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Overview of technical options for the energy transition in coal regions

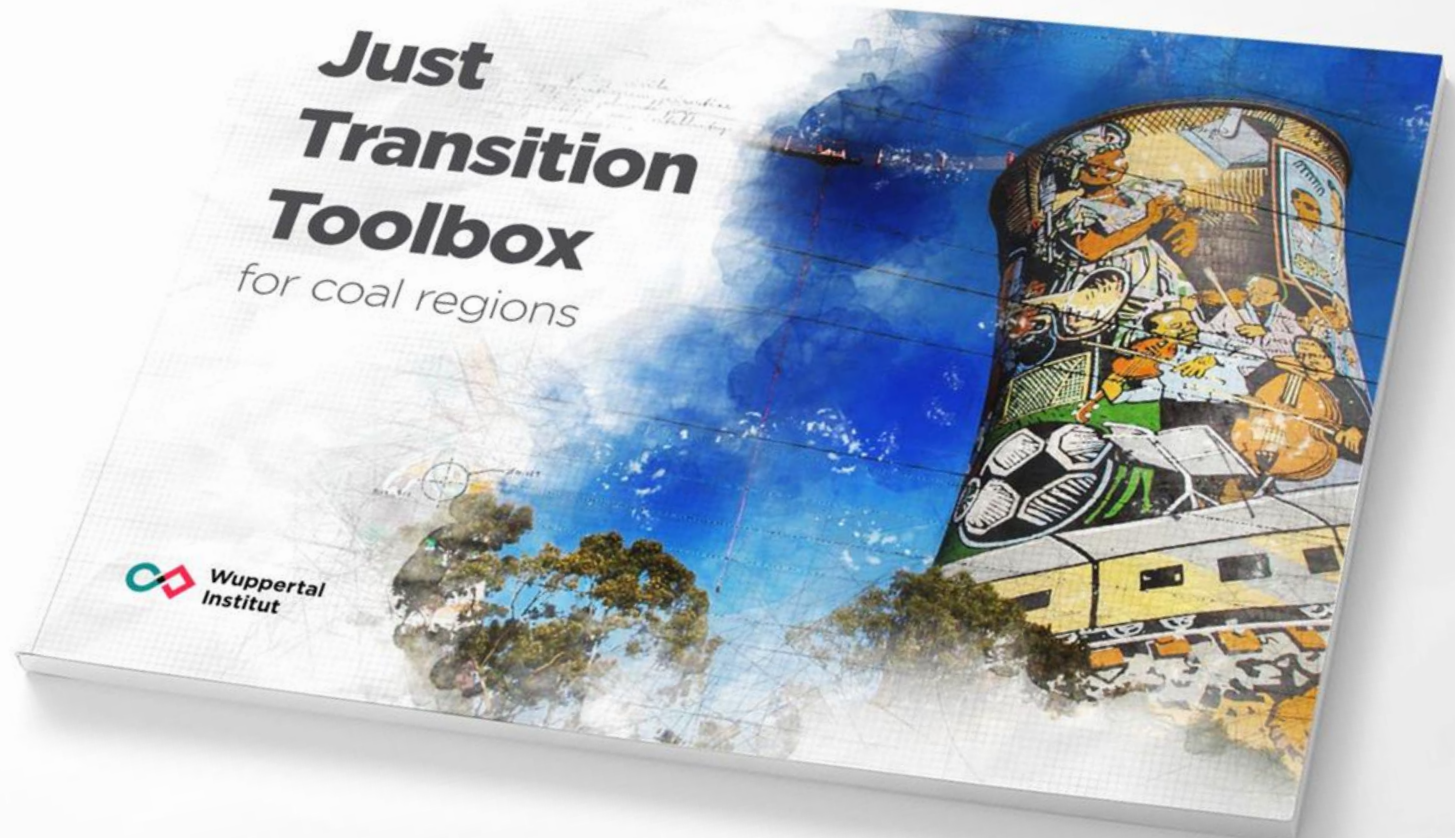
Jannis Beutel

International Conference On Knowledge Transfer of Just Transition

SUPPORT MATERIAL

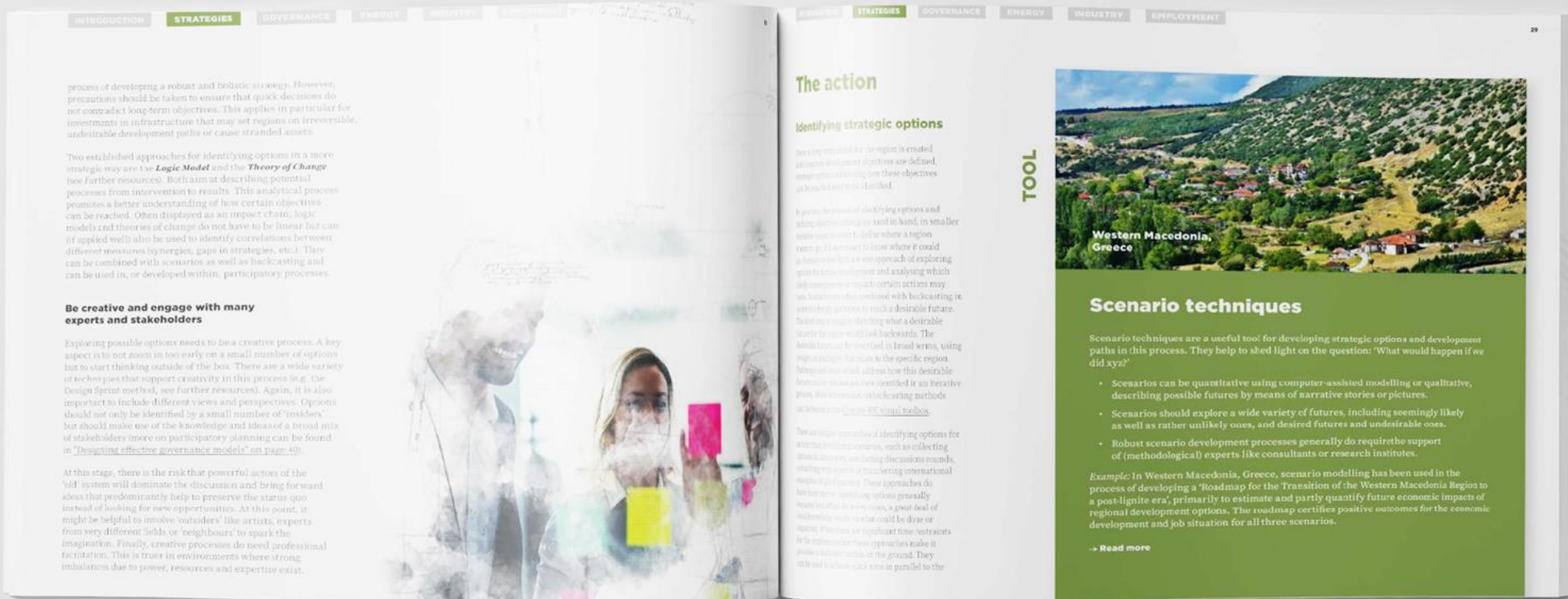
A Just Transition Toolbox for coal regions

Available on
coaltransitions-toolbox.org



SUPPORT MATERIAL

A Just Transition Toolbox for coal regions



Concise information for practitioners in coal regions

Practical examples and case studies

Supported by references to further information, e.g., handbooks, tools, good practice cases

Topics of support

Strategy
development

Governance

Energy

Industry
decarbonisation

Sustainable
employment



RENEWABLE ENERGY OF FIRST CHOICE

- Solar
- Wind
- Geothermal
- Marine energy
- Energy storage
 - Thermal storages
 - Pumped hydro
 - Chemical batteries

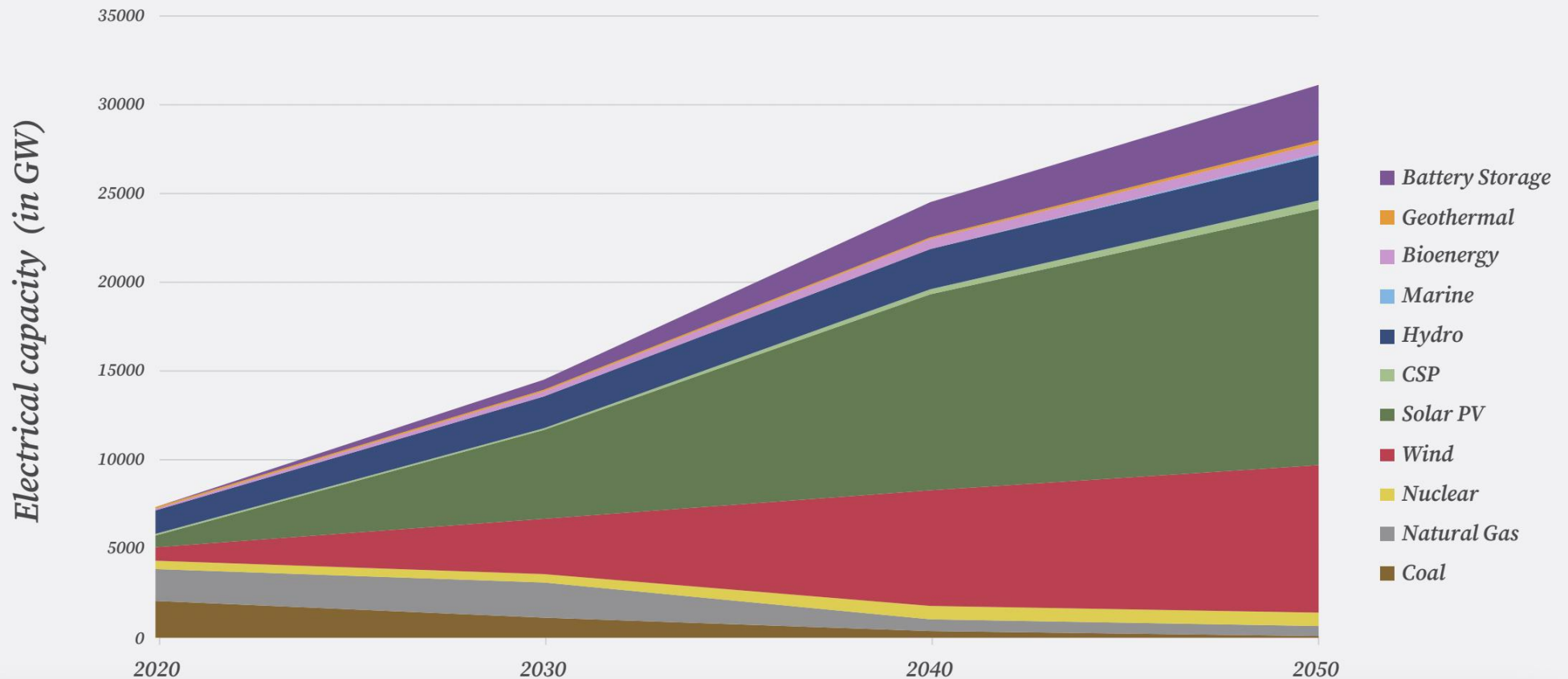
ENERGY TECHNOLOGIES WITH UNCERTAIN PROSPECTS

- Natural gas
- Biomass
- Hydropower
- Nuclear energy



Main global energy developments

IEA scenario projections for energy supply 2020 - 2050



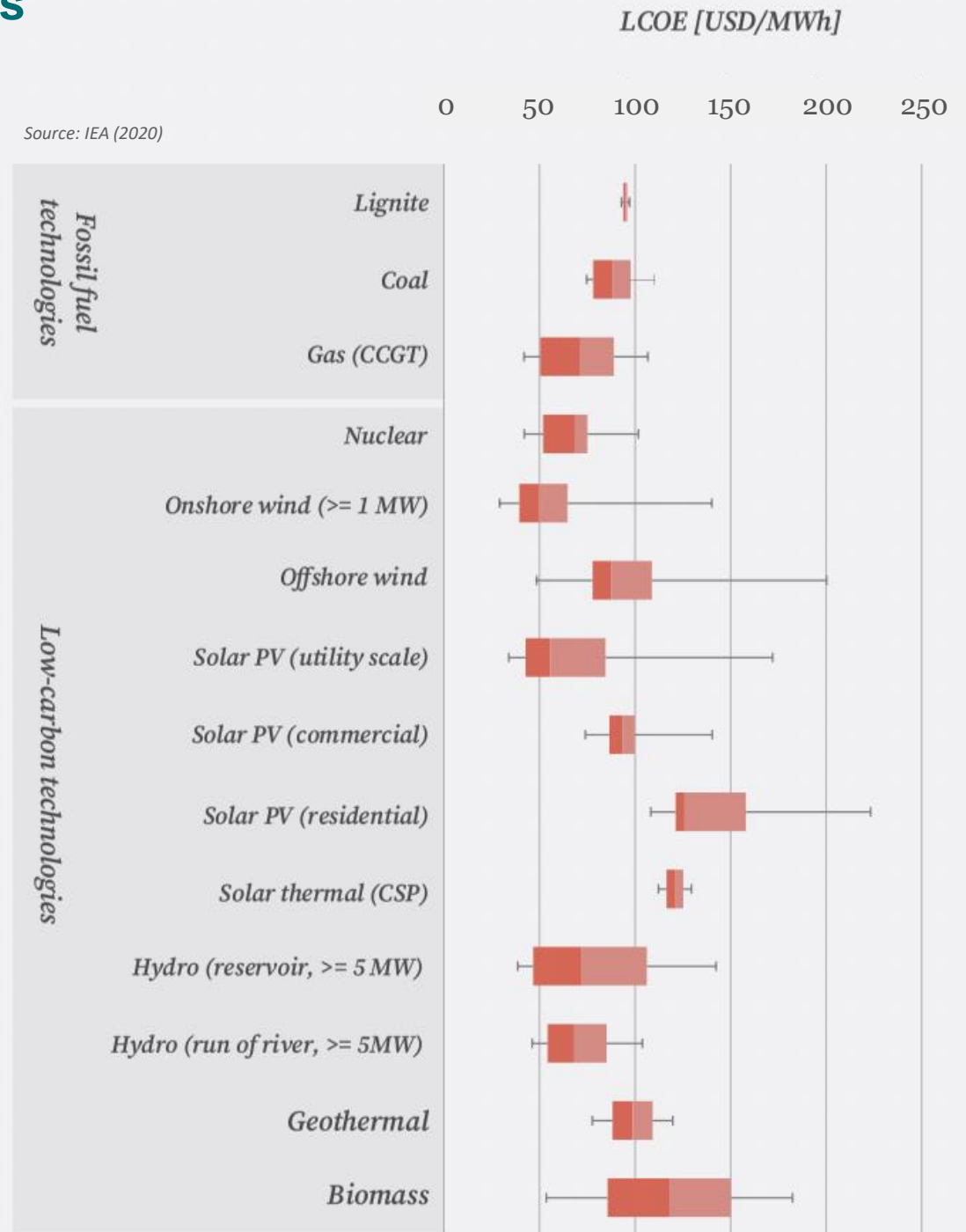
Main global energy developments

Levelised cost of electricity by technology, 2020

Already today, **onshore wind** and **solar PV** are the cheapest sources of energy.

Note: Values at 7% discount rate. Box plots indicate maximum, median and minimum values. The boxes indicate the central 50% of values, i.e. the second and the third quartile.

Source: IEA (2020)



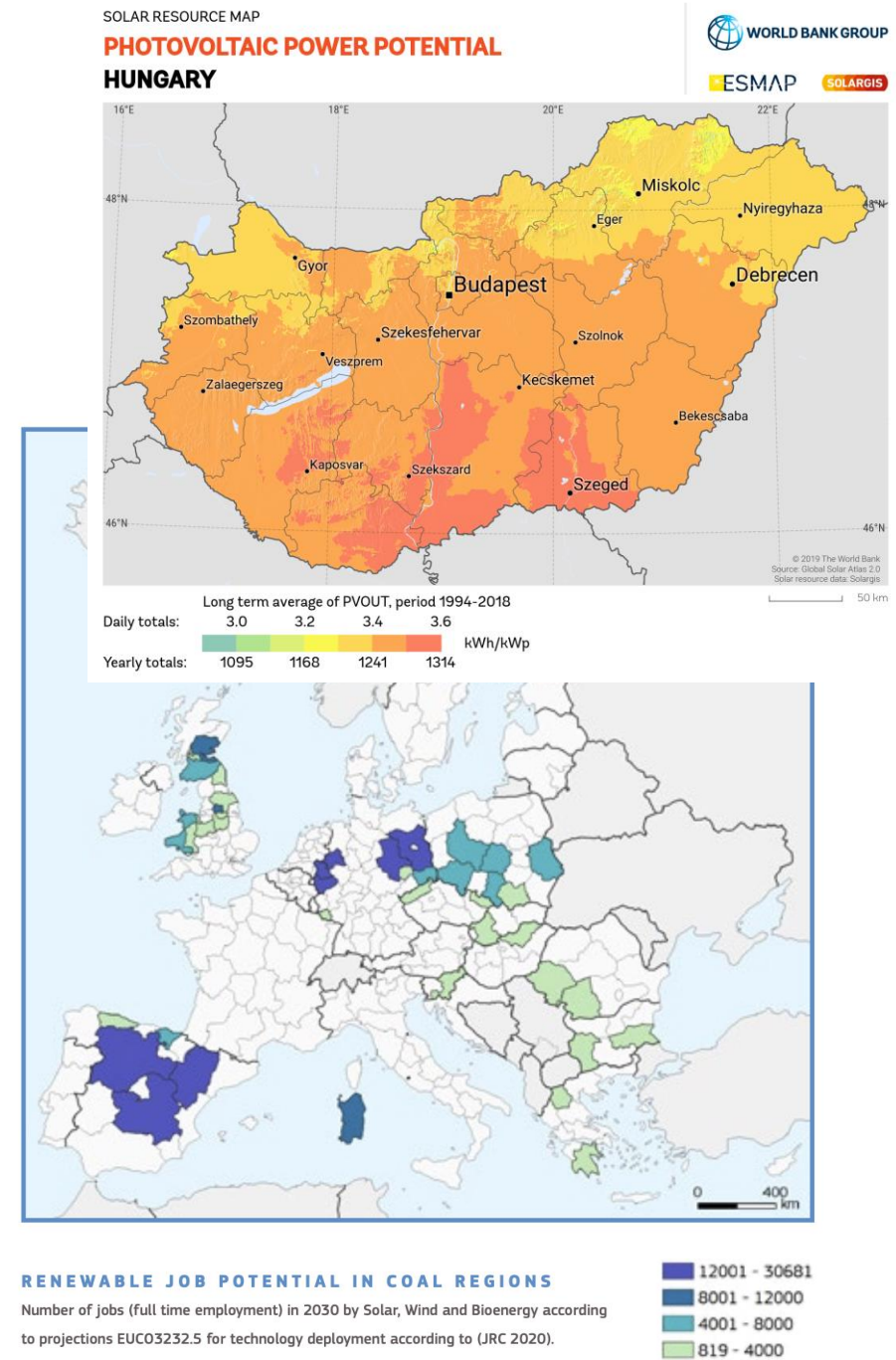
Renewable energy of first choice

Solar, wind + storage

In Hungary, geological preconditions are favourable for **solar PV**, but also **wind** and **geothermal** power can be applied.

All the above options can be considered as **cheaper than energy production from fossil fuels and new nuclear energy already today.**

New renewable projects will also **create new jobs** and business opportunities.

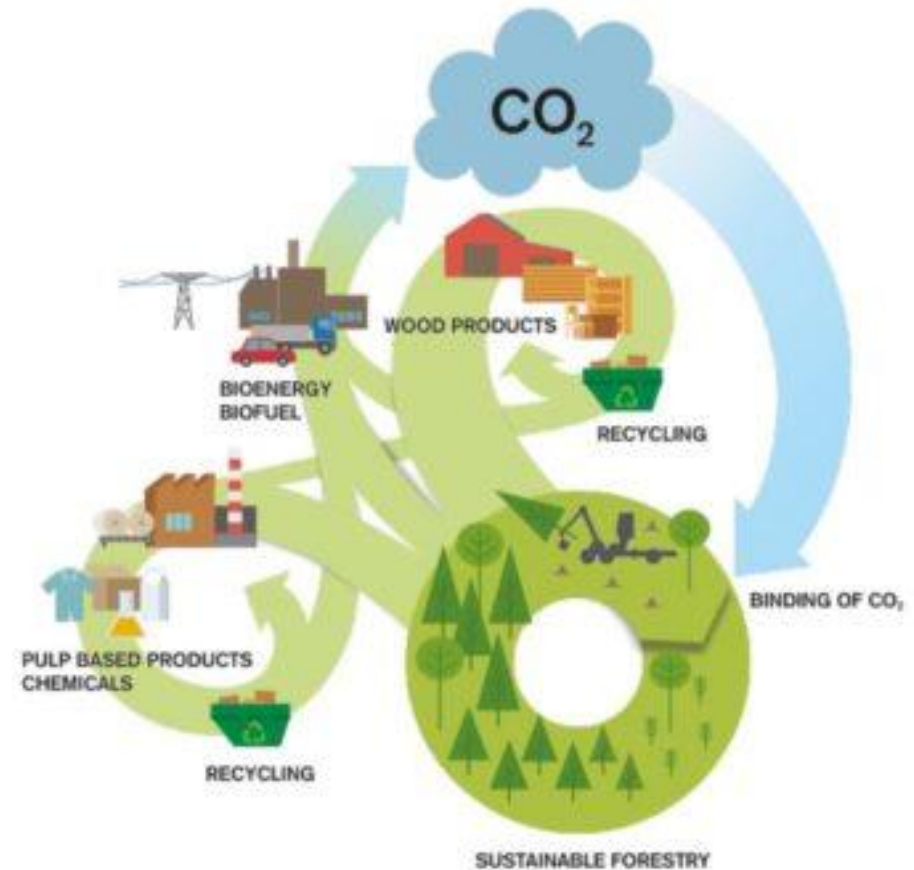


Technologies with uncertain prospects (e.g.) Biomass

So long, biomass has been considered as a **carbon-neutral** source of energy.

However, there are **serious concerns** to use biomass for energy production due to:

- Limited sources for feedstock supply;
- Conflicting material use (see figure);
- Conflicting biodiversity and soil quality goals.



Assessment:

High risk that biomass plants become *stranded assets* and produce *lock-ins*.

Key findings

of our Just Transition toolbox, energy section

- Renewable energy is already the **cheapest source of energy** and will soon fully substitute fossil fuel technologies.
- Key renewable technologies are **solar PV and wind energy**, combined with various types of **energy storage**.
- The use of **fossil gas and biomass** use for energy production may still work in some cases, but poses a significant risk for becoming **stranded assets**.
- The arguments for or against a certain option must be carefully considered and **fit into an overall transition strategy** for the region.