

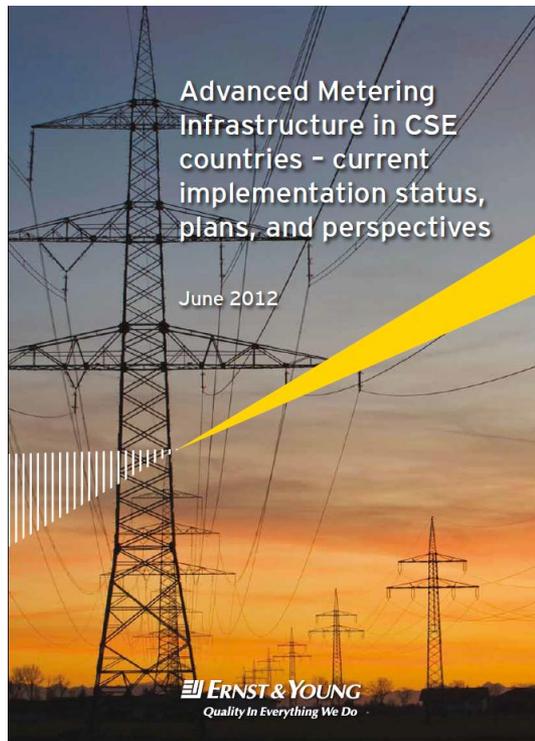
Advanced Metering Infrastructure in CSE region – perspectives for markets and challenges for the DSOs

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Agenda

- The goal and the results of the Ernst & Young study *“Advanced Metering Infrastructure in CSE countries – current implementation status, plans, and perspectives”*
- How can the DSO benefit from AMI implementation?
- Hints and lessons learned from AMI pilots in Poland and other countries.

Introduction and Report objective

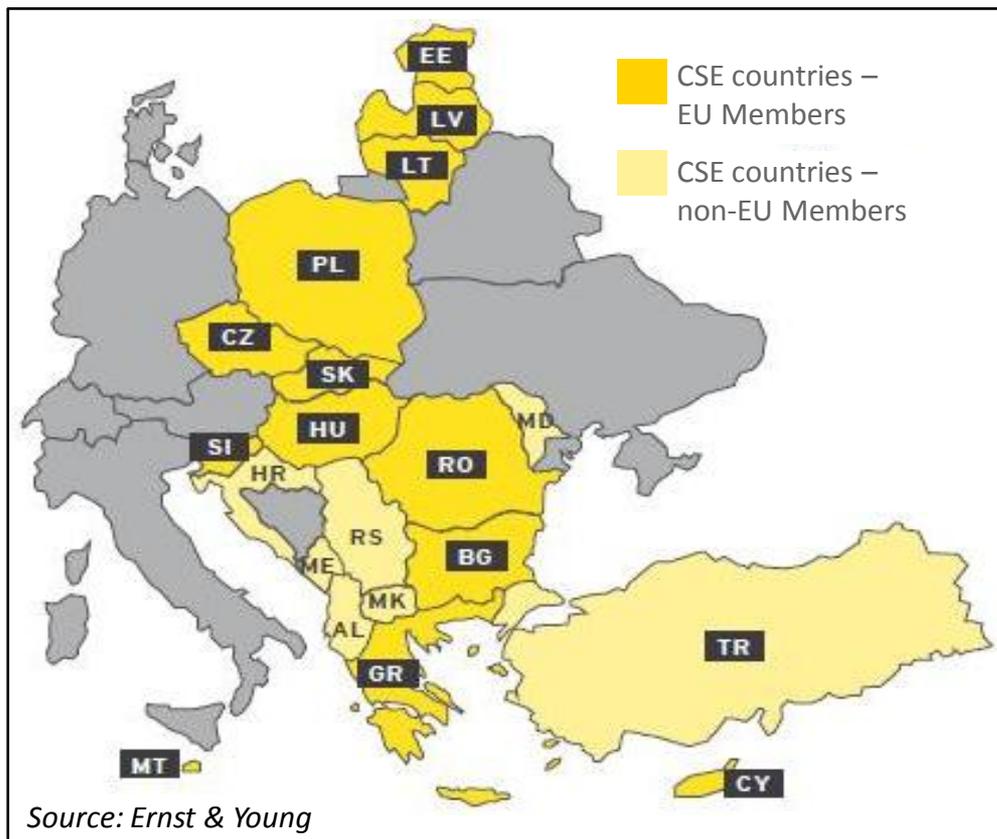


- The Report prepared by Ernst & Young in June 2012.
- Information presented in the Report based mainly on surveys conducted in CSE countries from January to April 2012 and publicly available information.
- Two key areas of interest:
 - Analysis of CSE countries' potential for AMI implementation based on selected criteria,
 - Smart metering implementation status.
- Available for free download:

[http://www.ey.com/Publication/vwLUAssets/Advanced_Metering_Infrastructure_in_CSE_countries/\\$FILE/Advanced_Metering_Infrastructure_in_CSE.pdf](http://www.ey.com/Publication/vwLUAssets/Advanced_Metering_Infrastructure_in_CSE_countries/$FILE/Advanced_Metering_Infrastructure_in_CSE.pdf)

Countries included in the analysis

The Report focused on countries belonging to Ernst & Young's Central and Southeast Europe (CSE) sub-area.

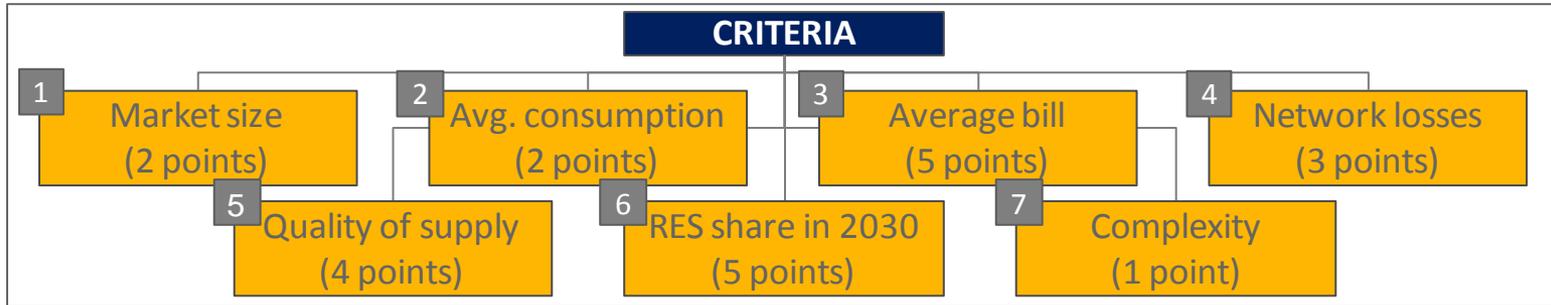


Countries included in detail:

- Bulgaria,
- Cyprus,
- Czech Republic,
- Estonia,
- Greece,
- Hungary,
- Latvia,
- Lithuania,
- Malta,
- Poland,
- Romania,
- **Slovakia**,
- Slovenia,
- Turkey.

AMI implementation ranking criteria and methodology

- Each of the analysed countries was assessed based on the following criteria (weight of each criterion is presented in brackets):



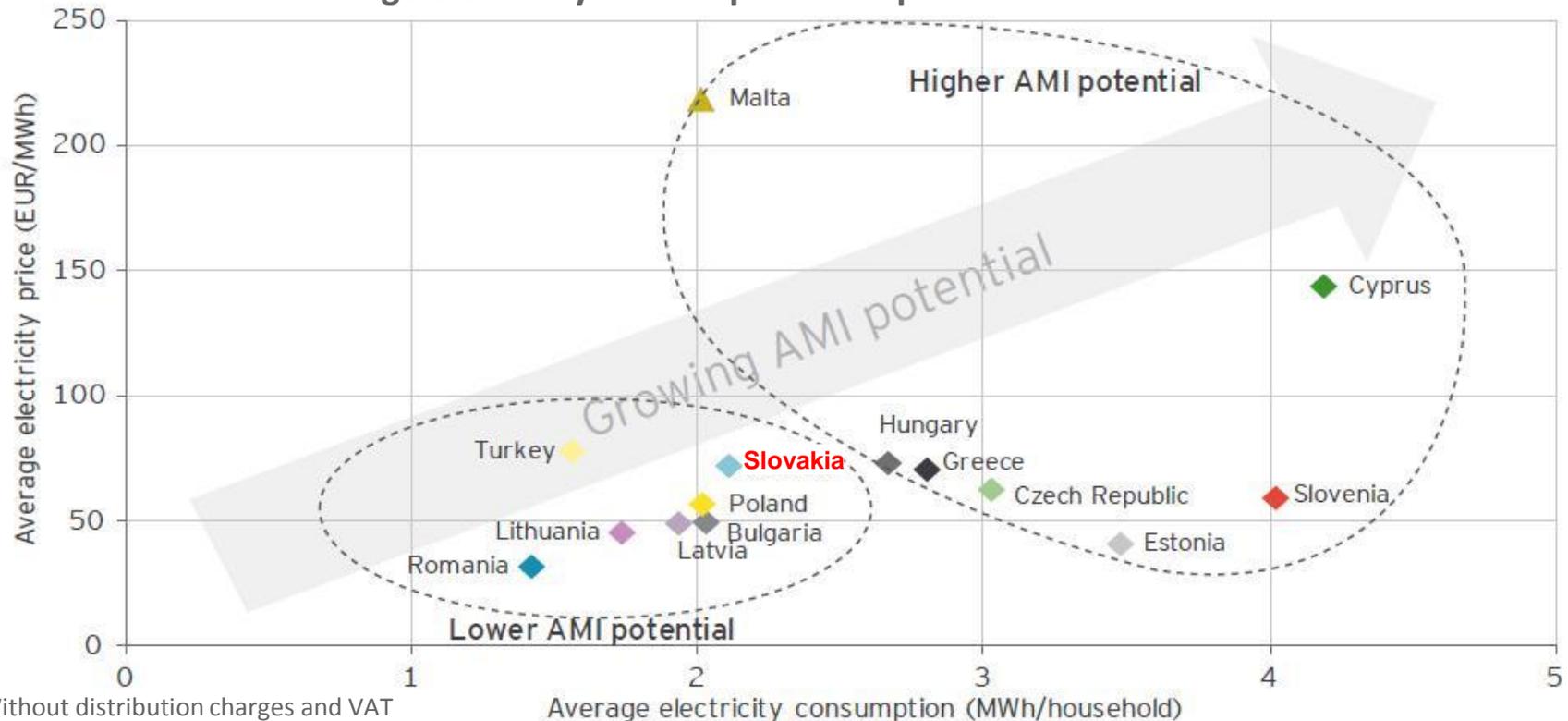
- Criteria = Drivers for AMI implementation.
- The most important drivers relate to four AMI goals which are further discussed.

Goals of Smart solution's implementation		Factors influencing Smart solutions' implementation	
1	Energy efficiency	Average electricity bill	
2	Network losses optimisation	Level of network losses (technical and commercial)	
3	Improvement of quality of energy supply	Indicators of the quality of energy supply (SAIDI, SAIFI)	
4	Integration of RES and distributed generation	Planned long term penetration of RES and DER	

Potential for AMI implementation depends on average electricity bills in a country

- One of the main drivers for AMI implementation and the most important consumer benefit is the ability to constantly monitor electricity consumption and as a result the rationalisation of electricity use.
- As a consequence, it can be deduced that the highest potential have these countries, where there is the highest average electricity price and the highest average consumption.

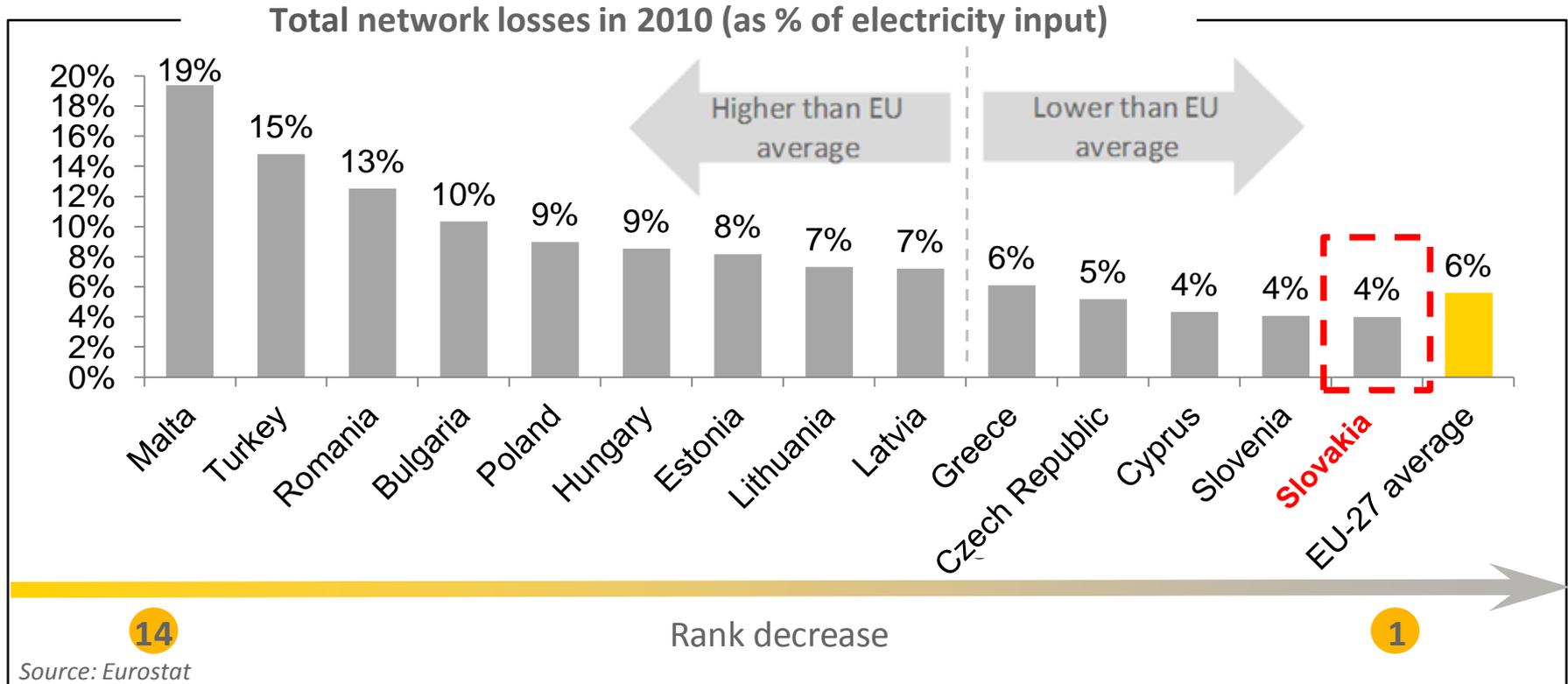
Average electricity consumption and price* for households in 2010



* Without distribution charges and VAT
Source: Eurostat

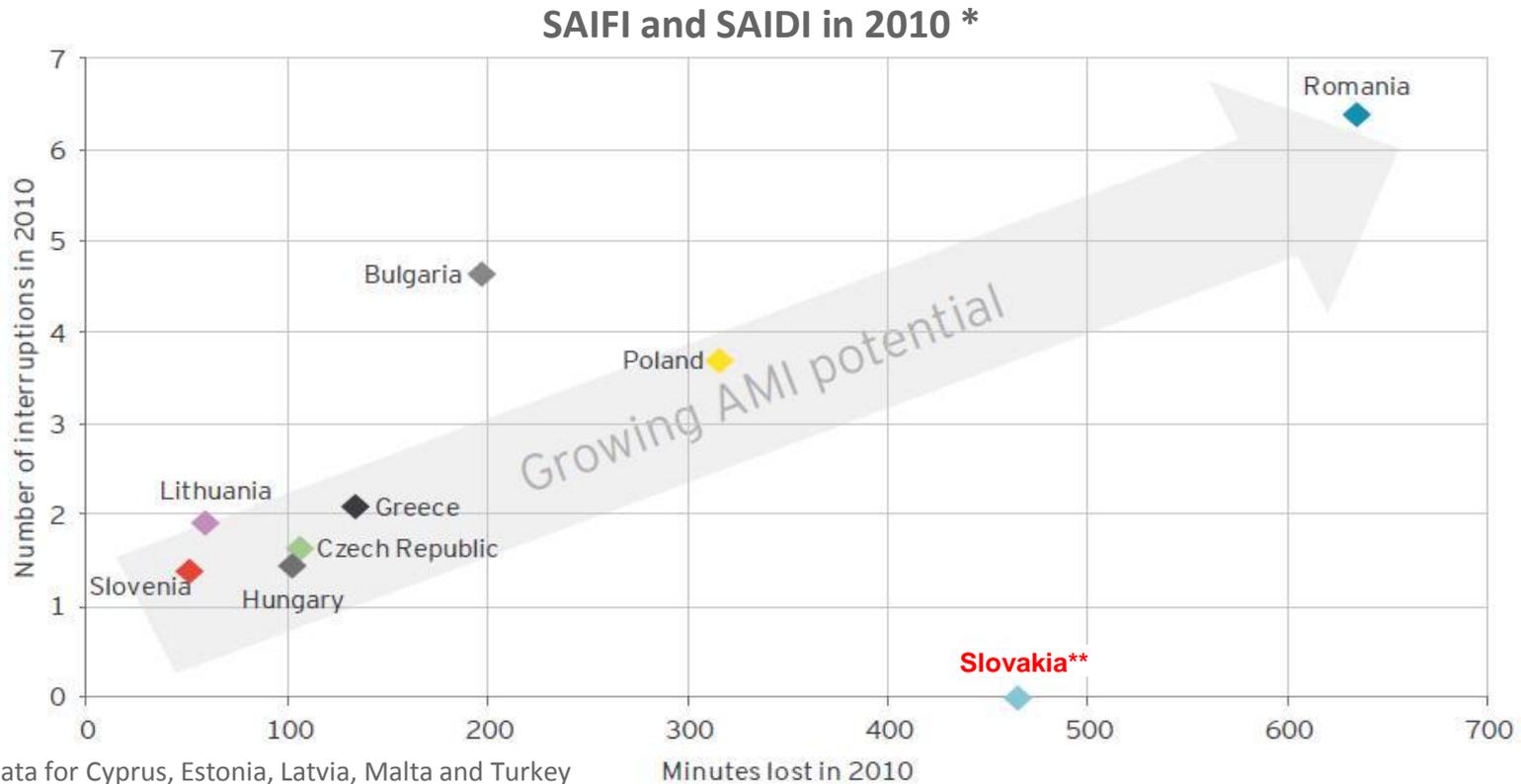
Smart solutions may contribute to network losses reduction

- Potential for network losses reduction is seen as one of key benefits for the DSOs.
- It is anticipated that constant monitoring of network balance and customer meters by the DSOs will help them quickly identify possible electricity thefts and respond to them in shorter time.
- Additionally, enhanced network monitoring will lead to optimization of network operation and grid modernization process, which in turn will lead to technical network losses reduction.



Smart Grids enables the improvement of quality and reliability of energy supply

- As the implementation of smart metering will give DSO a detailed and up-to-date knowledge about electricity flows and power quality in every network segment, which enables better planning of investment and maintenance, it can be assumed that the lower is the current quality of supply, the higher is the potential for benefits.



* No data for Cyprus, Estonia, Latvia, Malta and Turkey

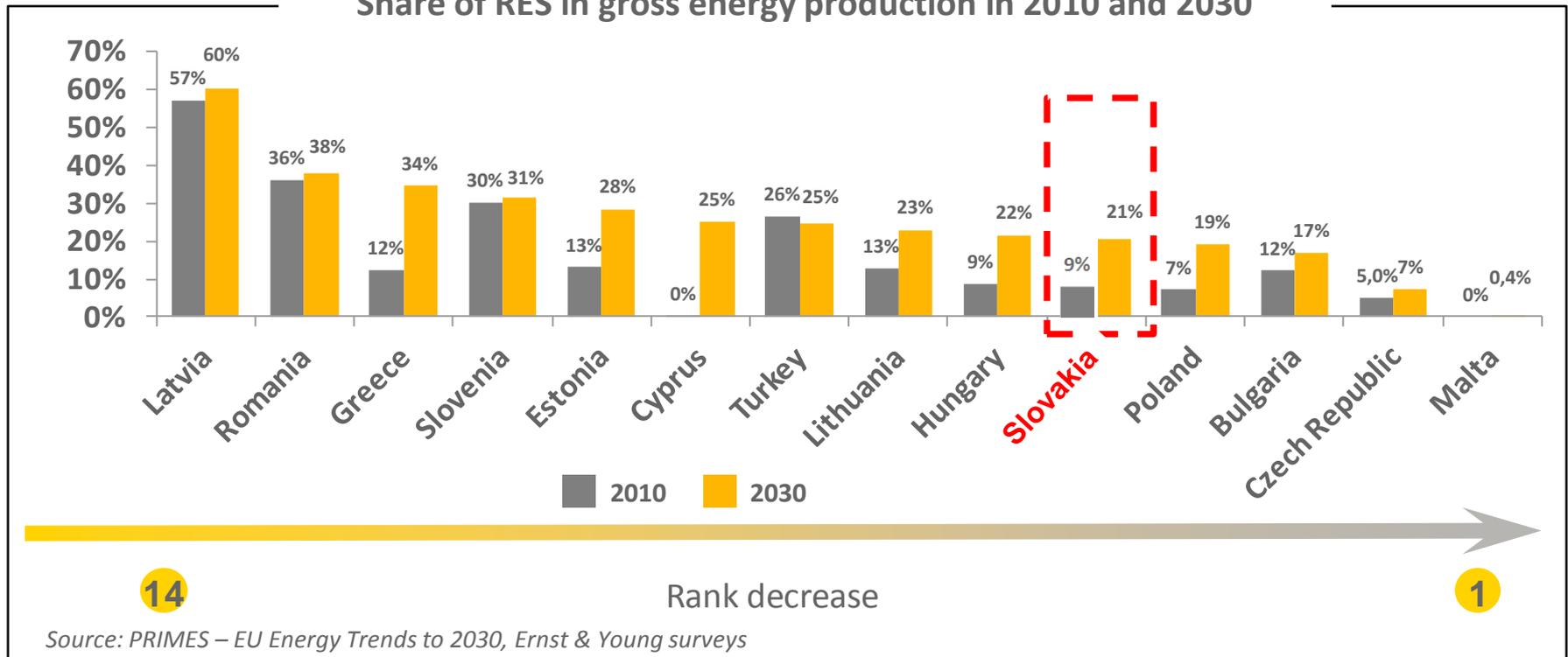
** No data regarding SAIFI for Slovakia

Source: 5th CEER Benchmarking Report on the Quality of Electricity Supply, CEER, Brussels, 2011

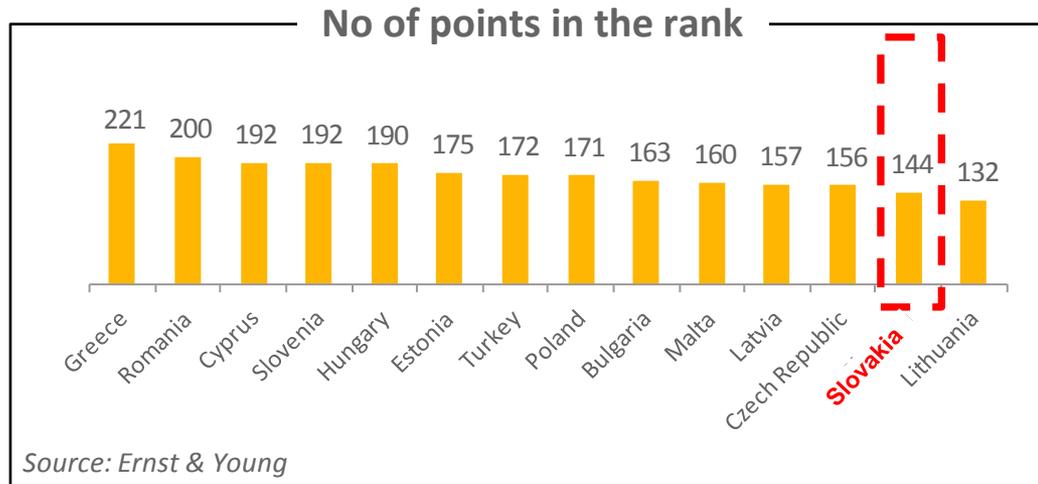
RES integration requires the shift in the philosophy of network operations

- Growing share of RES in fuel-mix may be another factor increasing the pace of smart metering implementation.
- As deployment of RES in distribution network requires sophisticated devices (Smart Grid) it can be assumed that countries, which plan to have a high share of RES in their fuel-mix will have a strong drive for the deployment of AMI as a first step towards smarter grid.

Share of RES in gross energy production in 2010 and 2030

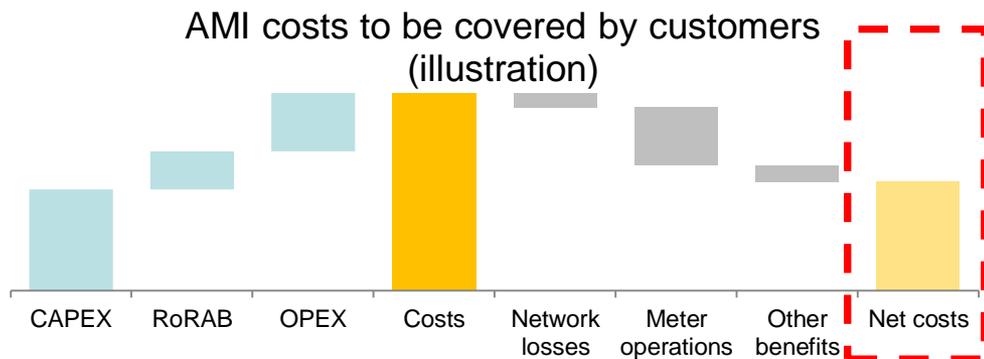


Slovakia was ranked 13th in CSE region according to its AMI potential



- Low average electricity bill – customers probably not willing to change behavior significantly.
- **Low network losses compared to EU average.**
- But high SAIDI (second highest among analysed countries).

How can Slovakia improve the AMI economics?



The benefits of customers and other market players should cover the net costs – then AMI implementation will be beneficial for customers and the country economy.

1 How to optimise costs?

- Utilize interoperability solutions and standardization.
- Utilize grants.
- Utilize AMI communication channel to provide additional services.
- Optimization of meter depreciation period.
- Cooperation between DSOs.
- Optimization of implementation schedule.

2 How to increase benefits for customers?

- Customer education.
- Implementation of direct and indirect feedback measures.
- Implementation of time-of-use tariffs and demand response programmes.
- Create a market for energy services (aggregators, ESCOs).

AMI – a challenge for the DSO?

How the DSO may benefit?

- Utilize smart meters as smart grid sensors – substation metering and monitoring.
- Area roll-out (whole substation) where commercial losses are high – prioritize roll-out areas.
- IT integration is important – utilize the data collected for more than billing purposes.
- Communication infrastructure and IT infrastructure design for the future smart grid requirements.
- Interoperability and scalability.
- The regulation will affect the DSO benefits – regulatory framework for AMI required.

Other lessons learned from AMI pilots?

- Planning and detailed system specification is more important than roll-out itself.
- Adjusting business processes to new AMI environment.
- Communication with the customers.
- Coordination of work between installers groups.
- PLC also requires OPEX if the DSO want to maintain high reliability.
- Ensure that DSO staff learns the knowledge and skills from the vendor.

Thank you for your attention

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