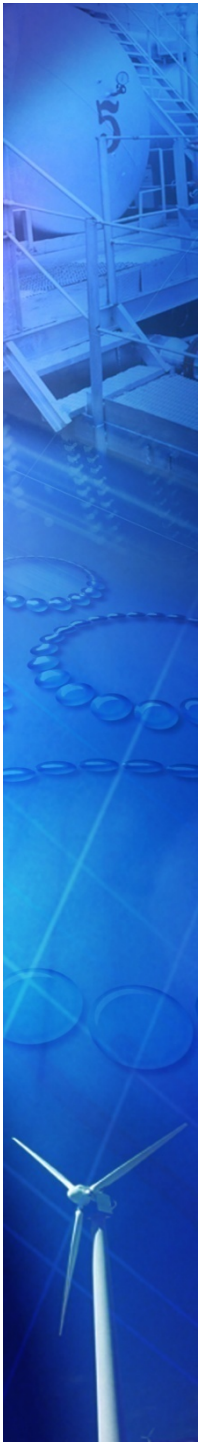
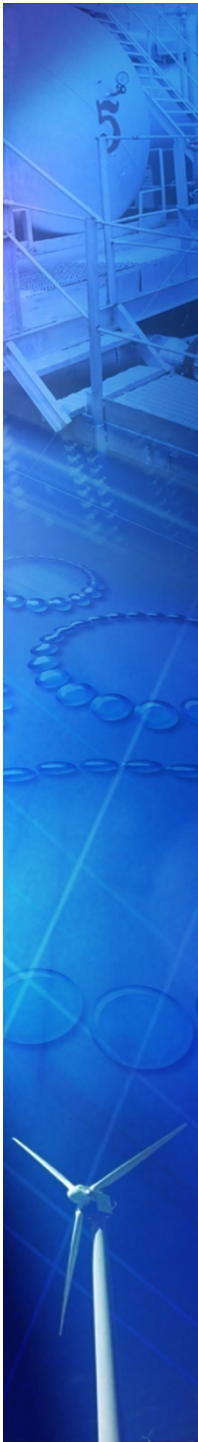


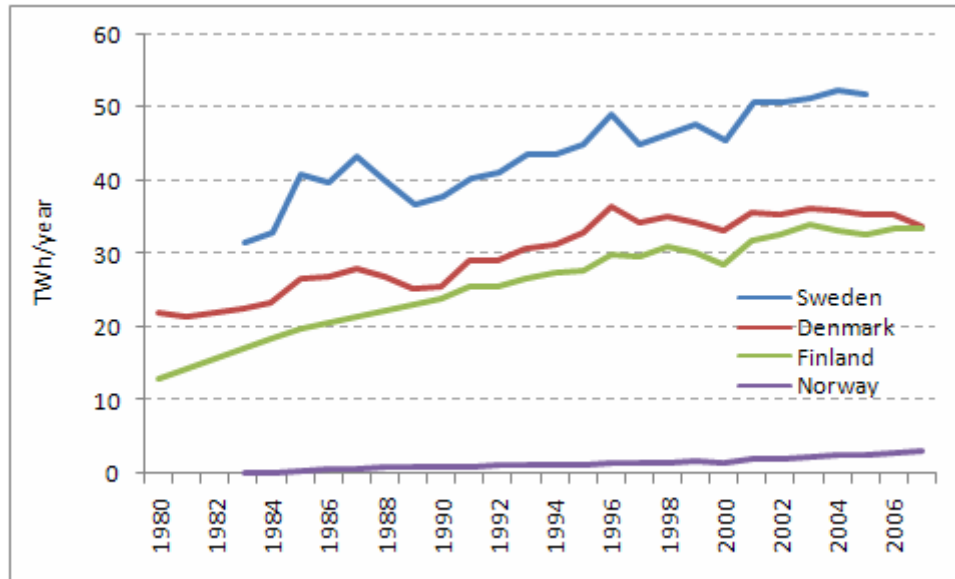
# District Heat in the Nordic Countries

Benedicte Langseth and Monica Havskjold, Xrgia

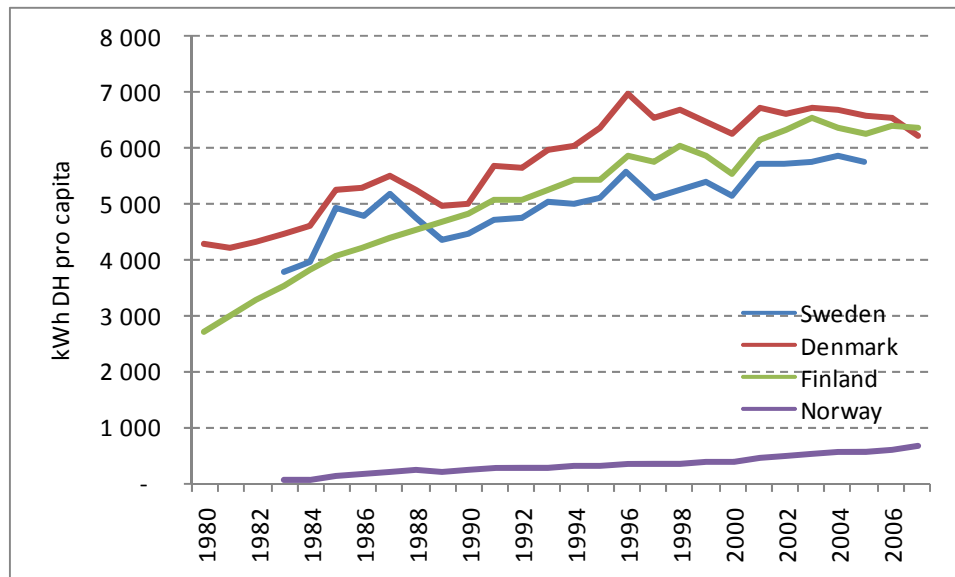




# Development of district heat production



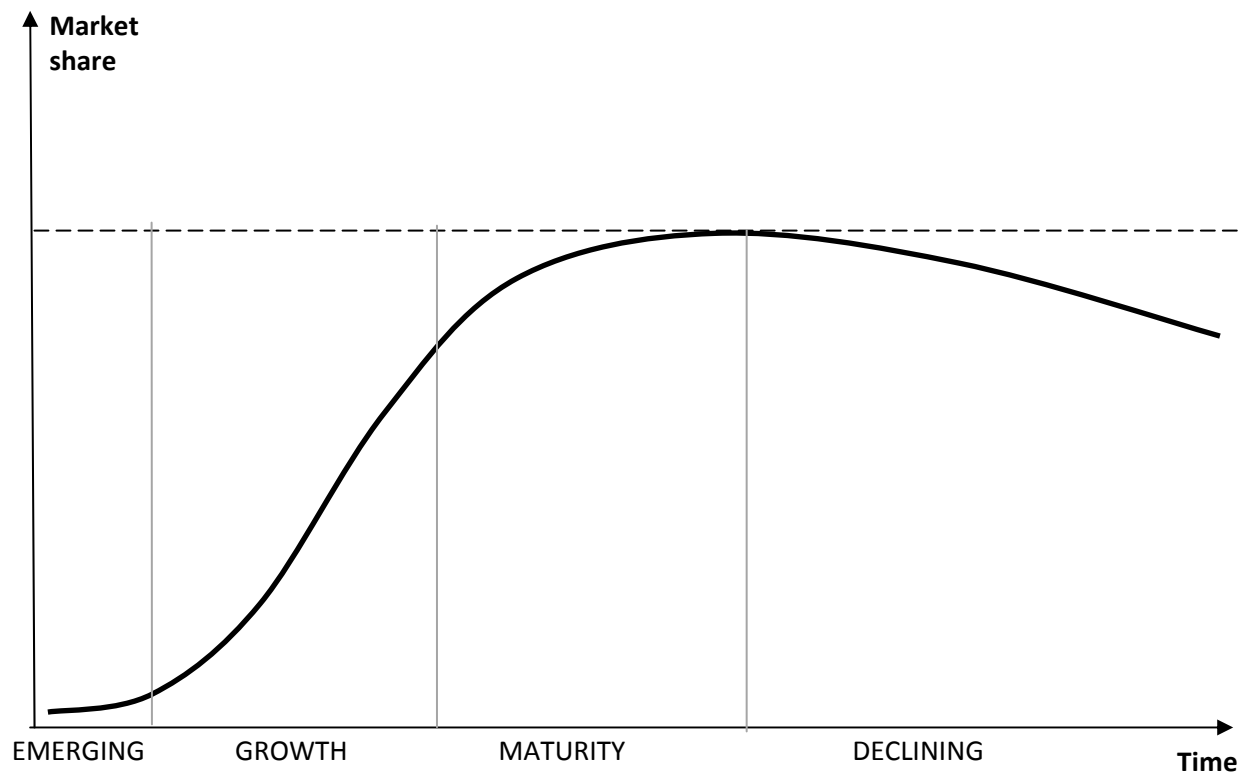
NB: District heat use is not temperature corrected



**Sources:**

Sweden: Statistiska Centralbyrån  
Denmark: Energistyrelsen  
Finland: Statistikcentralen  
Norway: Statistisk Sentralbyrå  
Population: Eurostat

# Business development



# Typical regulation along the S-curve

## Emerging

- R & D
- Need governmental funding

## Growth

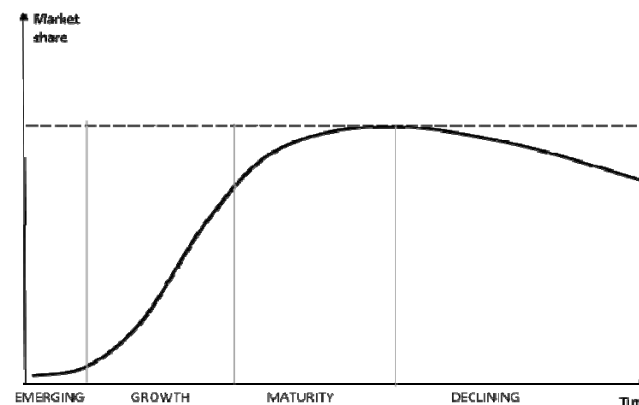
- Incentives for further investments
- Price at cost + a margin for investments

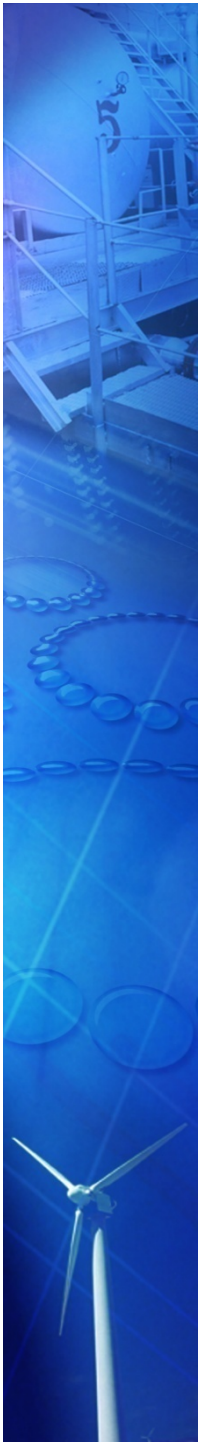
## Maturity

- Little need for further investments
- Maintenance of existing investments
- Income regulation gives incentives for efficient use

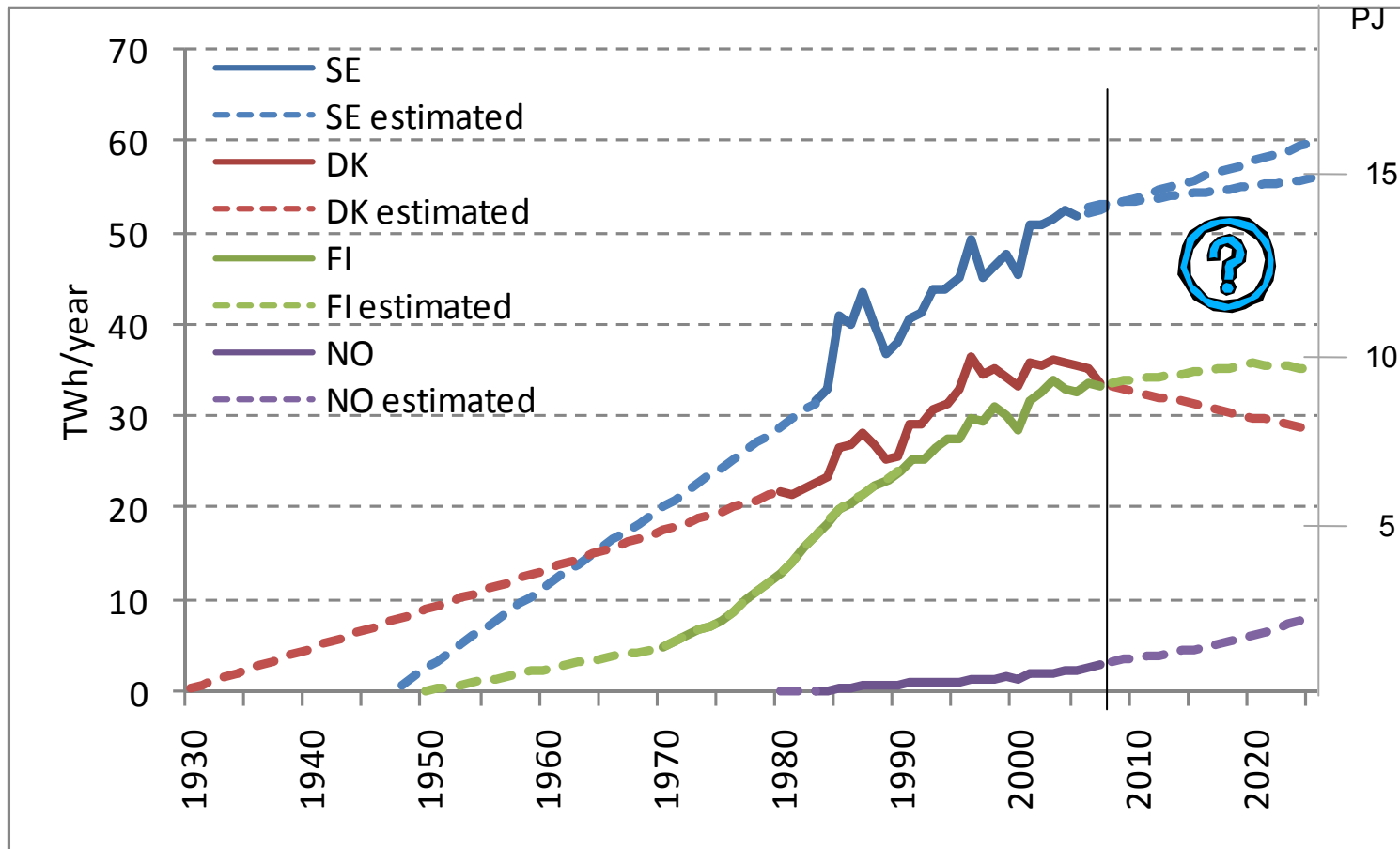
## Declining

- No regulation





# District heat S-curve?



**Sources:**

Sweden: Energimyndigheten, Prognoser för utsläpp och upptag av växthusgaser

Denmark: Energistyrelsen, Fremskrivning af Danmarks energiforbrug og udledning af drivhusgasser frem til 2025

Finland: Ministry for Employment and the Economy

Norway: Enova

# District heat regulation

## Sweden

- New district heat law (2008)
- The district heat suppliers are instructed to negotiate the price and other terms of delivery with the costumers when requested by the costumers
  - If the parties are unable to find an agreement, the can have the authorities arbitrate for them
- More openness (e.g. annual reports)

## Finland

- The district heat suppliers decide their own prices
  - Has to reflect the costs, but allow for district heat expansion and a reasonable profit
  - Same price for same type of costumers
- Regulated by general legislation (competition and consumer protection legislation)

## Denmark

- Designated areas for district heat and natural gas where electric heating is prohibited
- “Hvile i seg selv”-principle

## Norway

- District heat concessions are mandatory for installations over 10 MW
- The municipality can decide that connection is mandatory, but not use of district heat
- District heat price can not exceed electricity price

## Regulation summary

	<b>Development face</b>	<b>Regulation today</b>	<b>Typical regulation</b>
Sweden	Maturity	<ul style="list-style-type: none"><li>•Price negotiations if customer wants it</li><li>•Openness</li></ul>	Income regulation
Finland	Maturity	Price at cost + a margin for investments and profit	Income regulation
Denmark	Maturity/ Decline	<ul style="list-style-type: none"><li>•Designated areas</li><li>•Hvile i seg selv-principle</li></ul>	Income regulation
Norway	Emerging	<ul style="list-style-type: none"><li>•Concessions</li><li>•Mandatory connections</li><li>•DH price <math>\leq</math> electricity price</li><li>•Governmental funding</li></ul>	Governmental funding