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Development of transmission and distribution grid charges and of their regional differences in Germany



ENERDAY, Dresden, April 11, 2014



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Agenda

ENERDAY: Development of grid charges

- **1** Motivation & model structure
- **2** Transmission & distribution grid cost
- **3** Grid charge estimation

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Grid charges have increased in recent years – strong regional differences exist

Average grid charges 2006 to 2013, regional distribution of household charges 2013



Source: Bundesnetzagentur, ene't 1) CAGR: Compound Annual Growth Rate

Approved measures of network development plans account to 32.5 bn. EUR until 2023



Assumptions for on- and offshore transmission grid extensions

by all 4 TSOs

Offshore costs are shared



Additional annual replacement investments of 190 mio. EUR considered

Source: Network development plans NEP2013, O-NEP 2013 (2. Entwurf), Bundesnetzagentur Monitoringreport 2013, Approval NEP / O-NEP

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Grid charges are estimated using models for TSOs, DSOs and demographic development

Model-based grid charge estimation approach



Transmission and distribution grid costs modelled separately starting from estimated revenue limits

Model-based grid cost estimation approach



Source: EE² 1) Including depreciation of assets

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EE²

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Transmission grid cost with high growth rates – highest increase in Tennet control area expected

EE²

Estimation of transmission grid cost development & cost drivers, 2013 to 2023, in mio. EUR



Source: EE² 1) Including replacement investments

Distribution grid investments lead to an average annual cost increase of 1.6%



Distribution grid investments and resulting cost increases 2013 to 2023, in EUR

Source: dena distribution grid study, EE²

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EE²

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Calculations predict increased grid charges in the Eastern and Northern part of Germany

Grid charges household and commercial customers, 2013 and 2023, in ct/kWh



In certain regions demographic and cost increase effect exacerbate each other





- Demographic and cost increase effect exacerbate each other e.g. in rural areas of Mecklenburg-Vorpommern, Thüringen, Sachsen-Anhalt and Sachsen
- A partly compensation can be expected in the metropolitan areas as well as in parts of Niedersachsen and Baden-Württemberg

A uniform national grid charge would disburden customers especially in the Eastern part of Germany

Regional effects of a uniform national grid charge, in ct/kWh



Regional price increases and decreases resulting from a uniform grid charge are asymmetric



Per capita cost increase / decrease resulting from a uniform grid charge, in EUR

A uniform grid charge could distribute the costs of the energy turnaround in a fairer way





- Considerable cost increases in certain distribution grids
- Cost increase unequally distributed throughout the country

Conclusions

- In certain regions strong network cost increases and a negative demographic development reinforce each other
- Considerable disburden in Eastern and Northern Germany through uniform grid charge
- Distribution grid is largest lever for alignment of grid charges