UII Urban Land Institute

ULI Europe Info June 2011

Public-Private Partnerships in Sustainable Urban Development

European cities are under immense pressure to decrease CO2 emissions and increase energy efficiency by 2020. Through a series of case study examples, this InfoBurst illustrates what cities are doing on the ground-level to fight climate change by focusing specifically on renewable energy. The case studies prove that collaboration between the public and private sectors, especially through Public-Private Partnerships (PPPs), can help to promote sustainable urban development throughout Europe.

This InfoBurst was produced by the ULI Urban Investment Network



Hamburg Brennstoffzelle, ©Vattenfall; Source: HafenCity Hamburg GmbH

The Energy Imperative

Urban areas account for about 70% of the total primary energy demand in the European Union, and cities consume the highest levels of gas, electricity and heat in the world.¹ These figures are expected to increase, and by 2020, EU member states must reach their agreement to reduce energy demands and greenhouse gas emissions by 30% and increase their use of renewal energies by 20%.¹¹

These tasks are daunting, and the funds needed to meet the targets are substantial. In its report to the UN, the Advisory Group on Energy & Climate Change (AGECC) estimated that \$35 – 40 billion of annual UN investments would be required to reduce CO2 emissions and to link peoples to modern forms of energy by 2030.ⁱⁱⁱ

"CITIES MUST PLAY A PIVOTAL ROLE IN ACHIEVING EU ENERGY EFFICIENCY AND CLIMATE CHANGE OBJECTIVES"

- Presentation by Frank Lee, Head of Holding Funds and Advisory, Northern Europe, JESSICA Task Force, EIB, 23 October 2009, on "JESSICA Holding Funds in the EU"

Financing Sustainable Development through Public-Private Partnerships

International and national governments are promoting sustainable development and renewable energies through direct lending, changes to legislation, financial incentives, and building and construction regulations and indicators. A 2008 report by Deloitte concludes, however, that "PPP [Public-Private Partnership]financing is often the appropriate answer to renewable energy financing."^{iv}

PPP models offer a number of benefits, including:

RISK REDUCTION	KNOWLEDGE
- public authorities are able to	- private organisations may have
share the risk of investment with	technical expertise that city
private companies.	governments lack or vice versa.
A LOCAL FOCUS - compared to centrally-lead development scheme, Public- Private Partnerships are designed for the urban area, employ local actors, and allow local authorities greater freedom and control over service provision.	ADDED SOCIAL, POLITICAL AND ECONOMIC BENEFITS - the use of local organisations can encourage civic engagement and job creation in the area.

As a result, a number of municipalities are increasingly turning to models of Public-Private Partnerships to finance renewable energies, and these partnerships may take a variety of forms depending on the needs of those involved and the parameters of the project. The diversity of PPPs is also evident through the emergence of Energy Service Companies (ESCos) and Multi-utility Service Companies (MUSCos), organisations composed of public and private partners established to finance, build and manage joined-up energy and utility services in urban areas.^v

The following case studies illustrate examples of European cities that have taken advantage of the variety of PPP models to launch successful renewable energy systems:

London

Woking Borough Council's Thameswey Energy Limited

The Woking Borough Council, a public authority based outside of London, established Thameswey Energy Limited in 1999 as an Energy Service Company (ESCo) that owns, operates, and manages the heat, electricity, and water supply in the borough. Thameswey is a PPP between the Borough Council and Xergi Limited, a Danish energy company which owns 10% of the shares. By utilizing the PPP model, Woking was able to surpass government controls on local government spending, establish a Combined Heat and Power (CHP) plant, and build a private wire renewable energy system and fuel cell CHP system. The private system also allows the Borough to save on fees associated with accessing the national power grid, to which it is connected as a back-up supplier.^{vi}

The benefits of the CHP system are considerable. From 1990 to 2004, the Borough experienced a 48.6% reduction in energy consumption and a 17.23% reduction in CO2 emissions from 2002. Additionally, all residents have received free or subsidised insulation, allowing the Borough to save 91,270 tonnes of energy per year. The Borough credits its success to the technical, financial, and commercial innovation gained by working in partnership with the private sector, and has proven how a PPP model can provide additional flexibility and capital in what would otherwise be a strict planning environment.^{vii}

Elephant and Castle's MUSCo

Using an estimated budget of £1.5 billion, London's Southwark Council will redevelop 70 acres of city property in its Elephant and Castle and Aylesbury neighbourhoods. By creating a decentralised energy system that will bring heat, hot water, communications and infrastructure to 9,700 residential units and 38,000m² of commercial space, the Council aims to create a mixed-use site that is at the "forefront of sustainability" by 2020.^{viiiix} In order to finance plans for the massive overhaul of the area's energy system, the Council contracted a Multi-Utility Service Company (MUSCo) to "plan, design, contract, finance and operate the plan and infrastructure required to deliver low carbon energy". Composed of three partners, including Thameswey Energy Ltd, the London ESCo Veolia Water Outsourcing Ltd & BskyB, the private company Dalkia & Three Valleys Water, and partially supported by the Clinton Climate Initiative, the MUSCo is expected to absorb 100% of the commercial risk to the Council while providing a long-term vehicle for private investment in the area.^{xi}

As part of its Masterplanning process, the Council clearly delineated the responsibilities of the MUSCo (planning, building, and operating the system) from the Council's (providing land and setting standards). The Council was able to attract private investment by guaranteeing that the scheme will "generate early heat revenues" and by allowing for the "[sale of] electricity to the grid."xii When the energy system is successfully in place, the Council "will seek to recover value" from the MUSCo and take ownership of the system.

Stockholm

The Hammarby Sjöstad Project

Conceived of in the 1990s and developed in 2004, Stockholm's Hammarby Sjöstad district houses 9,000 apartments and 200,000 sq. feet of commercial space on a former brownfield site south of the city.^{xix} Similar to HafenCity, Hammarby is a model of renewable energy. A co-generation plant that extracts heat from wastewater powers the district's electricity, heating and cooling, meaning that residents produce nearly half of their energy needs.^{xx} The system also makes use of independent power producers (IPPs), privatelyowned entities who control when the district connects to the power grid. As a result, consumers play an active role in energy supply, thereby helping to reduce reliance on the central network system.^{xxi}

"BOUNDARIES BETWEEN POWER SUPPLIERS AND CONSUMERS BECOME INCREASINGLY BLURRED"

- Comments on the Hammarby Project's use of Independent power producers (IPPs) in Stockholm. Sustainable Cities. www.sustainablecities.org.uk/energy/portfolio/ownership.

Private companies contributed 80% of the total cost of the redevelopment, and the City worked with 25 construction companies to build the district.^{xxii} The energy system is managed by a PPP joining up the Stockholm Water Company with a private waste management company and the private energy providers Fortum and Fortum Värm, allowing for a comprehensive management of the district's waste and energy systems.^{xxiii} By making renewable energy a central feature of the district's Masterplan, the city was able to contract expert private sector partners to dramatically reduce the area's reliance on non-renewable energy sources.

Hamburg

HafenCity Hamburg

Hamburg's massive HafenCity development also aims to reduce emissions and establish a district-wide renewable energy system.^{xiv} By creating a local district heating network, fuelled by a biomass-fired combuster, a biomethane fuel cell, and heat pumps powered by river water from the River Elbe, the new development hopes to see a 27% reduction in emissions.^{xv}

The project is financed by approximately €5.5 billion of private investment and €1.3 - €1.5 billion of public investment, €800 million of which was derived from the sale of the land in the district.^{xvi} After establishing standards for the maximum levels of energy emissions (175 g/kWh), the City opened a tendering process to contract a private company to build, operate and manage the district energy system. In 2009, Dalkia Energie Service Gmbh, the same company contracted by Elephant and Castle, won the 25-year contract and announced its mission to reduce emissions to 89 g/kWh, drastically undercutting the project's original goal, through the bio-fuelled system.^{xvii}

Through its partnership with Dalkia, the City is able to explore innovative and technically-advanced sources of renewable energy – such as a biomethane fuel cell – and benefit from the private sector's expertise. In the end, "more than 2.32 million m² of gross floor area (GFA) will be new-built," equating to the addition of 5,800 new homes and up to 45,000 jobs when the project will be completed in 2025.^{xviii}

Copenhagen

The Middelgrunden Off-Shore Wind Project

The Middelgrunden Off-Shore Wind Project consists of 20 wind turbines located 2km from the shore in Copenhagen harbour. *** A former dumping site for industrial waste, the project produces 40MW of wind power, covering approximately 3% of the electricity consumption in Copenhagen through a grid connection from the turbines to the shore.** Through its use of the renewable wind energy, the project saves Copenhagen 76.000 tonnes of CO2, 4.900 tonnes of dust, and 231 tonnes of nitrogen oxides annually as compared to other energy systems.**

The most remarkable feature of the Middelgrunden project is its unique 50/50 ownership by the local municipal utility company, Copenhagen Electricity (CEC), and a co-operative composed of nearly 100,000 local families.^{xxvii} Although the co-operative was originally established by the Municipality, the City now only serves as a consult to the group, called the Middelgrunden VindmØllelaug I/S partnership.^{xxviii} More than 95% of the members of the co-operative invested between €500 and €3,000.^{xxix} Like the Elephant and Castle MUSCo, responsibilities in the ownership of the Middelgrunden project are clearly delineated: the CEC manages contracts and planning while the co-operative suppliestechnical knowledge, financial commitment, and a forum for civic engagement and participation.^{xxx}



Source: HafenCity Hamburg GmbH



Conclusion

As the case studies on the previous page illustrate, the establishment of PPPs in local energy systems can benefit European cities in the following ways:

- *Reduce public expenditure and raise additional capital*
- *Encourage local and bottom-up participation*
- Hand-over commercial risk
- Enhance technological innovation and incorporate expertise
- Promote knowledge-sharing
- Provide flexibility and opportunities to avoid "red-tape"
- Create vehicles for long-term investment

PPP financing is not without its challenges, however, as it may be difficult to create consensus amongst stakeholders. Guidelines and responsibilities may also be unclear, and cultural differences between the public and private sectors may delay or impede progress. Because PPPs can take a variety of forms, there is also a lack of common standards and procedures for setting up and maintaining a PPP. In order to avoid these challenges, it is recommended that the public sector set up clear organisational structures with the relevant "legal and regulatory infrastructure" to ensure effective private sector involvement.

Challenges notwithstanding, PPPs have proven to have a substantial impact in the financing of renewable energies in several European cities, making them an essential component of sustainable development going forward. Through its LessEn and Urban Investment Network initiatives, the Urban Land Institute is working to encourage the use of renewable energies and healthy public-private relationships in Europe today.

For more information on these initiatives, please visit www.uli-europe.org.

Public-Private Partnerships in Sustainable Urban Development: Involving Local Energy Systems, written and researched by: Sarah Nemecek, Manager, ULI Urban Investment Network, and Guillem Carnés Vendrell, ULI Europe Intern. Edited by: Dr. Gert-Joost Peek, Knowledge Manager, Fakton B.V.

About ULI:

ULI - the Urban Land Institute - is a non-profit research and education organisation supported by its members. Founded in Chicago in 1936, the institute now has over 30,000 members in 95 countries worldwide, representing the entire spectrum of land use and real estate development disciplines and working in private enterprise and public service. In Europe, we have over 2,000 members supported by a regional office in London and a small team in Frankfurt. ULI brings together leaders with a common commitment to improving professional standards, seeking the best use of land and following excellent practices.

www.uli-europe.org

About the ULI Europe Urban Investment Network:

The ULI Urban Investment Network (UIN) is an independent European network designed to promote and encourage world class investment in urban development. The initiative was developed by the Urban Land Institute in collaboration with a group of leading cities, European Institutions and private sector organisations. It is an open network that continuously recruits new members and partners.

The Network creates a continuous dialogue between public and private sector leaders who are seeking to improve their ability to collaborate on urban investment. Its premise is that public-private relationships with a high level of collaborative working provide ample opportunities to bridge investment gaps and overcome city development challenges.

Founding Partners: City of Amsterdam | City of Barcelona | City of Edinburgh | City of Istanbul | Allianz Real Estate | Corio NV | ECE Projektmanagement Gmbh and Co | Eurohypo

Knowledge Partners: OECD LEED Programme | ECORYS | Ernst & Young | Fakton | Gensler | UITP

Partners: Communities and Local Government Thames Gateway | Deutsche Bank | City of Dublin | Grosvenor | Homes and Communities Agency | Ministry for Spatial Planning and the Environment, Montenegro | NCC | Nickom Constructors and Developers | Places for People | Princeton Property Partners | Segro | City of Turin



www.fsc.org Cert no. SGS-XXX-XXXXXX © 1996 Forest Stewardship Counci

This InfoBurst is printed using paper

Times. 29 April 2010. ""Mainstreaming sustainable development in EU policies: 2009 Review of the European Union Strategy for Sustainable Development". Communication from the Commission to the Euoprean Parliament, the Council, the European Economic and Social Committee, and the Committee of the Regions. "Gronewold, Nathanial. "UN Advisers Push Annual SSDin-S400n Global Plan to Expand Energy Use and Reduce Carbon." The New York Times. 29 April 2010. ""Global Market Overview." Deloitte, 2008.

"Creating New Patterns of Ownership (ESCOs and MUSCOs)". Sustainable Cities. www. sustainablecities.org.uk/energy/portfolio/ ownership.

^{xx}Larsen, Jens H. "Organisation of wind power n Copenhagen: the Middelgrunden off-shore oroject." Copenhagen, April 1999 (updated Iulv 2000).

Urban Land Institute

Urban Land Institute 29 Gloucester Place London W1U 8HX United Kingdom

Tel: +44(0)2074879570 Fax: +44(0)2074868652 Email: ulieurope@uli.org Web: www.uli-europe.org



Mixed Sources

from FSC approved sources