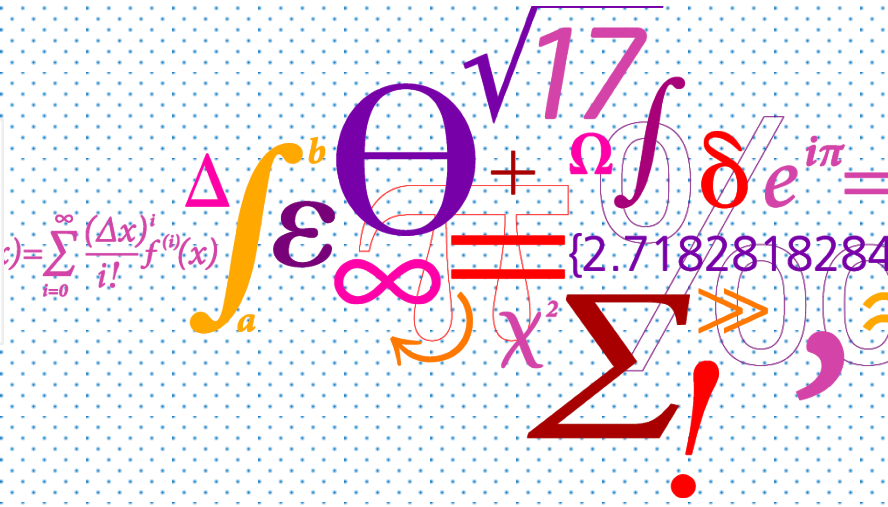
PhD project:
Geographical representations of renewable energy systems

PhD Student: Stefan Petrovic,
DTU Management Engineering
System Analysis Division
Energy System Analysis group

Supervisor: Kenneth Karlsson,
Senior Scientist, DTU
Management Engineering, head
of Energy System Analysis
group

Co-Supervisor: Bernd Möller,
Associate professor, Department
of Development and Planning,
Aalborg University

4th Generation District Heating Technologies and Systems



DTU Management Engineering
Department of Management Engineering

PhD research plan

- Started in November 2012 - three months to go
- Short-term planning

- Submitting papers
  - Optimal development of the future Danish energy system – insights from TIMES-DTU model (presented at ECOS 2015)
  - Heat supply planning for the ecological housing community Munksøgård (presented at SDEWES 2015)
  - Ringkøbing-Skjern energy atlas for municipal energy planning (presented at SDEWES 2015)
  - Heat savings and district heating in the future Danish energy system

- Revising and resubmitting a paper
  - Residential heat pumps in the future Danish energy system

- Producing "energy maps" within progRESsHEAT project

- Writing the PhD thesis

Results / potential results

- Results

- Model for determining geographical distribution of heat saving potentials in Danish building stock

- Danish heat atlas as a support tool for energy system models

- Optimal development of the future Danish energy system – insights from TIMES-DTU model

- Heat supply planning for the ecological housing community Munksøgård

- Ringkøbing-Skjern energy atlas for municipal energy planning

- Heat savings and district heating in the future Danish energy system

- Residential heat pumps in the future Danish energy system

Collaboration and abstract for the conference in 2016

- Collaborated with Ringkøbing-Skjern municipality on creating Energy Atlas

  - Delivered the database, report and plan for updating
  - Maps in the report need to be revised

- Modelling of 4DH in TIMES-DTU model

  - Modelling of 4DH
  - Production of DH in fossil fuel free scenarios
  - Synergies in fossil fuel free scenarios

- Comparison of heat atlases

- Municipal-scale results from progRESsHEAT project

- Competition for roof area between solar heating and PVs

Thank you for your attention

- Questions
- Answers
- Comments
- Suggestions

Stefan Petrovic
PhD Student
DTU Management Engineering

Technical University of Denmark
DTU Management Engineering
Produktionstorvet
Building 426, room 018
2800 Kgs. Lyngby
Denmark
Direct +45 24655732
stpet@dtu.dk
www.man.dtu.dk