

Fortum – Open District Heating

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Transition towards Solar Economy

High
Resource & system efficiency
Low

Solar Economy
Inexhaustible and emissions-free,
solar-based production

Hydro

Sun

Ocean

Geothermal

Wind

Bio

CHP

Advanced energy production
Energy efficient and/or
low-emission production

Nuclear
tomorrow

Traditional energy production
Exhaustible fuels and production
that burdens the environment

Oil

Coal

Gas

Nuclear
today

Finite fuel resources Large CO2 emissions

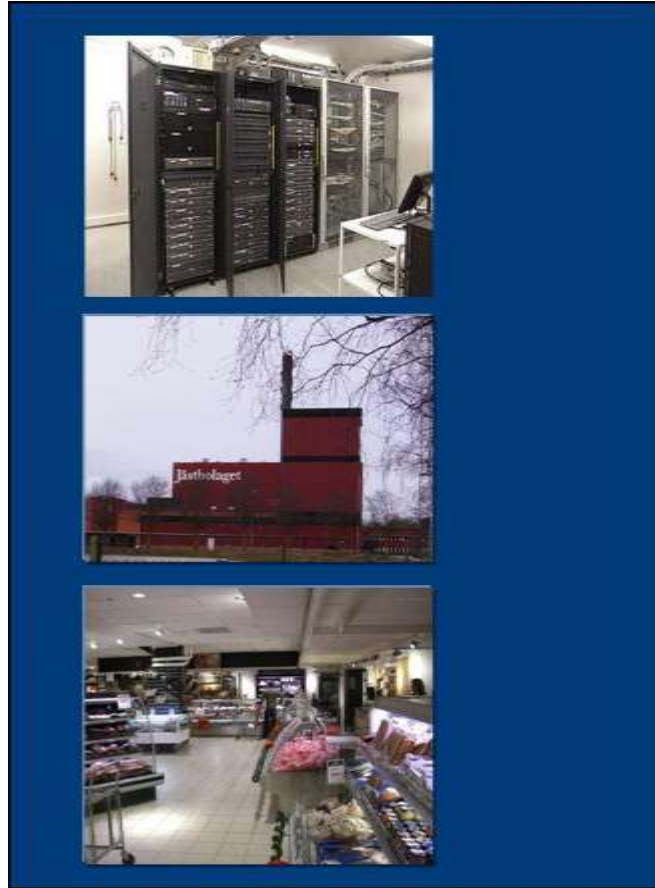
Infinite fuel resources Emissions free production

Open District Heating

- We want to develop the future's district heating together with our customers
- We want to create a brand new market for recycled energy in Stockholm through our pilot project
- Open District Heating = buying our customer's waste heat at market price



Open District Heating turns waste heat into common gains



Who can produce heat at the lowest cost?

- Open district heating means that we allow our customers to compete with our own production.
- If the customer can deliver heat at a lower cost Fortum will buy it.
- Open district heating sets a market price of residual heat based on our production cost.



Open district heating – from idea to reality

- Testing of two preliminary business models:
 - Open spot market price on heating
 - Open returned heating price
 - Open residual heating price
- Agreement with 20 pilot customers in May
- Delivery starts in September 2012
- Joint evaluation in April 2013
- Commercial launch in autumn 2013



Our offer – Open District Heating

- Participate in the development of a new market for heating and cooling
- Compensation at market prices for delivered energy



Mutual intentions and ambitions

- To find rational economic solutions
- The participants engage in the opportunities that are offered
- Both parties will work to realize the project's intentions



Economic terms

The participants will receive most of the benefits and will account for most of the investment



Business models

- **Open spot market price on heating ("first-rate heating"):**
 - Purchase price depends on outdoor temperature as "first-rate" district heating is delivered on feed lines. The supplier has an option on delivering and gets paid by delivery at the current price.
- **Open returned heating price ("second-rate heating"):**
 - Purchase price depends on outdoor temperature as "second-rate" district heating is delivered on return lines. The supplier has an option on delivering and gets paid by delivery at the current price.
- **Open residual heating price ("residual heating"):**
 - Purchase price depends on delivery temperature during December-March when "residual heat" is delivered on district cooling return lines. The supplier has an option on delivering and gets paid by delivery at the current price.

The future vision

- Rational recycling of excess heating in Stockholm
- Commercially profitable trade with heating and cooling
- Higher utilization time of existing facilities





Thank you!

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