

International District Energy Experiences – from Asia Pacific and beyond

Mikael Jakobsson, Executive Director
Asia Pacific Urban Energy Association (APUEA)

**APEC Workshop on District Cooling and/or Heating
Systems
EWG 08 2019S**

APUEA – independent support to cities in APAC

Founded by the International Institute for Energy Conservation (IIEC) in 2017

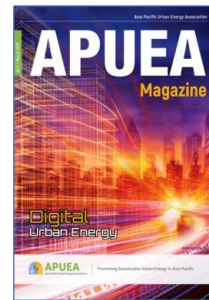
Supported by Asian Development Bank, Euroheat & Power, and Danish Board of District Heating

Secretariat in Bangkok, and local representation in Beijing, New Delhi and Melbourne

Promoting the development of sustainable urban energy and disseminating trends and best practices in the urban energy sector through seminars, workshops, publications and other activities – with focus on District Energy (DE) and Multi Energy Systems (MES)

Supporting cities navigating in the cross-sectoral urban energy field, including Smart Energy City, Energy 4.0, Energy Symbiosis, and other trending concepts

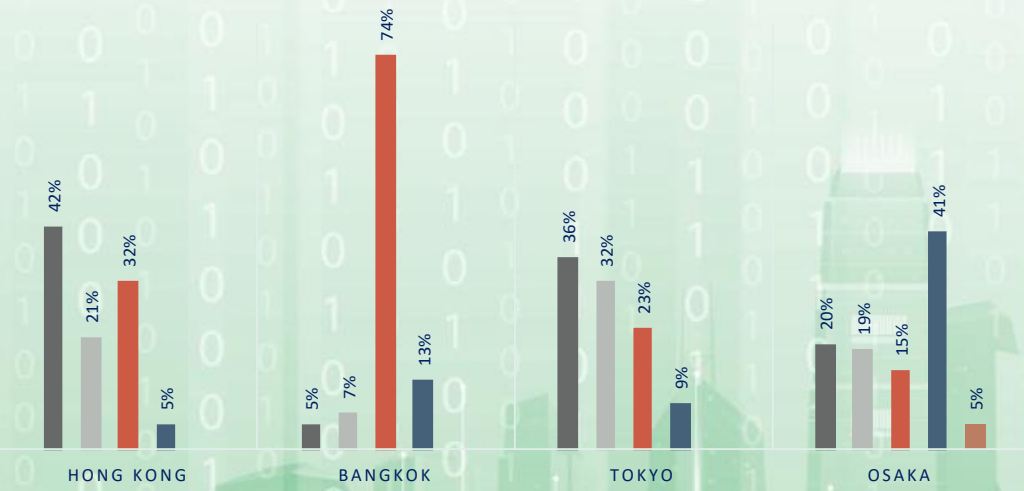
ABB, Engie and Johnson Controls are Founding Members of APUEA



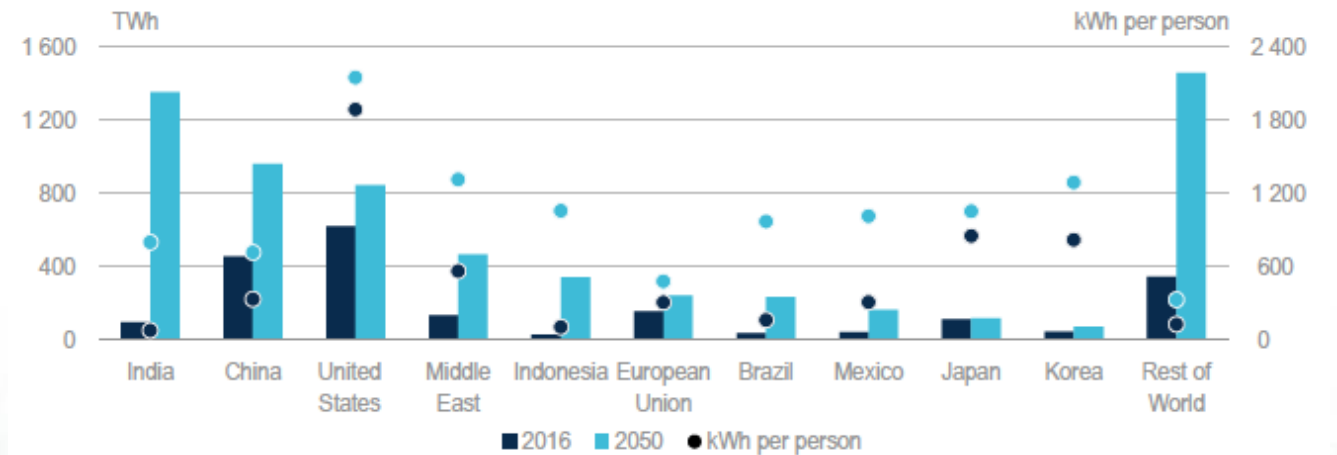
Each market is unique

SECTORAL ENERGY CONSUMPTION

Commercial Residential Transport Industrial Public



ENERGY USE FOR SPACE COOLING



District Energy – From scale advantages to Multi Energy Systems

Traditional benefits

- Remove pollution from dense urban areas (DH)
- Decreased installed capacity
- Increased system(ic) efficiency
- Improved safety and reliability
- Utilization of multiple sources
- Co-generation and Tri-generation
- Reduction of heating island effect
- ...

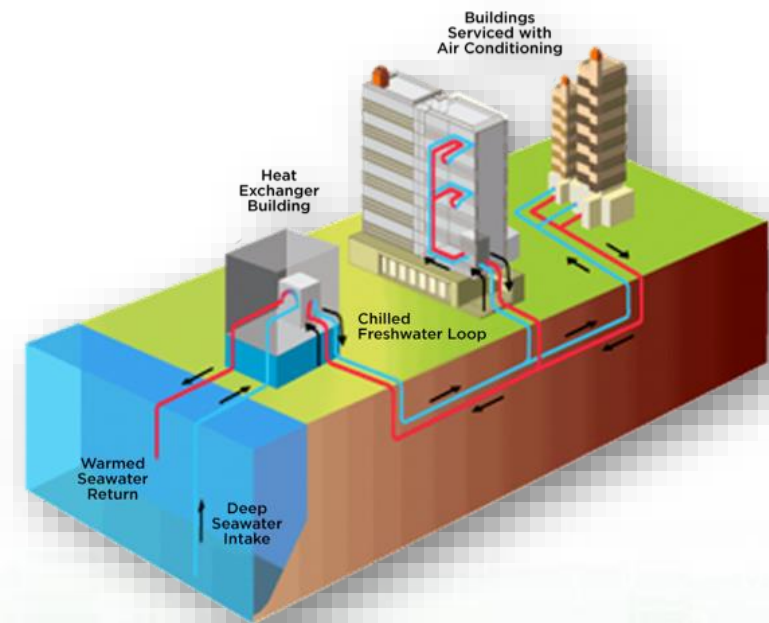
Additional (Modern) benefits

- Utilization of local resources
- Increased utilization of RE
- HFC phase-down
- Integration of Heating, Cooling, Power, Gas and Storage to **Multi Energy Systems**
 - Further improved efficiency
 - Flexibility services
 - Energy Symbiosis
- ...

Is District Cooling feasible?

District Cooling suffers from skepticism due to:

- Expected low operational efficiency (high losses)
- Cross-sectoral complexity
- Insufficient Urban/Energy planning practices
- Absence of experienced utilities
- Front loaded investments
- Lack of, or present conflicting, regulations
- Bad, implemented, examples
- Low grade of utilization due to residential user behavior



It's a great potential for District Cooling in APAC

- APAC is the largest growing cooling market in the world
- DCS is recognized by i.e. APUEA, UN DES, K-CEP, and other organizations, promoting the development of sustainable urban energy
- Several countries in the region present ambitious climate targets
- Attracting anchor consumers by becoming a solution for consumers own climate targets
- There are great business opportunities in carving out the district cooling utility business from traditional developments
- Efficient technologies and good development and implementation practices are present
- ...

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