

THE ELECTRIC MARKET OF ITALY: REGULATORY EXPERIENCE AND CROSS- BORDER ELECTRICITY TRADE

by Sergio F. Garribba, Commissioner

The Regulatory Authority for Electricity and Gas, Italy

www.autorita.energia.it



2nd CEER-NARUC Roundtable

Seattle, WA, July 14, 2001

DISCLAIMER

The following presentation is delivered under the personal responsibility of the author and does not necessarily reflect the views or policies of the Regulatory Authority for Electricity and Gas of Italy



OUTLINE

A. BACKGROUND

**B. THE CHANGING ELECTRICITY
MARKET**

**C. STEPS TOWARDS A COMPETITIVE
POWER MARKET**

**D. GUIDELINES FOR AN INTER-TSO
PAYMENT SCHEME**

E. CONCLUSION



A. BACKGROUND: THE LEGAL FRAMEWORK

- **The Regulatory Authority** - law no. 481 of November 14, 1995
- **New electricity market** - legislative decree no. 79 of March 16, 1999, implementing the European directive 96/92/CE
- **New gas market** - legislative decree no. 164 of May 19, 2000, implementing the European directive 98/30
- **Local (energy) services** - law no.142 of June 8, 1990 considered for amendment under draft law no. 7042



A1. BACKGROUND: THE REGULATORY AUTHORITY FOR ELECTRICITY AND GAS OF ITALY

- **Established** under law no. 481 of November 14, 1995
- Fully **operational** since April 23, 1997
- **Independent entity** with three Commissioners
- Sets its own organisation and **procedures** for decision-making
- **Self-financed** by contributions from regulated companies and entities
- **Member** to the Council of European Energy Regulators (CEER) since March 7, 2000



A2. BACKGROUND: THE POWERSPA OF THE REGULATORY AUTHORITY

- **Tariff** setting (level and price-cap) and **price** monitoring
- **Quality of service** (minimum requirements and sanctions)
- Directives on **activity unbundling**
- Advice on **market structure** and **promotion of competition**
- **Overviewing** electricity and gas service supply and contracts
- **Settlement** of disputes and complaints

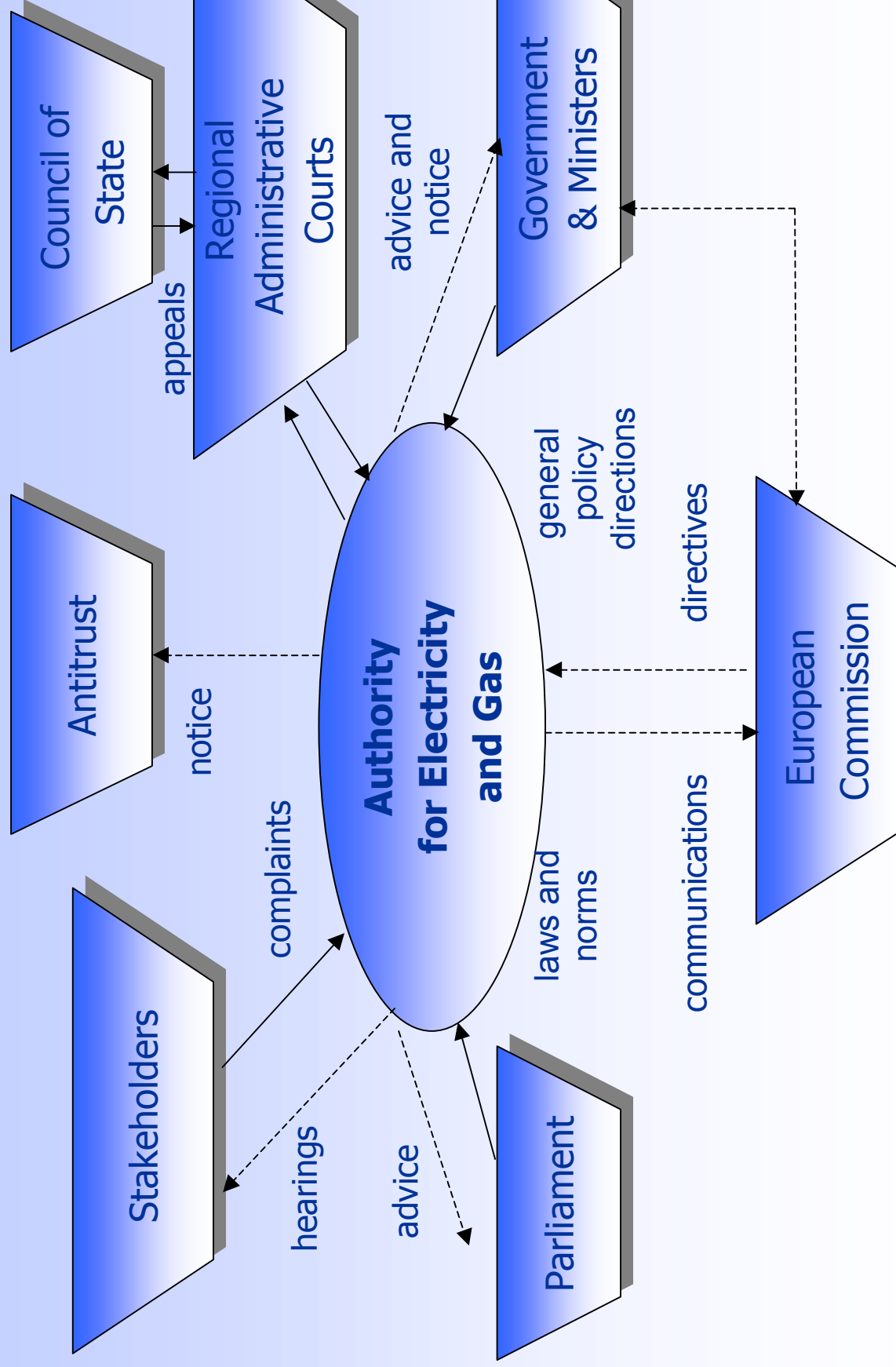


A3. BACKGROUND: ACCOUNTABILITY OF THE REGULATORY AUTHORITY

- **Annual report** on the state of electricity and gas services delivered to the Parliament and Prime Minister
- **Compliance** with general economic policy goals as determined by the Government and the Parliament
- **Hearings** with stakeholders (companies, consumers, environmentalists, trade unions and business groups)
- **Appeals** against Authority's decisions before the regional Administrative Courts and Council of State



A4. ACCOUNTABILITY OF THE REGULATORY AUTHORITY

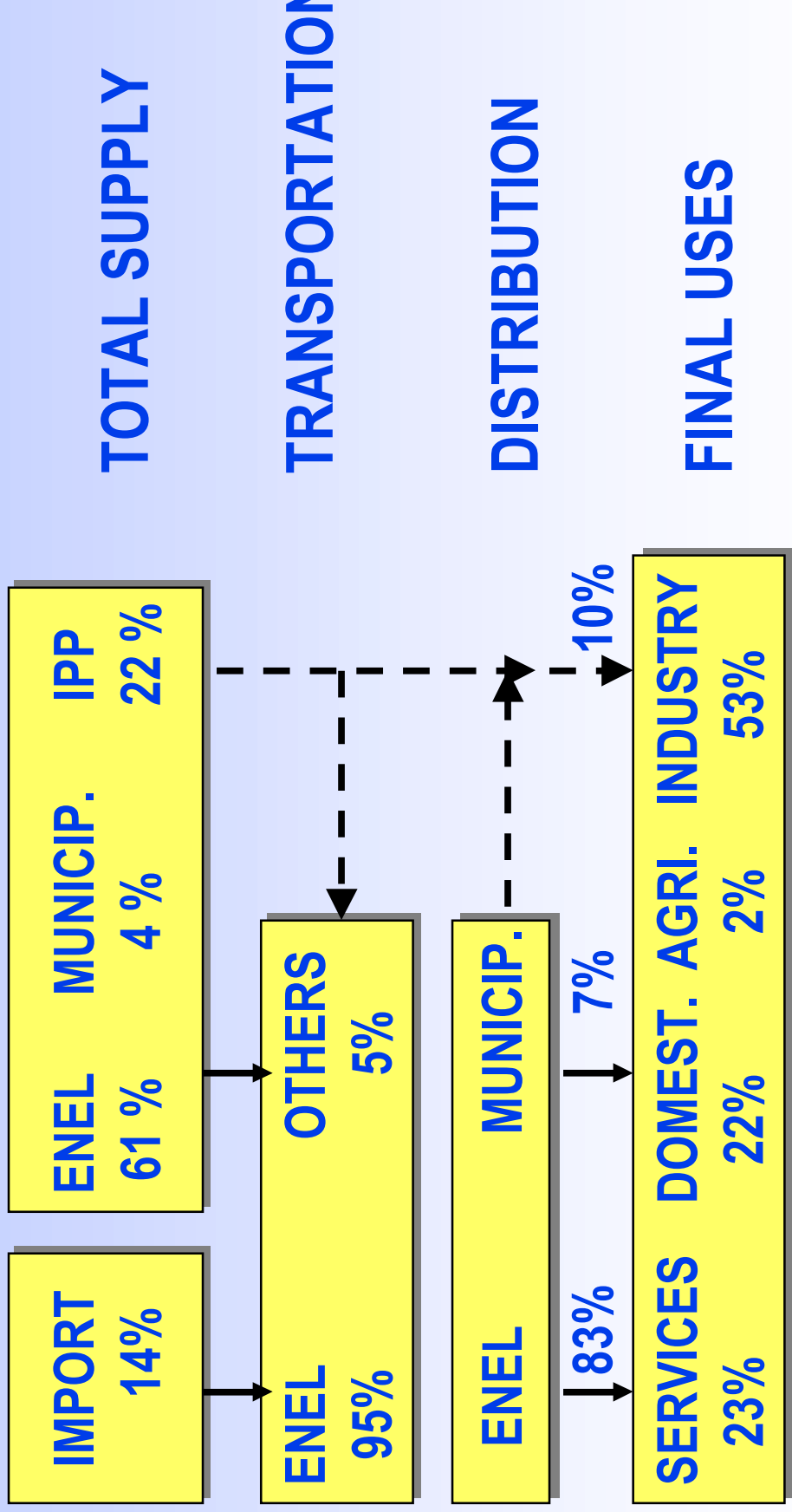


B. THE CHANGING ELECTRICITY MARKET

- **Structure of the Italian electricity sector**
- **Liberalisation and privatisation issues**
- **Expected developments (legislative decree no. 79/99)**
- **The new market organisation**

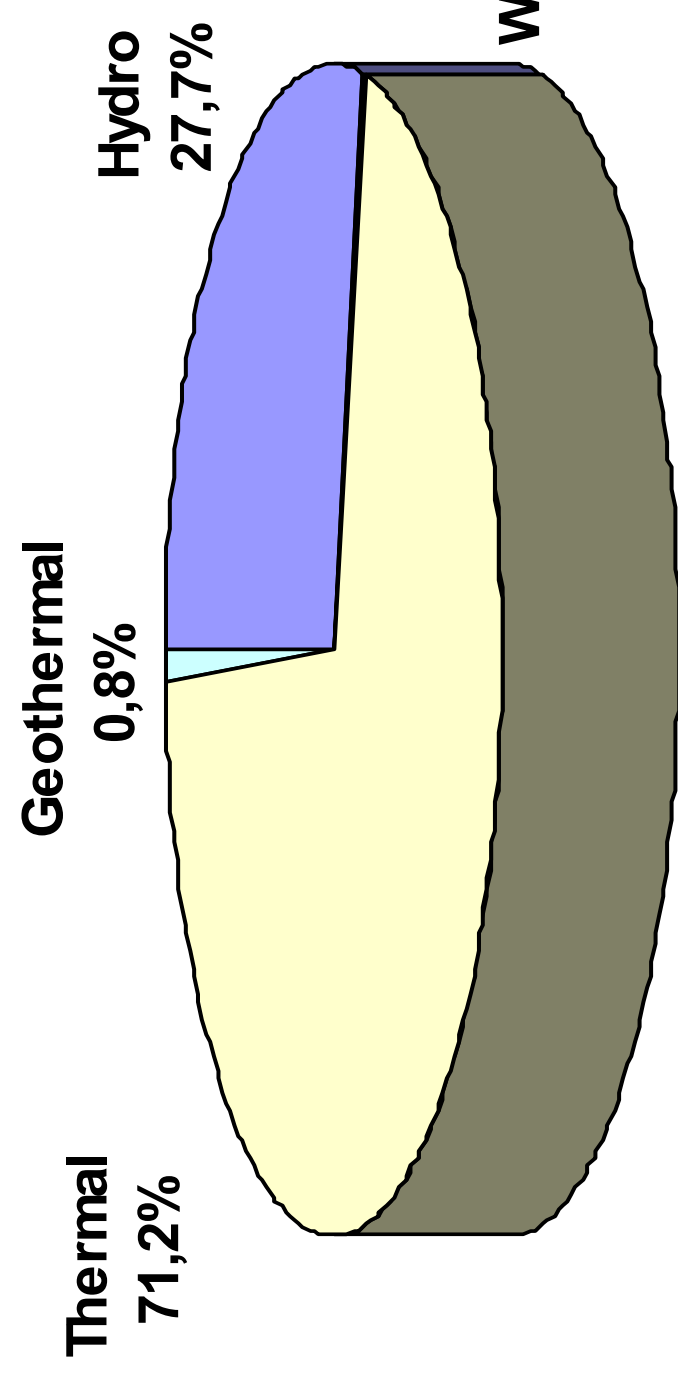


B1. THE ELECTRICITY SECTOR (I): STRUCTURE IN THE YEAR 2000



B1. THE ELECTRICITY SECTOR (II): FUEL SOURCES IN THE YEAR 2000

1999



B2. THE ELECTRICITY SECTOR OF ITALY: PROBLEM AREAS

1. Level of prices and tariffs

High compared with
EU average

2. Supply organisation and security

Lack of competition;
electricity imports 15%;
domestic power generation 70%
dependent upon imported fossil
fuels

3. Power plant and infrastructure quality

In need of upgrading;
repowering and construction
facing environmental hurdles

4. Distribution (and retail) organisation

Monolithic structure (Enel
Distribuzione Spa), 5 to 8 large
municipal utilities, ca 200 small
companies; significant supply
outages



B3. FIVE REASONS TO DEMONOPOLISE AND PRIVATISE (I)

- **Exposing companies to national and international competition while increasing managerial efficiency**
- **Creating opportunities for new international alliances and equity investments**
- **Avoiding cross-subsidies into the value chain**
- **Collecting resources to reduce national internal debt**
- **Reducing political interferences in the entrepreneurial decision-making process**



B3. REASONS TO DEMONOPOLISE: TWO POLICY DILEMMAS (II)

- Liberalisation before privatisation

VS.

Liberalisation and privatisation

- Shareholders' values

VS.

Stakeholders' interests



B4. THE LEGISLATIVE DECREE NO. 79/99 OF MARCH 16, 1999

- **Liberalised activities:**
 - **Generation (subject to authorisation)**
 - **Import-export (subject to interconnection capacity)**
 - **Supply and retail to eligible customers**
- **Reserved activities:**
 - **Transmission and dispatching**
- **Activities subject to licensing (or authorisation):**
 - **Distribution**
 - **Supply and retail to franchised customers**
- **New institutional bodies (system “core”):**
 - **Transmission System Operator (TSO)**
 - **Market Operator (MO)**
 - **Single Buyer (SB)**



B5. LIBERALISING THE ELECTRICITY MARKET: MARKET SHARES & NEW COMPANIES

January 1, 1999

January 1, 2003
(development prospects)

ENEL

ENEL

MONOLITHIC

(100 % state-owned)

COMPETITORS

HOLDING

(60% private)

COMPETITORS

• Generation 72%

• IPPs & municip. & autoproducers 28%

• Imports 100%

• Transmission 95%

• Distribution & retail 91%

• Others —

• Others 5%

• Municipalities 9%

• Enel Produzione Co < 50%

• Imports < 40%

• Terna Co (Enel Grid)

• Enel Distribuzione Co < 80%

• Enel Trade Co < 50% (?)

• Others >

• Import traders >

• Independent TS (100% state-own)

• Municipalities >

• Retailers >

Eligible customers: above 100 GWh/yr by Feb. 1999

Eligible customers: above 0.1 GWh/yr by Jan. 2002 (?)

Eligible market < 5%

Eligible market > 50%

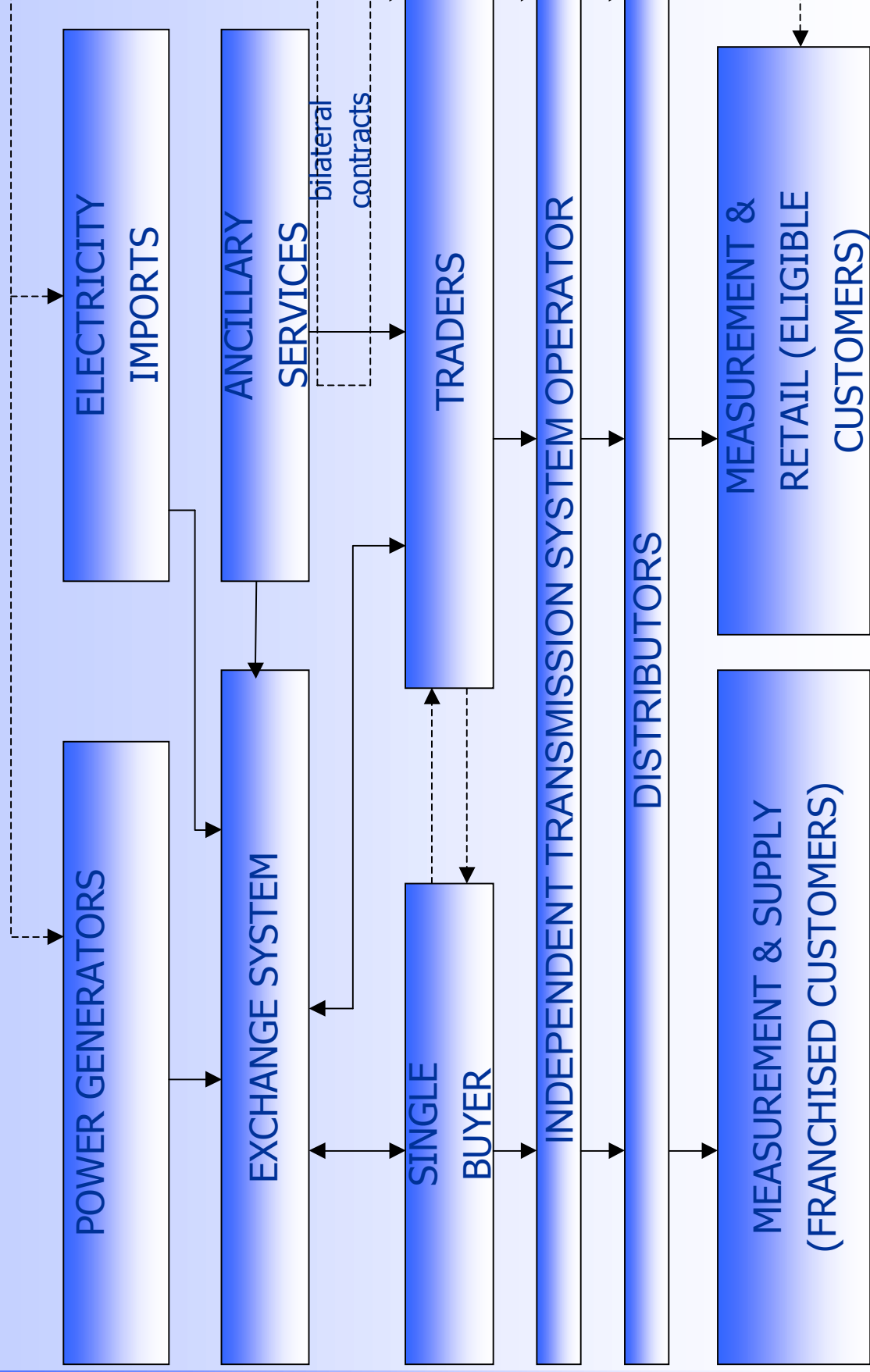


B6. RESTRUCTURING ENEL, THE NATIONAL ELECTRICITY MONOPOLY: MILESTONES

- **Electricity nationalisation act** December 1962
 - ENEL as a public entity
- **Corporatisation** August 1992
 - ENEL as a state-owned stock company
- **Unbundling** June 1999
 - ENEL as a state-owned holding
- **Privatisation** November 1999
 - IPO on 35% of ENEL shares (& golden shares)
- **Divestments** from September 1999 through 2002
 - electric grid operation
 - 15,000 MWe
- **Thresholds** since January 2003
 - < 50% of national production (including imports)



B7. THE NEW ELECTRICITY MARKET IN ITALY



C. STEPS TOWARDS A COMPETITIVE POWER MARKET

- Tariffs and quality of service
- Power production (generation and imports)
- Electricity distribution and supply
- Organisation of system “core” activities

(TSO, MO, SB)



C1. ELECTRICITY TARIFFS (I)

(before taxes, Jan. 2000, It.lira/kWh)

	Residential use		Industrial use	
	It. lira/kWh	added fiscal charges %	It. lira/kWh	added fiscal charges %
Italy	254.7	19.3	172.6	19.3
EU (weighted average)	220.1	19.7	136.3	18.1



C1. ELECTRICITY TARIFFS (II): YEAR 2000 VS 1999

- Residential use by annual consumption (net of exogenous costs, mainly fuel oil)

600 kWh	1200 kWh	3500 kWh	7500 kWh
-3.3%	- 9.4%	- 20.1%	- 22.0%

- Industrial use by annual consumption (net of exogenous costs, mainly fuel oil)

160,000 kWh	2 GWh	10 GWh	24 GWh
-13.4%	- 23.8%	- 23.8%	- 24.8%



C2. ELECTRICITY TARIFF REFORM: MAIN REGULATORY DECISIONS (I)

- **Reg. Order no. 70/97 of June 26, 1997**
 - Rationalising and incorporating into the tariff all surcharges non intended to yield state revenues
- **Reg. Order no. 13/99 of February 18, 1999**
 - Technical and economic conditions for electricity transmission (wheeling) and ancillary services



C2. ELECTRICITY TARIFF REFORM: MAIN REGULATORY DECISIONS (II)

- **Reg. Order no. 204/99 of December 29, 1999**
 - **Tariffs for electricity supply to franchised customers**
 - a) **cost reflectivity (wider/fewer customer classes, from 52 to 9)**
 - b) **revenue constraints rather than administered tariffs**
 - c) **incentive regulation (price cap over a four-year time period)**
- **Joint Ministerial decree of January 26, 2000**
 - **Identification of stranded costs, “windfall” benefits, and other general costs**



C3. YEARLY DURATION OF LV INTERRUPTIONS (minutes lost per customer per year)

Country	1996	1997	1998	1999
Italy	272	209	196	190
				Only ENEL Spa (93% of LV customers)
France	74	56	46	57
				Storms excluded in 1999
The Netherlands	26	18	21	25
Norway	170	205	130	180
				Only interruptions above 1kV
Sweden	—	79	66	152
UK	72	75	70	63



C4. ELECTRICITY SERVICE QUALITY MAIN REGULATORY DECISIONS

- **Reg.Order no. 201/99 of December 28, 1999**
 - **Commercial standards for electricity distribution and supply**
- **Reg.Order no. 202/99 of December 28, 1999**
 - **Technical standards for electricity supply outages**
- **Reg.Order no. 55/00 of March 16, 2000**
 - **Directive for transparency of the billing process and documents**



C5. POWER PRODUCTION: SALE OF ENEL'S CAPACITY (I)

- **March 16, 1999** - Legislative decree stating that ENEL should divest 15,000 MW by Jan. 1, 2003
- **August 4, 1999** - ENEL's **divestment plan** approved by Government: power plants identified and regrouped into 3 companies (Gencos Spa)
- **January 25, 2000** - Government choice of "negotiated" tender as the procedure for divestment
- **October 2000** - Government decision of "immediate" divestment of **one Genco Spa** (Elettrogen Spa)



C5. POWER PRODUCTION: SALE OF ENEL'S CAPACITY (II)

- **November 8, 2000** - Government guidelines and rules for sale procedure
- **February 9, 2001** - Deadline for submitting indicative non-binding offers (and non-binding cash consideration)
- **Mid May, 2001** - Deadline for submitting binding offers
- **February 28, 2001** - Competition Authority decision in relation to ENEL's purchase of Infostrada Spa, requiring ENEL Spa, to divest 5,500 MW in addition to the three Genco's Spa



C6. POWER PRODUCTION: NEW POWER GENERATION DURING YEARS 2005 - 2010

- Restructuring and repowering of **Gencos Spa** and old power plants (ca 5,000 - 10,000 MW)
- Development of “**green fields**” (ca 20,000 MW)
- **Renewable power** obligation (2% of all new power production, imports included, since 2002)
- Prime Minister decree of **February 15, 2001** to streamline the authorisation process for new power plant construction and operation



C7. POWER IMPORT (I): CROSS-BORDER TRADE

- Due the structure of national power production, import capacity is **an asset** in the liberalisation of the Italian electricity market
- Total imports account for about **15 %** of national demand
- **Total Net Transfer Capacity (TNTC)** is about 5,400 MW in Winter, most of it on the French and Swiss borders
- **Half** TNTC bound to ENEL's long-term contracts, **half** TNTC resulting into Available Transfer Capacity (ATC)



C7. POWER IMPORT (II): CROSS-BORDER TRADE

- **Reg. Order no. 140/00 of August 3, 2000** introduced a **bidding mechanism** to allocate scarce ATC for the year 2001
 - should Italian TSO and foreign TSO agree, joint ATC bidding would apply
 - in case of disagreement, the Italian TSO would allocate 50% of ATC
- **Sequential bidding** according to ATC bands of 10 MW each
- Limits to each buyer and negotiable ATC rights
- **Reciprocity rules** for foreign TSOs (access to the grid, wheeling charges)
- The Regulatory Authority Order was repealed by the Council of State on **December 1, 2000**



C7. POWER IMPORT (III): CROSS-BORDER TRADE

- **Reg. Order no. 219/00 of December 6, 2000**
 - Pro-rata assignment according to ATC bands of 1MW each
 - 10% ceiling on total import
- **Reg. Order no. 21/01 of February 14, 2001**
 - Assignment of further ATC
 - Interruptible import contracts
- **TSO three-year development programme of national transmission grid (TNTC upgrade included January 2001**



C7. POWER IMPORT (IV): CROSS-BORDER TRADE

- **Reg. Investigation of June 21, 2001:Coping with European market asymmetries**
 - threshold for new entrants
 - electricity imports vs domestic generation on the wholesale market
 - reciprocity rules (inter- country cross-subsidiation)
 - renewable energy obligation



C8. PROS AND CONS TO COMPETITION IN POWER PRODUCTION

Pros

- a) Favourable power generation mix
- b) New entrant (regulatory) protection
- c) Possibility of capacity deals

Cons

- a) Uncertain authorisation framework
- b) Time lag on gas turbine delivery
- c) Congestion in power dispatching on the main grid



C9. ELECTRICITY DISTRIBUTION AND SUPPLY

- **New concessions** to electricity distributors (by the Ministry of Industry, Spring 2001)
- **Grid rationalisation** and mergers in the large cities (action in progress)
- New rules for customer connection to the grid and **measurement** (consultation process by the Regulatory Authority, Spring 2001)
- New rules on **DSM** (by the Ministry of Industry and Ministry of Environment)



C10. THE NEW ELECTRICITY MARKET: THE ELIGIBLE CUSTOMERS (I)

- **Free** to buy electricity in Italy and abroad
- Consumption **thresholds**: 30 GWh/year since 1999, 20 since 2000, 9 since 2002 (0.1 GWh/year since 2003?)
- Individual customers, distributors and resellers (for the free market), and consortia
- **Eligible customers registered** by the Regulatory Authority (list on web-site)

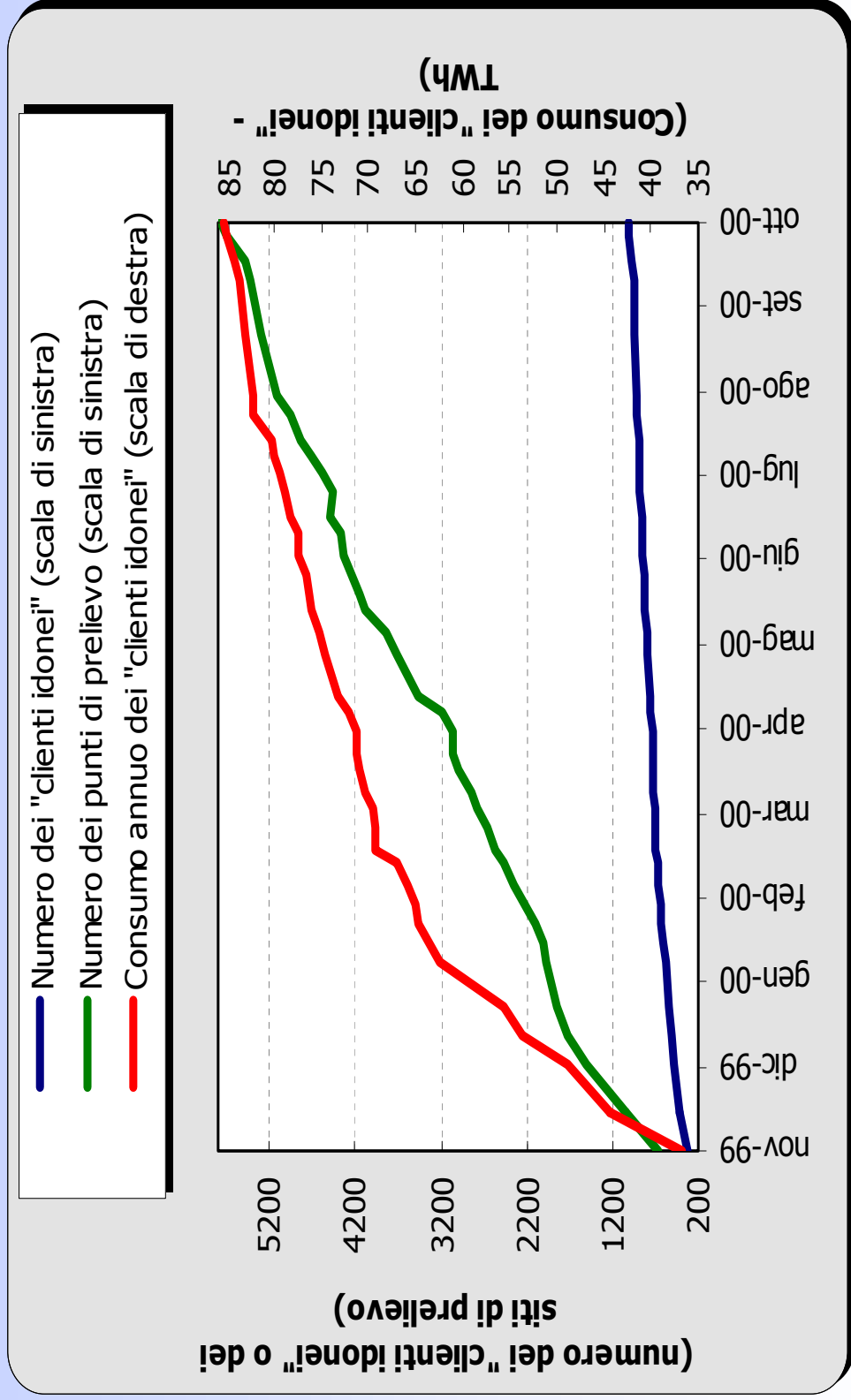


C10. THE NEW ELECTRICITY MARKET: THE ELIGIBLE CUSTOMERS (II)

October 2000	"Acknowledged" eligible clients	Sink points	Annual consumption (in TWh)
Final customers	554	554	55.2
Corporate business	133	622	11.2
Consortia	235	4,595	18.9
Suppliers	8		
Traders	70		
TOTAL	1,000	5,771	85.3



CIO. LIBERALISING THE ELECTRICITY MARKET: ELIGIBLE CUSTOMERS PROGRESSION (III)



C11. ORGANISATION OF SYSTEM "CORE ACTIVITIES

- **Transmission System Operator (TSO) -
Gestore della rete di trasmissione nazionale
Spa**
- **Market Operator (MO) - Gestore del mercato
Spa**
- **Single Buyer (SB) - Acquirente unico Spa**



CL2. THE NEW ELECTRICITY MARKET: THE TRANSMISSION SYSTEM OPERATOR

TSO (I)

- TSO established as an **independent entity**, owned by the Treasury, organised by the Ministry of Industry to:
 - **manage the national transmission grid** and dispatching
 - **make decisions** on grid maintenance and development with work carried out by grid owners
 - **ensure** safety, reliability, and least-cost operation of the electric system
 - **guarantee** non-discriminatory connection and access to the grid



C12. THE NEW ELECTRICITY MARKET: THE TRANSMISSION SYSTEM OPERATOR TSO (II)

- **Ministry of Industry issuing TSO licence and defining:**
 - strategic and operational guidelines
 - guidelines for developing of the grid
 - standard contract between TSO and grid owners
(following a proposal by the Regulatory Authority)
- **Regulatory Authority defining:**
 - conditions for TPA to the grid, including transmission and wheeling charges
 - guidelines for dispatching and connections
 - settlement of disputes regarding import and export



C13. THE NEW ELECTRICITY MARKET: THE MARKET OPERATOR - MO (I)

- MO being established by the TSO
- **Wholesale exchange organisation** defined by the Ministry of Industry in consultation with the Regulatory Authority
- MO to **guide and manage** the national wholesale exchange system and start first operation during 2001
- Regulatory Authority to **monitor** wholesale exchange system operation and **check** dominant behaviours



C13. THE NEW ELECTRICITY MARKET: THE MARKET OPERATOR - MO (II)

- **Wholesale exchange system to allow:**
 - daily and intraday physical energy market
 - reserves market
 - ad hoc deviations market
 - capacity transactions

• **Green certificates trading mechanism**

• **Limited co-existence with physical bilateral contracts**

• **Room for derivatives and financial markets**



C14. THE NEW ELECTRICITY MARKET: THE SINGLE BUYER - SB

- SB wholly owned by TSO
- **Lean and mean** organisation defined by the Ministry of Industry in consultation with the Regulatory Authority
- **SB to buy electricity and sell it to distributors** for the franchised market
- **SB to look for available capacity** in the “long-term” perspective



D. GUIDELINES FOR AN INTER-TSO PAYMENT SCHEME

- **Guidelines for the development and implementation of a EU-wide inter-TSO payment scheme have been prepared by the Council of European Energy Regulator (CEER)**
- **Transitory and permanent inter-TSO payment rules are being discussed for adoption by the European Commission (EC) within the EU Forum on Electricity Regulation held in Florence**



D1. ABOUT CROSS-BORDER TRANSMISSION (CBT)

- **Physical cross-border flows are caused by:**
 - Trading activities
 - Parallel flows
 - Inadvertent energy exchange
- **The TSOs provide this service at certain costs**

• **No single best solution to either define costs involved or to allocate them to market players**



D2. PURPOSE OF AN INTER-TSO PAYMENT SCHEME

- **To enable fair allocation of costs associated with cross-border trade to the network users**
- **To provide appropriate signals (in the long and short term) to the network users**



D3. OPTIONS FOR AN INTER-TSO PAYMENT SCHEME

A No separate inter-TSO payment scheme

(TSO's costs paid by the national or regional network users)

not acceptable

B A separate inter-TSO payment scheme

(separate component in the national or regional network tariff)

pragmatic option

C A multi-system tariff system

(one network access tariff system throughout the EU)

preferred, but not yet realistic



D4. PRINCIPLES PARTICULARLY RELEVANT TO CBT

Principle 1 Network tariffs should be non-transaction based

Principle 2 Economically efficient locational signals should base on charges for network losses

Principle 3 Network infrastructure costs should be mostly charged to loads



D5. ONLY LOSSES AND NEW INVESTMENTS SHOULD BE CONSIDERED

- Losses reflect the use of the network for cross-border transmission
- New CBT investment may be proposed by one or more TSOs
- Responsibility for planning should be allocated to the party (ies) commercially accountable for the investment
- In first instance the funding will be through congestion rents



D6. HARMONISATION OF INTER-TSO TARIFFS

- **Payments and revenues should be allocated to all network users**
- **Recommendation:**
 - Debit payments to all L's in importing systems and to G's in exporting systems
 - Credit revenues to all L's in exporting countries and all G's in importing countries
- **Selective allocations should be forbidden**



D7. FURTHER STEPS

- **Definition of transfer capacities in liberalised electricity markets**
- **Co-ordinated auctioning for transmission capacity allocation in meshed networks**
- **Co-ordinated use of power exchanges for congestion management**



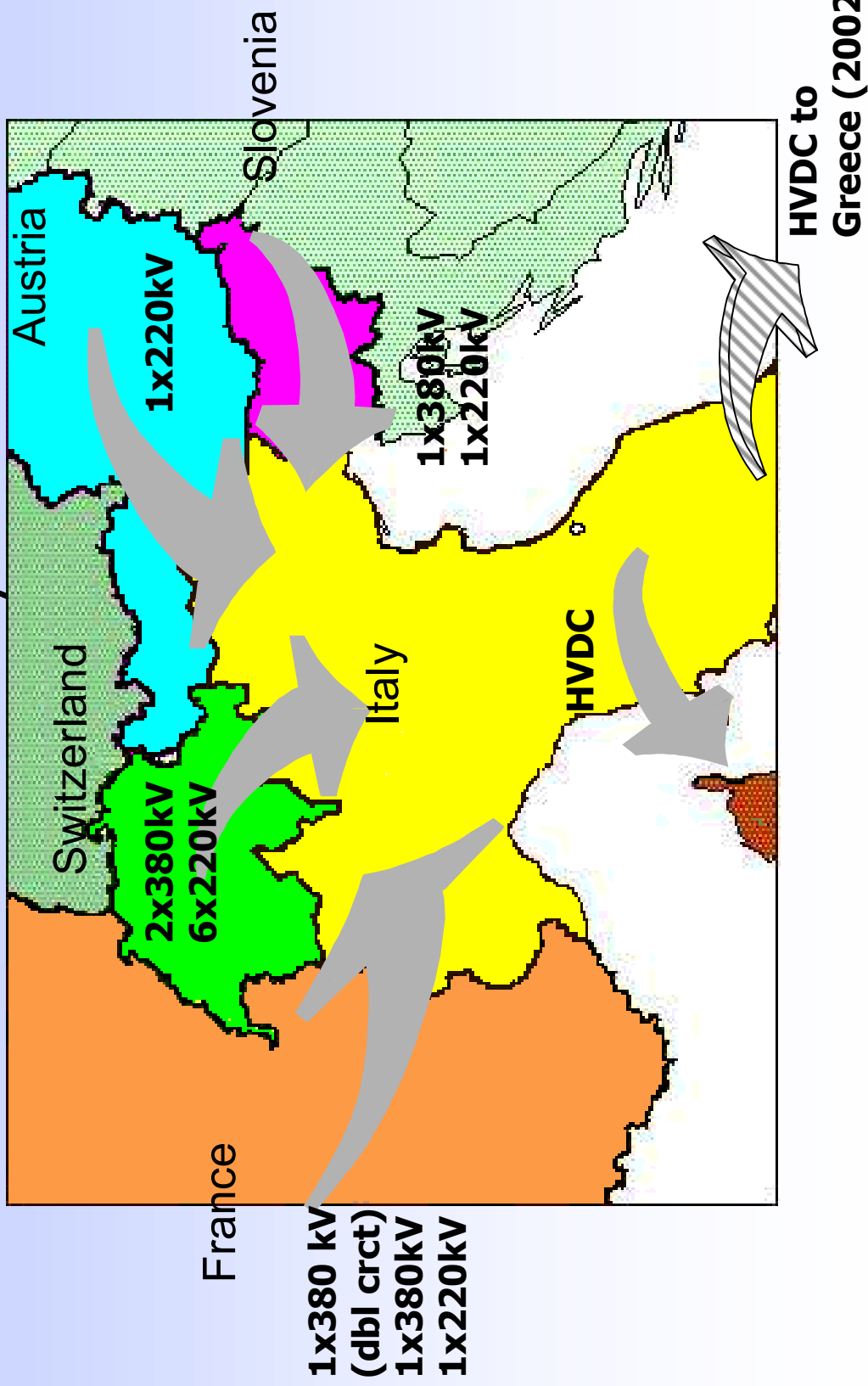
D8. CASES PARTICULARLY RELEVANT TO CBT

- **Capacity auctions and payments at the borders between Belgium - Germany - The Netherlands**
- **Capacity sharing at the border between France and Spain**
- **Capacity allocation at the borders between France and Italy, Switzerland and Italy**



D9. NTC DEVELOPMENT PROSPECTS FOR THE YEAR 2002 (I)

Interconnection in the years 2000 and 2001



D9. NTC DEVELOPMENT PROSPECTS FOR THE YEAR 2002 (II)

- ◆ GRTN has defined a 3-year expansion plan of the national grid
- ◆ Concerning interconnection the expansion plan of the national grid includes:
 - limited and local interventions
 - ◆ network components optimization (line conductors, replacement of circuit breakers)
 - structural interventions



D10. INTERCONNECTION CAPACITY FOR THE YEARS 2000 AND 2001 (I)

Comparison between year 2000 and first quarter of 2001 (assuming that trade exchanges = physical flows among countries)

Firm capacity - NTC (declared one year ahead)

	Winter		Summer		August	
	year 2000(*)	year 2001(**)	Year 2000	Year 2001	Year 2000	Year 2001
France	2000	2100	1800	1800	1000	1000
Switzerland	2900	3000	2700	2700	1000	1000
Austria	200	220	200	200	50	50
Slovenia	300	380	300	300	150	150
Total	5400	5700	5000	5000	2200	2200

(*) as from Regulatory Order no. 179/99

(**) also available in the period October-December 2000



D10. INTERCONNECTION CAPACITY FOR THE YEARS 2000 AND 2001 (II)

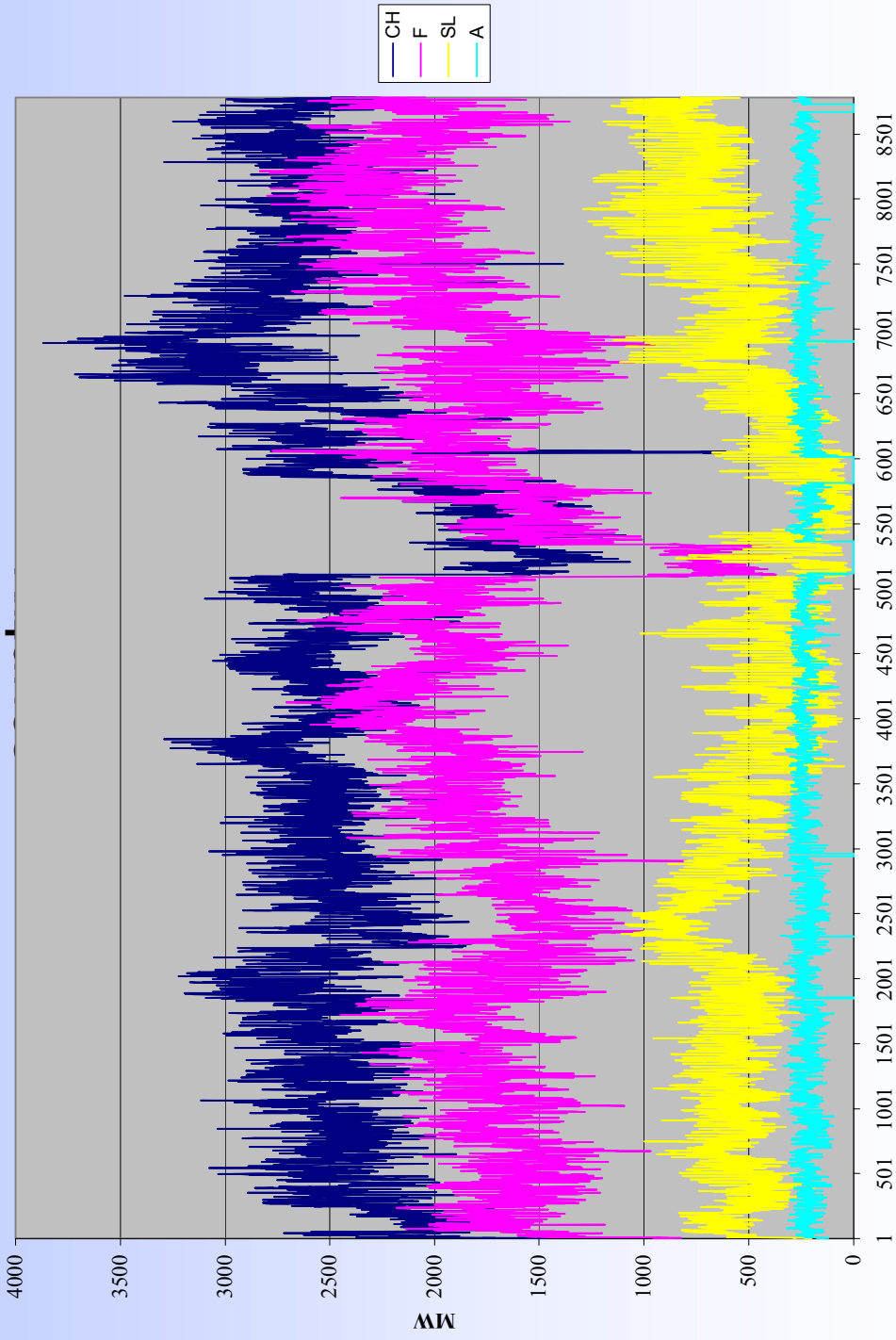
Long-term import contracts

Imports from	Expiry date	Maximum contracted power [MW]
France	31-1-2007	1800 (1400 from 01-01-2003)
Switzerland #1	31-12-2002	200
Switzerland #2	31-12-2011	600
Total at the beginning of the year 2001		2600



D10. INTERCONNECTION CAPACITY FOR THE YEARS 2000 AND 2001 (III)

Hourly power exchange in the year 2000 from each



source:
GRTN



D11. PROPOSALS FOR ATC ALLOCATION FOR THE YEAR 2002 (I)

1. Treatment (netting out) of long-term contracts from NTC
2. Explicit auctions for yearly and monthly (import/export) rights:
 - b) declaration of capacities
 - a) jointly conducted auctions whenever possible
 - c) design of the auctioning process
 - d) introduction of the clause “use it or get paid for it”
3. Transfer capacity allocation not linked to point-to-point transportation contracts within concerned countries



D11. PROPOSALS FOR ATC ALLOCATION FOR THE YEAR 2002 (II)

4. Possible for daily allocation of extra-capacity (should a day-ahead market be operating)
 - via a “zonal” scheme
 - allowing “phased” declaration of the capacities
5. Possible utilization of the Wholesale Exchange (expected to be operational by mid 2002) and bilateral contracting



D11. PROPOSALS FOR ATC ALLOCATION FOR THE YEAR 2002 (III)

6. Support (by concerned regulators) to a possible provisional agreement among TSOs concerning:
 - a) allocation of declared capacities
 - b) mutual recognition of access rights to the networks for import/export purposes as resulting from the allocation
 - c) mutual recognition of terms and conditions (i.e. tariffs) for network use



D11. PROPOSALS FOR ATC ALLOCATION FOR THE YEAR 2002 (IV)

- d) mutual recognition of actual transfer capacities among concerned countries
- e) relevant procedures made available to the operators
- f) common procedures for allocating the capacities or, alternatively, introduction of “50-50 splitting” of the capacity at the border for autonomous allocation
- g) introduction of mechanisms to foster compliance with power flows as agreed upon among concerned countries TSOs



E. REGULATOR'S CHALLENGES: CONCLUSION

- a) **Balance** between **shareholders expectations** and **stakeholders** interests (smooth transition)
- b) Activity **in-depth unbundling** and **stability** of the tariff setting process (investment climate)
- c) Effective **market operation** and **competition** (new entrepreneurial focus)
- d) Economic instruments to match **quality, public service obligations** and long-term goals

THE END

