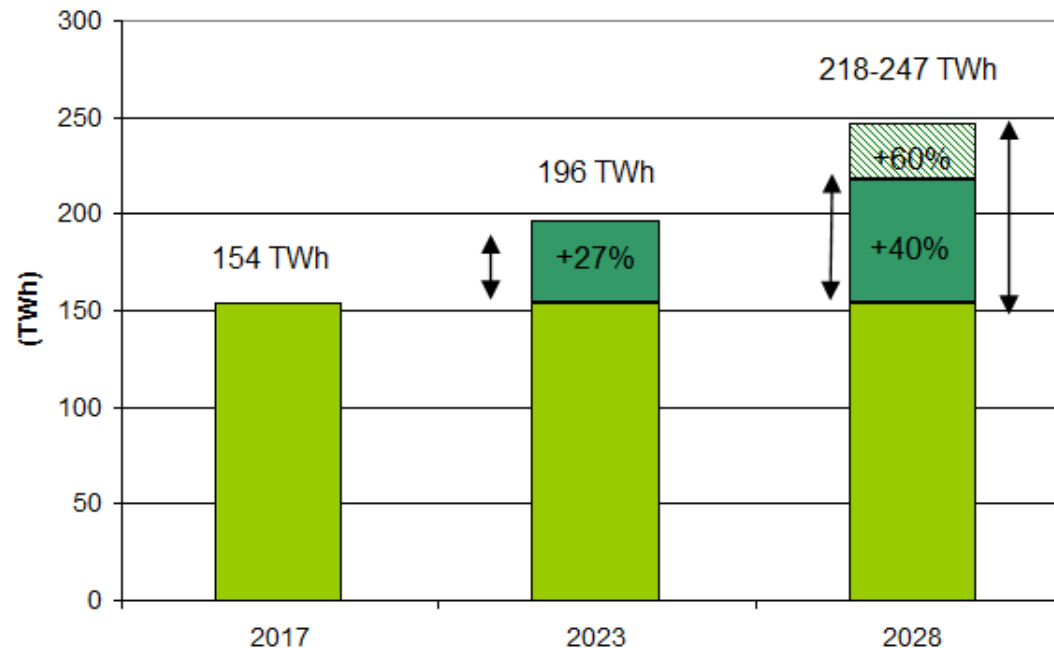


Wood biomass for energy production in France

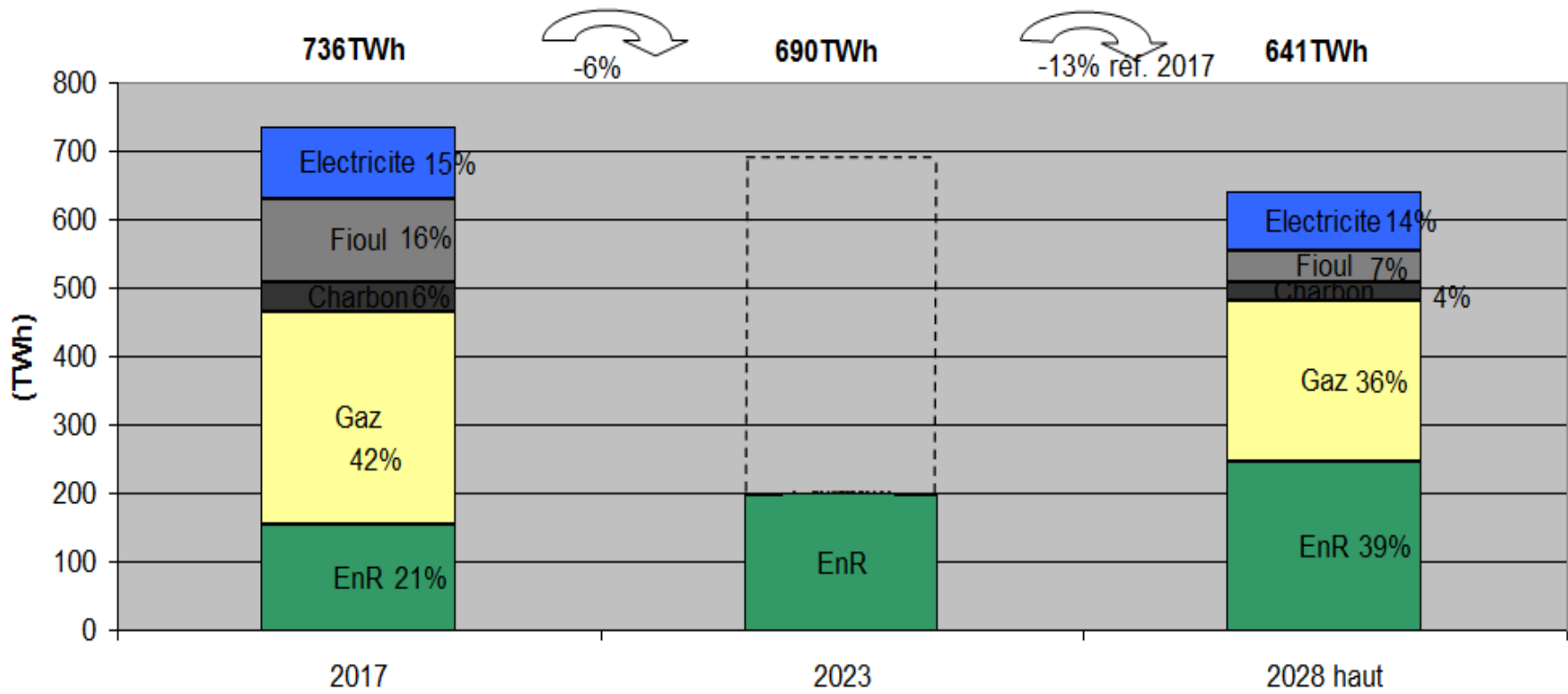
September 17, 2020 Rémi Chabrillat

- Heat : about 47% of final French energy consumption
- 21% of heat comes from RRE in 2017
- Energy transition law (2014), Multiannual Programming for Energy (2020) : target 39%
- No significant target for power from wood

MPE : total renewable heat target

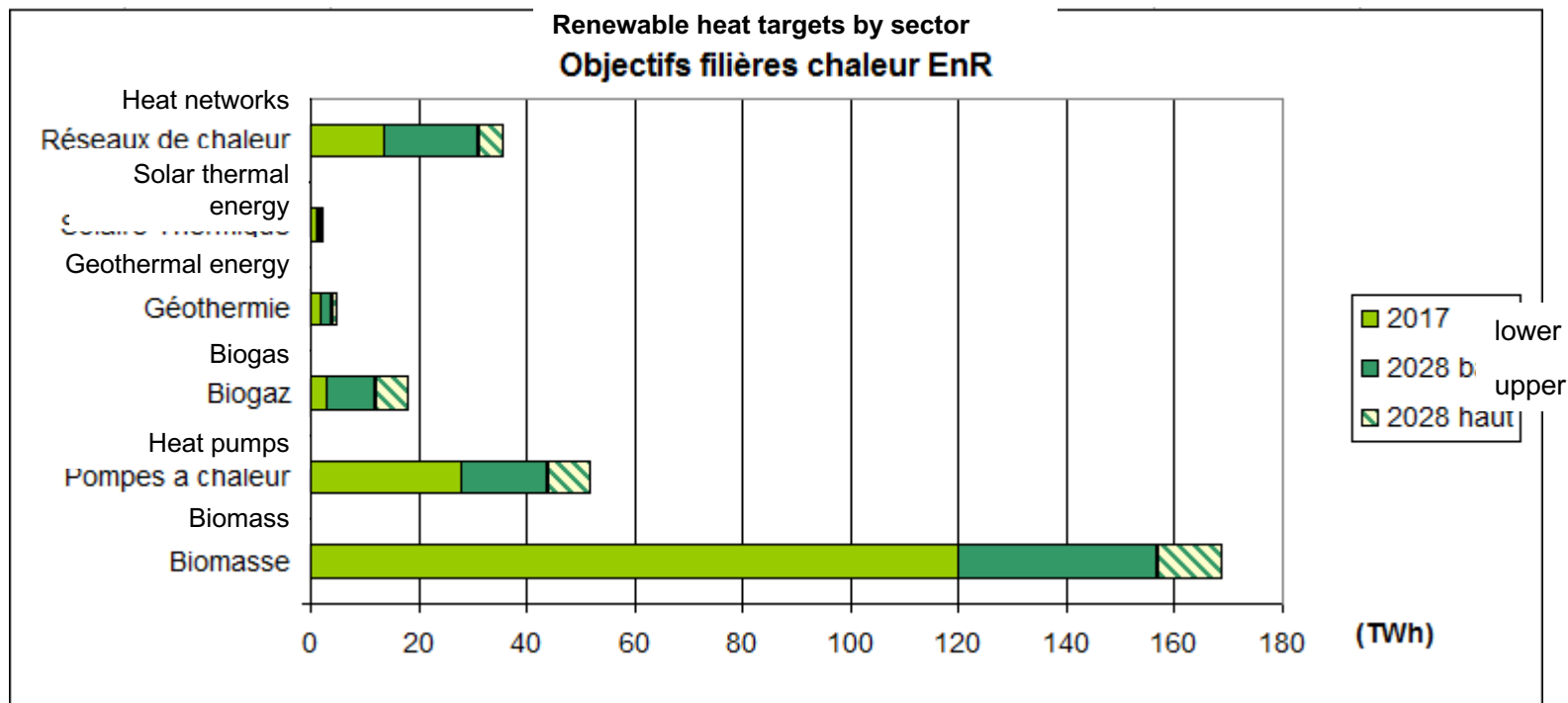


Progression of heat consumption and energy mix



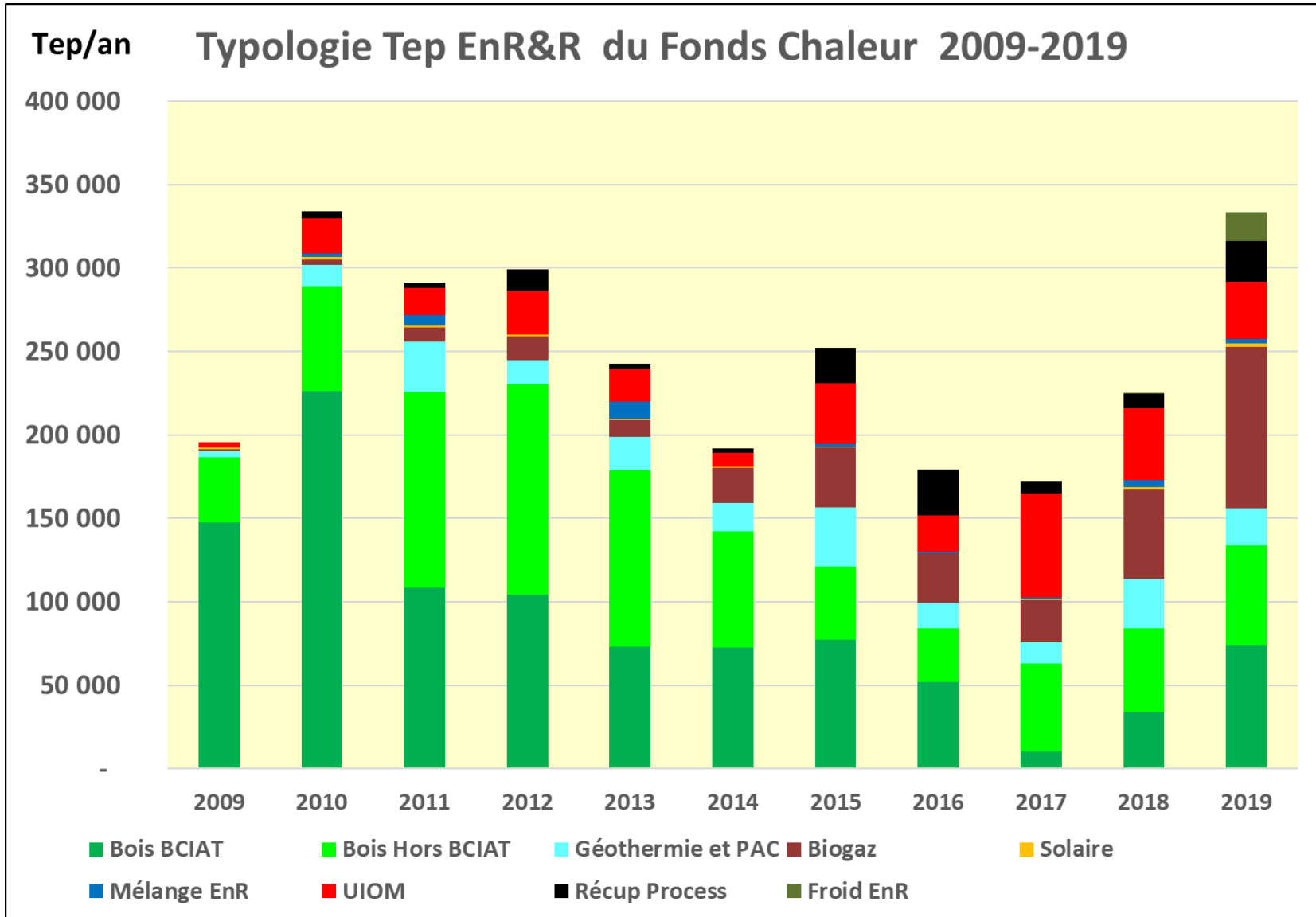
Renewable heat targets by sector

- Biomass sector is behind on its targets due to the fall in the price of gas, but remains the main sector for renewable heat
- Air-source heat pump sector is ahead of the targets set and recording strong growth
- Heating networks and biogas sectors are progressing as expected
- Geothermal, ground-source heat pump and solar sectors are lagging behind but offer significant potential
- Financial tools to support RRE development : Tax credit for household investments, reduced VAT for RRE based district heating, Heat Fund



- implemented by ADEME
- **2,3 b€ subsidies 2009-2019**, for RRE-based heating projects (in industry, public and tertiary buildings, collective housings...)
- biomass, geothermal energy and heat pumps, solar thermal, waste heat from industry and waste treatment, biogas
- district heating with at least 65% RRE
- **5350 projects** funded so far, 2,7 Mtoe each year ; average funding level 30%
- **Biomass : 1050 thermal plants, 300 supply projects, 65% of projected energy production**
- “custom-made” subsidies for largest projects (25% in number, 75% of fundings) : economic analysis for every project, subsidy designed to allow competitiveness of the REN solution
- average “public cost” of 46 €/Toe ; “payback time” vs avoided fossil fuel importations 3-4 years
- 200 M€/year from 2009 to 2017, 350⁵ M€ in 2020, 450 M€ in 2021

Heat Fund 2009/2019, by energy



- **Low fossile fuels price : for big consumers, biomass can't compete, even with high subsidies. Carbon tax : progression stopped in France after 2018 social movement : Europe ?**
- **Supply : French forest can provide, and no supply problem so far, but in the future need of combined development of different uses of wood. Question : social acceptance of forest exploitation ?**
- **Sustainability : Life Cycle Analysis to be published by ADEME in October 2020. One question : carbon neutrality... or not ? Probable answer : not automatically, it depends of ... But carbon storage is not the only question : renewable energy, substitution to fossils, energetic (in)dependence, local development...**

Thank you !