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Overview Paper on Charges for Traction Current

Alberto Oeo Pizarro
IRG-Rail - SG Charges for Service Facilities

Independent Regulators' group

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- Network of 31 RBs from European countries.
- To facilitate cooperation in their common interests for the promotion of the internal railways market.
- Platform for cooperation, information exchange and sharing of best practice between national railway RBs.

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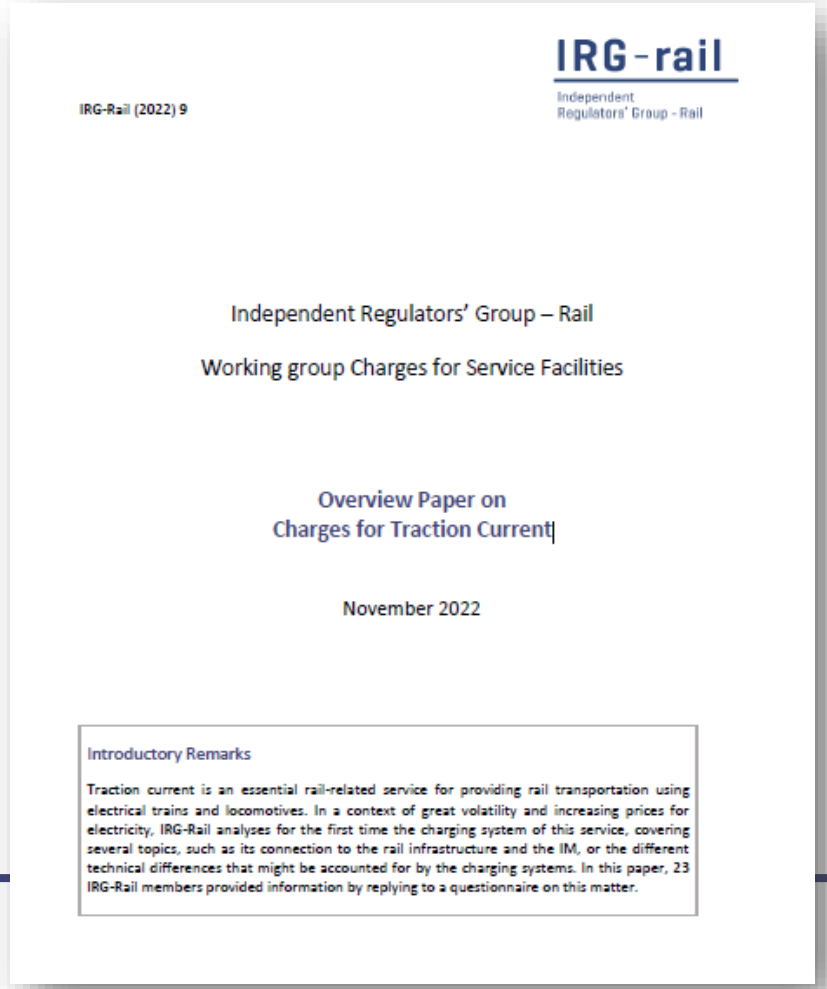
- Projects are produced by working groups.
  - WG Charges for Service Facilities
  - Paper on Charges for Traction Current
  - Accessible at:

https://www.irg-rail.eu/irg/documents/position-papers



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Working group Charges for Service Facilities

Overview Paper on
Charges for Traction Current

November 2022

Introductory Remarks

Traction current is an essential rail-related service for providing rail transportation using electrical trains and locomotives. In a context of great volatility and increasing prices for electricity, IRG-Rail analyses for the first time the charging system of this service, covering several topics, such as its connection to the rail infrastructure and the IM, or the different technical differences that might be accounted for by the charging systems. In this paper, 23 IRG-Rail members provided information by replying to a questionnaire on this matter.

Charges for Traction Current

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- A very relevant topic and an essential rail-related service for RUs.
- IRG-Rail had not analysed this topic before.
- Overview type of document → mainly descriptive and based on a questionnaire replied by 23 countries.

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- Traction current as rail-related service
  - Not part of the Minimum Access Package (MAP)
  - "Additional service" (Annex II No.3 (a) of Directive RECAST)

- Continuous flow for electric trains

- What is Traction Current? Is that easy to understand?

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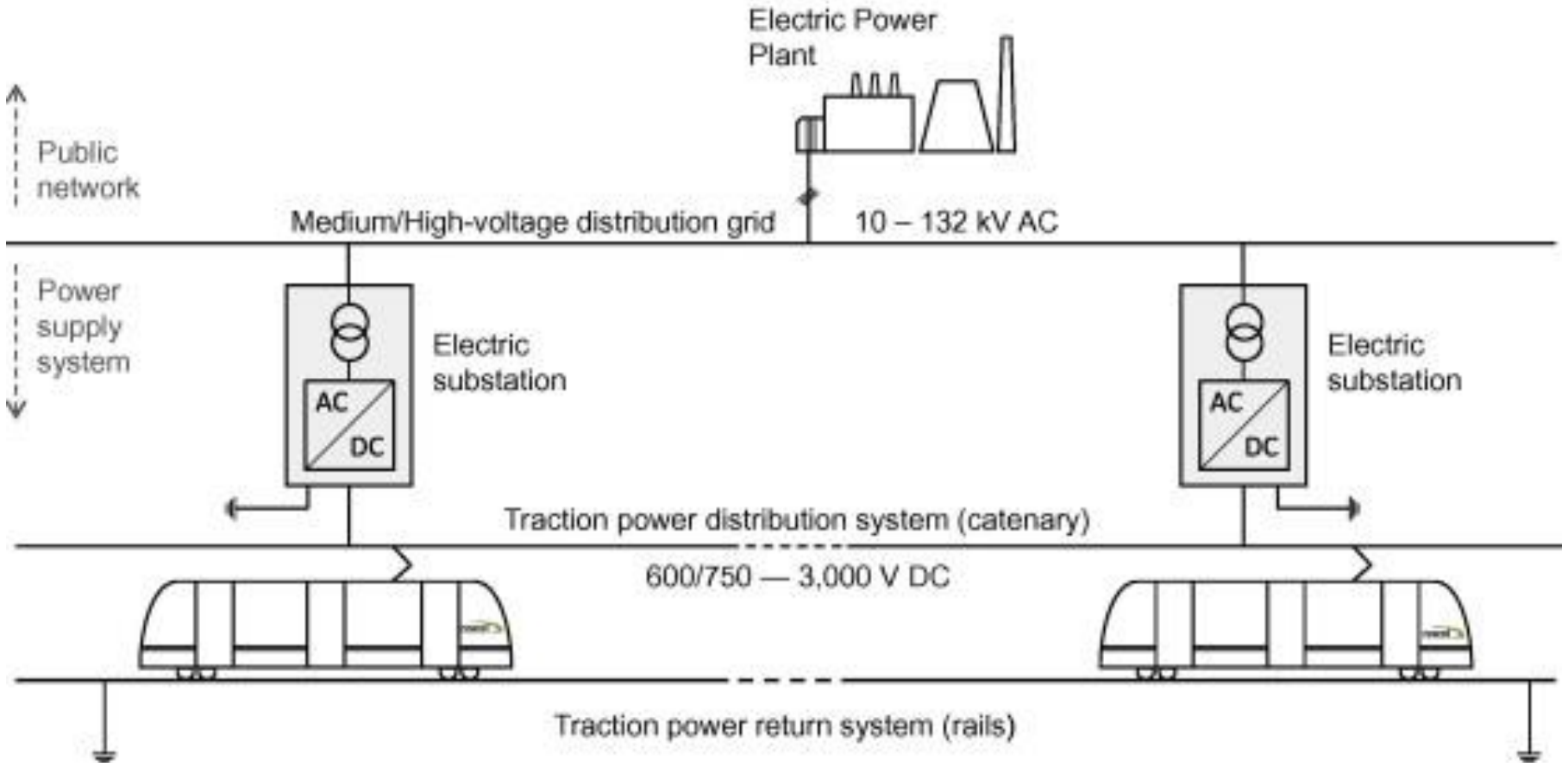
TAC: infrastructure for energy distribution

Additional service



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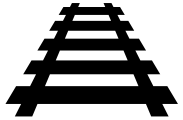
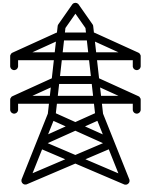
PARTIES INVOLVED IN THE PICTURE

1. **Railway undertaking (RU)** → End user of the electricity

2. **Infrastructure manager (IM)** → Operates the rail network



3. **Energy undertaking (EU)** → Company that supplies electricity



Relationship between parties

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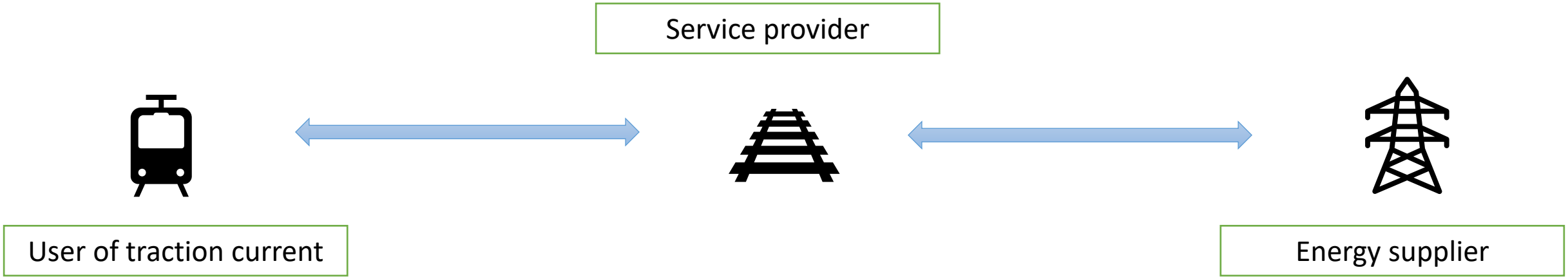
Main approach : Intermediary



Relationship between parties

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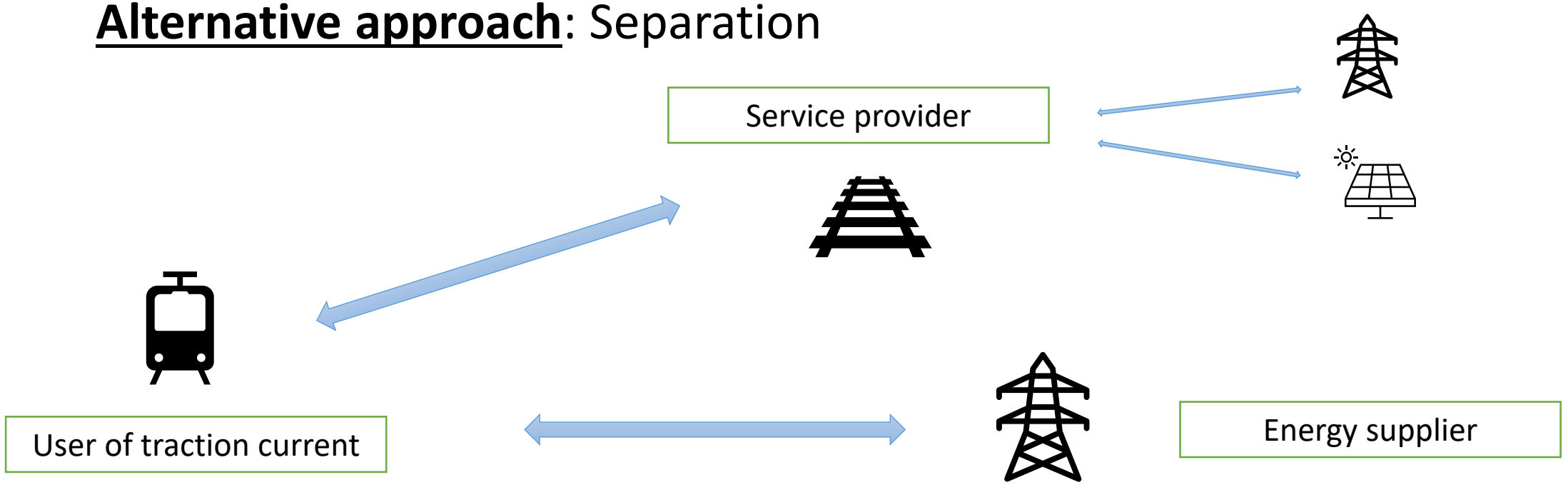
<u>Alternative approach</u>: Separation



Number of providers

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- In 17 out of 23 countries there is **just one provider**.
  - The IM provides the service (or a subsidiary company) in 15 countries.
  - Exceptions: Poland (independent service provider) and the Netherlands (all RUs set up a group purchasing organization).

- There are **more than one provider** in Austria, Bulgaria, Finland, France, Germany and Portugal*

- The number of providers does not determine the possibility of choosing a provider
  - Only in Austria, Belgium, Bulgaria, Finland, France, Germany and Great Britain.

Number of providers

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Reasons for a sole provider

- The fact that the IM tends to be the only provider illustrates how tied the provision of the service is to the rail infrastructure.

- Legal (regulation on Energy or Railway sectors) or practical reasons for that.
  - **Croatia**: national Railway Act → The IM is the buyer of electricity through public procurement.
  - **Spain**: national Energy Sector Act → The IM is the owner of the electric energy supply points and, thus, the only party that can access the energy market.
  - **Italy** or **Sweden**: economic advantage of the IM being the provider.
  - **Slovakia**: technical obstacle (metering systems)

Charging system

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Profitability

- Price regulation of additional services in case of one provider: cost + Reasonable profit.

- In 15 countries service providers do not charge a reasonable profit (mere intermediary)
  - **Profit neutrality principle** is specifically mentioned in a third of respondent countries.
  - Reasonable profit usually linked to the investments (lack of dedicated infrastructure)

- Few exceptions:
  - Austria (dedicated infrastructure) and Slovakia use WACC methodology
  - Romania: fixed amount per MWh

Charging system

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Profitability

- Reasonable profit, when applicable, refers to the charge for the rail-related service.
  - Price paid by the IM to the energy supplier are not regulated.

- Countries in which it is possible to directly contract with an energy supplier.
  - Prices for energy are given by the free market.

Charging system

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Energy measure systems (On-board power meters)

- Actual consumption vs estimated consumption
- Great variance in terms of technical specs of the train, terrain or driving performance…
- Conversion ratios and other metrics do not fully catch all the potential variables affecting consumption (train output = estimated consumption).
- Technical rules affecting these subsystems (TSI)

Charging system

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Energy measure systems (On-board power meters)

- **ADVANTAGES**:
  - ✓ Matches real demand for electricity → less inefficiencies of the systems (supply imbalances)
  - ✓ Clear signal of the cost borne in the provision of the transport service.
  - ✓ Might foster energy savings (better performance by the train driver) or investment in more energy-efficient rolling stock.
  - ✓ Technical obstacle for choosing energy supplier.

- Only in 11 countries charging systems allow for the usage of EMS.

Final ideas and conclusions

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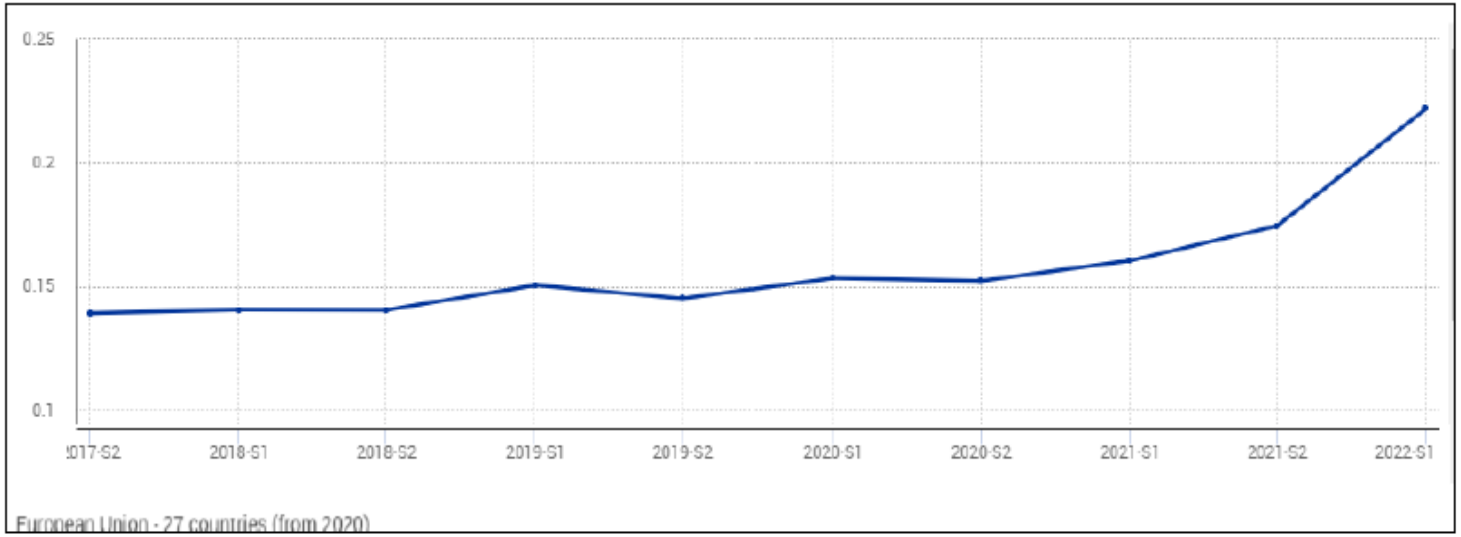
- Context of high prices and uncertainty
  - Type of contracts of the sole provider (exposure to price volatility)
- Possibility of choosing supplier according to RUs' business plan
  - Is the IM in a suitable position?
  - Legal and practical constraints
- Importance of EMS deployment
- Need for further regulation?



SOURCE: EUROSTAT. ELECTRICITY PRICES FOR NON-HOUSEHOLD CONSUMERS - BI-ANNUAL DATA (FROM 2007 ONWARDS)

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Thank you for your attention