SERVICE QUALITY REGULATION: an introductory overview

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CEER Workshop, Lisbon 11 September 2008

SERVICE QUALITY REGULATION MEANS PERFORMANCE (OUTPUT) REGULATION

ELECTRICITY SERVICE

- **COMMERCIAL QUALITY**
- **CONTINUITY OF SUPPLY**
- **VOLTAGE QUALITY**

SUPPLY

- CALL CENTERS
- BILLING
- COMPLAINTS
- RECONNECTIONS AFTER NON-PAYMENT DISCONNECTIONS

TRANSMISSION and DISTRIBUTION

- READING
- APPOINTMENTS
- NEW SUPPLY ESTIMATES
- CONNECTIONS TO NETWORK
- PROVIDING SUPPLY
- METER INVESTIGATIONS
- UNPLANNED SUPPLY INTERRUPTIONS (LONG AND SHORT)
- PLANNED (NOTIFIED) SUPPLY INTERRUPTIONS
- VOLTAGE INVESTIGATIONS
- VOLTAGE VARIATIONS
- VOLTAGE DIPS / SWELLS
- RAPID VOLTAGE CHANGES
- FLICKER
- HARMONICS
- UNBALANCE

MULTIDIMENSIONALITY OF OUTPUTS IS AN ISSUE FOR REGULATORS

Regulators generally find it easier to regulate price than quality.
Price has the greatest advantage of being (in certain markets at least) both one-dimensional and objectively measurable.
Quality, on the other hand, is hard to pin down. It has many dimensions, some of which typically rest upon subjective evaluations by the consumer.

R. Baldwin and M. Cave,
Understanding Regulation, 1999

SERVICE QUALITY REGULATION OBJECTIVES

REGULATION OF QUALITY

MAKE INFORMATION AVAILABLE

- SET RELIABLE MEASUREMENT RULES FOR QUALITY FACTORS
- PUBLISH ACTUAL QUALITY LEVELS

PROTECT WORST-SERVED CUSTOMERS

- SET AND MAINTAIN GUARANTEED QUALITY STANDARDS
- DETERMINE INDIVIDUAL COMPENSATIONS FOR STANDARD MISMATCHING

PROMOTE QUALITY IMPROVEMENT

- SET AND MAINTAIN OVERALL QUALITY STANDARDS
- LINK QUALITY AND REVENUES (TARIFFS)

FAVOUR AND TEST MARKET MECHANISMS

- PREFER CUSTOMER CHOICE WHENEVER POSSIBLE AND SAFE

PREREQUISITE ***INCENTIVE QUALITY REGULATION (P.B.R.)*** ***COMPETITION***

A CONCEPTUAL MAP FOR SERVICE QUALITY REGULATION

	MAKE INFORMATION AVAILABLE	PROTECT WORST-SERVED CUSTOMERS	PROMOTE QUALITY IMPROVEMENT	FAVOUR AND TEST MARKET MECHANISMS
COMMERCIAL QUALITY	Publication actual quality levels	Guaranteed quality standards	Telephone response incentives	
CONTINUITY OF SUPPLY	Regulatory measurement guidance	Multiple interruption standard	Incentive and penalty mechanism	Power quality contracts
VOLTAGE QUALITY	Volt.Qual. Monitoring systems	Volt.Qual. minimum standards		

CONDITIONS FOR SUCCESSFUL SERVICE QUALITY REGULATION

- Preliminary requirement: quality data measurement
  - Regulatory instruments must be fair and simple to implement
- Adjust regulatory schemes to account for specific industrial and institutional factors of the country
- Quality regulation greatly benefits from a gradual approach to the implementation process
- Quality regulation is never a permanent solution: periodic evaluation and revision
- An open dialogue across all interested parties is a fundamental part of an efficient regulation

THE NEED FOR HIGH LEVEL COMMITTMENT

Liberalisation is often opposed on the grounds that it could damage public service and weaken national industry.

We have taken quality of service as one of the main targets of regulatory action, the aim being to demonstrate that liberalisation plus regulation will produce better quality than did the previous regime.

Pippo Ranci, former AEEG President

[P. Ranci, *Regulating Energy in Italy*, in: C. Henry *et al*. (editors), Regulation of network Utilities. The European Experience, Oxford University Press, 2001, p. 195-204]

Output regulation

ELECTRICITY SERVICE

- **COMMERCIAL QUALITY**
- **CONTINUITY OF SUPPLY**
  Focus: interruptions in distribution networks
- **VOLTAGE QUALITY**

SUPPLY

- CALL CENTERS
- BILLING
- APPOINTMENTS
- RICONNECTIONS AFTER NON-PAYMENT DISCONNECTIONS

GENERATION, TRANSMISSION AND DISTRIBUTION

- READING
- COMPLAINTS
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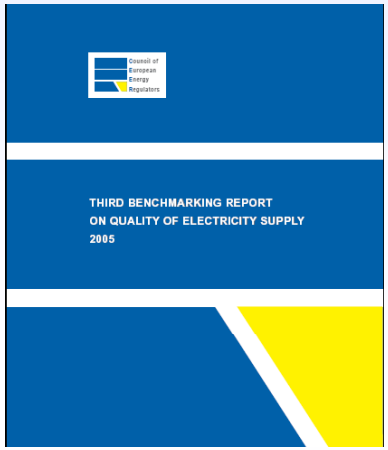
INCENTIVE/PENALTY SCHEMES
Comparing Regulations in EU

MAIN EXPERIENCES: DISTRIBUTION

- Italy (started in 2000, renewed in 2004 and 2008)
- Norway (started in 2001)
- Great Britain (started in 2002, renewed in 2005)
- Ireland (started in 2002)
- Hungary (started in 2003)
- Sweden (started in 2003)
- Portugal (started in 2004)
- Estonia (started in 2006)
- Netherlands (started in 2007)

All these incentive schemes have been compared in the 3rd CEER Benchmarking Report on Quality of Supply



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FOCUS ON A CASE STUDY: INCENTIVE/PENALTY SCHEME IN ITALY

A case study of service quality regulation: Italy (1)

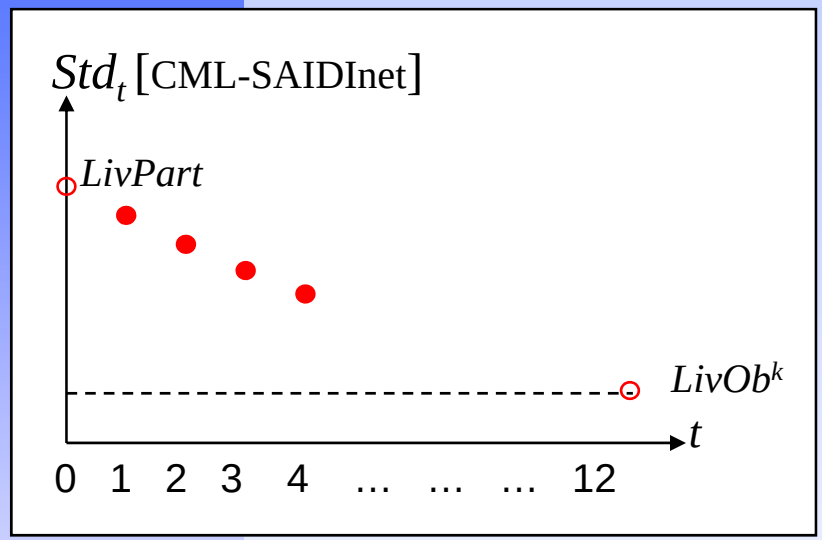
MONITORING CONTINUITY INDICATORS (SAIDI/SAIFI)

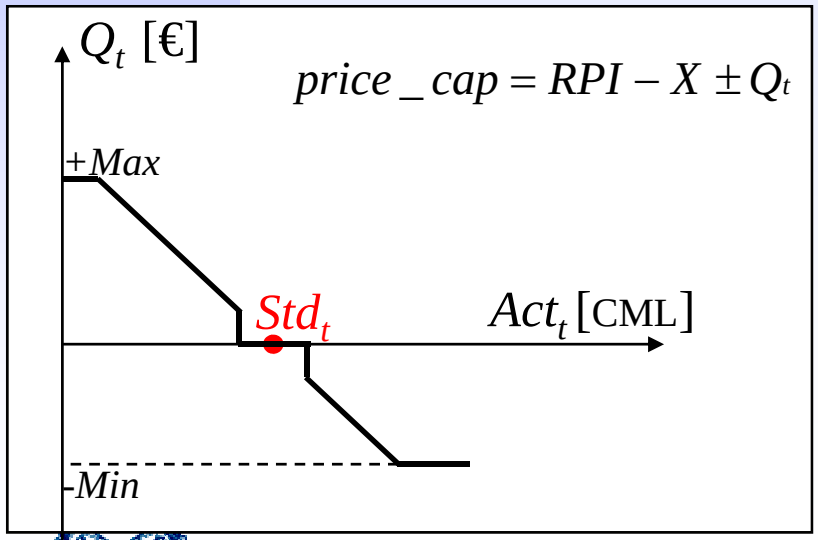
UTILITY: **ENEL Distribuzione Spa**
INTERRUPTIONS: **UNPLANNED, LONG** YEAR: **2004**
TERRITORY: **ALL AGGREGATE** UP TO MONTH: **12**

		VOLTAGE LEVELS				
	CAUSE	TRASM.	HV	MV	LV	TOTAL
DURATION (CML, SAIDI)	*Force Majeure*	0,0	0,0	14,9	1,1	16,0
	Users' or third parties' respons.	2,3	0,1	11,2	1,5	15,0
	Utility's responsibility	0,0	3,0	45,6	14,4	63,1
	Total all causes	2,3	3,1	71,7	17,0	**94,1**

	CAUSE	TRASM.	HV	MV	LV	TOTAL
NUMBER (CIs, SAIFI)	*Force Majeure*	0,00	0,00	0,08	0,00	0,09
	Users' or third parties' respons.	0,14	0,01	0,28	0,01	0,44
	Utility's responsibility	0,00	0,10	1,87	0,14	2,11
	Total all causes	0,14	0,11	2,23	0,15	**2,64**

A case study of service quality regulation: Italy (2)





FIRST STEP

SETTING STANDARDS AND REWARD/PENALTIES PARAMETERS

- *Ex-ante* for 4 years
- Reference to long-term objectives
- Reward/penalty parameters are based on WTP customer survey

FURTHER STEPS

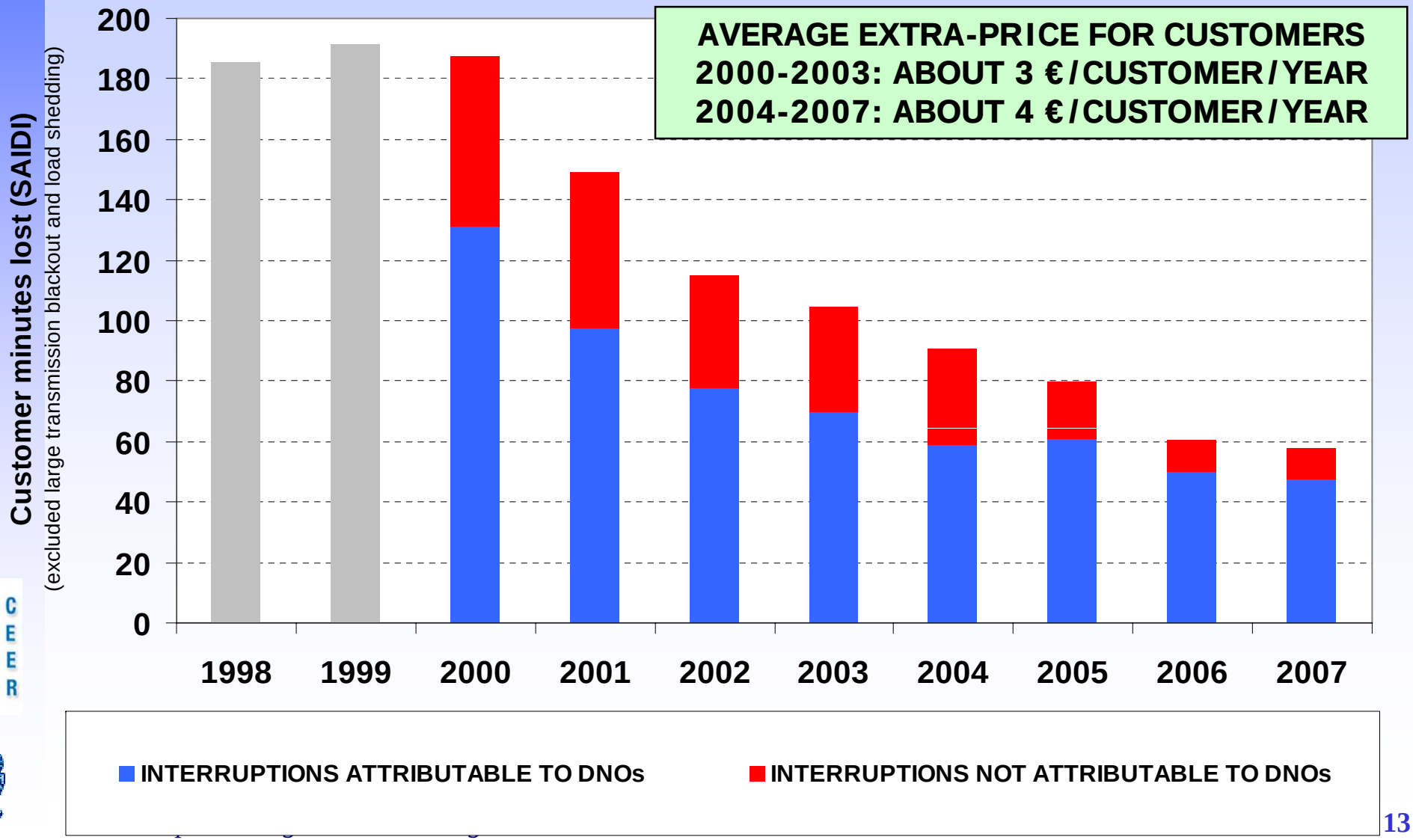
COMPARING ACTUAL LEVELS AND STANDARDS AND REWARD/PENALISE

- Each year *t*, companies are rewarded or penalised according to their performance
- Tariff is consequently adjusted

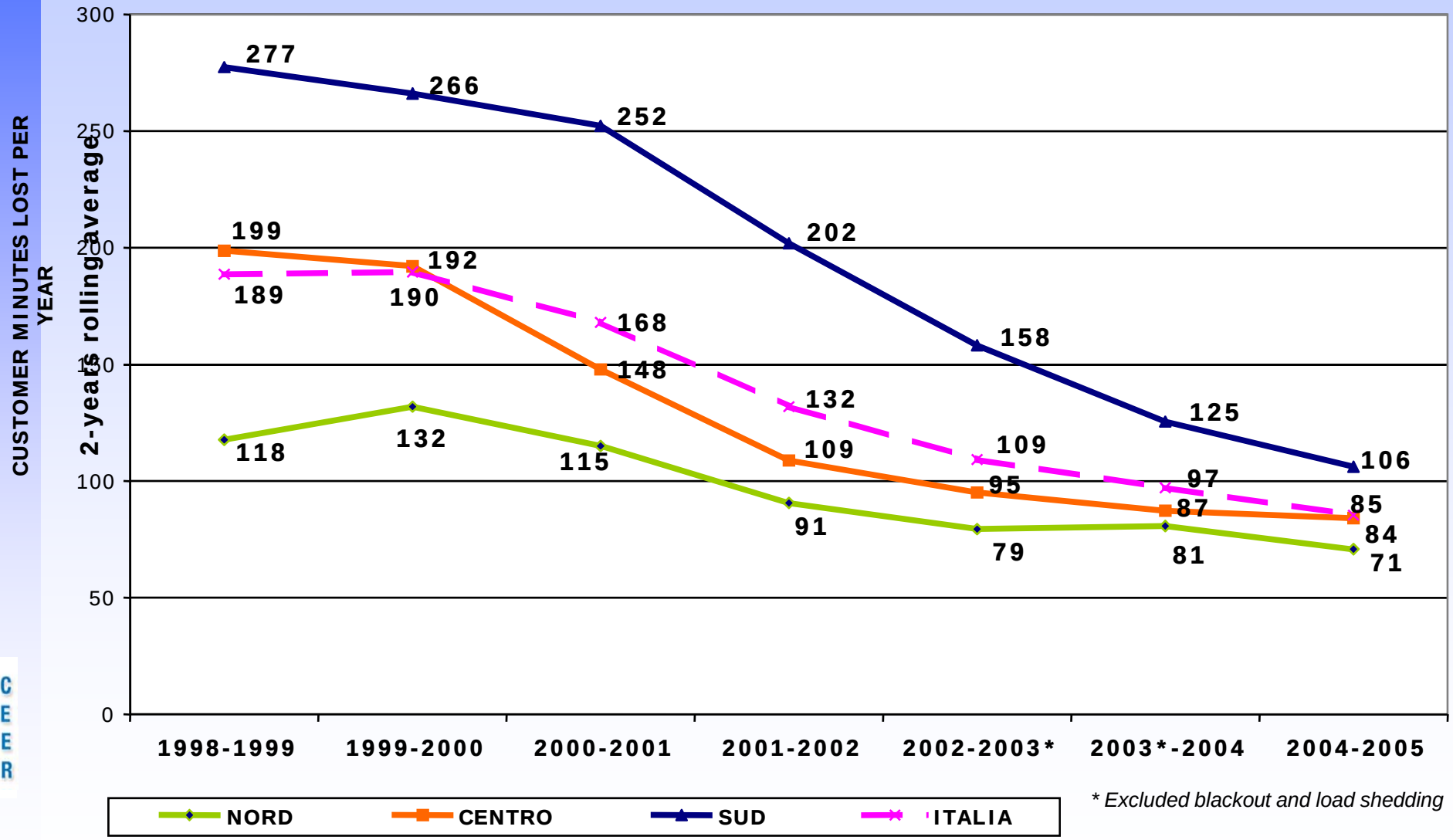
  ±Qt = (reward - penalty)/revenues

A case study of service quality regulation: Italy (3)

CONTINUITY OF ELECTRICITY SUPPLY - ITALY 1998-2007

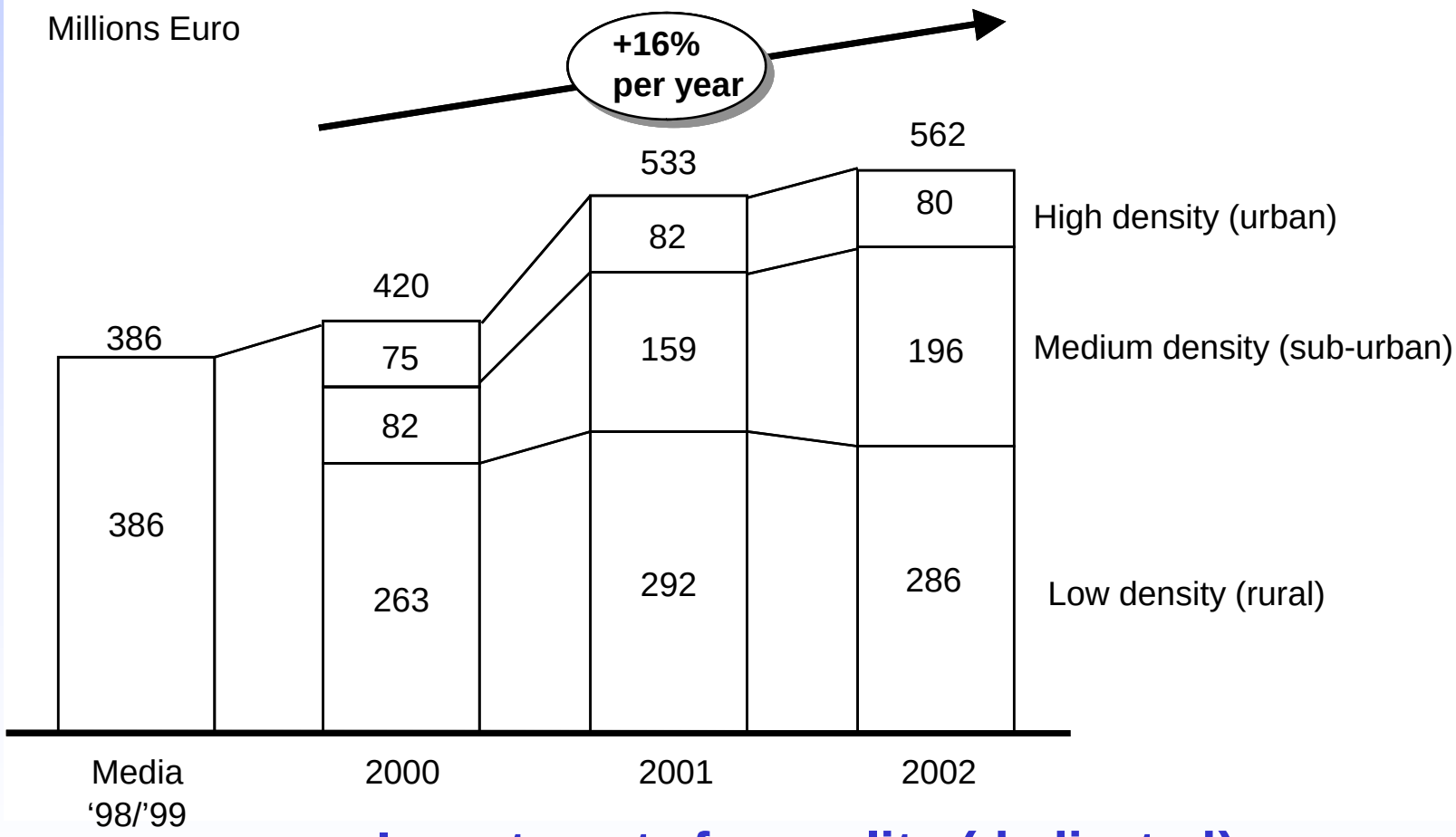


A case study of service quality regulation: Italy (4)



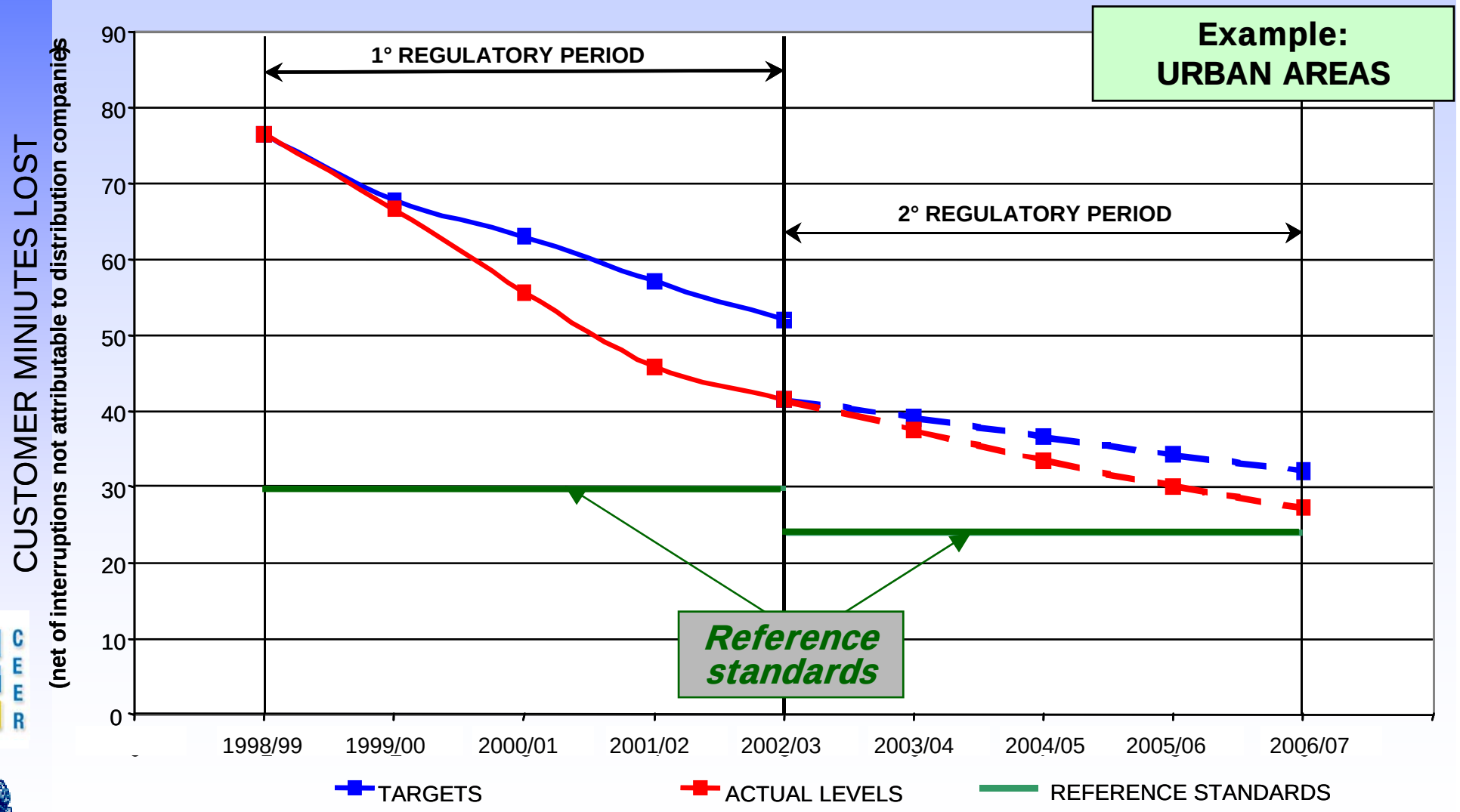
** Excluded blackout and load shedding*

A case study of service quality regulation: Italy (5)

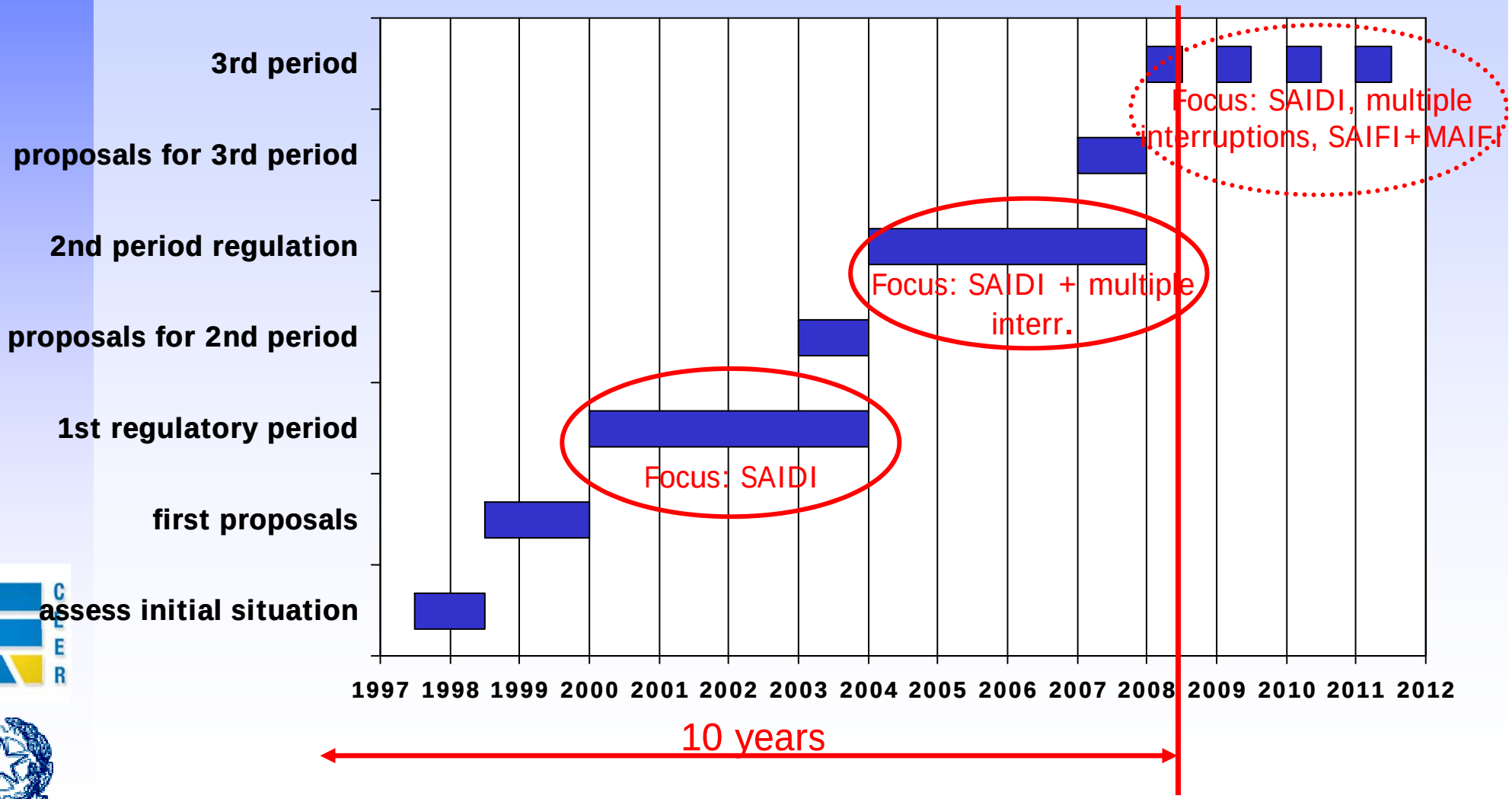


Investments for quality (dedicated); source: response to consultation paper

A case study of service quality regulation: Italy (6)



A case study of service quality regulation: Italy (7)



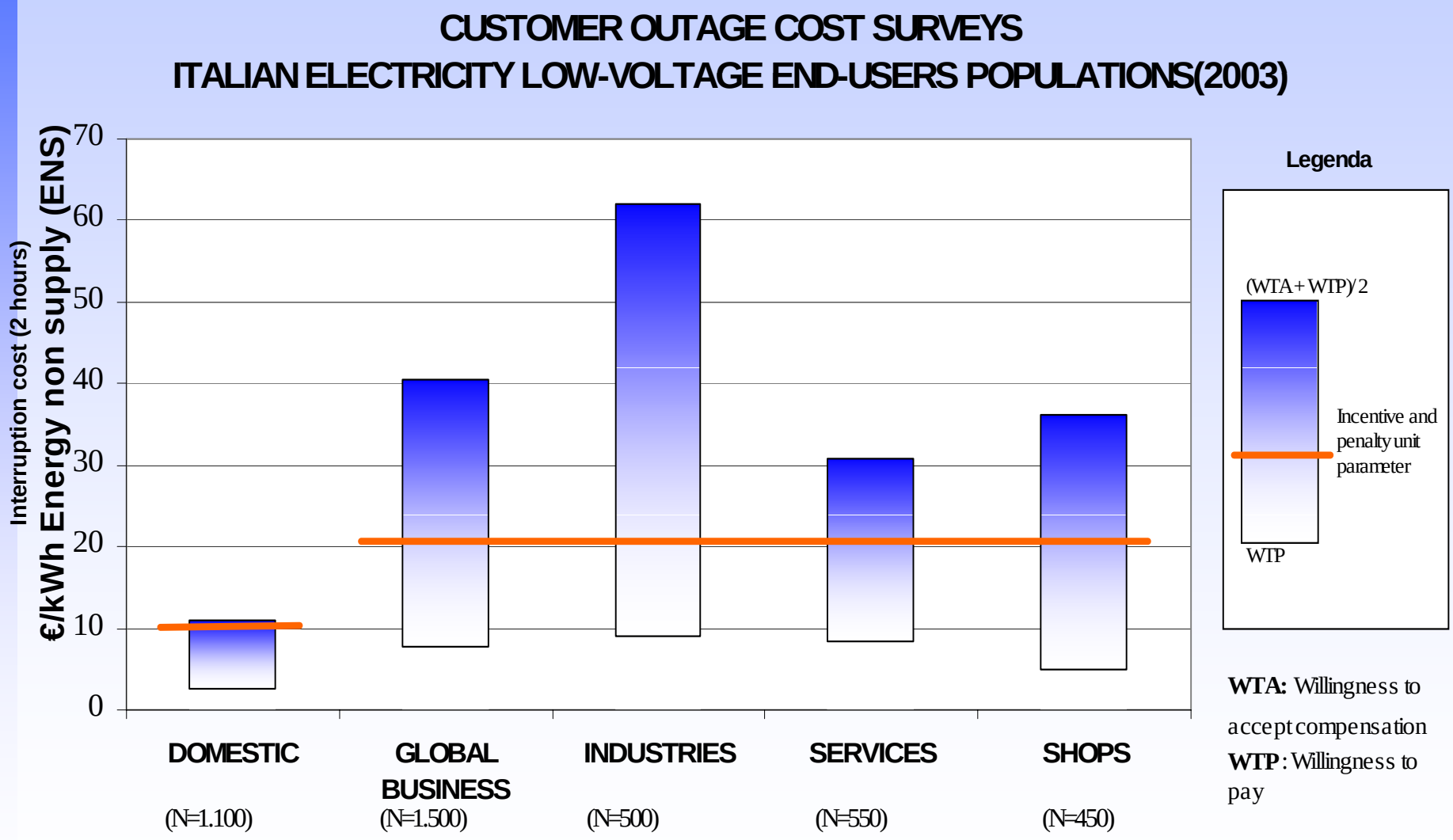
A case study of service quality regulation: Italy (8)

AUDITS BY AEEG ON CONTINUITY DATA

Legenda

- 1998-99
- 2000
- 2001
- 2002
- 2003
- 2004
- 2005
- 2006

A case study of service quality regulation: Italy (9)



Source: *Bertazzi, Fumagalli, Lo Schiavo,* CIRED (2005) paper n. 300

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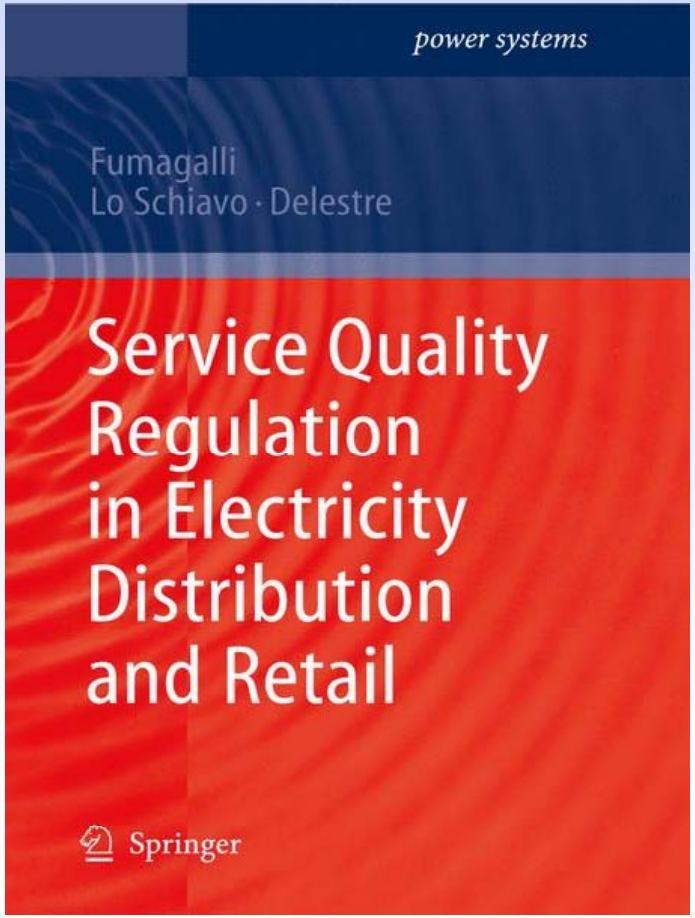
HANDBOOK OF SERVICE QUALITY REGULATION

- Product of joint cooperation between CEER and Florence School of Regulation (FSR)
- Based on the conceptual map (each chapter is a cell of the map)
- Both handbook for beginners and reference for advanced topics
- Contents:
  1 Introduction.- 2 The basics of service quality regulation.- 3 Commercial quality.- 4 Continuity of supply.- 5 Voltage quality.- 6. References on specific issues.
- Published in Sept-07 by Springer

ISBN: 978-3-540-73442-0



NEW PERSPECTIVES

- Voltage quality standards
  - Revision of CENELEC technical norm
  - Some reluctance from Eurelectric – dialogue ongoing
- Connection technical rules
  - distribution grid code – DG development
- Process regulation / Input regulation
  - Asset management (e.g. UK: PAS 55 certification)
  - Input regulation when outputs are difficult to measure
- Supply (free market) service quality
  - Market tools /cust.satisf. vs Authority's regulation?

SERVICE QUALITY IN THE 3rd PACKAGE

- Regulatory powers – initial draft: Article 22c "Duties and powers of regulatory authorities"

  g) monitoring network security and reviewing network security and reliability rules

- Portugal EU Presidency (2nd semester 2007)

  g) monitoring compliance with network security and reliability rules and monitoring standards and requirements for quality of service and supply

- Suggested text

  g) Setting and monitoring standards and requirements for quality of service and supply and monitoring compliance with network security and reliability rules

WEB REFERENCES

3rd CEER Benchmarking Report on Quality of Electricity Supply can be downloaded freely at:

www.ceer-eu.org

> publications > 2005

Italian actual quality levels can be queried interactively at:

www.autorita.energia.it

> banche dati qualità *(comm./cont.)*

http://queen.ricercadisistema.it

> dati aggregati *(voltage quality)*

Thank you for your attention

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