

Value of transmission for consumers

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Reliable Sustainable Connected

What is value of transmission for consumers?

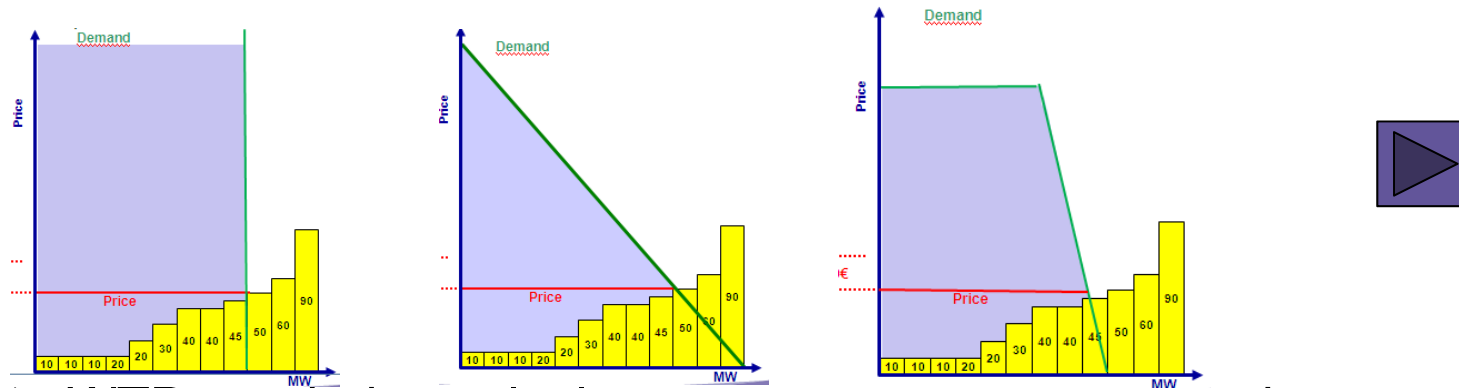
Welfare: a project increasing grid transfer capability between two price areas will allow generators in the low price area (A) to supply load in the high price area (B) → **lower electricity prices** for area (A + B)

Continuity and quality of supply: increase in grid transfer capability will improve security of supply, both in ordinary (N, N-1) and exceptional conditions (system resilience)

What is value of transmission for consumers?

➤ Consumer surplus:

- Consumer “willingness to pay” (WTP) for electricity defines the slope of the demand curve



- WTP needed to calculate consumer surplus for a given area

➤ Security of supply

- Value of lost load (VOLL) used as a proxy for WTP
- VOLL represents outage cost, measured in €/kWh
- VOLL needed to calculate economic value of SoS

What is value of transmission for consumers?

➤ Calculation of VOLL in Europe

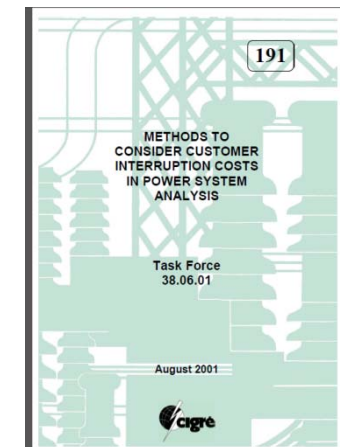
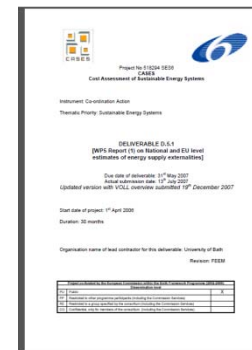
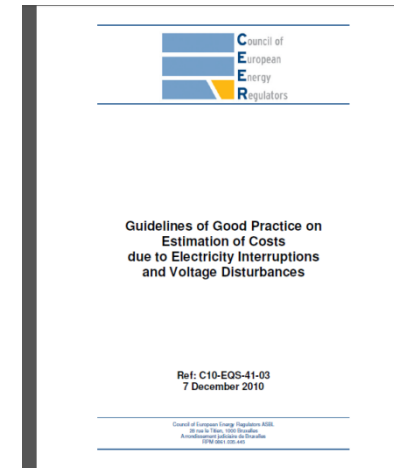
➤ CEER Guidelines (2010)

- ~Applied in France, Norway, Italy: comparable results
- Other countries : a great variety of methods

➤ Factors influencing VOLL:

- Structure of consumption (industry vs services...)
- Penetration rate of electricity in the economy
- Nb/type of appliances
- GNP
- Temperature

➔ **Very wide ranges in Europe**
(estimated between 4 and 40\$/kWh)



What is value of transmission for consumers?

No European VOLL available

Need for surveys using the same methods all over Europe to get reliable and comparable values

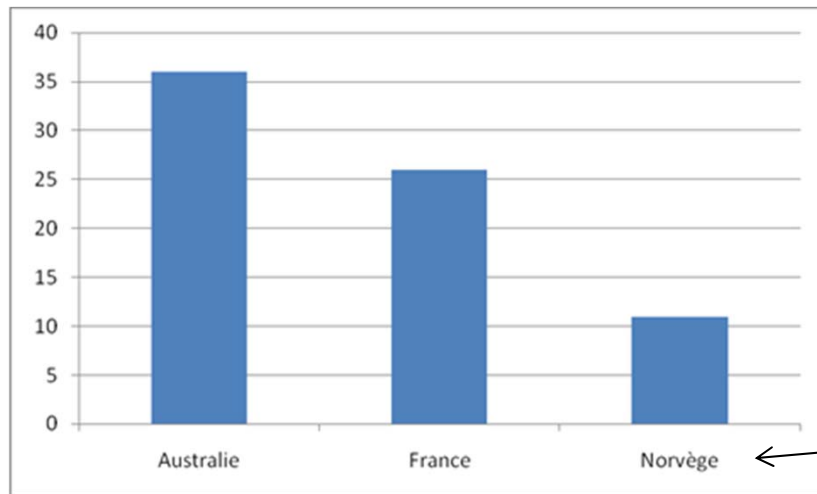
R&D programme?

Or:

- ✓ **Keep SoS in physical units (EENS in MWH - comparable and reliable)**
- ✓ **Use only relative values for calculation of consumer surplus if requested (before & after reinforcement)**

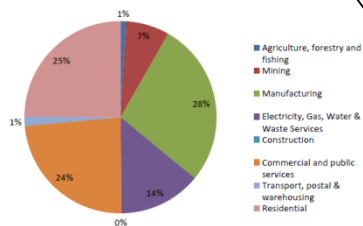
What is value of transmission for consumers?

➤ Illustration of structural effects



Mean outage costs per country, using Direct Worth method

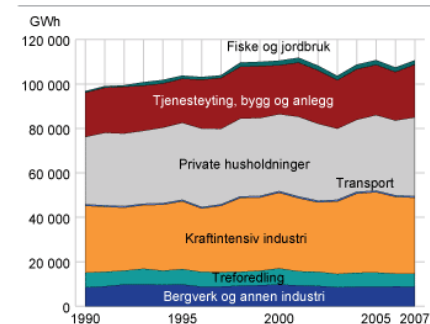
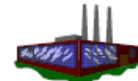
Figure 6 - Australian electricity consumption by Sector, 2009-10



In **Australia**, the service sector represents 39% of electricity consumption (26% en France, 22% in Norway)



-In **Norway**, industry represents 40% of electricity consumption (25% in France, 28% in Australia)



Price elasticity using VOLL

