

The Economic Conditions for 4th Generation District Heating

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Content

- 1) Plan for PhD Research
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- 3) Collaboration and Conference 2016

PLAN FOR PHD RESEARCH

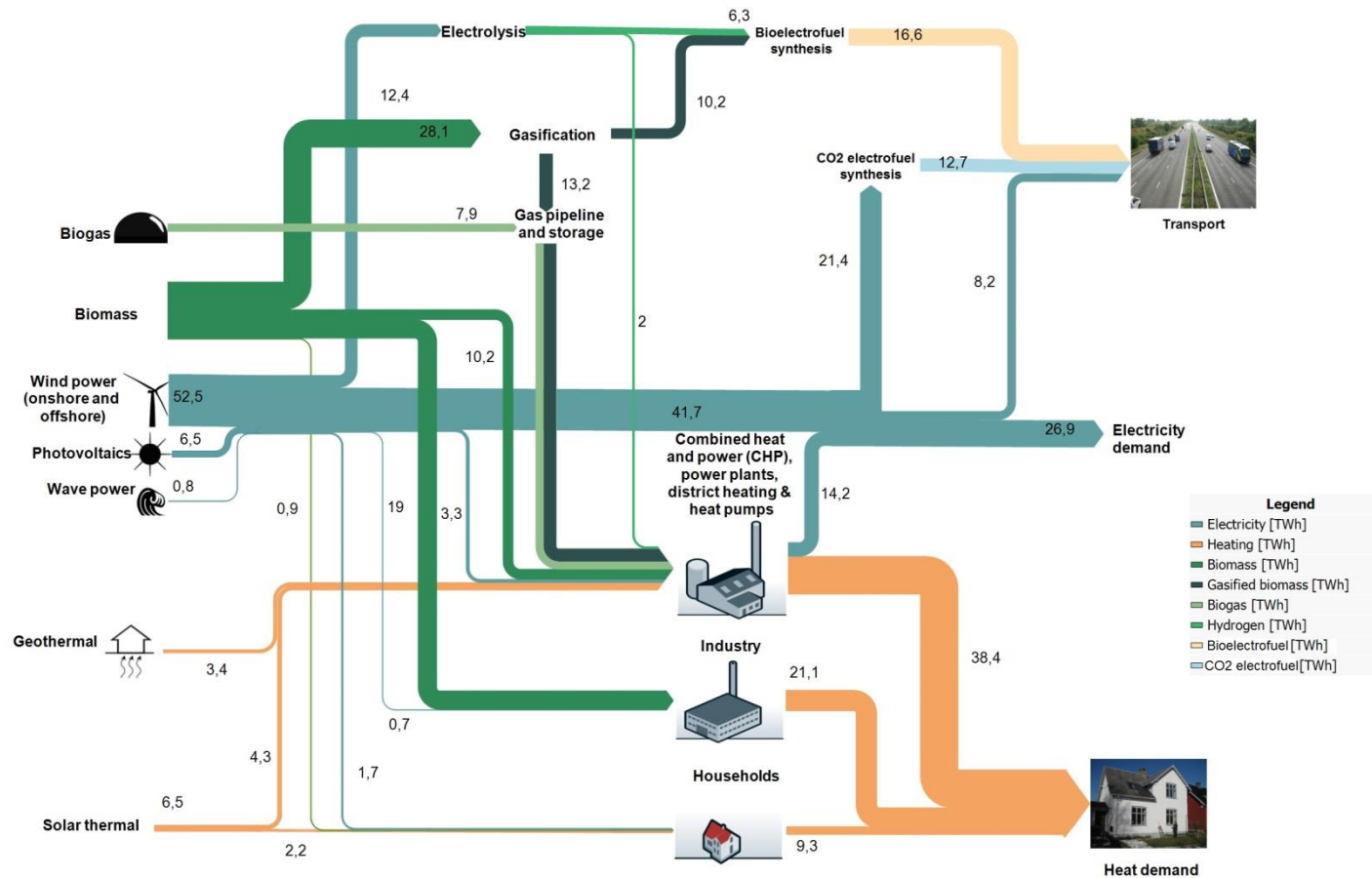
Plan of PhD Research

“District heating is here to stay but district heating has to change”



What has to stay and **what has to change** in my area of district heating research?

The role of district heating in a smart energy system



4DH – 5

Plan of PhD Research

What has to stay?

CHP units

What has to change?

Promote **electricity to heat**

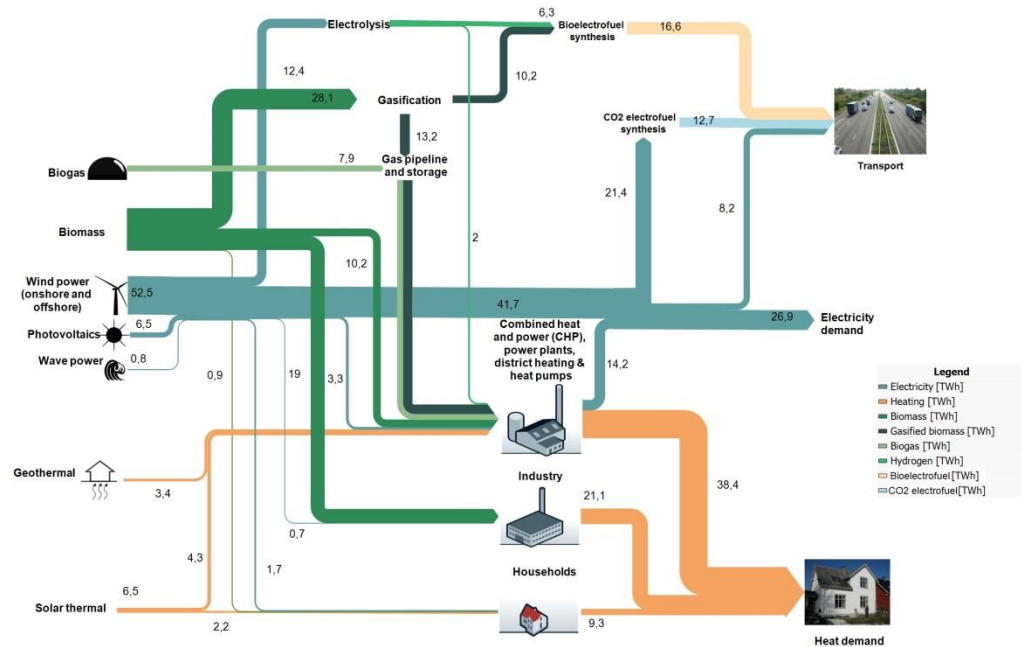
Minimise **biomass use**



Means for keeping and changing: **Economic, institutional and organisational initiatives**

Realising the technical potentials

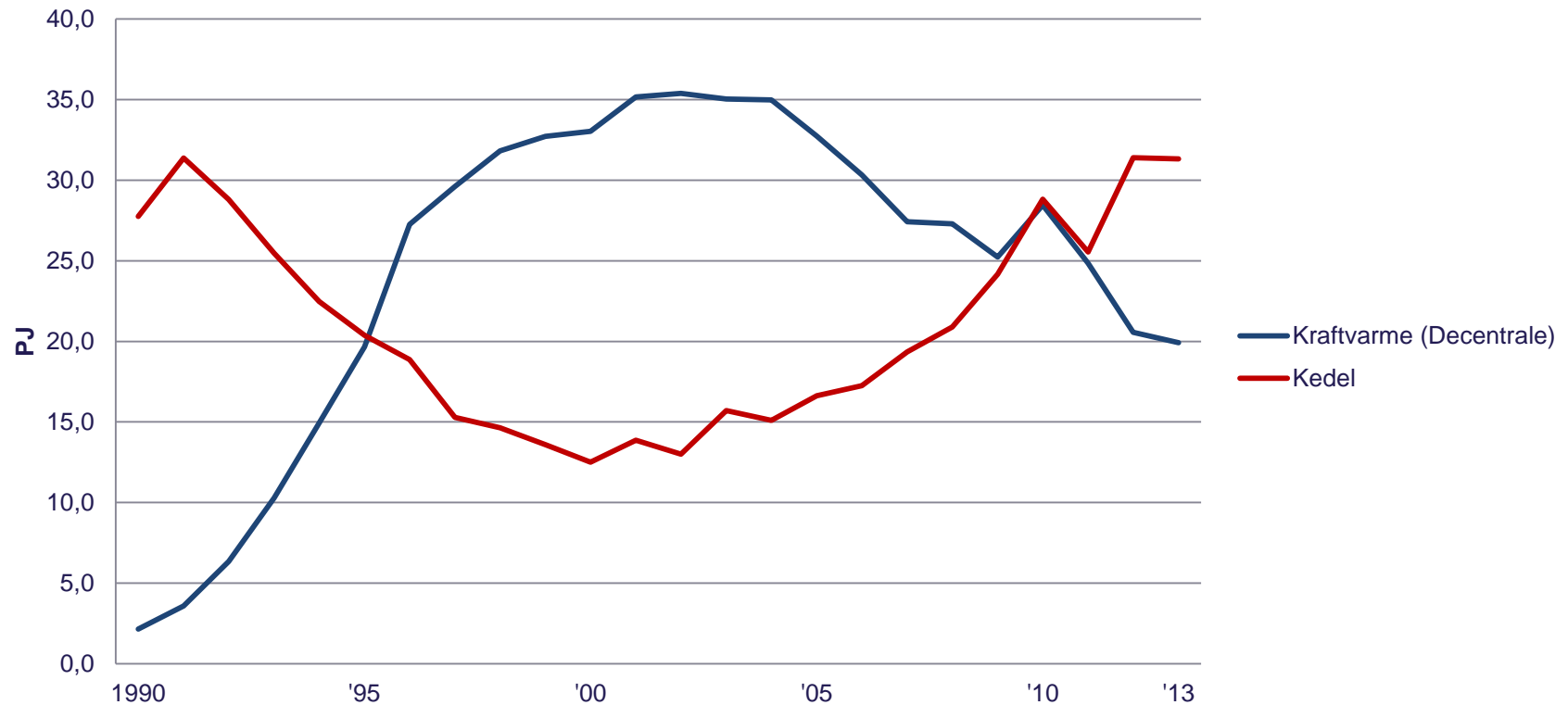
Behind this diagram we have a lot of **independent and widespread economic decision makers**.



4DH – 7

Decision making in the current system 1: **CHP is disappearing**

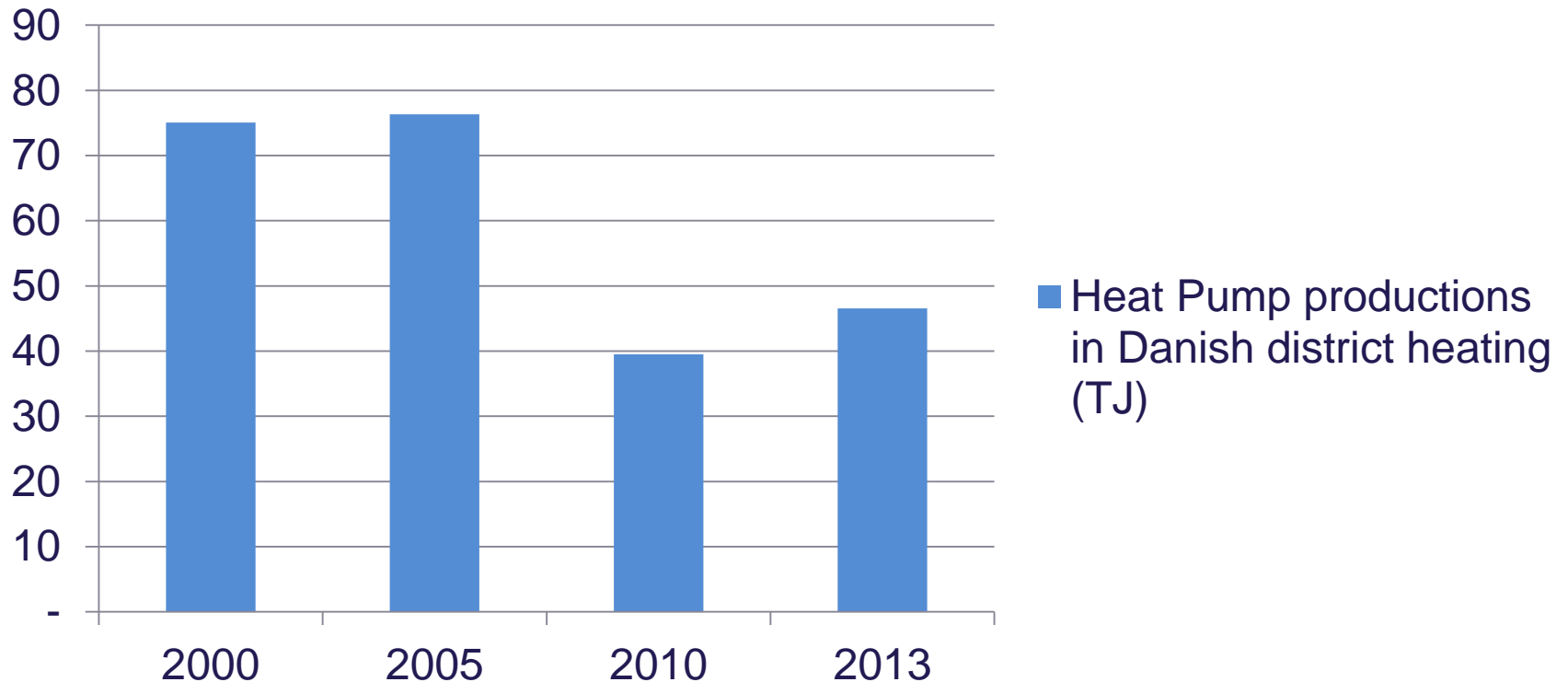
Production form in Danish District Heating



4DH – 8

Decision making in the current system 2: **Heat pumps are not entering**

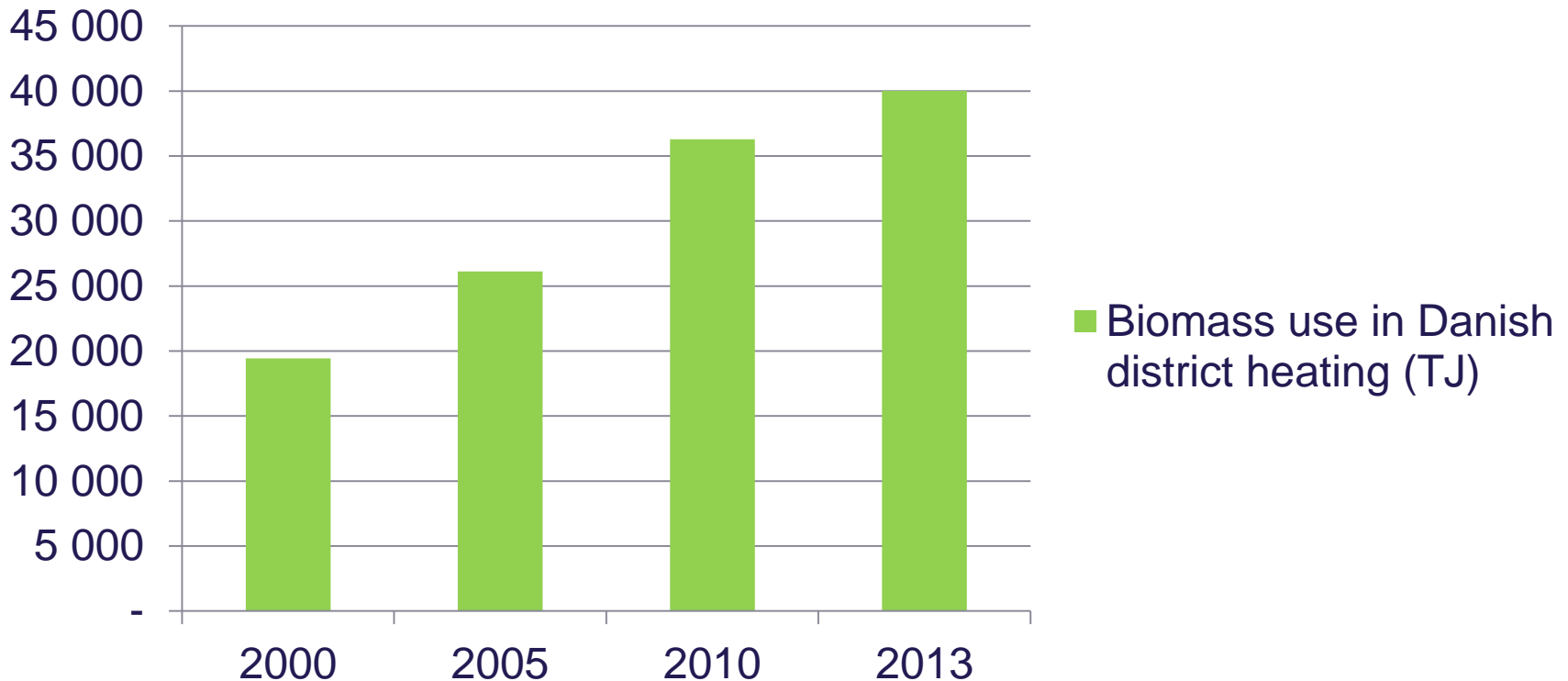
Production from Heat Pumps (TJ)



4DH – 9

Decision making in the current system 3: **Biomass use is drastically increasing**

Use of Biomass (TJ)



4DH – 10

How to keep and change

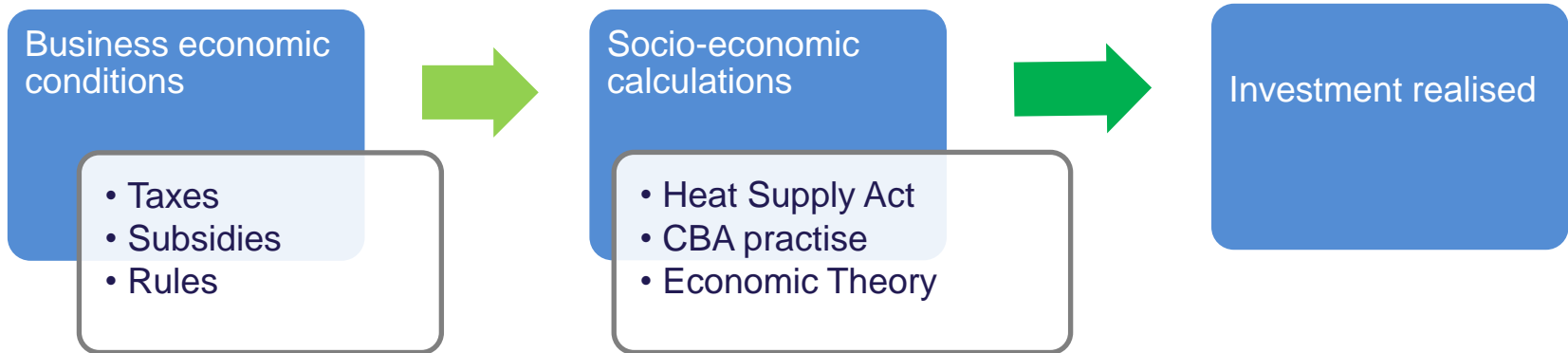


The tasks of keeping some elements and changing others have one thing in common: It requires (re)**investments**.

The approach in this PhD project is structured around ***the investment decision***.

We need an economic, institutional and organisational structure that promotes the right **investment decisions at plant level**.

The Investment Decision in Danish District Heating: Stages and Key Elements



POTENTIAL RESULTS

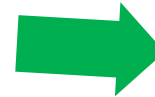
Results: Understar formulating concret

Socio-economic
calculations

ex relation

Investment realised

Business economic
conditions



- Revised energy tax on electricity
- PSO 2.0
- Equality between biomass and wind



- How theory works in practice
- Proposals for revisions in calculation procedure
- CO2 price

nd Planning
FY

COLLABORATION AND ABSTRACT

3. Collaboration and Conference 2016

Collaboration:

Grøn Energi and (former) PhD fellow Peter Sorknæs: Meetings and discussions on proposals and modelling.

Ideas for an abstract at the next conference:

The most interesting conclusions from my study...

My PhD ends by September 2016.



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