

Establishing a European Green Gas Market

- Steps toward a low carbon economy

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Facts about Energinet.dk

- Independent Public Enterprise
 - Owned by the Danish State
- Non-profit self sustainable company
- Owns and operates the backbone of the energy infrastructure
 - 400 kilovolt High voltage electricity grid
 - 80 bar high pressure gas lines
 - Nord Pool Spot
 - Nord Pool Gas
- Conveys a number of energy related public functions
 - Subsidies for green energy production
 - Funds energy research
- Member of The European Network of Transmission System Operators for Gas/ Electricity (ENTSOG/ ENTSOE)



Working towards a CO2 neutral energy system

- Fossil free energy system 2050
- 50% wind 2020
- Smart grids as an intelligent power system
- Potential for gas in the transport sector
- LNG as a low carbon option for ships
- Interlinking wind and gas systems
- Renewable gasses as a supplement to natural gas



Agenda

- What is Renewable Gas?
- Energinet.dk's vision for RE-gasses
- Market integration of RE-gasses
- Virtual upgrade ?

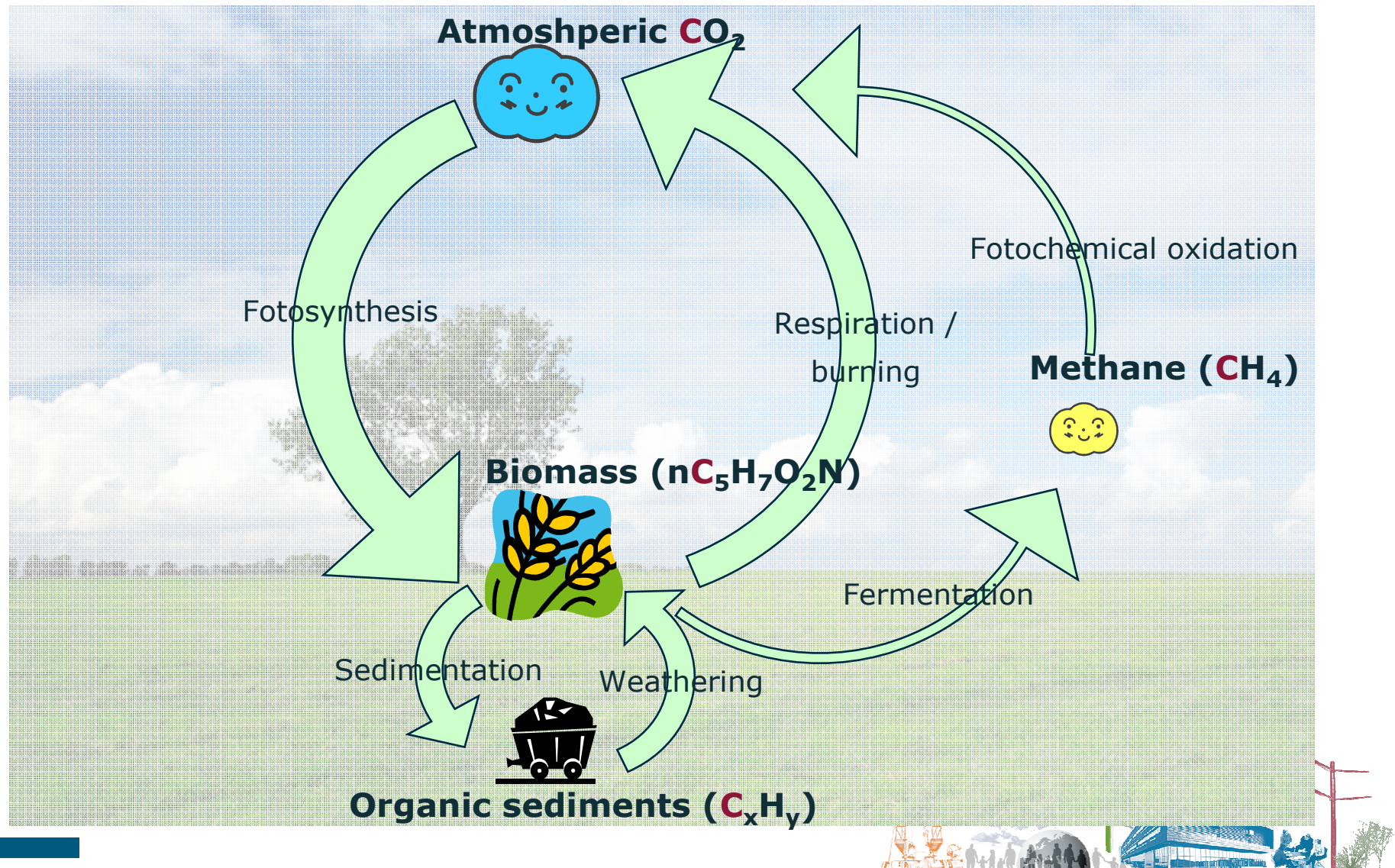


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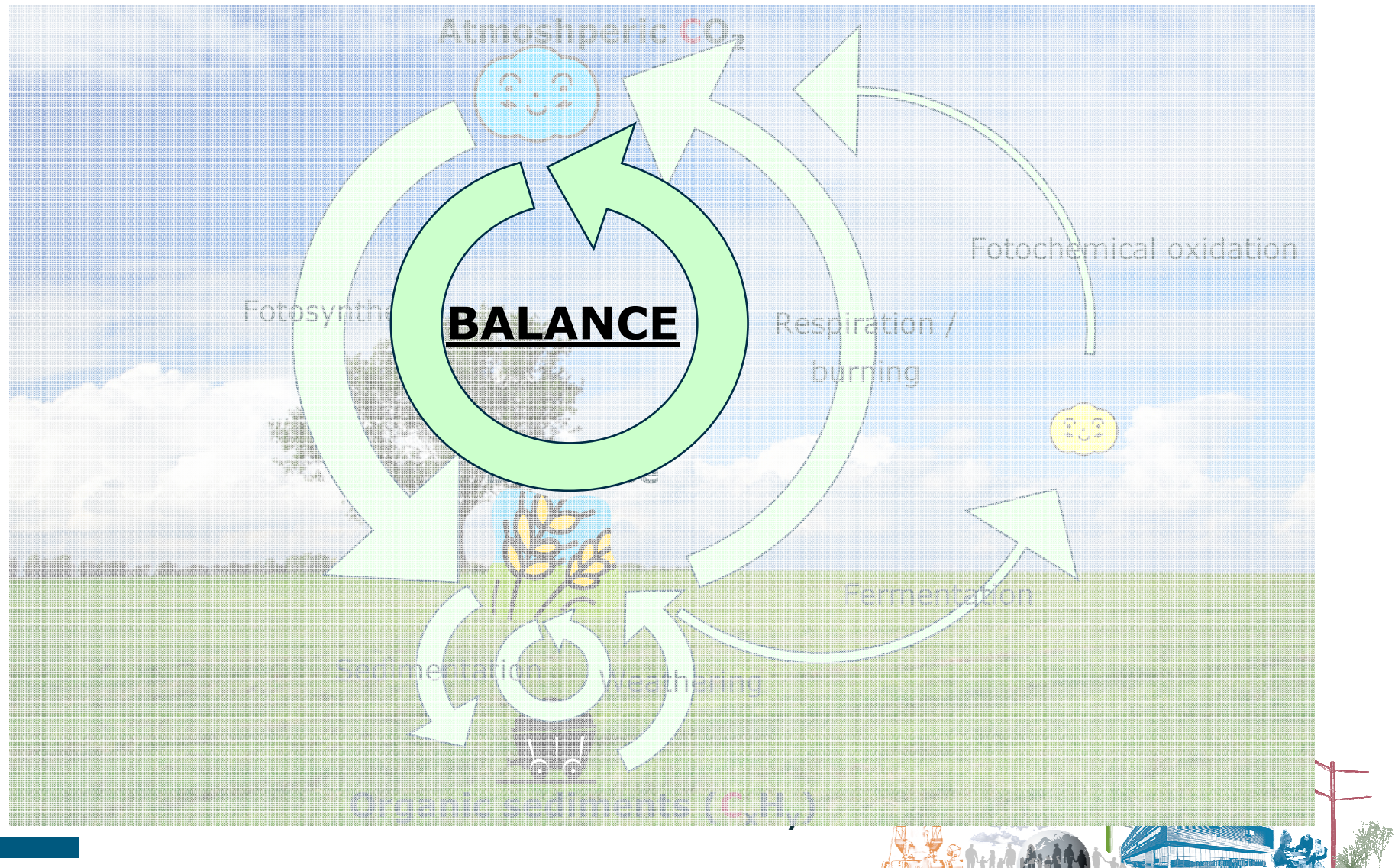
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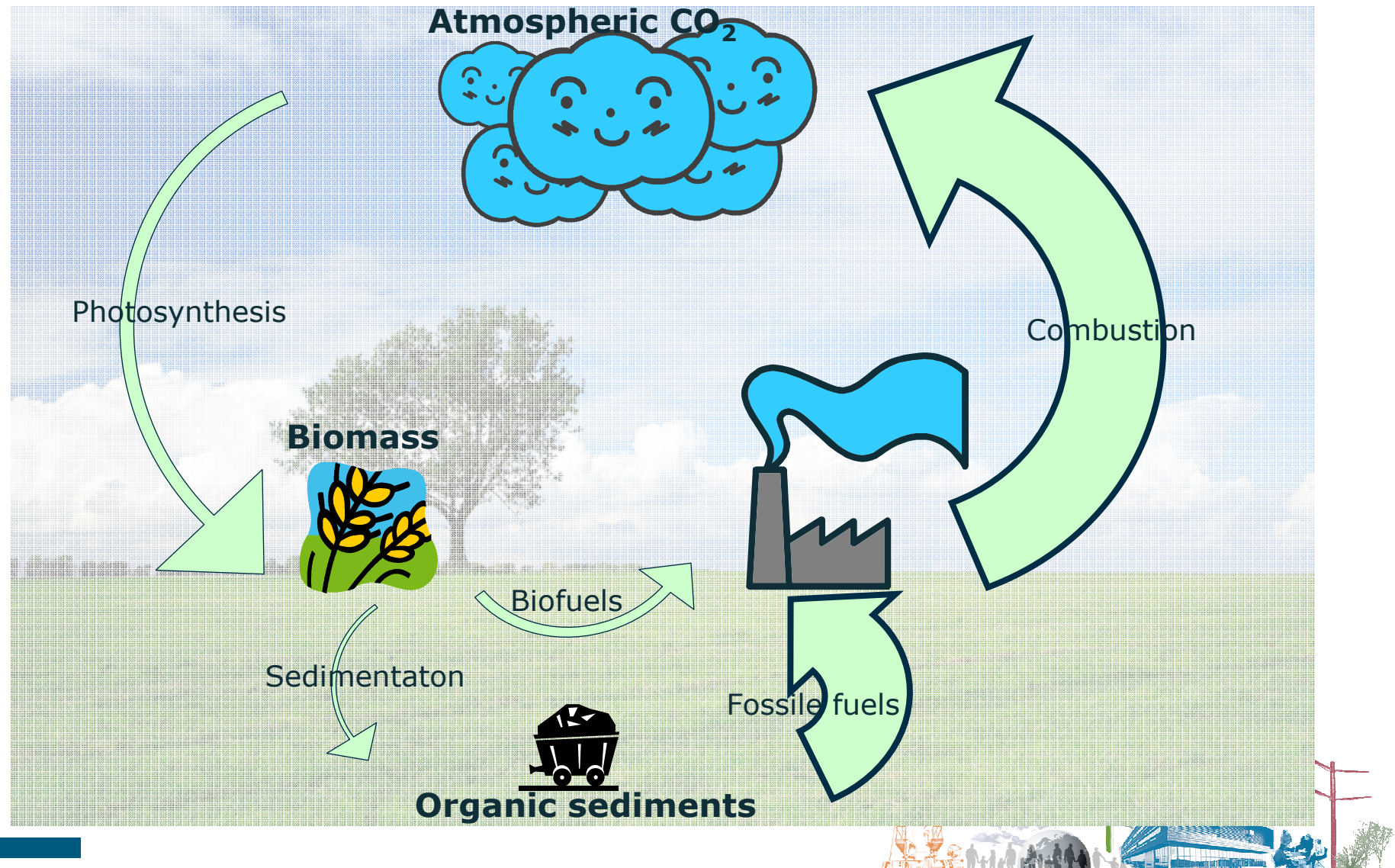
The natural carbon cycle



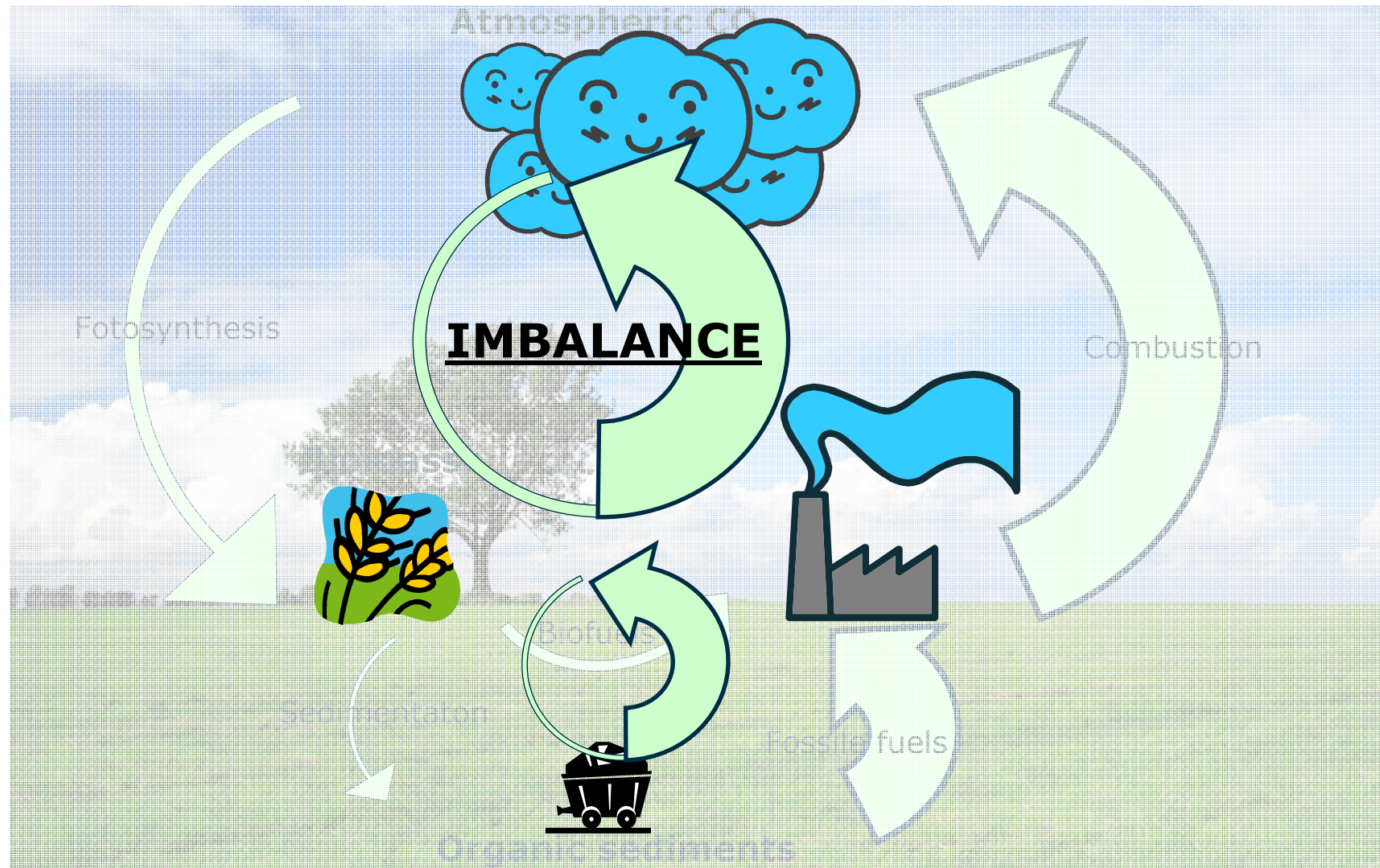
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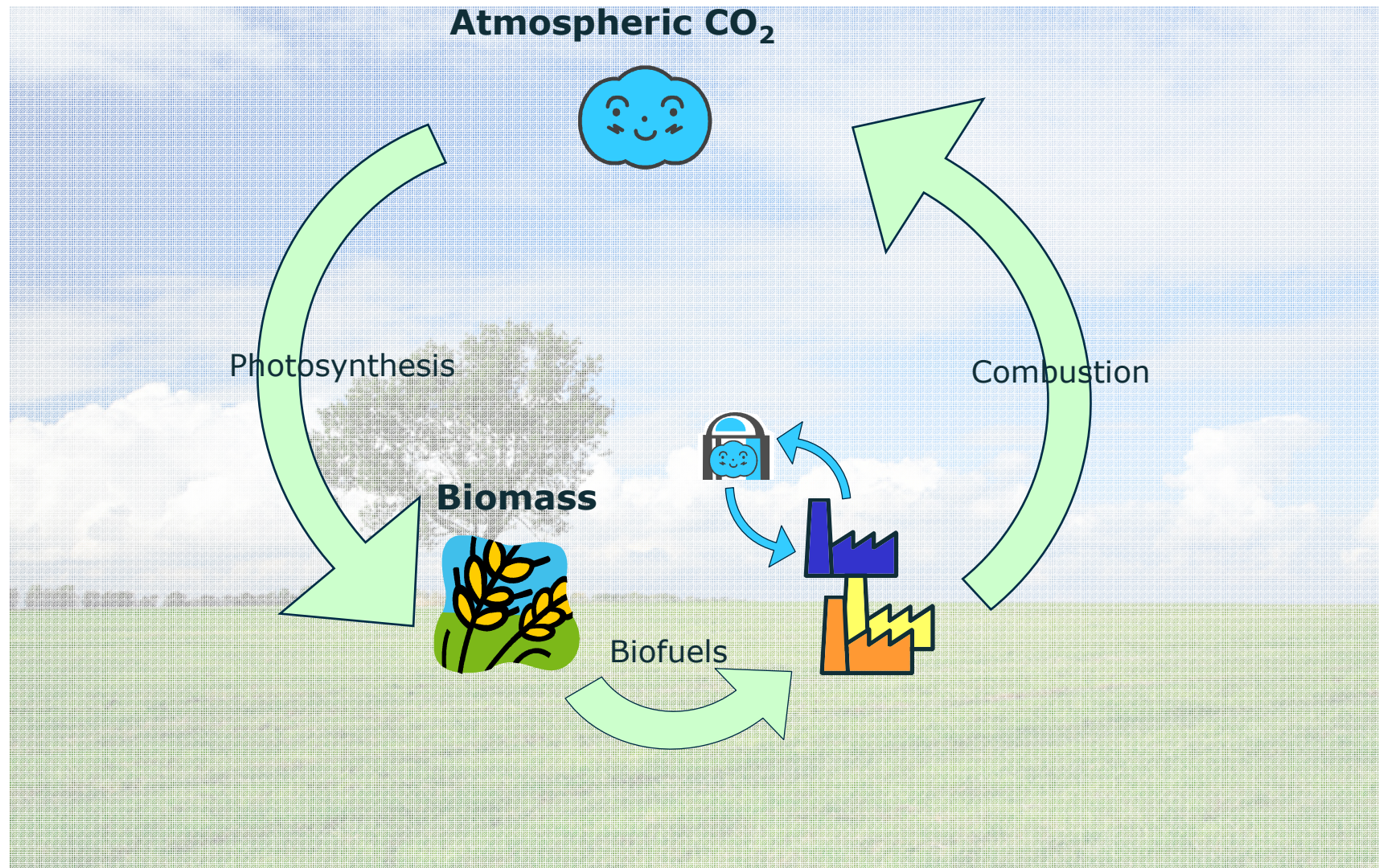
The carbon cycle in the present day energy system



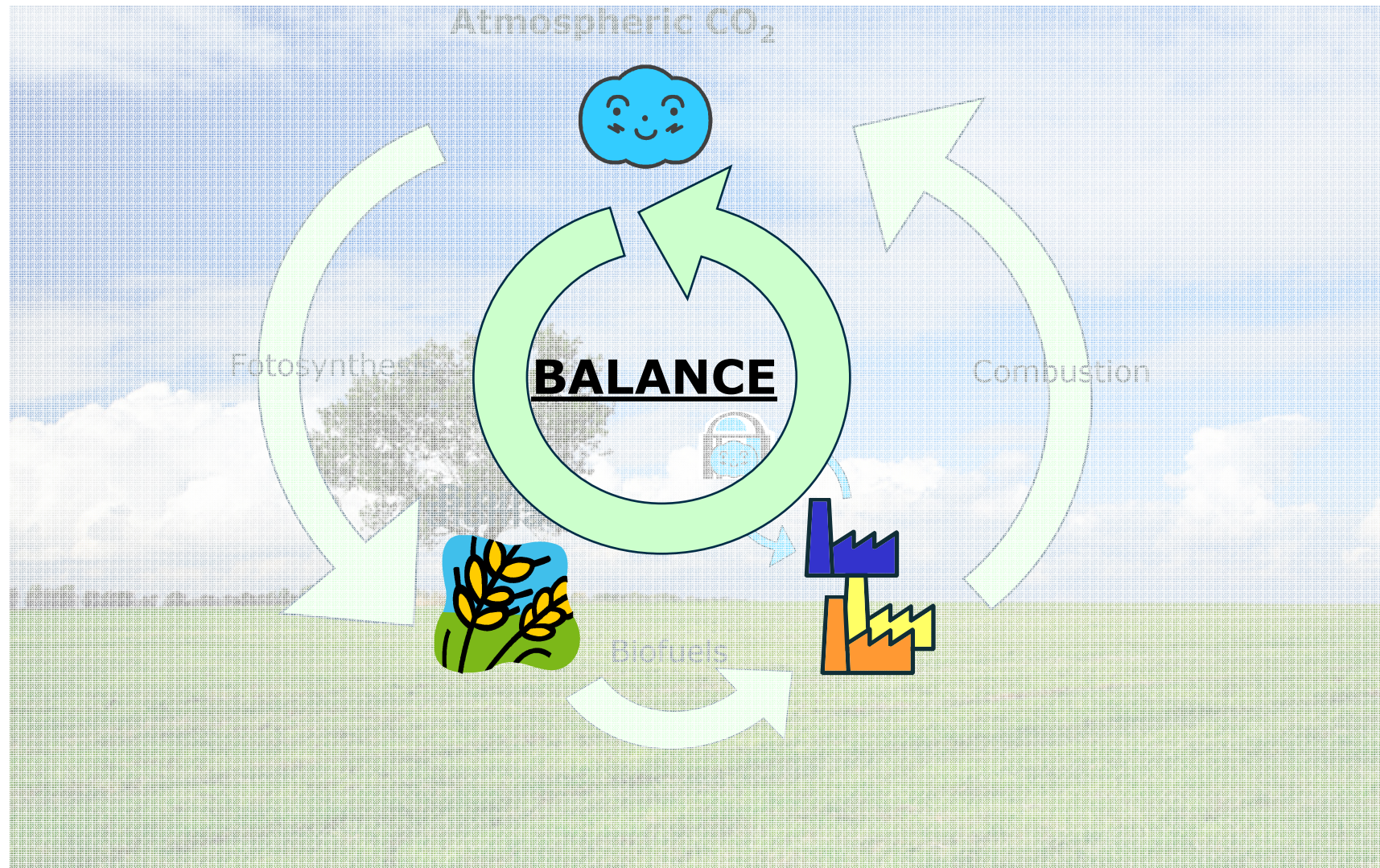
The carbon cycle in the present day energy system



Definition on Green Gasses

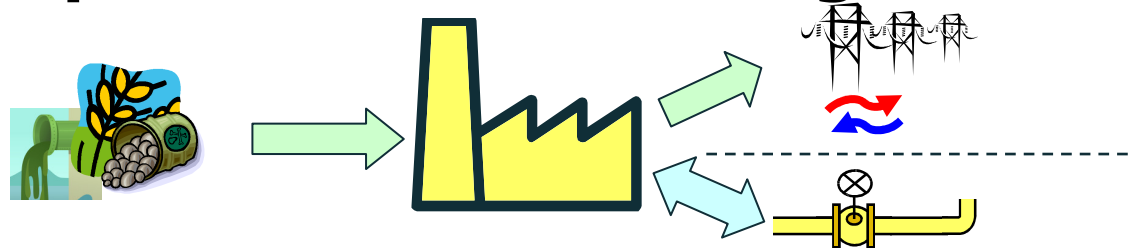


Green gas carbon cycle

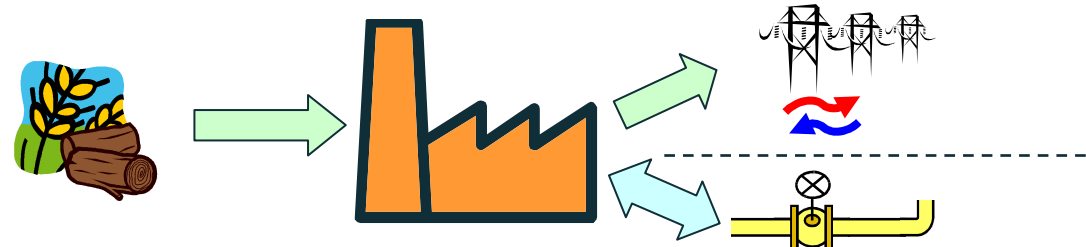


Green gas production technologies

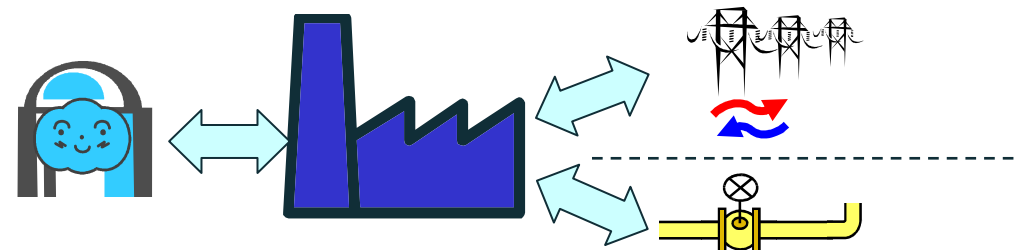
Biogas



**Thermal
gasification**

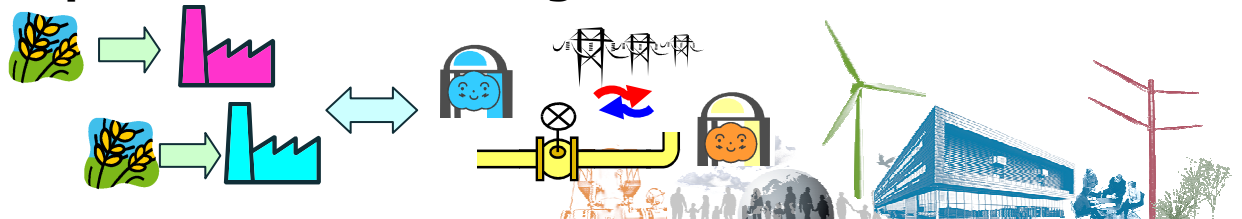


**Catalytic
gasification
(SOEC/SOFC)**



+ other many other new production technologies

- Elektrofilic bacteria
- Hydrogenisation of biomass

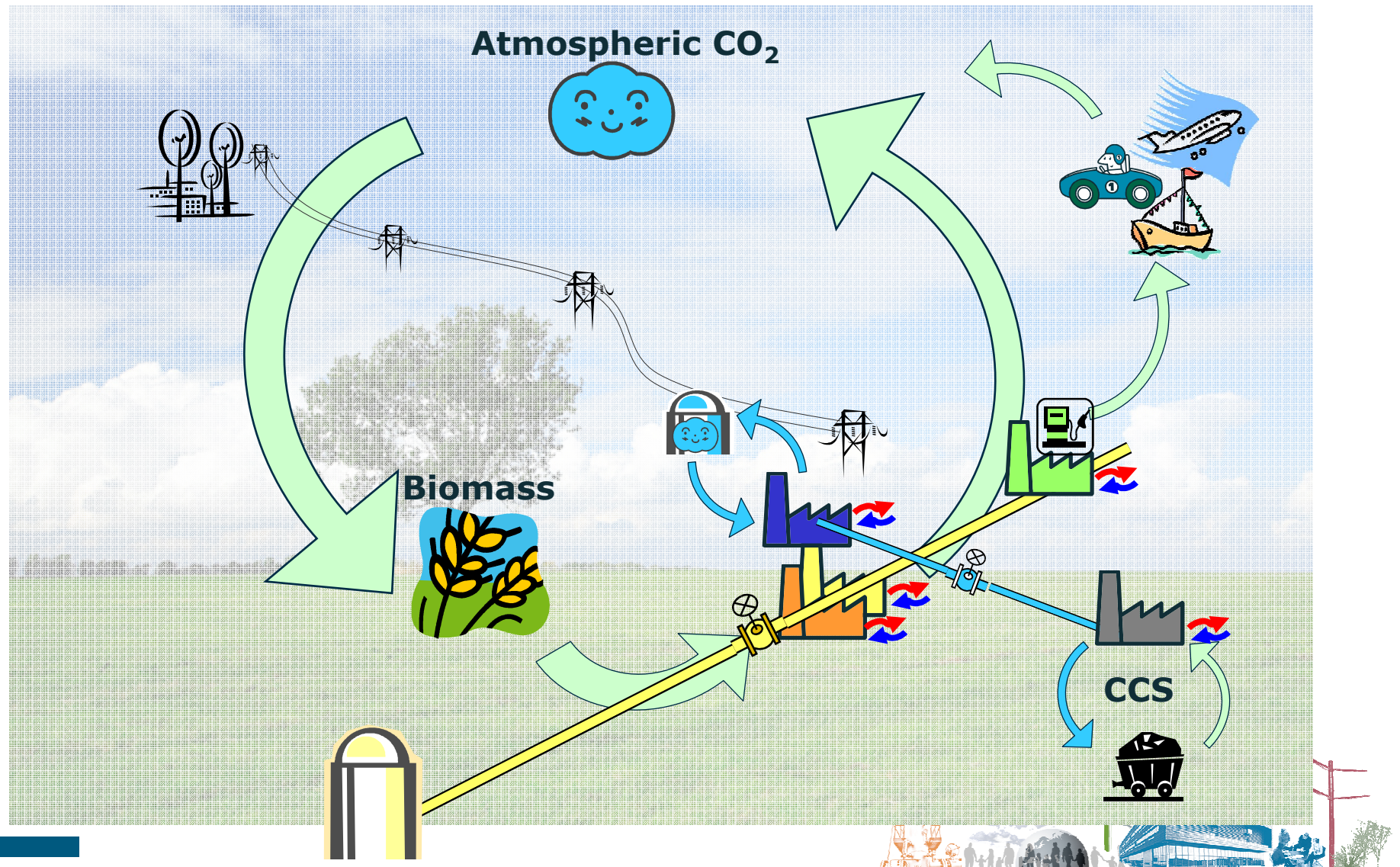


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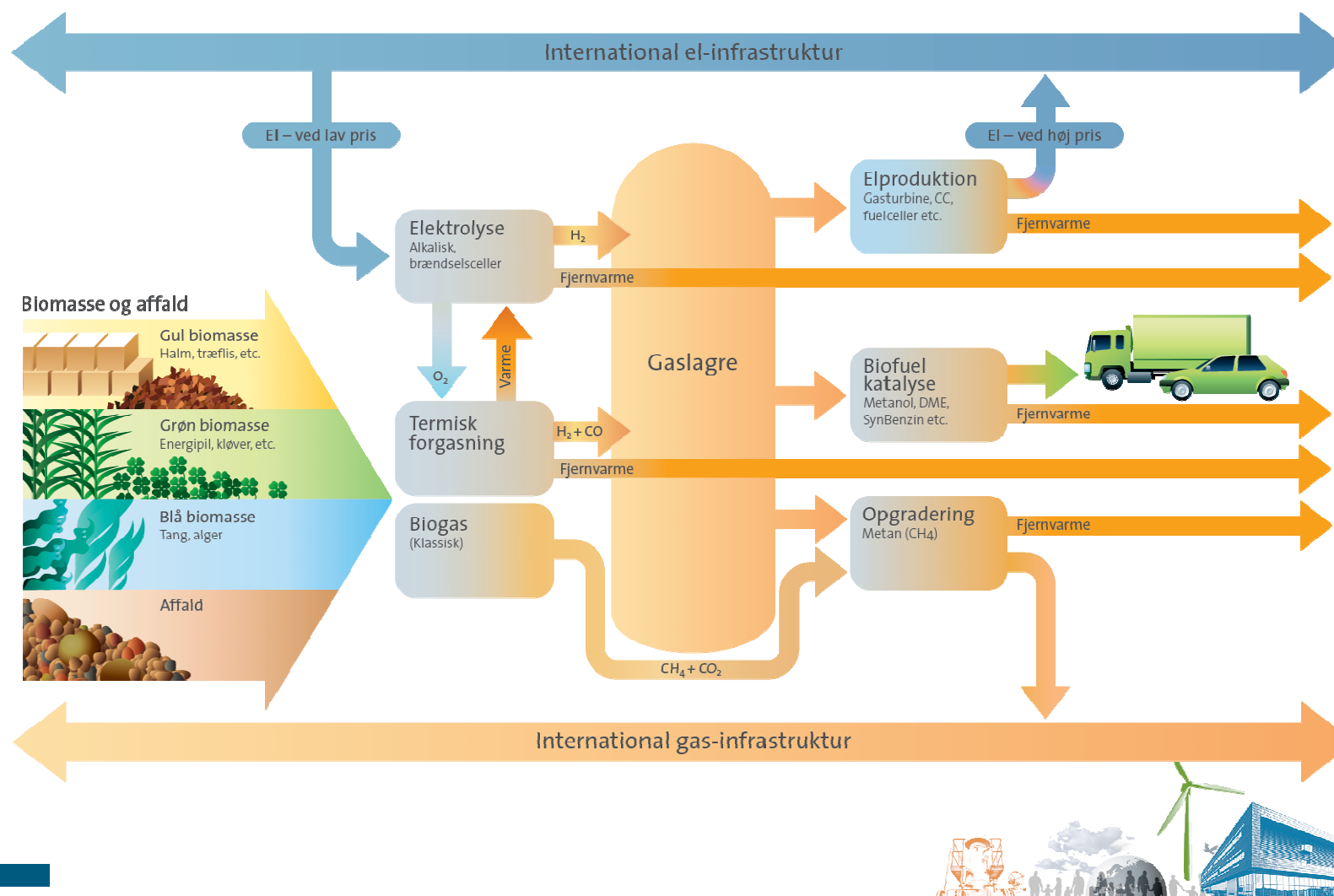


Green gasses in the energy system

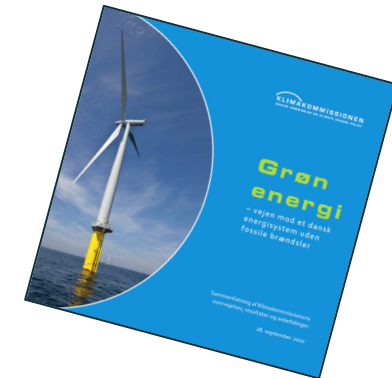
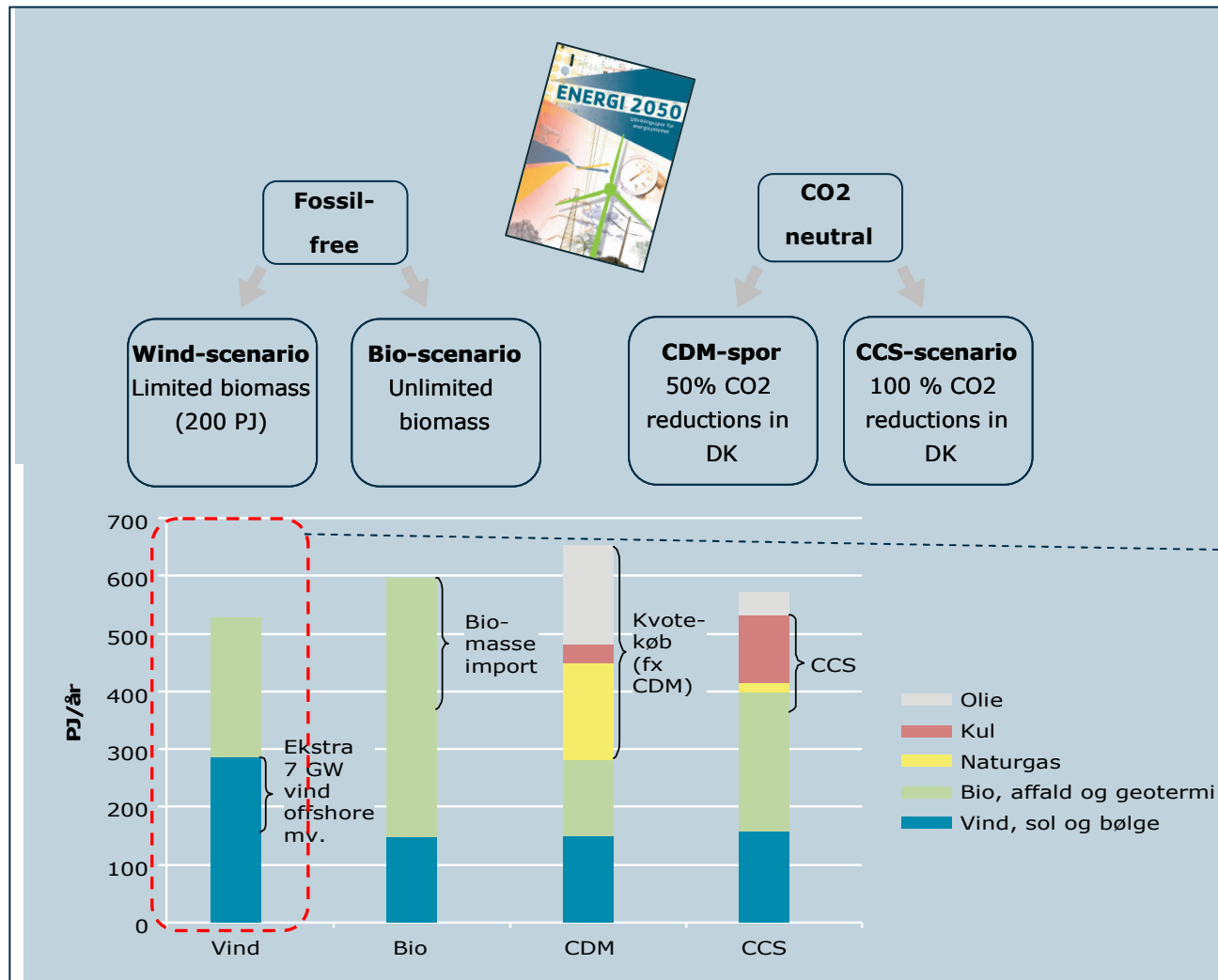


The energy system of the future

- the gas system as a stable foundation



Four scenarios to 2050 -> focus on wind-scenario



Windpower a huge resource in the Nordic region

