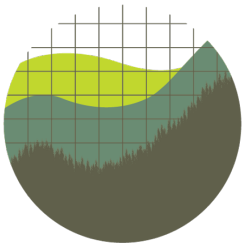

Institute *for*
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NEW YORK UNIVERSITY SCHOOL OF LAW

Evaluating Resource Costs: European Experience

New England Conference of Public Utilities Commissioners (NECPUC) 76th Symposium

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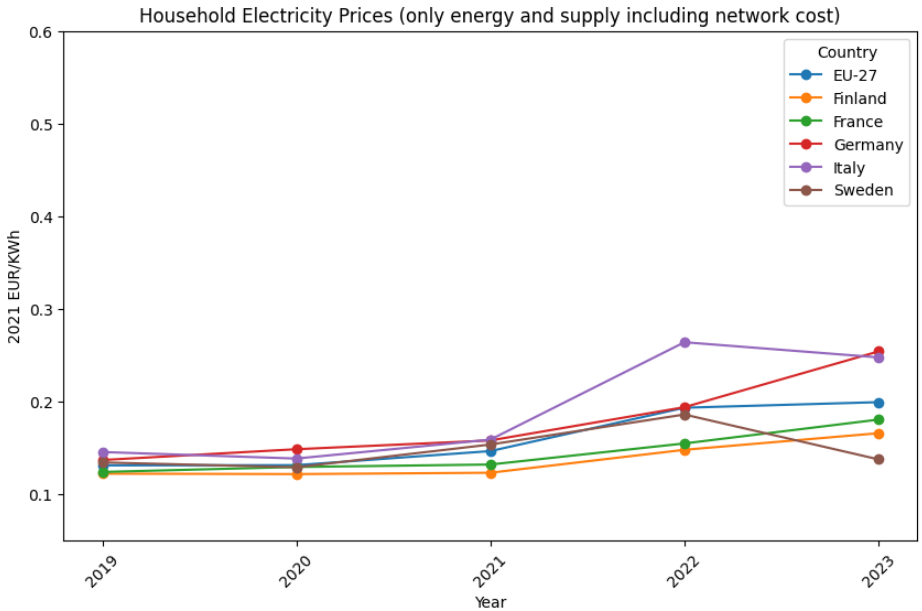
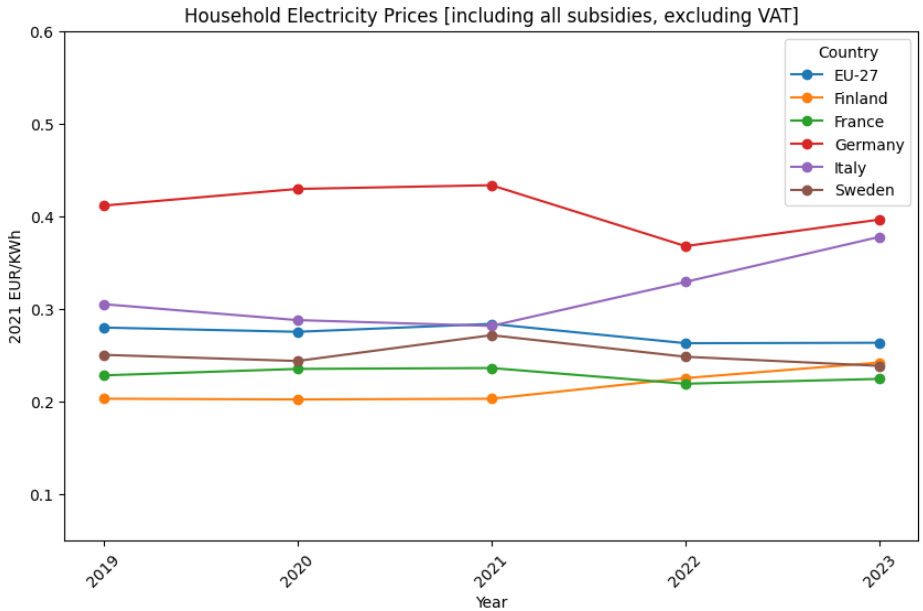
Household Electricity Prices in Selected European Countries





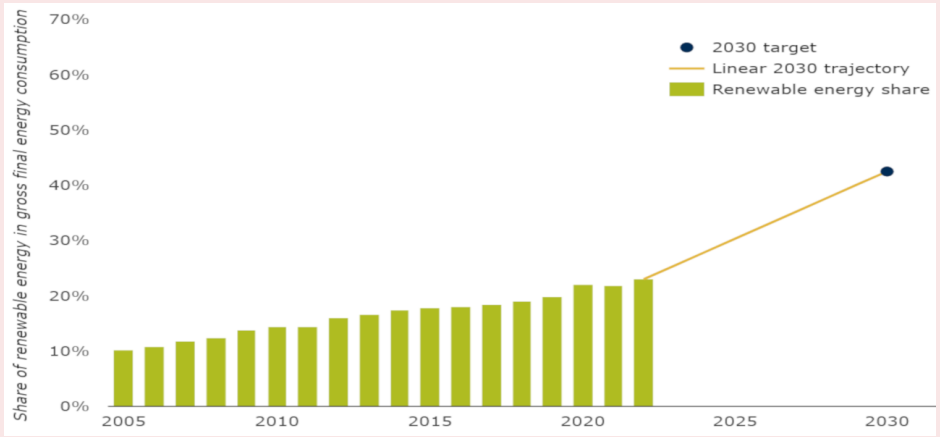
Notes: Households consuming 2,500–5,000 kWH per year. Source: Eurostat, Own computations.

- Transitioning to a clean electric system is not cost free (Germany)
- Relying on fossil fuel from Russia is not necessarily cheap either
- Having ample (depreciated) nuclear and/or hydro resources available leads to lowest cost for consumers (Finland, Sweden, France)

EU-27: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, and Sweden.

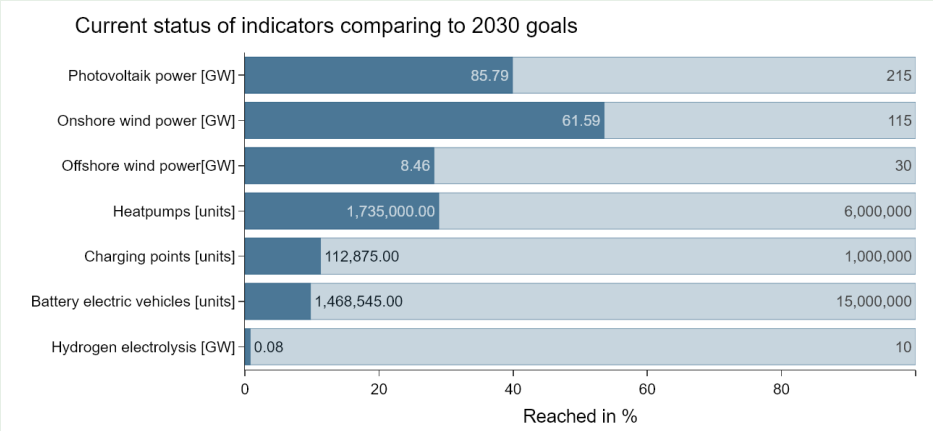
Energy Transition: How is it going?

EU-27



Source: `https://www.eea.europa.eu/data-and-maps/daviz/actual-res-progress-indicative-trajectory-17`

Germany

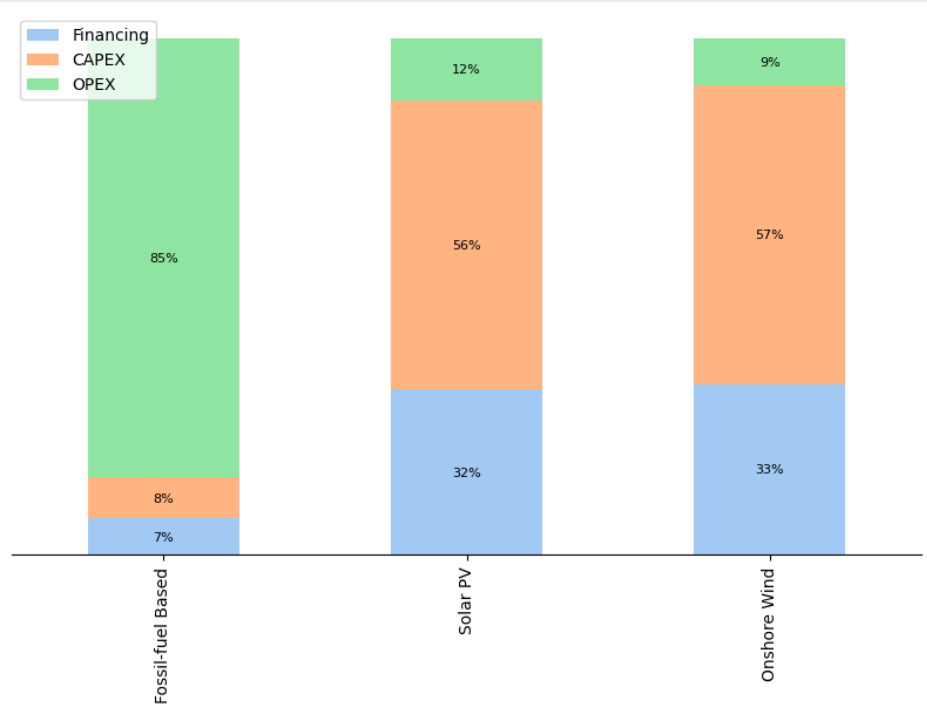


Source: `https://openenergytracker.org/en/docs/germany/home`

- *Fit for 55*: "European climate law makes reaching the EU's climate goal of reducing EU emissions by at least 55% by 2030 a legal obligation. EU countries are working on new legislation to achieve this goal and make the EU climate-neutral by 2050."
  - Raise the share of renewable energy in the EU's overall energy consumption (electricity, heating/cooling, and transportation) to 42.5% by 2030 with an additional 2.5% indicative top up to allow the target of 45% to be achieved.

Risks

Lifetime Cost Shares

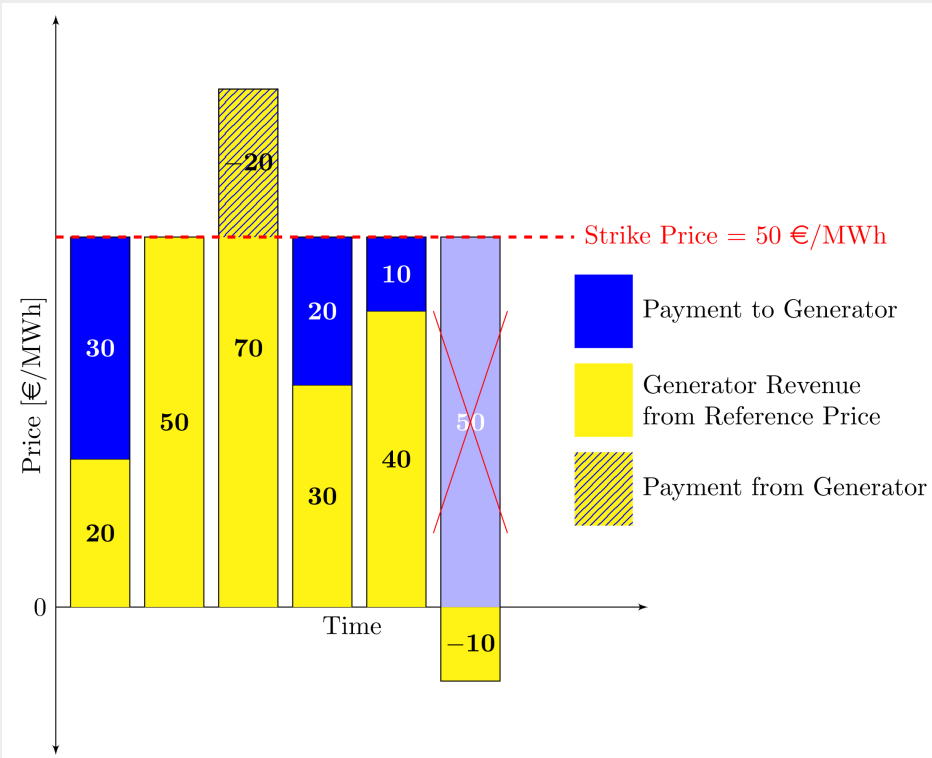


Source: Adapted from Egli et al. [2020].

- Price risk, volume risk (curtailment risk), technology risk, financing risk (counterparty, duration), policy risk
- High CAPEX / low OPEX makes financing difficult (need a lot of money to build but not to operate)
- Counterparty risk can hold up green energy investment [Ryan, forthcoming]

De-Risking Renewable Energy Investment

Contract for Differences

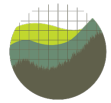


Source: Adapted from Beiter et al. [2024].

- European Commission's Proposal: "complementing the short-term markets with a greater role for longer-term instruments"
- Governments (lower financing costs; counterparty risk) can run Contract for differences (CfD's) auctions
- Co-benefit: Hedges consumers from high electricity prices

Implementation details of CfD's matter!

Other Measures to Keep the Transition Affordable



- EU: Coordinated Transmission Planning (“Projects of Common Interest”, TEN-E Regulation, Electricity transmission, Storage and Smart Grid, Natural Gas/Hydrogen networks, CO2 networks)
- EU: Fast tracking the permitting process of renewable energy projects
- GB: Electricity System Operator $\rightarrow$ National Energy System Operator (electricity, natural gas, hydrogen, heat, ...)
- Reconductoring, dynamic line rating and other “Grid Enhancing Technologies” frequently deployed
- Liberalized retail markets, but the potential for demand response, energy storage, and distributed generation remains largely untapped [see, e.g., ACER, 2023]
  - Lack of a proper legal framework for DER
  - Unavailability or lack of incentives to provide flexibility
  - Restrictive requirements to providing balancing and congestion management services
  - Limited competitive pressure in the retail market
  - Public interventions in the retail electricity prices

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