National to local: Best practice policy frameworks to unlock renewable and efficient district energy

DISTRICT ENERGY IN CITIES

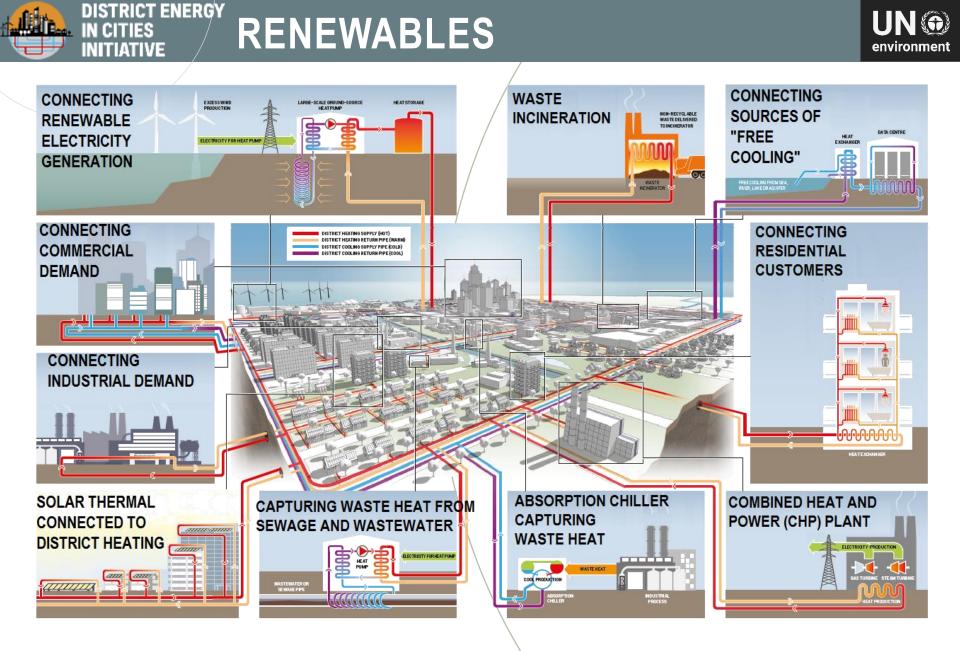
GLOBAL INITIATIVE TO UNLOCK THE POTENTIAL OF ENERGY EFFICIENCY AND RENEWABLE ENERGY

Benjamin Hickman, Technical Expert – Europe and South Asia Energy, Climate and Technology Branch Economy Division, UN Environment

A GLOBAL PARTNERSHIP

DISTRICT ENERGY UN 🎯 **ON DISTRICT ENERGY** IN CITIES environment INITIATIVE sustainable ENERGY **FOR ALL** EBRD EUROHEAT & POWER International **Energy Agency** iea 🕡 VEOLIA **Demonstrate Raise awareness Solar Turbines** Viability WORLD BANK GROUP A Caterpillar Company KFW **engie** UN 🍘 by people for people environment THERMAX alkia EMPOWER **UN@HABITAT** FOR A BETTER URBAN FUTURE ENERGY Create GROUPE **edf** King & Spalding INTERNATIONAL DISTRICT ENERGY Ground-truth SOLUTIONS Regulatory and Replicate ASSOCIATION C L E I Frameworks Johnson 🦅 GGLO thermaflex® Controls Local Governments CARBON SOLUTIONSGROUP for Sustainability TRUST ٠ COPENHAGEN CENTRE ٠ **COUNTRIES CITIES** 33 PARTNERS 38 DONORS 4

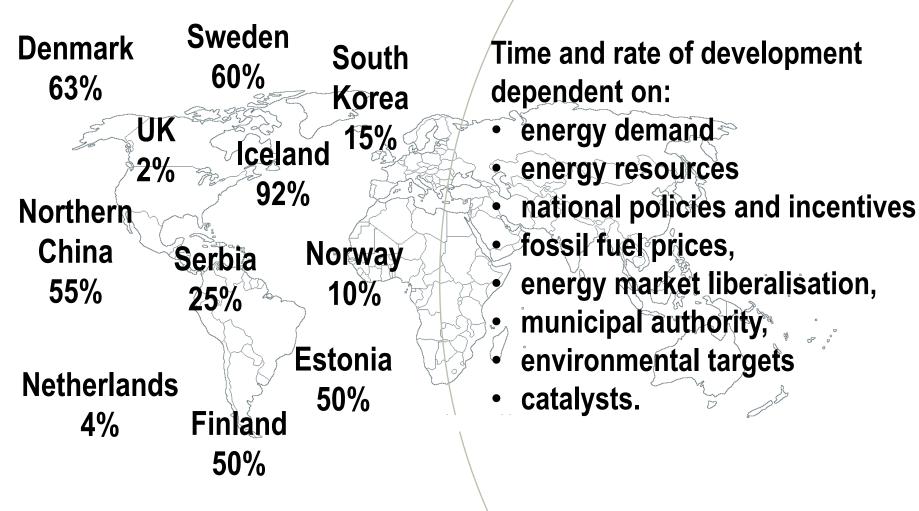
UNLOCKING ENERGY EFFICIENCY AND



RANGE OF DISTRICT ENERGY

MARKET SHARES

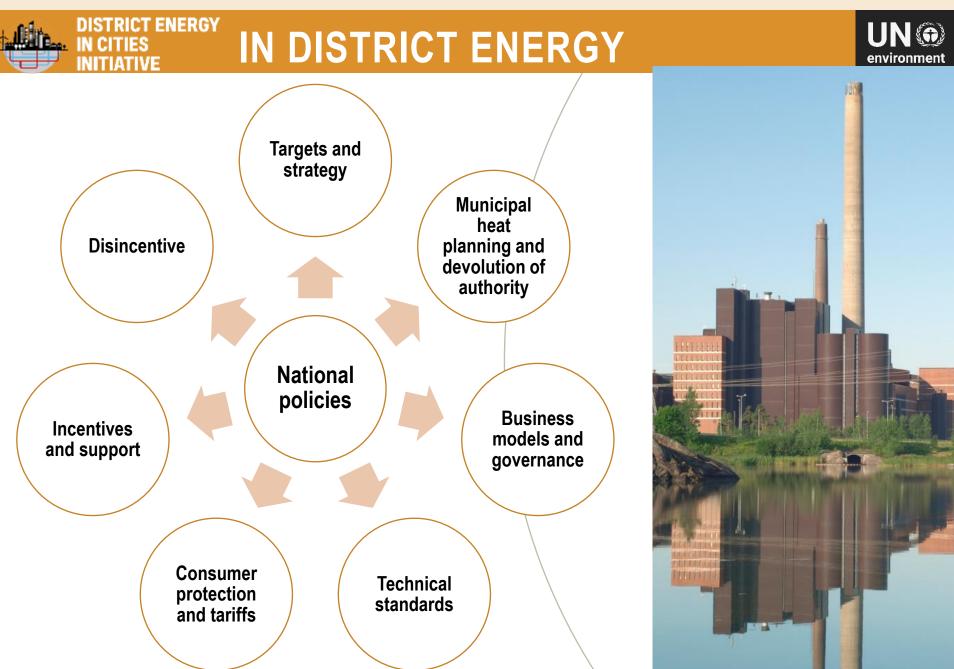




RICT ENERGY

Data: Multiple sources – figures are illustrative with different methodologies employed

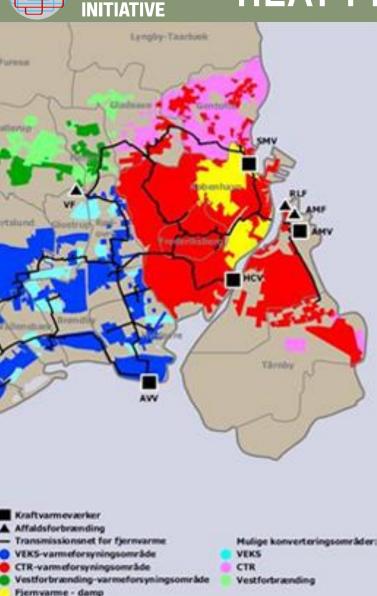
ROLE OF NATIONAL GOVERNMENTS



NATIONAL POLICY ON MUNICIPAL

DISTRICT ENERGY IN CITIES INITIATIVE HEAT PLANNING





Smorum Kraftvarme

- National policies can require and support cities to develop heat/energy plans.
- Requiring heat plans acknowledges role of municipality to act on heat and can then be used to target connection policies
- Needs a harmonised methodology with funding
- Many champion cities develop such plans and national policy goes on to scale-up this best practice nationally
- Supported by EU Energy Efficiency Directive 2012

Strong successes: Denmark, Norway, Korea

High shares can be achieved without it: Sweden, Finland

Softer approach also used: France, Italy, UK, Netherlands

MANDATORY CONNECTION: A

DISTRICT ENERGY GREY AREA



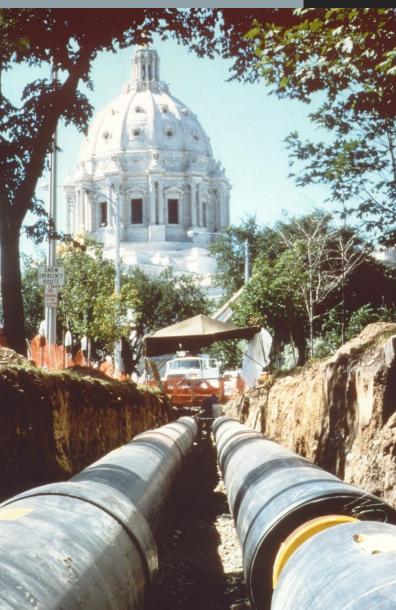
National /regional policy can strengthen and define the authority of municipalities to mandate connection

T ENERGY

- Successful examples link heat planning, franchise zones, connection mandates, tariffs and consumer protection.
- Cities able to reduce load risk through other tools (e.g. land ownership, coordinating municipal services, buildings codes and standards, etc.)

Mandate

Denmark Korea, Norway, Singapore UK, Sweden Netherlands, Finland



No mandate

NATIONAL POLICIES TO PROTECT

CONSUMERS





CT ENERGY

Competition and consumer protection legislation exist in most countries. As markets expand, this protection is further defined and additional national policy developed:

Business model requirements

- Danish non-profit model
- Singapore profit sharing
- Iceland requires a minimum 51% public ownership

Tariff setting

- Priced against alternative (Netherlands, Norway, Singapore)
- Pass on costs (Denmark, Japan)
- Unregulated (UK, Sweden, Finland)

LEVELLING THE PLAYING FIELD

 National policy responses to market barriers

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N CITIES

INITIATIVE

- 1. Provide financial support and capacity building for city assessments and planning
- 2. Make business case for district energy feasible
- 3. Target switching to different fuel mixes and energy efficiency
- Champion cities can advocate for stronger national support based on their experiences



BEST PRACTICE IN TOKYO



UN 💮 environment

Catalysing network development

- District energy operators given exclusive service areas
- Requires large developments to assess district energy development through "Energy Plan for Effective Utilization"

Encouraging connections

 City requires large developments to assess connection to DH and DC and consult with district energy suppliers.

Tariff Regulation and Customer Protection

- Historically had regulated tariffs.
- Today tariffs are more liberalised but dependent on specific zones



A TECHNICAL GUIDE TO DISTRICT

DISTRICT ENERGY ENERGY





IN CITIES

DISTRICT ENERGY IN CITIES

Unlocking the Potential of Energy Efficiency and Renewable Energy

I.C.L.E. UN®HABITAT



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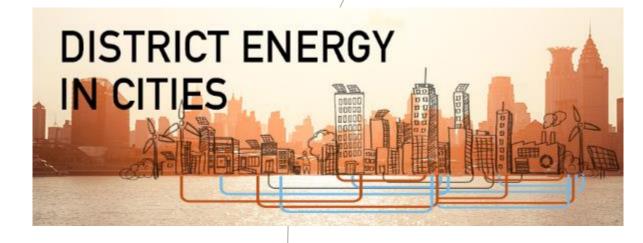
Working with:

- Bosnia & Herzegovina
- Chile
- China
- India
- Malaysia
- Morocco
- Serbia



DISTRICT ENERGY THANK YOU!

NITIATIVE



For more information on the Global District Energy in Cities Initiative and to become a partner, please visit the website or contact:

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http://www.districtenergyinitiative.org/