

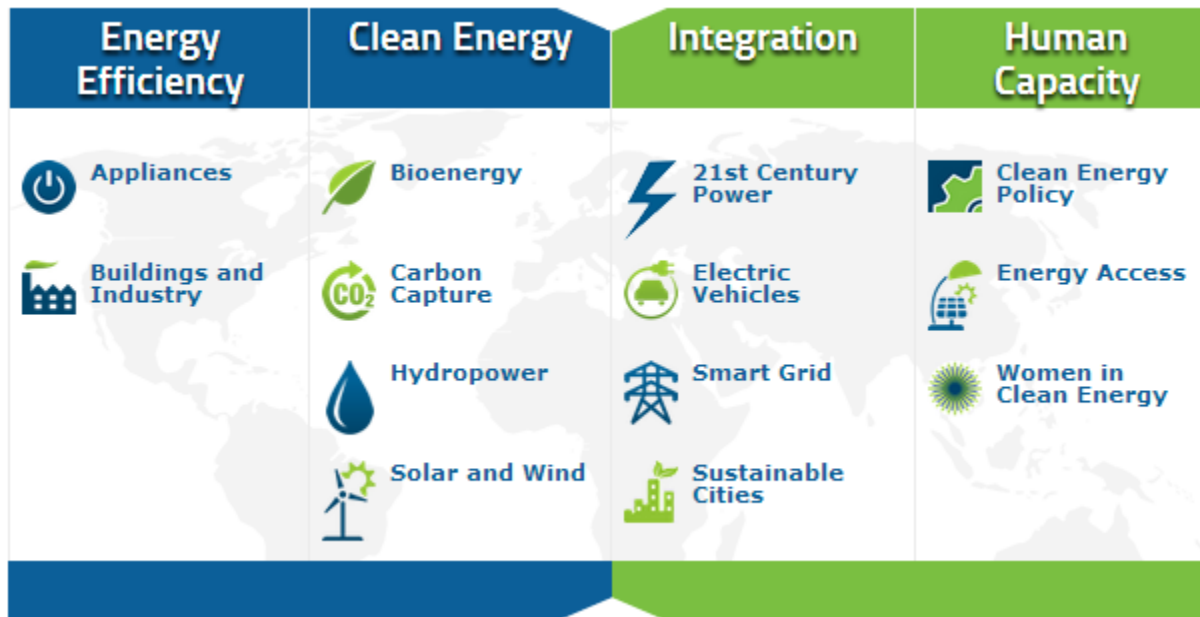
CEM Global Sustainable Cities Network

Overview and potential areas of synergy and collaboration with the IEA CHP/DHC Collaborative and the GSEP CHP/DHC Working Group

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Background

Like GSEP, the Global Sustainable Cities Network (GSCN) is one of 13 initiatives under the Clean Energy Ministerial



GSCN Objective

The GSCN provides a platform for cities around the globe to share knowledge and experience, collaborating with the aim of making major strides toward achieving sustainable cities.

Participants



China



Denmark



Finland



Sweden



United Arab Emirates

Currently under expansion to include France.

Current GSCN areas of focus

- Waste-to-Energy (WtE)
- Demand-side Management (DSM)

These terms are used broadly and integrated holistically within the network. A systems perspective links the two.

The role of CHP and DHC

- District heating and cooling solutions form an important link between WtE and DSM.
- In some GSCN contexts, replacing electric-powered cooling with WtE-based district cooling is in fact seen as a DSM measure.

In the GSCN context

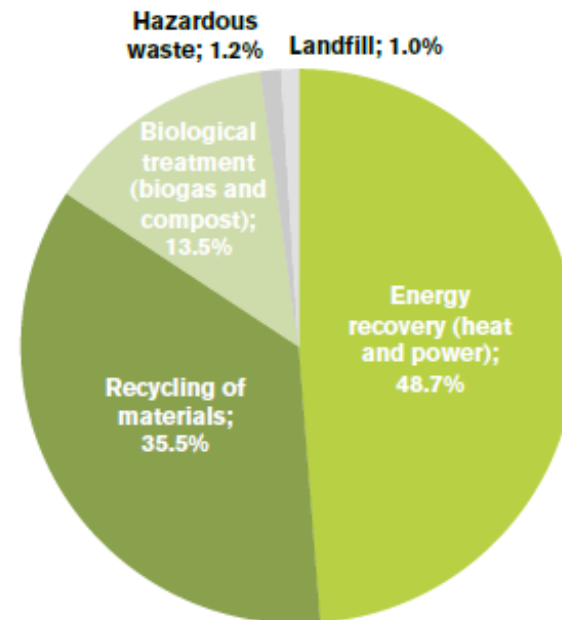
WtE applications most commonly apply CHP technologies and, in cities, are usually connected to district energy (heating or cooling) networks.

DSM is primarily focused on the buildings sector, but includes end-use energy efficiency (for both space conditioning and end-use electronics/appliances), load reduction and load management through smart grids.

WtE in Sweden – Eliminating landfills and providing heat and power

Only 1 percent of all household waste in Sweden was taken to landfills in 2010.

Half of the waste was used to fuel CHP plants.



Source: Kjell Andersson
"Bioenergy: the Swedish Experience," Svebio, 2012

Key System Components – Integrating WtE and DSM

- Waste collection and sorting
- WtE infrastructure and logistics
- Waste conversion (CHP / DHC)
- Building energy management (efficient provision of comfort & services)
- Buildings as energy suppliers
- Managing buildings as energy-system components (smart grids)

Example:

WtE – A Cooling Solution in UAE?

- 60 - 70% of electricity demand in buildings in Dubai is used for cooling. Electricity supply is fossil-based and highly subsidized.
- GSCN network members are currently exploring the possibility of replacing cooling load on the electricity supply network in major cities in UAE with WtE-fuelled district cooling.

There are obvious overlaps between CEM initiatives

CEM Initiative	Focus Area	Overlapping Participants
GSCN	Sustainable Cities – WtE & Buildings sector DSM (includes clean energy, energy efficiency, CHP, DHC, smart grids)	China, Denmark, Finland, France, Sweden, UAE
GSEP Int. CHP/DHC WG, Int. CHP/DHC Collaborative	CHP, DHC	Finland, Sweden (Denmark and France also in GSEP)
SEAD	Deployment of energy-efficient equipment and appliances (includes procurement)	France, Sweden, UAE (China observer)
ISGAN	Smart grids	China, Finland, France, Sweden
21 st Century Power Partnership	Energy efficiency, RE, smart policies and programs, smart grids, clean energy technologies	Denmark, Finland

How can these CEM initiatives benefit from each other?

- GSCN is attempting not only to learn and share knowledge, but to provide a test bed by applying lessons learned in member cities.
- Cross-fertilization between the initiatives could result in valuable information exchanges as well as opportunities to test each other's results.

Exchanging information

- Activities carried out by GSCN cities can result in information that can be fed into the other initiatives. The WtE-DHC area is an example of a key area where GSCN could feed information on lessons learned to the International CHP/DHC Collaborative.
- GSCN also plans to carry out work related to policies and programs that may be of interest to the Collaborative and other CEM initiatives.

Exchanging information

- The International CHP/DHC Collaborative is looking for ways to disseminate information. GSCN could be one target audience.
- The Collaborative could become an important source of information to GSCN member cities on cutting-edge case studies with CHP/DHC solutions, best-practice policies, and assessments of different national approaches.

Building this into our program plans

- We propose that the GSCN and the Collaborative include in their annual plans an intention to:
 - Coordinate and inform each other of ongoing work, and
 - Organize joint activities with the aim of providing participants with opportunities to share knowledge.

Building this into our program plans

- The GSCN is also interested in sharing knowledge with other CEM initiatives, such as the 21st Century Power Partnership and ISGAN.
- We also suggest working together to identify synergies amongst our groups (such as interest in bi-directional energy flows) that can be further used to strengthen our respective initiatives.

Thank you!

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