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DEPARTAMENTO DE ECONOMÍA

The Electricity Crisis in Spain

Natalia Fabra

Universidad Carlos III de Madrid

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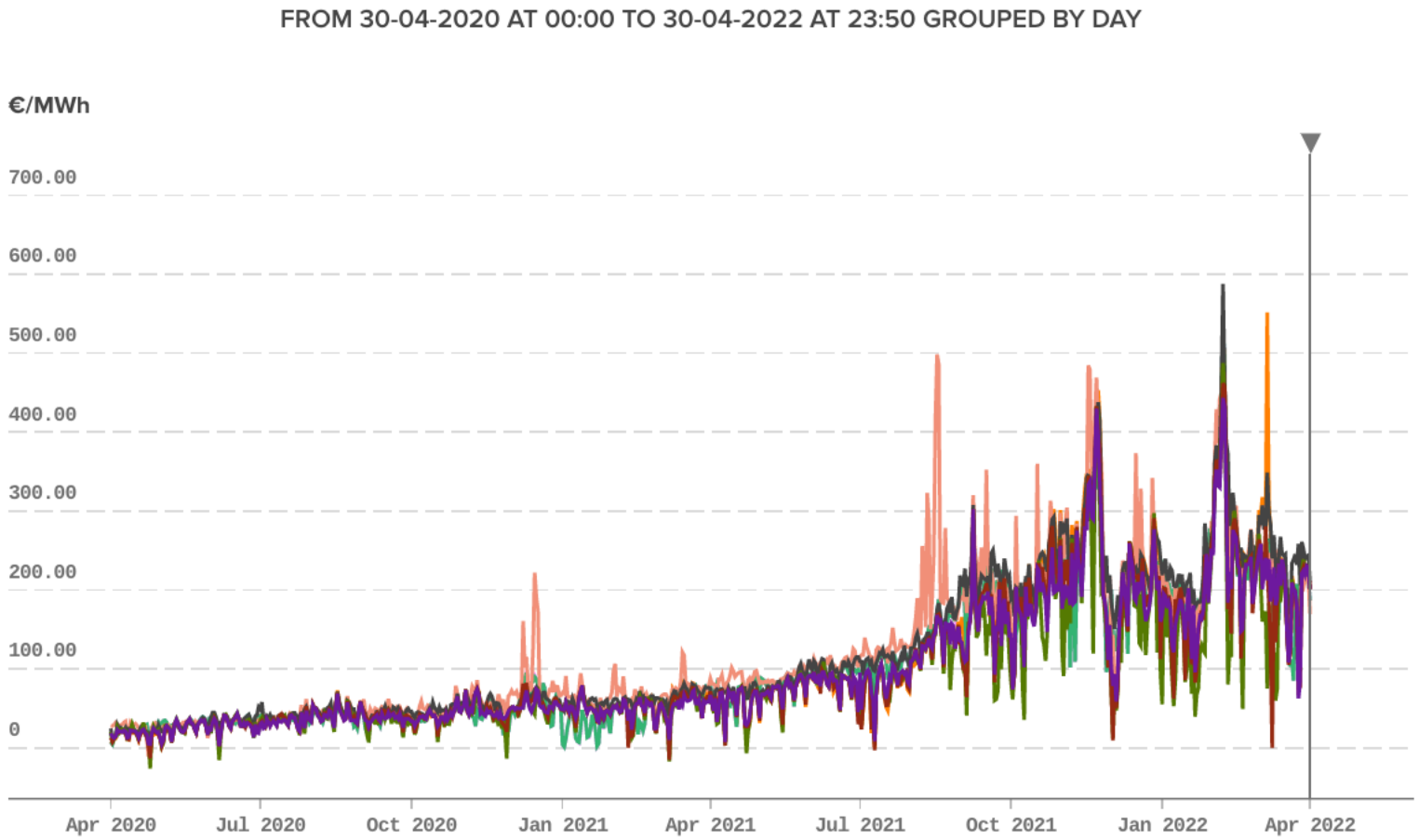
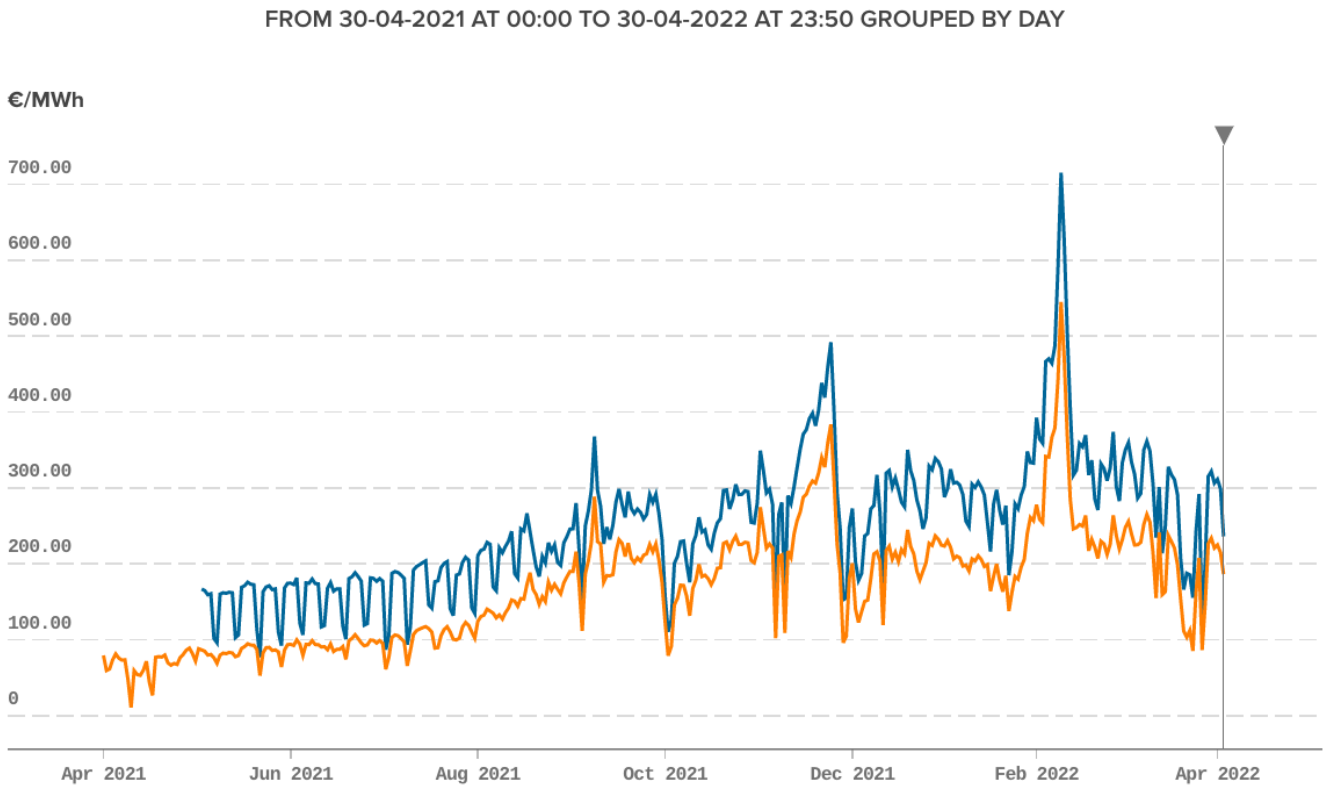
Wholesale electricity prices in Iberia have increased in line with other countries



Wholesale electricity prices across Europe (April 2021-2022)

Source: ESIOS

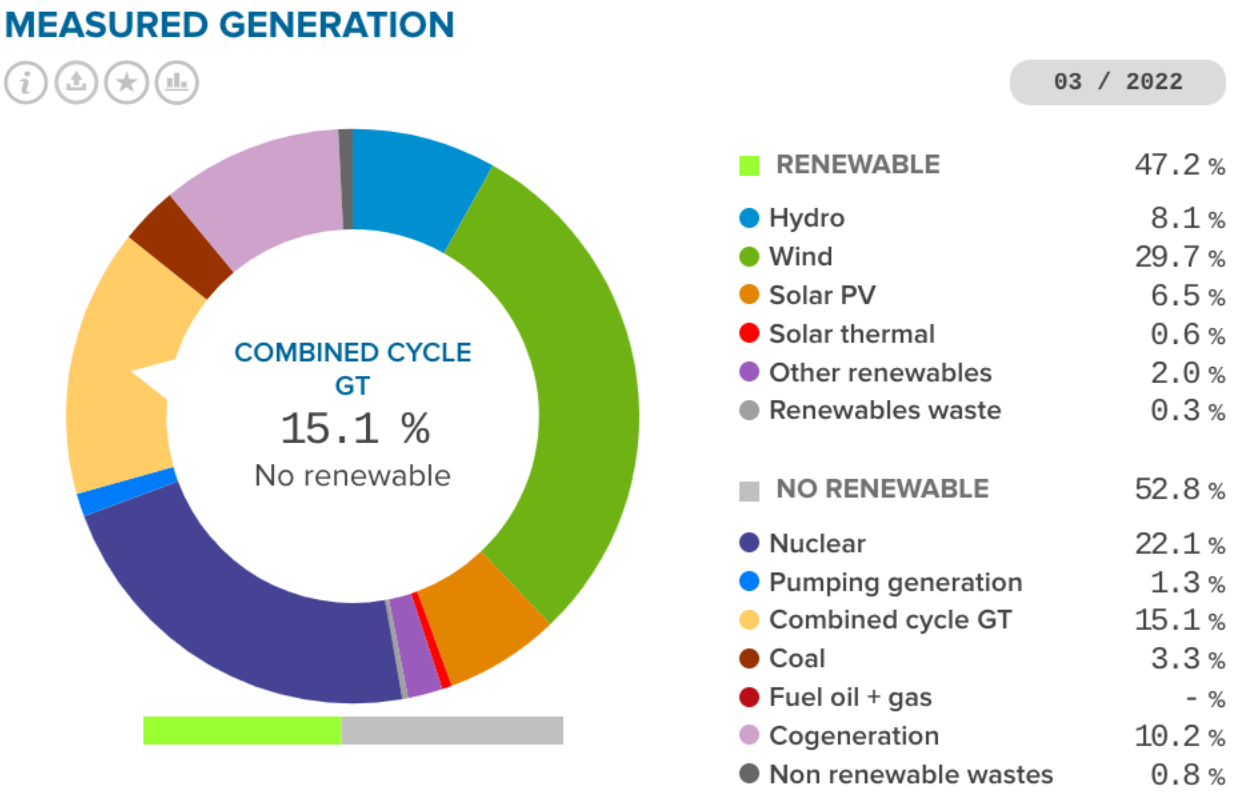
But retail electricity prices in Spain started to increase well before because of our RTP system



Wholesale electricity price in Spain (orange) and retail price for households (April 2021-2022)

Source: ESIOS

A small fraction is produced with gas+coal



Structure of electricity generation in Spain (March 2022)

Source: ESIOS

Electricity companies have made large windfalls

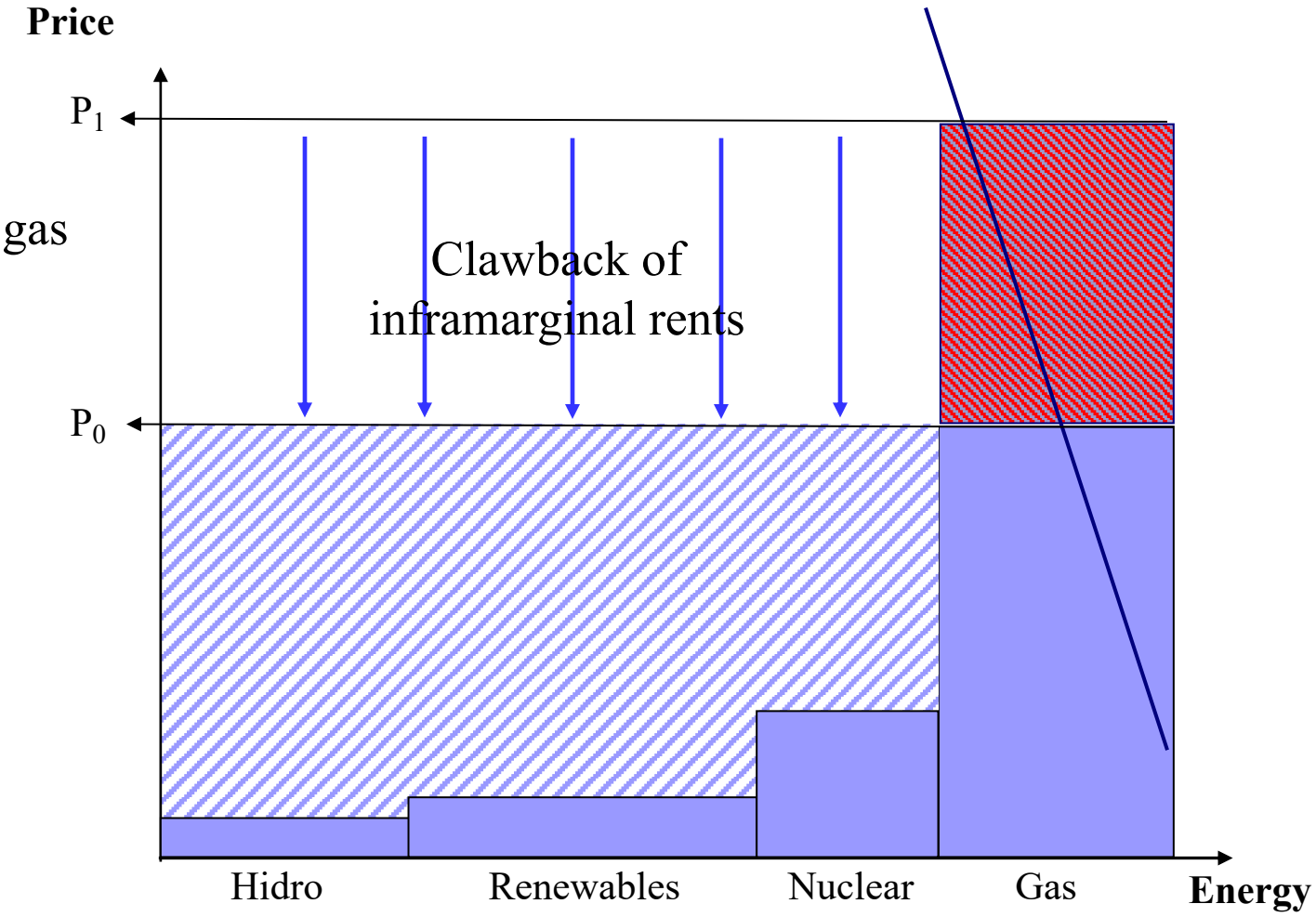
- With respect to average price 2010-2020 (45€/MWh):
  - 2021: Nuclear + Hydro +RES received extra WFP=11,600M€
  - 2022 (Jan-April): They have received extra WFP= 10,100M€
  - This is a distributional problem btw firms and consumers:
    - It is thus **not solved by compensations across consumers** or across consumers and tax-papers
    - It should be solved by **reducing firms' windfalls**

Source: ESIOS

What has Spain tried to do?

RD 17/2021; RD 23/2021 and RDL 6/2022

20€/MWht gas



Implementation issues raised by this clawback mechanism

- The amount of the clawback, computed on a monthly basis:
  - Renewables internalized it as an output tax, passed it on to their bids, affecting mkt price when they set prices
- Initially, it affected all electricity traded in the market
  - Firms with fixed-price contracts complained
- It was subsequently reformed to exempt energy subject to fixed price contracts (contracts before & after; regardless of price)
  - It has not been effective as all firms rushed to sign contracts
- The revenues have been used to reduce system costs
  - Consumers do not perceive the discount

The clawback can be implemented without distorting the market

Claw-back the windfall profits in such a way to:

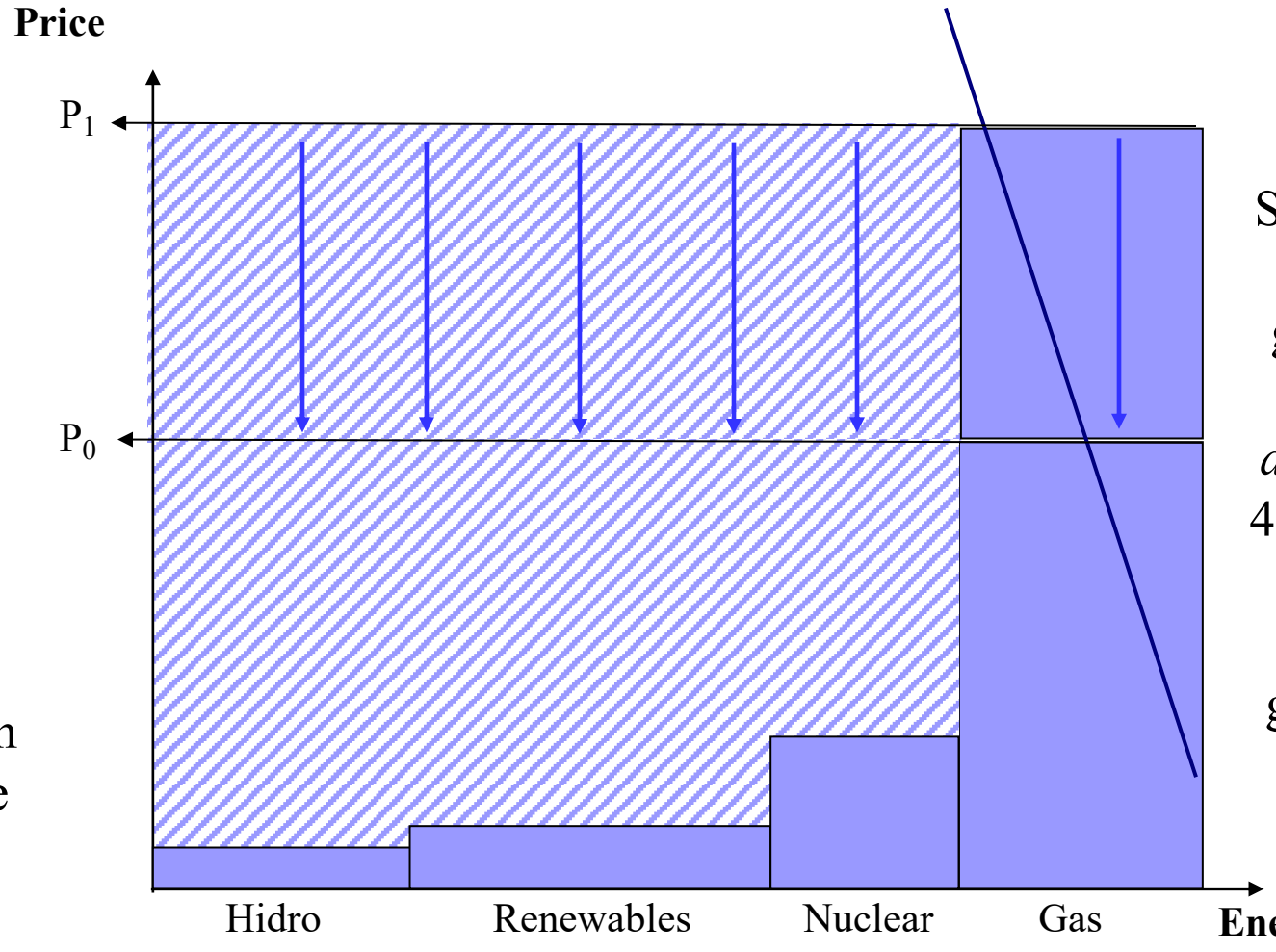
1. Not distort competitive bidding
   - Not affect price-setting plants
   - Determine the price setting unit on an hourly basis
2. Not distort investment incentives
   - Not affect new plants, only existing ones
3. Determine the right amount of the claw-back
   - If firms are subject to fixed prices, claw them back partially
     - REMIT has all the (price & quantity) information

The clawback can be implemented without distorting the market

Allocate the discount in such a way so as to:

1. Not distort consumption incentives
   - Reduce the mean of prices, not the hourly price pattern
   - Do not compute the discounts on an hourly basis
2. Determine the right discount across consumers
   - If consumers are subject to fixed prices, allow them to benefit from the discounts only partially
   - Make the discounts explicit for consumers (awareness)

What is the Iberian new proposed mechanism?



Subsidies to gas+coal generation

as if gas at 40€/MWht initially, raising gradually

It will remain valid for one year

Some comments regarding this new mechanism

- The subsidies will be proportionally split across the demand that is exposed to market prices

- It reduces windfalls but it affects the marginal price:
  - It will affect international trade
  - We will be exporting to France at all times
  - Half of the congestion rent will accrue to the French TSO

[Spain + Portugal proposed a market with two-rounds to avoid the impact on trade but the CE preferred not to allow for export restrictions at the cost of the efficiency loss]

Do today's high prices lead to more renewables in the future?

- Investors care about **future prices**, not current prices
  - Renewables depress future electricity prices
- The costs of renewables are mainly fixed, while spot market prices are very **volatile and uncertain**
  - Uncertainty over profits increases capital costs
- **Renewable auctions** for long-term contracts have proven effective in fostering investment at low prices
  - Renewable auctions are clearing at record lows (20-30€/MWh)

Renewables do not need these high prices!

They need price certainty

New Electricity Market Design

- Two types of decisions & Two types of costs:
  - Long-run decisions: investment (fixed costs)
  - Short-run decisions: production (variable costs)
- Two types of instruments:
  - Markets for long-run decisions: auctions for long-term contracts (CfDs)
  - Markets for short-run decisions: wholesale electricity markets
- Benefits of this design:
  - **Competition for the market** allows to align payments=average costs
    - Reduces uncertainty over cost-recovery, reduces risk-premia
    - Makes markets more competitive
  - **Competition in the market** facilitates short-run efficiency

Concluding remarks

- Our electricity market design is making **electricity unduly expensive**:
  - Relative to the costs of generating it
  - Relative to the costs of other (polluting) energies
- This puts the **recovery** and **energy transition** at risk
- Temporary measures needed [How long?]
- A market re-design is needed as well to allow for:
  - **Long-run prices to come closer to average costs**
  - **De-risk the low carbon investments**

Shift focus from short-term to long-term markets

Auctions for long-term contracts

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Thank You

More information

http://nfabra.uc3m.es/

http://energyecolab.uc3m.es/

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