

# Energy balances and energy strategy

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# Agenda

1. Energy planning process on Bornholm
2. Energy balance calculations on Bornholm
3. The energy action plan for Bornholm
4. Other energy planning projects

# The process on Bornholm

1. Mapping total energy use and CO<sub>2</sub>-emissions
2. Inspiration catalogue
3. Deciding on relevant actions
4. Making an action plan together with stakeholders
5. Action plan approved by politicians

# The principle in energy balances

Section 1	Section 2	Section 3	Section 4
Fuel	Conversion technologies and efficiencies	Distribution of electricity and heat	End-use

# Data and results

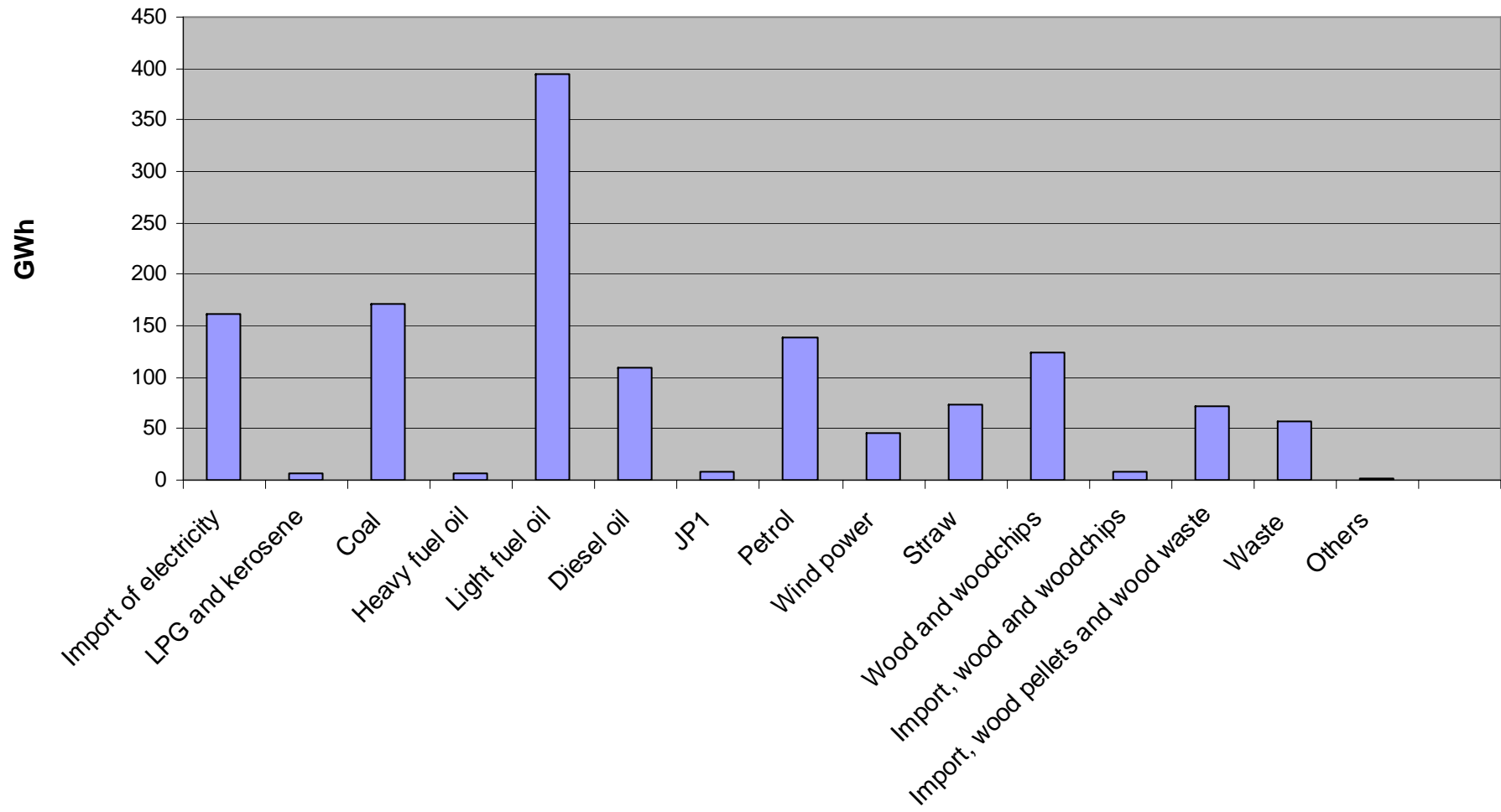
## Data

- Available data and official statistics
- Same method as the Danish Energy Agency

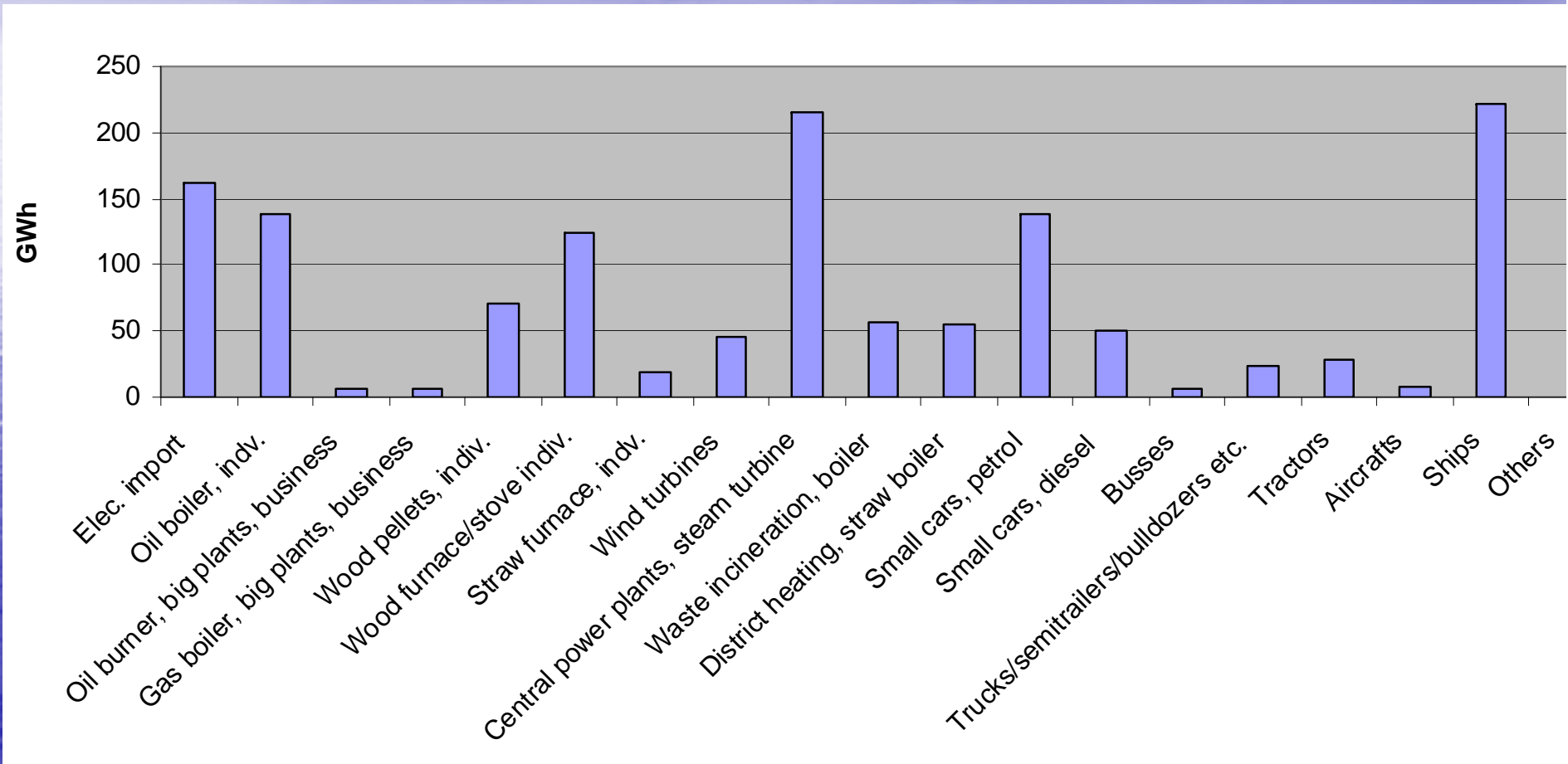
## Results

- Total CO<sub>2</sub>-emmission of the community
- Percentage of fuel consumption covered by renewable energy
- Total use of energy
- Use of local renewable energy resources
- Value of imported fuel

# Annual fuel consumption 2005



# Energy consumption divided into energy conversion units



# Making a list of potential actions

- The inspiration catalogue describes relevant technologies
- Potentials for each technology can be calculated in the energy balance spreadsheet
- Using the energy balance and the inspiration catalogue a list of potential actions is made
- For each action it is described **What** shall be changed, **When** it will be changed, **Who** will be the stakeholders and **How** to make the changes

# Change fuels outside district heating areas

- Target: All oil consumption will be replaced by heat pumps, wood pellet stoves, solar heating etc.
- Assumptions:
  - Solar thermal plants (1,000 units) when implementing wood pellet stoves (2,000 units)
  - 2,000 heat pumps
- Result: 32,000 t CO<sub>2</sub> saved
- Proposed Actions:
  - Information campaigns and direct personal advice
  - Investigate possibilities for local wood pellet production
- Stakeholders: ?

# Coordinated Energy Advising

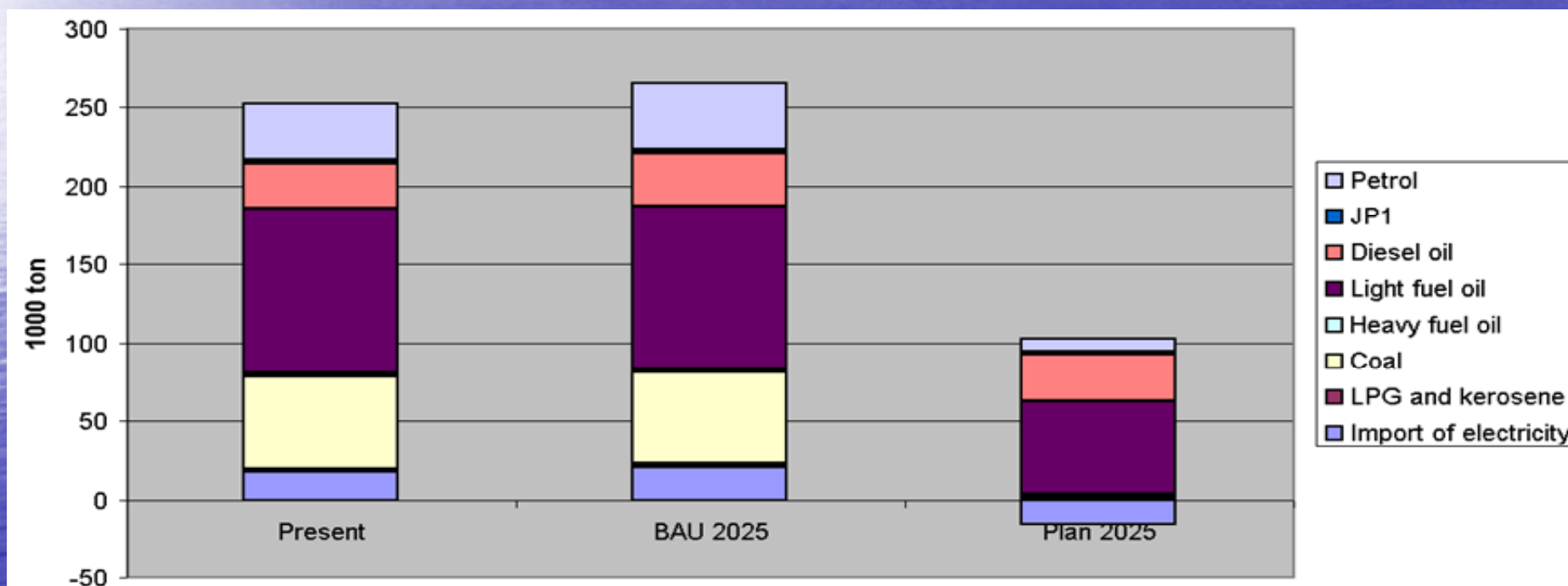
- Target: Establish a team of advisers for companies and private people
- Assumptions:
  - Combine resources
  - Common targets and strategies among stakeholders
  - The Will!
- Proposed Actions:
  - Description of, agreement upon and establishing of team of advisers
- Stakeholders:
  - Utilities, "Energitjenesten", BRK, plumbers and building sector, banks ?

# Proposed Priority of Actions

- start 2008-09

1. District heating in Hasle, Aakirkeby, Nylars, Snogebæk and Balka
2. Change of fuels outside district heating areas
3. More windturbines
6. Bornbiofuel (ethanol- and biogas plant)
7. Ethanol cars
8. Electricity savings
9. Savings in heat consumption
11. Team of advisers
12. Energy Forum

# CO<sub>2</sub>-reduction, Energy Plan 2025



# CO<sub>2</sub>-emission and renewable energy

	Total 1.000 t	Tons Per inhab.	RE%*
2005	253	5,8	24
2025	86	2	82

\*) incl. imports

# Other relevant projects

- Samsø 1997-07
- 12 provinces in Thailand
- **Bornholm**, Gotland, Åland, Saaremaa, Sardinien (2007-2010) [www.transplanproject.eu](http://www.transplanproject.eu)
- Region Midtjylland 2005-06-07
- 20 municipalities in Jutland 2007-2009
  - Vejle, Fredericia and Kolding using KL-tool
  - Randers Climate Plan
  - [www.planenergi.dk/Energiplanlaegning](http://www.planenergi.dk/Energiplanlaegning)