Taking the hot air out of heat electrification

Conference on Energy Efficient Domestic Heating as a Measure for Clean Air

Sofia, Bulgaria

Dr Jan Rosenow  
Director of European Programmes  
The Regulatory Assistance Project (RAP)®

Rue de la Science 23  
B-1040 Brussels  
Belgium

+44 7722 343137  
jrosenow@raponline.org  
raponline.org
1 Why heating?
Almost half of energy use in EU

75% of heat generated by fossil fuel

Residential sector most important

2 Decarbonisation options and context
Limited options for decarbonisation
Principles for heat electrification
Principle 1: Put Efficiency First

- Reduces system cost
- Provides thermal storage
Thermal storage potential across Europe
Principle 2: Recognize the value of flexible heat load

Electricity demand (kW)

- Use of wind power
- Use of solar power
- Reduce AM peak load
- Reduce PM peak load

7 AM 16 AM 12 PM
Principle 3: Understand the emissions effects of changes in load

Reduced wind and no solar mean that higher carbon plants (coal and gas) switch on to meet evening peak demand.

Lower demand overnight means that higher carbon plants switch off. Wind generation also produces low carbon electricity.
Principle 4: Design tariffs to reward flexibility
Example: my own heat pump scheduled to avoid evening peak
Heat policy
Heat policy

- Building codes, appliance standards and labelling
- Energy Efficiency Obligations and financial support schemes
- Carbon intensity standards
- Building codes, appliance standards and labelling
- Energy Efficiency Obligations and financial support schemes
- Electricity pricing
5 Conclusion
Conclusions

- Decarbonising heat is critical for meeting climate and clean air goals
- Electrification is a central pillar
- Energy efficiency is key to minimize costs and build in thermal storage
- Flexible operation of heat pumps is possible and can be incentivized through tariffs
- Whole range of policy instruments needed to accelerate replacement rates
About RAP

The Regulatory Assistance Project (RAP)® is an independent, non-partisan, non-governmental organization dedicated to accelerating the transition to a clean, reliable, and efficient energy future.

Learn more about our work at raponline.org