Economic perspective on Swiss energy policy measures regarding war on Ukraine

Ingmar Schlecht, Christian Winzer

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School of Management and Law

Economic perspective on Swiss energy policy measures regarding war on Ukraine

1. Current situation EU
2. Policy options
3. Conclusion

Current situation EU

What's the situation?

Russia is delivering less and less gas

- Very large cuts recently
- Prices are sky-high

French nuclear availability is exceptionally low

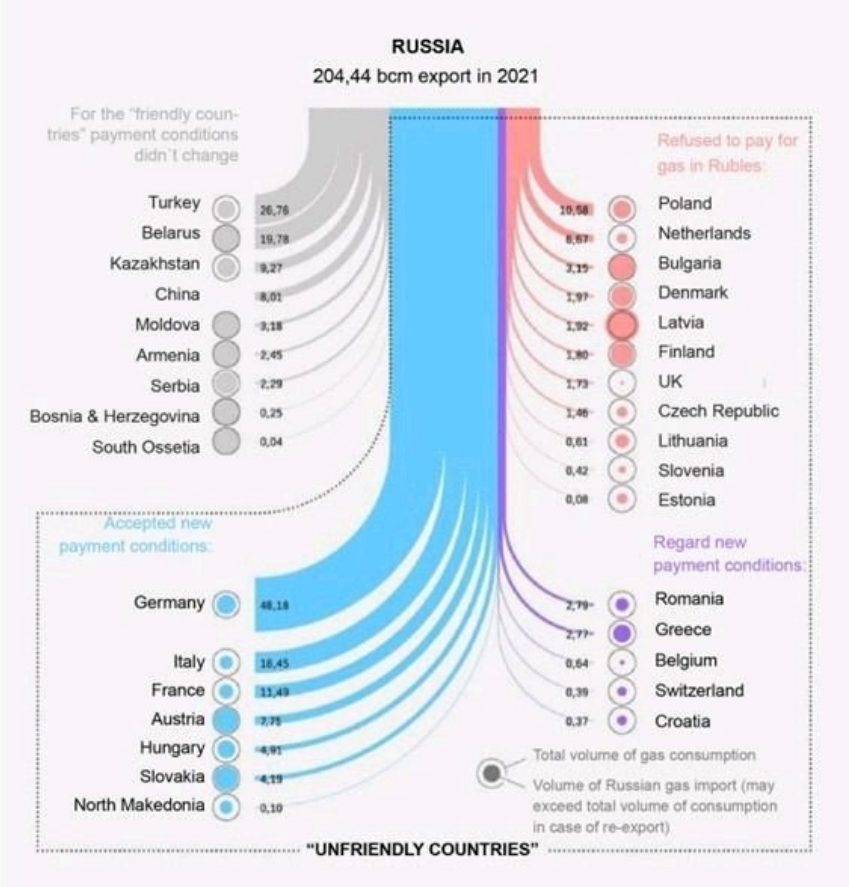
- Due to corrosion problem in large part of the fleet
- Forward prices indicate supply shortfalls

Switzerland is affected by both

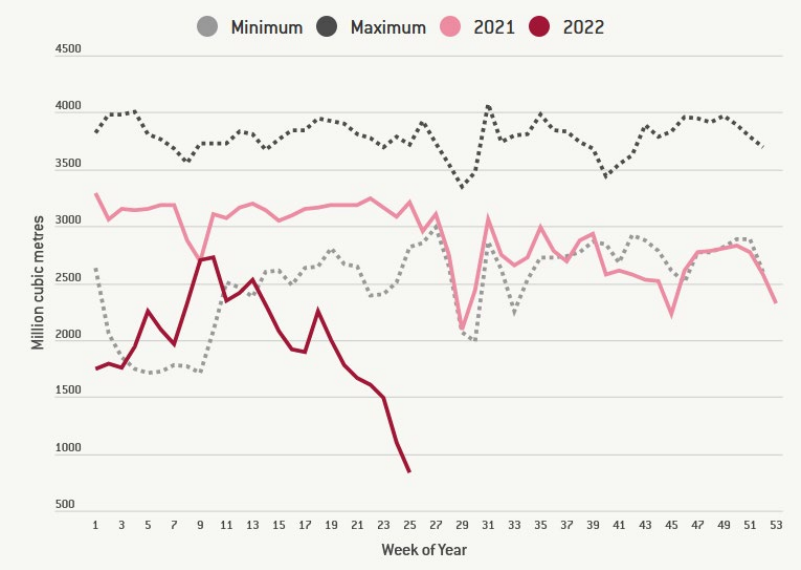
- Swiss gas comes from/via EU markets
- Electricity market is interconnected

Russian supply cuts

First wave (the Rubel story…)



Second wave (increasing the heat)



- Nord Stream 1 cut to 40%
- Non-credible justification ("western sanctions")
- Re-routing possible, but not used (via Poland or Ukraine)

This graph: @BaleseneO on Twitter.
Original source: Russian State Media TASS.

Russia as a monopolist on EU natural gas market

By its actions, Russia influences European hub prices.

- Empty Gazprom-owned storages since April 2021
- No spot market supplies since October 2021
- The EU gas price (TTF) per MWh has risen from about 15 € pre-crisis to 150 € now

Long-term contracts

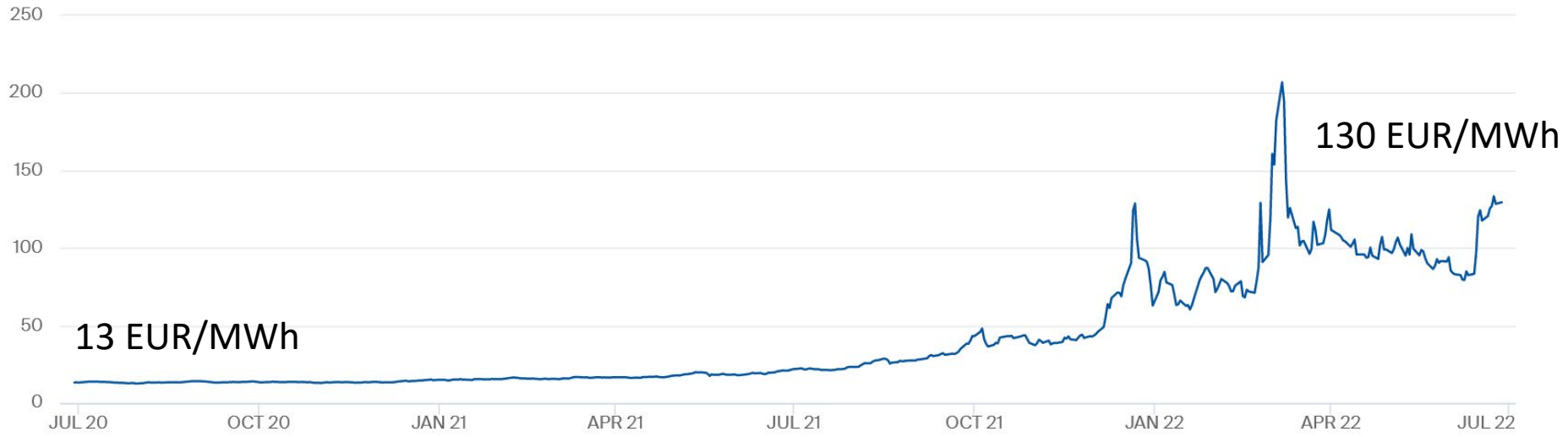
- Exact specification unknown – analysts say:
- LTCs define a minimum and maximum offtake, both daily and annually
- Prices are usually indexed to EU hub prices (e.g. to the front-month contract)
- Buyers know the LTC prices ex-ante before nominating daily quantity

Russian market power

- This exposes gas prices to Russian market power

Gas price developments

Dutch TTF Gas Futures July 22 Contract



https://www.theice.com/products/27996665/Dutch-TTF-Gas-Futures/data?marketId=5396828&span=2

Russian market power

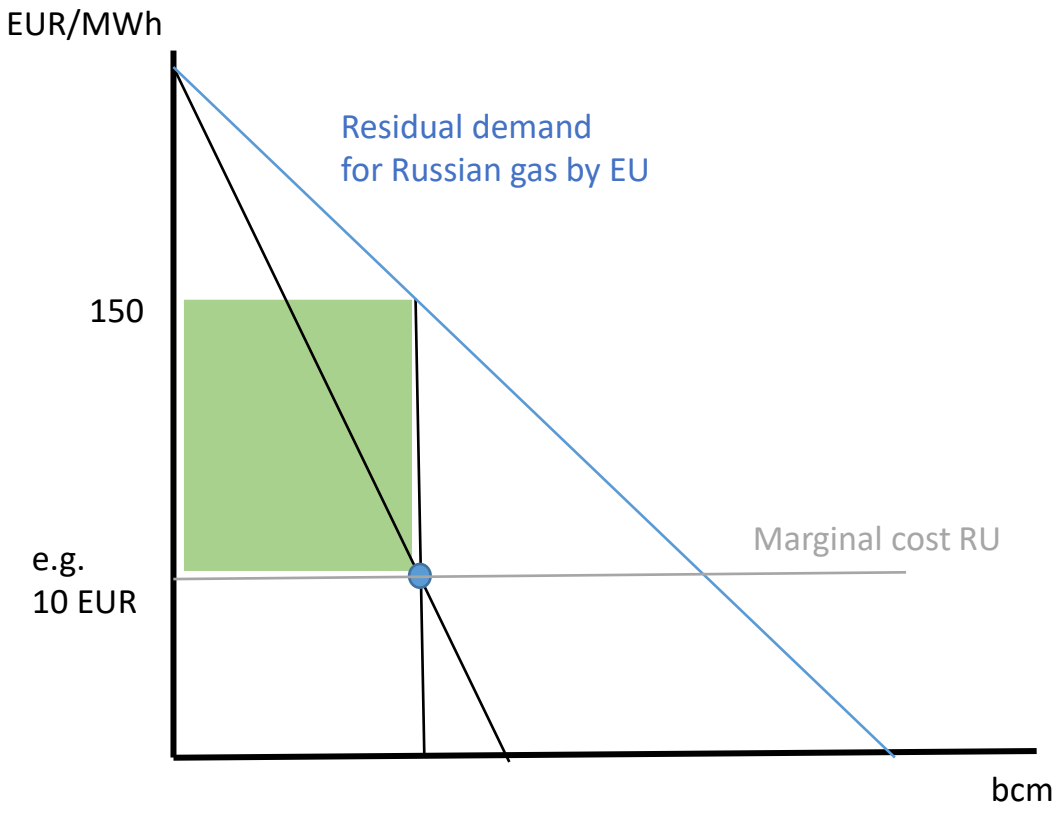
Russia prefers low volumes, not high!

Result for Europe

- Low gas volumes
- Extremely high gas prices (squeezed market)
- High payments towards Russia

Market power perspective

- Has policy implications
- Is not the only perspective



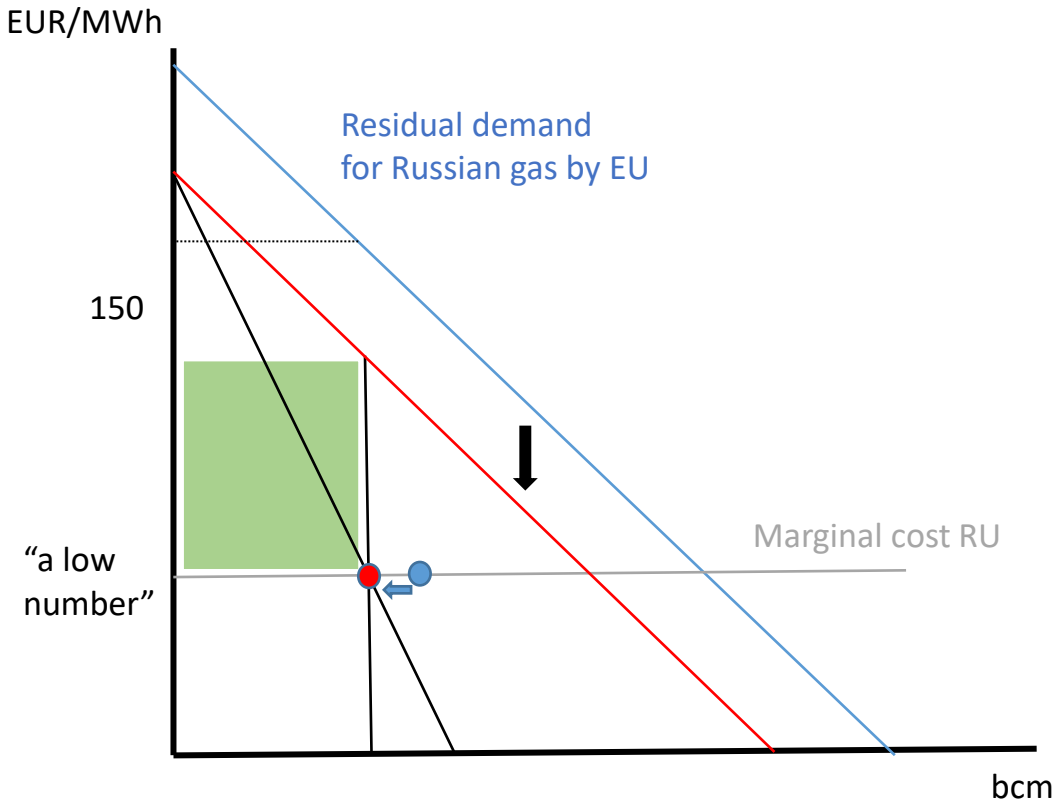
Tariff on Russian gas

Strategic incentives w. tariff

- Russian gas is “taxed”
- RU still aims to squeeze market, to increase price

Consequences

- Pro: Reduce RU revenues
- Con: Squeeze EU markets even further



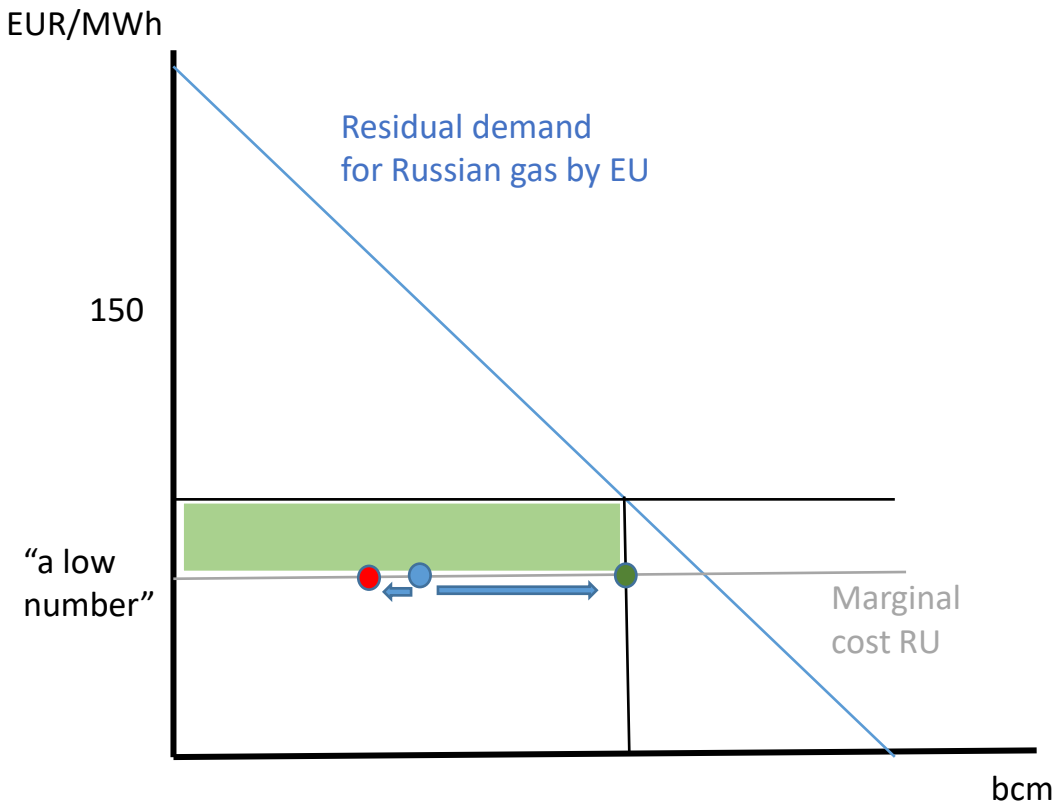
Price-cap towards Russian gas

Incentives under price-cap

- Russia will try to deliver as much as possible (from econ. perspective)
- No economic benefits for RU to squeeze EU market
- Russia could simply reject and not deliver

Consequences

- Reduce RU revenues relative to keeping as is
- Gives RU incentives to increase supply



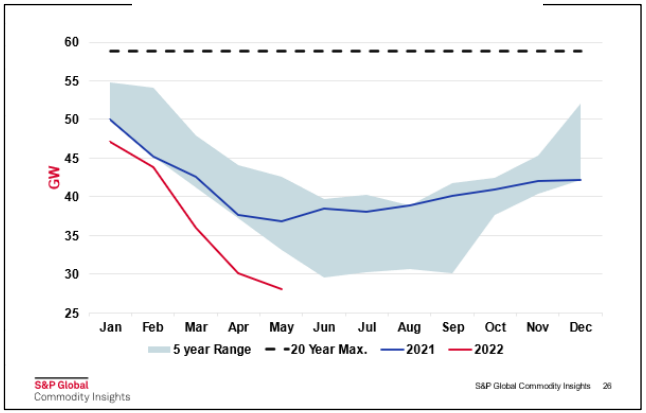
The other crisis: Electricity

France likely to suffer power shortages in winter

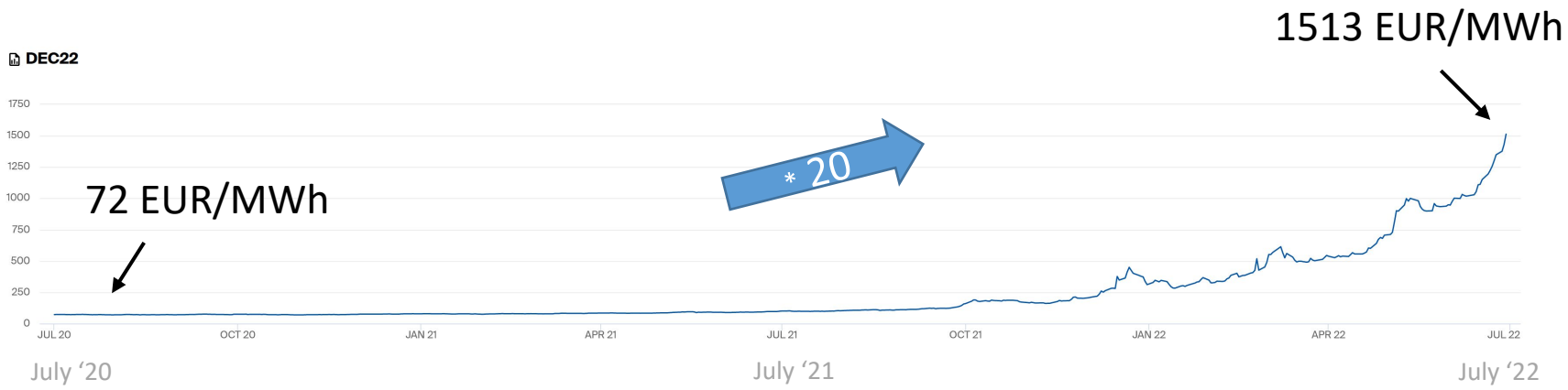
- Very low nuclear availability next winter
- Stress corrosion in many similar reactors

→ Demand will be price-setting in many hours

FR Nuclear Generation



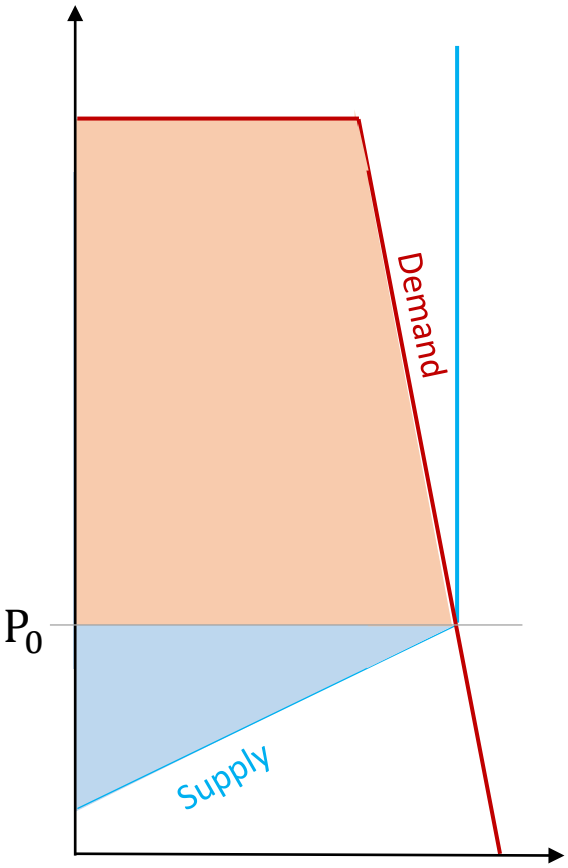
French DEC22 Future Price



Source: theice.com

Policy options for Switzerland

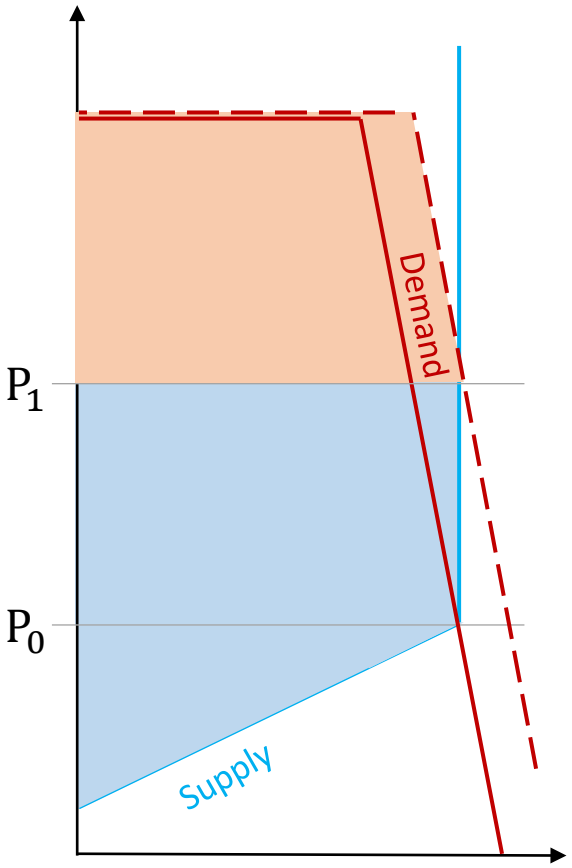
Long- versus short-term policy aims



Normal situation

- *Prices determined by „normal“ supply, demand and weather dynamics*

Long- versus short-term policy aims



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Long-term policy aim:

- *Efficient rationing during scarcity (least costly loads first)*
- *Scarcity revenues provide **incentive to invest in supply***
- *Higher cost provides **incentive to make loads flexible***
- *Ensure sufficient long-term contracting to mitigate market power*

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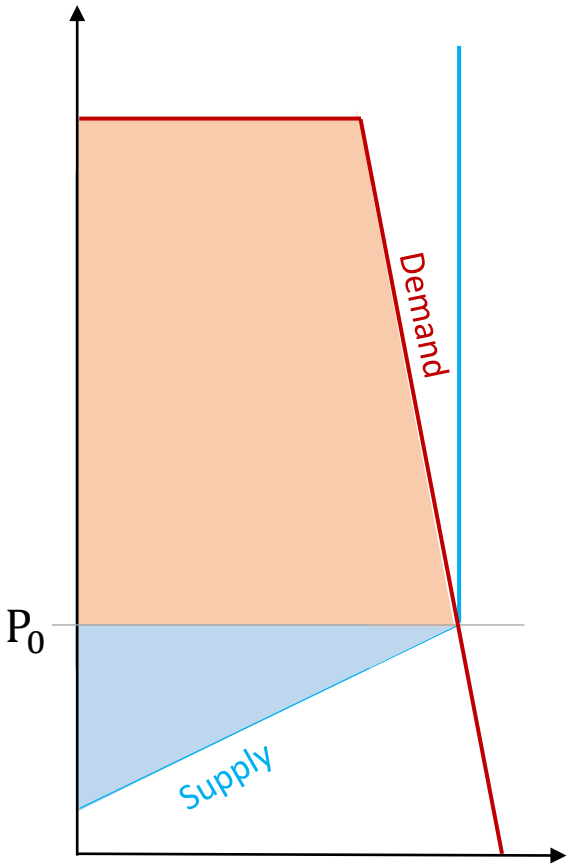

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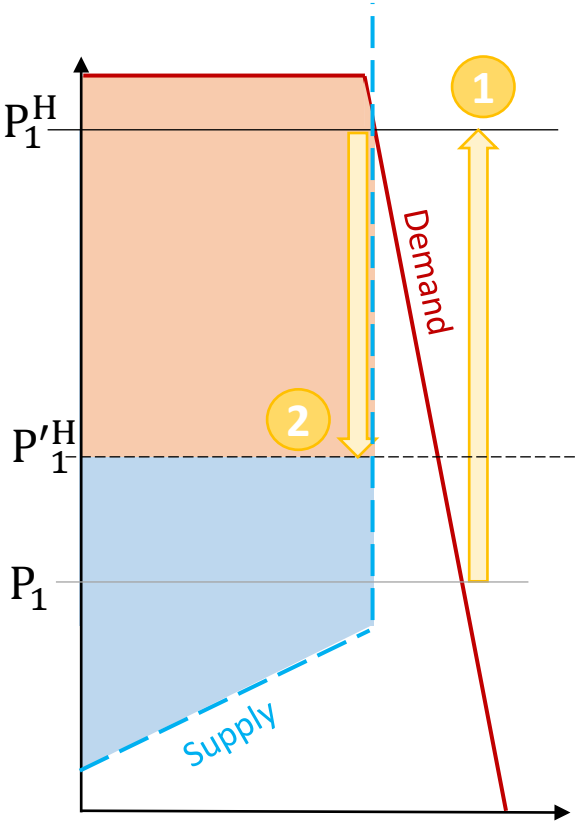
Current situation

Long- versus short-term policy aims



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Current situation 1

- *(Threat of) large price increases due to embargo / supply cuts*

Short-term policy aim: 2

- *Efficient rationing during scarcity (least costly loads first)*
- ***Reduce supplier revenues** (esp.for Russia)*
- ***Reduce burden on inflexible consumers***
- ***Expose flexible customers proteced by fixed tariffs to energy saving incentives***

Overview of short-term policy options

What options are there?

- Consumption subsidies

- Compensation schemes (lump-sum)

Pre-curtailment:

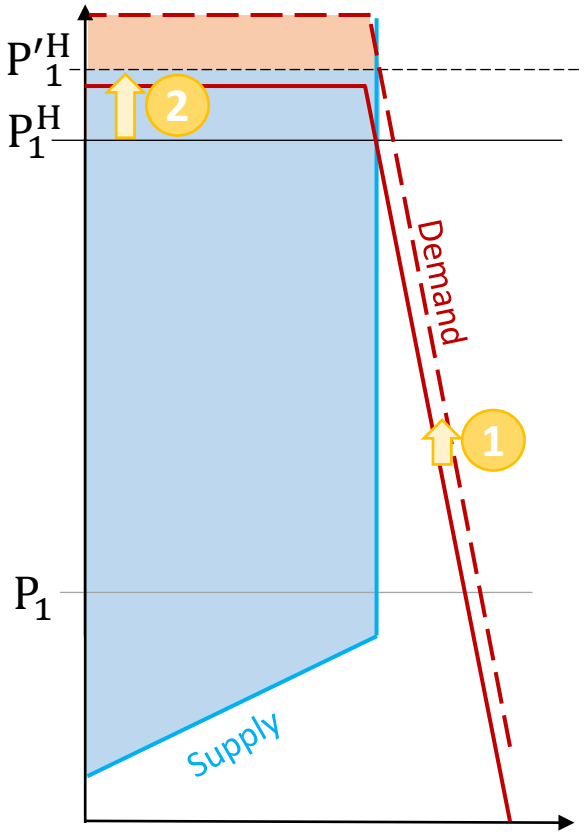
- Energy saving information & nudges[1)]
- Energy saving rewards & taxes[1)]

During curtailment:

- Bans & fines on energy intensive usage[1)]
- Contingency plans and load-shedding[1)]

1) Neuhoff, K., Weber, I., Szulecki, K., & Goldthau, A. (2022). How to design EU-level contingency plans for gas shortages? Evidence from behavioural economics, policy research and past experience: final report. https://www.diw.de/documents/publikationen/73/diw_01.c.839772.de/diwkompakt_2022-177.pdf

Consumption subsidies



Kontakt | Preise

TAGESSPIEGEL BACKGROUND

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Cybersecurity | Digitalisierung & KI | **Energie & Klima** | Gesundheit & E-Health | Smart City & Verwaltung | Sustainable Finance | Verkehr & Smart Mobility

Energie & Klima

ENERGIEINTENSIVE INDUSTRIE

Direkte Energiepreis-Subventionen für die Industrie

Die Bundesregierung greift der energieintensiven Industrie unter die Arme: Bis zu 70 Prozent der Energie-Mehrkosten sollen übernommen werden. Der europäische Rahmen wird dabei maximal ausgenutzt. Die Abkehr von frei wirkenden Preissignalen ruft scharfe Kritik hervor. Der „Schutzschild" sieht auch Liquiditätshilfen für den Energiehandel vor.

von **Jakob Schlandt** veröffentlicht am 11.04.2022

https://background.tagesspiegel.de/energie-klima/direkte-energiepreis-subventionen-fuer-die-industrie

- *Increases WTP of demand*
- *Increases price and supplier revenues*
- *Not suitable if supply is inelastic (or much less elastic than demand)*

Compensation schemes

Compensation

- Should be proportional to the „excess cost“ from higher gas prices
- Should be independent of the influenceable energy demand, e.g.
    - Proportional to historical energy demand (no benefit for past efficiency measures)
    - Fixed rate per household/ person with gas heating (benefit for past efficiency measures)
- Paid as lump sum / independent of gas bill[1)]

Refinancing

- Existing taxes or government budget → financing gap / income progression
- New tax on gas supply/consumption → similar impact as saving reward

Design risks

- Dilution of saving incentive (if compensation is perceived as part of energy bill) [1)]
- Windfall profit

1) Wolak, Frank A. 2011. "Do Residential Customers Respond to Hourly Prices? Evidence from a Dynamic Pricing Experiment." American Economic Review, 101 (3): 83-87. DOI: 10.1257/aer.101.3.83

Energy saving information & nudges

Information on how to save energy

Source: https://www.energiewechsel.de/

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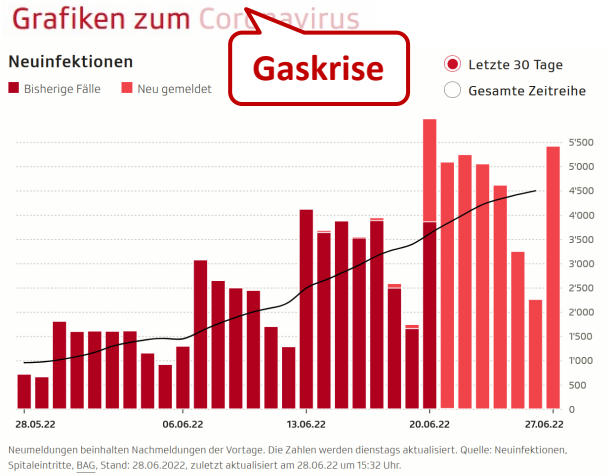
Monitor & focus public attention on energy situation



Source: https://www.srf.ch/news/schweiz/grafiken-zum-coronavirus-so-entwickeln-sich-die-corona-zahlen-in-der-schweiz

Source: https://cdn.24.co.za/files/Cms/General/d/7119/fca376f812f44819ae6330bab5087672.png

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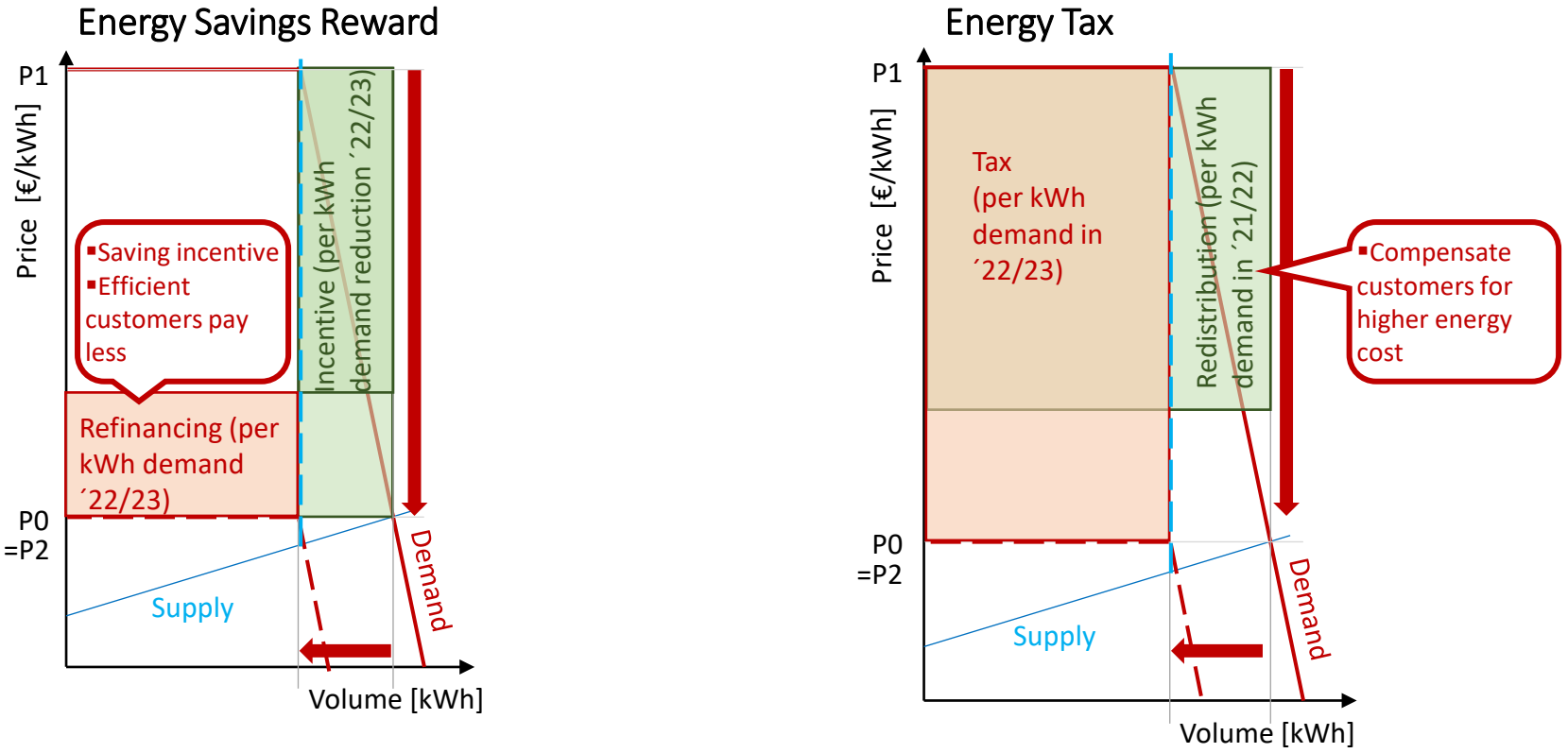
Energy saving rewards and taxes

Energy saving rewards and taxes

Equivalence of tax and reward schemes



Tax equivalent to energy savings reward, if:

i. Tax = Energy saving reward+ refinancing charge

ii. Redistribution= proportional to baseline consumption of the energy savings incentive

Energy savings reward easier to communicate/ understand?

Energy saving rewards

Choice of baseline [1]:

- **Contractual**
  - only feasible for larger / industrial customers
  - limited to contracts signed in past (to avoid perverse incentives)

- **Administrative**
  - based on historical consumption before the February 2022
  - indexed to heating degree days

Design of reward

- Using data from suppliers, but paying separately
- Including minimum threshold, to reduce fiscal burden / reward for spurious savings?

1) H. Chao, "Demand response in wholesale electricity markets: the choice of customer baseline," Journal of Regulatory Economics, vol. 39, no. 1, pp. 68–88, Feb. 2011, doi: 10.1007/s11149-010-9135-y.

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Bans, fines and contingency plans

Examples from electricity:

1) Source: Ostral.ch

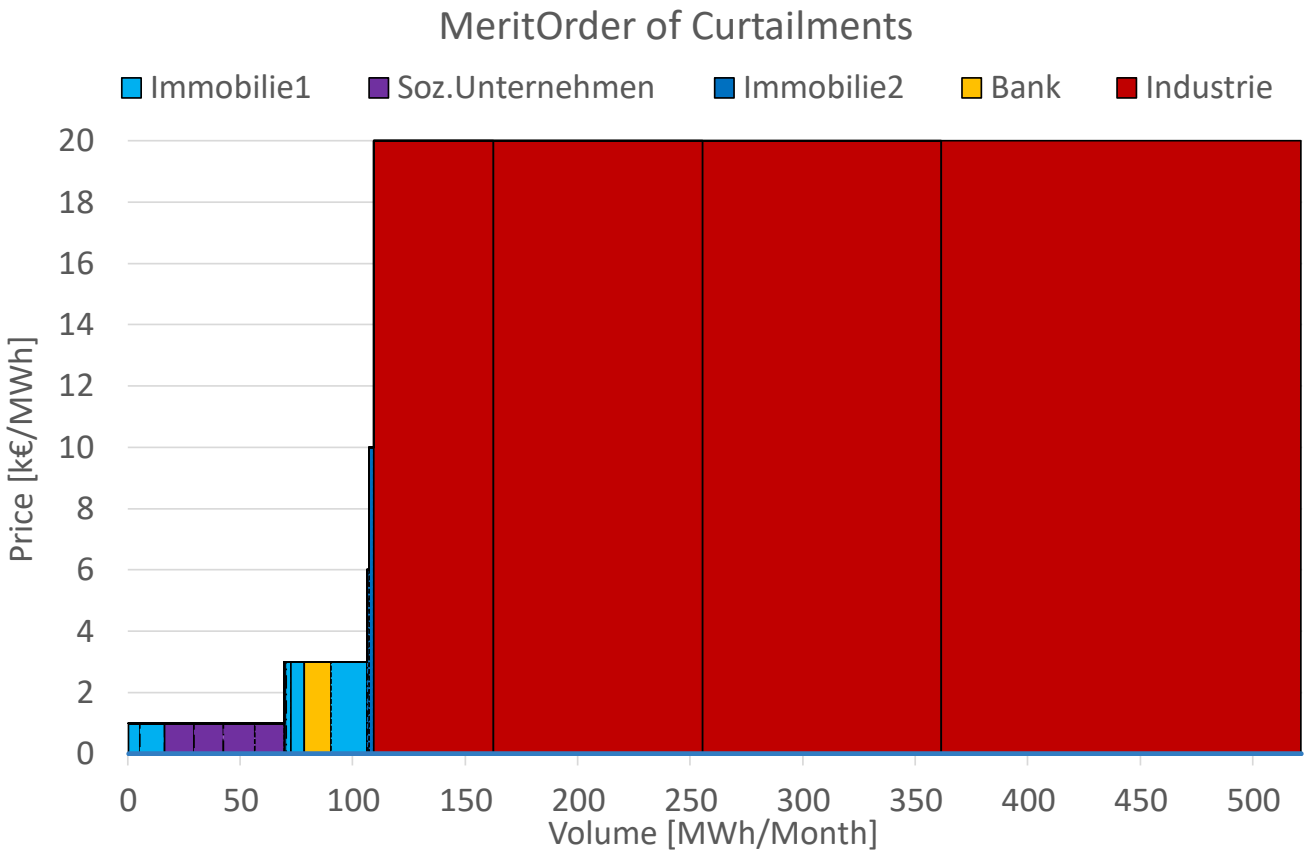
Measures for gas saving

- Mandatory maximum indoor temperature (business, households)
- Max number of rooms allowed to heat
- Encourage wearing warm jacket indoors
- Rationing supply for industry
- …

Use voluntary saving incentives as long/much as possible first

- Define monthly increase of **energy saving reward as function** of a) curtailment likelihood or b) deviation from energy saving targets
- **Raise energy saving reward to VOLL** before using contingents / curtailments

Merit order of demand reduction by large customers during OSTRAL



Source: Own illustration based on Naegeli (2022): „Die drohende Strommangellage und wie sich Stromgrossverbraucher in der Schweiz auf die mögliche Krise vorbereiten“.

- Some of contingency measures are much less costly than others
- Restricting all customers by the same percentage is much more expensive than restricting least-costly customers first

Conclusion

Conclusion

The situation is serious

- An acute energy crisis this winter is likely (for EU and CH)
- Policy makers should act now to prepare for potential scarcity

We discourage

- Subsidizing energy demand

We suggest

- Energy saving target and information campaign
- Energy saving reward scheme
- As last resort: Bans & fine for energy intensive activities

International cooperation is key

Thank you for your attention