

Annual meeting of the TFRN 2019

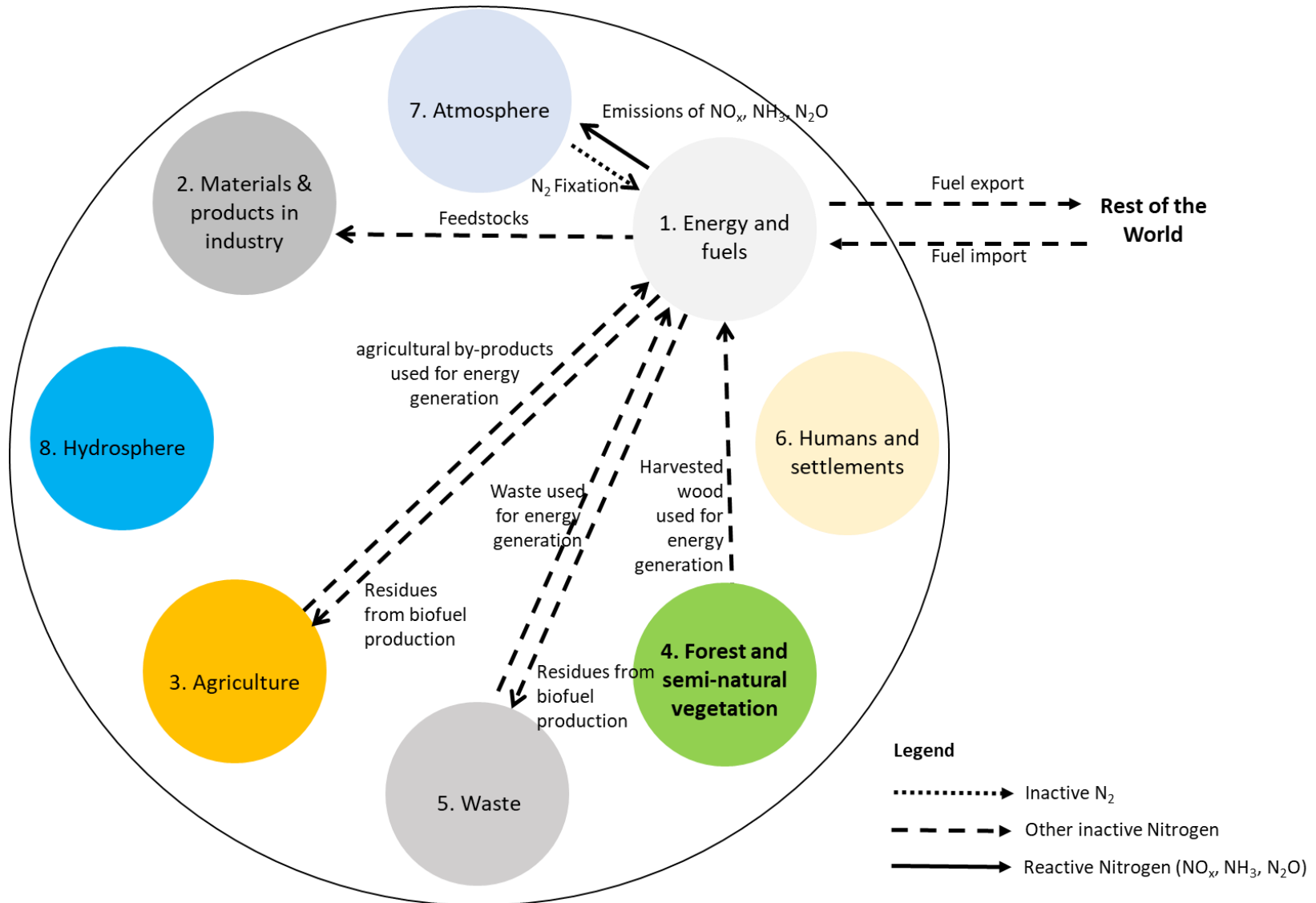
Expert Panel on Nitrogen Budgets Annex «Energy and fuels»

Brussels, October 2, 2019

Agenda

1. Overview of nitrogen pools and fluxes to/from the pool «Energy and fuels» (EF)
2. Activities encompassed by the EF-Pool
3. Internal structure of the EF-Pool
4. Methodology and data sources
5. Open issues related to other annexes and comparison with current N-flow analysis for Germany

1. Overview of nitrogen pools and fluxes



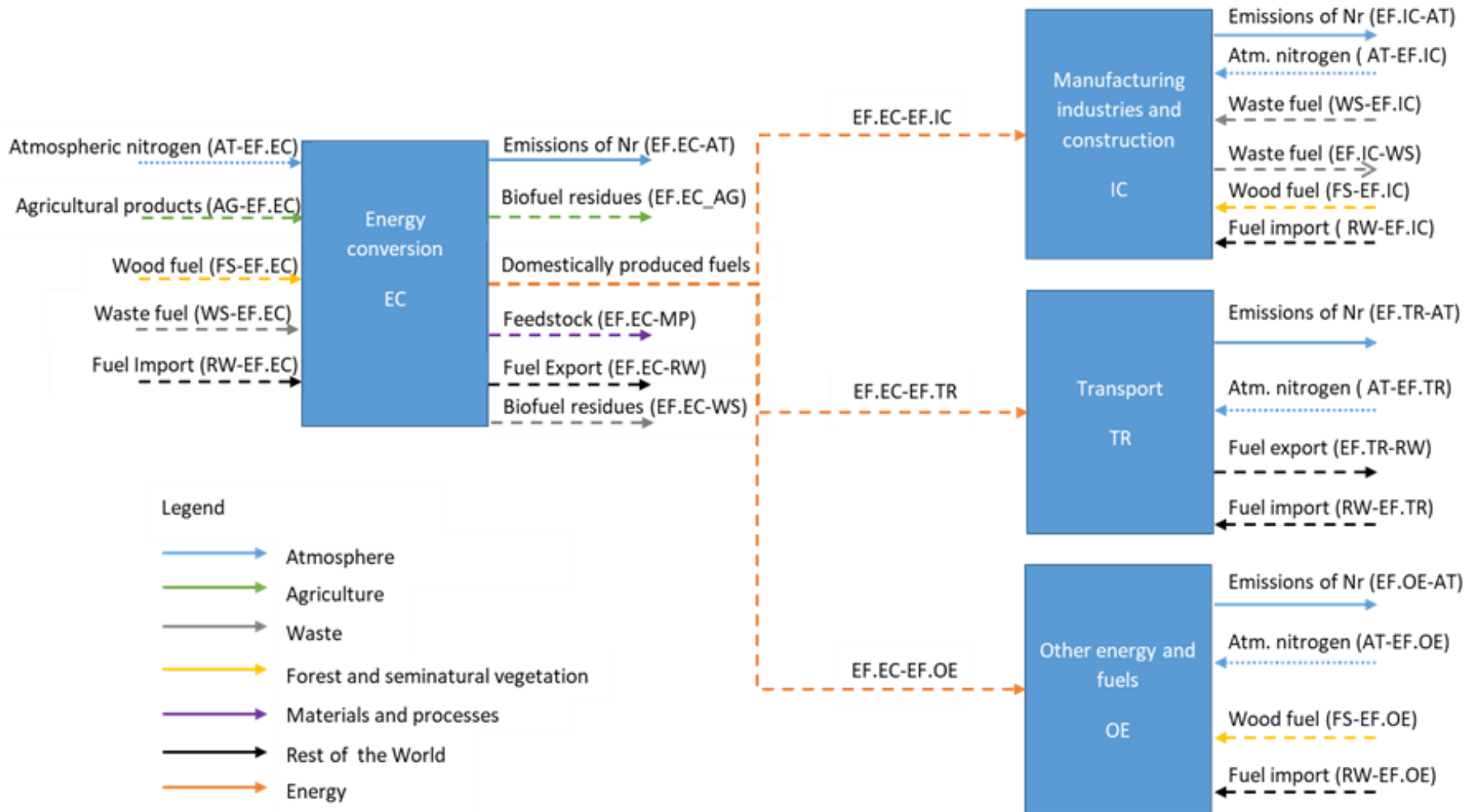
2. Activities encompassed by the EF-pool

1. Energy conversion processes include heat and electricity production as well as refineries and other fuel production processes apart from biogas production from agricultural waste, which is accounted for in the pool “Waste”.

2. Fuel combustion occurs in the transport sector, in industrial processes and in the commercial/institutional and in the residential sector.

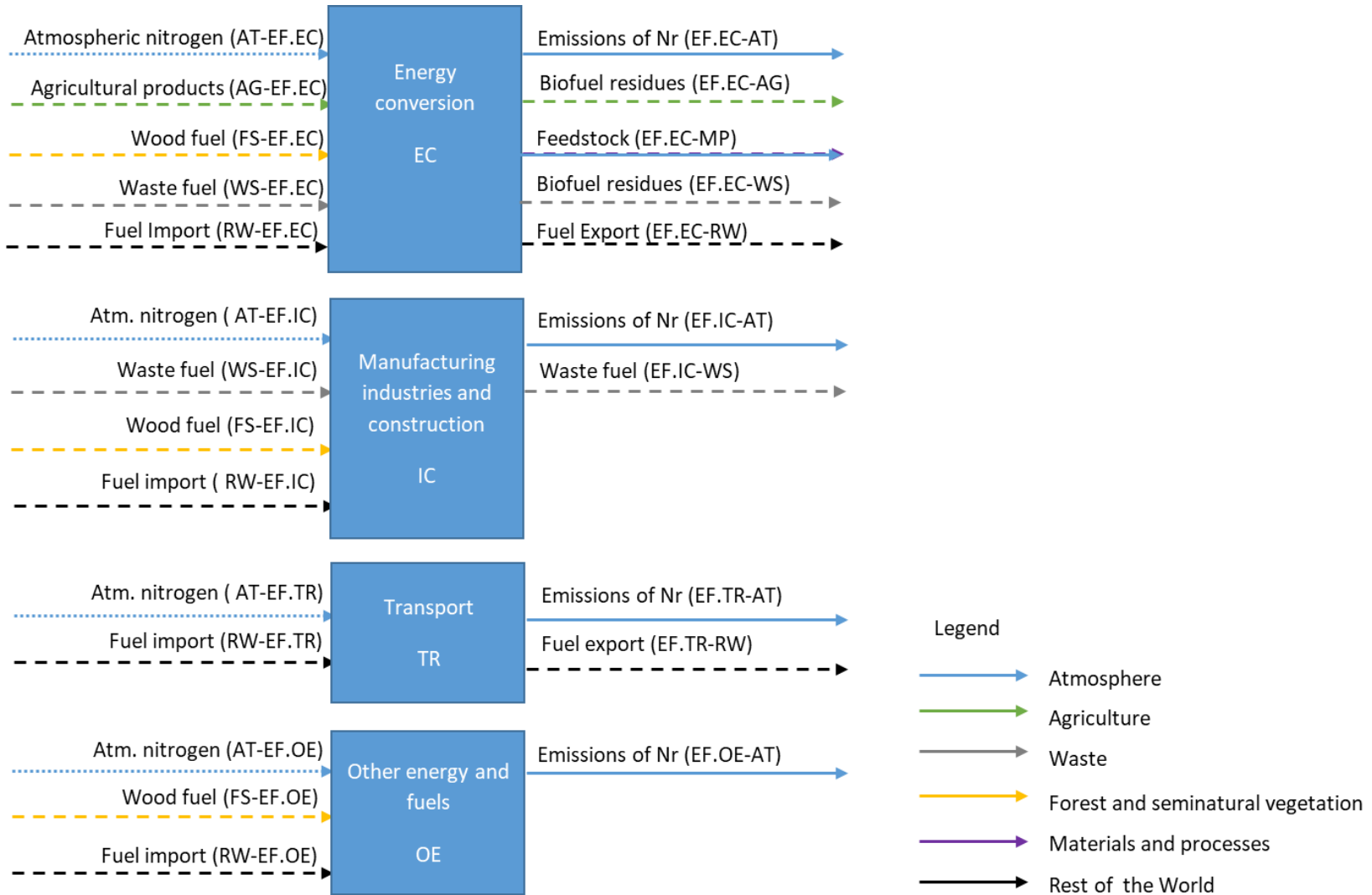
→ During fuel combustion, nitrogen fixation from the atmosphere as well as chemical transformation of nitrogen contained in the fuels results in emissions of reactive nitrogen to the atmosphere.

3. Subpools «Energy and fuels»



→ Internal structure of the EF-pool can be simplified by neglecting the differentiation between domestically produced fuels and imported fuels

3. Subpools «Energy and fuels» - simplified



4. Methodology and data sources

Methodology

N-flows are calculated by multiplying activity data (i.e. amount of fuel) by a corresponding emission factor or N content.

Data sources

- **Emission factors** for different fuels and combustion processes are provided in the EEA Guidebook (EEA 2013) for NO_x and NH_3 and IPCC Guidelines (IPCC 2006) for N_2O .
- A range of typical **N-contents** of different fuels is provided in the Annex “Energy and Fuels”.
- **Amount of fuels consumed** can be found in national energy statistics and submissions to CLRTAP and UNFCCC.

5. Links to other annexes

- Production of biofuels (accounted for in the pool «Energy and fuels») results in by-products that are used
 - either as fertilizer in agricultural production (Pool «Agriculture»)
 - or they are transferred to composting facilities (Pool «Waste»).

-> These N-flows are not yet accounted for in the Annex «Agriculture» and have to be included in the Annex «Waste» as well to ensure consistency between all the annexes.

5. Comparison with current nitrogen flow analysis for Germany

- In the N-flow analysis for Germany, biogas production is allocated to the pool «Agriculture» and not to the pool «Waste» due to structures of the national statistics.
- Digestate from biofuel production used for industrial feed production is included as a flow between the pool «Energy and fuels» and «Materials and processes».
- In the Annex «Energy and fuels» this flow is accounted for as a direct flow between the pool EF and «Agriculture».

→ Depending on data availability, the flow and (sub-)pool structure needs to be adapted to country-specific circumstances.

Thank you for your attention!

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