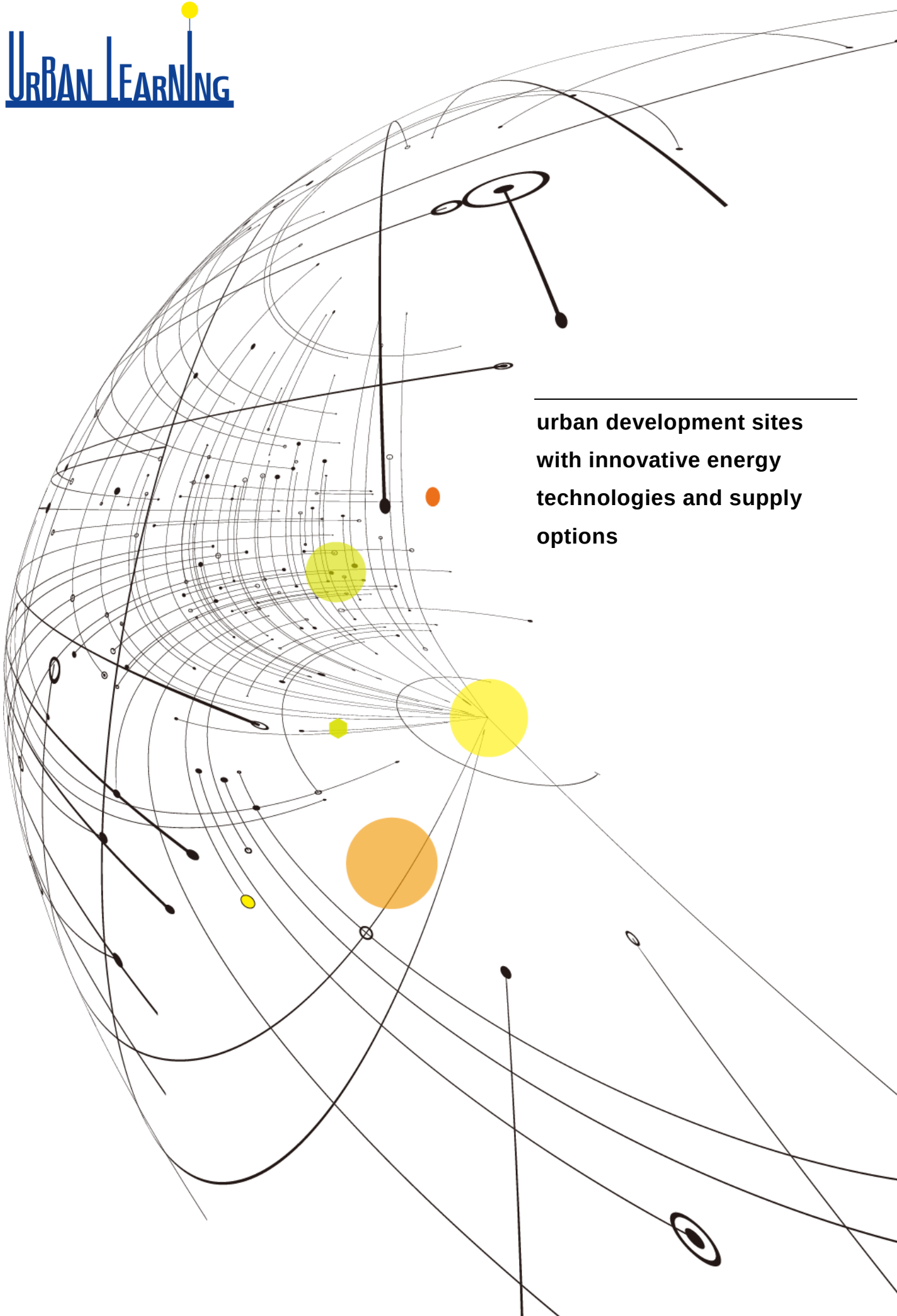
URBAN LEARNING



urban development sites with innovative energy technologies and supply options

DESCRIPTION OF URBAN DEVELOPMENT SITES WITH INNOVATIVE ENERGY TECHNOLOGIES AND SUPPLY OPTIONS

South axis Amsterdam (Zuidas) - a multifunctional land use project	
Purpose of the element	Urban area transformation
Description of the element	South axis Amsterdam is a high-rise city development. With its 1.2 Million m2 of international offices, 800,000 m2 living space and another 1.4 Million m2 amenities (e.g. hospital and university) this project is considered of paramount importance as it brings together 'working' and 'living' land functions. Located between the old city centre and the Schiphol International Airport, Zuidas provides ideal space for both functions. Not only is the area optimized for bicycle and public transport but a highway is being built underground. Furthermore, the majority of the buildings are labelled A (the most energy efficient) according to the Dutch energy label for buildings (scaling A to G). Technologies used: City heating HT and City cooling system, Breeam excellent, Collective Breeam monitoring.
More info	https://www.amsterdam.nl/zuidas/english/about-zuidas/

Houthhavens Amsterdam	
Purpose of the element	Urban area transformation
Description of the element	This project aims for urban transformation, offering offices, housing and amenities such as schools and hotels just outside the city centre. The project in progress is to offer 2,700 dwellings with 20 percent social housing. Technologies used: City heating HT (CHP-plant using waste and biomass) and City cooling using surface, water and seasonal storage
More info	https://www.amsterdam.nl/projecten/houthaven/

Märkisches Viertel	
Purpose of the element	Urban area transformation
Description of the element	The urban redevelopment area "Märkisches Viertel" in Berlin was the biggest low-energy housing refurbishment project in Germany with a total investment of ca. 560 Million Euro. Beside the energy efficient building refurbishment, a biomass cogeneration system (CHP plant) was installed in 2014. It was the first CHP plant in Berlin fuelled entirely by biomass. Thus, it generates heat with especially low environmental impacts,

	burning over 70,000 tonnes/year wood chips (forest residues) and untreated wood.
More info	http://www.stadtentwicklung.berlin.de/staedtebau/foerderprogramme/stadtumbau/Maerkisches-Viertel.4221.0.html#c25087

Adlershof	
Purpose of the element	Urban area transformation
Description of the element	Adlershof is a young science-, technology- and media centre in southeast Berlin, a rather suburban area. With its research and innovation centre Adlershof provides a perfect location for testing and applying new technologies. The science city has its own energy strategy until 2020, within which innovative projects for energy efficiency are developed and implemented locally. Technologies used: LowEx network research project, Power-2-heat/gas.
More info	http://www.adlershof.de/en/

EnergyLab Nordhavn – New Urban Energy Infrastructures	
Purpose of the element	Urban area transformation
Description of the element	A former industrial area is being transformed into an entirely new, sustainable district. Nordhavn in Copenhagen is Scandinavia's largest urban development project, providing space for 40,000 residents and 40,000 jobs. The project is testing future energy solutions in a real-life energy laboratory serving as a showroom for further Smart City aspects and technologies. Low-temperature district heating/cooling system and heat exchanger are to ease the way for heat sources, such as surplus heat, solar heating and geothermal heat. Buildings will be able to exchange heat and cooling with each other.
More info	http://www.energylabnordhavn.dk/

Clichy Batignolles – an ambitious eco-district project	
Purpose of the element	Urban area transformation
Description of the element	Clichy-Batignolles is located in the 17th district of Paris. Its eco-district project aims to transform an rather industrial shaped land. The area includes an already existing 10 ha park, which is assigned to be the centre of the district. By 2020, the new neighbourhood should bring together 7,500 inhabitants and 12,700 jobs.

	The eco-district is an extensive model for sustainable urban development - not just being energy efficient (low-energy buildings, using geothermal and solar energy) but maintaining social diversity (50% social housing, 20% capped-rent housing and 30% housing at market prices), reducing greenhouse gas emissions and preserving biodiversity (greenery at project site, rainwater collecting and watering system).
More info	http://www.clichy-batignolles.fr/sites/default/files/exe_web_cb_dossierpresse-en.pdf

ZAC Claude Bernard (PNE) – mixed development zone	
Purpose of the element	Urban area transformation
Description of the element	This urban renewal project was carried out on land left fallow since the early 1990s (urban wasteland) in northeast Paris. Now it is offering housing, offices, businesses and services, public facilities and infrastructure as well as public and green spaces. The project provides about 2.7 hectares of green areas including the ecological reserve, the linear forest, serving areas of buildings and 3,668 m2 of green roofs, on a 14.6-hectare operation (nearly 18.5%). During design of the ZAC, RT 2005 was in force. The Climate Plan of Paris, adopted in 2007, imposes a housing primary energy consumption of 50 kWh(pe)/m2 /year. ZAC Claude Bernard, designed upstream, has been an exception in bringing this consumption to the BBC level 65 kWh(ep)/m2/year according to RT 2005. The offices are all THPE. Housing is certified with the certificate BBC Home & Environment A1 Performance2 profile option (Cerqual). The offices have tertiary HQE certification (Certivéa). For businesses, BNP Paribas made an audit of the management system by Elan their AMO.
More info	http://www.ekopolis.fr/sites/default/files/docs-joints/EKP-AAM-1303-ClaudeBernard.pdf

Lyon Confluence	
Purpose of the element	Urban area transformation
Description of the element	Lyon Confluence is an urban development project (French ZAC) which is divided into two sections: • Saone Embankments by the river, • Perrache - Sainte Blandine area by the Rhone river. La Confluence's urban redevelopment main objective is to build a smart and sustainable city by balancing environmental requirements with expected needs of future users. SPL Lyon Confluence decided to make quality of life a priority for the project. Since the project was launched, it has sought to create a simple and creative city by encouraging human-powered transport and limiting environmental impact.

More info	http://www.lyon-confluence.fr/en/urban-project/urban-redevelopment/

Stockholm open district heating - a business model for heat recovery in the sustainable city	
Purpose of the element	Urban area transformation
Description of the element	Excess heat in a data centre or other waste heat producing activity is cooled off by a heat pump that simultaneously supplies heat to the district heating network. Recovery of heat from data centres is an important piece of the puzzle in Fortum Värme's efforts to make the production of district heating in Stockholm 100% fossil-free. Increased recycling also reduces the need to build new production capacity. Heat recovery from a major green data centre in Stockholm would annually be able to heat up to 20,000 apartments. In 2015, open district heating contributed to the heating of about 6,000 apartments in Stockholm, as well as a 2,500 ton reduction in carbon dioxide emissions.
More info	https://www.opendistrictheating.com/join-the-discussion/were-building-a-climate-friendly-data-center-in-the-middle-of-stockholm/

Low-energy housing in SRS	
Purpose of the element	Urban area transformation
Description of the element	Stockholm Royal Seaport is the largest urban development area in Sweden. The masterplan is anticipated to provide more than 12,000 new homes, supply 35,000 jobs in the next two decades, and create a new cultural area in the SRS. Renewable energy has to be produced for residential buildings, offices, retail of more than 2 kWh/m2 solar electricity or 6 kWh/m2 solar heating. Goal of the refurbishment of former industrial buildings is to lower energy consumption by 50%.
More info	http://www.stockholmroyalseaport.com/

Solar energy production in Rinkeby Hållbara Järva	
Purpose of the element	Urban area transformation
Description of the element	10 000 m2 PV-panels on residential buildings and a sports centre were installed in conjunction with refurbishment of the buildings. The 52 units with a total effect of 1,43 MWp build the most productive solar system in Sweden. ‘Sustainable Järva’ is a pilot project to refurbish old housing stock in a Stockholm suburb.

Key benefits	
Status (planned/in-use)	
More info	http://www.stockholm.se/hallbarajarva

Seestadt aspern – Vienna's Urban Lakeside	
Purpose of the element	Urban area transformation
Description of the element	aspern is the biggest city development project in Vienna carried out at least over two decades in three stages. Until the year 2028, an entirely new part of the city is being built in the 22nd district. The city within the city will have an overall area of 240 hectare making it Europe's largest urban developments with 8,500 housing units and 20,000 inhabitants. Furthermore aspern Vienna's Urban Lakeside is supposed to host over 20,000 jobs in fields like science, research, education, trade or industry. Vienna's Urban Lakeside also serves as a perfect example how cities of the future can be energy efficient and environmentally friendly. Among others, groundwater will be used for heating and cooling and an integrated energy network is planned: integration of renewable energy sources and storage technologies.
More info	https://smartcity.wien.gv.at/site/en/aspern-viennas-urban-lakeside/

Donaufeld	
Purpose of the element	Urban area transformation
Description of the element	Donaufeld is one of the target areas to be developed within the "STEP 2025" (urban development plan of Vienna). The development of the 60-ha area follows the principals of the Smart City concept of Vienna such as maintaining biodiversity, sustainable water supply, a well-functioning social environment and ecological, future-oriented mobility. The Donaufeld area should contain 6,000 housing units as well as place for offices, other services and social infrastructure facilities (e.g. schools). For this area an study of different energy options were done. See "Optionenstudie Donaufeld".
STatsu (panned/in-use)	Mainly planned – first buildings are already in-use
More info	https://www.wien.gv.at/stadtentwicklung/projekte/zielgebiete/donaufeld/leitbild.html

Fahngasse – flexible and affordable living	
Purpose of the element	Urban area transformation
Description of the element	The housing project will be completed in 2019 with 155 housing units containing government-sponsored SMART-flats, government-sponsored rental flats (with and without purchase option) as well as self-financed rental flats. Sustainability and solidarity are the mottos of the project. Beside the usage of solar panels (photovoltaic system) the heating is solved by the innovative concept of thermal component activation (Bauteilaktivierung). Furthermore, heat for warm water will be generated through heat pumps linked to geothermal depth probes. In the middle of the facility a community garden is planned.
More info	http://www.oesw.at/immobilienangebot/in-bau/Objekt/Muehlgrundgasse.html

Industrial Targówek	
Purpose of the element	
Description of the element	Within the 'Project of Low-Carbon Area' Targówek Przemysłowy (Industrial Targówek – part of the Targówek district) the major RES source will be available in form of the expanded ZUSOK waste incineration plant. The project plans to create a city area, which features solutions on behalf of energy efficiency, natural environment and low GHG emissions in the field of city planning, energy networks, buildings construction, transport, waste management, and water and wastewater management.
More info	http://www.targowek.waw.pl/english/index.htm

Revitalisation Programme of Praga, Warsaw	
Purpose of the element	Urban area transformation
Description of the element	This project aims for an energy-efficient building refurbishment, also with use of RES. This is the biggest refurbishment project construction of new blocks of flats, renovation of old ones and connections with district heating. The total investments equal 130 Million €.
More info	http://designforeurope.eu/case-study/co-creating-solutions-citizens

Carlsberg Byen, Copenhagen - the transformation of a brewery site into a new district	
Purpose of the element	Urban area transformation
Description of the element	This project aims for new housing and refurbishment in a historic brewery district. Environmental sustainability is to be reached through an objective of low energy and CO2 neutral operation of the city's houses, of nearby public transport, of urban density, combined with the requirement of underground parking and give priority to vulnerable road users. The goal is to transform Carlsberg into a CO2 neutral city.
More info	http://www.dac.dk/en/dac-cities/sustainable-cities/all-cases/social-city/carlsberg-our-town/

Campus Borongaj	
Purpose of the element	Urban area transformation
Description of the element	Borongaj Campus covers 92.8 hectares and upon completion of construction it will be used by 35,000 students. The designated area for the new university campus was ex-military base. The campus uses renewable energy sources e.g. biomass energy, solar energy, heat from Earth or wind energy. After the contribution of biomass, CO2 is not emitted to the atmosphere but is consumed as raw material: food for the growth of biomass such as algae. The primary energy consumption is thus reduced to zero.
More info	http://www.zagreb-energyweek.info/assets/files/prezentacije2013/08_4ZET.pdf