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THE POLISH INSTITUTE OF INTERNATIONAL AFFAIRS

THE GERMAN ENERGIEWENDE FROM THE POLISH PERSPECTIVE

CONFLICTS AND ADEQUATE CONFLICT RESOLUTION MECHANISMS

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Levels of conflicts

Technical

- Electricity—unplanned power flows
- Gas— reverse flow in Mallnow

Political

- Different national interests / dissimilar energy policy: shale gas, nuclear energy, RES development

Technical level: loop flows

Loop flows / unplanned power flows / unannounced power flows

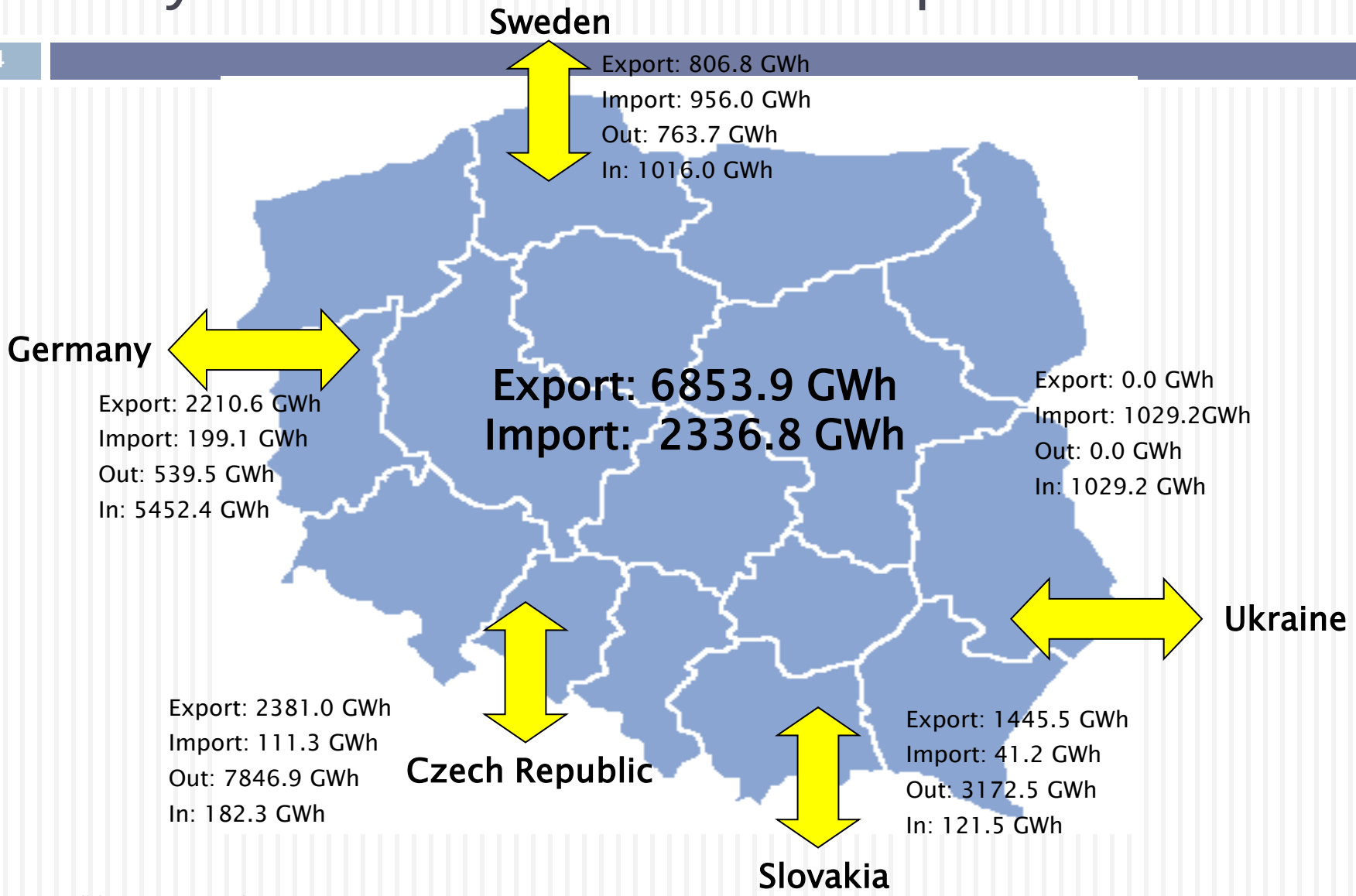
- physical phenomena that occurs when generation and load centers diverge thus resulting in differences between commercial schedules and physical flows.

Unplanned power flows result from:

1. internal transactions between Northern (supply of wind generation) and Southern Germany (demand) but also
2. exchanges within a common market area of Germany and Austria

There are no explicit limits to these flows even if they are heavily using the networks of the neighbors.

Physical and commercial power flows



Source: Polish Energy Regulatory Office

Loop flows—conflict and its resolution

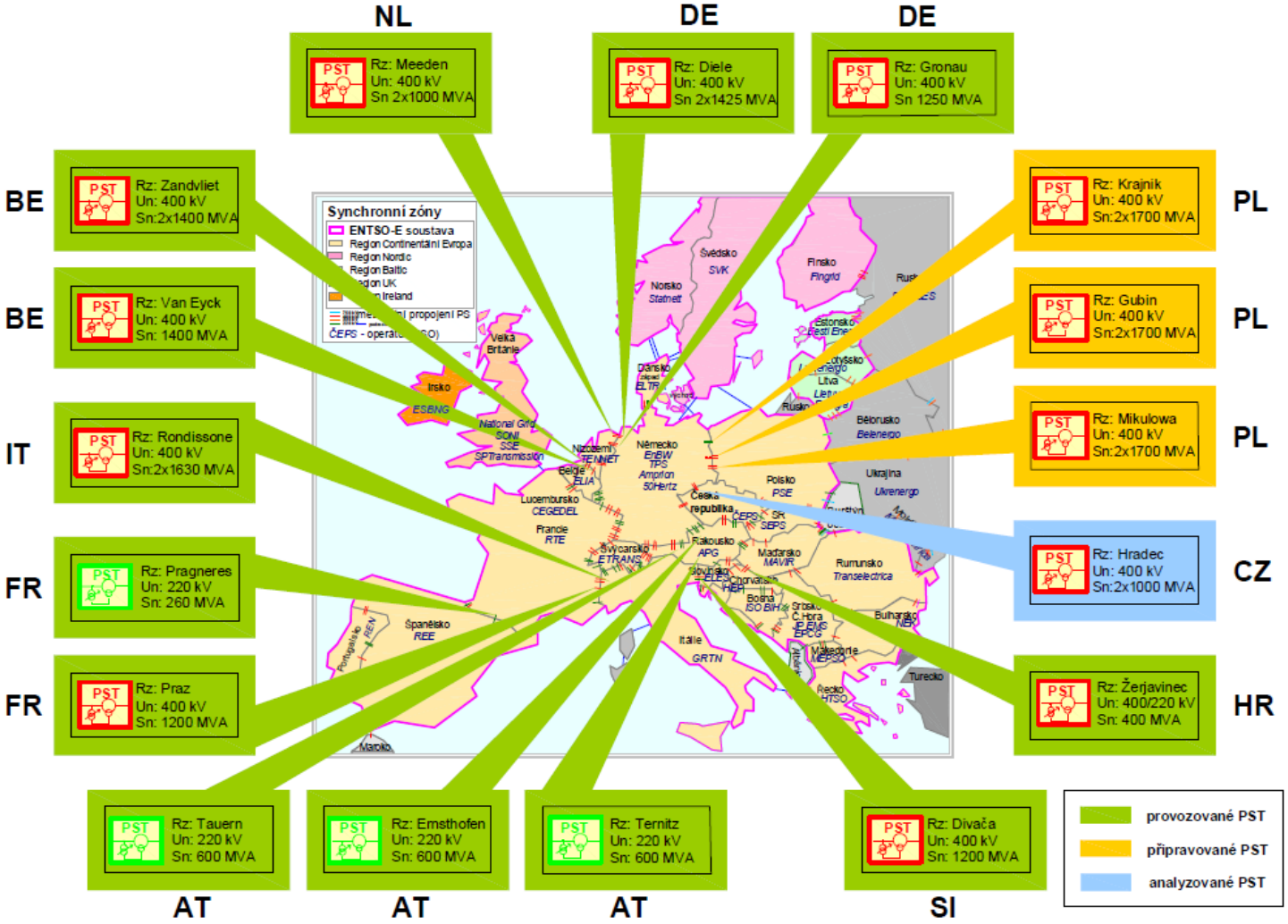
- Problems associated with loop flows increased both in numbers and scale
- → massive renewable energy sources development not corresponding with grid development

Many possible solutions:

- short-term—better coordination and cooperation between TSOs related to operational security (re-dispatching)
- mid-term—correct market design (adequate bidding zones)
- long-term—infrastructure enhancement (interconnectors and internal grids)

Phase Shifters → is it a real solution? → Problem Shifters

Phase shifters in Europe

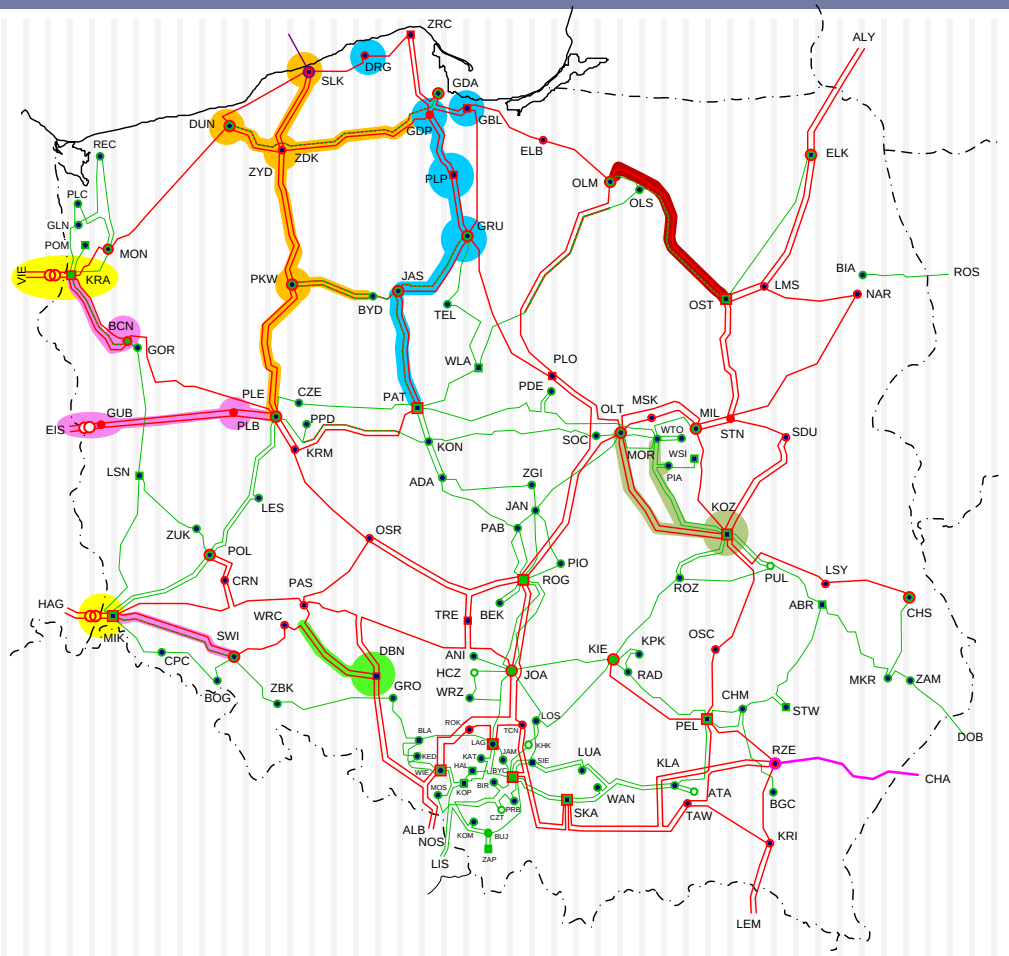


Source: Polish Energy Regulatory Office

What can be done: main investment projects of PSE

Legend:

- 750 kV
- 400 kV
- 220 kV
- 400 kV temporary at 220 kV
- DC cable 450 kV
- Ger-Pol Power Bridge
- Ger-Pol Improvements
- Wind Integration
- Power Evacuation_OST
- Power Evacuation_KOZ
- Power Evacuation_DBN
- Power Evacuation_NORTH



Source: PSE SA

Improvements on German-Polish border

1. **Phase shifting transformers:**

- better management of unplanned transits DE-PL-CZ
- enhancement of transfer capacity on Polish synchronous profile. Expected NTC increase:
  - 500 MW for import and 1500 MW for export
- greater security and reliability of the regional transmission network in Poland and in other countries of the CEE region
- increased capability to accommodate more renewable energy resources in a safe and reliable manner

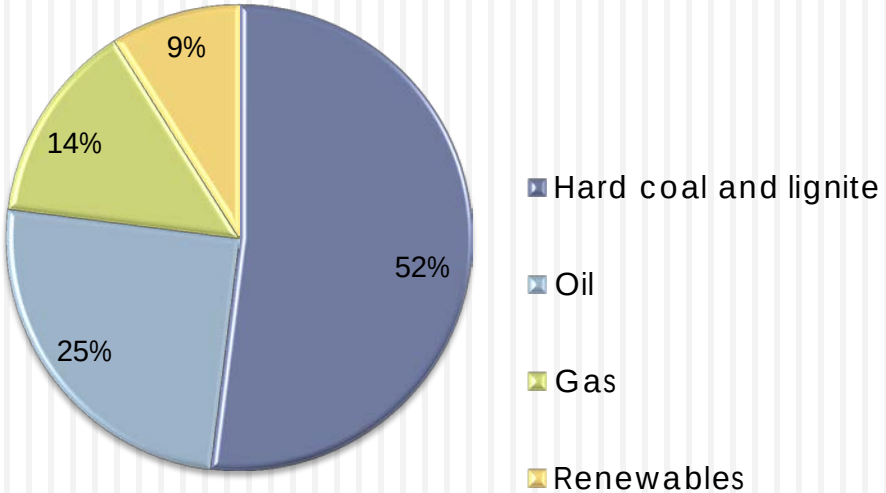
1. **Third DE-PL interconnector:**

- strengthening market integration between member states
- increasing NTC by 1500 MW for import and 500 MW for export on PL-DE/SK/CZ synchronous profile
- improving network security - project contributes to increase of security of supply and flexibility of the transmission network

Political level—Polish energy policy

- Different approaches towards renewables, coal, nuclear and shale gas

Final energy consumption (2012)



Draft energy policy—2050

1. Sustainable scenario: coal as a dominant source; RES, nuclear, gas —15-20%.
2. Nuclear scenario: nuke 45-60%, coal, gas, oil —10-15%, RES—15%
3. RES + gas scenario (55% with around 20% RES): coal 30%, oil 15-20%, nuke 10% shale gas

Political level—differences

- different approaches towards renewables, coal, nuclear and shale gas—will persist

- reciprocal perception of both countries' roles in the EU energy and climate policy is misleading

- energy policy will remain potentially divisive in Polish–German relations

- limitations are objective, but this does not exclude pragmatic neighbour cooperation

2030 Package to bolster cooperation?

Polish position on a climate and energy deal

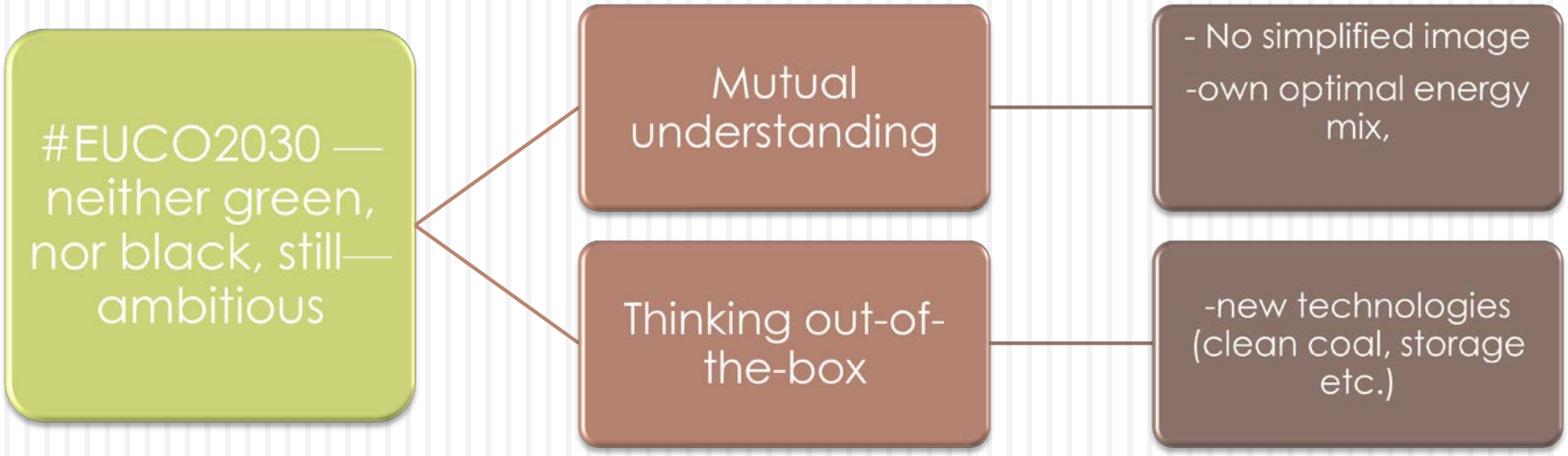
No commitment before 2015—solved with **"Paris clause"**

Need for "flexible approach on targets" (non-binding)—only one **GHG target**

Concern over energy prices and competitiveness—**offsets**

Need for special consideration for industry—**carbon leakage**

Energy policy – conflict and its resolution



Thank you!

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