



ETSO task force

Benchmarking on transmission pricing in Europe : synthesis (March 2003)

This study was achieved by the ETSO benchmarking task force :

Convenor : A. Hautot (France)
Secretary : JY. Léost (France)
M. Benhamed (Switzerland)
D. Holmberg (Sweden)
G. van der Lee (Netherlands)
R. Joswig (Germany)
M. Sfora (Italy)
A. Tassoulis (Greece)

The corresponding members : G. Christiner (Austria), T. Granli (Norway), Per Johanson (Denmark), M. Velasco (Spain), J. Stryhn (Denmark), J. Uusitalo (Finland), V. Vieira (Portugal), M. Zhu (UK)

Waiver : *Based on public data. The ETSO association gives these information to enhance public access to information about his work. If errors are brought to our attention, we will try to correct them. However, ETSO association, ETSO members, representatives and ETSO counsel accept no responsibility or liability whatsoever with regard to one or all of these information.*

Background

- ❑ Transmission tariff is one of the key points for the International Electricity Market. There is no single “ right solution ”, except for recovering costs. Different methods will have to work side-by-side for the time being. Experience will then determine the possible degree of harmonisation to be achieved in the future.
- ❑ This report contains the comparative analysis of the **2002** tariffs for 12 European countries
- ❑ In order to be comparable, the tariffs taken into account cover all of the energy transmission charges :
 - infrastructure charges (operation and capital),
 - loss compensation costs,
 - congestion costs,
 - costs of supply of system services,
 - stranded costs, if any.
- ❑ It must be noted that only one aspect of the regulation (tariff) is compared and the benchmark does not take into account the different situations as far as quality of service, main technical characteristics and environment of the networks are concerned (consumption density, generation location,..).

Main characteristics of the transmission pricing principles in Europe

	Sharing of network operator costs among customers		Price signal		Do the losses fall within the TSO cost basis?	Are system services included in the transmission tariffs?
	Producer	consumer	Seasonal time-of-day (1)	Distance, location		
Spain	0 %	100 %	XXX	–	No	No
England & Wales	27 % TNUoS	73 %	XX	Location	No recovered in the energy market	Yes
	50 % BSUoS	50 %				
Germany	0 %	100 %	–	–	Yes	Yes
Sweden	25 %	75 %	X (via losses)	Location	Yes	Yes, apparently to a partial extent
Norway	36 %	64 %	XXX (via losses)	Location	Yes	Yes, partially (excl. congestion)
France	2 %	98 %	–	–	Yes	Yes
Netherlands	25 %	75 %	–	–	Yes	No, there is a specific system services tariff
Portugal	0 %	100 %	XX	–	No	Recovered by a special charge (global use of system charge)
Finland	<10 %	> 90 %	X	–	Yes	Yes
Italy	1 à 2 %	98 %	XX	–	No	Yes, through a specific fee to generators and consumers
Austria	16,5 %	83,5 %	XX	–	Yes	Yes, through a specific component to generators
Denmark(2) East / West	6 %	84 %	XX	–	Yes	No PSO tariff

(1) : The number of signs X is in accordance with the number of differentiated periods and the application of the differentiation to all or some of the tariff components

(2) : 10 % is covered by market participants.

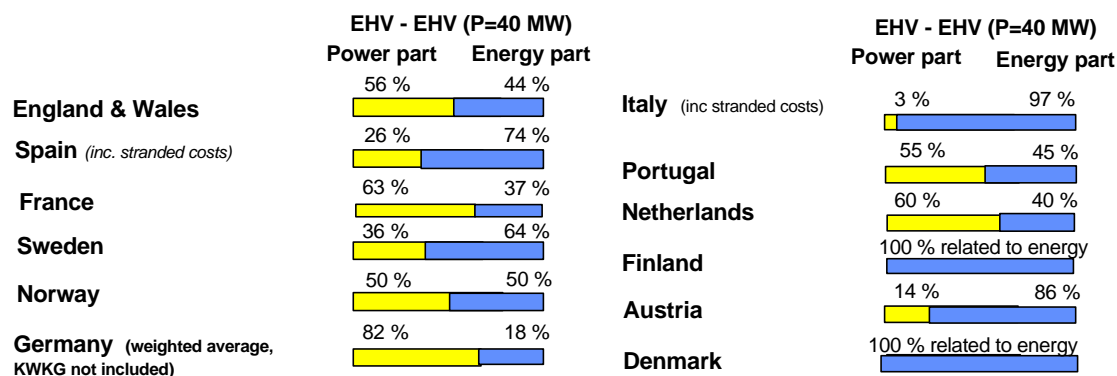
Methods and hypotheses chosen : the tariff taken into consideration covers the charges borne by the producers and the consumers

- Taking into account the «whole» of the tariff:** stacking, if necessary, of the invoice applied to the consumer and those applied to the producers.
 - Taking into account tariffs covering always the same cost basis** (see cost basis described previously).
- Voltage levels :**
 - the producer and consumer are both connected to the EHV network (225 or 400 kV) .
- Taking into account of the variation of prices according to:**
 - the location of the producer and consumer (south or north of the country, same area / differentiated area);
 - the consumer's utilisation time;
 - the seasonal time-of-day: the customer is considered to first consume during day hours.

Energy-related components and power-related components in the transmission tariff vary considerably from country to country

The energy part and power part of the tariff making it possible to cover the use of system charges (operation + capital + losses + system services)

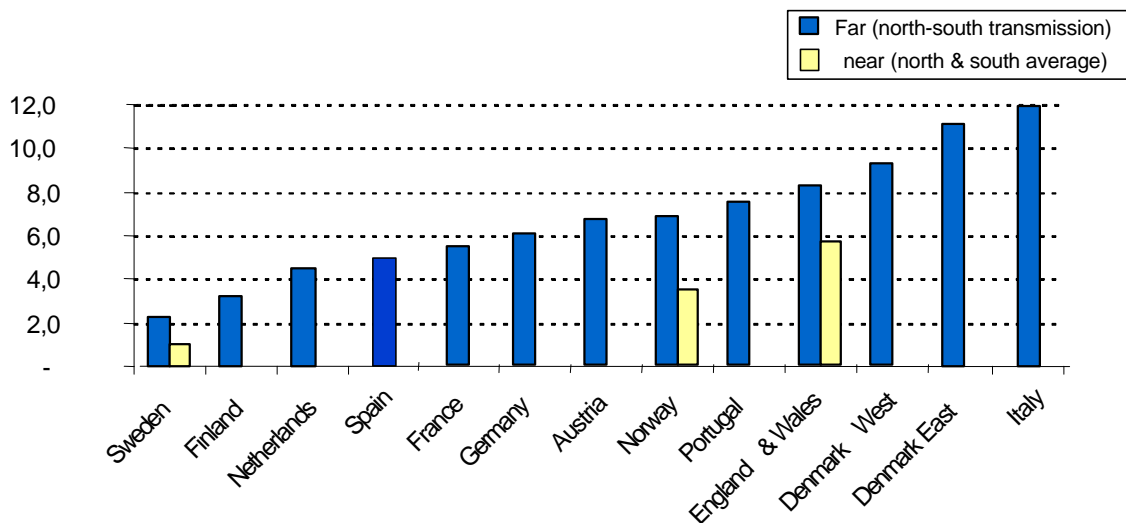
Position of the producer and consumer :



- ☞ Reference utilisation time: 5,000 hours, first day then night. The producer and the consumer are in two differentiated areas with a distance of 250 km. Producer located in the north and consumer located in the south of the country.
- ☞ Germany : only E.ON Netz, EnBW TNG and RWE Net are regarded, preliminary estimation due to major changes in the German power control market.
- ☞ Tariffs in the Nordic countries are not transaction based.

Comparison of transmission invoices : producer and consumer connected at EHV, for a utilisation time of 5,000 h

Application of transmission tariffs for producer + consumer both connected at EHV (220 kV - 400 kV), tariff scale in Euro per MWh for a utilisation time of 5,000 h



See appendix, for countries using a zonal tariff system : Norway, Sweden, England.

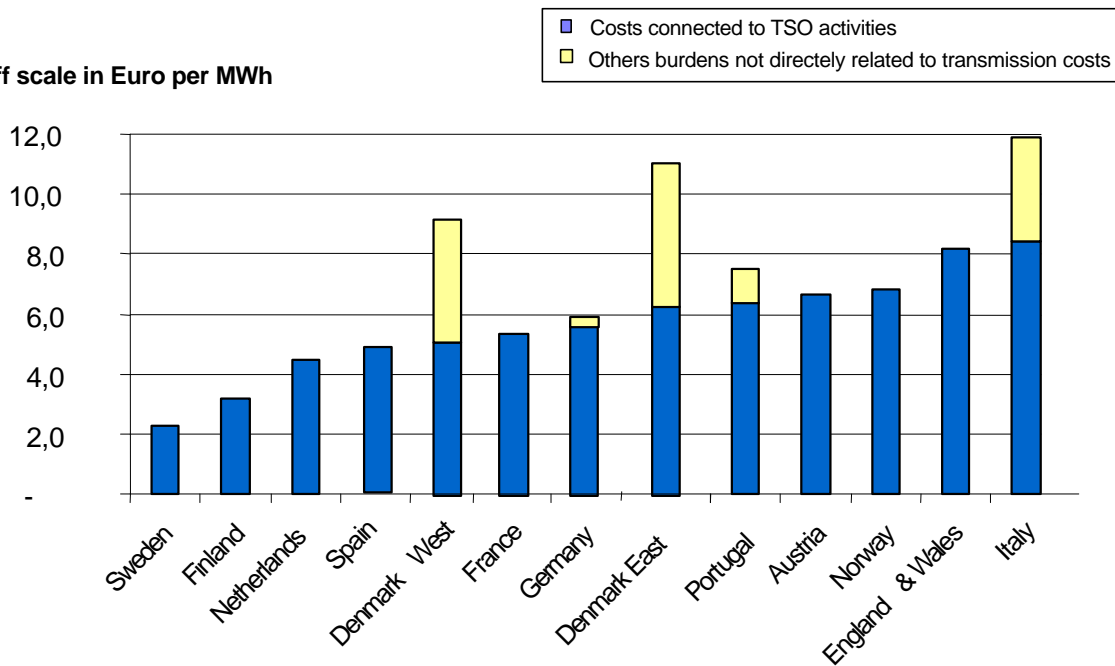
Finland : tariff includes also costs concerning 110 kV network, estimated price for a connection EHV is 1,6 Euro /MWh.

Germany : preliminary estimation due to major changes in the German power control market.

Denmark : tariffs include only costs concerning 400 kV network.

Comparison of transmission invoices : producer and consumer connected at EHV, for a utilisation time of 5,000 h without costs not directly connected to TSO activities

tariff scale in Euro per MWh



Appendices

1. Main characteristics of the transmission pricing principles in Europe
2. Comparison of network losses : producer and consumer connected at EHV, for a utilisation time of 5,000 h
3. Comparison of system services : producer and consumer connected at EHV, for a utilisation time of 5,000 h
4. Definition of the tariff areas in countries with a point of connection pricing mode

Appendix 1 : Main characteristics of the transmission pricing principles in Europe

G Component	COUNTRY	LOCATION SIGNAL	SEASONAL SIGNAL
< 20 %	France	No	No
	Germany	No	No
	Spain	No	Yes
	Portugal	No	Yes
	Finland	No	Yes
	Italy	No	Yes
	Austria	No	Yes
> 20 %	Denmark	No	Yes
	East / West		
	England & Wales	Yes	Yes
	Sweden	Yes	Yes
	Norway	Yes	Yes
	Netherlands	No	No

Appendix 2 : Comparison of network losses : producer and consumer connected at EHV, for a utilisation time of 5,000 h

Losses (Euro/MWh)	COUNTRY
... < 0,3	Netherlands Denmark East Germany Italy
0,4 < ... < 0,7	Finland Norway France Denmark West Sweden England & Wales
0,8 < ...	Austria Portugal Spain

Appendix 3 : Comparison of system services : producer and consumer connected at EHV, for a utilisation time of 5,000 h

System services (Euro/MWh)	COUNTRY
... < 0,4	Sweden Norway Finland
0,6 < ... < 1,5	Austria France England & Wales Netherlands
2 < ...	Portugal Spain Denmark West Germany Italy Denmark East

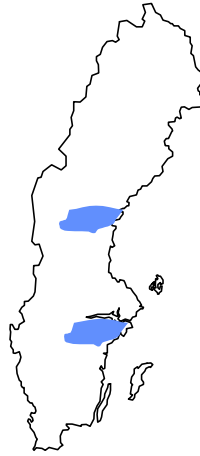
Appendix 4 : Definition of the tariff areas in countries with a point connection transmission pricing mode

England and Wales



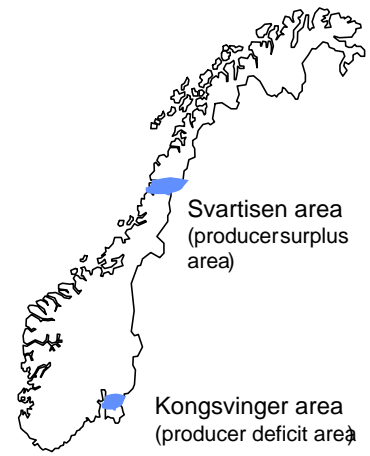
North area = south of Yorkshire
 South area = north of Southern

Sweden



North area = « Mellersta Norland »
 (East of Sundsvall area).
 South area = Suburb of Stockholm.

Norway (EHV only) :



Typical differentiated area
 for EHV price calculation