

DISTRICT ENERGY ROLL OUT

Jakob Bjerregaard Partner at devcco Jan 24, 2019 – HRE Workshop, Berlin

- ABOUT US
- DRIVERS FOR DISTRICT ENERGY
- TAKING THE NORDIC EXPERIENCE ABROAD
- WHAT WORKS

DEVCCO-WHO/WHAT

A-Z business consultancy in DHC

WHO

- Started with District Cooling in Stockholm
- +15 years global experience from District Energy developments
- Core team in the Nordics, partners and satellites globally

WHAT

- Work with utilities, developers, financiers, industry and governments
- Successful development of + \$2.5 billion
 District Cooling projects
- Total CO2 reductions of + 2,5 million ton/year
- Expect to multiply investment by 10 in next 10 years

AWARDS 2017





DEVCCO - DISTRICT COOLING EXPERIENCE HIGHLIGHTS



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HFC PHASE OUT



The **Kigali amendment** to the Montreal Protocol, November 2016:

- Global commitment to phase down HFC refrigerants
- EU F-gas directive, phase down starts now

Global Impact

- Up to 0,5 °C from <u>HFC phase down</u> and
- o,5 °C due to <u>energy efficiency</u> <u>improvements</u>
- Total potential 0,5 1 degree C

Business Impact

- Existing cooling installation become obsolete
- Chillers become more expensive greater economy of scale



AIR-CONDITION DEMAND



Source: IEA. All rights reserved.

IEA projections:

- Global energy demand from air conditioners is expected to triple by 2050
- global stock of air conditioners in buildings will grow to

- 5.6 billion by 2050, up from 1.6 billion
- 20% of electricity used in buildings, 10% of total demand



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BEST PRACTICE – LINKÖPING, SWEDEN

Linköping





Production



- 150.000 inhabitants.
 - Start-up 1997, collaboration by the city energy utility and Linköping University
- Triggered by the Swedish early phase out of R12&R22 (CFC&HCFC) and to make use of the summertime surplus heat
- 2016: 140 customers, total demand of 55 MW (16.000 RT), output of total 100 GWh/year.
- Total investment is about 30 M€
- HFC phase down: 100%
- Energy Efficiency: SSEER* = 10,7
- 40% expansion expected in coming years

*SSEER: Seasonal System Energy Efficiency Ratio



EU - MARKET SHARE FOR DH



Source: Euroheat & Power (DHC Country by Country survey 2013)

- Large variation within EU
- DH most common with large market shares in e.g. The Nordic countries, Germany, Poland and Czech Rep.



DISTRICT COOLING IN EU



- Today 3TWh DC in EU
- Approx. 1-2% market share for DC in EU
- Market Share in Sweden >25% (1TWh)



THE CHALLENGE - GOING ABROAD

There's no

- DHC utility
- Grand energy plan
- Level playing field for DHC roll out
- Financing options
- Coherent policy





Everyone has a plan until they get punched in the mouth. - MIKE TYSON

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TWO-LEVEL PROCESS

High-level

- Planning
- Legislating
- Capacity building

Local-level

- Activate local champions
- Develop projects
- Finance
- Expand



IMPLEMENT - KISS MODEL

Simplicity is key

- Make every phase work
- Few offtake contracts only large customers
- Easy permitting (minimize combustion and use of public areas)
- Replicable and transferable engineering
- Small stakeholder group
- Standartized contract structures
- Future integration with other networks/sources





THANKYOU!

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