

“Tschiggerl Agrar bio-hub” Logistic and Trade Centre for non-woody biomass

**Bio-hubs as keys to successful biomass supply integration for
bioenergy within the bioeconomy**

Joint IEA Bioenergy Task 43 & BioEast Initiative Workshop

Sopron (HU), 10 October 2019

Contacts



BIOMASSE



ENERGIE SPEICHERN



ENERGIE SPAREN



ENERGIEPROJEKTE

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Bio-hubs in STYRIA



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Location and Key Facts of Styria

1.1 Mio.	inhabitants
16.000	km ² area
61,1 %	afforestation
32,2%	renewables
45.000	forest owners



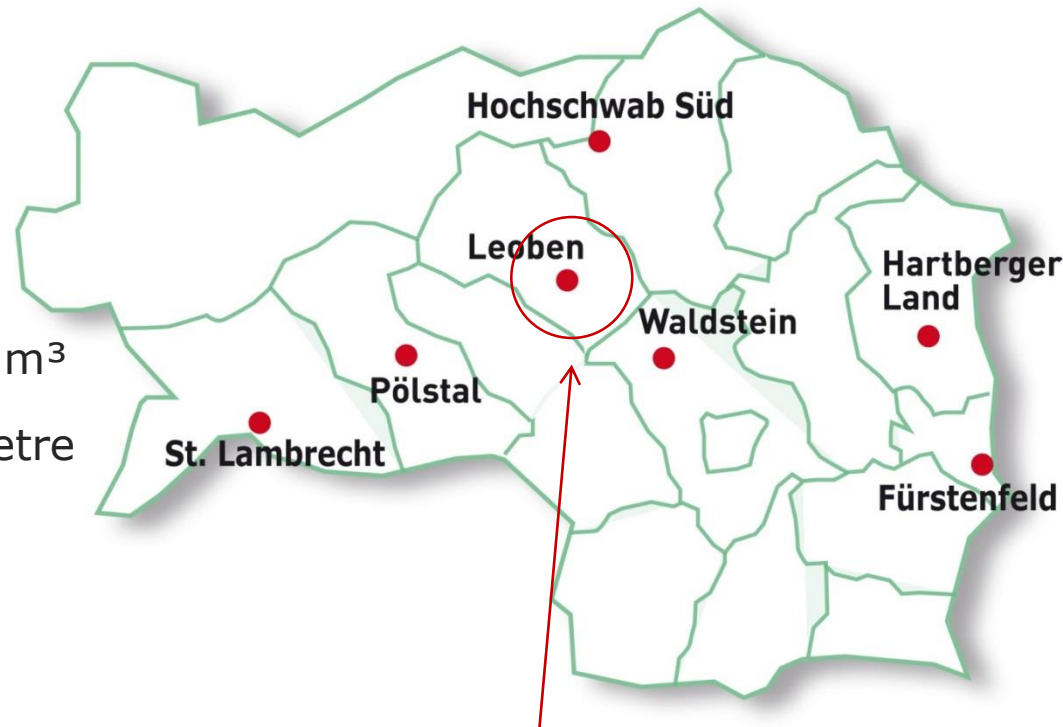
Location and Key Facts of Styria





Biomassehof-stmk.at

- **Wood chips** 150.000 loose m³
- **Wood logs** 5.000 cubic metre
- **Energy value** 130.000 MWh
- **Oil-equivalent** **12,500 toe**
- **CO2-savings** 21.300 tons
- **Turnover** ~ € 3,5 millions
- **Investments** ~ € 4,5 millions
- **New jobs** ~10 + secure of already existing jobs



Radius of action: 30 – 40 km
„Wood fuel of the short distance”



~ 880.000 €

Useful energy –
Supply system

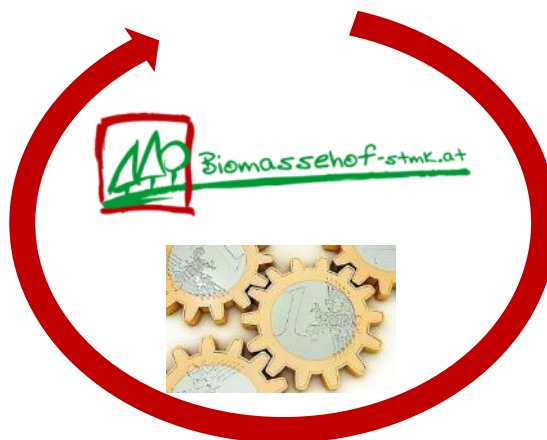


Purchase and delivery

~ 225.000 €
(average 3€/m³)

~ 2.500.000 €

19 full time jobs

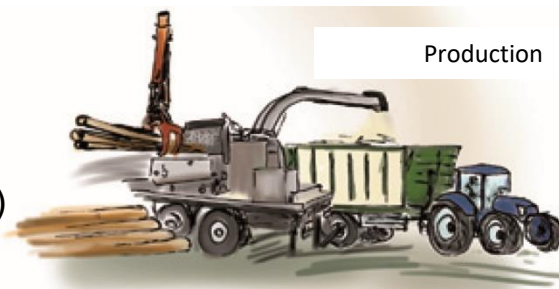


Timber harvest

~ 750.000 €
(average 25€/m³)



~ 270.000 €
(average 9€/m³)



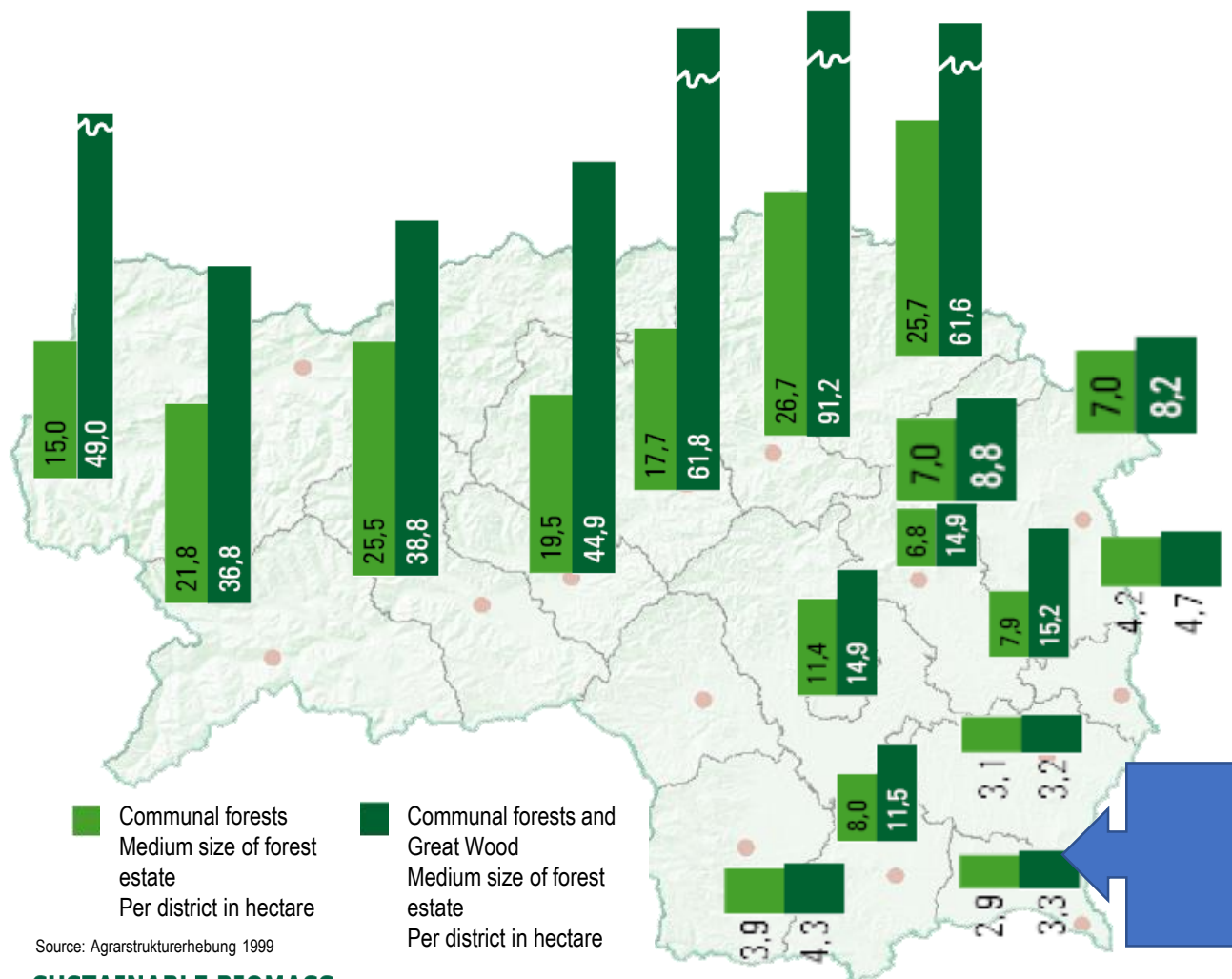
Production

~ 150.000 €
(average 2€/cbm)



~ 225.000 €
(average 3€/cbm)





Source: Agrarstrukturerhebung 1999

SUSTAINABLE BIOMASS SUPPLY INTEGRATION FOR BIOENERGY WITHIN THE BROADER BIOECONOMY



Potential assessment Austria 2050

Woody Biomass **215 PJ**

Nonwoody Biomass **205 PJ**

©Tomasz Zajda/Fotolia











Home

What is being pelletised?

How do we pelletise?

Products & Prices

Innovation

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The South-East-Styrian Cooperative Society for Pelletisation processes its **agricultural residues** into pellets, having the following possible uses:

Animal Feed



... made of straw, hay,
husks and bio-lucerne

Bedding



... made of straw, corn
cobs and husks

Fuels



... made of corn cobs

Weitere Informationen dazu finden Sie unter dem Menüpunkt Produkte & Preise





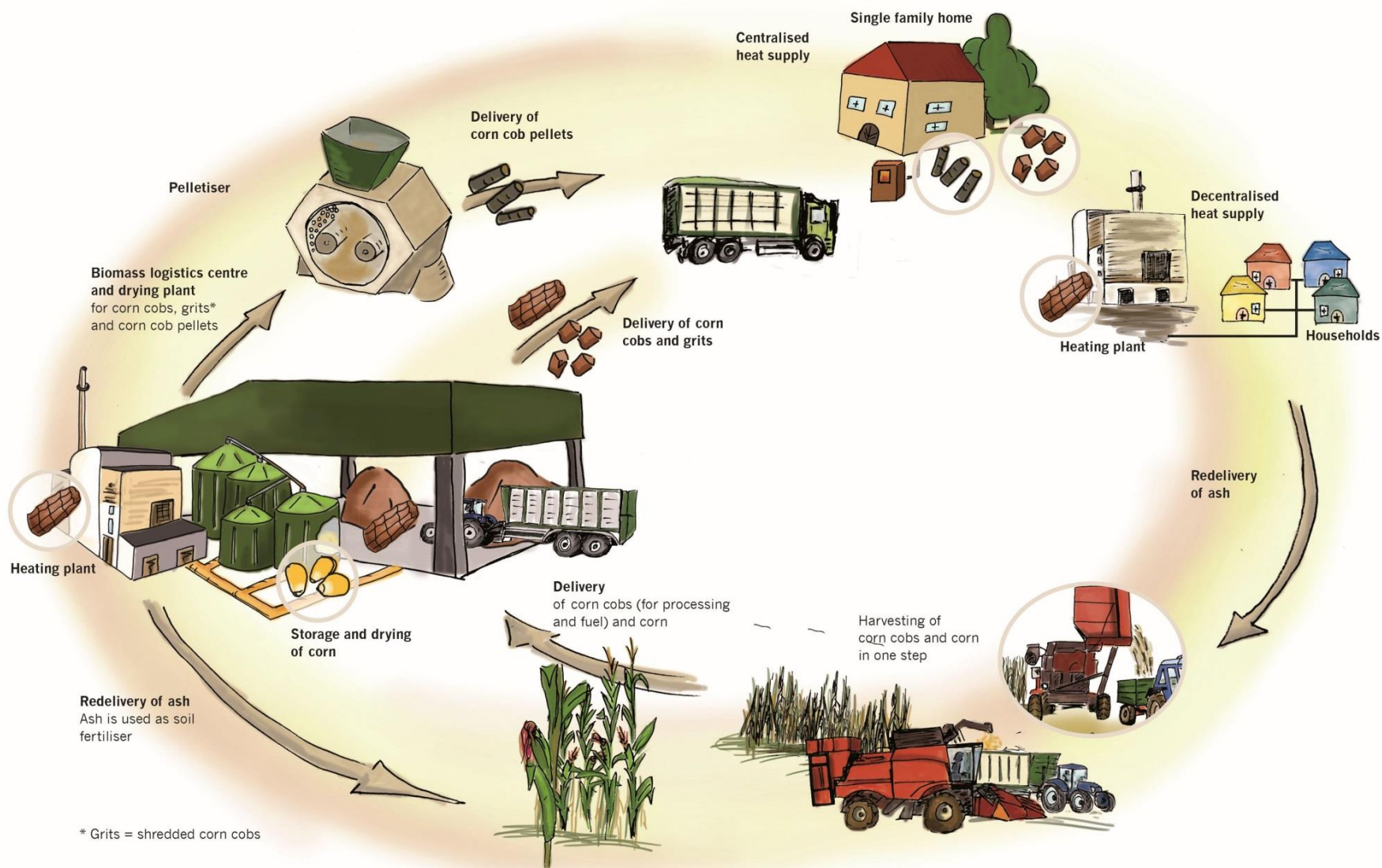
©stadelpeter/Fotolia











Harvesting of corn cobs and corn in one step

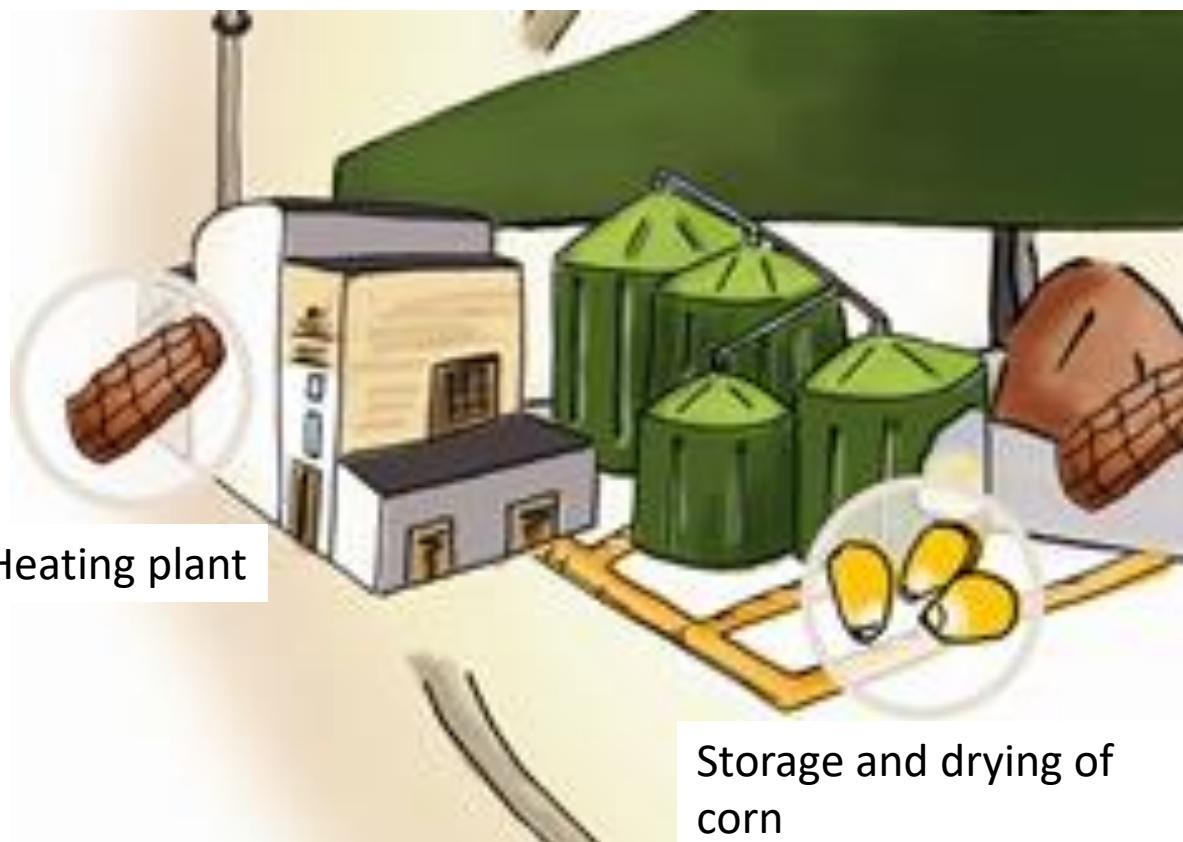


What is 1 hectare of corn acreage capable of?

- It produces 1.500 kg of corn cobs.
- It replaces 700 l of fuel oil.
- It saves approx. 2 t of CO₂-emissions.
- It generates 200 times more energy than what's being used.

Corn cobs with Big Bag





Facts:

Drying of corn with corn cobs as fuel

6 years in operation –
has saved 1.500.000 l of
fuel oil

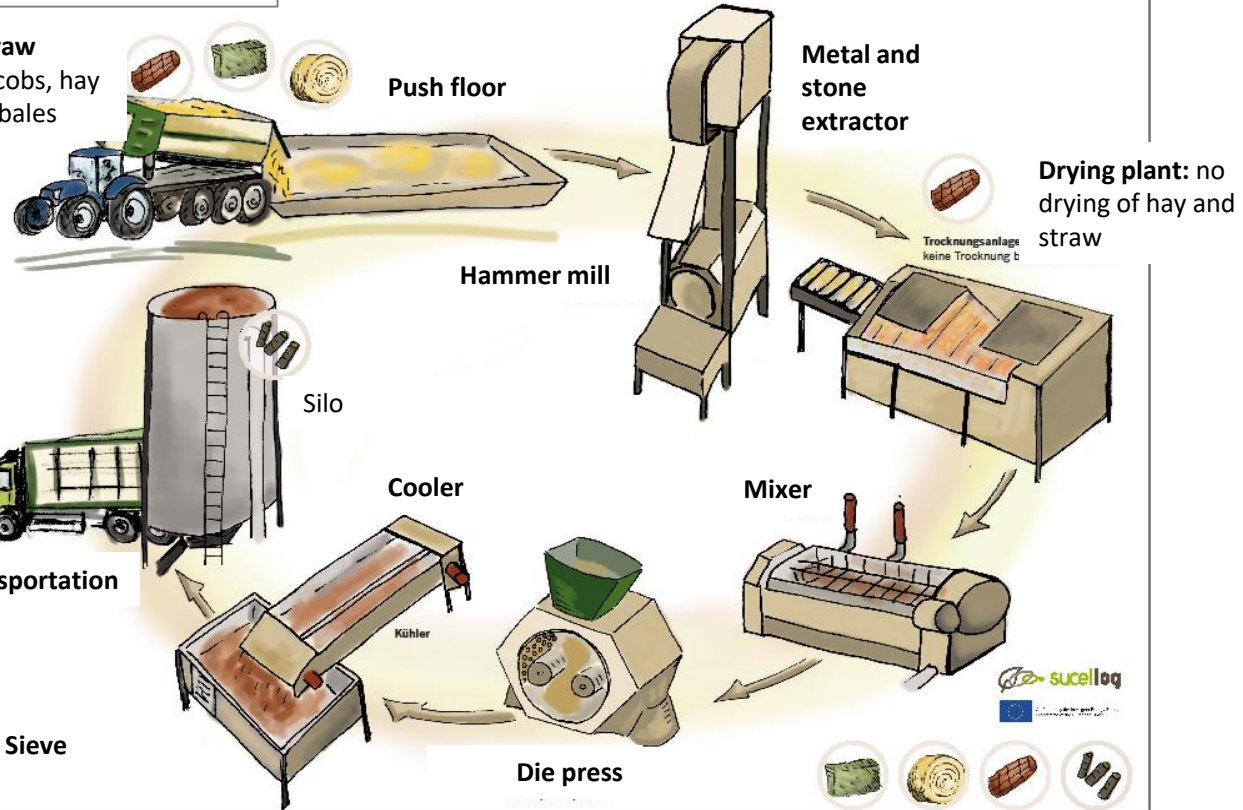
90 % of drying plants use
fossil fuels.

90 % der

Farmers as fuel suppliers

Pelletising process

Delivery of the raw materials: corn cobs, hay bales and straw bales



From left to right: hay bales, straw bales, corn cobs, corn cob pellets

Technical equipment:

Pelletising line
Weightbridge
Drying oven
Drying line
Telescopic forklift
Container

Local buildings:

Roof and walls
Electricity and heat
Storage hall (adapt for our use)

IV – Costs:

3,000.000 € (~10% subsidy)



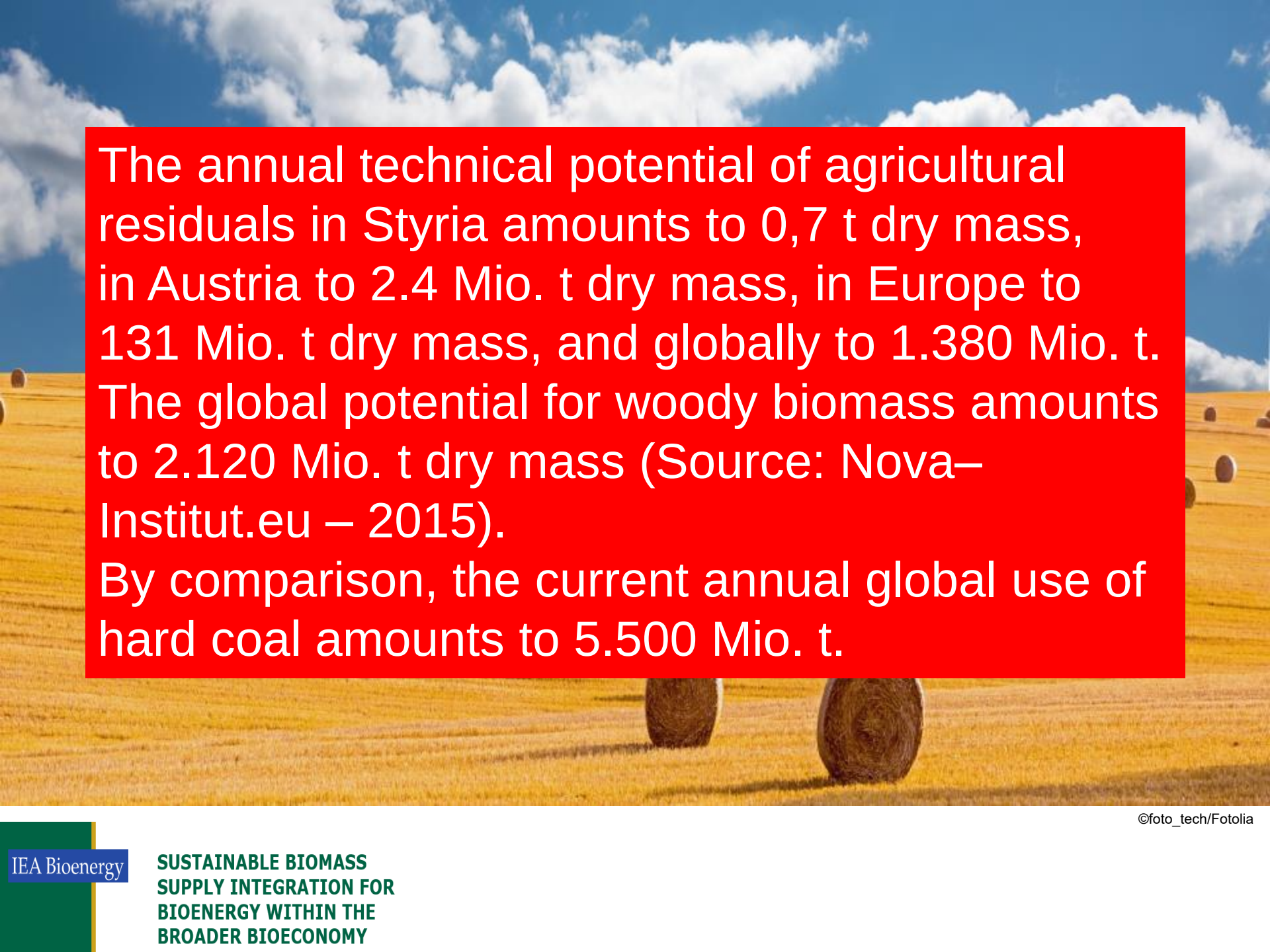
Objective : Regional supply of agricultural
quality fuel and materials for bio-economie

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THEORETICAL POTENTIAL

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The annual technical potential of agricultural residuals in Styria amounts to 0,7 t dry mass, in Austria to 2.4 Mio. t dry mass, in Europe to 131 Mio. t dry mass, and globally to 1.380 Mio. t. The global potential for woody biomass amounts to 2.120 Mio. t dry mass (Source: Nova-Institut.eu – 2015).

By comparison, the current annual global use of hard coal amounts to 5.500 Mio. t.

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SUPPLY



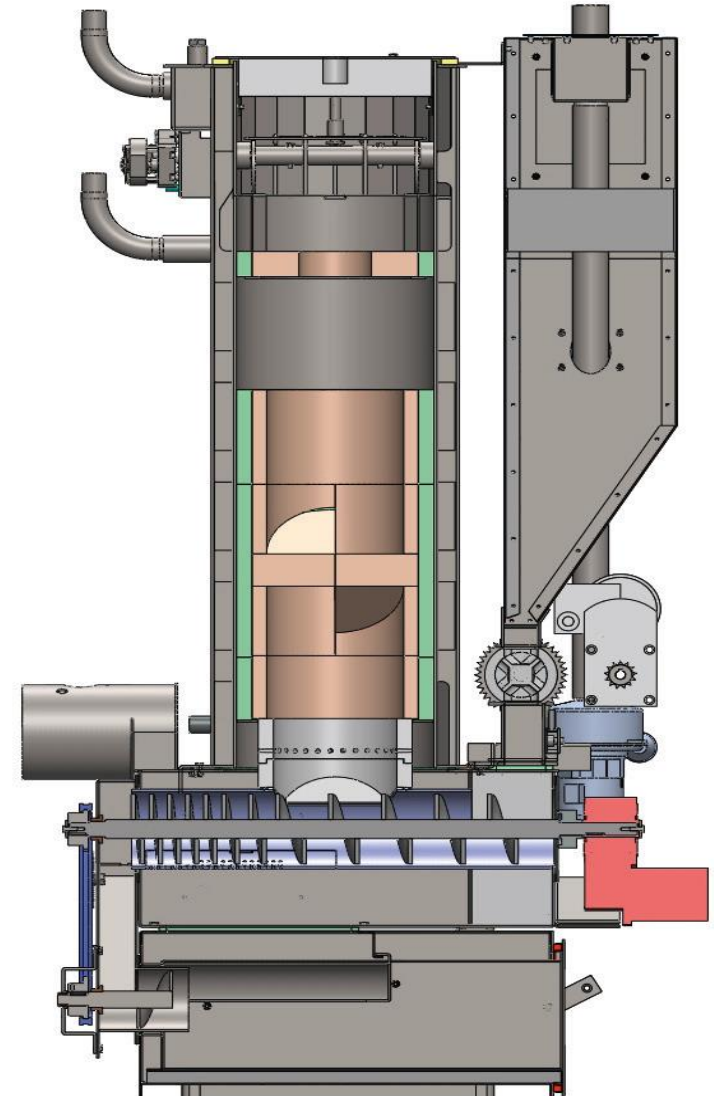


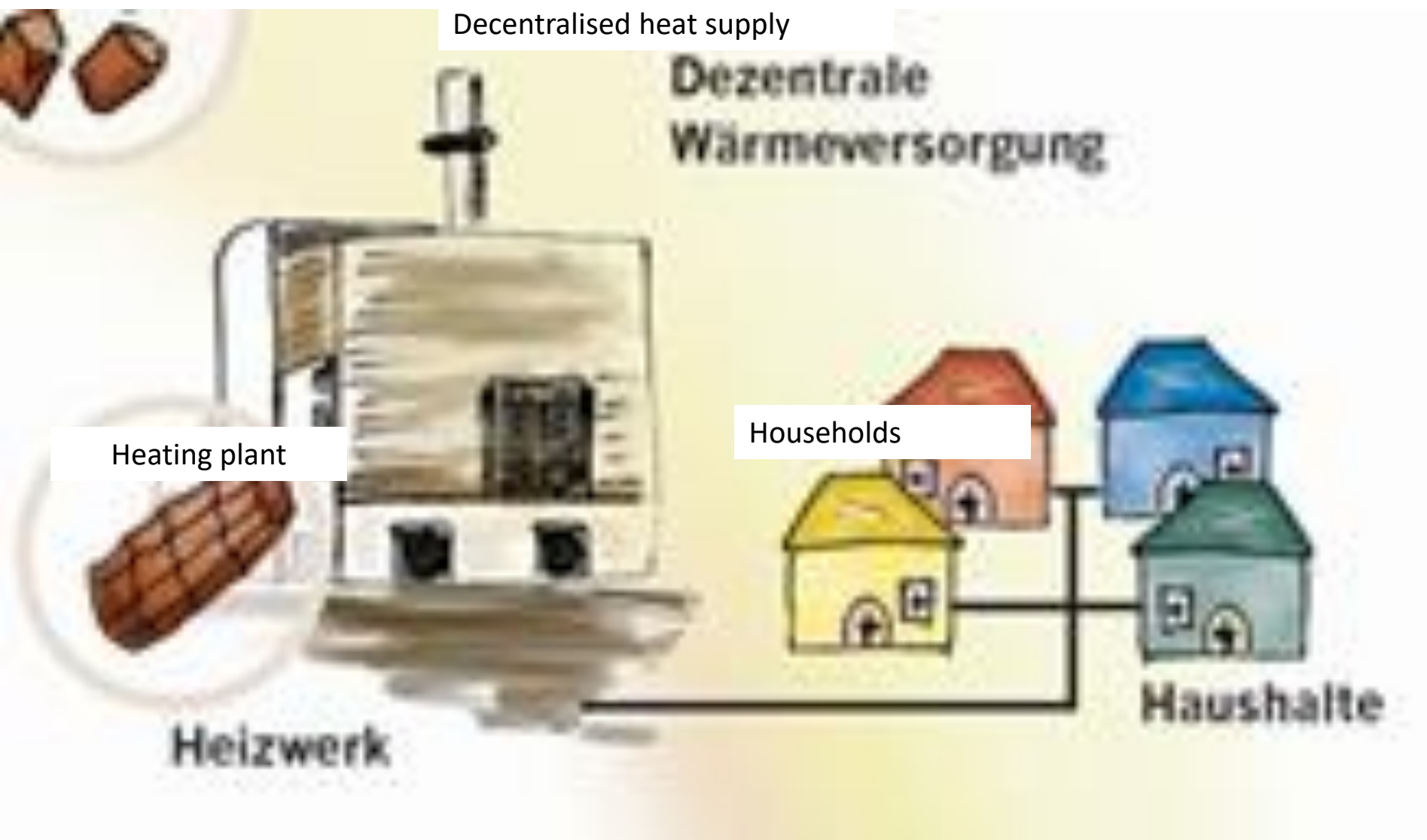
Centralised heat supply

Single family home



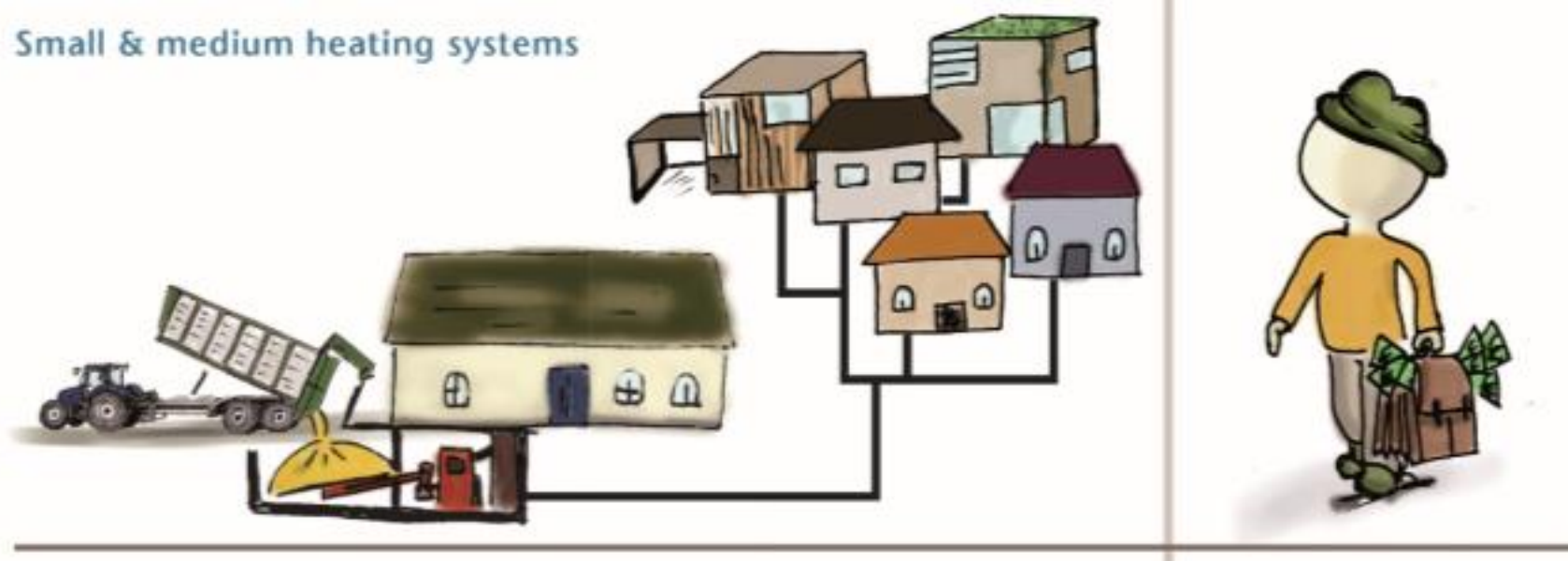
Bio
east







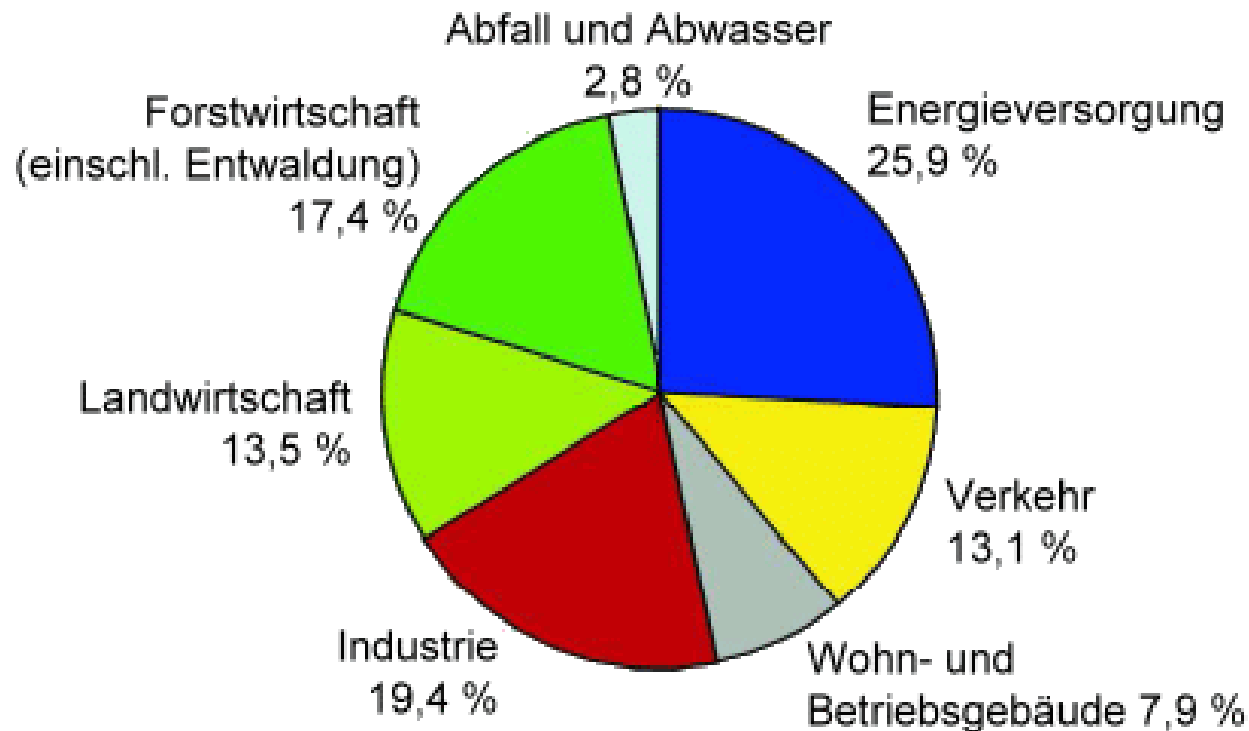
Small & medium heating systems





climate killer charcoal





Die Quellen der Treibhausgase: Anteil der einzelnen Sektoren an den gesamten Treibhausgas-Emissionen in Kohlendioxid-Äquivalent.
Daten aus 2004 Abbildung aus dem >> [4. UN-Klimareport 2007, Syntheseband](#), eigene Übersetzung.

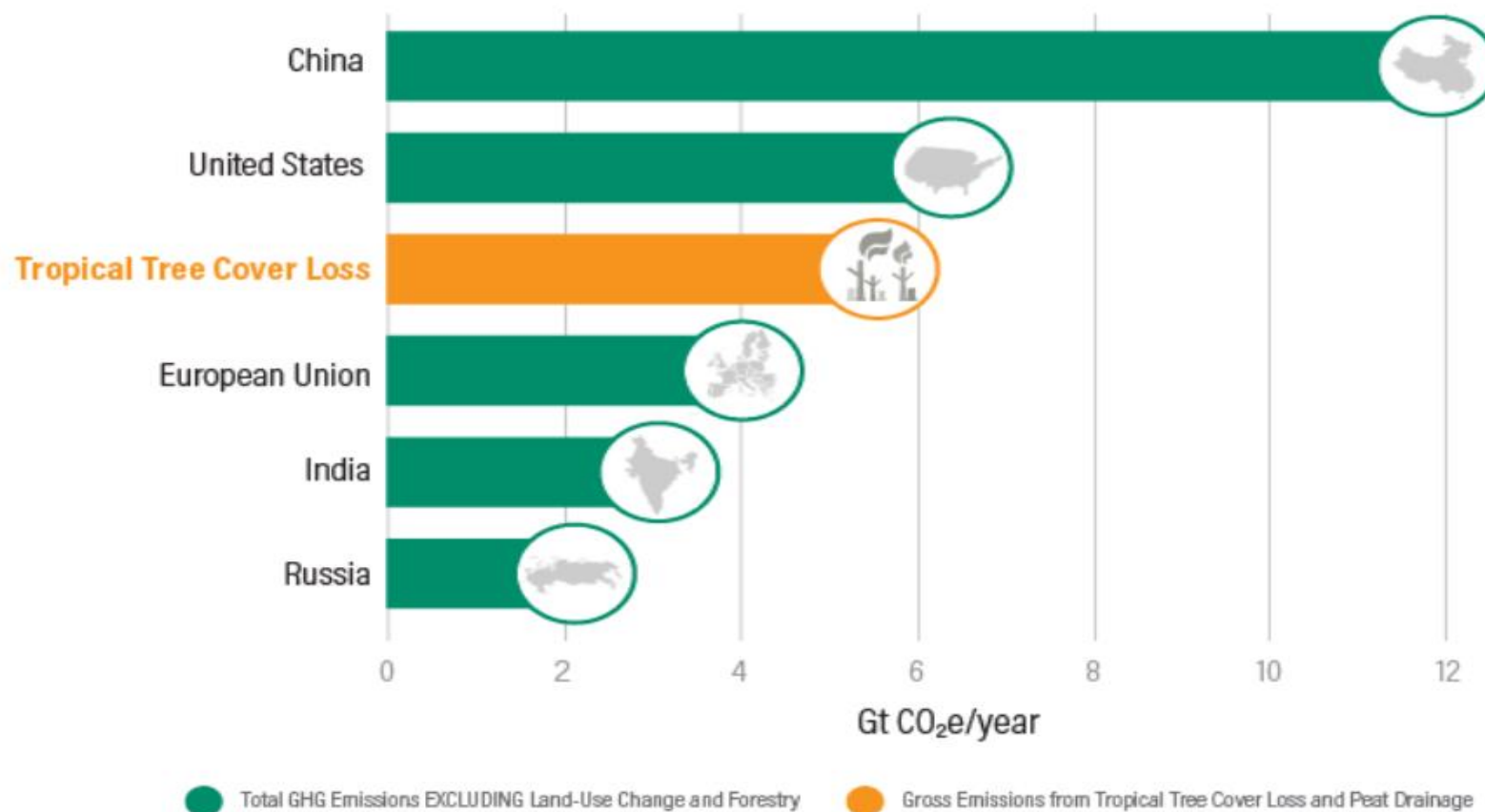
Die Abholzung der Tropenwälder stößt jetzt mehr CO₂ aus als die EU

von Rachel Fritts am 16 November 2018 | Translated by Kasia Drab



Global Forest Watch (GFW)

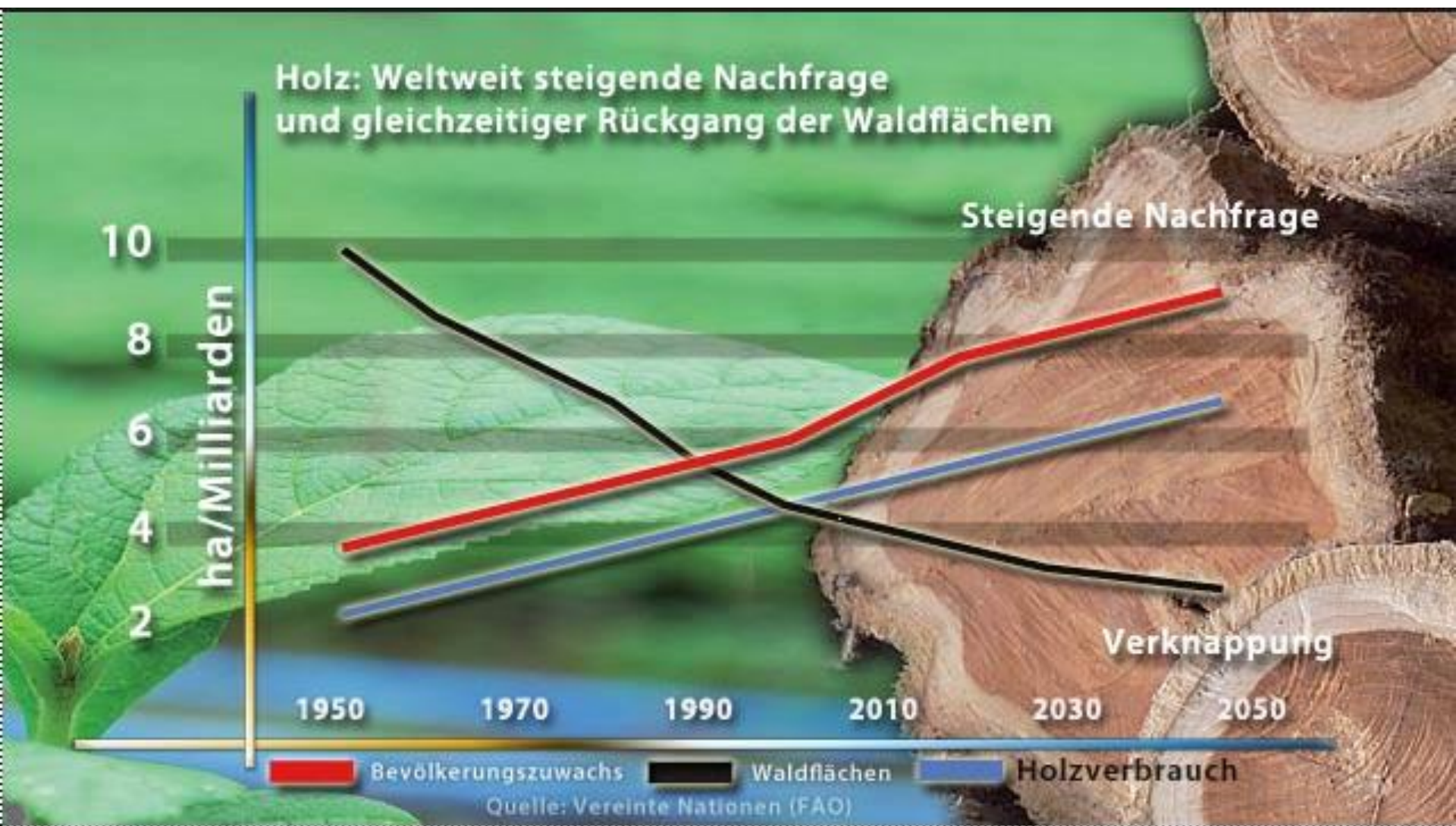
If Tropical Deforestation were a Country, it Would Rank Third in CO₂e Emissions



Source: Seymour & Busch, 2016.



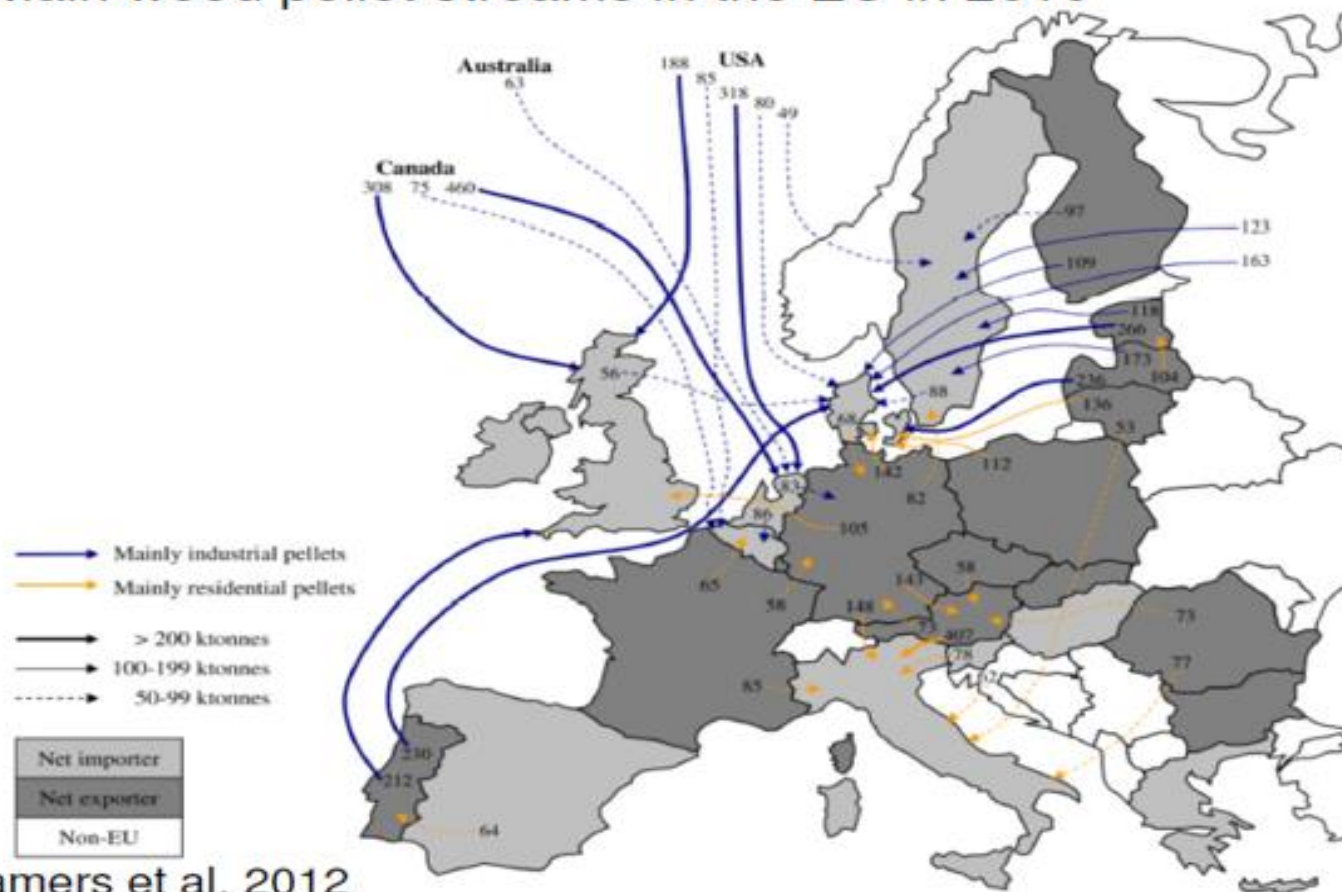
WORLD RESOURCES INSTITUTE





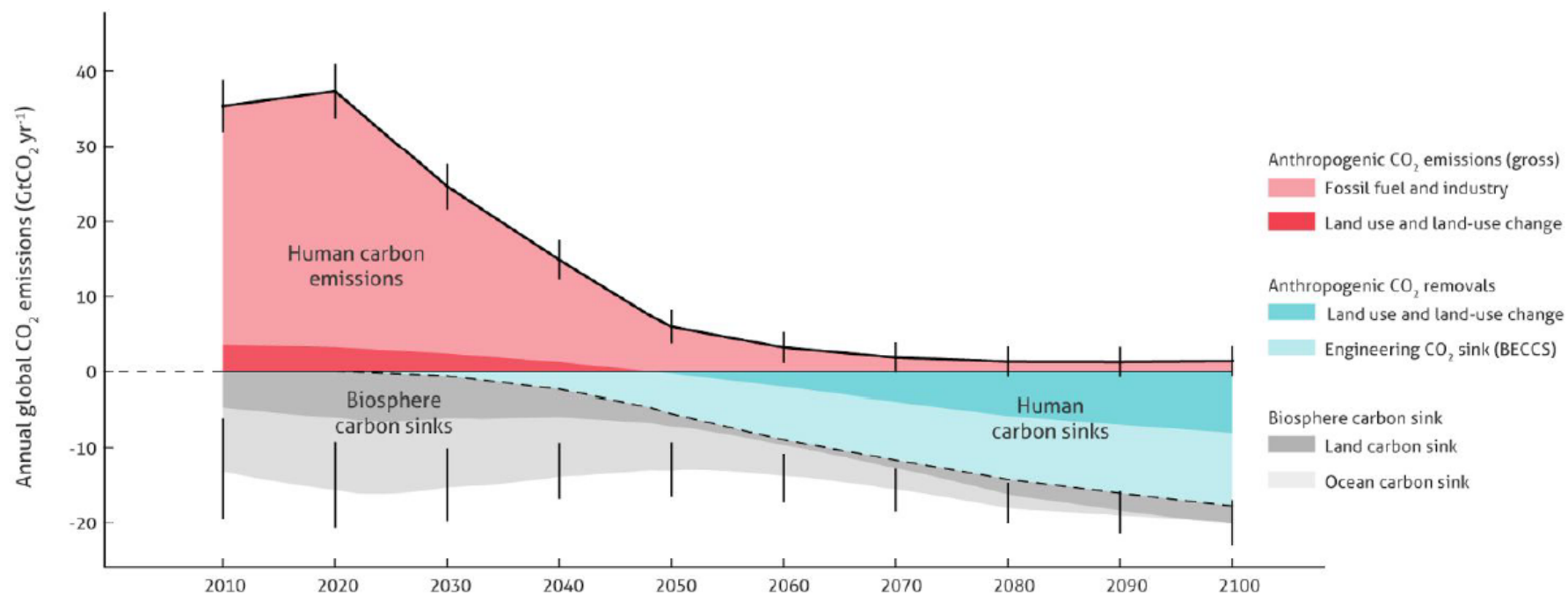
Laut FAO ist die Waldfläche vom 1950 bis jetzt von 10 Milliarden ha auf 2,8 Milliarden ha gesunken

Main wood pellet streams in the EU in 2010



Lamers et al. 2012

DECARBONISATION PATHWAY CONSISTENT WITH THE PARIS AGREEMENT













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Thank you for your
attention!

