx. 14,5% are disabled resp. not able to fulfill the requested performance standards in waste collection and street cleaning Integration Award 2012)
- → Supporting charitable organisations for children and adolescents ("Berliner Tafel", public recreation center Wuhlheide, "Rote Nasen", "Stiftung Naturschutz")
- → Traineeships in industrial engineering, in the commercial sector and academic degree courses ,each year ~60 trainee-ships and 10 dual degree training positions

Partnership und networking for climate protection

Presentation by Rainer Knauber, Communication Dept., GASAG (Berlin Gasworks)

⁝⁝ Agenda

→ Climate protection – Agreement between GASAG and the city of Berlin
→ Content of the forth agreement "Klimaschutzvereinbarung 2011-2020"
→ GASAG-networking

⁝⁝ Ambitions of the 4th Climate Protection Agreement 2011–2020

→ The reduction of harmful emissions has the highest priority within the climate protection agreement
→ The climate protection agreement between the climate protection partners GASAG und the city of Berlin represents an essential component to achieve these ambitions.

In order to achieve the ambitions GASAG is going to campaign for the best possible involvement within the GASAG-Group

→ The fourth agreement symbols the continuation of the long-standing cooperation between the GASAG and the city of Berlin.

⁝⁝ Examples of measures to fulfill the ACP 2011–2020 – Contracting services for private customer

→ "Bärenheizkomfort" as private customer contracting offer for single- and double-occupancy homes ⇢ extension of the target group of the classical contracting
→ Complete package: planning, construction, financing, operation, maintenance of the new condensing boiler (possibly with solar thermal) is performed by GASAG in cooperation with the local handicrafts
→ Monthly heat price instead of one-time investment for the customer
⇢ thus overcome investment barriers
→ Customers modernize old oil heaters

⁝⁝ Examples of measures to fulfill the ACP 2011–2020 – Expansion of counseling services for end customers

→ Ambition: set of real modernization impulses
→ Free information event for end customers in GASAG customer center
→ Wide range of topics about energy efficiency:
  > Natural gas condensing technology and solar
  > Ventilate and heating
  > New natural gas technologies
  > Insulation
  > Possibilities for funding
  > Cooperation with partners from the equipment industry
  > Round about 60 participants registrations (each time)

Innovation

→ Innovation and public ownership are not mutually exclusive
→ Important tasks to remember:

1 Rational use of energy
2 High focus on the energy efficiency
3 Bench market is important
4 Idea to find the better way to reach the consumer (start selling life-time services)

Q: What did come out from the TUCD cooperation?

⁝⁝ A: The results: discussion between the city mayors. The initiatives are mostly funded by the cities. Sustainable projects are mostly unfunded. The ministries want to know whether such pilot projects want to get funding from the state.

Final Wrap-up Discussion

→ Focus on the energy efficiency in the cities
→ Housing before the 1980 in Germany (development)
→ How to transform the old concepts? Dealing with the electricity sector on the energy transition level. Attention has to be paid to energy efficient structure in communities, in housing and heating infrastructure. Important to know: how to link these sectors

Stuttgart

- Severe problems with aviation in Stuttgart
- "Winter" business brings problems
- Transportation project:
  - Traffic
  - Planning procedures: CO_2 reduction
  - Transportation carbon footprint
  - How to get funding money from the EU for the projects?

Knowledge

- Universities have to be more involved in order to increase knowledge
- To offer information and communication in form of the online platform

Pilot projects

- Next year new tickets are coming up in Stuttgart; they can be used for all public transport and can be charged as a credit card, which makes buying tickets much more comfortable. One ticket for all possible kind of transportation in the area with the focus on simplicity and efficiency. This is a big challenge in order to get better mobility
- Car to go, pedelecs and bikes are also included

North-Rhine Westphalia

- Dinslaken shows the CO_2 emissions that are lower at 50% than the rest of Germany
- Local sustainable energy projects that have been developed last year, will be implemented this year
- Former mine area has evolved into the sustainable infrastructure with energy efficient buildings; renewable energies are widely applied

Planning

- New commercial buildings, greenhouse gas free locations: till 2015
- New jobs, new opportunities
- Low energy standards

Guelph

- Leadership at the elections
- Projects: wonder balls ~ helps to dry clothes faster
- New holding company is created to align the city goals with the utility goals. That is the evolution
- New research plans are under way. It is very ambitious- fundamental challenges: to increase the energy efficiency

Feedback

What did we like?

- Great progress and development – within the two years (TUCD) lots of things have changed in the positive direction
- Good update about the new participants
- In Guelph social and cultural aspects of the energy transition are discussed
- A “Transatlantic team” is being formed: different regional challenges, but similar answers and methods
- Broader presentations from the peoples from academia, industries, city council

What can be done better?

- Some projects cannot be realized. Some small things should be considered as local business for the small communities
- Information sharing network: to continue the dialogue

Next Meeting

- Goal: Common challenges and common concerns, lessons learned

Scheduled Date

- Monday 25.08.2014 to Tuesday 26.08.2014
- Get together on Sunday 24.08.2014

Topics

- “Municipal utilities and their role in driving the regional and local development”
- Documenting Communalities
- Communication as a group
- Sustainability, energy efficiency, regional level, neighborhood scale, best practice
- Best practice in from of a brochure on the internet

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Transatlantic Urban Climate Dialogue

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