



# District Cooling - a sustainable investment providing attractive returns

October 26, 2015

Panama City

*Anders Sjöholm*



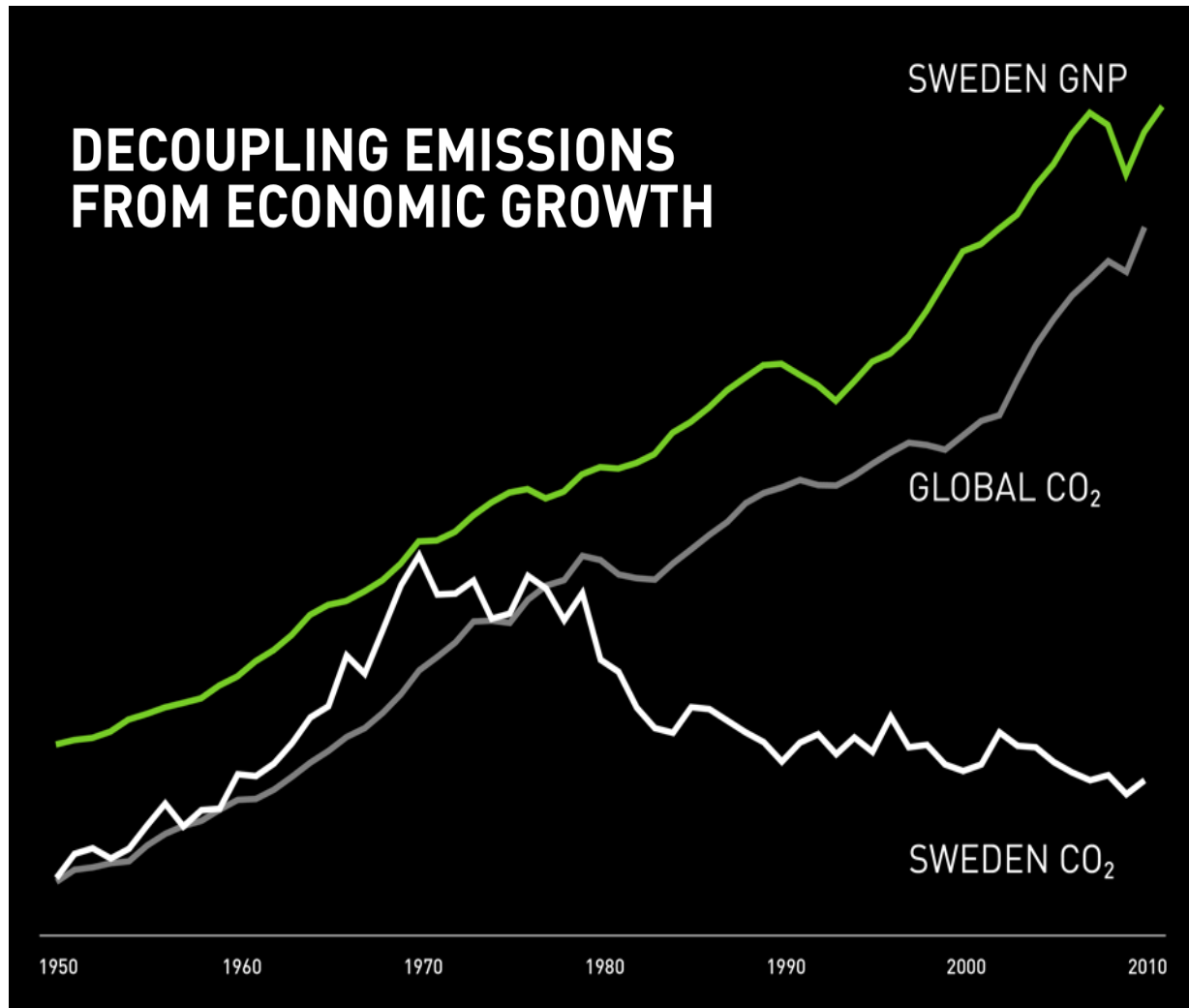
*Successful combination of economic growth  
and environmental concern*

# Capital Cooling – Project Developer and Investor

---

- Founded in 2002 by the management team of the Stockholm District Cooling system
- Extensive experience from developing District Cooling projects in Europe, Middle East and the U.S.
- Investor in the SWAC projects in Honolulu and Aruba
- Have been engaged in more than 50% of the District Cooling projects in Europe and have been responsible for the development of the world's largest District Cooling system with a total capacity of 500,000 tons in Lusail, Qatar

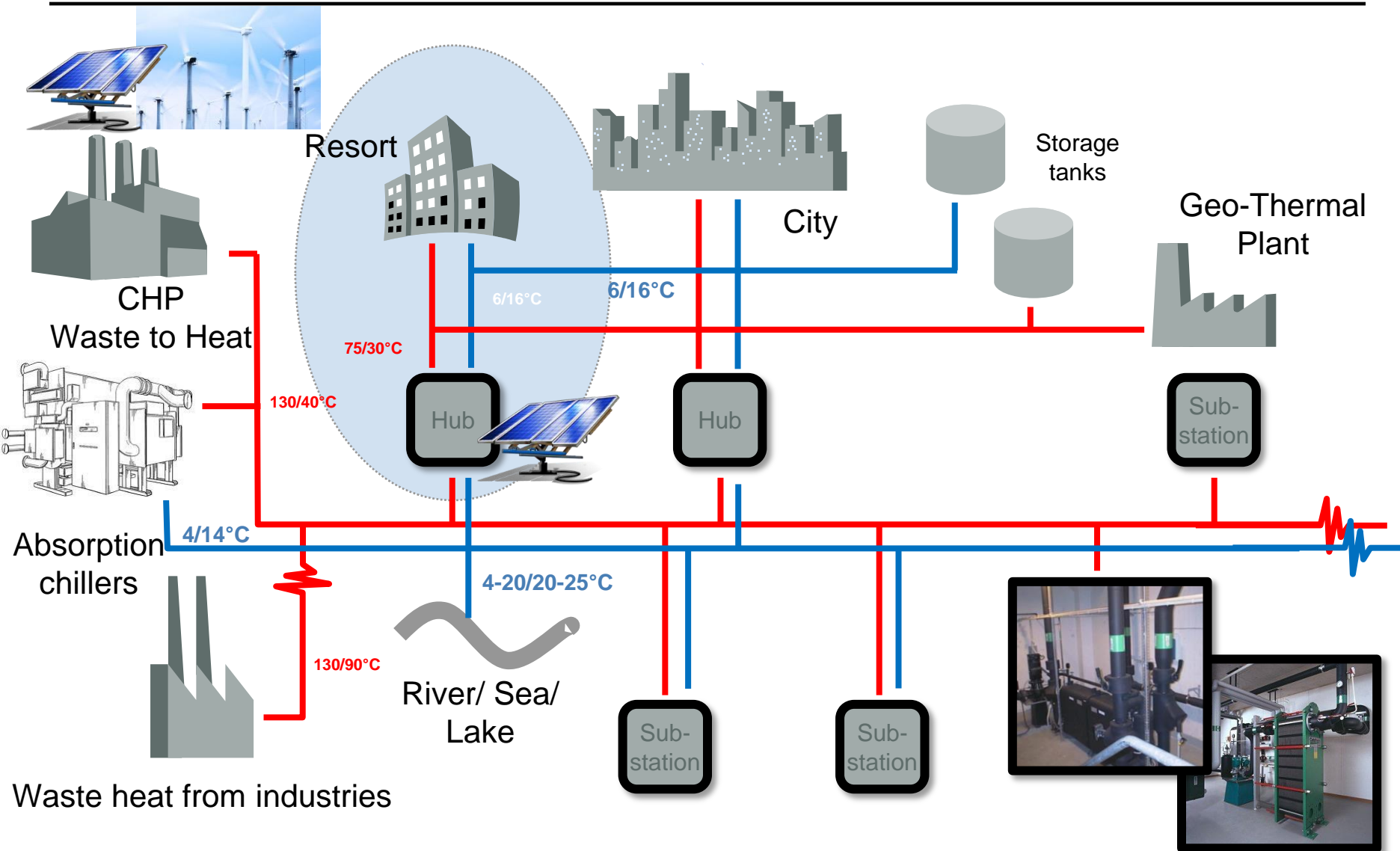
# Smart Synergies in District Energy brings down CO<sub>2</sub> emissions



Stockholm District Energy:

- ✦90% of total energy reused or renewable
- ✦Nominated as the first Green Capital in 2010

# Smart Synergies – an integrated District Energy system

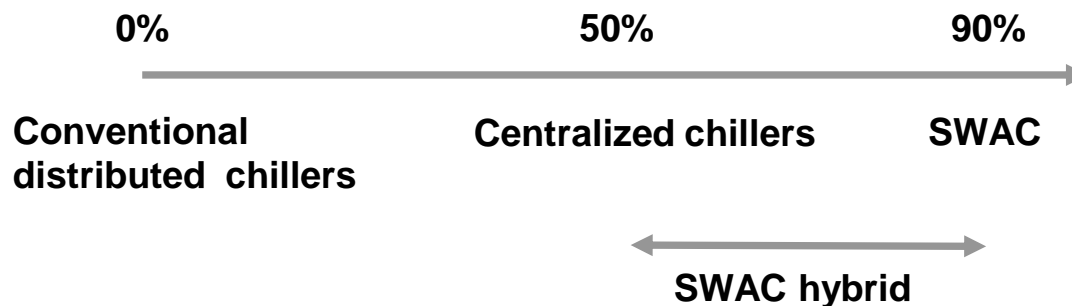


# Lower electricity consumption is the most efficient way to go green

---

- ✦ District Cooling is infrastructure investments that provides large scale energy efficiency that significantly reduces the electricity used for air-conditioning
- ✦ Based on proven technology with a very long life cycle of +50 years and a minimum of re-investments
- ✦ Scale of economy as such provides twice the efficiency compared to conventional chiller
- ✦ Reduces the need for investments in new renewable power production

## Reduction in electricity consumption



# Significant reduction of CO<sub>2</sub> emissions

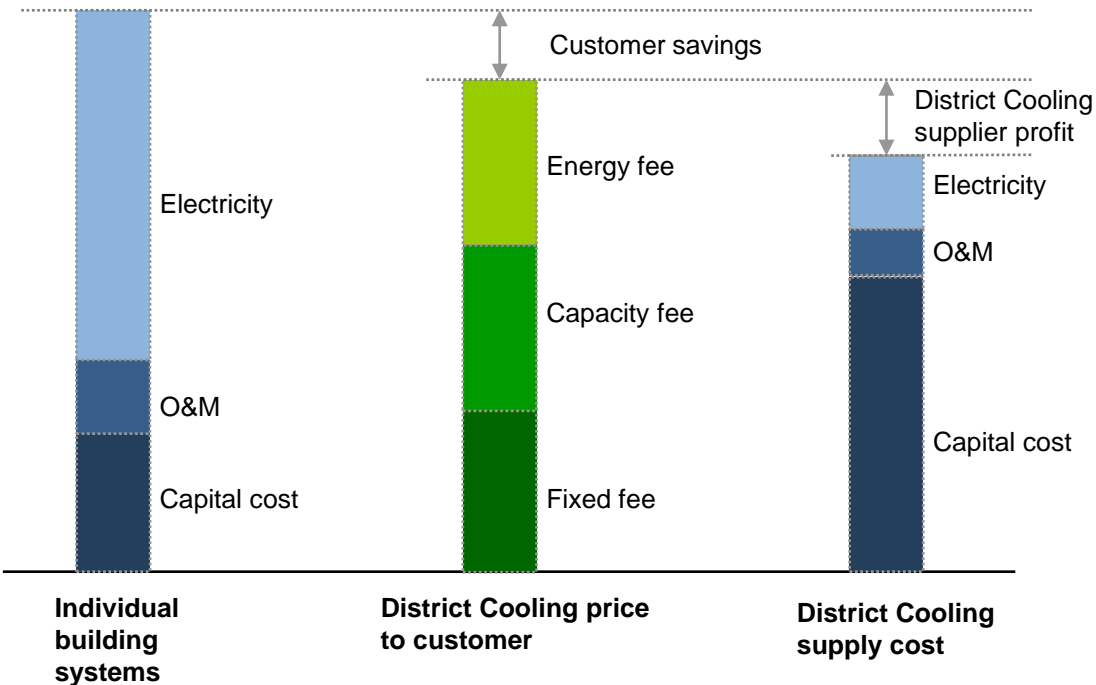
---

✦ ... and especially with SWAC!

City	CO <sub>2</sub> Reductions 2010 tons/year	Capacity MW	Technical solution
Stockholm	123,000	250	Sea water, heat pumps, chillers, storage
Honolulu*	84,000	100	SWAC
Paris	62,000	290	Chillers, river, geothermal heat pumps, storage
Aruba*	35,000	35	SWAC
Helsinki	25,000	130	Sea water, absorption, heat pumps, chillers
Montego Bay*	23,000	27	SWAC
Puerto Plata*	21,000	24	SWAC
Gothenburg	21,000	60	Absorption, chillers, river
Barcelona	11,000	69	Absorption, chillers, sea water, storage
Vienna	10,000	57	Absorption, chillers, river

\* Estimated

# District Cooling Value Creation



## ***Key elements for maximizing the value of each investment***

### **Location**

- Selection of locations providing for high revenue customers and low cost for producing and distributing District Cooling is critical

### **System Design**

- Optimization of cooling sources and technologies to minimize the total supply cost including capital requirement and operating costs

### **Contracting & Procurement**

- Minimizing construction cost and hence capital requirement by means of efficient procedures

### **Customer Offer**

- Customer savings and cost stability as compared to the current alternative with individual building systems and dependency on volatile electricity prices
- Price structures and service levels adapted for different customer segments

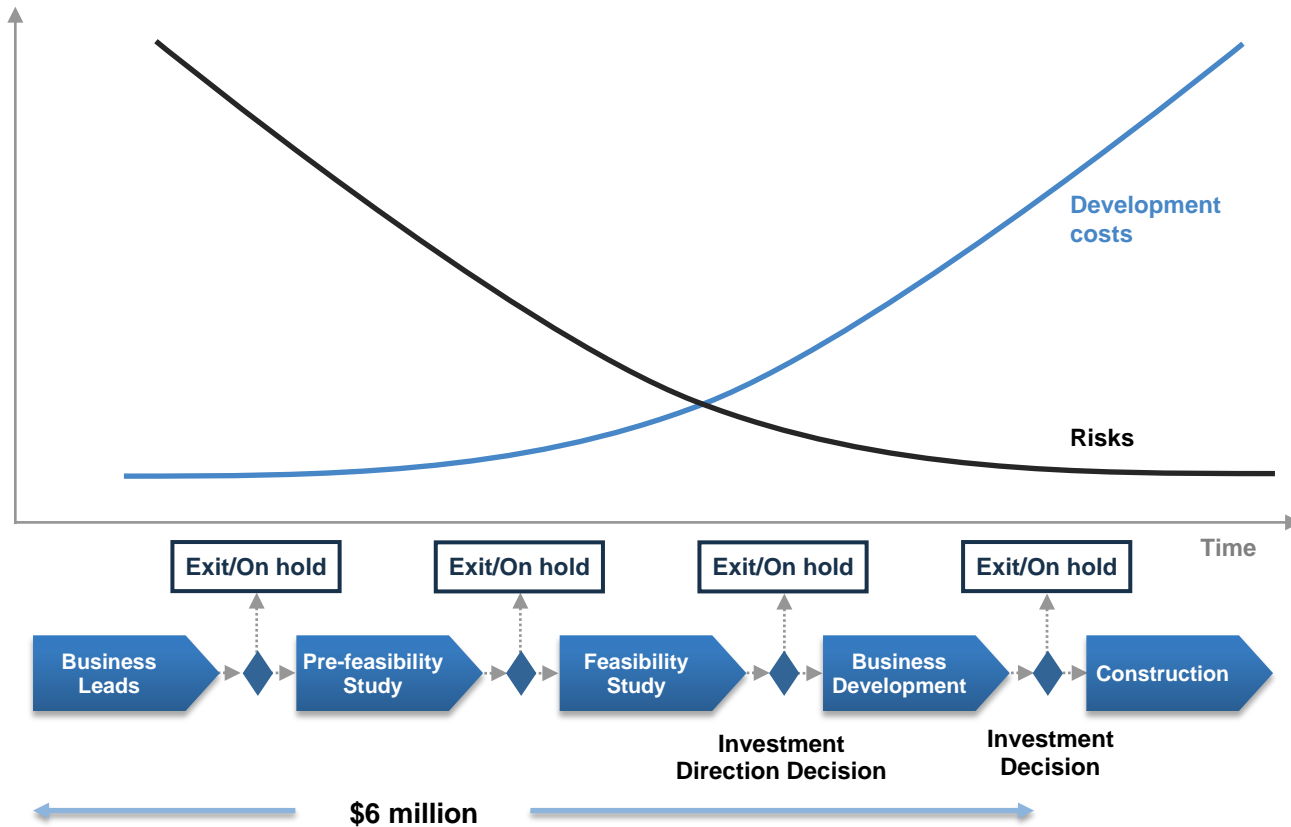
# District Cooling Investment Characteristics

---

- ✦ District Cooling is investing in infrastructure
  - ✦ Long term – at least 25 years calculated economical life time
  - ✦ High up front investments
  - ✦ Long stable cash flows
  
- ✦ Return on Investments
  - ✦ Total Investment                      \$50 - \$350 million
  - ✦ Calculated lifetime                      25 years
  - ✦ No calculated residual value
  - ✦ Project IRR                              10-15 %
  - ✦ IRR on equity (70/30 ratio)              17-25 %



# Risk Mitigation – Address the Biggest Risks First



Phase	Leads & Pre-feasibility	Feasibility	Business Development	Construction
Cost	0.3 million	\$1.5 million	\$4.2 million	
Risk	100%	80%	50 %	<10%

# Thank You

Anders Sjöholm  
Capital Cooling Invest  
[anders.sjoholm@capitalcooling.se](mailto:anders.sjoholm@capitalcooling.se)

