The building efficiency and district energy relationship and opportunities for action in cities: Building Energy Accelerator and District Energy in Cities

Ingo Wagner,
Policy & Project Officer,
Euroheat & Power
01 September 2015
Reminder: Combining Building Efficiency and District Energy for More Sustainable Cities

SYNERGIES

Building Efficiency Accelerator

- Cities as providers
- City and national targets
- Local planning criteria
- Building codes
- Local energy strategy
- Building certification
- Financial mechanisms
- Business models for system efficiency

District Energy in Cities Initiative

TECHNICAL SYNERGIES

- District Energy systems allow for the efficient supply of locally available otherwise wasted resources to consumers
- Areas with efficient buildings allow for the community level utilisation of otherwise unusable local resources in a more efficient way

‚POLICY INTEGRATION‘: THE EU EXAMPLE

- Building level: Energy Performance of Buildings Directive
  - Art 9 NZEB target
  - Art 2 NZEB definition
  - Art 4 Cost-optimality
- System level: Energy Efficiency Directive
  - Art 4 – Building refurbishment
  - Art 14 – DHC/CHP potential assessment

SYSTEM-LEVEL: BREEAM & LEED

- Take a sustainability approach including energy
- Use a credit system and define categories
- Promote innovative solutions
- Introduced community schemes

BREEAM COMMUNITIES

- Scheme to assess the performance of moderate or large mixed-use developments
- Considers that ‚Topics like energy […] can have a significant impact when they are planned on a larger scale than an individual building‘
- Does not consider individual building desing but sustainable buildings according to BREEAM schemes for buildings are an assessment criterion

BREEAM COMMUNITIES

- Mandatory economic viability assessment
- Energy strategy comparing different solutions
  - Must take into account site-wide demands
  - Considers the connection to/construction of DHC
  - Assesses opportunities to reduce emissions through local or onsite LZC sources
  - Requires efficient buildings

↓Links into BREEAM Sustainable Buildings

  - Assessment study to identify the most appropriate local LZC incl heating grid

DES, BEA AND THE POLICY FRAMEWORK

- Linking up DES and BEA fills a gap in current policies by providing best practice examples ensuring that buildings get more efficient and energy is provided in the most sustainable way
- The synergies between the two are needed to shape the future policy framework also on the national level

WAYS FORWARD

- Two main questions:
  - How to assess the cost-optimal balance?

    www.stratego-project.eu
  - How to ensure that consumers connect their homes to the grid?

    → awareness

    → knowledge

    → advantages

    → price

BEST PRACTICE IN MILAN:
LOCAL BUILDING CODES

Milan has used its planning authority to implement a building code incorporates district heating into energy efficiency assessments of buildings.

- Building codes stipulates minimum energy efficiency requirements higher than national standard
- System efficiency not building efficiency
- Benefit of density bonus to developers

Source: UNEP, 2015. District Energy in Cities .

BEST PRACTICE IN TOKYO: BUILDING ASSESSMENTS

Tokyo requires large developments to provide an “Energy Plan for Effective Utilization” in order to obtain a building permit. This energy plan requires:

- (1) Setting targets for energy saving performance in newly constructed buildings;
- (2) Study of introduction of unused energy and renewable energy;
- (3) Study of introduction of district heating and cooling.

Source: UNEP, 2015. District Energy in Cities .

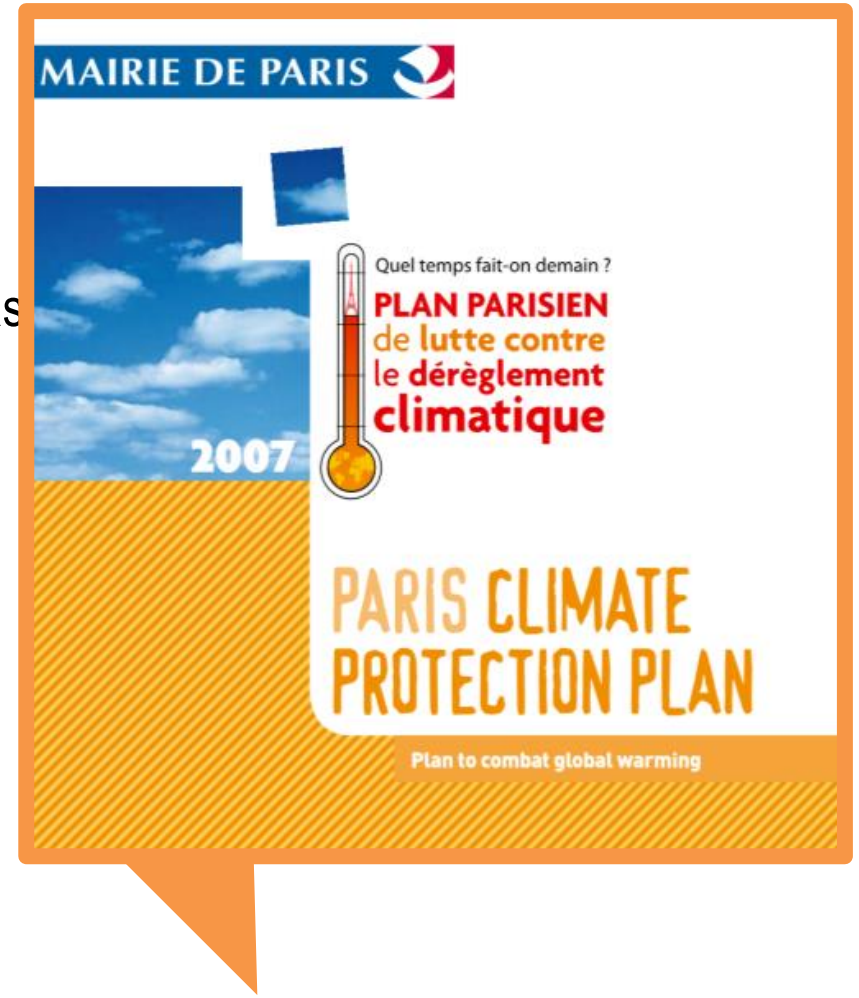
BEST PRACTICE IN PARIS: ZONAL PLANNING

EUROHEAT & POWER

Paris is using zonal planning to accelerate district energy and building efficiency. These zones are described in the city's Climate Protection Plan.

The Claude Bernard Urban Development Zone was required to:

- carry out detailed study of geothermal potential with district heating
- 20% lower energy consumption levels than existing thermal regulations
- use at least 25% renewable energy
- aim for the BBC Effinergie Rénovation certificate



Source: UNEP, 2015. District Energy in Cities .

Ingo Wagner

Policy & Project Officer

Euroheat & Power

iw@euroheat.org