WORKING WITH AUTHORITIES

Developing the future societies

Peter Heymann Andersen, Ramboll
STRUCTURE OF THE PRESENTATION

• INTRODUCTION
• TRENDS & SHAPING LIVABLE CITIES
• ENERGY SUPPLY FRAMEWORK
• ADVISING CITIES FROM THEIR PERSPECTIVE
• COMMUNICATING DISTRICT ENERGY
• Independent engineering and design consultancy and provider of management consultancy
• Founded 1945 in Denmark
• 10,000 experts
• 200 offices in 21 countries
• Significant presence in Northern Europe, India and the Middle East

• 45 years of experience in planning, design and implementation of energy solutions
• 700 experts
• Expertise ranging from production over transmission to distribution
• Special competencies: Offshore wind, waste-to-energy, thermal power and district heating
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URBANISATION IS A MEGATREND
POLLUTION – ENVIRONMENTAL AND HEALTH ISSUES

In Beijing tourism has dropped 14% due to air pollution.

Breathing Mumbai air = smoking 2½ packs of cigarettes a day.

Sources: AFP, 2013
World Health Organisation, 2013
INCREASING ENERGY CONSUMPTION – MAINTAINING RELIABLE SUPPLIES

Cities account for over 60% of global energy consumption

Oil prices expected to double by 2030

INCREASING URBAN CONSUMPTION – WASTE PROBLEMS

Waste produced per person per day in urban areas globally:
2002: 0.64kg
2013: 1.20kg
2025 (projected): 1.42kg

WE NEED TO CREATE LIVABLE CITYS

KEY PARAMETERS
• Environment
• Safety (Crime rate)
• Education
• Business Conditions
• Hygiene
• Health Care
• Culture
• Recreation

PREREQUISITES
• Holistic Planning
• Proactive Governance
  • Long term planning
  • Long term investing
• Public-Private-Cooperation
  • Authorities
  • Utilities
  • Building owners

TOP OF CLASS
1 Copenhagen, Denmark
2 Melbourne, Australia
3 Helsinki, Finland
4 Tokyo, Japan
5 Vienna, Austria
6 Zurich, Switzerland
7 Stockholm, Sweden
8 Munich, Germany
9 Sydney, Australia
10 Auckland, New Zealand
We need to use our resources more efficiently to reduce our impact!

But also in order to be more competitive!

Our cities need to be liveable to create an attractive environment that attract:

• Businesses
• Residents
• Visitors

District energy goes hand in hand with livability

If your city shall stay ahead of competition -

District energy is a key enabler
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OVERALL GOALS OF THE EU POLICY IN PLACE AND SUPPORTED BY DIRECTIVES

• Security of Supply
• Affordable Energy
• Sustainable Energy
• Manifested in the EU 20-20-20 target
REGULATION NEEDED TO OVERCOME MARKET FAILURES

- Stable framework for investments
- Access to laying pipes
- Natural monopoly
- Distribution of benefits
- Protecting the consumer is vital and could cover price and/or profit structures, consumer influence, and transparency for utilities
PUBLIC PLANNING ENABLES THE GOOD BUSINESS CASE

- Holistic urban planning
- Mapping of demand and supply
- Zoning of heat supply (e.g. gas, DH, Individual)
- Designated CHP/Energy from Waste grounds
- Socio- and user-economic and cost-benefit analysis
STICK ‘N’ CARROT
INCENTIVISE DESIRABLE ACTIONS

- Subsidies/Taxation
- Polluter pay
- Incentivise
  - Energy efficiency
  - Renewable energy
  - Emission reductions
- Guaranteed anchor loads from schools, sport facilities and other public buildings could kick off the investment
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ENERGY MASTERPLAN FOR THE GREATER MANCHESTER AREA, UK

Challenge
New carbon and energy policy commitments
Need for efficient, cost-effective heat

What we did
Developed a district heating energy masterplan across ten authorities

Effect
Provides a basis for decisions about specific projects to be initiated
Challenge
Vision to breathe new life into South Chicago
How to create a liveable and sustainable city for future generations

What we did
Prepared design concept for sustainable energy, water management and waste management
Fossil fuel reduction of 90%, CHP & District Energy

Effect
New way of living
Urban design strategy is key differentiator
Winner of Sustainia Community Award
COPENHAGEN DISTRICT HEATING SYSTEM
DENMARK

Challenge
Utilisation of all available heat sources in the Copenhagen region in the most efficient way

What we did
Main consultant to the transmission company (CTR) for more than 30 years
Planning, design, implementation, optimisation

Effect
One of the largest city-wide district heating systems in the world
Supplies low-carbon heat to one million people
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CLEAN & ADAPTABLE

- Enabler of renewable energy
  - Wind
  - Solar
  - Geothermal
  - Biomass

- Adaptable to future needs
  - Low temperature
  - Energy Storage
FUTURE PROOF

- Demand projections unrealistic low
- Domestic hot water
- Electric appliances
- Increased comfort
- Climate changes

* Data from Green Energy
ECONOMIC SENSE

- USER
  - Carry no/low risk
  - Stable prices
  - Ownership, Influence

- PRODUCER
  - Sale of waste heat
  - Stable energy sale

- SOCIETY
  - Local job creation
  - Lower fuel dependency
  - Livability
URBAN DESIGN CONTRIBUTION
CONCLUDING REMARKS

District Energy is a key enabler for liveable cities.
The public is instrumental in creating the pre-conditions for District Energy.
We all need to better in communicating the benefits of District Energy.
THANK YOU
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