



IEA Bioenergy
Technology Collaboration Programme



Addressing barriers to high temperature biomass heat in industry: policy & market issues

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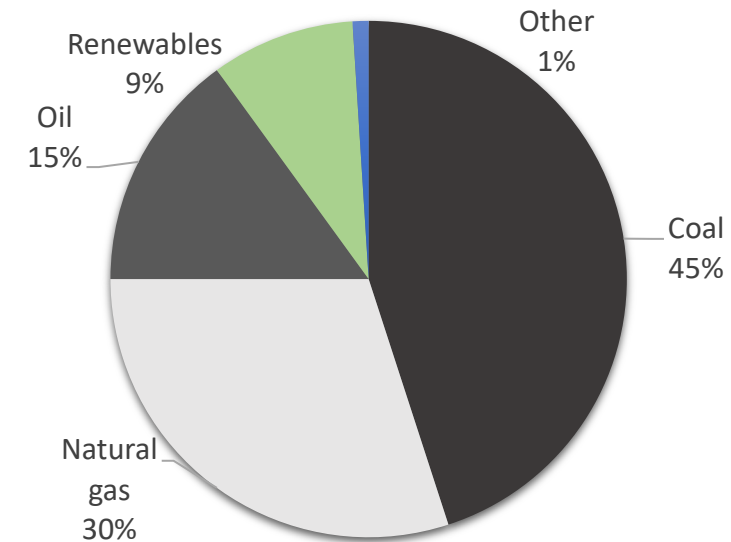
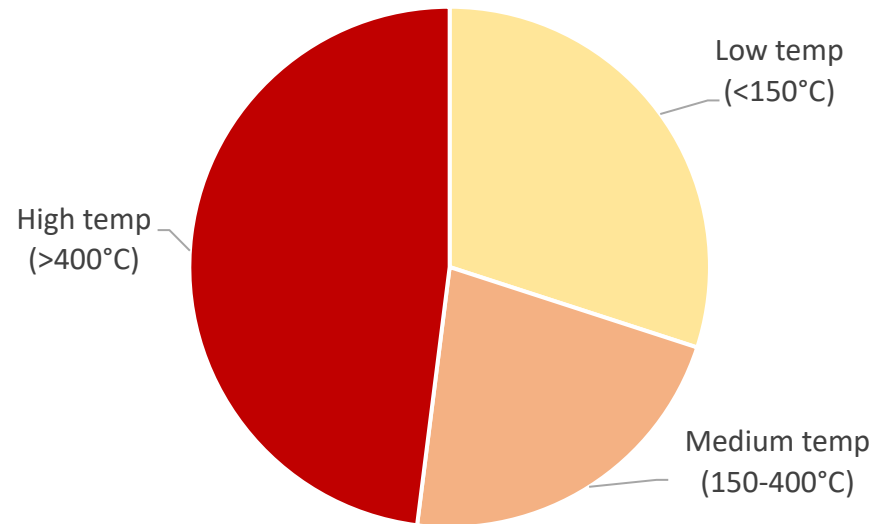
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Outline

- Industrial heat in broad climate & energy context
- Industrial heat characteristics from a market & policy perspective
- Policy options

Industrial heat - overview

$\frac{1}{4}$ of total global energy demand



Industrial heat & CO₂ emissions

- Industry ~30% of global GHG emissions
- Emissions also from processes (e.g., steel, cement)

Industrial heat - technology characteristics

- Very diverse - many different applications with varying needs
 - Temperatures
 - Direct/indirect heat
 - ...
- Decarbonization options (broadly):
 - CCUS
 - Biomass
 - Electrification (direct or indirect, i.e., via hydrogen)

Policy options

- Product markets often international or global - risk of carbon leakage
- Absent a global carbon price regime, other policy options needed
 - Innovation support to induce technological shifts
 - Public procurement of products with low life cycle emissions
 - "Green clubs"
 - Carbon border tax adjustment
 - Carbon contracts for difference
 - ...

Other potential pathways to cost-competitiveness

- Technology shifts could reduce in lower costs with scale
- Cost increases in processes may be miniscule if carried to sticker price
- Brand owners, OEMs etc push towards lower life cycle emission products?

Next steps

- Upcoming in 2021: report on technology, markets and policy options for deployment of biomass for industrial heat
- Follow the work at <http://itp-hightemperatureheat.ieabioenergy.com> & <http://task40.ieabioenergy.com>
- Thank you!