

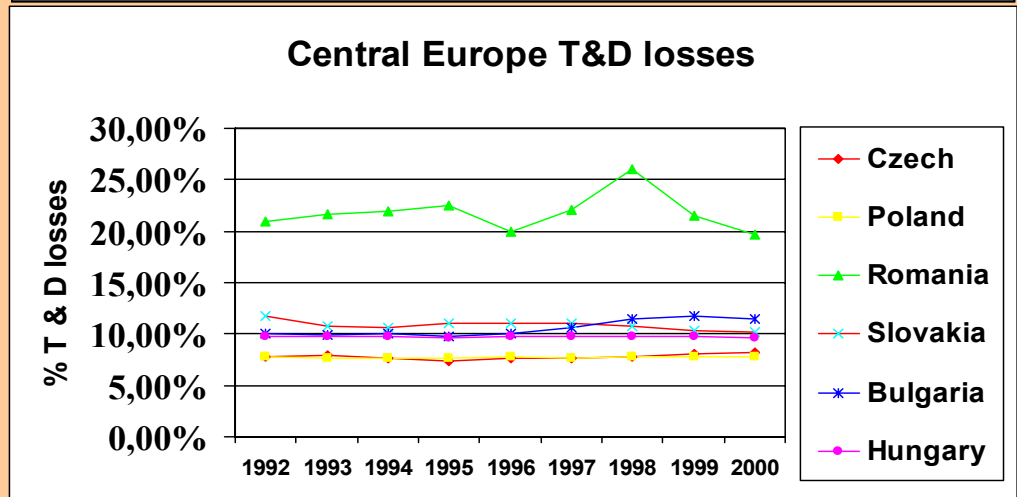
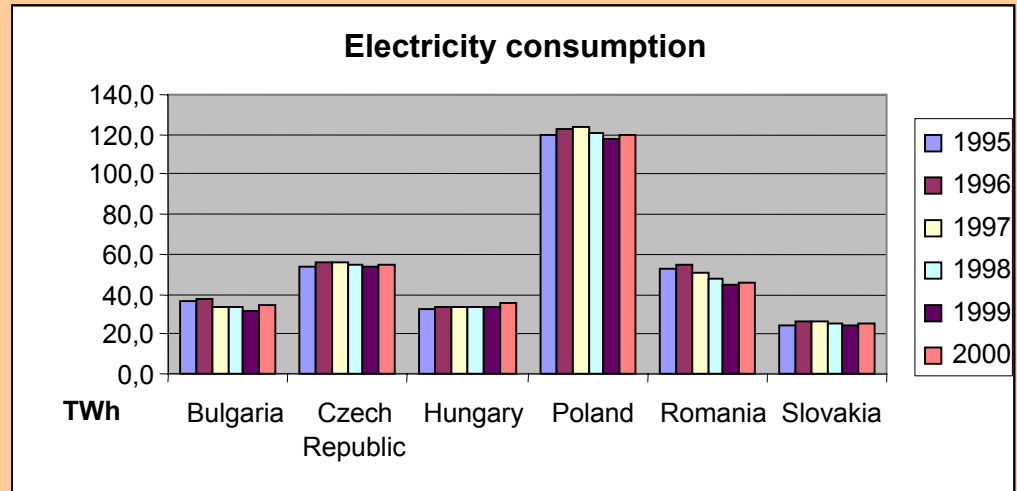
Central European Perspective

3rd international workshop on distribution
transformer efficiency

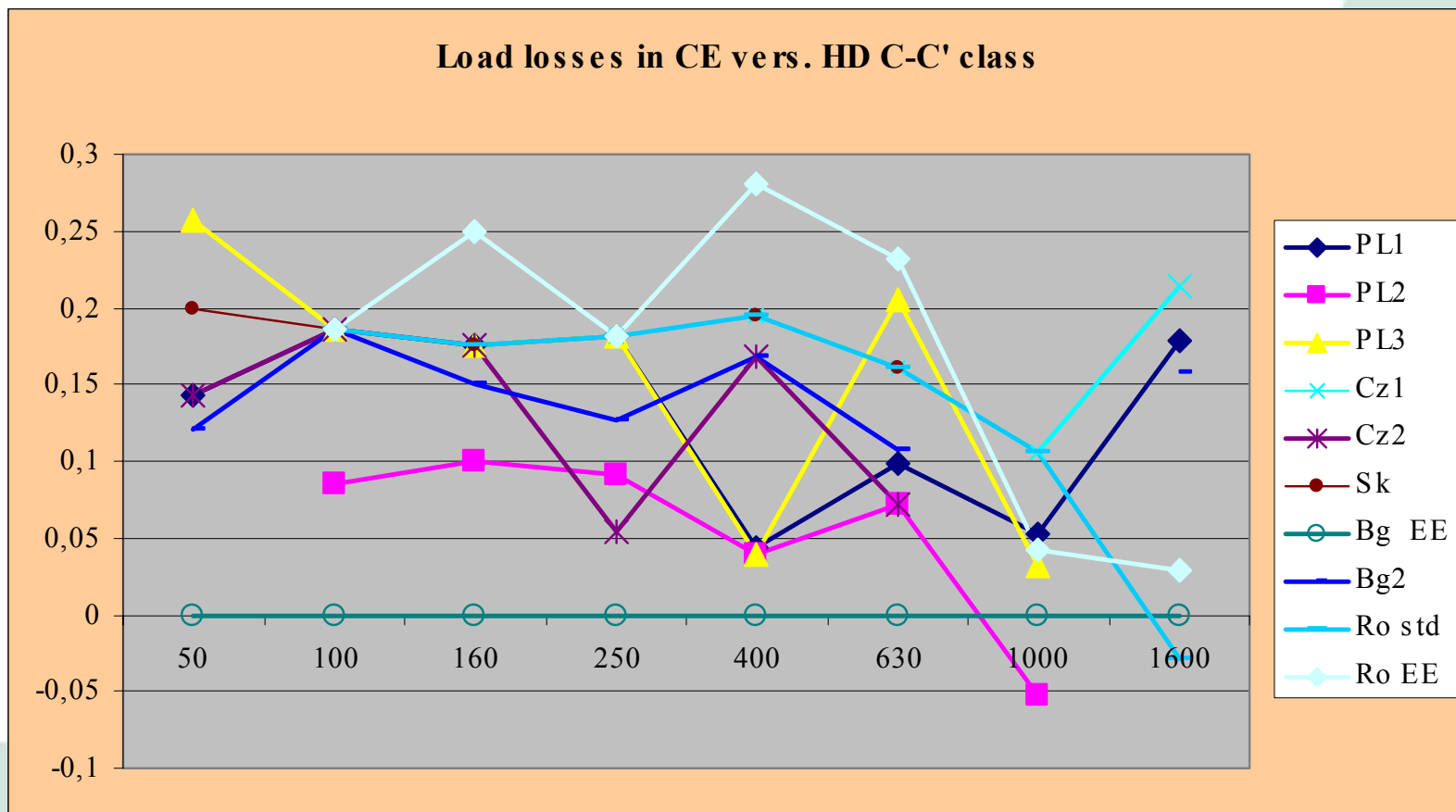
- Country schemes to promote efficiency
of distribution transformers



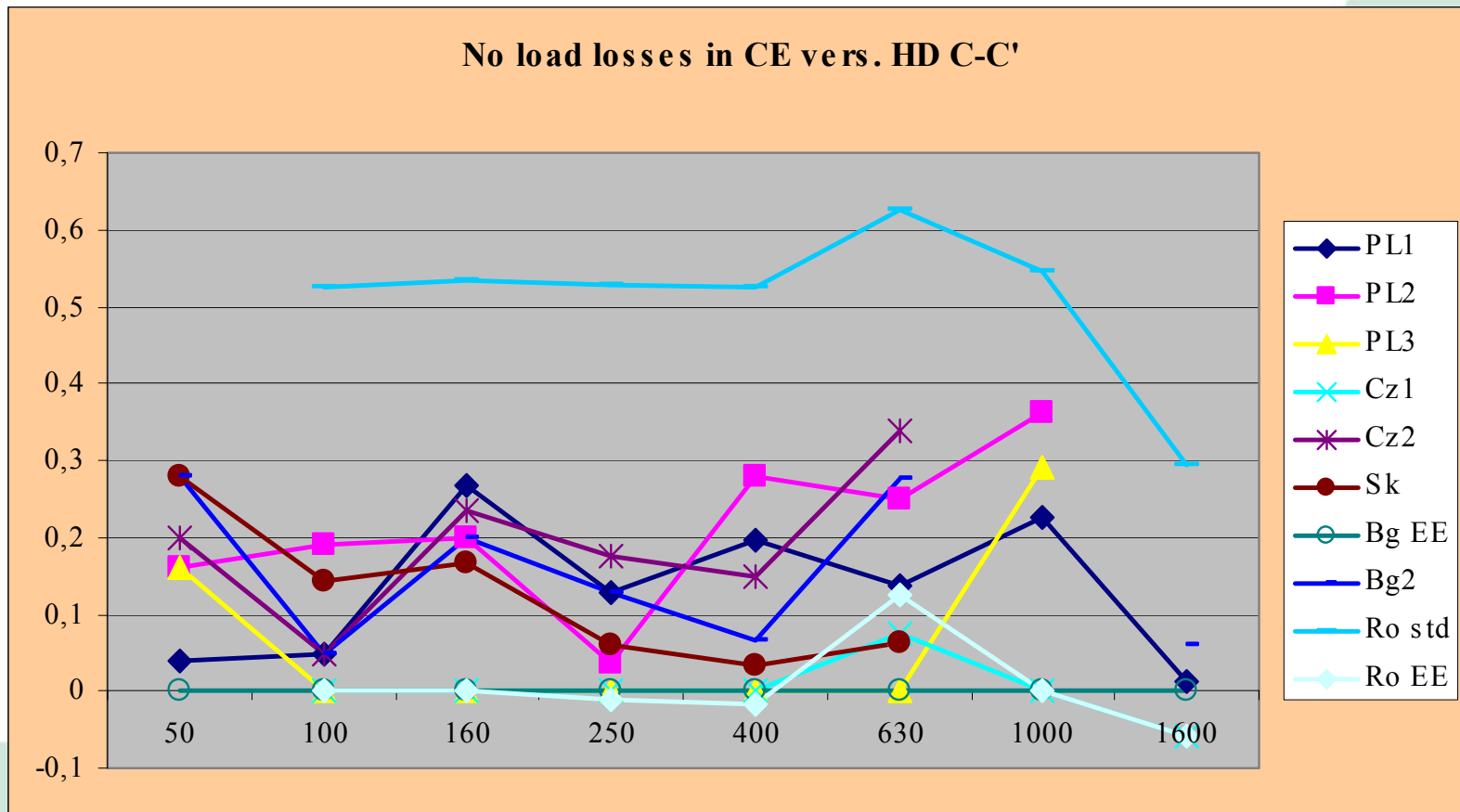
Electrical energy in Central Europe




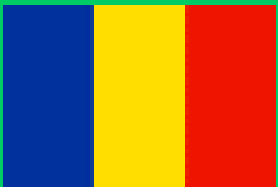

Comparison of load losses



Comparison of no load losses



Central European Countries overview (2)

Country	Profile
Poland 	Transformer fleet ~ 235 000 Rate of replacement < 4% Transformer losses ~ 1,25 TWh Replacement mechanism: repair costs > No minimum efficiency standard expansion > TOC
Romania 	Transformer fleet ~ 85 000 Rate of replacement = 2,5-3% Transformer losses ~ 0,80 TWh Replacement mechanism: Very low minimum efficiency repair costs standard
Slovakia 	Transformer fleet ~ 40 000 Rate of replacement ~ 3% Transformer losses ~ 0,25 TWh Replacement mechanism: different Efficiency related standard (soft approaches)

Central Europe – aggregated

- Consumption 2000: 314,4 TWh (~ 50% transformed by distribution transformers)
- Transformer losses ~ 3,6 TWh
- Consumption 2020: (+50-70%) ~ 500 TWh
- The average efficiency today 97,6%*
- The average efficiency at C-C' 98,7%**
- Total energy saving potential ~ 3 TWh

Distribution transformer rating	% contribution * to losses	% contribution ** to savings
Low 250 kVA	20	15
Medium 400 kVA	50	50
High 630 kVA	30	35



Central Europe - Regional perspective

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- EU accession (adaptation infrastructural funds)
- Growing TOC awareness

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- Privatizations (fast acquisition payback)
- Low energy prices
- No mandatory standard
- Regulator policy

Central European scheme to promote efficiency of distribution transformers

- Use other energy efficiency relevant country opportunities:
 - Renewables
 - Kyoto emissions reduction
 - EU transition infrastructural support
- Mandatory minimum energy efficiency standard as possibly the best -regional? – approach (but is it realistic?)
- System of incentives (high complexity issue)

Central European scheme to promote efficiency of distribution transformers

Communication promotional campaigns – country /regional

- Demonstration and replication
- Traditional promotion

Increase knowledge level about actual TOC e.g.

Influence of energy efficient transformers and growth of load on the level of energy losses in distribution networks.

w_{5q} - overall distribution losses

u - % of EE transformers

q - change in load factor

