# Heating Without (Global) Warming


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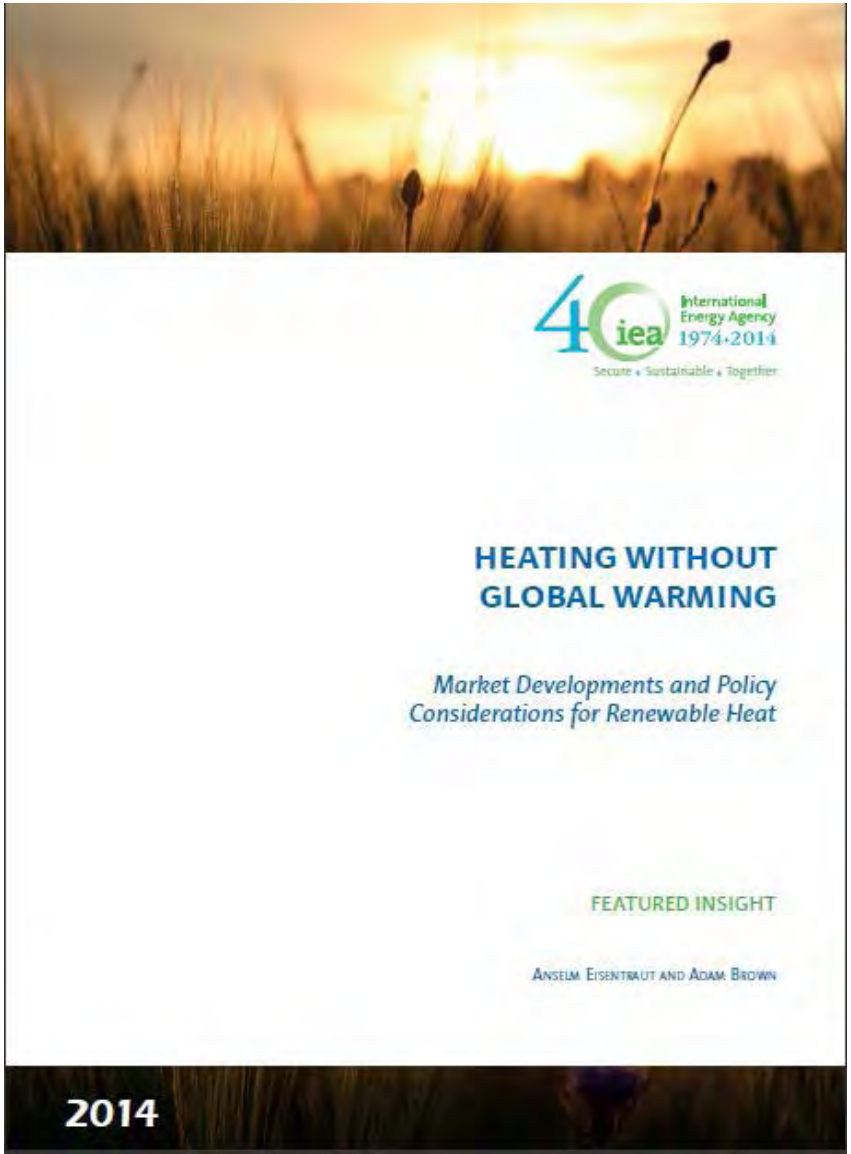
- **Technology roadmaps (2011-12)**
  - Bioenergy for Heat and Power
  - Geothermal Heat and Power
  - Solar Heating and Cooling

  ***www.iea.org/roadmaps***

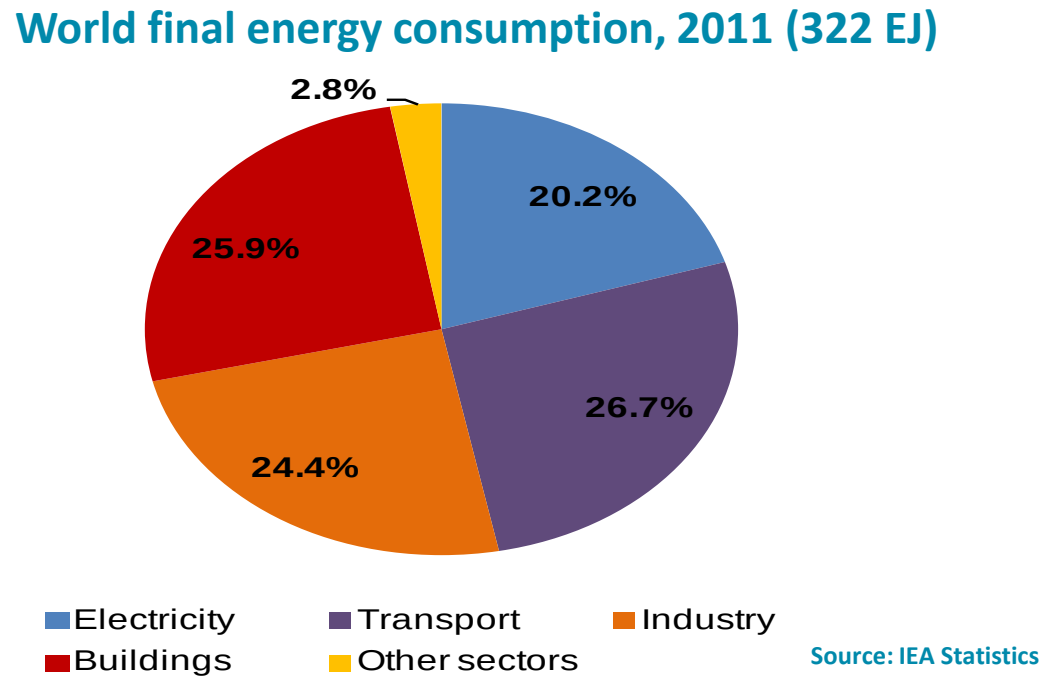
- **Enhanced Analysis of renewable heat in the Medium Term Renewable Market Report**



# Topics

- Importance of renewable heat
- Market developments
- Barriers and policies
- Future challenges

# Heat deserves more attention




- More than 1/2 of total final energy and 1/3 of total primary energy consumption is for heat
- On primary energy basis - 40% of gas and 20% of oil and coal used for heating
- Significant energy security and environmental consequences, and so benefits from energy efficiency or using renewables

# The good news ……and the bad news

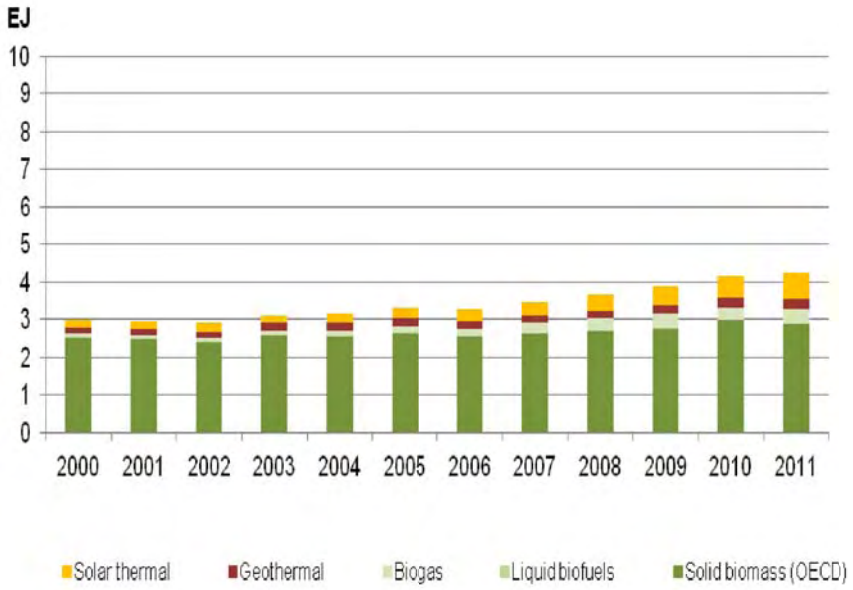
**Advantages of RE Heat**

- Developed technologies
- Cost effective in best cases
- Integration and storage easy/lower cost

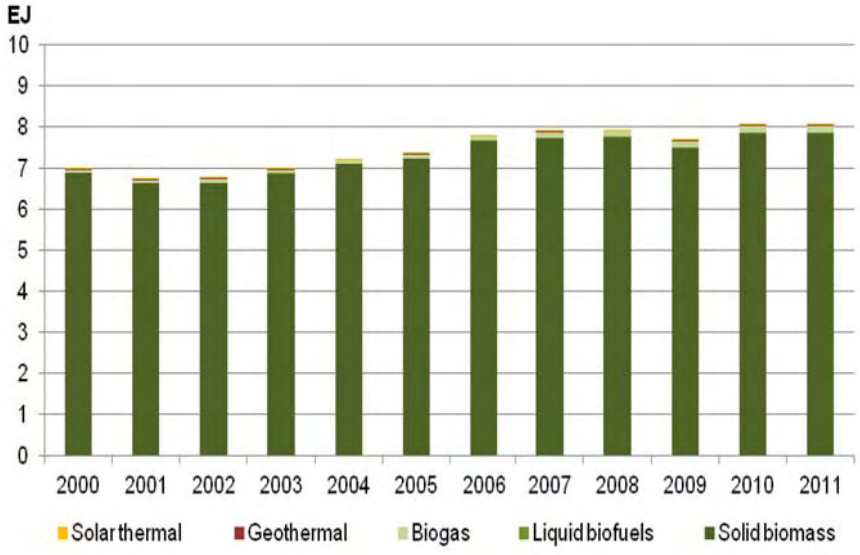
**Issues**

- Policy and market attention
- Diverse costs
- Local opportunities
- Non economic barriers

# Modern renewable energy use for heat in buildings and industry




RE Heat in buildings excluding "traditional biomass"

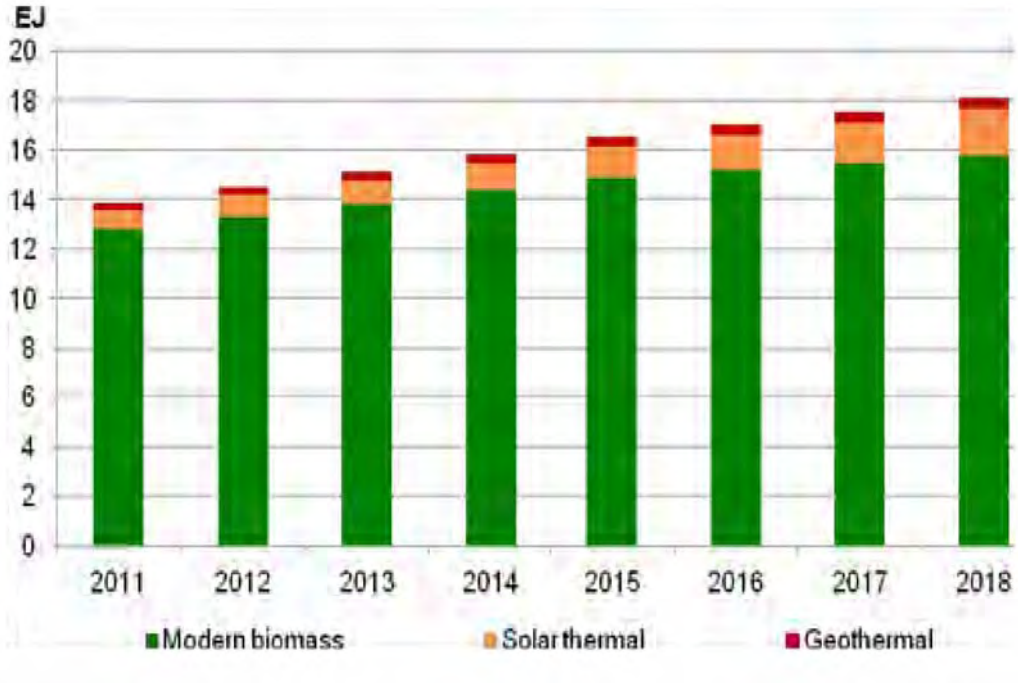



RE Heat in industry

- In building RE heat use growing – solar in particular
- In industry biomass dominates and growth slow

# Continuing growth expected…..

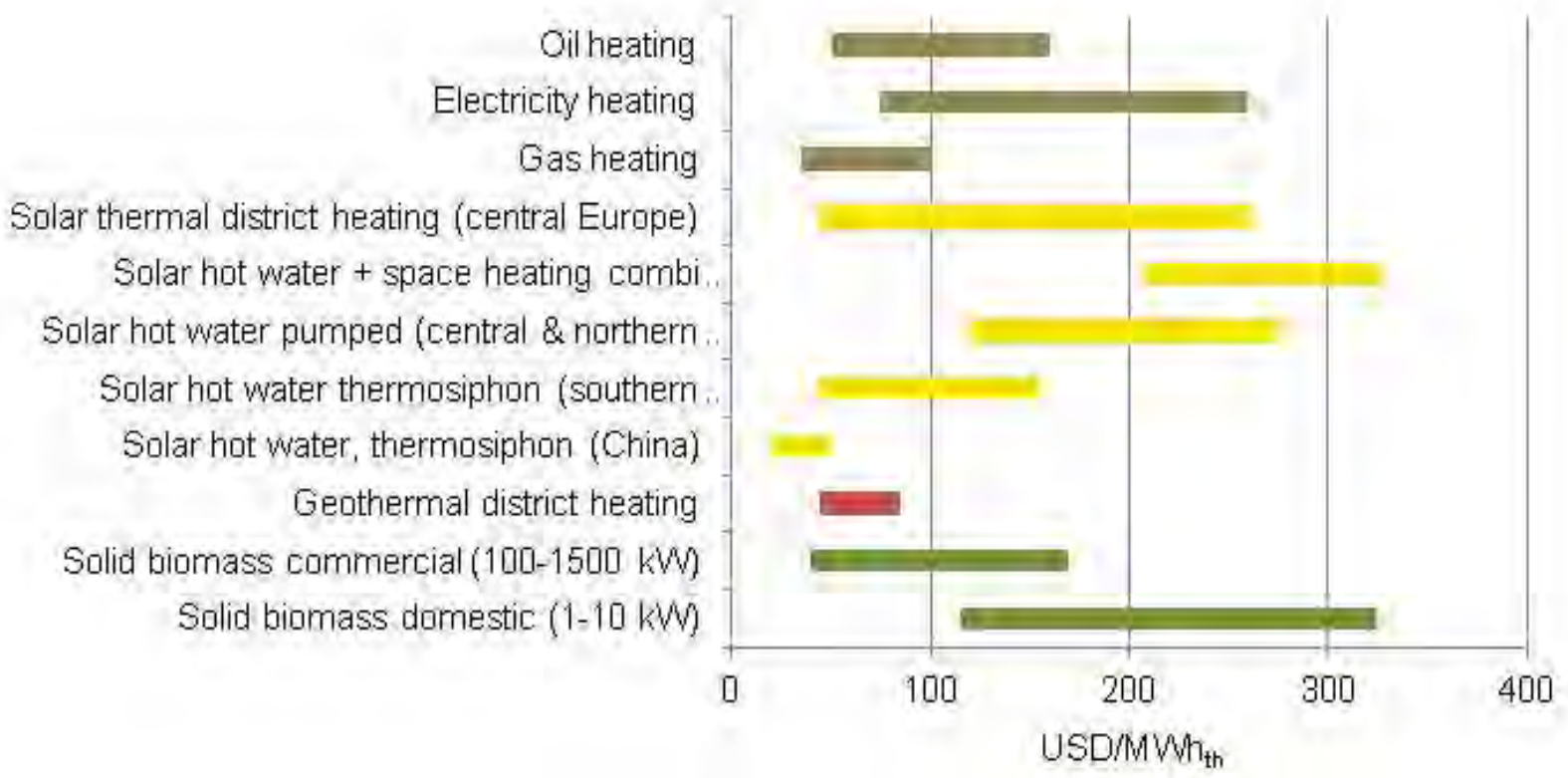
**Forecast growth in RE heat to 2018**



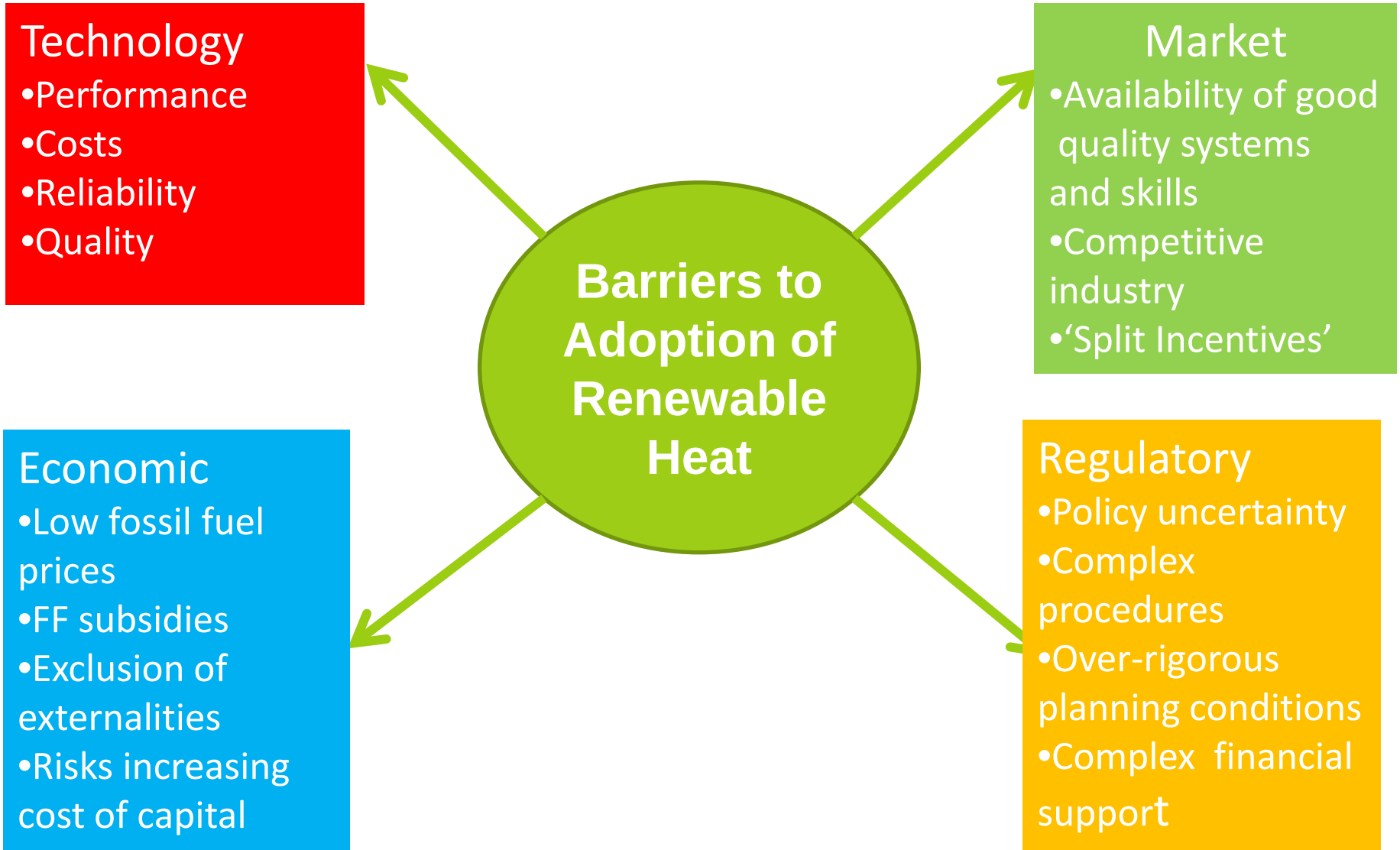

- **Growth principally in building sector and in EU and China**

# Economic where resource and market conditions right but wide variations

Comparison of building sector heating costs



# But barriers remain



# Only 40 countries have policies

- Mostly in EU, driven by NREAP's
- Neighbouring countries with similar situations but different policy approaches….

# Policy principles

- Include RE Heat in energy strategy, but base on local evaluation of opportunities and benefits
- RE Best Practice Principles apply
  - Stable policy framework
  - Smart incentives
  - Tackle non-economic barriers
- Specific initiatives for specific barriers - e.g.
  - Insurance for geothermal drilling risk
  - Support for biomass supply chains
  - System and installer certification
- More work needed on cost ranges and policies which stimulate reduction
- Sector specific measures well integrated with energy efficiency measures particularly in buildings

# Austria a Leader!

- Strong forestry tradition
- Long term policy intent
- Support at national and regional level
- Strong technology and industry
- Supportive structure tackling non-technical barriers

# Future Challenges for RE Heat

- Expanding and improving  cost effectiveness
  - Policies to drive cost reductions?
  - Can costs be reduced without compromising performance?
  - Scale in manufacture and deployment?
- Enhanced role in industry use?
- Integration with low energy buildings?
- Cooling?
- Role in a better integrated system?

# Further Information

- http://www.iea.org/publications/freepublications/publication/FeaturedInsight_HeatingWithoutGlobalWarming_FINAL.pdf

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