

Community power conference Toronto 2011

Frede Hvelplund
Department of Development and Planning
Aalborg University
hvelplund@plan.aau.dk



Denmark and Aalborg University



Goals of the new Government

1. 40% reduction in CO₂ emission compared to 1990.
2. From 22% (2011) to **50% wind** power in 2020
3. 50% reduction in heat use per m² before 2050
4. 100% Renewable Energy in 2050 (when people born today are 38 years old).

For energy planning **2050 is now!**



The Energy Planning Research Group

Department of Development and planning

<http://www.en.plan.aau.dk/>



AALBORG UNIVERSITY

30 Years of active Energy Planning

30 years of active Government and Parliament Energy Policies.

Including NGO alternative strategies and public debate



I. Research activities



1. Energy systems analysis

Goal 100% renewable energy

1. How to **establish** and **co-ordinate** renewable energy and energy conservation systems.

(economic gains by designing supply systems to energy efficient consumption)

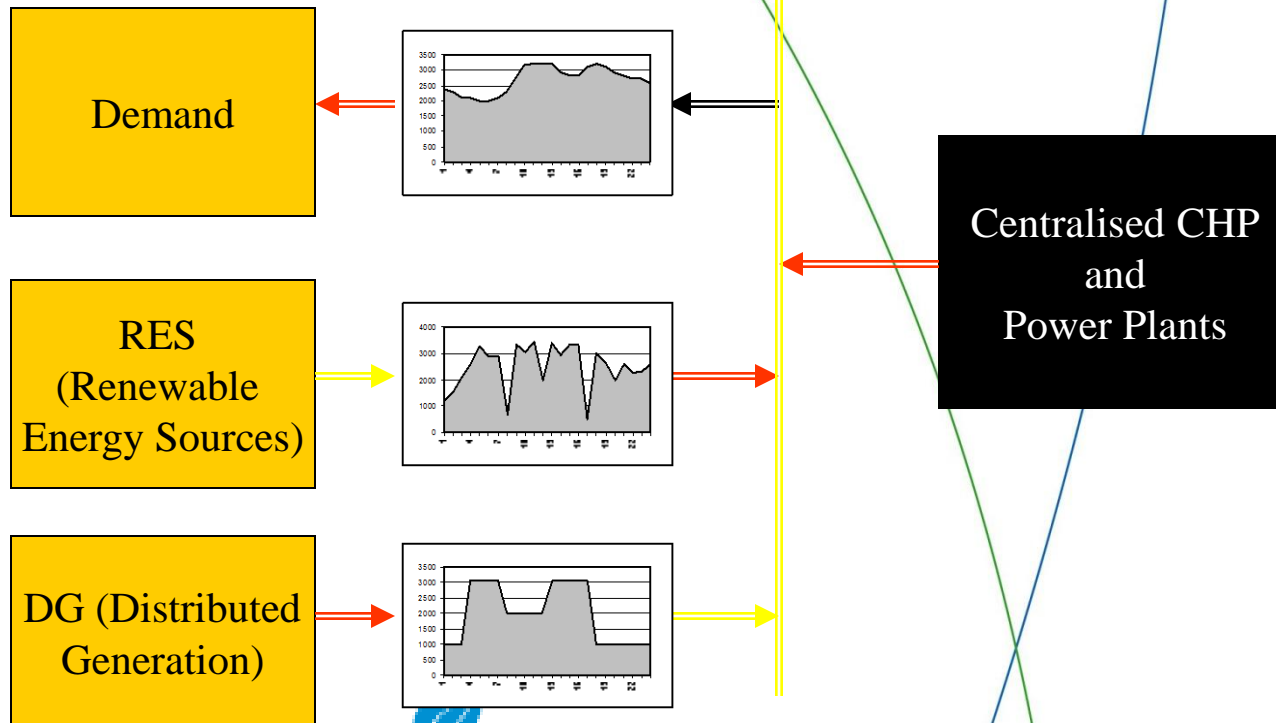
2. How to integrate 50% and later 100% **intermittent** energy (wind energy)



System 1. Electricity Balance and Grid Stability (1990)

Non Active Components

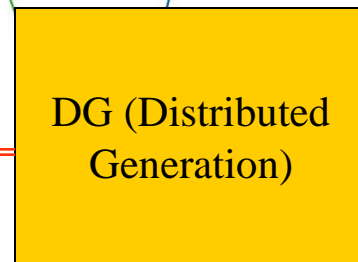
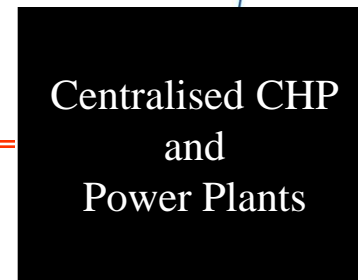
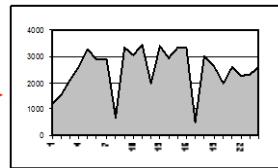
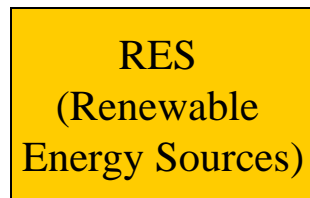
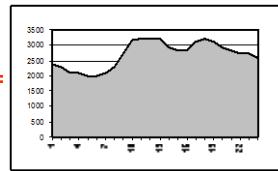
Active Components



System 2: Activating DG CHP-units (2000--)

Non Active Components

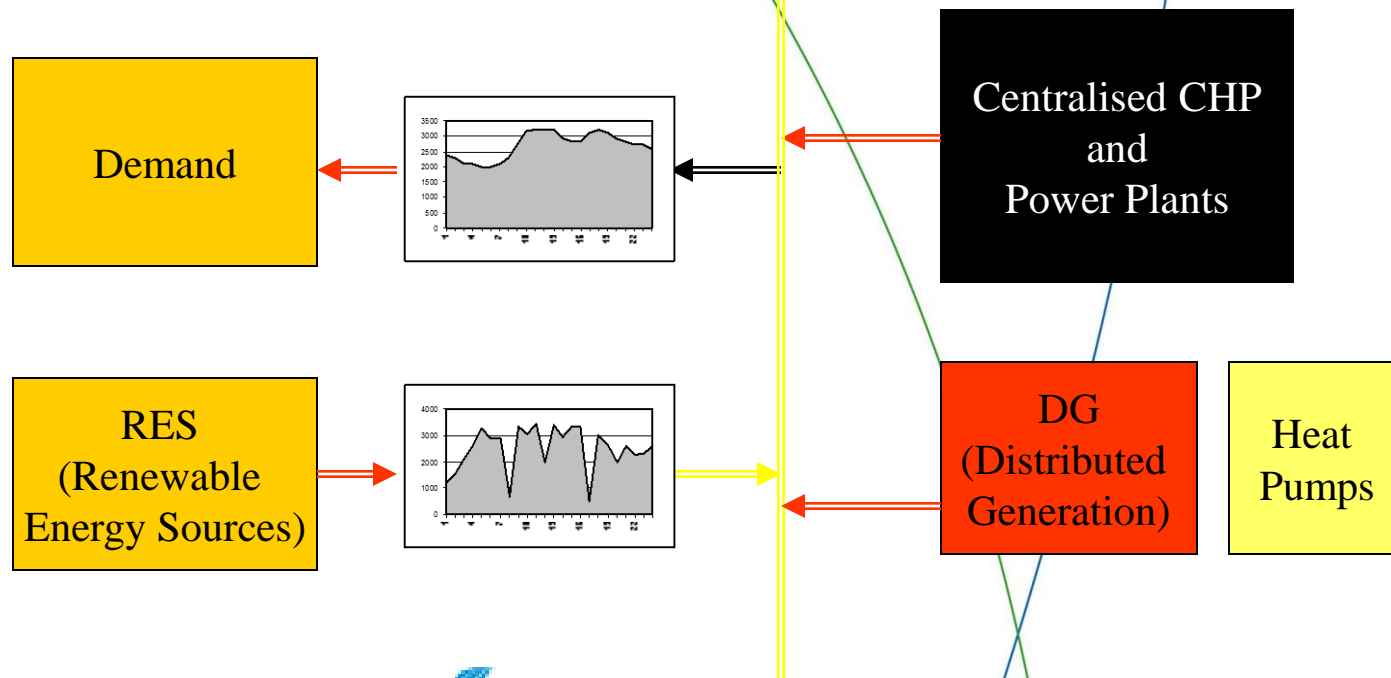
Active Components



System 3: CHP-units and Heat Pumps (2010--)

Non Active Components

Active Components

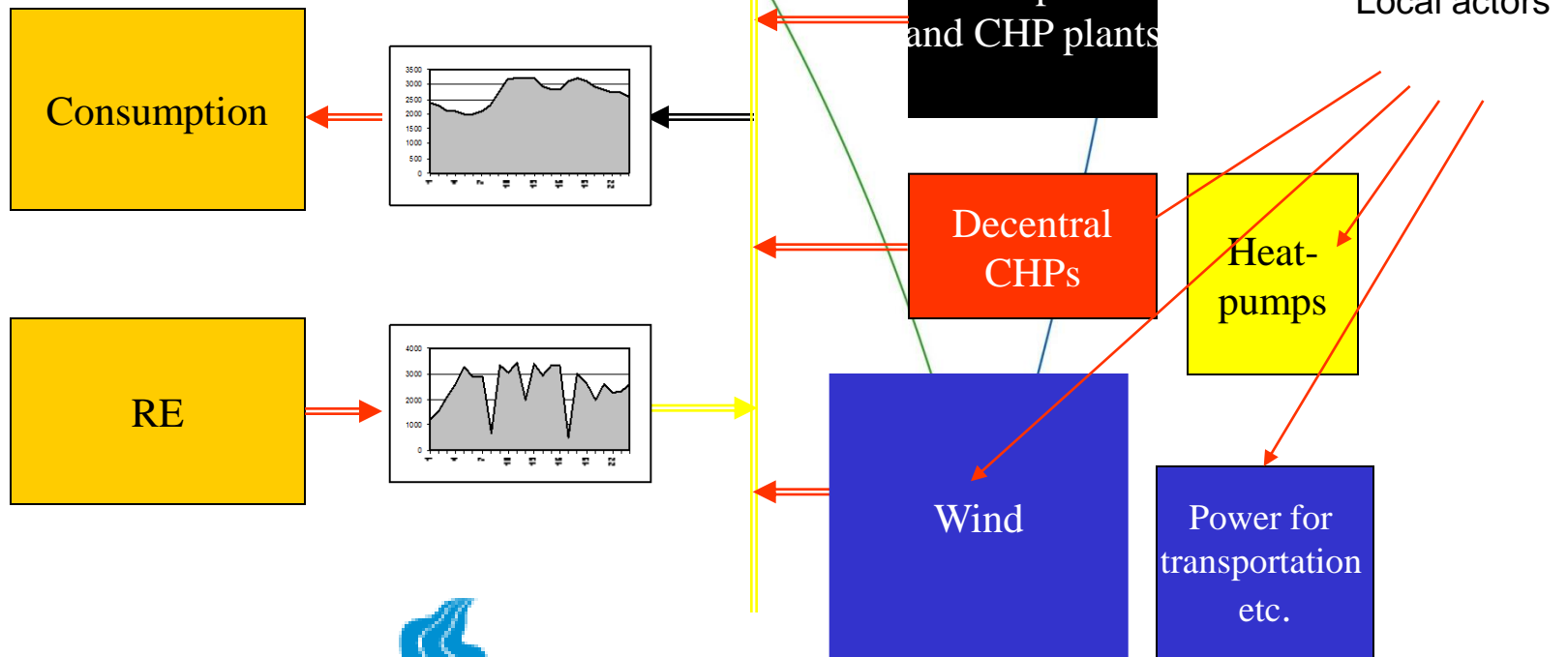


System 4

Activating RE via increased power consumption for heat pumps and transportation. (2020--)

In-active components

Active components

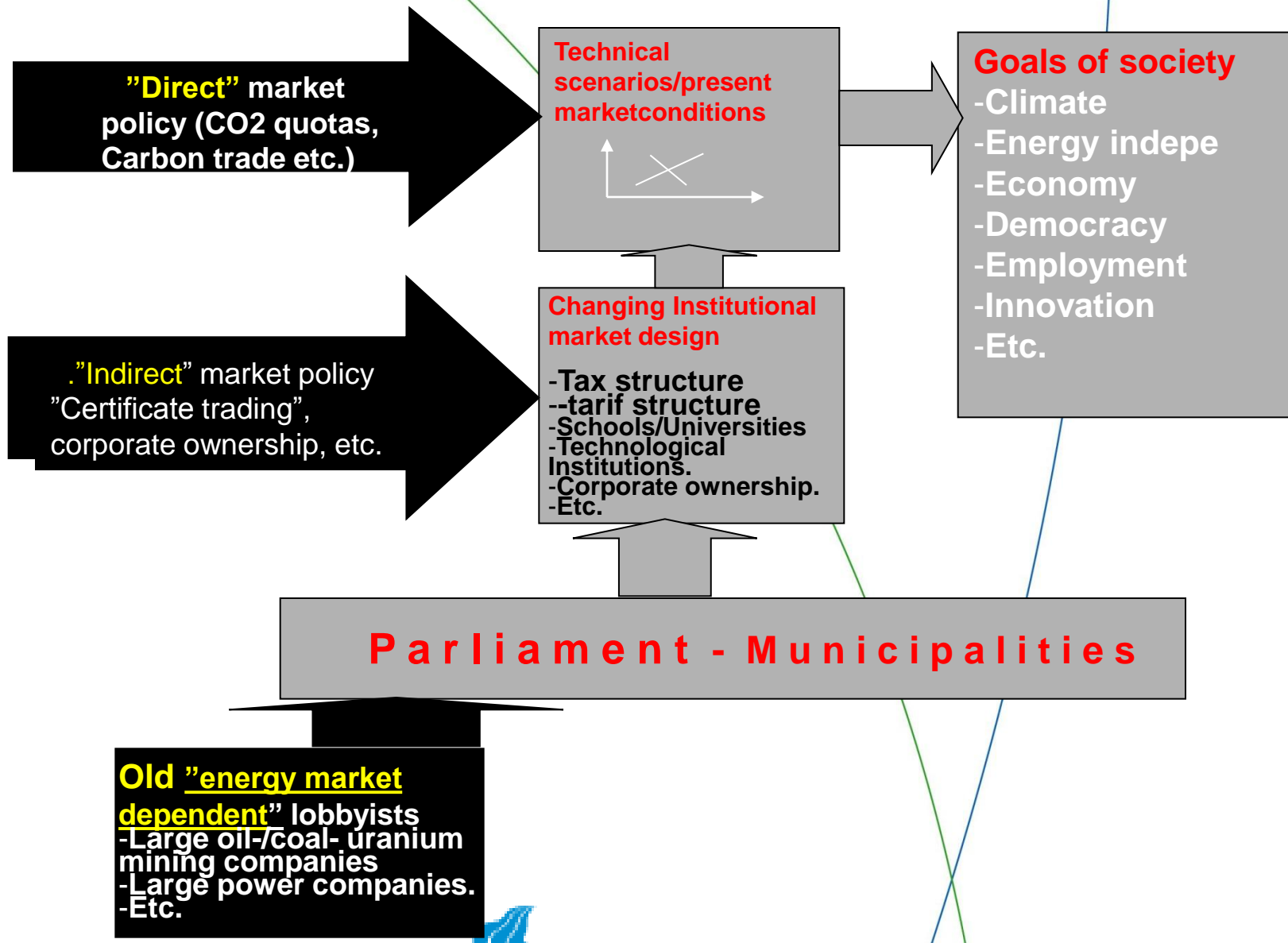


2. Institutional analysis

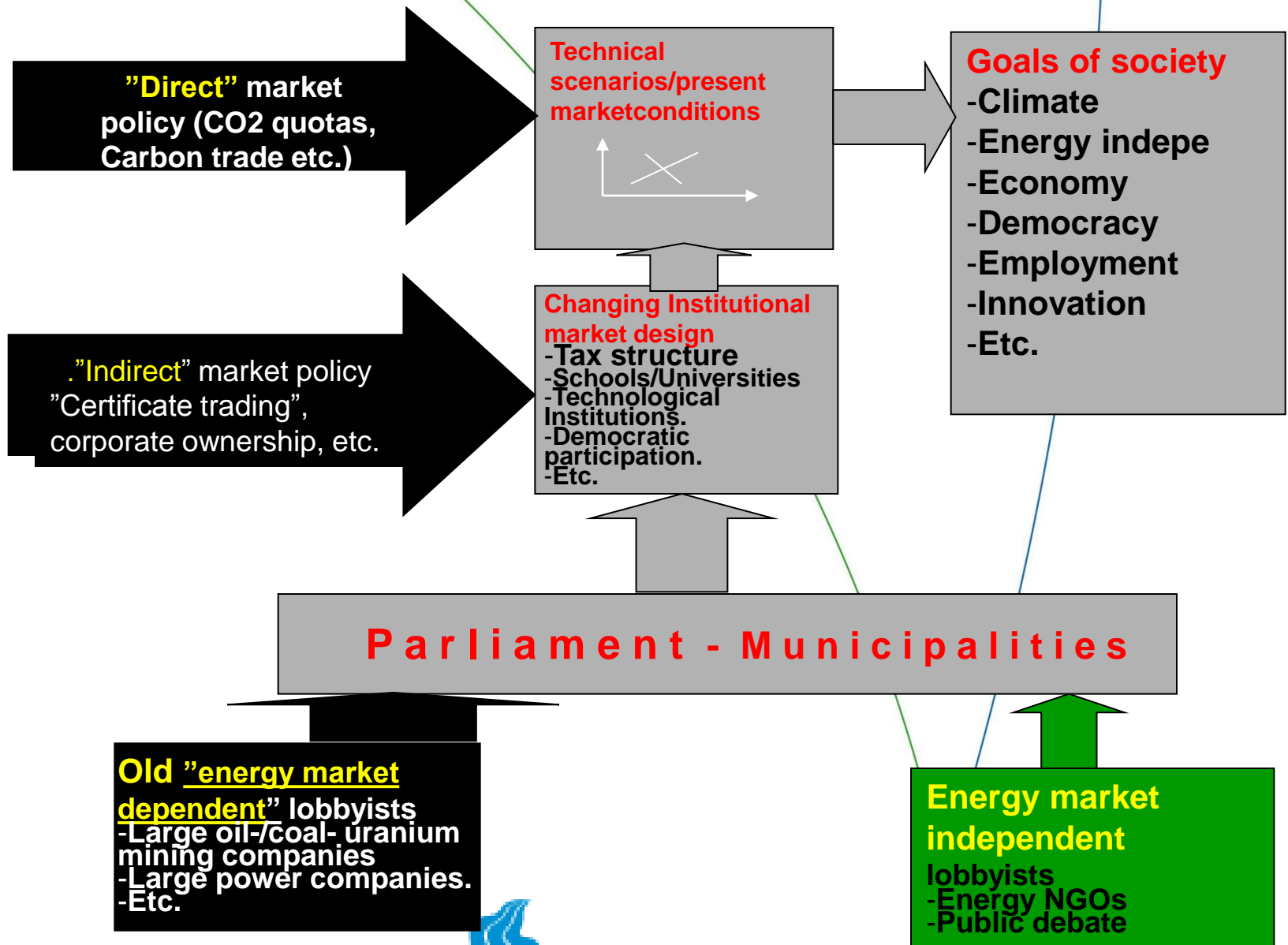
1. What *hampers and supports* the development and implementation of Renewable Energy and energy conservation?
2. Which type of *policies should be implemented* in order to assure the introduction of Renewable Energy and Energy conservation



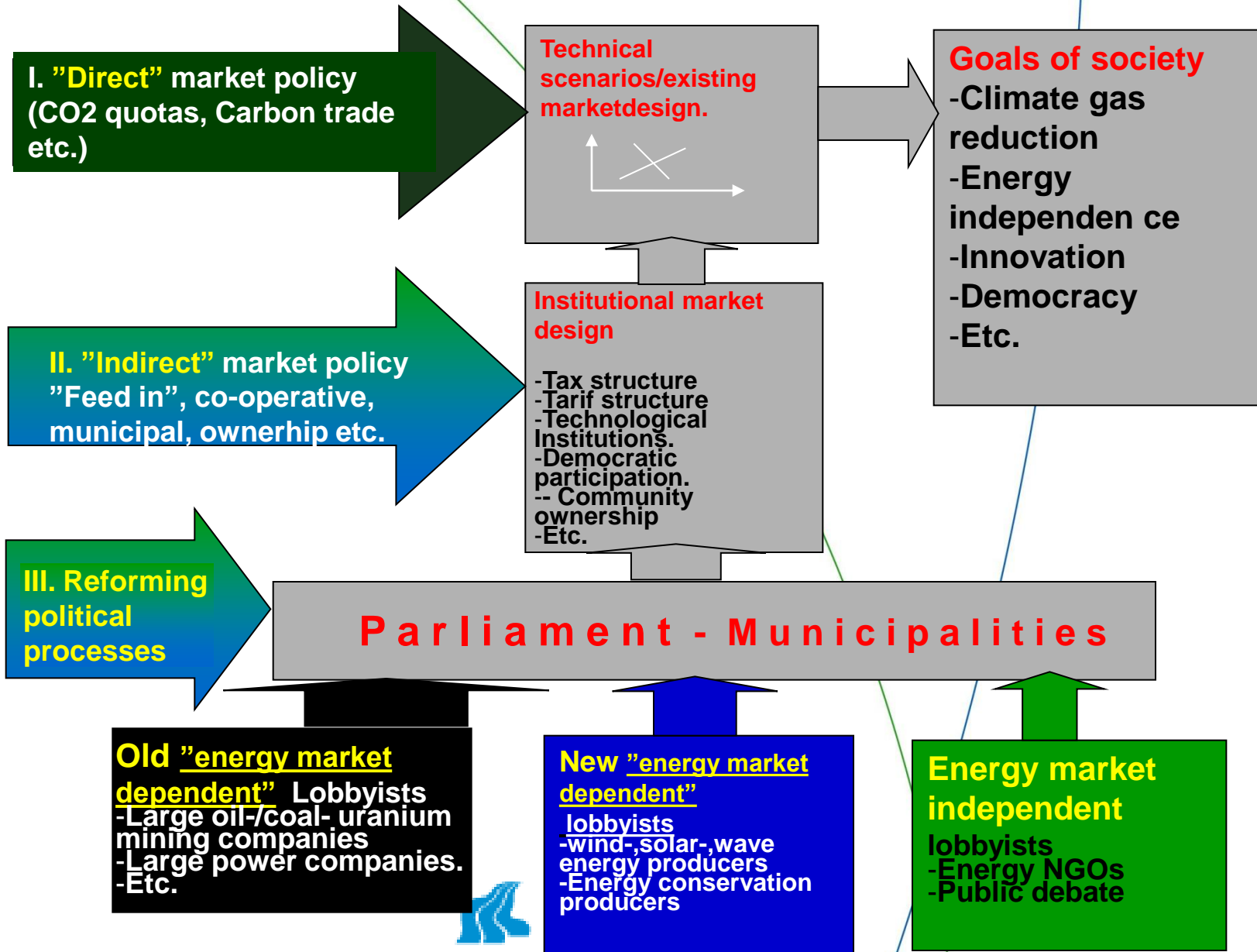
Fossil fuel based: **Concrete institutional economy**



Concrete institutional economy/**Innovative democracy**



Concrete institutional economy/ *Innovative democracy*



II. Education activities

Sustainable Energy Planning and Management
(Master Study in English)



Master in Sustainable Energy, Policy and Management (SEPM)

Should learn **practical** use of **interdisciplinarity** between **social science** and **technical science**.

Through:

- a. Renewable **Energy Systems** analysis
- b. Analyses of the **links between** technological development and the institutional, economic and political conditions.



Outline of the programme

1st semester Company perspective

2nd semester Society perspective

3rd semester Traineeship or independent work

4th semester Thesis

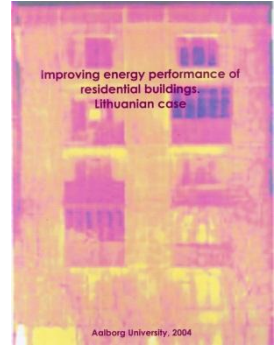
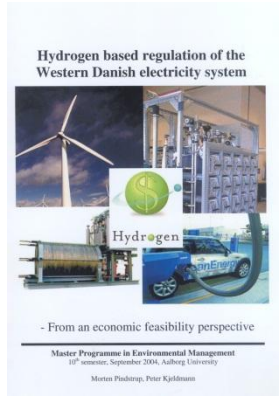
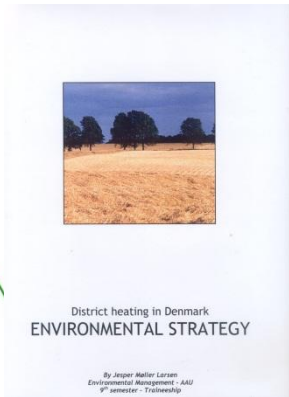
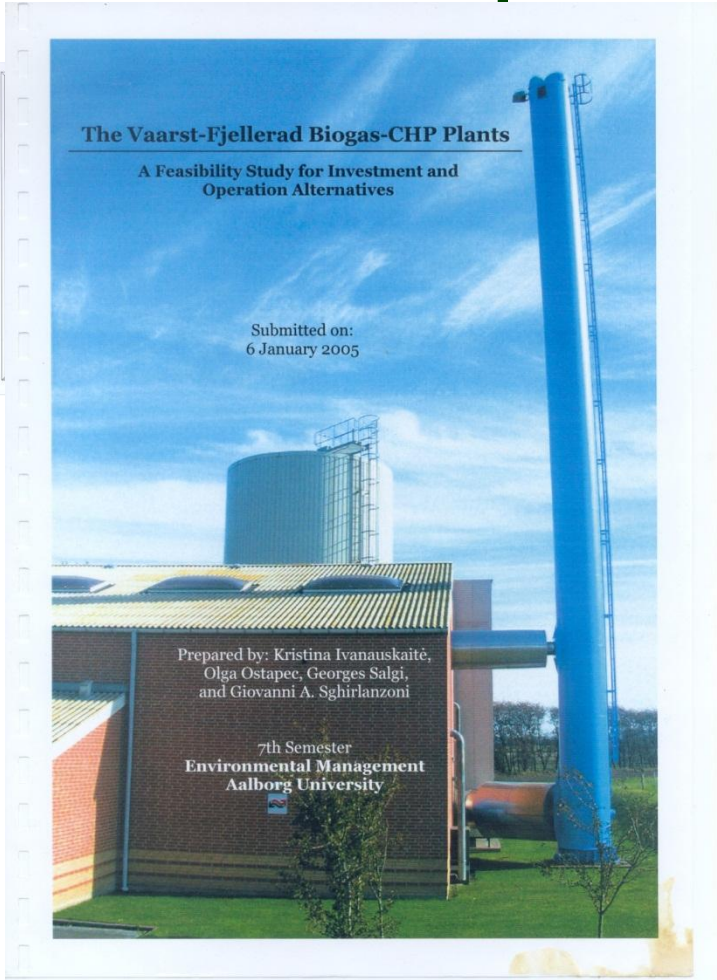


Study model

1. **Group work** on first and second semester (50% group work and 50% lectures/exercises)
2. Often individual 3th sem. and 4th sem.(master project).
3. Pedagogical model is project organized **PROBLEM BASED LEARNING**. Students decides their project theme.



Example of 1. sem. projects



2, 3 and 4.sem.project examples

1. Policies for house insulation in Kaunas, Lithuania. (m)
2. Policies for better use of biomass in Poland.(m)
3. Policies for 100% Renewable Energy on a Greek Island.(m)
4. Policies for Renewable Energy in Soutafrica.(3)
5. Policy for sustainable energy plan for Latvia.(2)
6. A strategy for Renewable Energy in the US.(m)
7. A district heating plan and policy for New York.(2)
8. Analysis of CDM projects in Thailand.(3)

All these projects have **technical scenarios** plus **institutional analysis and policy formulation**.



Thanks!



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