



The role of hydropower in the EU's Renewable Energies Policy

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Content:

EU's policy on renewable energy

What are planned of hydropower towards 2020 in the EU?

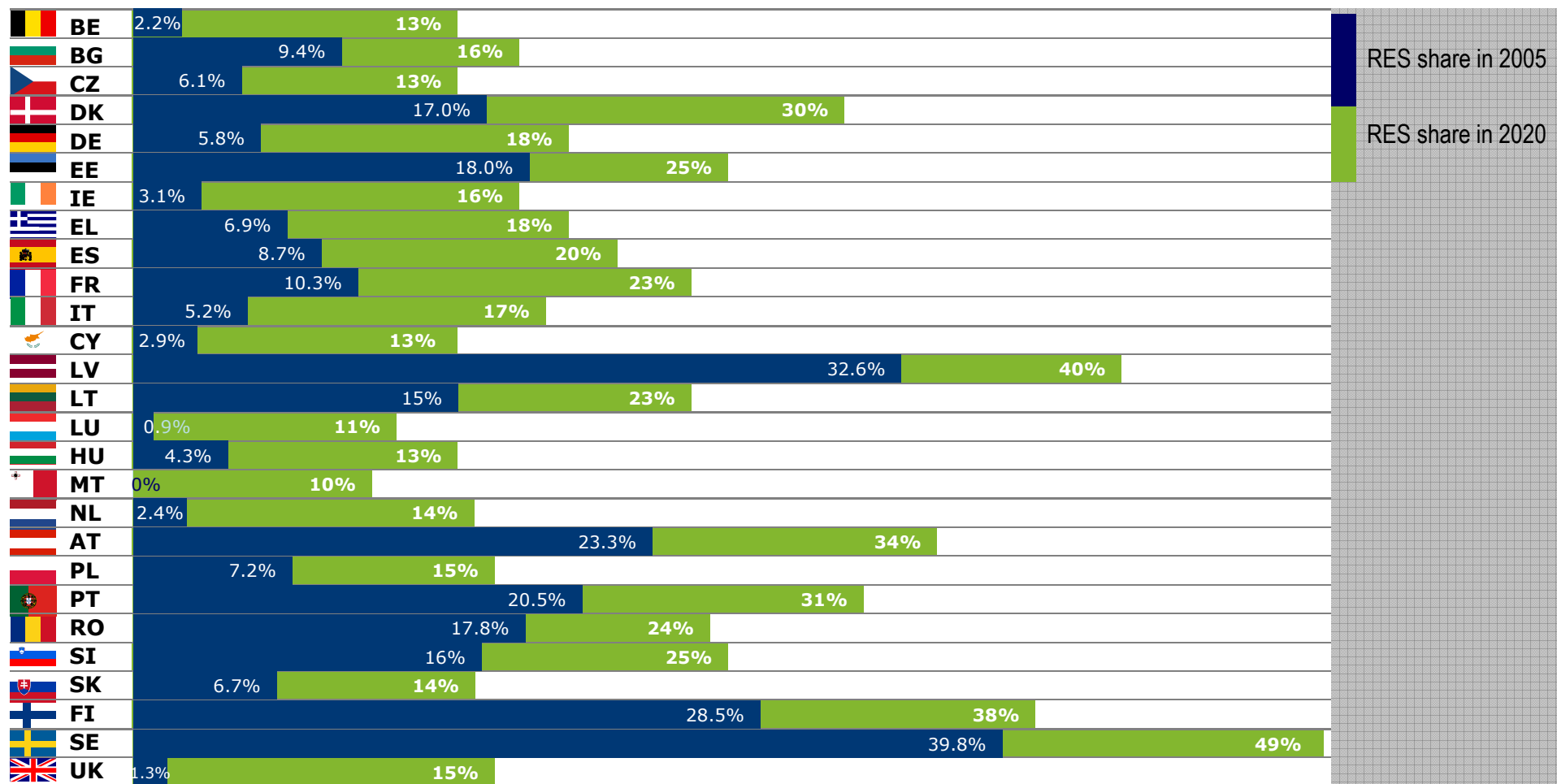
Trends in hydropower:

- **Refurbishment and re-powering of hydropower plants**
- **More flexible operation (pumping)**





EU-27 efforts in Renewables

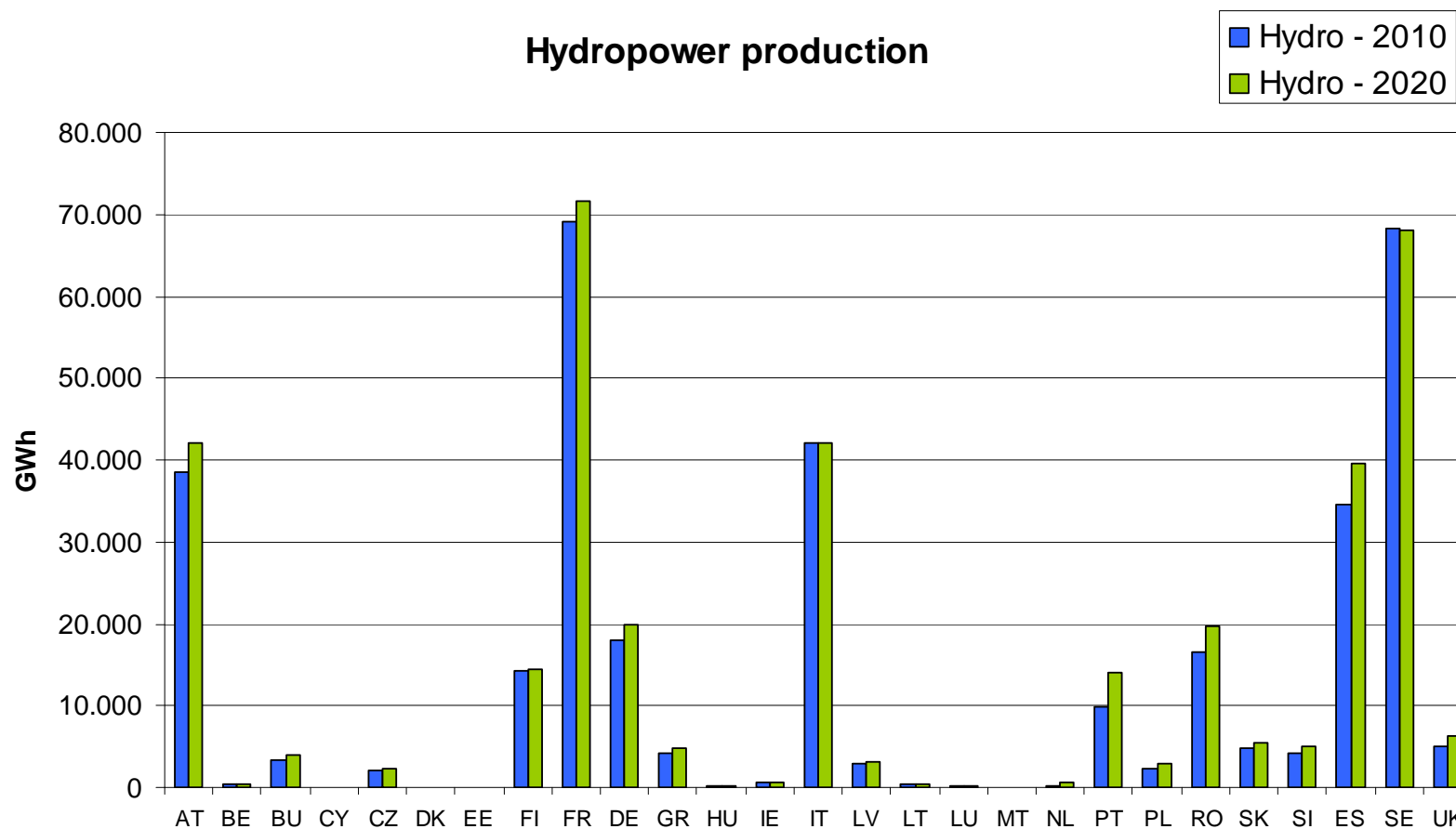


Based on 2005 starting point, recent progress and a balanced sharing of the effort, weighted by GDP/capita



Hydropower 2010 – 2020 in various Member States

Hydropower production





Trends: Hydropower in the EU (NREAPS)

Hydropower is more than 50% of current RES-electricity

- **Will be around 30% in 2020**

Moderate increase in hydropower (2010 – 2020):

- **Around 25 TWh (8%) consisting of:**

17.5 TWh large hydro (>10 MW)

6.0 TWh medium

1.5 TWh small (<1 MW)

BUT: of which 8 TWh is increased pumping

34.8 GW of pumping in 2020 – a 11.4 GW increase



Re-powering and refurbishment of hydropower (1/2)

NREAPs estimate an increase of 8 TWh of pumping

- **Expected as a response to more variable power production and prices**
- **2010: 23 TWh of pumping – i.e. increase of 35% (8 TWh) towards 2020**
- **Part of this will be refurbishment of old installations**





Re-powering and refurbishment of hydropower (2/2)

Refurbishment of hydropower plants offers important opportunities:

- **Increased efficiency of turbines and generators – i.e. more renewable electricity**
- **More flexible operation – more value from each litre of water by producing when prices are the highest**
- **Possible to improve ecological status of the waterbodies**

Conclusions

Hydropower is an important source of renewable electricity in the EU today and in the future

Limited increase in total production (25 TWh) towards 2020, but different operation of plants - pumping increases with 8 TWh (35%)

Refurbishment offer important opportunities to combine ecological mitigation and increased hydropower production