Welcome to the Online EnergyPLAN Workshop

David Connolly

david@plan.aau.dk
@dconnollyAAU
www.dconnolly.net
Agenda: Analysing Large-Scale Heat Pumps

1. Build a reference model:
   • Load initialize.txt
   • Costs: import cost database (has source for costs in documentation)
   • Demands: Electricity of 20 TWh and district heat of 10 TWh
     • Describe differences between district heating groups
   • Supply:
     • 4000 MW of gas power plants, of which 1000 MW are CHP
     • Gas boilers to match 120% of the peak demand (2500 MW)
     • 5 hours of thermal storage (6 GWh)
     • Technical Optimisation 2

2. Increase the wind power to its maximum level
   • Ref Cost:
   • Max Wind Cost:

3. Add some large-scale heat pumps and thermal storage
   • 200 MWe
   • Measure Costs and CEEP
Agenda: Individual Heat Pumps

• Update Cost Database to fit new methodology

• Reference Individual Heat Demands:
  • 20 TWh Oil
  • 20 TWh Gas

• Replace the oil with Individual Heat Pumps

End with a sneak peak of the future...
Electricity Demand and Fixed Import/Export

Electricity demand: 20 TWh/year

1. Electric heating (if included): 0 TWh/year
2. Electric cooling (if included): 0 TWh/year
3. Electric for Business Continuity: 0.00 TWh/year (Transferred from Business Continuity Tab/Sheet)
4. Electric for Transportation: 0.00 TWh/year (Transferred from Transport Tab/Sheet)
5. Sum (Demand excl. electric heating): 20.00 TWh/year
6. Electric heating (individual): 0.00 TWh/year
7. Electric for heat pumps (individual): 0.00 TWh/year
8. Electric cooling: 0.00 TWh/year
9. Flexible demand (1 day): 0 TWh/year, Max-effect: 1000 MV
10. Flexible demand (1 week): 0 TWh/year, Max-effect: 1000 MV
11. Flexible demand (4 weeks): 0 TWh/year, Max-effect: 1000 MV
12. Fixed Import/Export: 0 TWh/year
13. Total electricity demand*: 20.00 TWh/year

*Demand does not include possible electricity needed for regulating electric boilers (Regulation Tab)
Useful Links

• www.EnergyPLAN.eu
• www.EnergyPLAN.eu/training/
• www.smartenergysystem.eu
• www.heatroadmap.eu
• www.dconnolly.net
• www.dconnolly.net/greenplanireland/

• Thank you for attending!

• Feedback:
  https://docs.google.com/forms/d/1sLWj-81ICygtrp7DzLkqRJ4weTomWUW0UzgNUDsZXcM/viewform?usp=send_form