



Quality of Service in Portugal

ERSE

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Milan, June 8th



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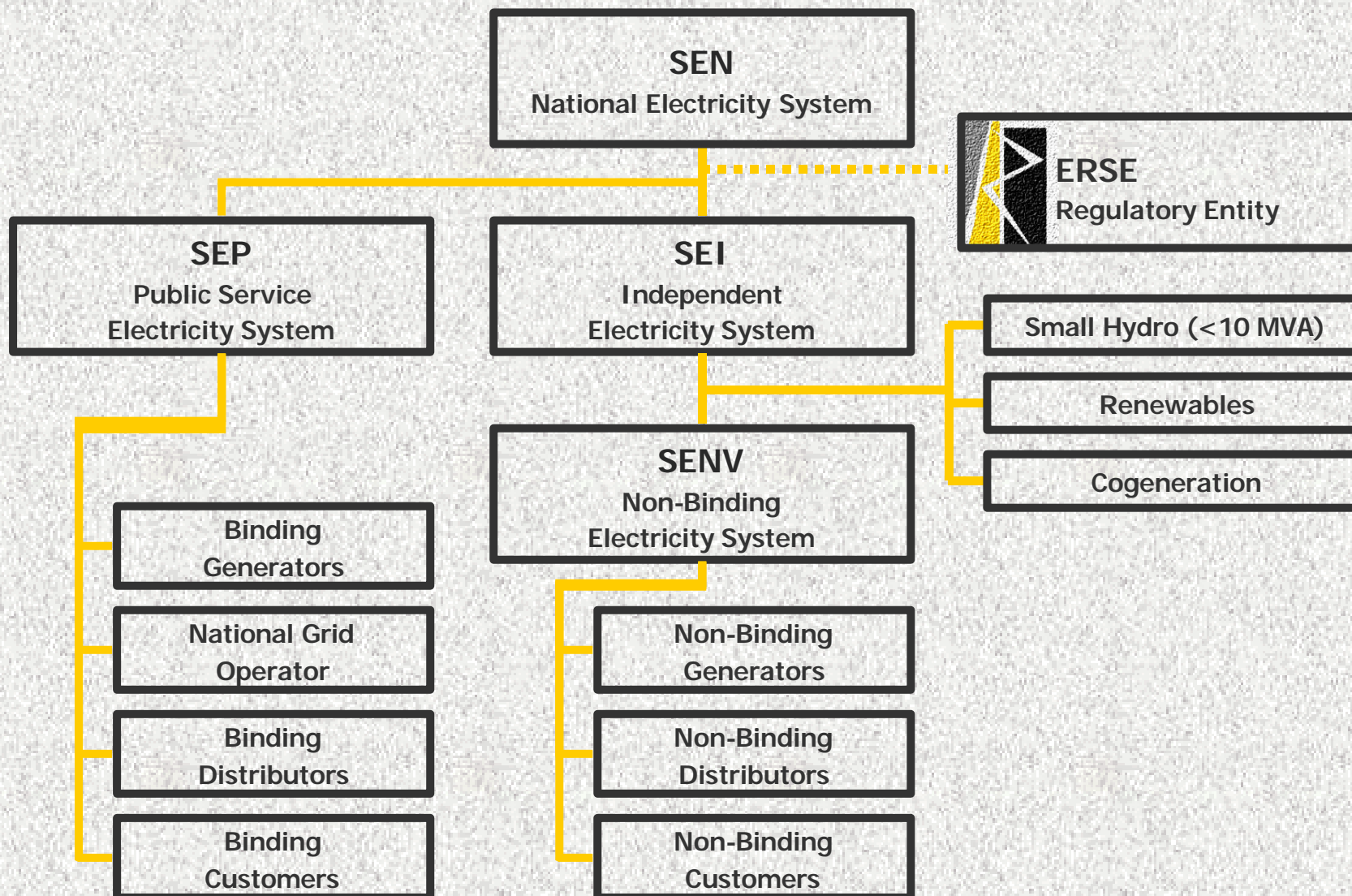
- ➡ The Portuguese Electricity System
- ➡ Quality of Service Regulation
- ➡ Information on Quality of Service



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- ➡ **The Portuguese Electricity System**
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The Portuguese Electricity System



The Portuguese Electricity System



- ➡ Electricity consumption » 35,7 TWh (1999)
- ➡ Consumption per capita » 3,5 MWh
- ➡ Electricity demand growth » 5,3% (1978/99)
- ➡ Number of customers » 5,4 million (2000)
- ➡ Market opening » 33% (1999-2001)

- ➡ Total installed capacity » 9 GW
 - ➡ Hydro » 4 GW
 - ➡ Thermal » 5 GW

The Portuguese Electricity System



SEP

➡ Generation Companies

- ➡ CPPE (EDP Group) 7138,7 MW
 - ▶ Hydro 3684,0 MW
 - ▶ Thermal 3454,7 MW
- ➡ TEJO ENERGIA (Coal) 615,2 MW
- ➡ TURBOGÁS (Gas) 990,0 MW

➡ Transmission

- ➡ REN - Rede Eléctrica Nacional, S.A.

➡ Distribution

- ➡ EDP Distribuição- Energia S.A.
- ➡ 10 small local distributors (around 0,5% market share)

SEI

➡ SENV

➡ Generation Companies

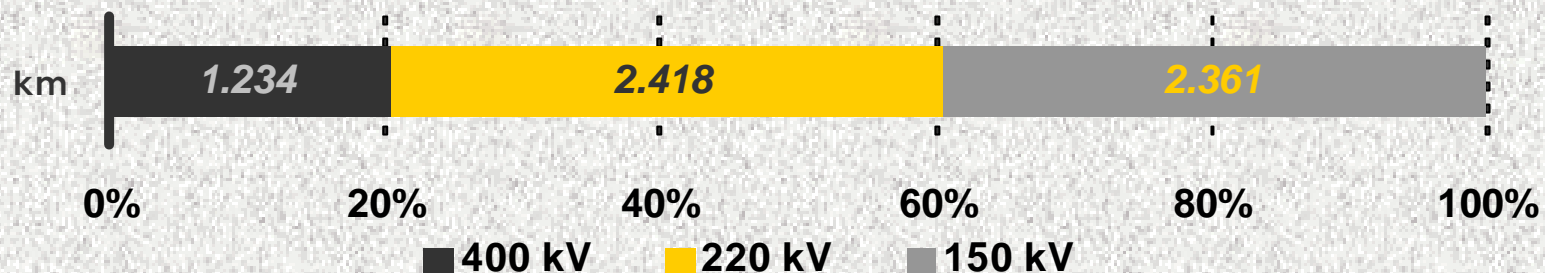
- ▶ HDN 114,8 MW
- ▶ HIDROCENEL 105,7 MW
- ▶ HIDROTEJO 84,7 MW
- ▶ TOTAL 305,2 MW
- ▶ 22 Non-binding customers

➡ Small Generators (Cogeneration and Renewables)

- ▶ 14% of total national consumption

The Portuguese Electricity System

➡ Transmission Network



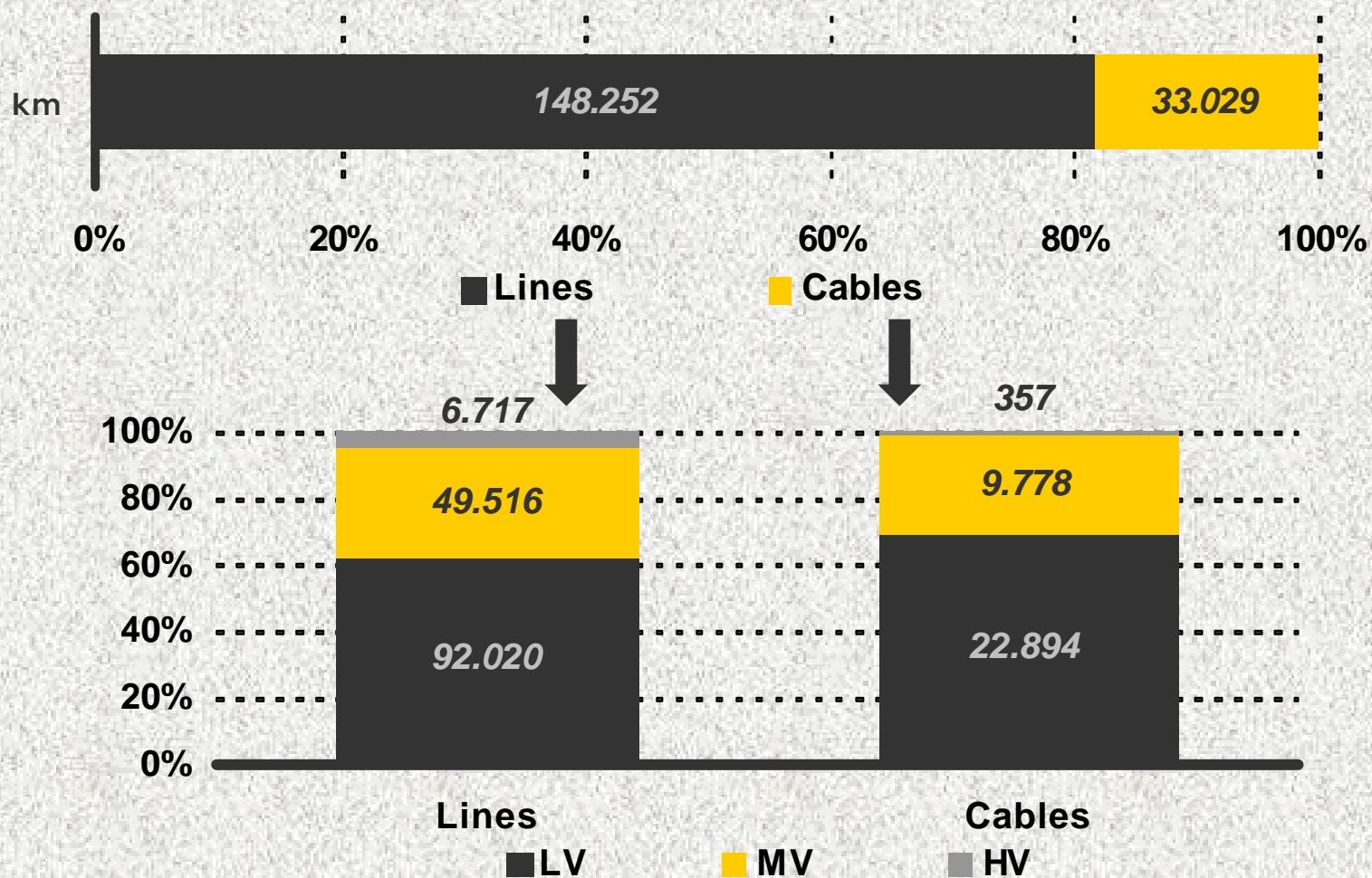
Source: REN - Rede Eléctrica Nacional, S.A.

Voltage Level	Total lenght of the Network (km)		Variation (%)
	2000	1999	
400 kV	1235	1234	0,1
220 kV	2418	2357	2,6
150 kV	2361	2400	-1,6
Total	6014	5990	0,4

Source: REN - Rede Eléctrica Nacional, S.A.

The Portuguese Electricity System

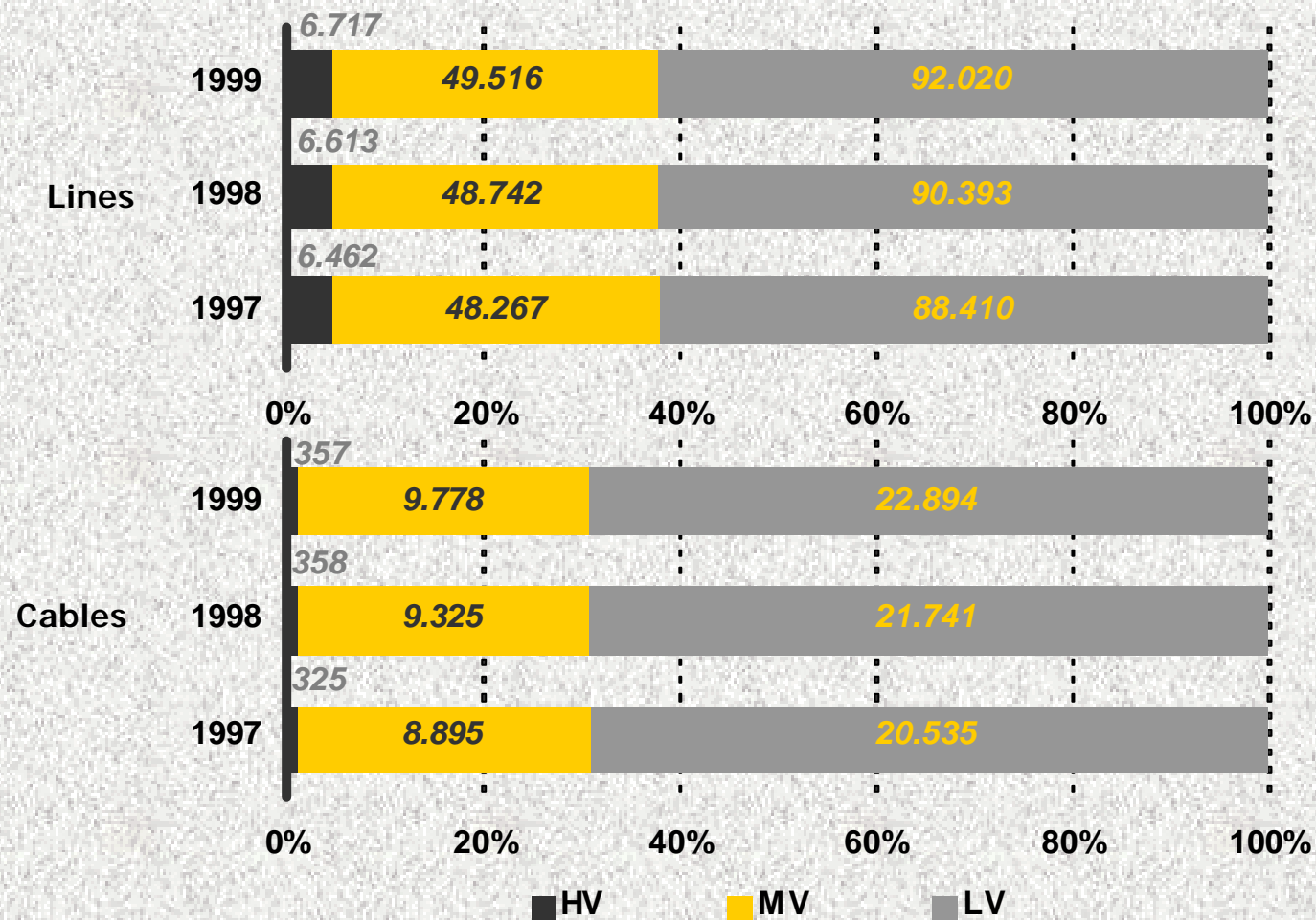
➡ Distribution Network



Source: EDP Distribuição, S.A.

The Portuguese Electricity System

➡ Distribution Network



Source: EDP Distribuição, S.A.



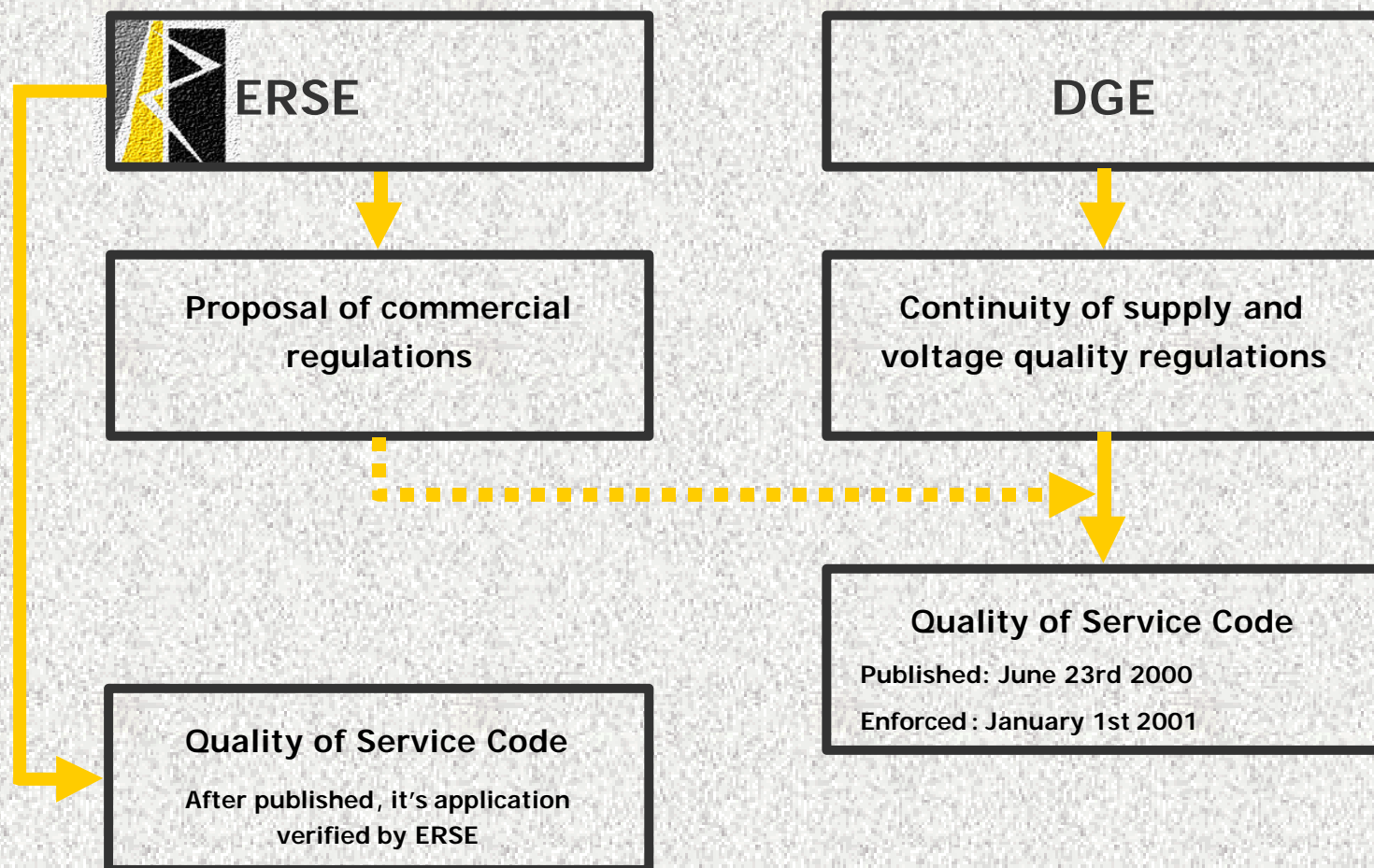
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- ➡ Information on Quality of Service

Quality of Service Regulation

➡ Quality of Service Legal Framework

➡ The QUALITY OF SERVICE CODE



Quality of Service Regulation



The Quality of Service Code

➔ Geographical classification - localities with...

- ➔ ...more than 25 thousands customer Zone A
- ➔ ...less than 25 thousands and more than 5 thousands customers Zone B
- ➔ ...less than 5 thousands customers Zone C

➔ Voltage levels

- ➔ ...higher than 110 kV VHV (Very High Voltage)
- ➔ ...higher than 45 kV and equal or lower than 110 kV HV (High Voltage)
- ➔ ...higher than 1 kV and equal or lower than 45 kV MV (Medium Voltage)
- ➔ ...equal or lower than 1 kV LV (Low Voltage)

➔ Continuity of Service Standards

- ➔ Considered only long interruptions ($t > 3$ min)
- ➔ excluded all interruptions caused by: acts of God/ public interest / service reasons / safety reasons / agreements with the customer / facts attributable to the customer

Quality of Service Regulation



The Quality of Service Code

➡ Main Ideas

- ➡ Information to customers
- ➡ Customers participation
- ➡ Disabled customers
- ➡ Indicators and Standards
- ➡ Monitoring
- ➡ Compensations to customers

Quality of Service Regulation



The Quality of Service Code

➡ Information

- ➡ Companies have to inform their customers about several important matters (e.g. supply contract, invoicing and payments, quality of service standards, etc.)
- ➡ Companies have to publish brochures/leaflets concerning matters of consumers interest (guaranteed standards, compensation payments, disabled customers, etc.)
- ➡ Maximum delays to reply information requests made by customers
- ➡ Companies and ERSE publish annual Quality of Service Reports

Quality of Service Regulation



The Quality of Service Code

➡ Customers Participation

- ➡ Setting up of procedures and standards in order to facilitate the interaction/communication between customers and companies
- ➡ Guaranteed standards facilitate customers participation in quality of service monitoring
- ➡ Consultation of consumer associations and disabled consumers associations about matters of their interest

Quality of Service Regulation



The Quality of Service Code

➡ Disabled Customers

⇒ Who are they?

- ▶ Wheelchair customers
- ▶ Blind customers
- ▶ Deaf customers
- ▶ Customers who depend on medical electrical equipments

⇒ Distributor duties

- ▶ To set up a Special Needs Register
- ▶ To pay particular attention to the disabled customers in order to guarantee to them a high level of quality service
- ▶ To give prior notice (individually) of planned interruptions to customers who depend on medical electrical equipment

Quality of Service Regulation



The Quality of Service Code

➡ General Continuity of Service Indicators

Distribution		Transmission
MV Network	LV network	
<ul style="list-style-type: none">•TIEPI (h)•SAIFI•SAIDI (min)	<ul style="list-style-type: none">•SAIFI•SAIDI (min)	<ul style="list-style-type: none">•ENS (MWh)•TIE (min)•SAIFI•SAIDI (min)•SARI (min)

- TIEPI: Average Interruption Time (related to the installed capacity)
- TIE: Average Interruption Time

Quality of Service Regulation



The Quality of Service Code

➡ General Continuity of Service Standards

Distribution		Transmission
MV Network	LV network	
<ul style="list-style-type: none">•TIEPI (h)<ul style="list-style-type: none">•3 (zone A)•6 (zone B)•24 (zone C)		<ul style="list-style-type: none">•ENS (MWh)•TIE (min)•SAIFI•SAIDI (min)•SARI (min) <p>} Not defined</p>
<ul style="list-style-type: none">•SAIFI and SAIDI: From year 2002		

Quality of Service Regulation

The Quality of Service Code

➡ Continuity of Service Individual Standards



			Voltage Levels			
			LV	MV	HV	VHV
Number of Interruptions per year	Z	A	12	8	8	3
		B	26	20		
		C	46	40		
Duration of Interruption (h/year)	E	A	6	4	4	1
		B	10	8		
		C	25	20		

Quality of Service Regulation



The Quality of Service Code

➡ Voltage Quality

➡ LV and MV - NP EN 50 160

➡ HV and VHV - CEI 1000-3-7

CEI 1000-3-6

NP EN 50 160

Quality of Service Regulation



The Quality of Service Code

➡ Commercial Quality Guaranteed Standards

Service	Performance Level
Appointments to visit customer premises	Appointments during a pre-arranged period of 3 hours
Respond to a failure/interruption in customer supply	Zone C LV customers: 5 hours Other customers: 4 hours
Restoring supply after disconnection caused by customers (e.g.non-payment)	LV: until 5 p.m. next working day Non-LV: within 8 hours
Responding to customers queries about billing and payment	Reply within 20 working days
Investigation on voltage complaints	Visit or substantive reply within 20 working days
Responding to meter problems	Visit within 20 working days

Quality of Service Regulation

The Quality of Service Code

➡ Commercial Quality Overall Standards



Overall Standards (levels of performance which companies are expected to achieve over a 12 months period)	Performance
Percentage of estimated charges for supplies in LV responded within 20 working days	95%
Percentage of LV customer's premises connected to electricity distribution system within 30 working days	95%
Percentage of LV customers provided with supply and meter within 2 working days after signature of supply contract	90%
Percentage of visiting customers with a waiting time period up to 30 minutes, in customer centres	90%
Percentage of telephone enquiries responded within 60 seconds	75%
Percentage of electricity supplies restored following faults within 4 hours	80%
Percentage of customer complaints responded within 20 working days	95%
Percentage of written information requests responded within 20 working days	90%
Percentage of customer's meters with a firm reading at least once a year	98%

Quality of Service Regulation



The Quality of Service Code

➡ Compensation Payments to Customers

- ⇒ **Who pays?** Distribution Companies
- ⇒ **When?** Whenever distributors fail continuity of supply standards or guaranteed standards of commercial quality
- ⇒ **Payment method** After customer claim
- ⇒ **How much?**
 - ▶ **Commercial quality:**
 - 14,96 € - LV customers with contracted power up to 20,7kVA
 - 24,94 € - other LV customers
 - 74,82 € - MV and HV customers

Quality of Service Regulation



The Quality of Service Code

➡ Compensation Payments to Customers

⇒ How much (cont.)?

▸ Continuity of service:

▸ number of interruption standard

$$\left[(NI - NI_p) / NI_p \right] \times \text{penalty factor}$$

▸ duration of interruptions

$$\left[(DI - DI_p) / DI_p \right] \times \text{penalty factor}$$

NI..... number of long interruptions during the last calendar year

DI total duration of long interruptions during the last calendar year

NI_p, DI_p..... standard value

Penalty factor: 29,93 € - LV customers with contracted power up to 20,7 kV

49,88 € - for the other LV customers

149,64 € - MV, HV and VHV customers

Quality of Service Regulation



The Quality of Service Code

➡ Quality of Service monitoring

➡ Customers

- ▶ Checking the fulfilment of guaranteed standards

➡ Companies

- ▶ Voltage quality monitoring made in accordance with an annual monitoring plan
- ▶ Collection of information concerning quality of service
- ▶ Computation of performance standards
- ▶ Market researches and surveys to evaluate customer views and satisfaction on quality of service
- ▶ Internal Audits of collecting and reporting systems
- ▶ Publication of Annual Quality of Service Reports

➡ ERSE

- ▶ Audit of companies collecting and reporting systems
- ▶ Publication of an Annual Quality of Service Report

Quality of Service Regulation



The Quality of Service Code

➡ Pros

- ➡ Information to Customers
- ➡ Customers participation
- ➡ Monitorig of quality of service
- ➡ Information about quality of service (Quality of Service Reports)

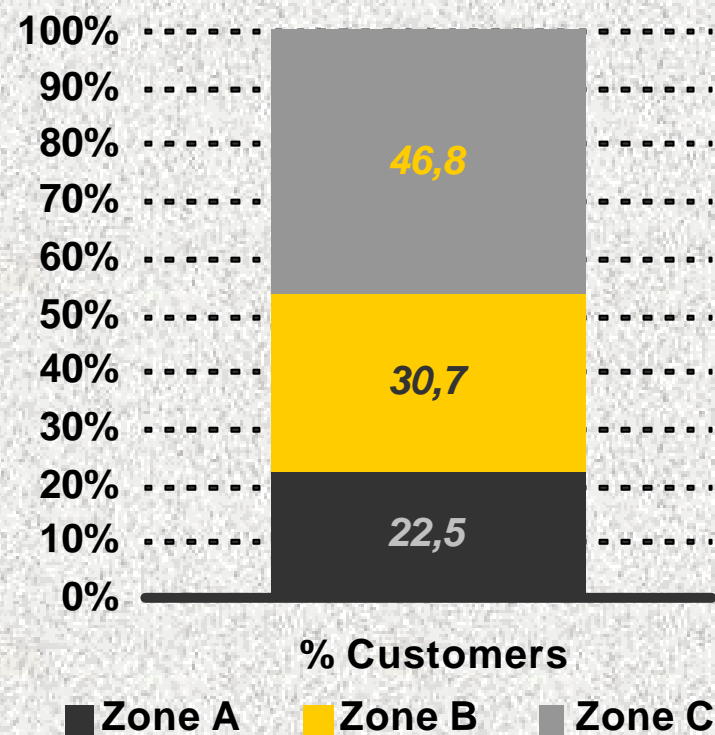
Quality of Service Regulation



The Quality of Service Code

➡ Cons

- ➡ Continuity of Service standards
- ➡ Geographical classification (Zone A, Zone B, Zone C)
- ➡ Calculation of compensation payments
- ➡ Compensation payments method (after customer claim, not in an automatic way)
- ➡ Continuity of supply monitoring (customers have to install monitoring equipments approved by distributors)



Source: EDP Distribuição, S.A.



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Information on Quality of Service

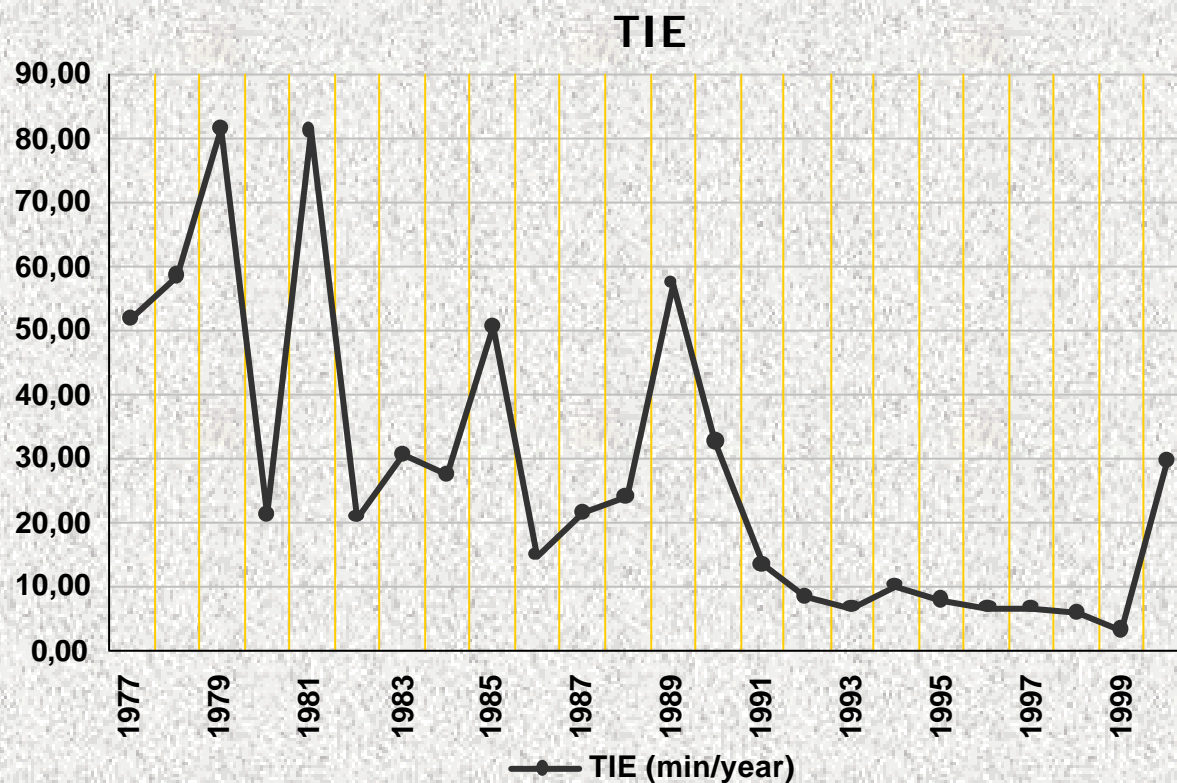


➡ Transmission System Performance in 2000

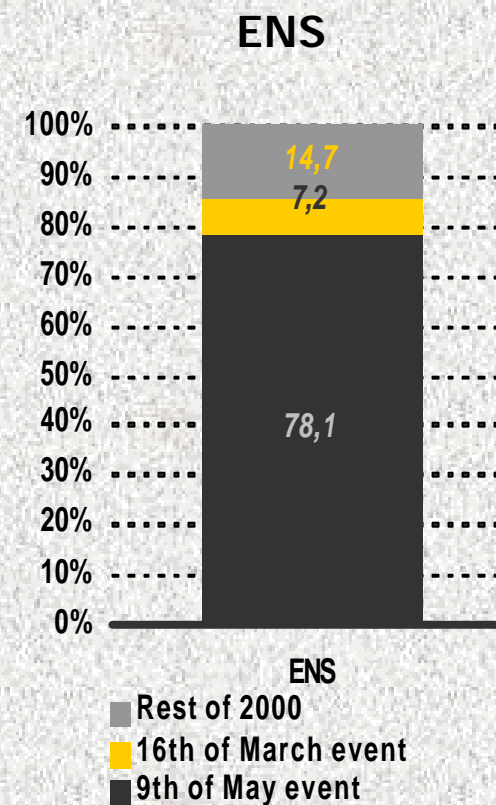
➡ ENS.....	2016,7 MWh
➡ TIE	29,53 min
➡ SAIFI.....	0,94
➡ SAIDI.....	24,40 min
➡ SARI.....	25,92 min

Information on Quality of Service

➡ Transmission System Performance



Source: REN, S.A.



Source: REN, S.A.

Information on Quality of Service



➡ Distribution System Performance in 2000

⇒ TIEPI	637,86 min
⇒ SAIFI _{MV}	9,39
⇒ SAIFI _{LV}	8,97
⇒ SAIDI _{MV}	819,53 min
⇒ SAIDI _{LV}	787,94 min

Note: Considered all long interruptions ($t > 3$ min)

Source : EDP Distribuição - Energia S.A.

Information on Quality of Service



➡ Distribution System Performance in 2000

➡ Revised bills 3,43/100

customers

➡ Meter readings

1,99/customer

➡ Customer complaints 3,76/100

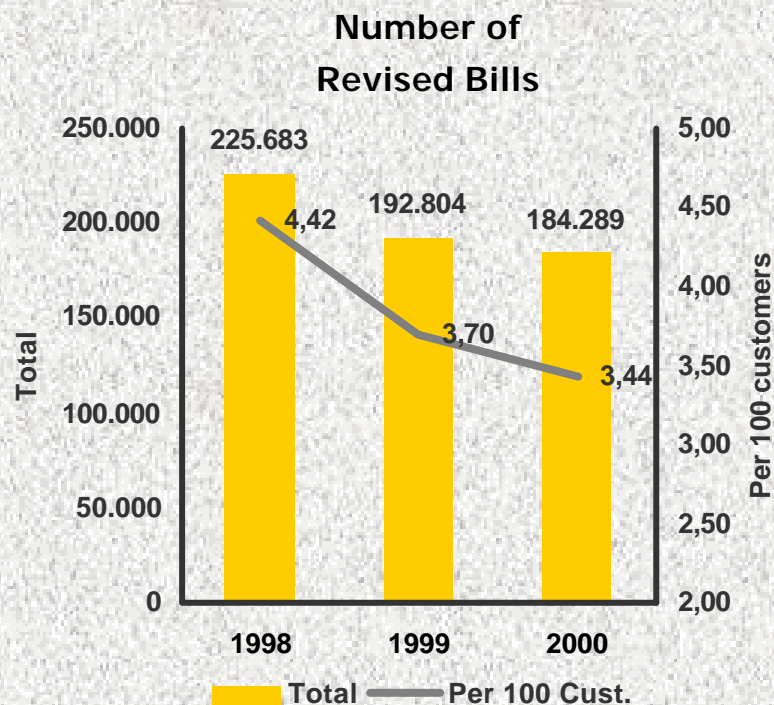
customers
Note: considered all LV customers with contracted power up to 41,4kW (including
public lighting and distributor facilities)

➡ Interruptions due to non-payment..... 2,42/100

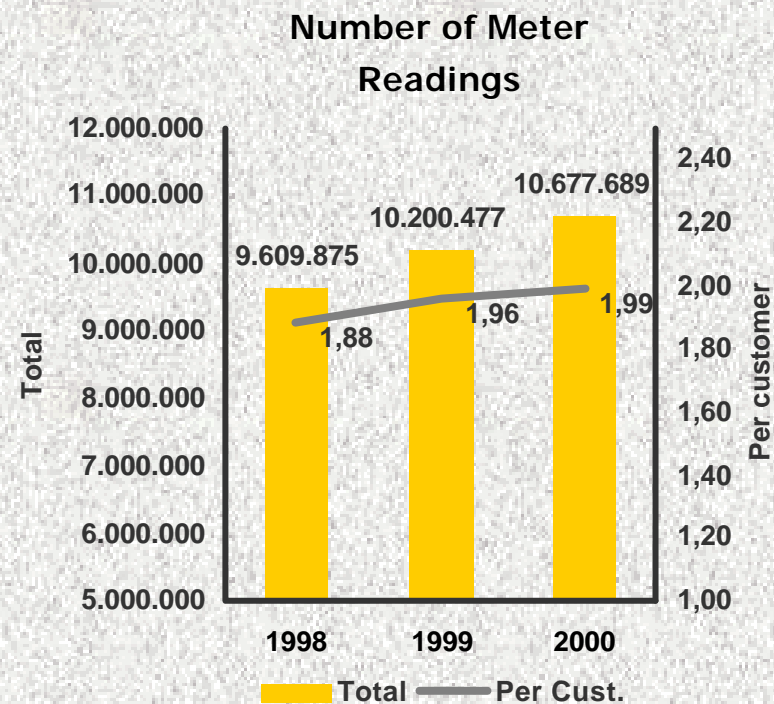
customers
Source: EDP Distribuição - Energia S.A.

Information on Quality of Service

➡ Commercial Quality Performance



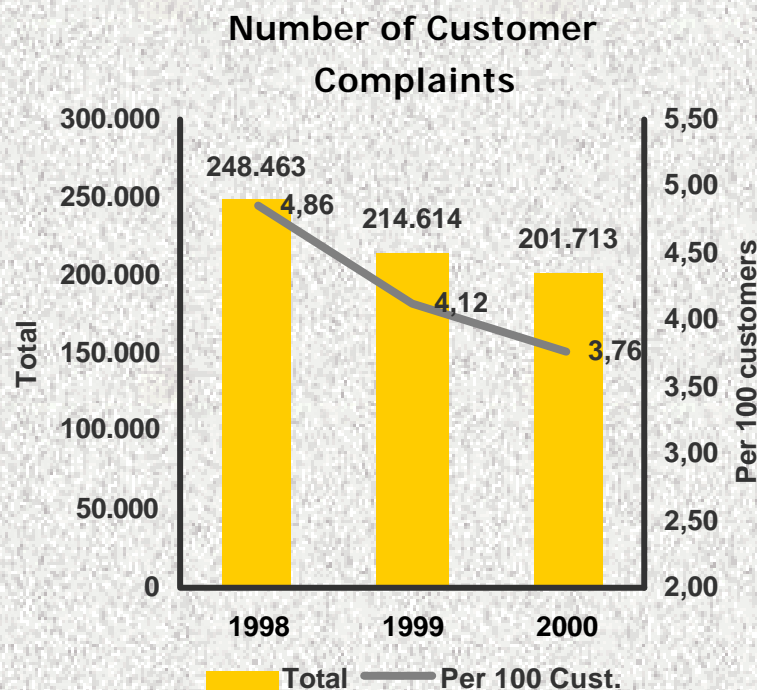
Source: Distribution Companies



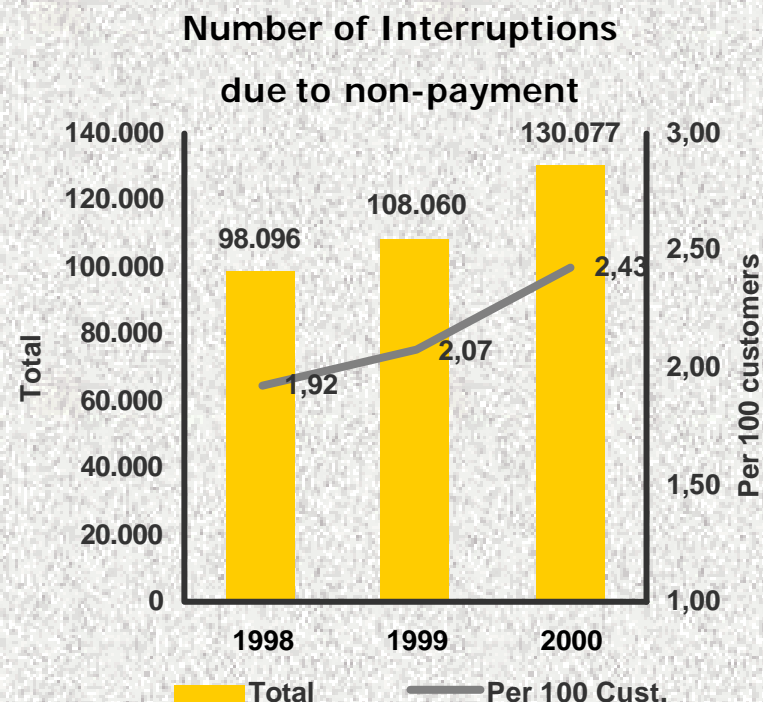
Source: Distribution Companies

Information on Quality of Service

➡ Commercial Quality Performance



Source: Distribution Companies



Source: Distribution Companies



Thank you!

ERSE - ENTIDADE REGULADORA DO SECTOR ELÉCTRICO

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