



District Heating Cooperatives - Examples from Denmark

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My British Experiences

Refurbishment – 1990's

DH i Brum - 2003



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Agenda

- Short about EBO Consult
- District Heating in DK:

History

Idea

Expansion

Legislation

How to do it?



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- E = Energy
- B = Buildings
- O = Organization
- District heating cooperatives, wind and solar energy.



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- Administration – budget, book-keeping, accounting, billing and finance.
- Monitoring, O & M etc.
- Planning and handling construction projects – including approval by public authorities and finance.



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History & Idea



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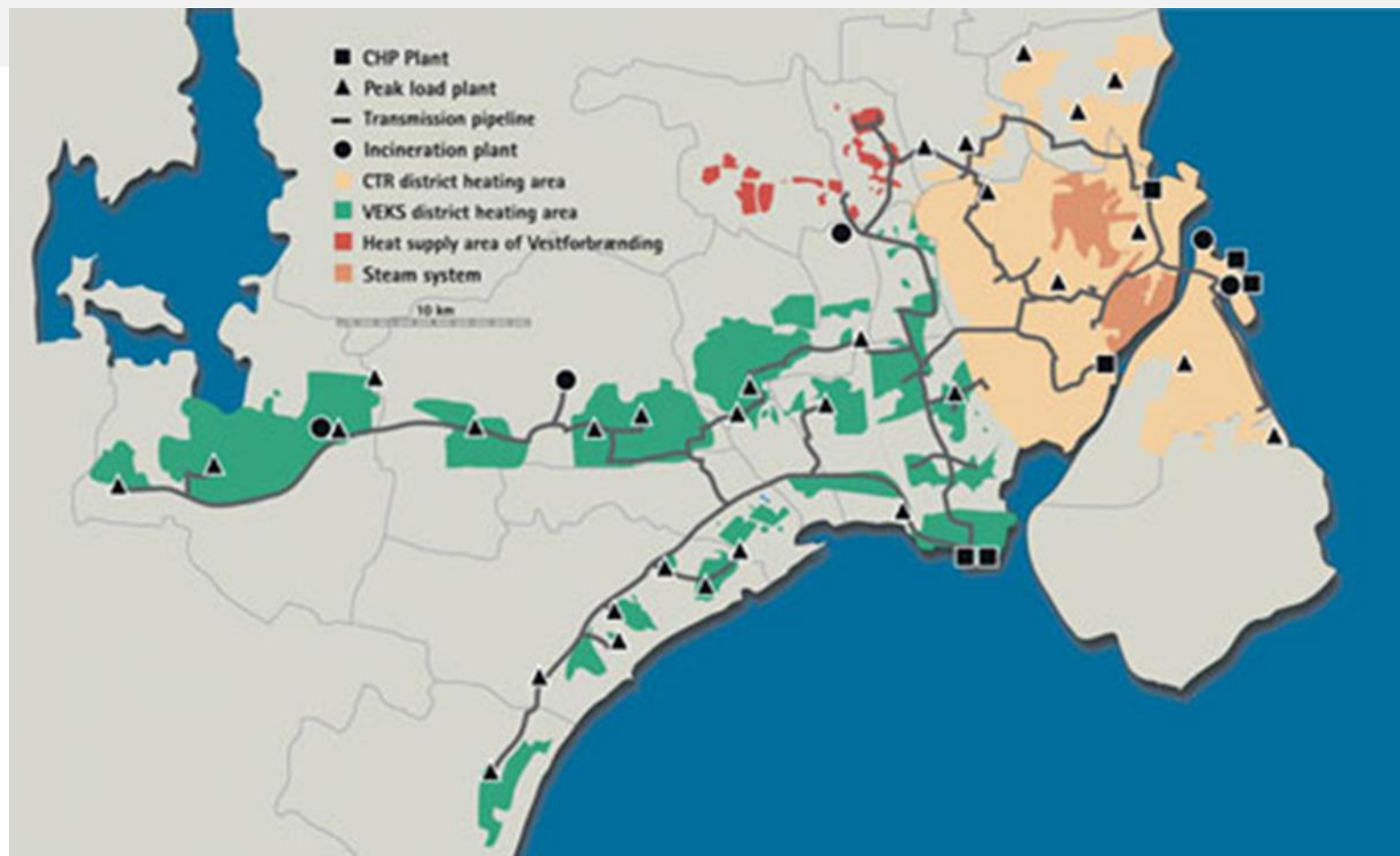


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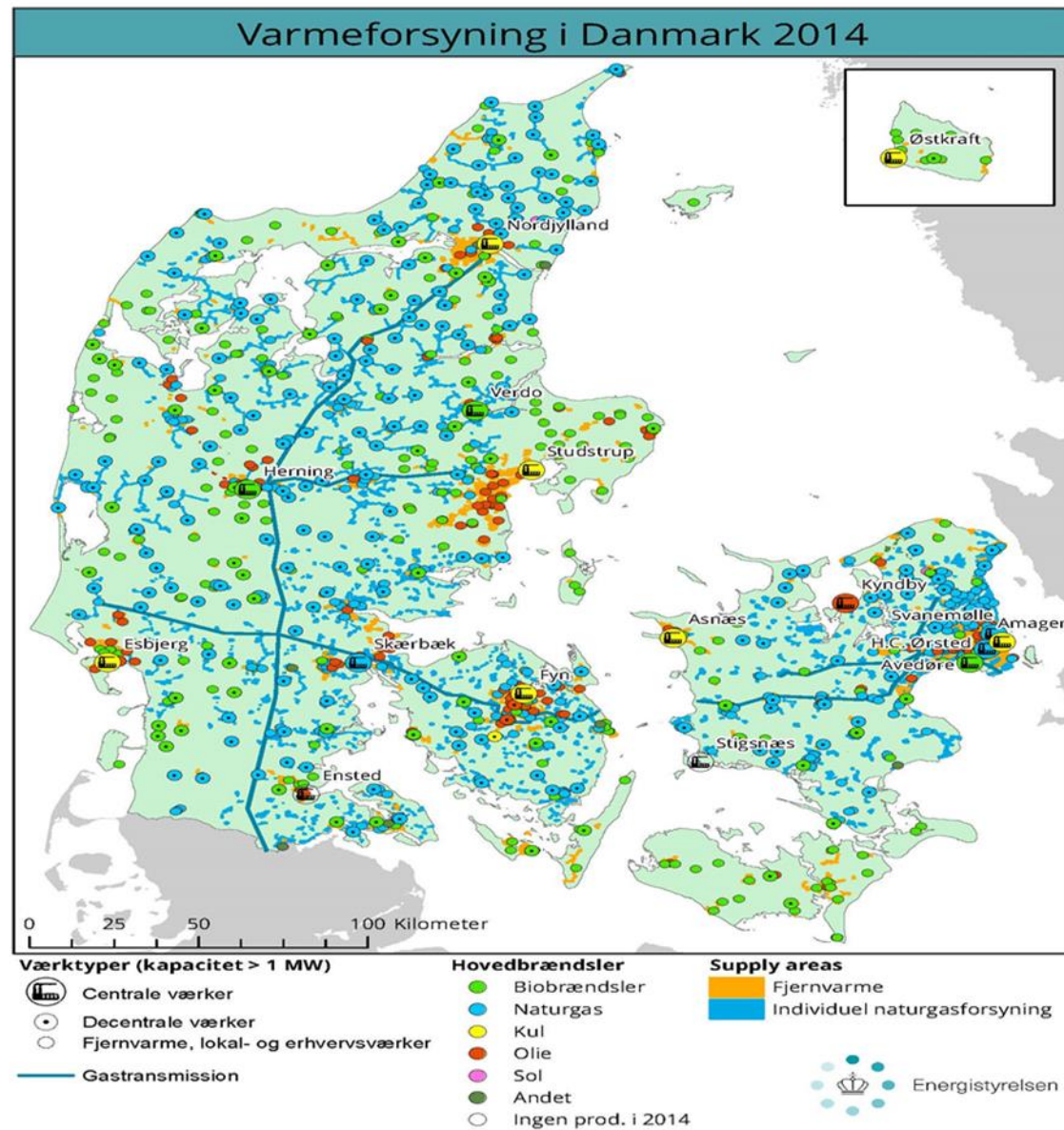
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Expansion



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2017



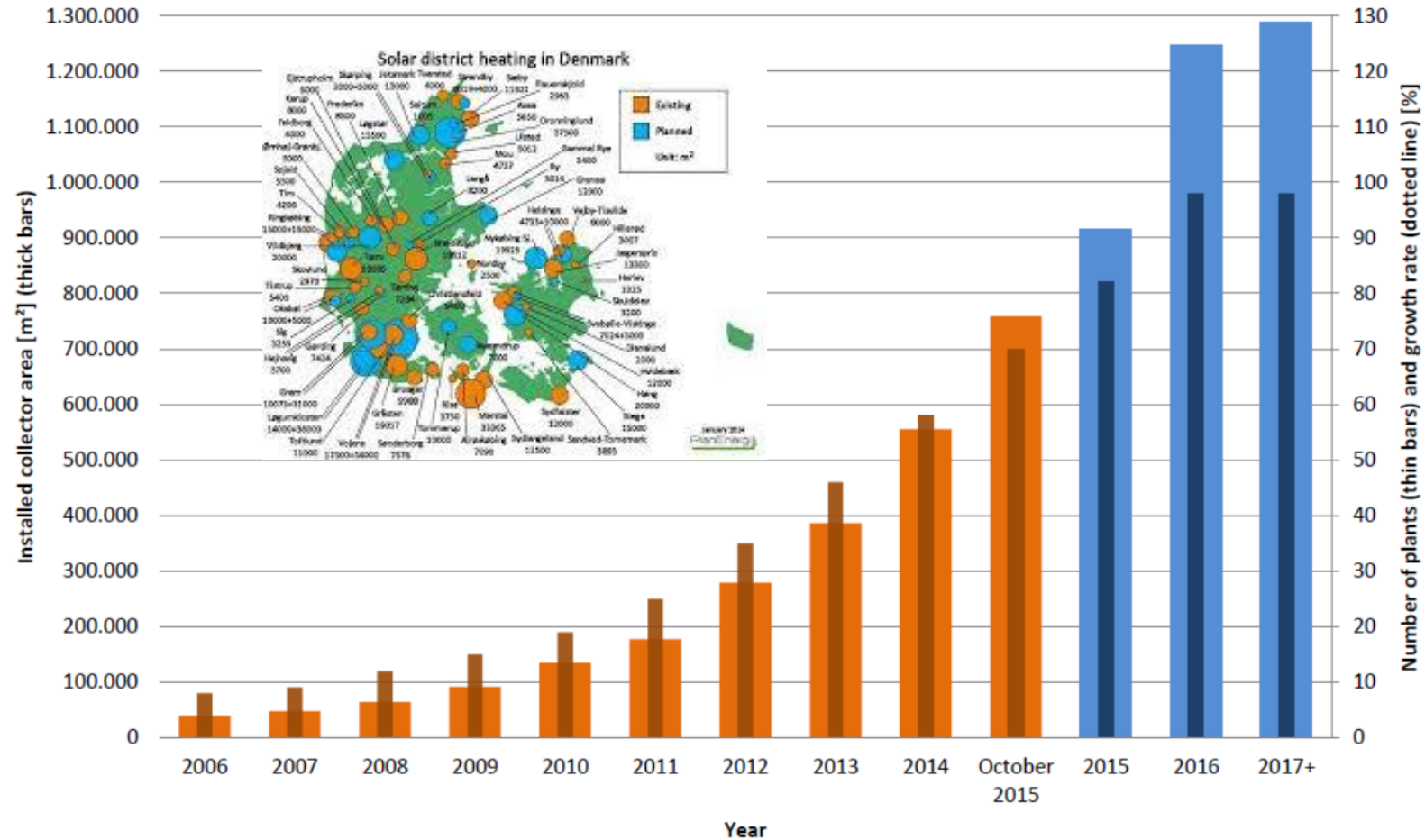
1,713,650 households = 64 % of all





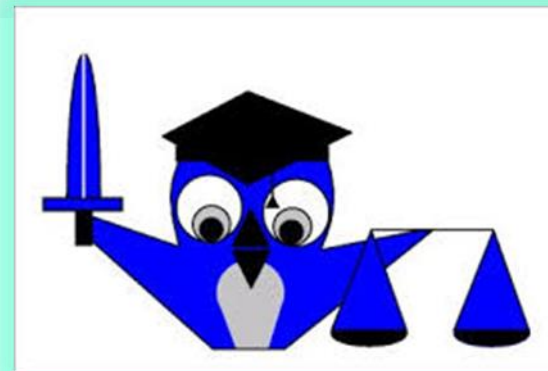
Solar District Heating in Denmark

Sum of collector area and the number of **operating** and **upcoming** plants



Legislation

- Danish Heat Law
 - 1) Non profit
 - 2) Income = Expenses
 - 3) Expansion - public process - proof of competitiveness
 - 4) Possible obliged connection to the grid
 - 5) Price control - Danish Energy Regulatory Authority



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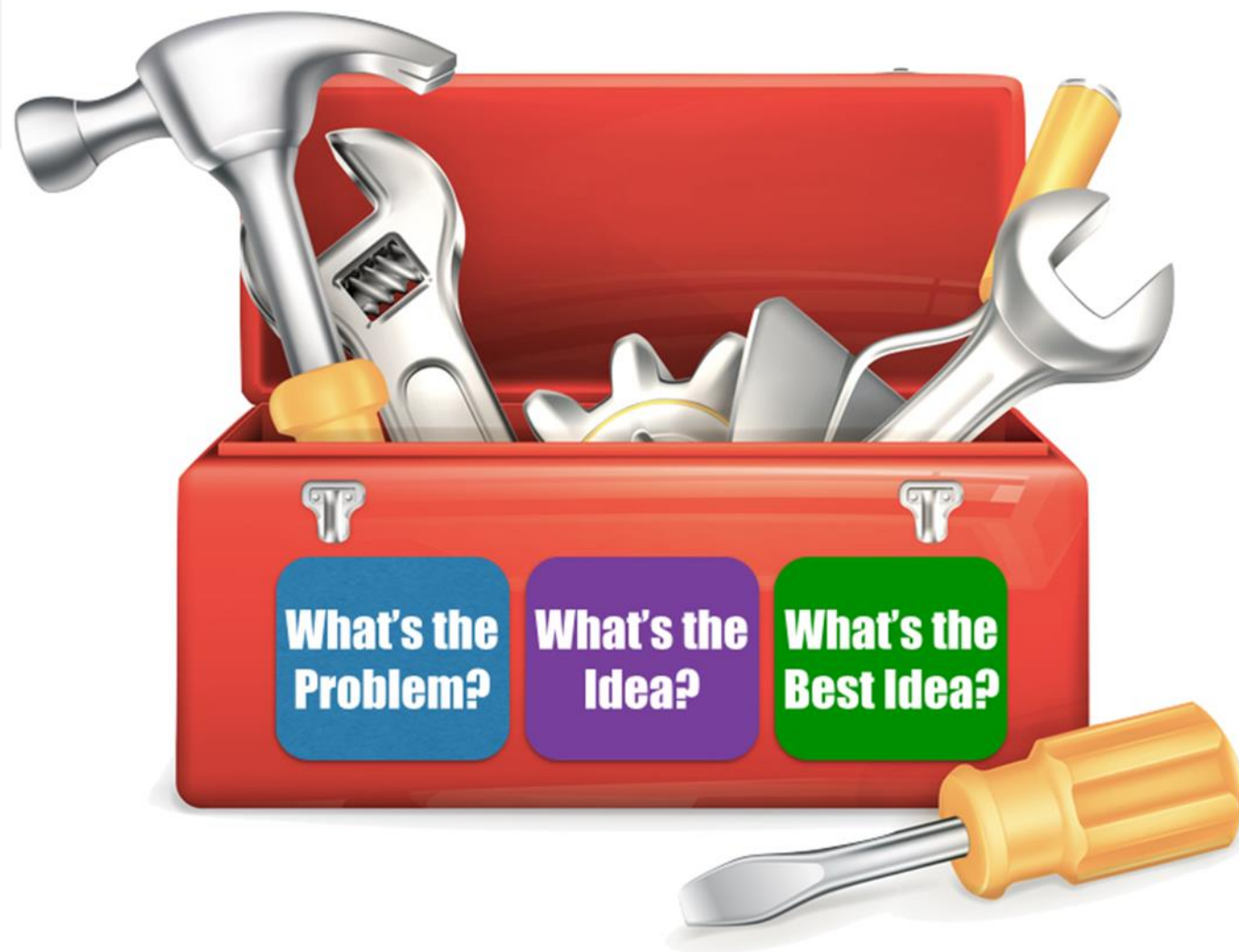
How To Do It?

Organization:

- 1) Cooperative (340 DHCs in DK)
- 2) Municipal owned company
- 3) Investor



The cheapest: 1)!!



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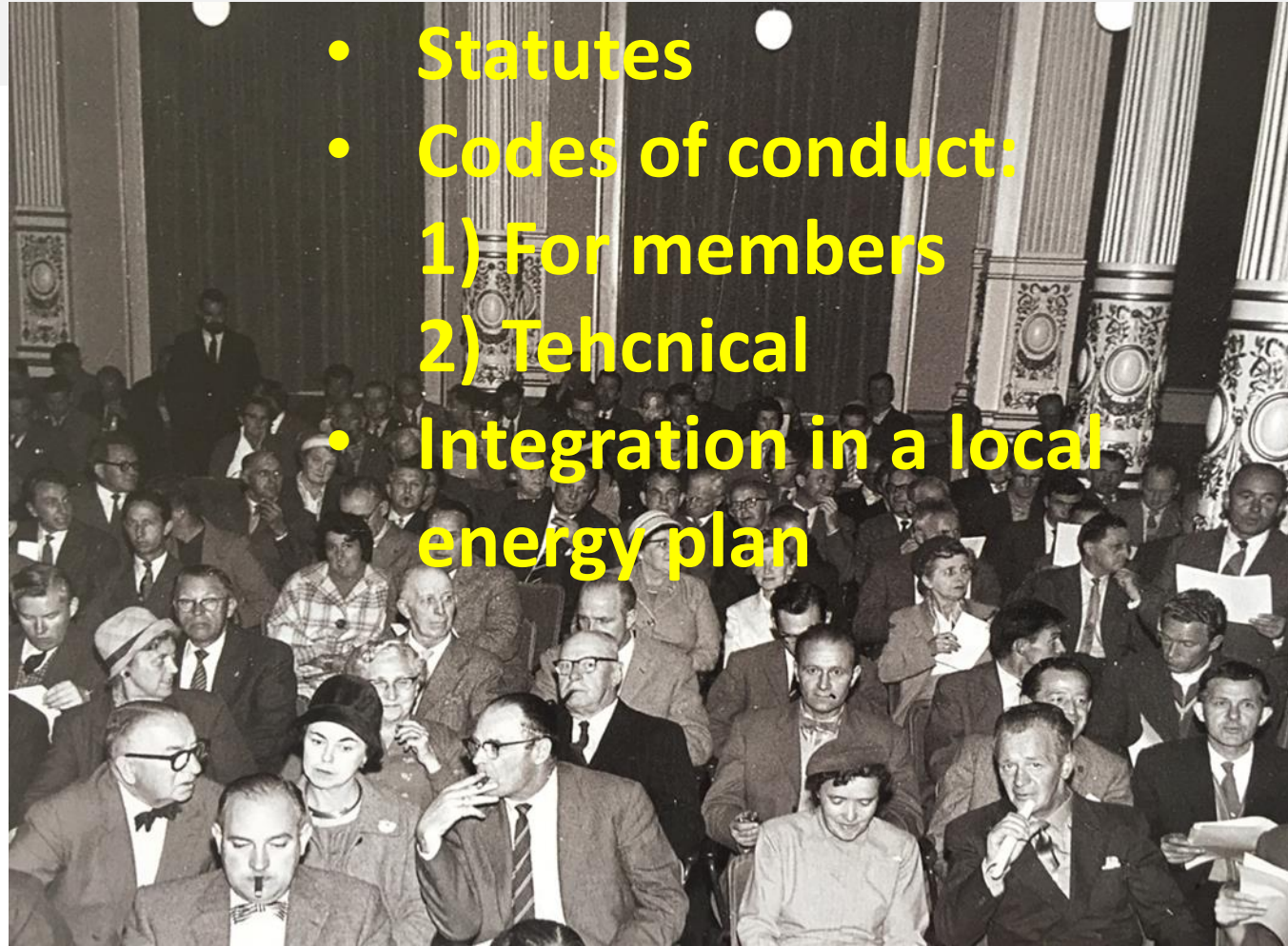


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DH Cooperative:

- Statutes
- Codes of conduct:
 - 1) For members
 - 2) Technical
- Integration in a local energy plan



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Proposal



1,083 single attached houses – 192 big consumers
- Estim.: 32,016 MWh – Investment: € 12,000,000



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Economy



- No assets
- Shares: € 13,50/household
- Mortgage loan – market
- Mortgage loan – guaranteed by municipality
- Operation: income = expenses

Installation



Tendering:

- EU-regulations
- National regulations
- Detailed tendering materials
- Choose the contractor
- Contractor does the work



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Operation

**Make it
Move it
Monitor it
Meter it
Money saving activities**



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Price

- Benchmarking
- Keep the same price level though you have investments.

Controlling authority?



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Image Of Danish DH



- Viable economic activities.
- Low prices.
- Non profit business. No shareholder's hysteria.
- Banks etc.: DH is solid investment = low interest rate.
- Policy:

The Energy Minister says that DH coops are the Golden eggs in Danish energy policy.

Tomorrow

A large, 3D-rendered red '100%' is positioned on the left side of the slide. The numbers and the percentage symbol are thick and have a slight shadow beneath them, giving them a three-dimensional appearance.

- **100 % DH in DK**
- **100 % DH based on renewables before 2030**
- **100 % DH controlled by consumers/members**
- **100 % DH service to the consumers/members**



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Thank you for your attention

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