

Biomass Carbon Sink or Carbon Sinner?

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Overview

1. Evidence review

- Biomass Environmental Assessment Tool (BEAT)

2. Policy implications

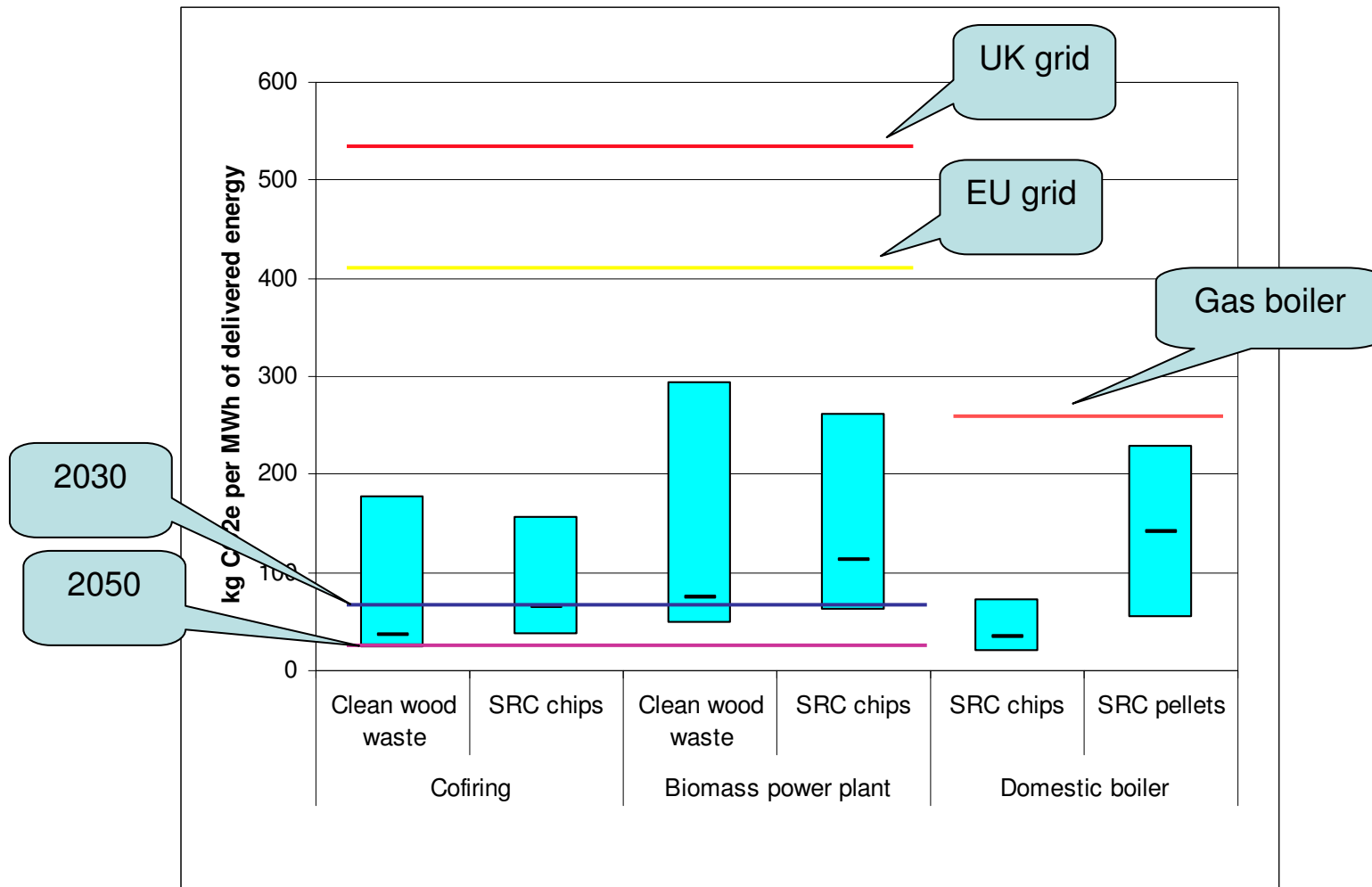
- Maximising GHG emission savings



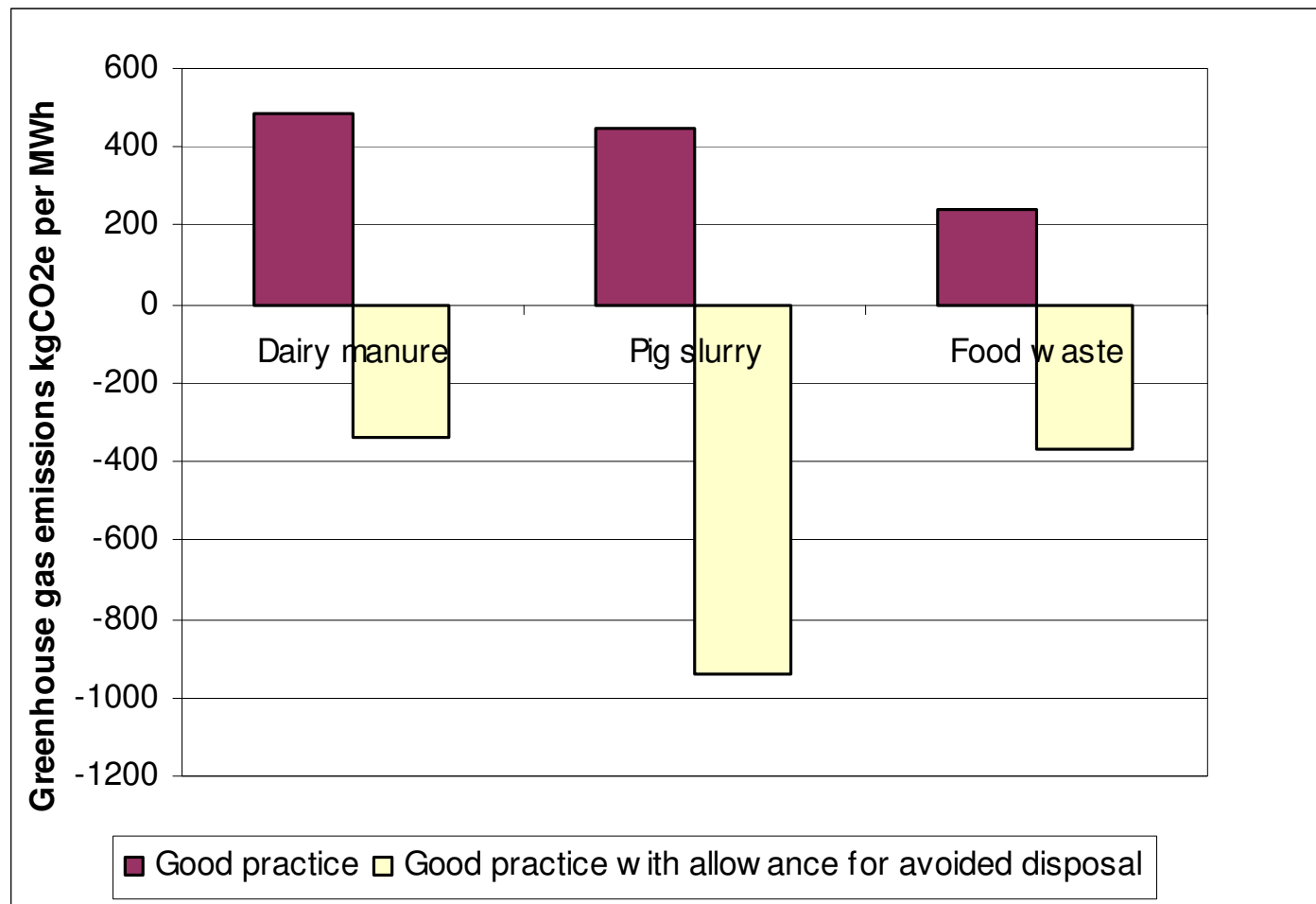
The screenshot shows the BEAT 2 web interface. The top part features a large image of a sun rising behind a field of crops, with the text 'BEAT 2' in the bottom right corner. Below the image is a navigation menu with buttons for 'Home', 'What is BEAT?', 'Instructions on Use', 'Create New Scheme>>', and 'Open Scheme>>'. To the right of the menu, it says 'Developed for: defra' with the defra logo, and 'Environment Agency' with the Environment Agency logo. Below that, it says 'by: AEA' with the AEA logo and 'NORTH ENERGY' with the North Energy logo. At the bottom right, there are buttons for 'User Guide' and 'Disclaimer'.

www.biomassenergycentre.org.uk/BEAT

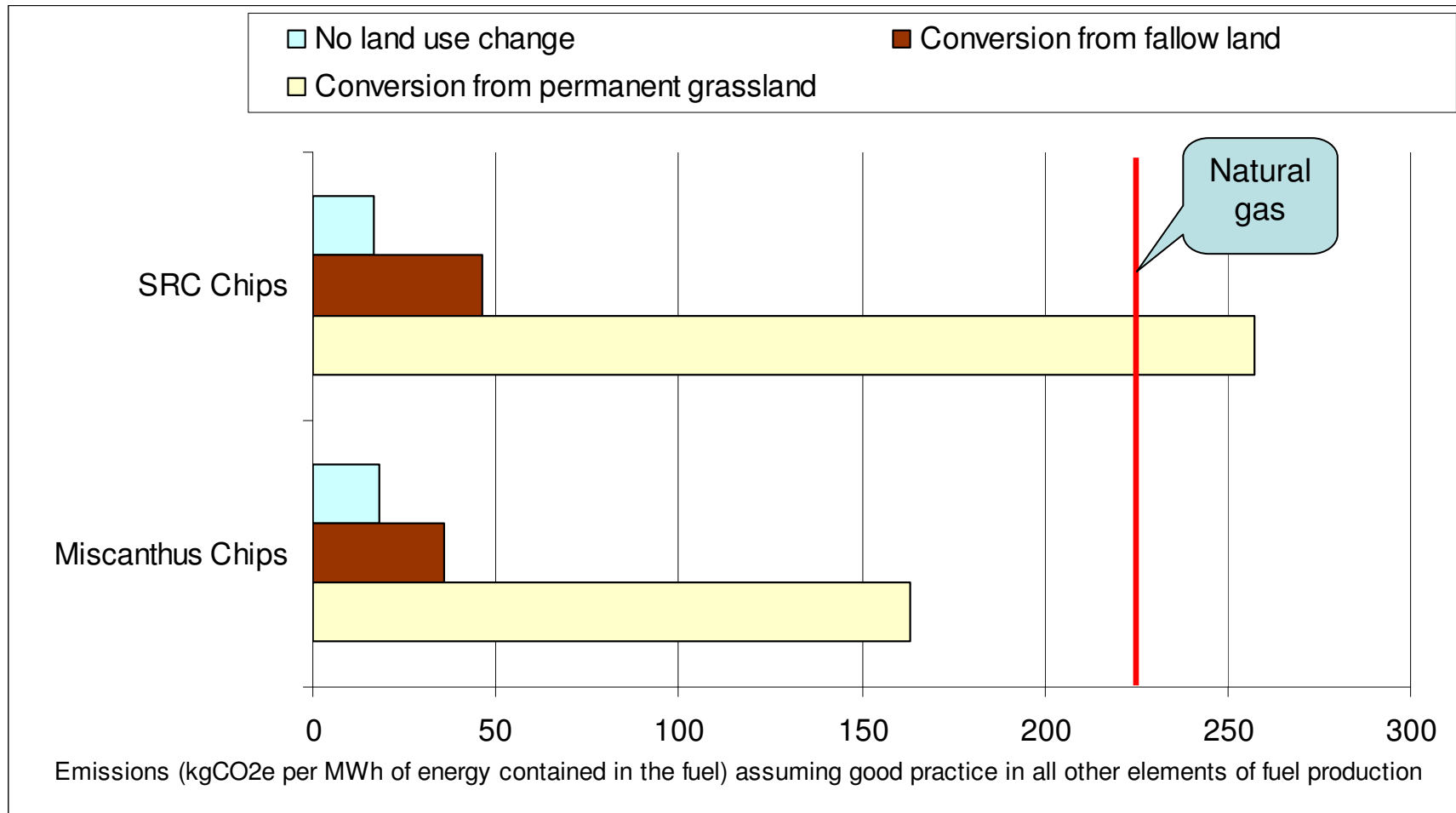
Lifecycle emissions from biomass



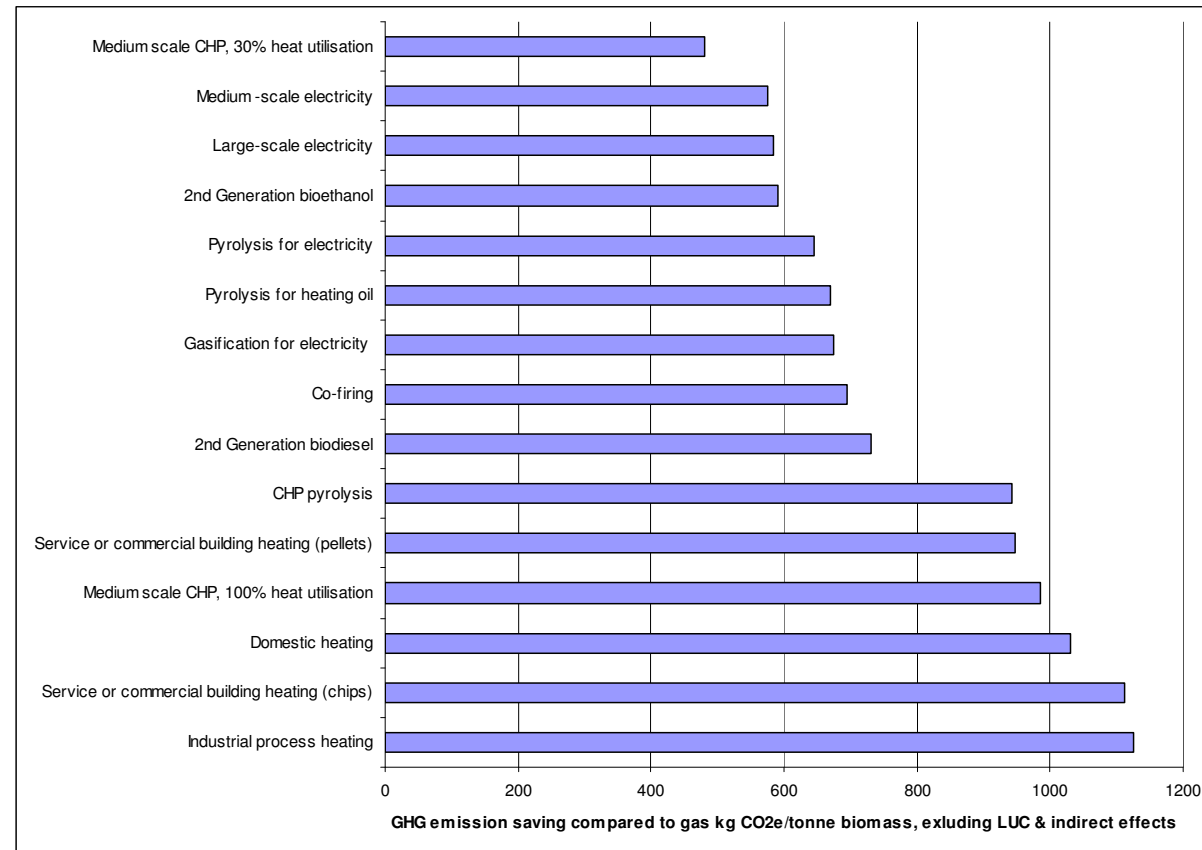
Emissions from anaerobic digestion



Direct land use change



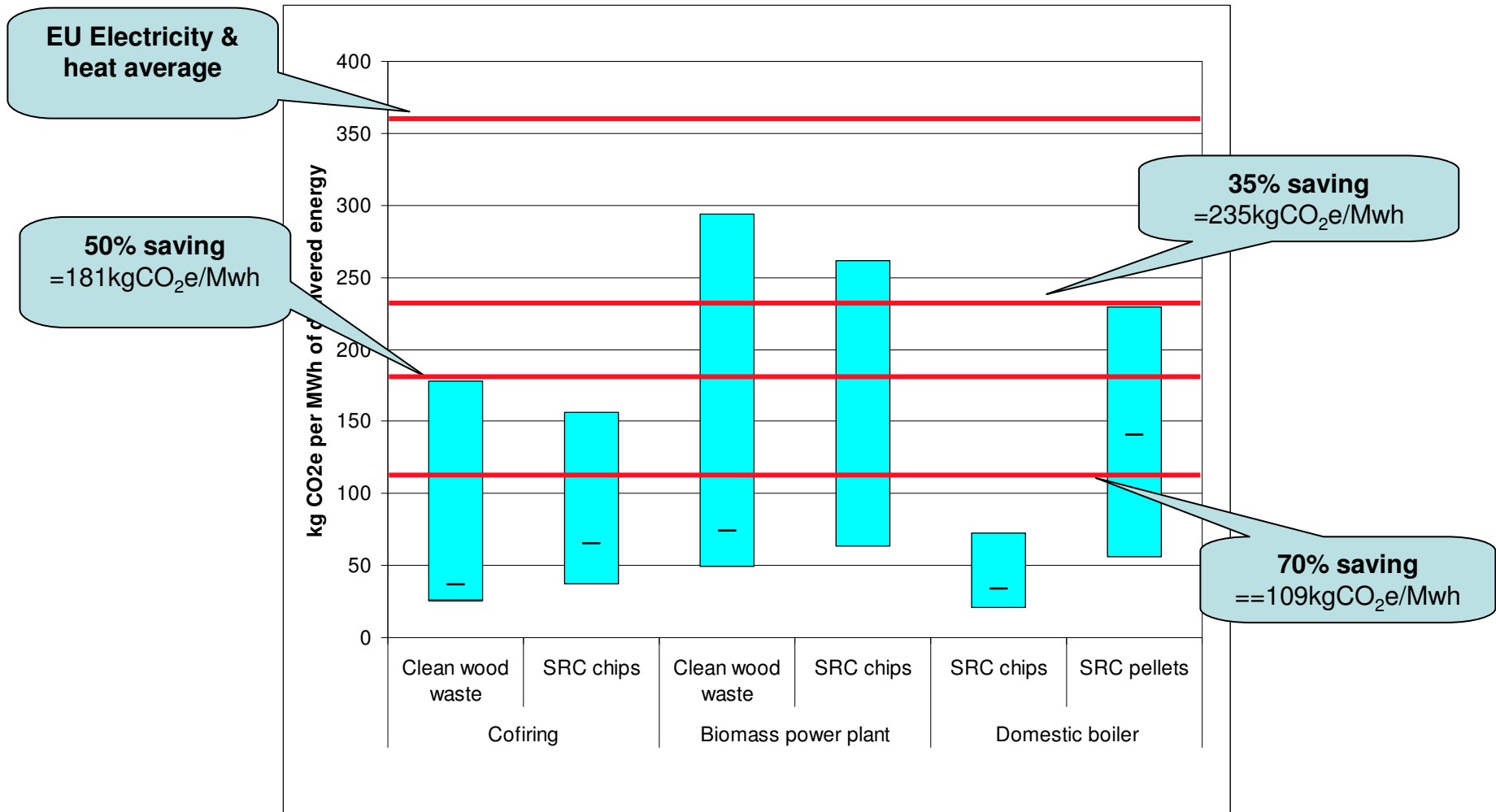
Technology choice



Policy implications

1. A greenhouse gas standard

1. A minimum greenhouse gas standard



Policy implications

1. A minimum standard
2. Carbon debt test

2. Carbon debt test

- Biogenic emissions for energy crops and dedicated forestry are zero
- Harvesting existing forestry creates carbon debt
- Renewable Energy Directive specifies 20 years payback time but e.g. UK Sitka spruce re-growth following harvest takes 40-60 years



Policy implications

1. A minimum standard
2. Carbon debt test
3. **Sustainability certification**

3. Sustainability certification

- **FSC or equivalent requirement is best tool available for:**
 - **Traceability**
 - **Ensuring good environmental practice**
 - **Avoiding the worst land use changes**
- **Could be delivered through:**
 - **Renewable Energy Directive**
 - **Pollution Prevention and Control**
 - **Member State support schemes**

Policy implications

1. A minimum standard
2. Carbon debt test
3. Sustainability certification
4. **A hierarchy of use**

4. A hierarchy of use

Technology	Efficiency band
Industrial process heating	A
Service or commercial building heating (chips)	
Domestic heating	
Medium scale CHP, 100% heat utilisation	
Service or commercial building heating (pellets)	
CHP pyrolysis	
2nd Generation biodiesel	B
Co-firing	
Gasification for electricity	
Pyrolysis for heating oil	
Pyrolysis for electricity	
2nd Generation bioethanol	C
Large-scale electricity	
Medium -scale electricity	
Medium scale CHP, 30% heat utilisation	

Conclusions

- **Biomass has an important but limited role to play in meeting renewable energy and climate change targets.**
- **Not all biomass use is sustainable and lifecycle greenhouse gas emissions savings vary considerably.**
- **EU-wide standards are needed that:**
 - **Prevent unsustainable use of biomass;**
 - **Deliver good practice in biomass production and use;**
 - **Maximise greenhouse gas emissions savings.**