

Country Report Germany

November 2019



Heinz Stichnothe, Thünen Institute of
Agricultural Technology

Content

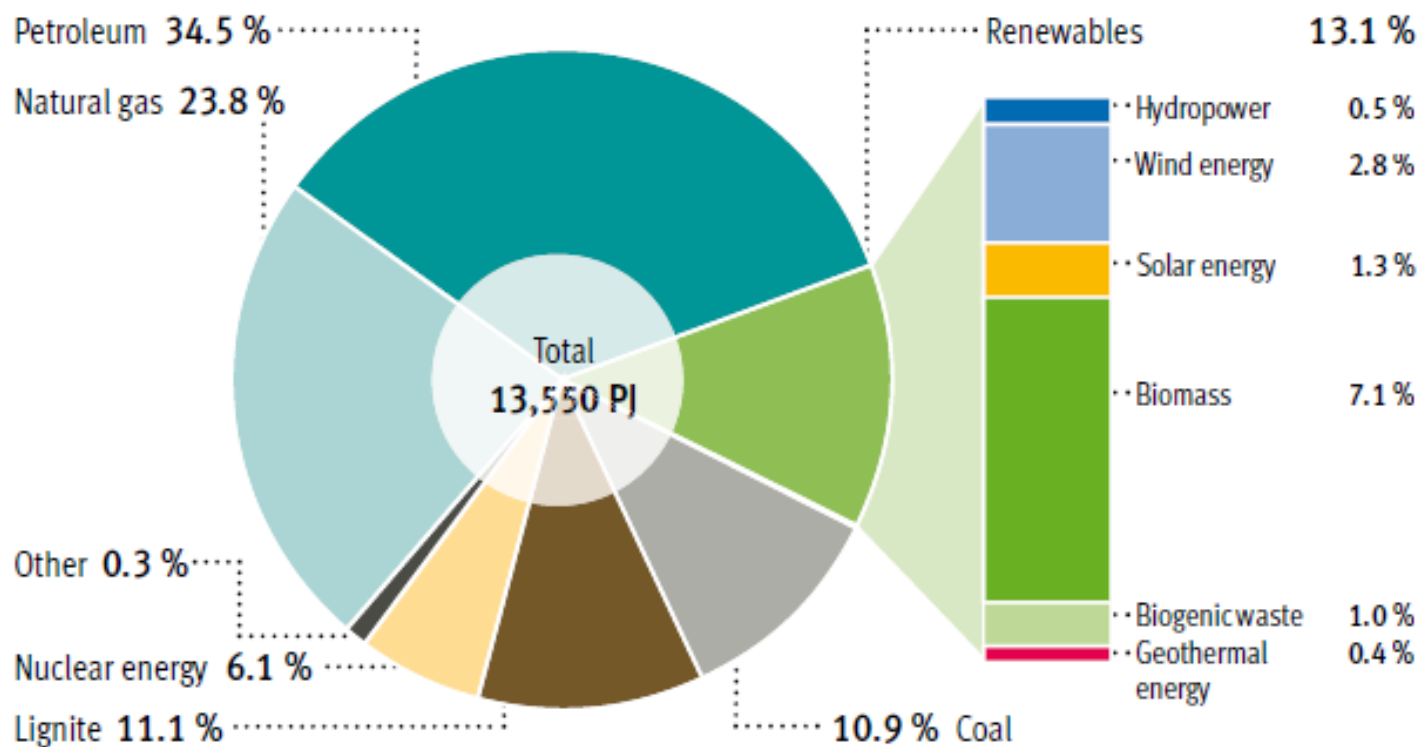
- Renewable energy targets
- Energy with focus on bioenergy
 - Primary – total and from renewables
 - Electricity – total and from renewables
 - Bioenergy contribution
 - Bioenergy communities/villages
 - Transport fuels from renewables
- Renewable feedstock in the chemical industry
- Biomass for the lubricant market
- Employees and turnover in the biobased economy
- Major national stakeholders involved in the field of biorefining
- Other issues

Renewable energy targets for 2020

| Share of | 2015 | Targets |
|---|---|---|
| Primary energy consumption | 12.5 % | 18 % until 2020 |
| Electricity consumption | 32.6 % | 40–45 % until 2025 |
| Final energy consumption Heating and cooling | 13.2 % | 14 % until 2020 |
| Final energy consumption Transport | Transport (incl. electricity) 5.3 % | 6 % GHG savings in the transport sector by biofuels |

Source: FNR according AGEE-Stat (February 2016)

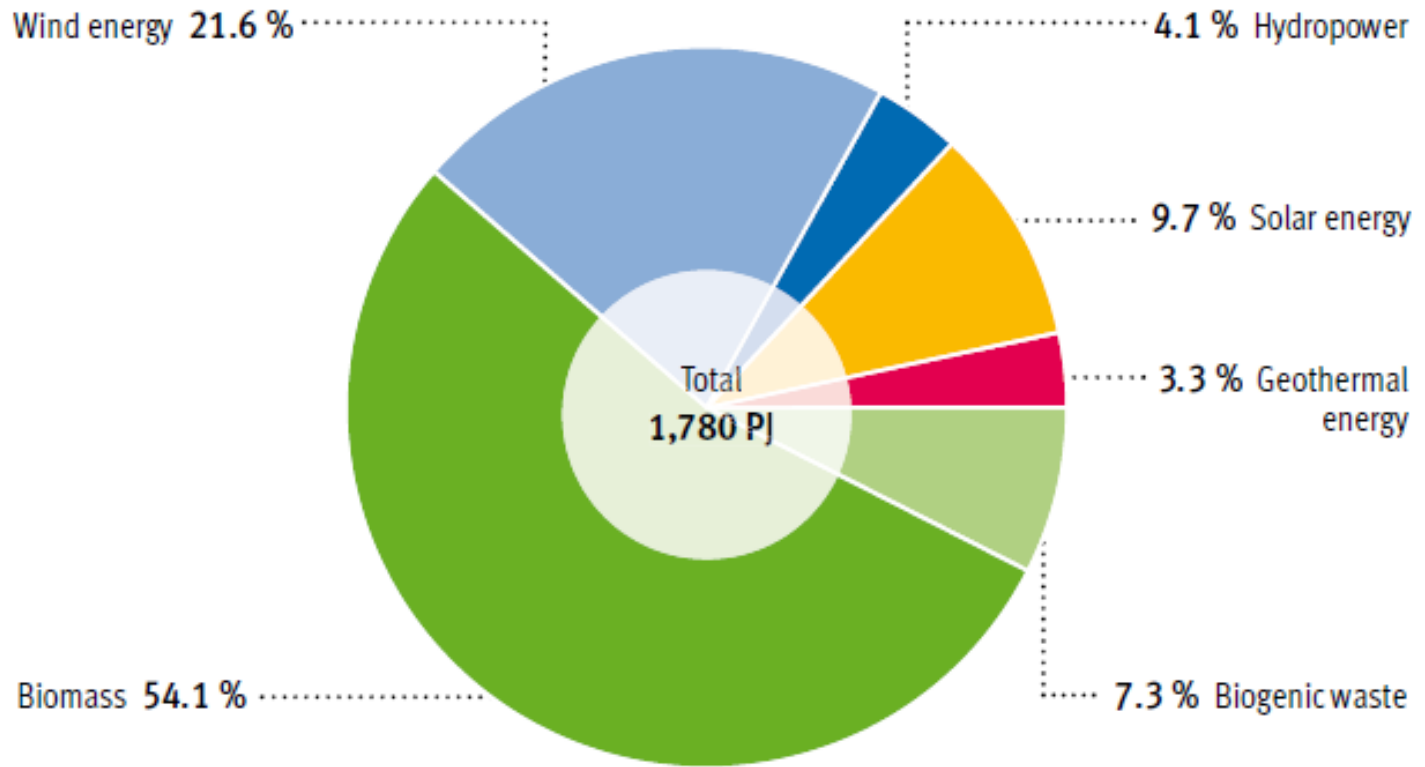
Primary energy consumption in 2017



Source: FNR based on ZSW/AGEB (February 2018)

© FNR 2018

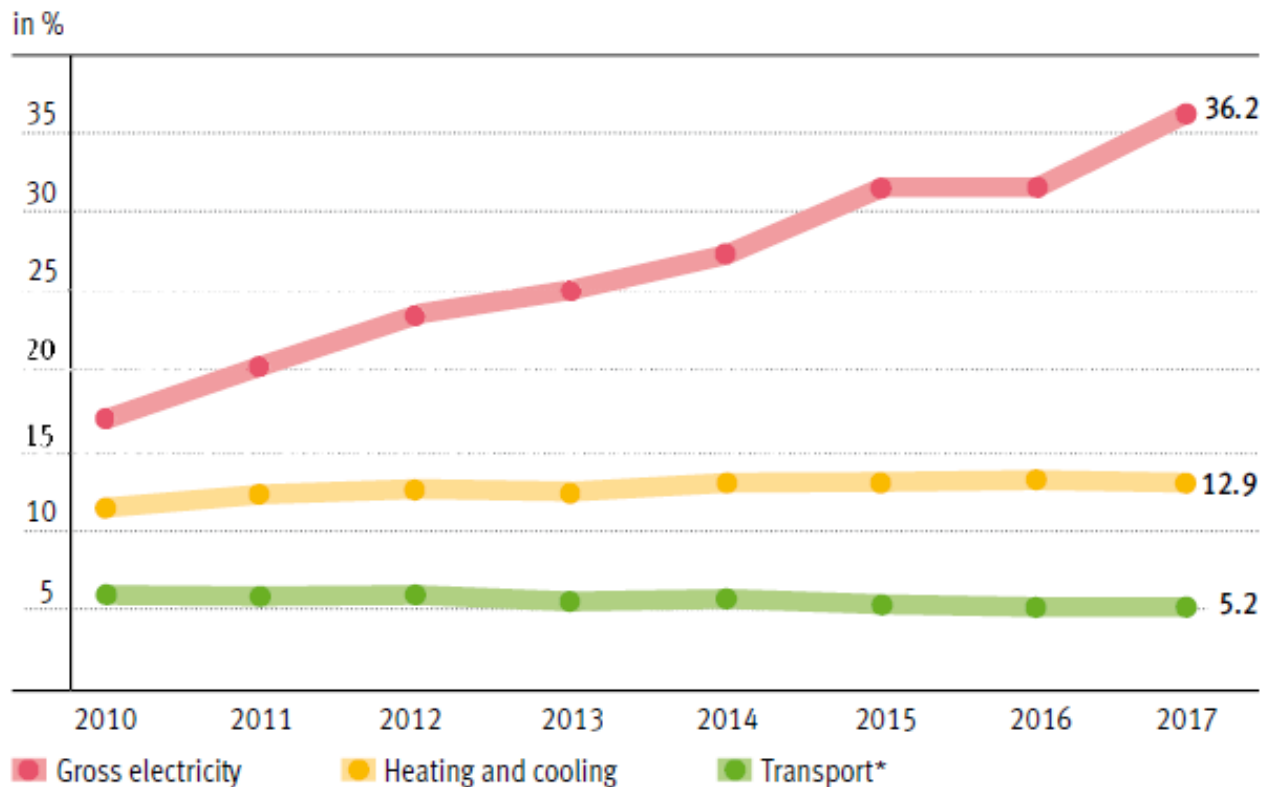
Primary energy production from renewables in 2017



Source: FNR based on ZSW/AGEB (February 2018)

© FNR 2018

Renewable Energy in relation to final energy consumption 2017



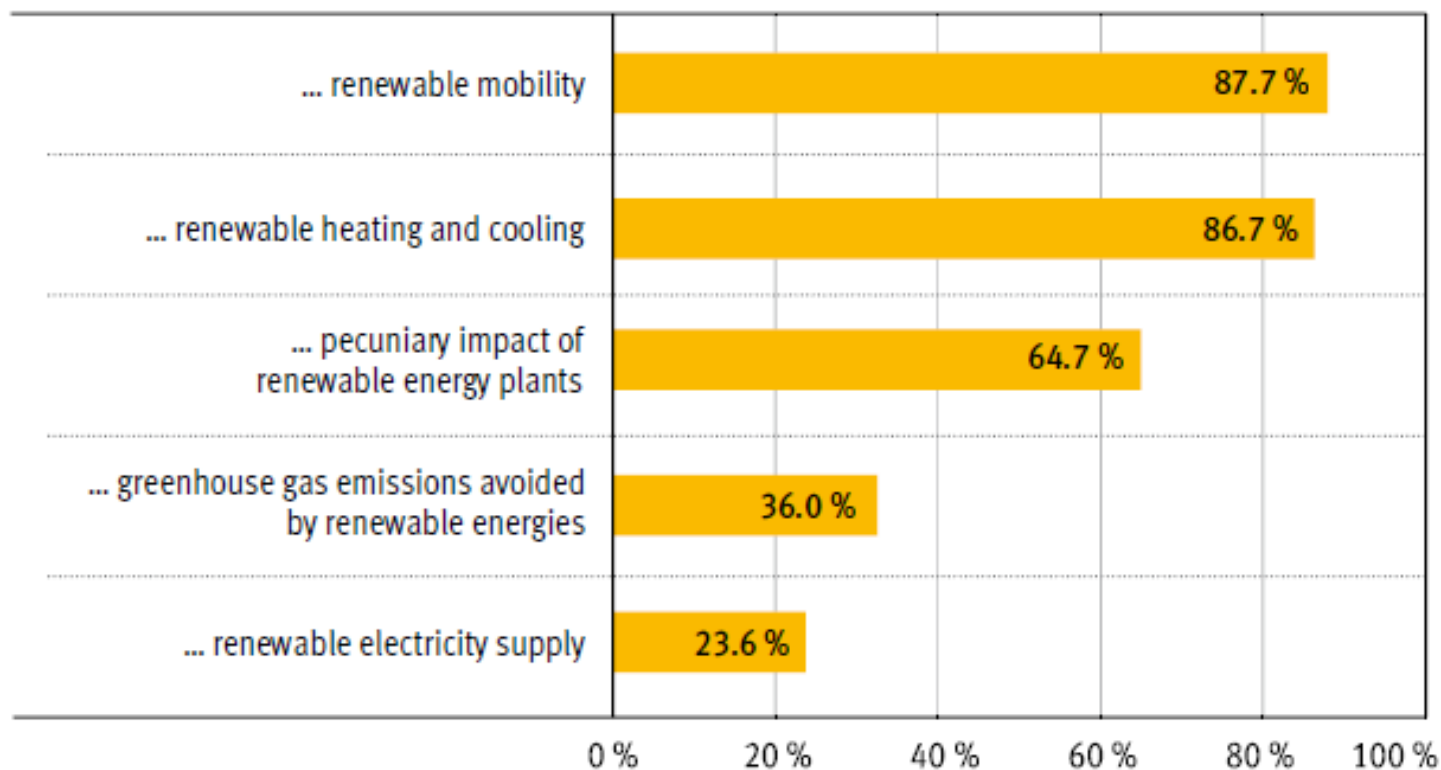
*Excl. agriculture, construction, military, incl. railway

Source: BMWI, AGEE-Stat (February 2018)

© FNR 2018

Bioenergy contribution to the national energy transition

Contribution of bioenergy to

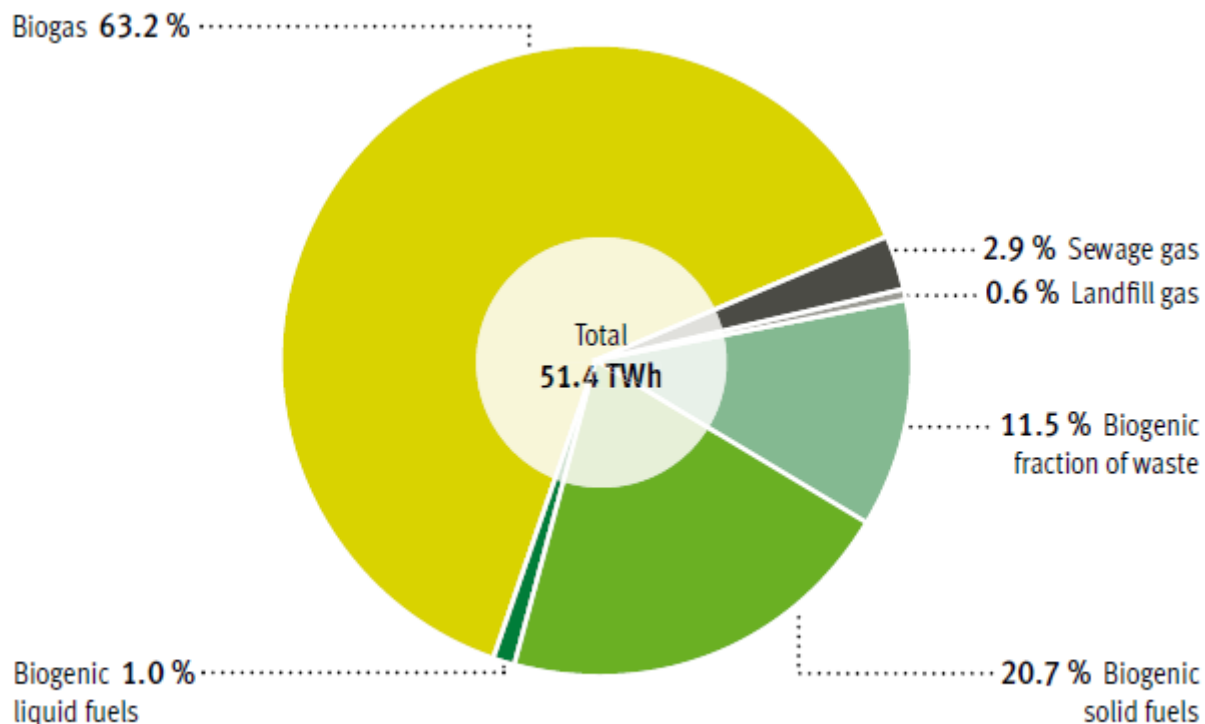


Data for Germany 2017

Source: BMWi, AGEE-Stat (February 2018)

© FNR 2018

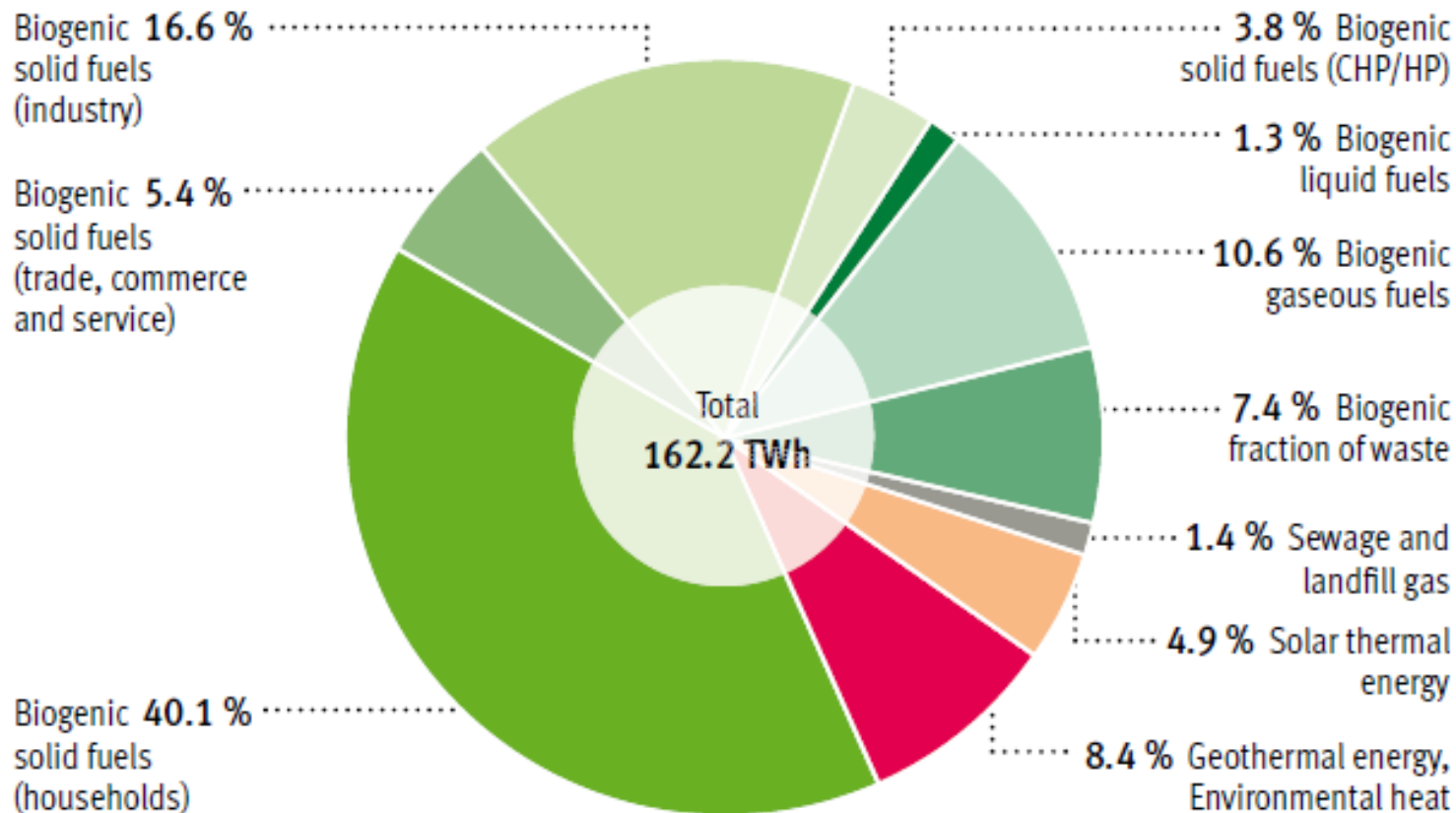
Contribution to electricity: 7.8% of total and 23.6% of renewables



Source: BMWI, AGEE-Stat (February 2018)

© FNR 2018

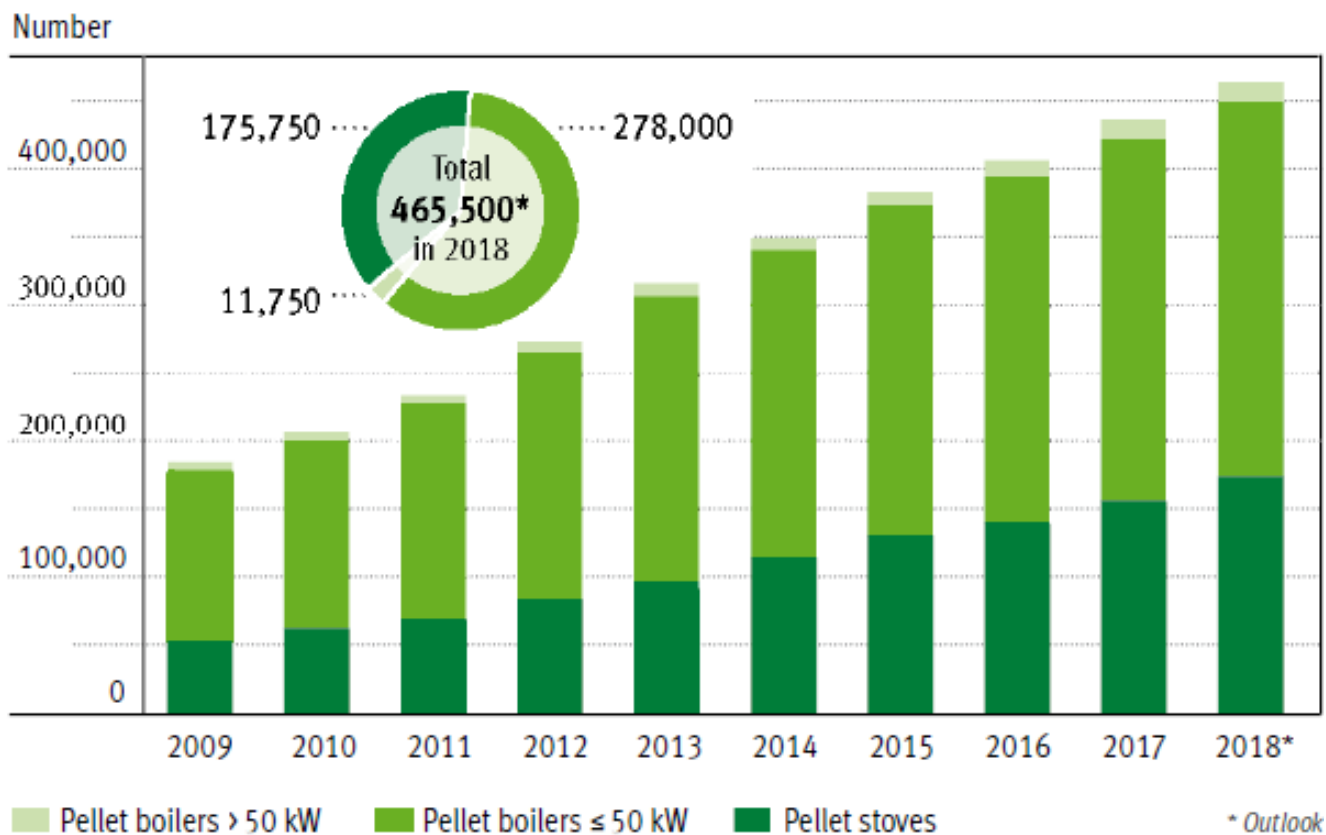
Heat production from renewables (85% biogenic)



Source: BMWi, AGEE-Stat (February 2018)

© FNR 2018

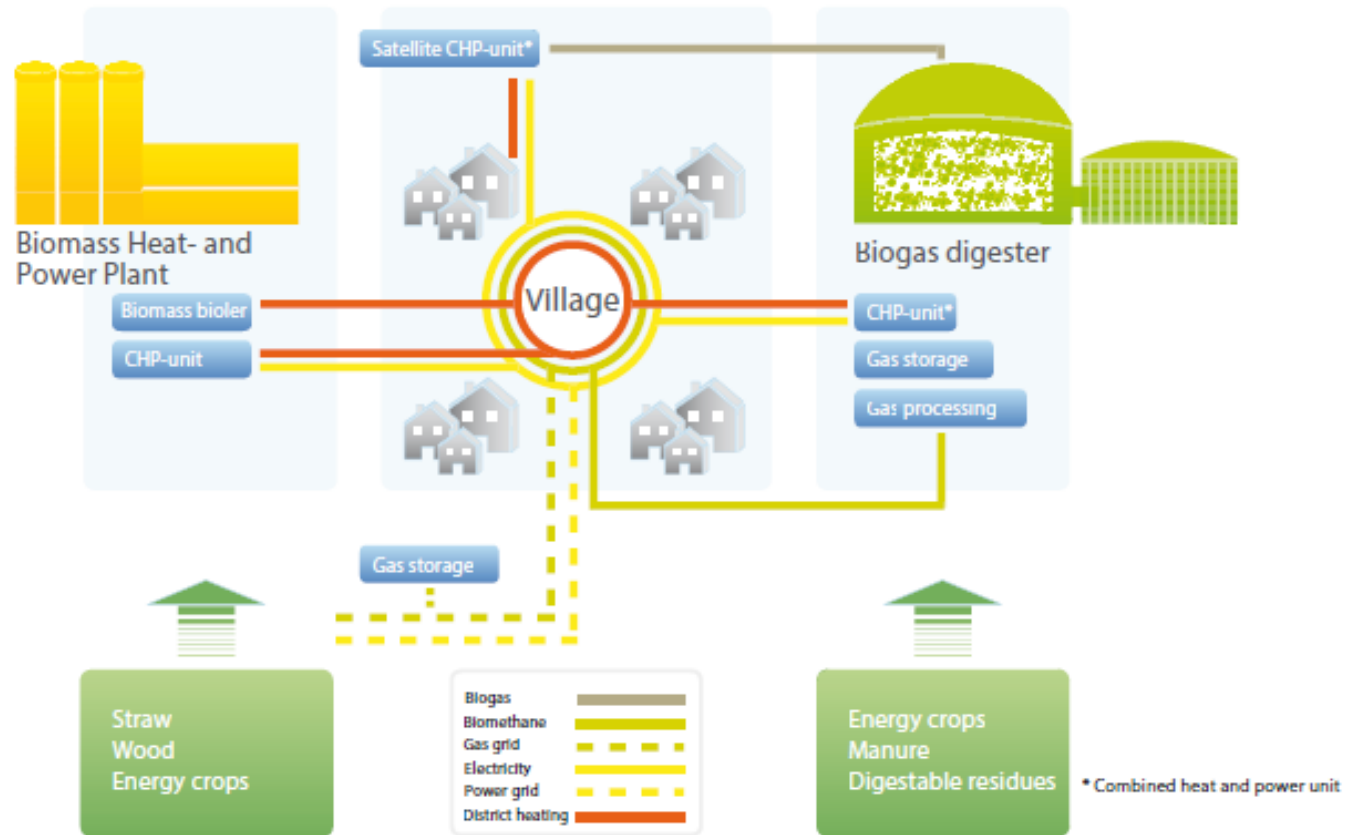
Pellet boilers installed in 2017



Source: Deutsches Pelletinstitut (February 2018)

© FNR 2018

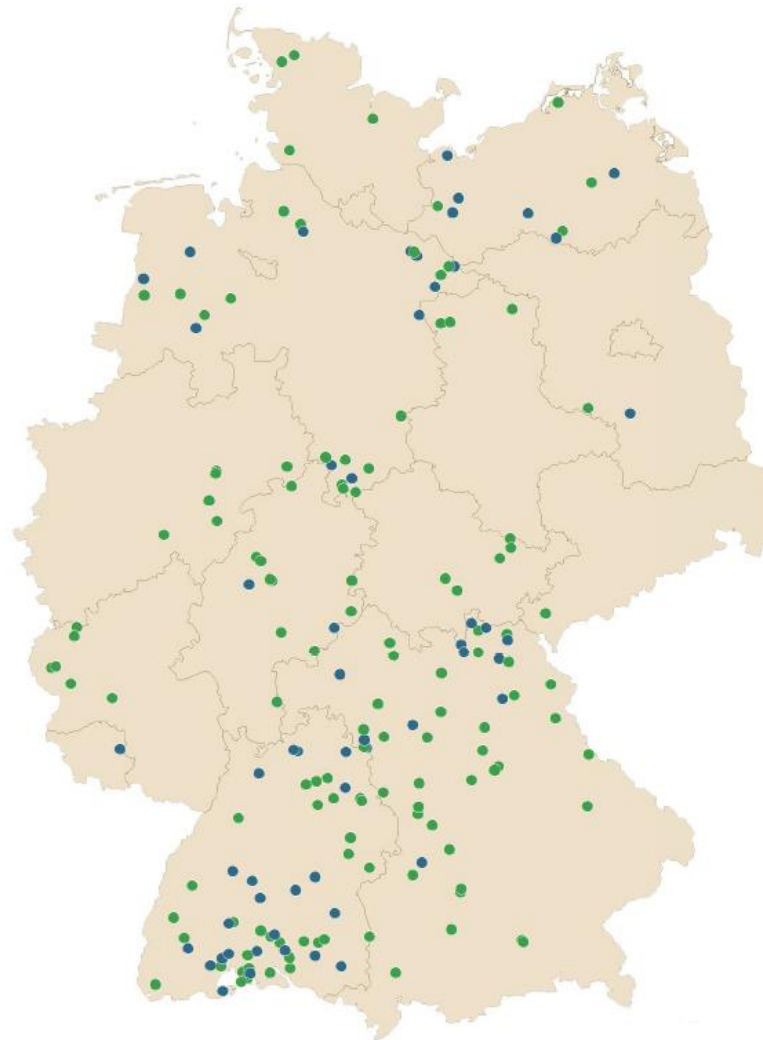
Bioenergy village: material flows



Source: FNR (2012)

© FNR 2018

Bioenergy communities

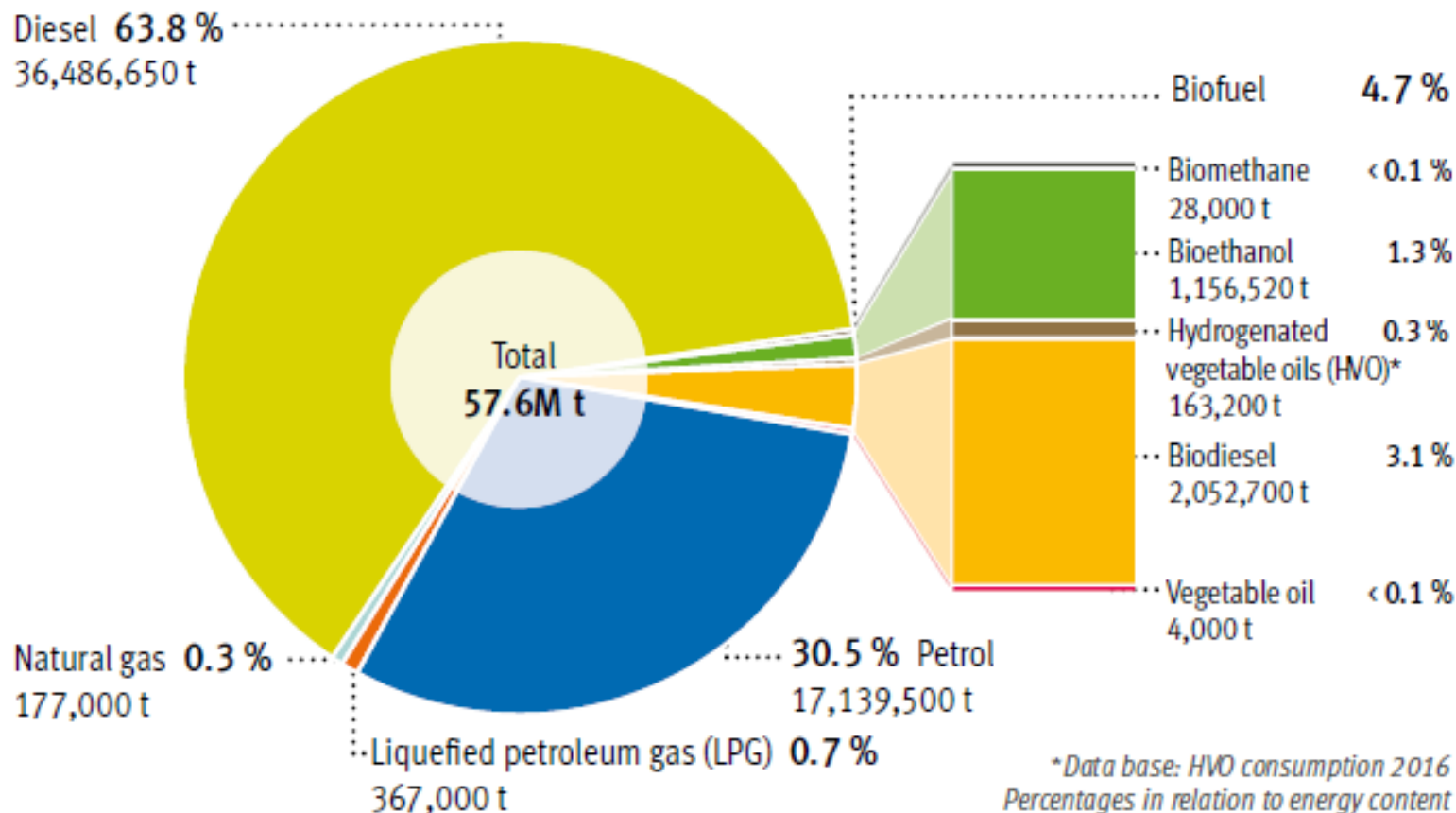


● Bioenergy community ● in development

Source: GeoBasis-DE/BKG 2013, FNR 2018

© FNR 2018

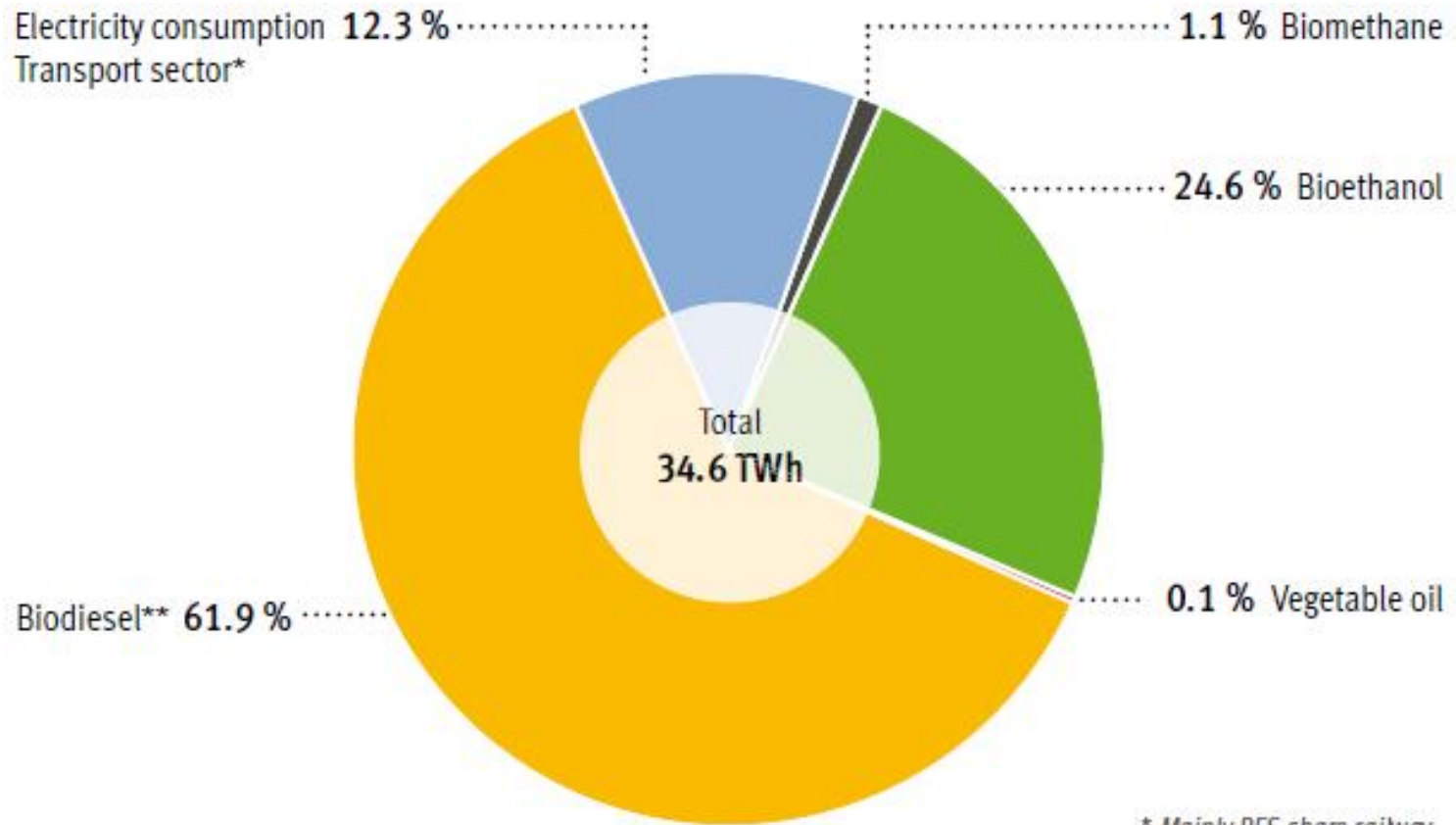
Transport fuel consumption in 2017



Source: FNR based on BAFA, Destatis, DVFG, BDEW, BLE (2018)

© FNR 2018

Renewable energy in the transport sector in 2017



* Mainly RES share railway;
** incl. hydrogenated vegetable oils (HVO)

Source: FNR based on AGEE-Stat (February 2018)

© FNR 2018

GHG savings by bioenergy in 2017

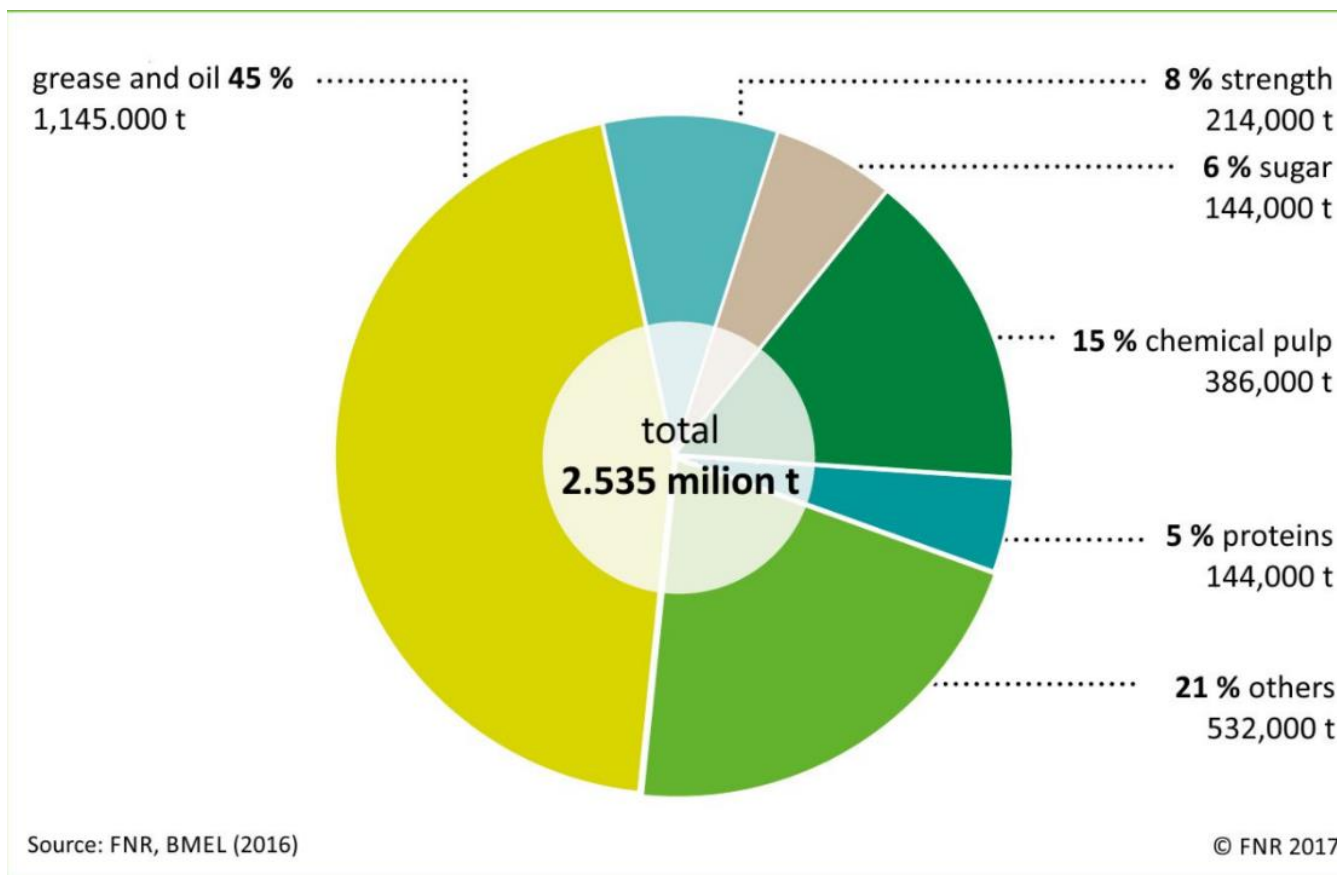
| | GHG savings in 1,000 t CO ₂ equiv. | | | |
|-----------------|---|---------------|---------------|---------------|
| | Electricity | Heat | Fuels | Total |
| Solid biofuels | 11,811 | 26,131 | n/a | 37,942 |
| Liquid biofuels | 300 | 486 | 6,924 | 7,710 |
| Biogas | 14,949 | 3,593 | 84 | 18,626 |
| Total | 27,060 | 30,210 | 7,008* | 64,278 |

Source: FNR based on AGEE-Stat (February 2018)

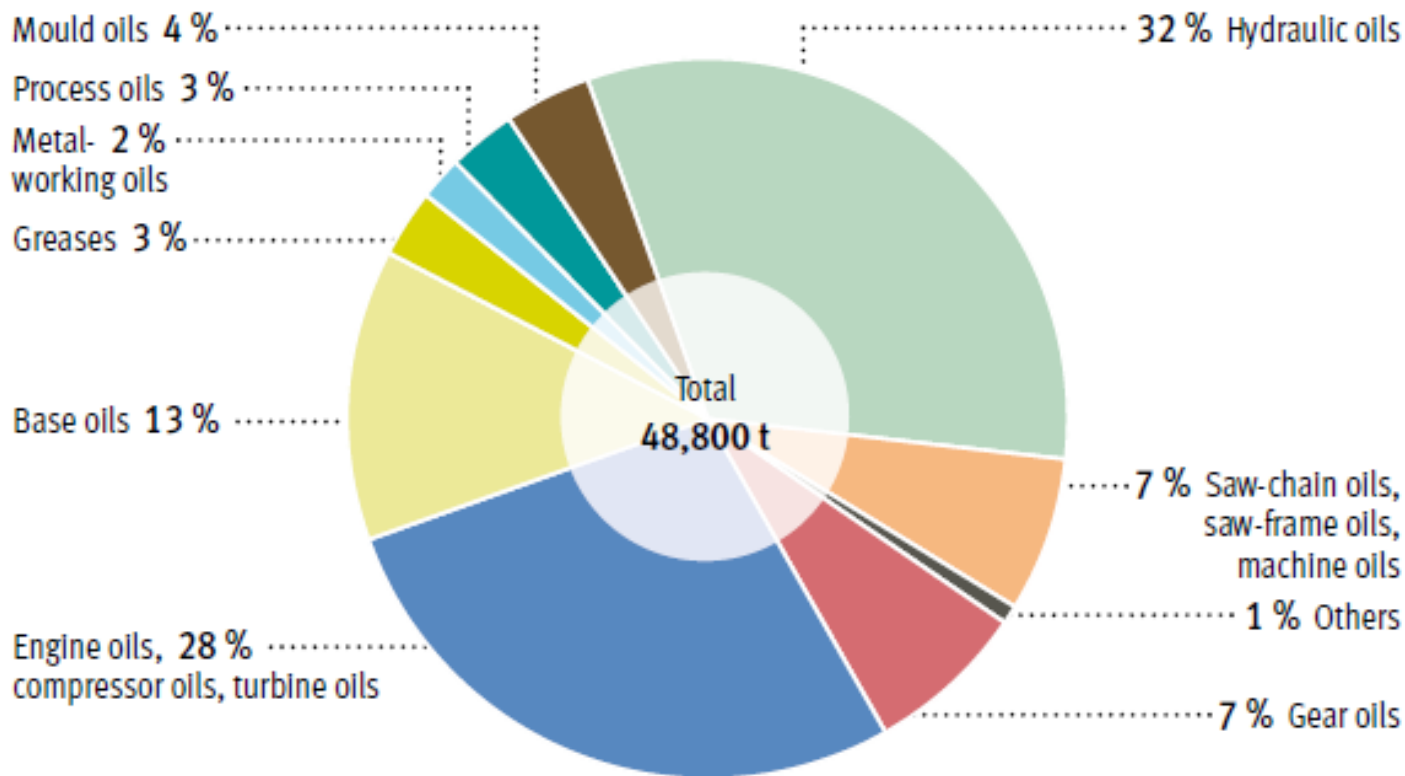
* Excl. agriculture, construction, military

Renewable feedstock in the chemical industry

Share of biomass approx. 13%



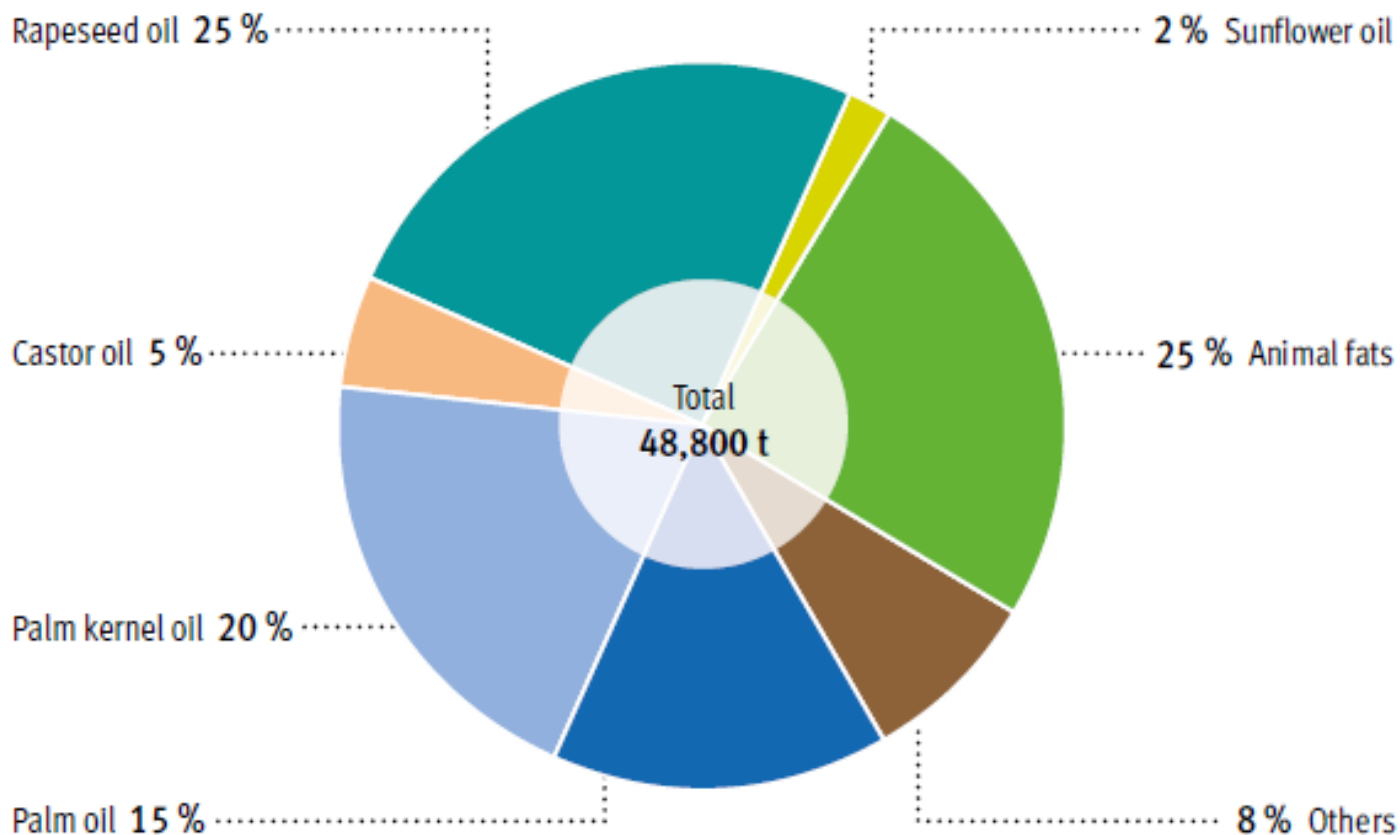
Vegetable oils and fats in the lubricant market



Source: T+I Consulting (2017)

© FNR 2017

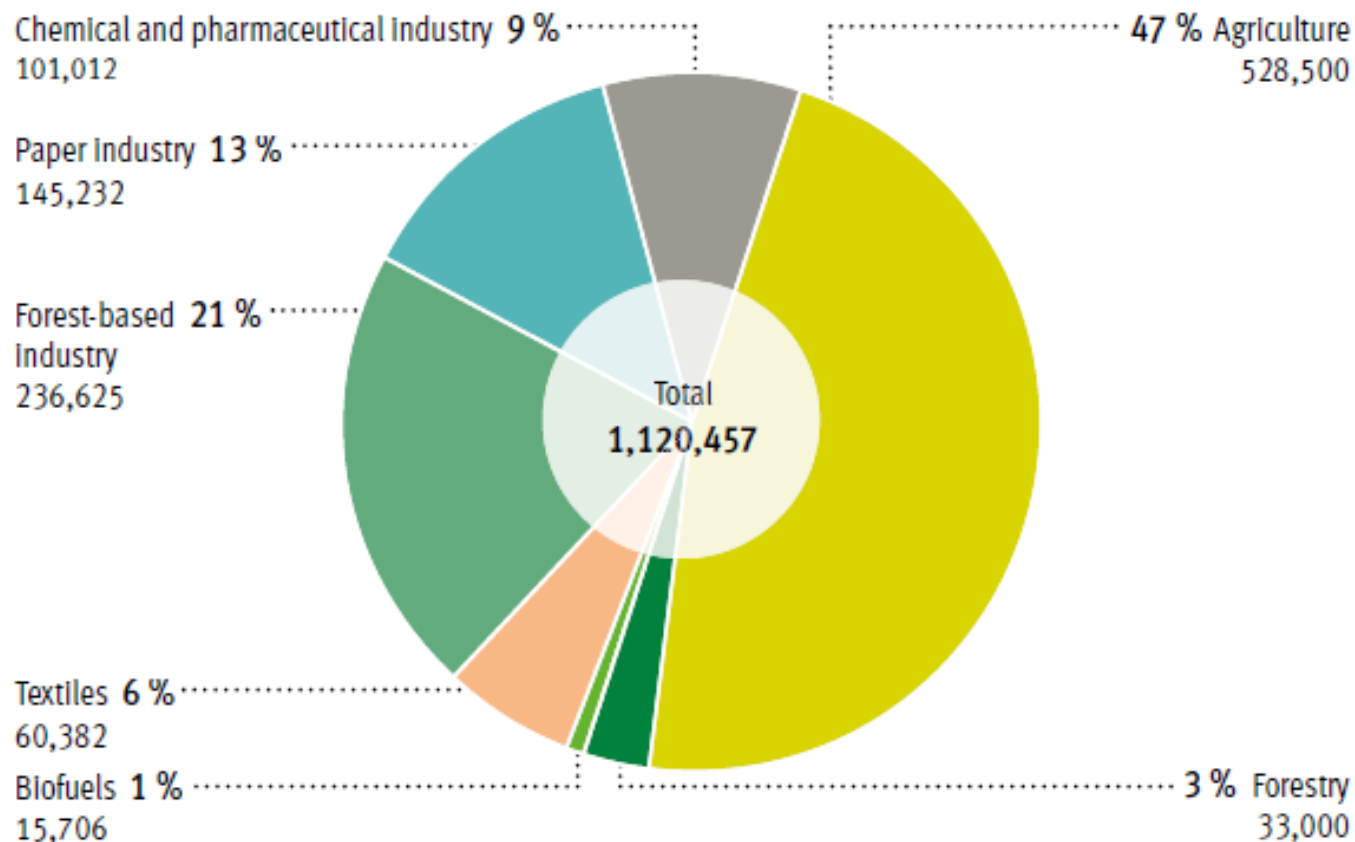
Raw materials for biolubricants in Germany



Source: T+I Consulting (2017)

© FNR 2017

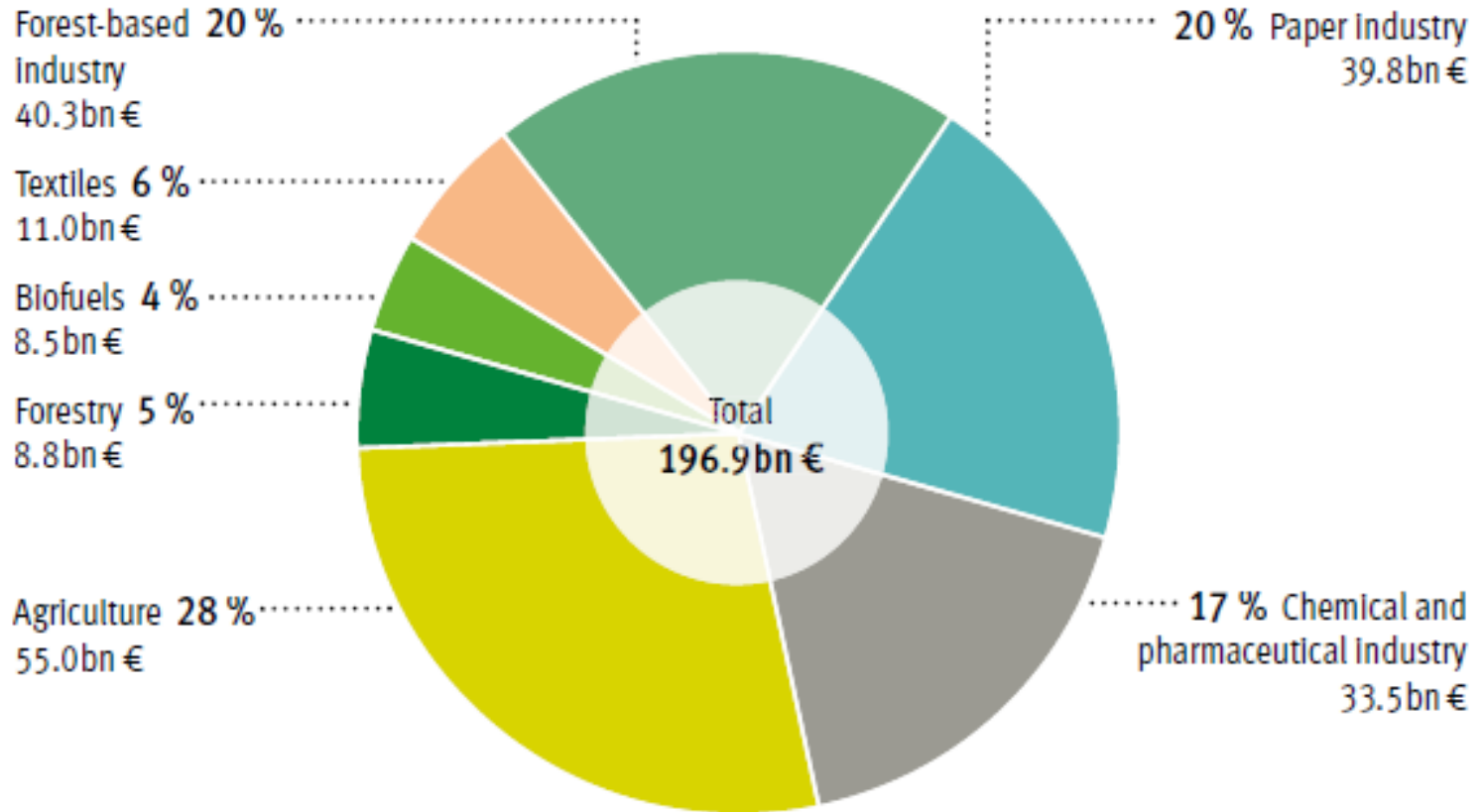
Employees in the biobased economy



Source: datam.jrc.ec.europa.eu/datam/mashup/BIOECONOMICS/Index.html
called 20/12/2017

© FNR 2017

Turnover in the biobased economy



Source: datam.jrc.ec.europa.eu/datam/mashup/BIOECONOMICS/Index.html
called 20/12/2017

© FNR 2017



<https://mediathek.fnr.de/broschuren/fremdsprachige-publikationen.html>

Selected national stakeholders involved in the biobased economy

| Companies | Federations/ networks | Research/ Science | Ministries/ Authorities | NGOs |
|--|--|--|--|--|
| www.basf.de | www.dechema.de | www.thuenen.de/at | www.bmel.de | www.wwf.de |
| www.beiersdorf.de | www.staerkeverband.de | www.iinas.de | www.bmbf.de | www.nabu.de |
| www.evonik.de | www.ovid-verband.de | www.nova-institute.eu | www.bmu.de | www.welthungerhilfe.de |
| www.fuchs-europe.de | www.vci.de | www.umsicht.fraunhofer.de | www.fnr.de | www.brot-fuer-welt.de |
| www.henkel.de | www.ibbnetzwerk-gmbh.de | www.dbfz.de | www.ble.de | |
| www.nordzucker.de | www.vdp-online.de | www.cbp.fraunhofer.de | www.umweltbundesamt.de | |
| www.suedzucker.de | www.biorn.org/de/ | www.kit.edu | | |
| www.linde-engineering.com | www.bio.nrw.de/en/home | www.ifeu.de | | |
| www.cargill.com | www.ufop.de | | | |

Contact

Heinz Stichnothe

Thünen Institute of Agricultural Technology

Phone no. +49 (0) 531 596-4163

E-mail address heinz.stichnothe@thuenen.de

www.task42.ieabioenergy.com