

# Bioenergy as a side-product of the Finnish forest sector

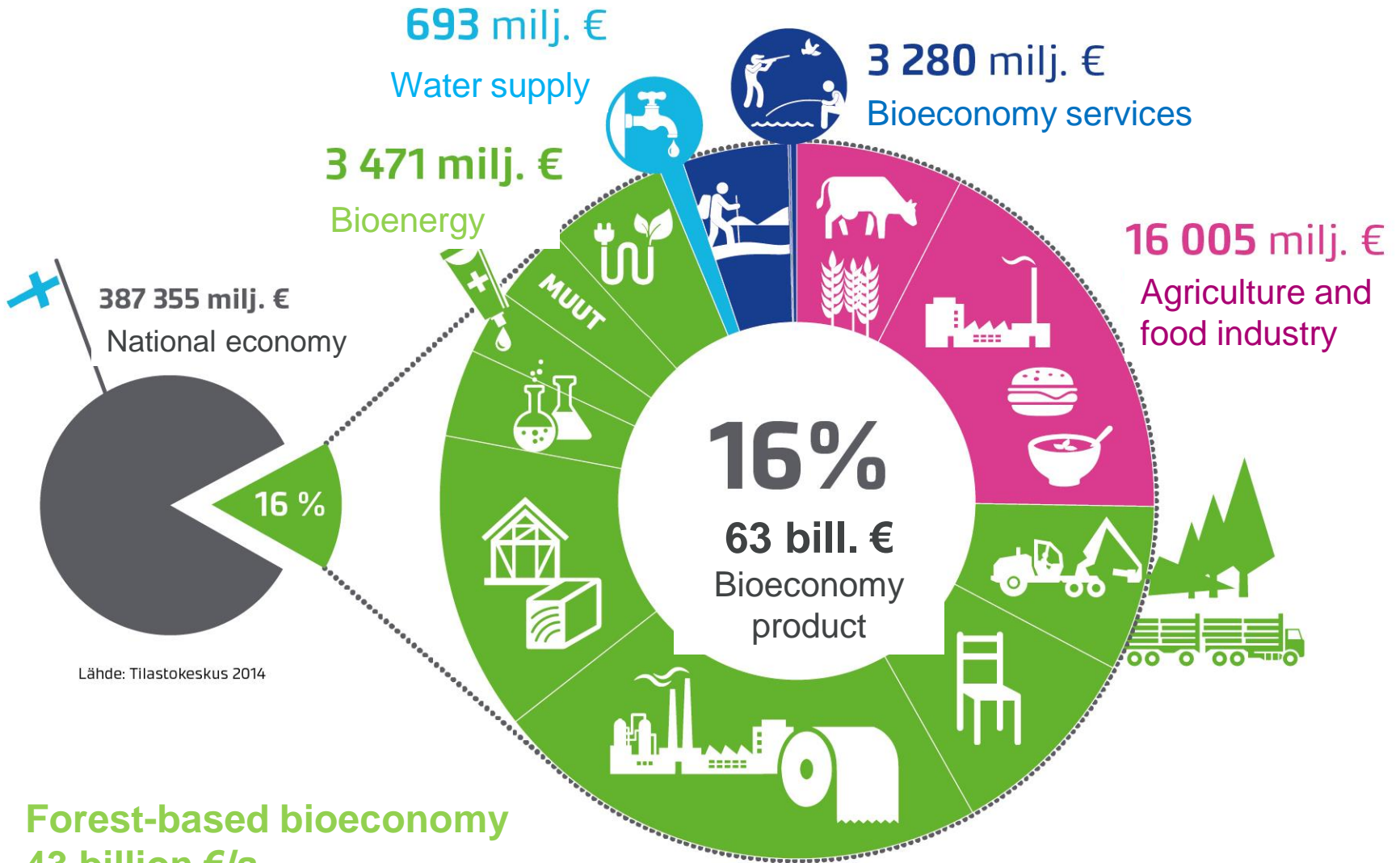
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# Storyline

- Bioeconomy in Finland
- Forest-based bioenergy and forest sector
- Trends of forest industry and wood use
- EU's energy and climate policy and Finnish forests



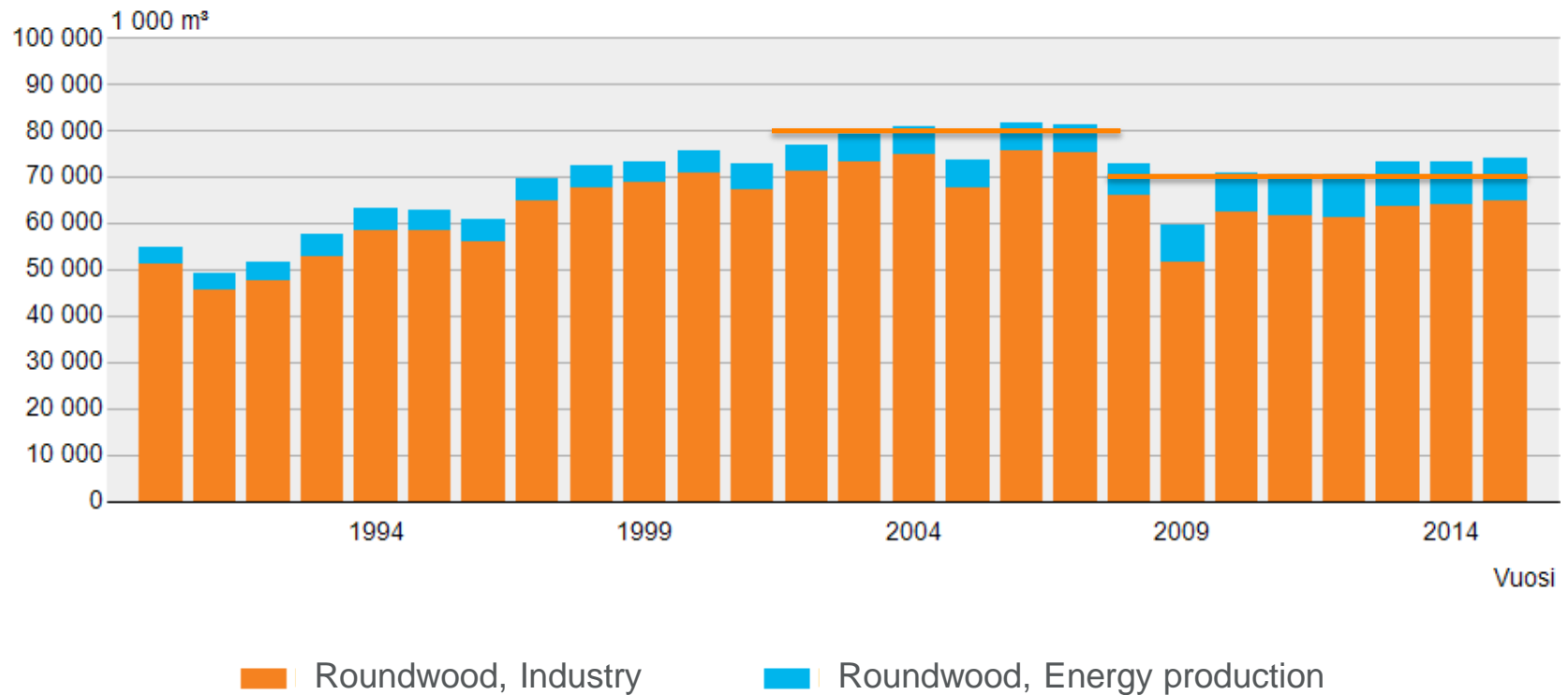
Lähde: Tilastokeskus 2014

**Forest-based bioeconomy**  
**43 billion €/a**

# 10 Mm<sup>3</sup> directly and 30Mm<sup>3</sup> from side streams for energy

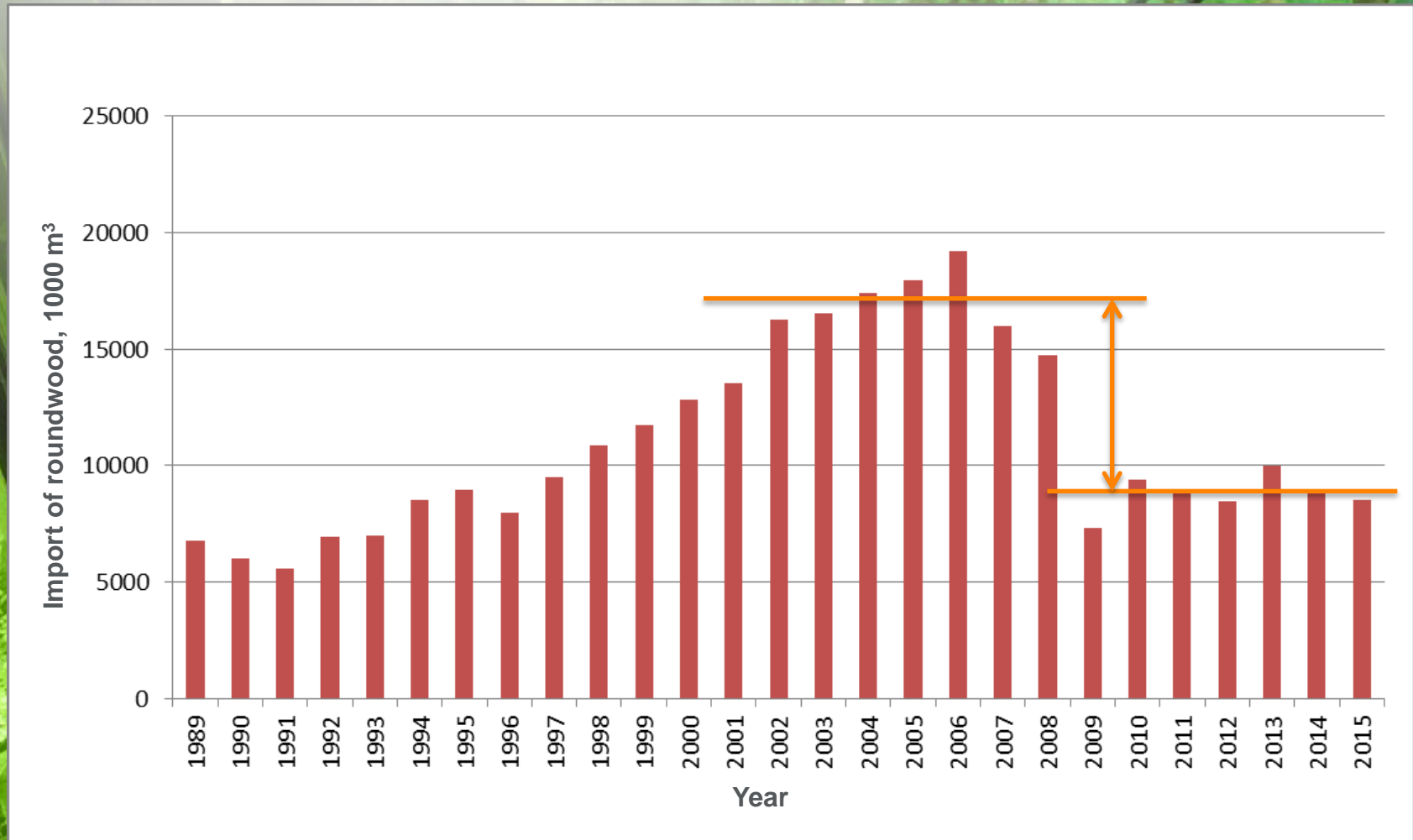


# Use of wood in Finland still below the time before recession



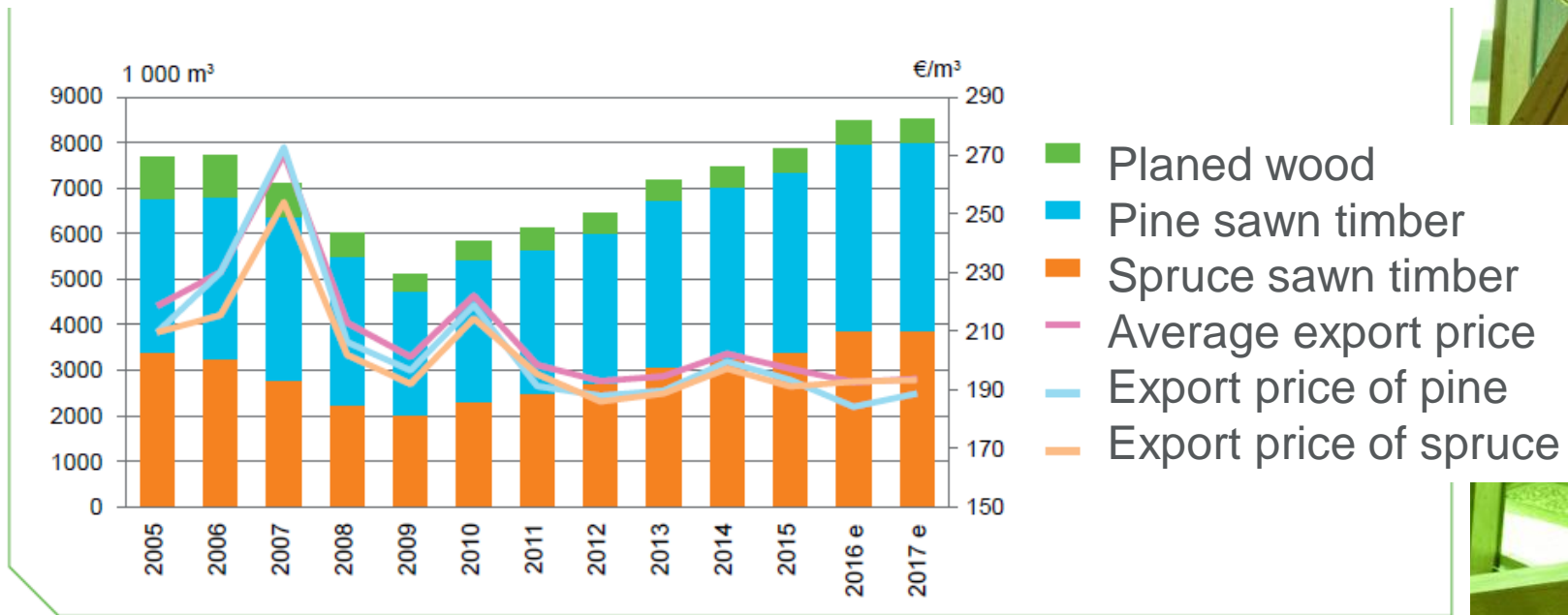
Lähde: SVT: Luonnonvarakeskus, Puun kokonaiskäyttö

# Import of wood to Finland has radically reduced

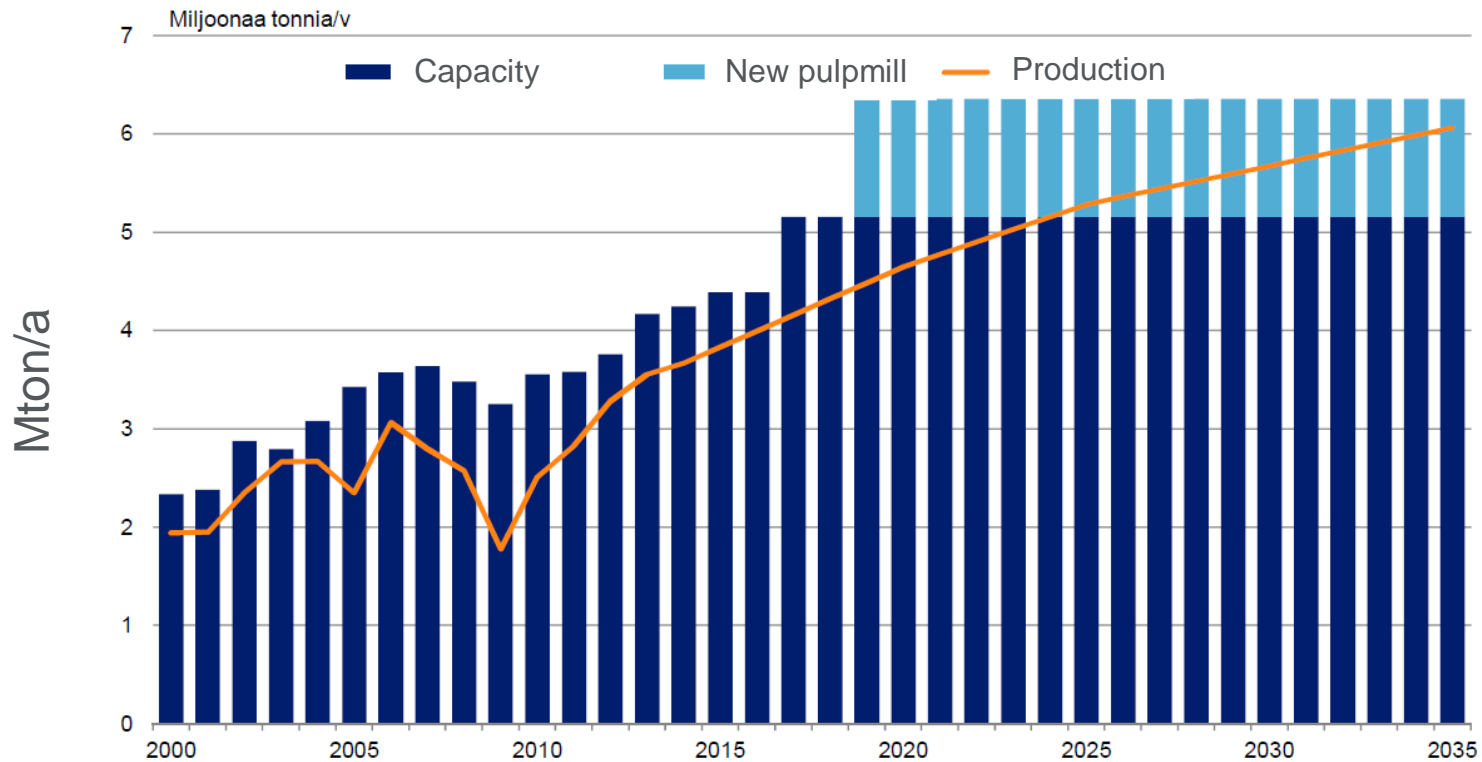




# Wood construction in EU, North Africa and Japan increase the wood demand

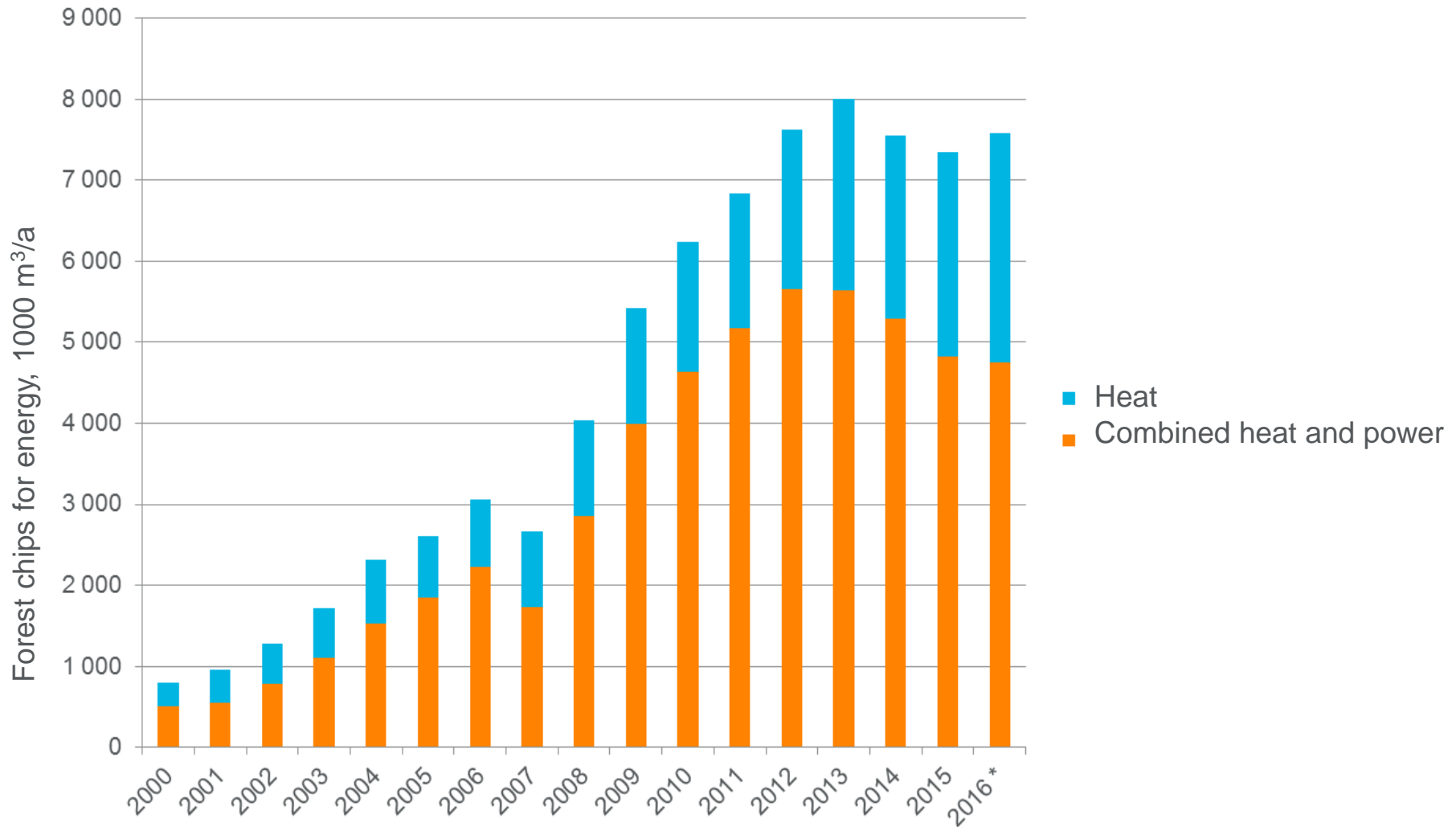


# The use of wood for market pulp is increasing by 2.2 million tonnes by 2035





# Direct energy use has decreased



# Forests (LULUCF) in climate agreement

2030 GHG target: at least -40% compared to 1990



EU ETS  
-43% compared to 2005



Effort Sharing Decision  
-30% compared to 2005

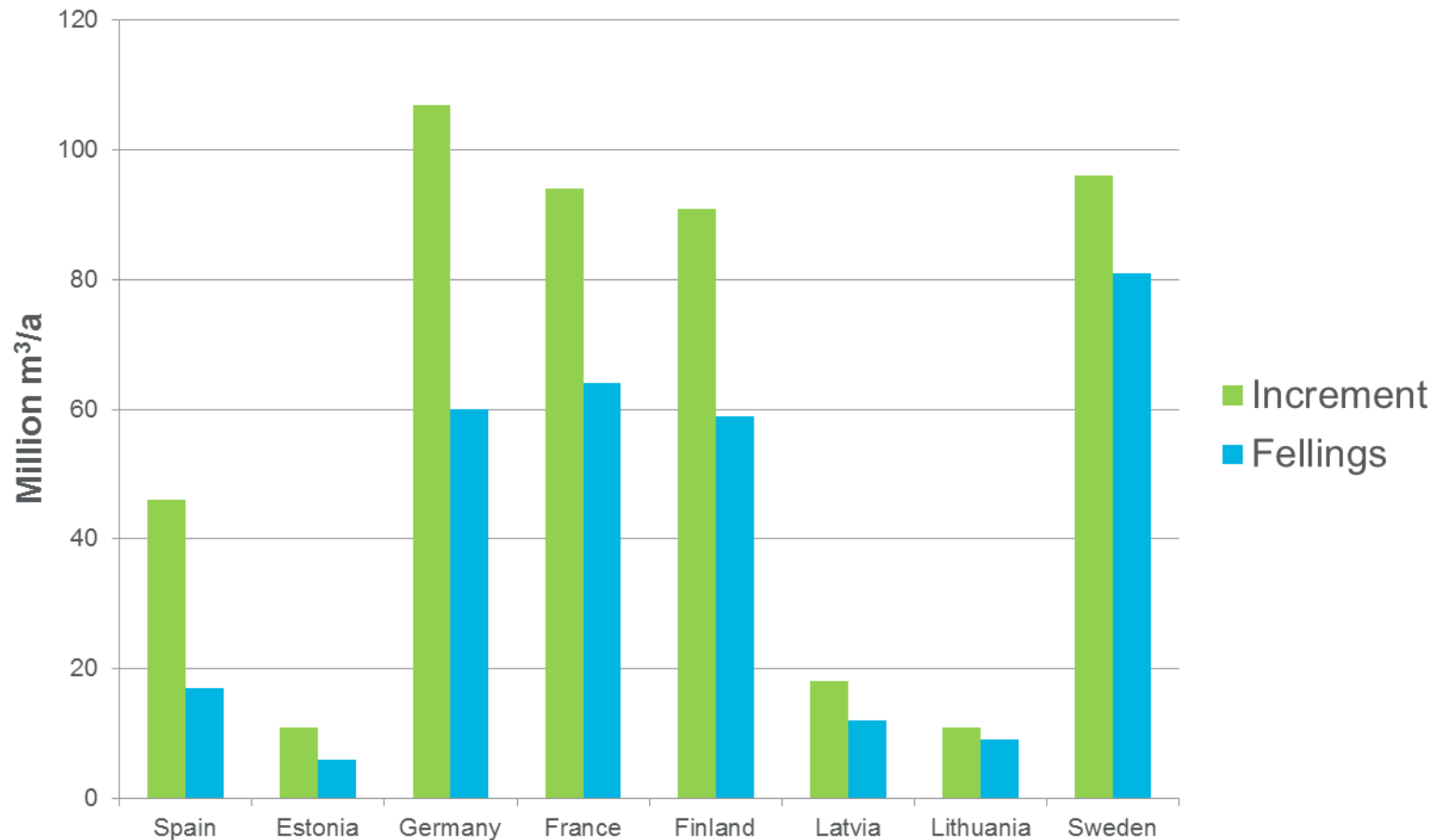


LULUCF

28 Member State targets, stretching from -40% to 0%



# Absolute forest increment and fellings in selected EU countries, 2010



# NFIs as a data source for LULUCF reporting

(Packalén et al 2017)

- 90 % of EU countries use National Forest Inventories (NFI) for LULUCF reporting
- NFIs are based on sound statistical designs, fulfilling the carbon reporting quality criteria
- **NFIs provide reliable and accurate estimates for the carbon pools above-ground biomass, below-ground biomass, deadwood, sometimes litter and soil**
  - **Difficulties exist in estimation of Land Use Changes, and estimation of soil carbon**



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- Photos: European National Forest Inventory Network (ENFIN) since 2003 to work on harmonisation (<http://enfin.info>)
- Ongoing H2020 project Distributed, Integrated And Harmonised Forest Information For Bioeconomy Outlooks (<http://diabolo-project.eu/>)

# Conclusions

- Bioenergy and bioenergy carriers are mainly produced from the side streams and waste of forest industry
- EU's LULUCF accounting does not make any difference between energy and product use of wood
- LULUCF regulation can have drastic impacts for the raw material sourcing of wood and fibre industry
- National forest inventories estimate changes in growing stock of wood accurately, but land use change more difficult to detect