



E-CONTROL

**Security of Supply
on the European Electricity Market**

What is Security of Supply?

- **A reliable supply of energy...**
- **Reliable transportation of supply...**
- **Reliable distribution and delivery of supply to the final customer**
- **At “reasonable” prices over a continuous period**
- **For the whole of Europe**

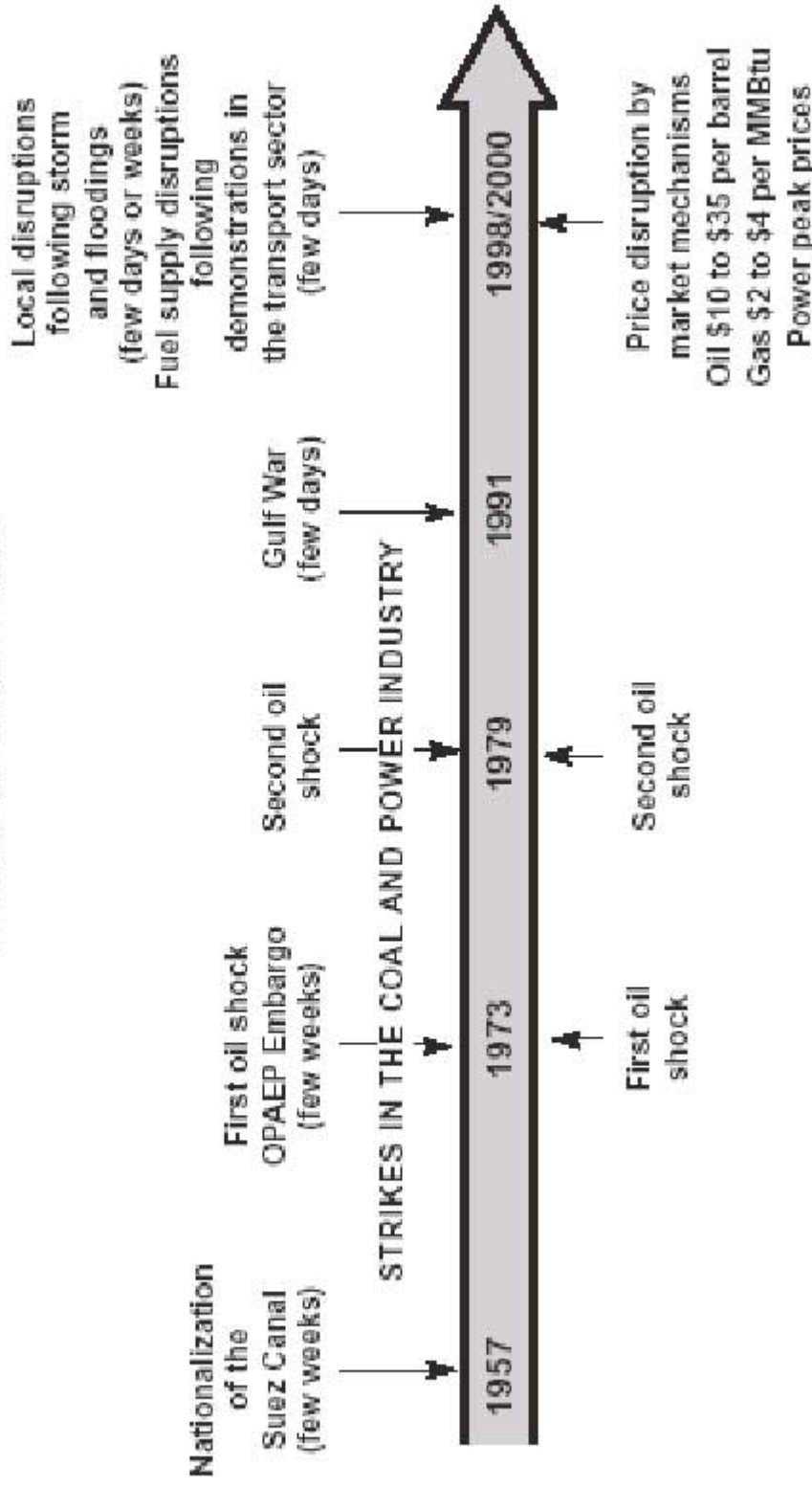
Security of Energy Supply

- **Physical Disruptions**
 - International Political Events
 - Social National Events
 - Climatic Events
 - Terrorism
 - Lack of Investment
- **Price Disruptions**
 - International Events
 - Market Organization (price volatility)

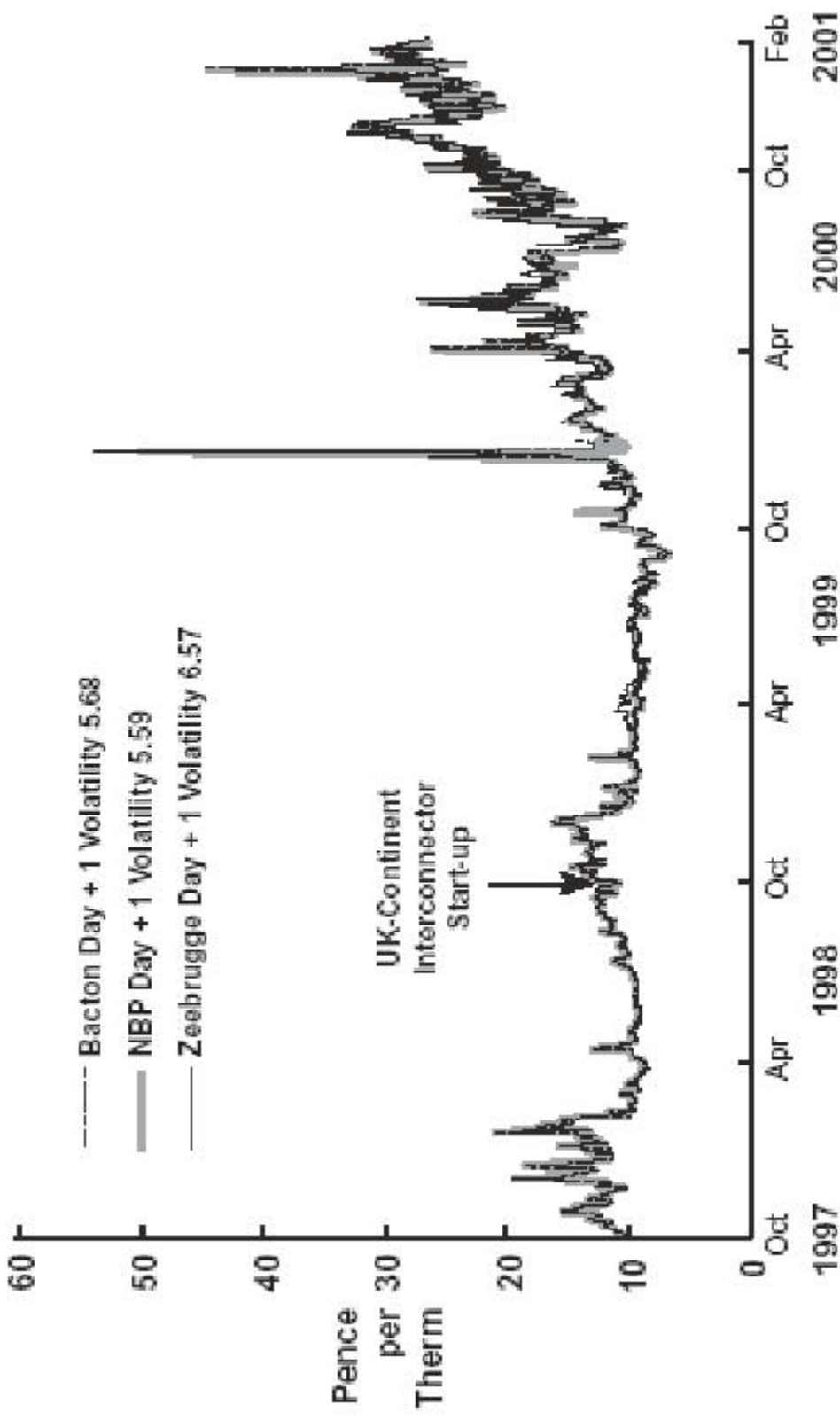
How secure has the European Energy Supply been in the past?

The Recent History of Disruptions of Energy Supply

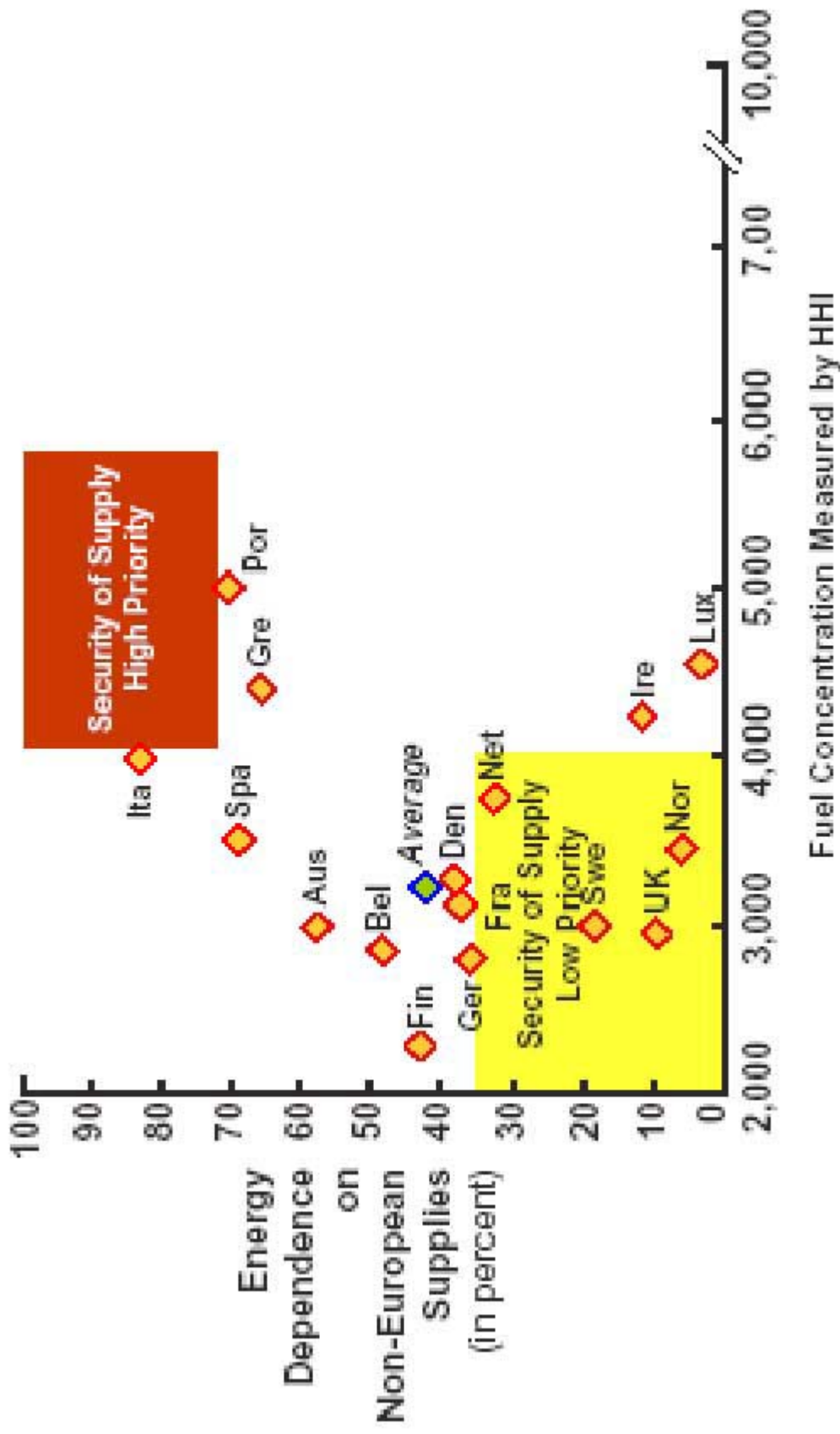
PHYSICAL DISRUPTIONS



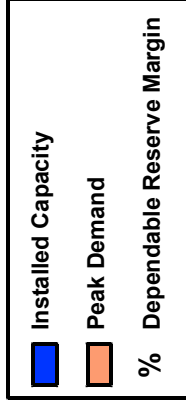
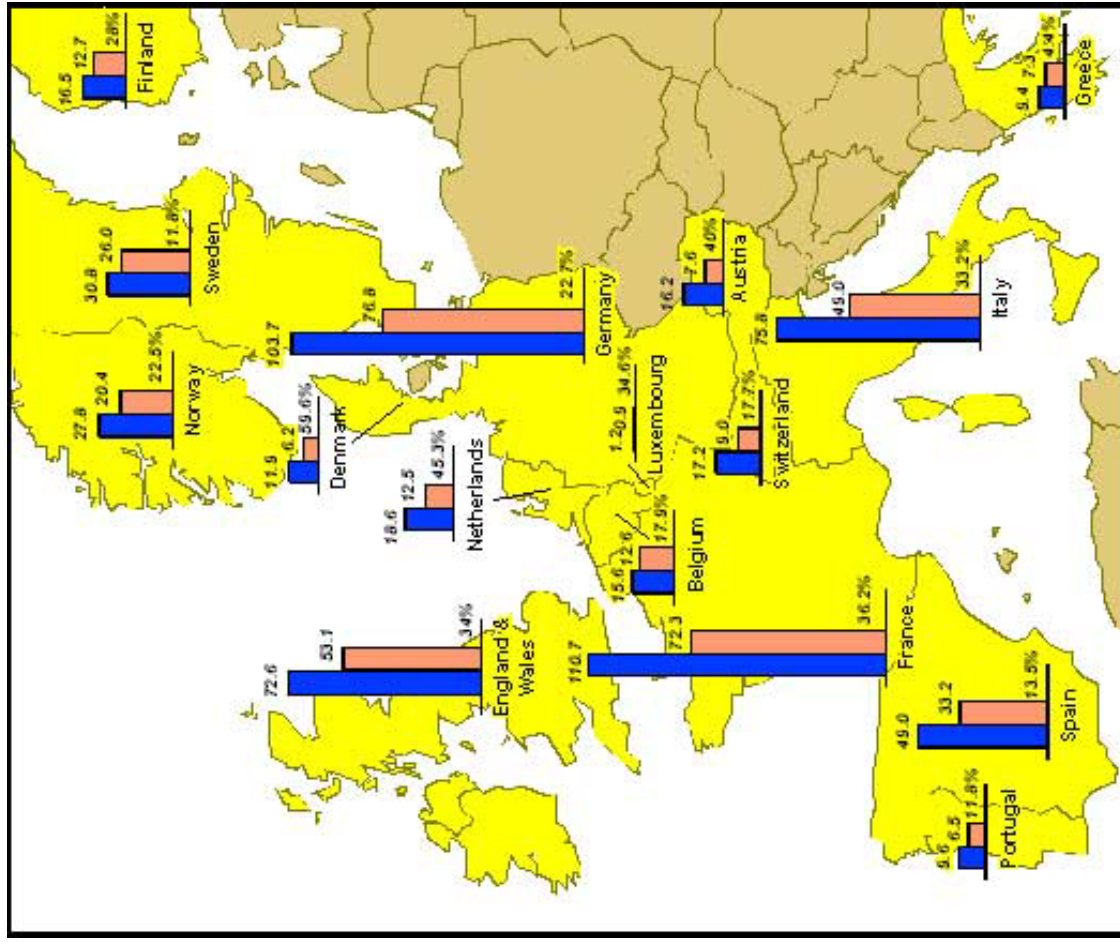
Daily Spot Gas Prices Across the European Hubs



Long-term Energy Security of Supply: The Specific Situation of European Countries



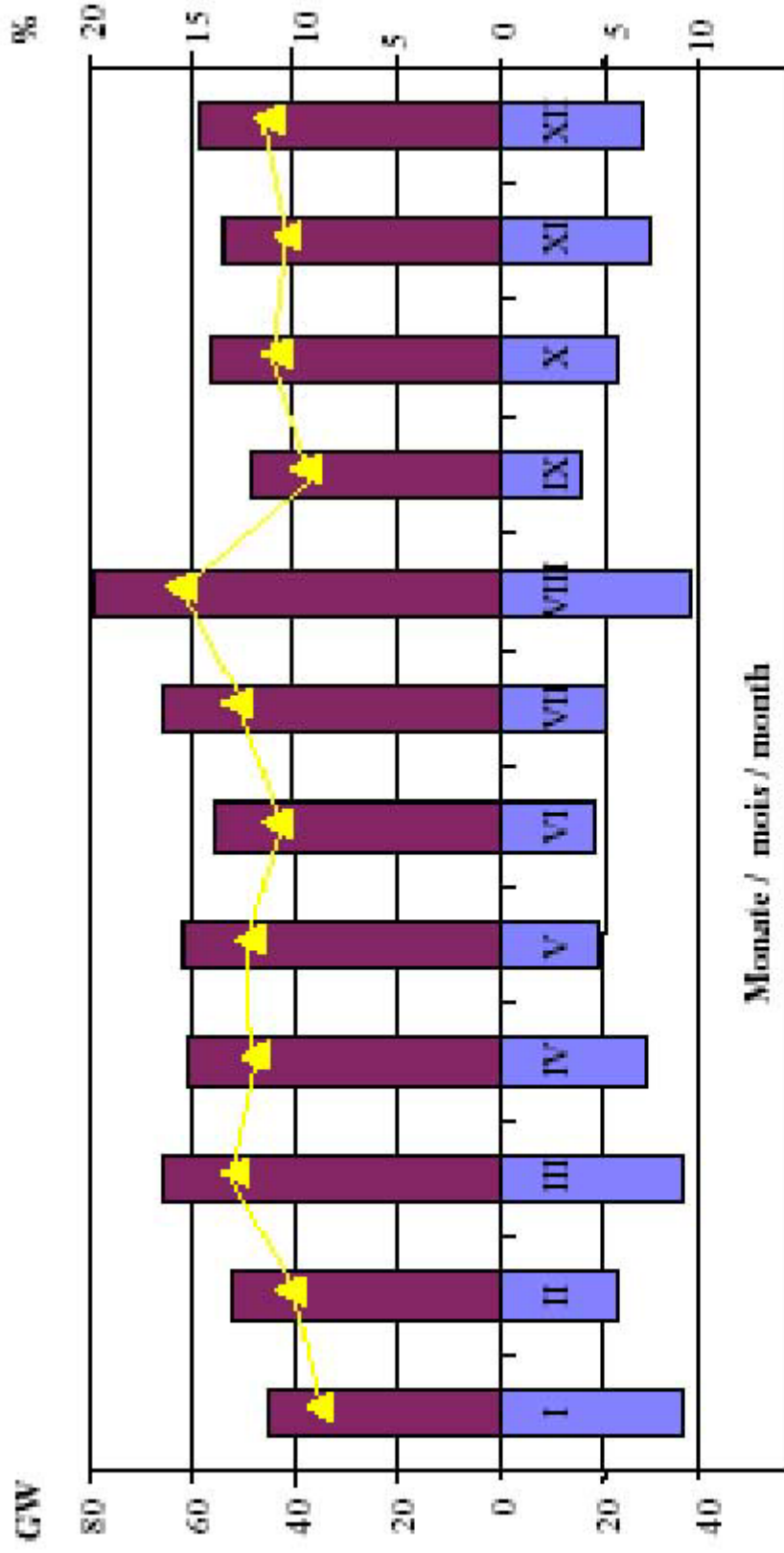
The Capacity Situation in Western Europe: 2000



* Dependable Capacity Margin calculated by subtracting Peak to Dependable Capacity, then dividing by peak demand. The calculation uses 50 percent of Installed Hydro Capacity with the exception of Finland, Luxembourg, Norway, and Sweden which are calculated using 90 percent of Hydro Capacity.

Note: The Data for Luxembourg, Greece, and Austria, is 1999 10601-45

Remaining capacity in % at peak month

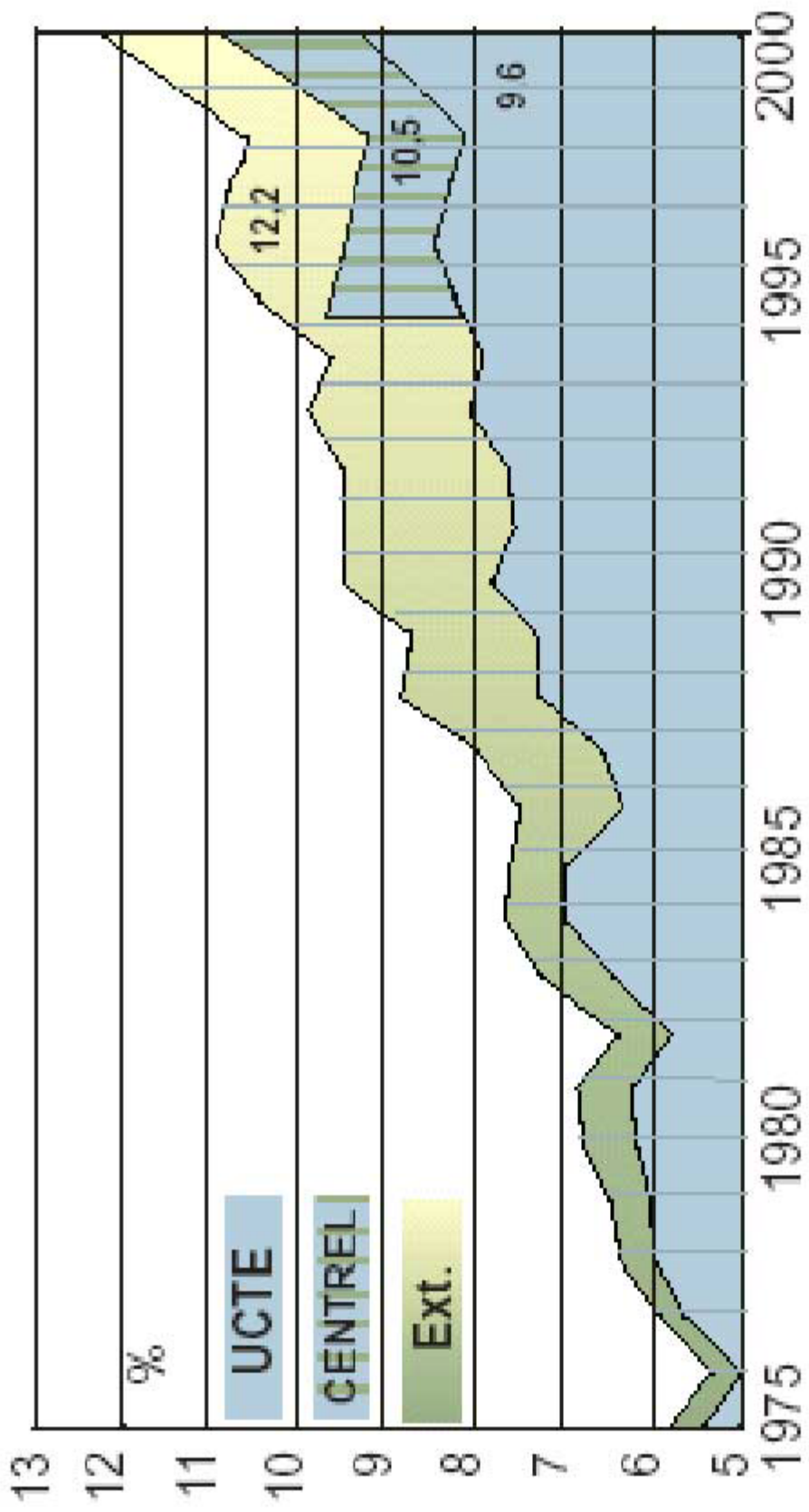


 Margen zur Monatshöchstlast / Marges par rapport à la charge maximale mensuelle / Margins in relation to the monthly peak load

 Verbleibende Leistung ohne Austausch / Puissance restante hors échanges / Surplus available capacity excluding exchanges

 Verbleibende Leistung ohne Austausch bezogen auf die gesamte Kraftwerksleistung (in %) / Puissance restante hors échanges en 2000 rapportée à la puissance totale de production (en %) / Surplus available capacity excluding exchanges as a proportion of total generating capacity (in %)

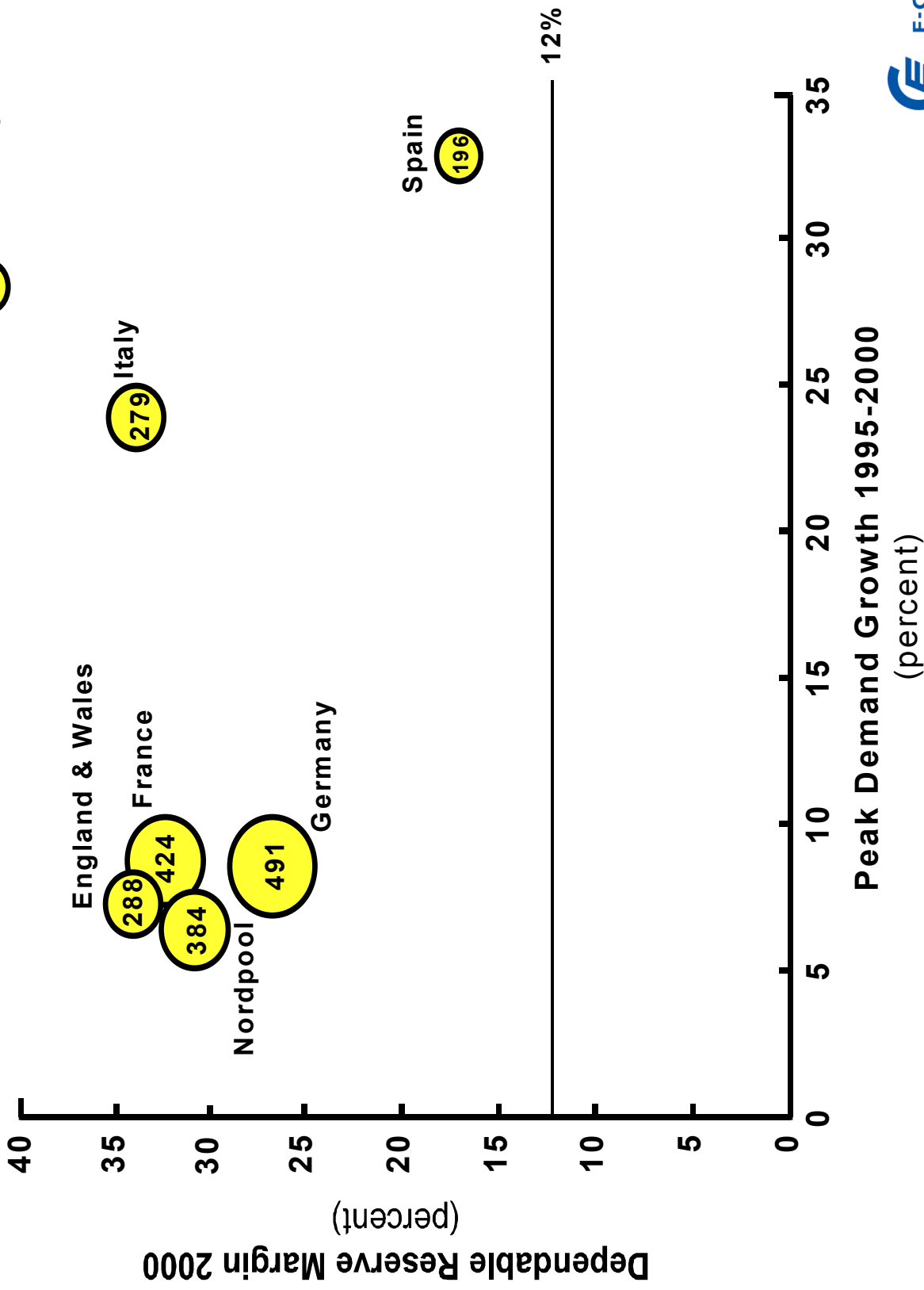
Part of Exchanges in the Consumption



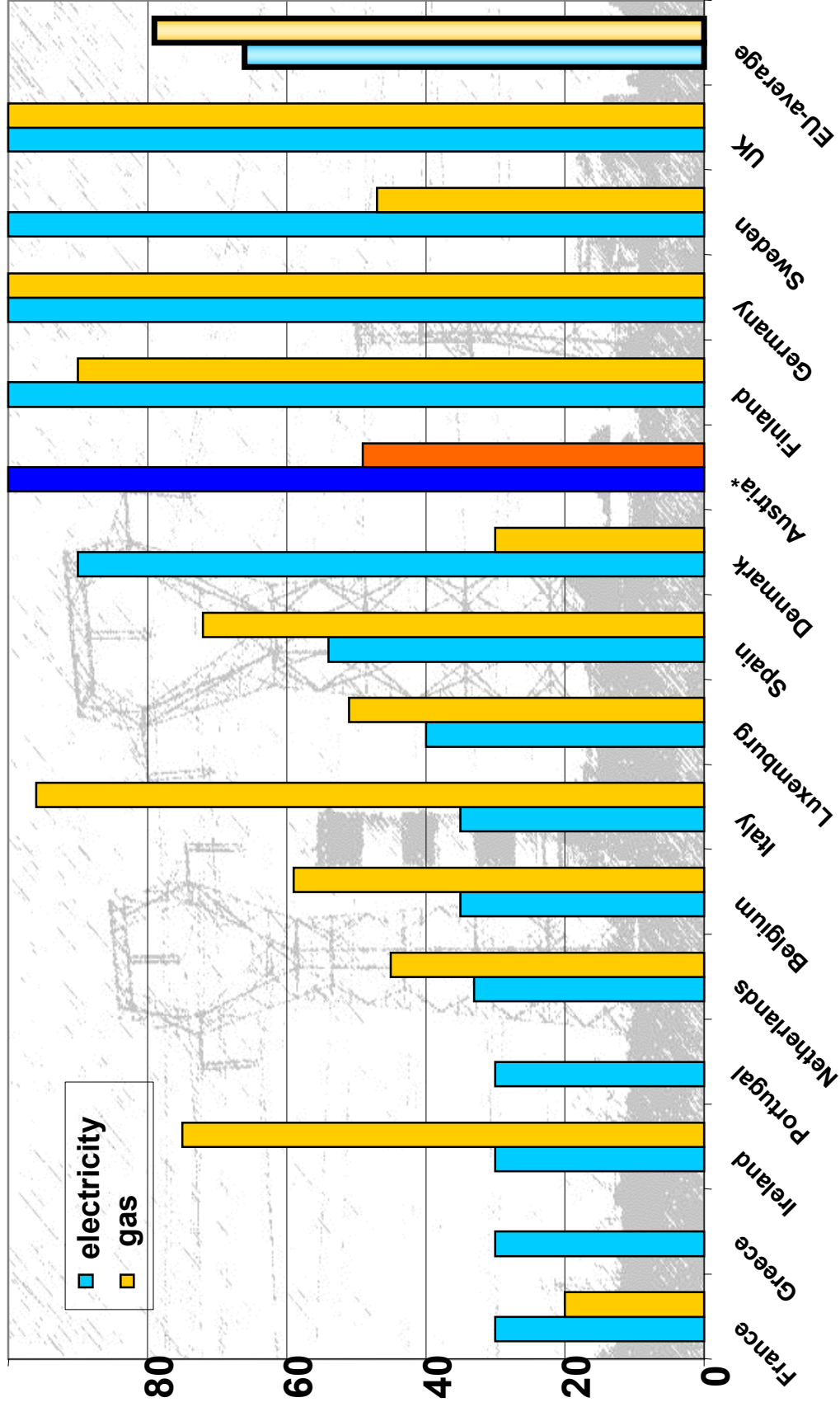
UCTE: Sum of exchanges between the UCTE countries
CENTREL: Sum of exchanges between the UCTE countries and CENTREL
Ext.: Exchanges with third countries

European Markets Size and Growth

● Consumption TWh



Current Market Opening

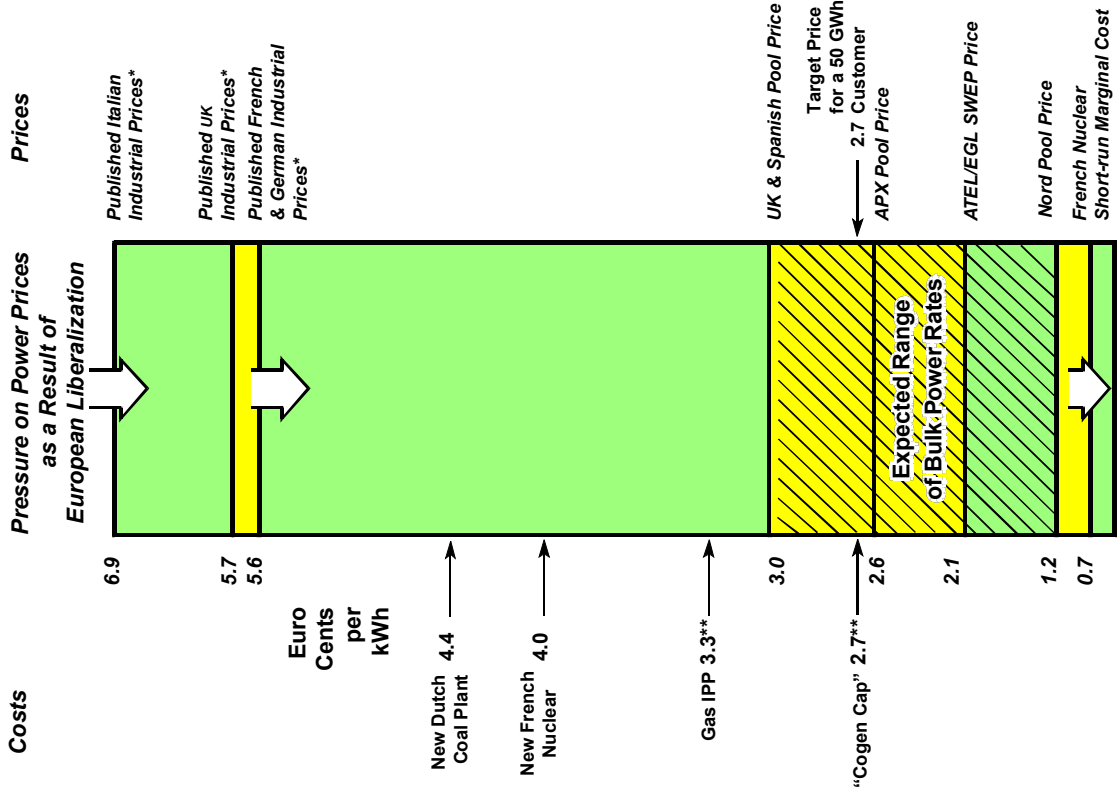




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European Power Prices

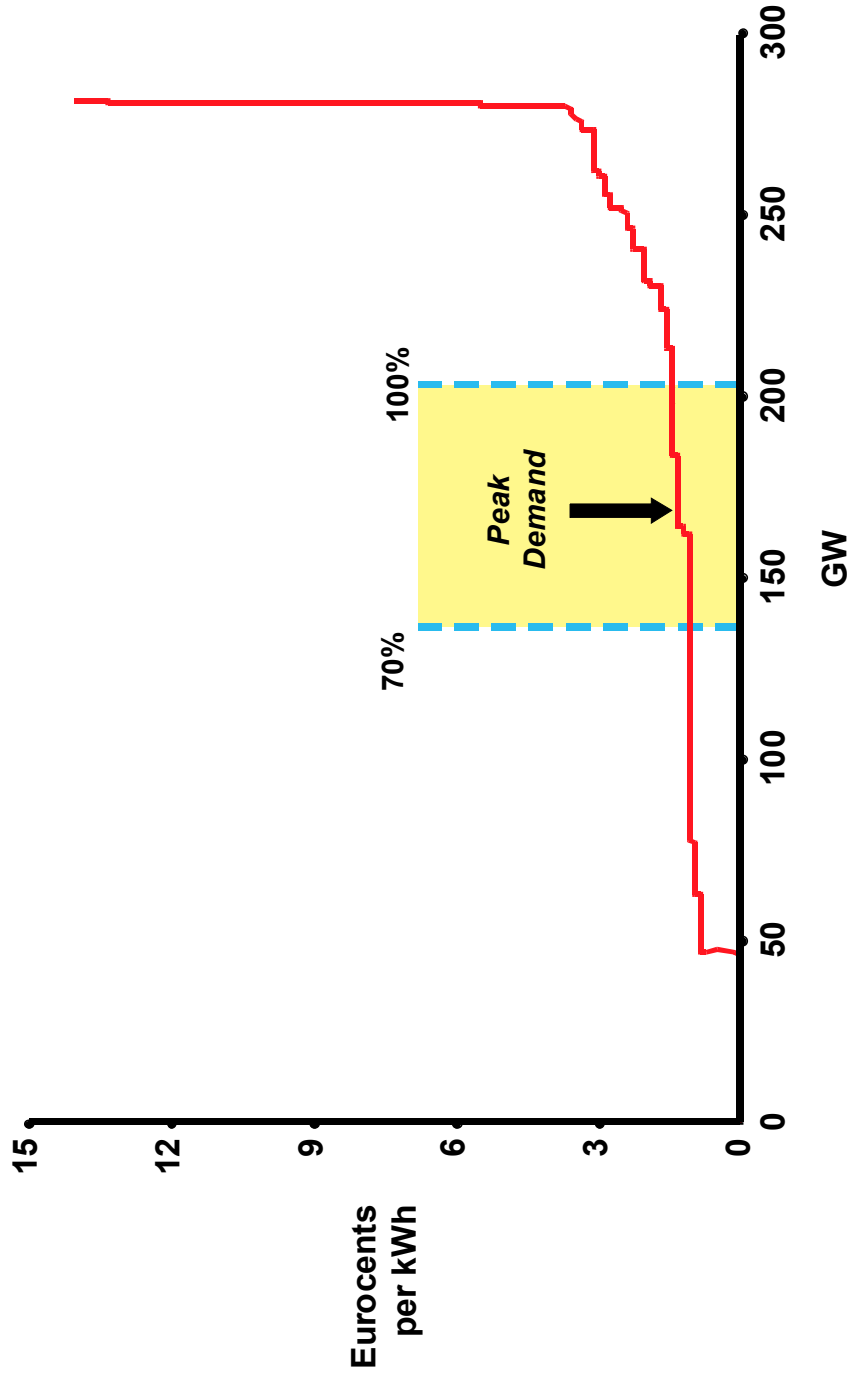
Range of Wholesale Power Prices in Europe— 2000



* Annual Consumption 35GWh

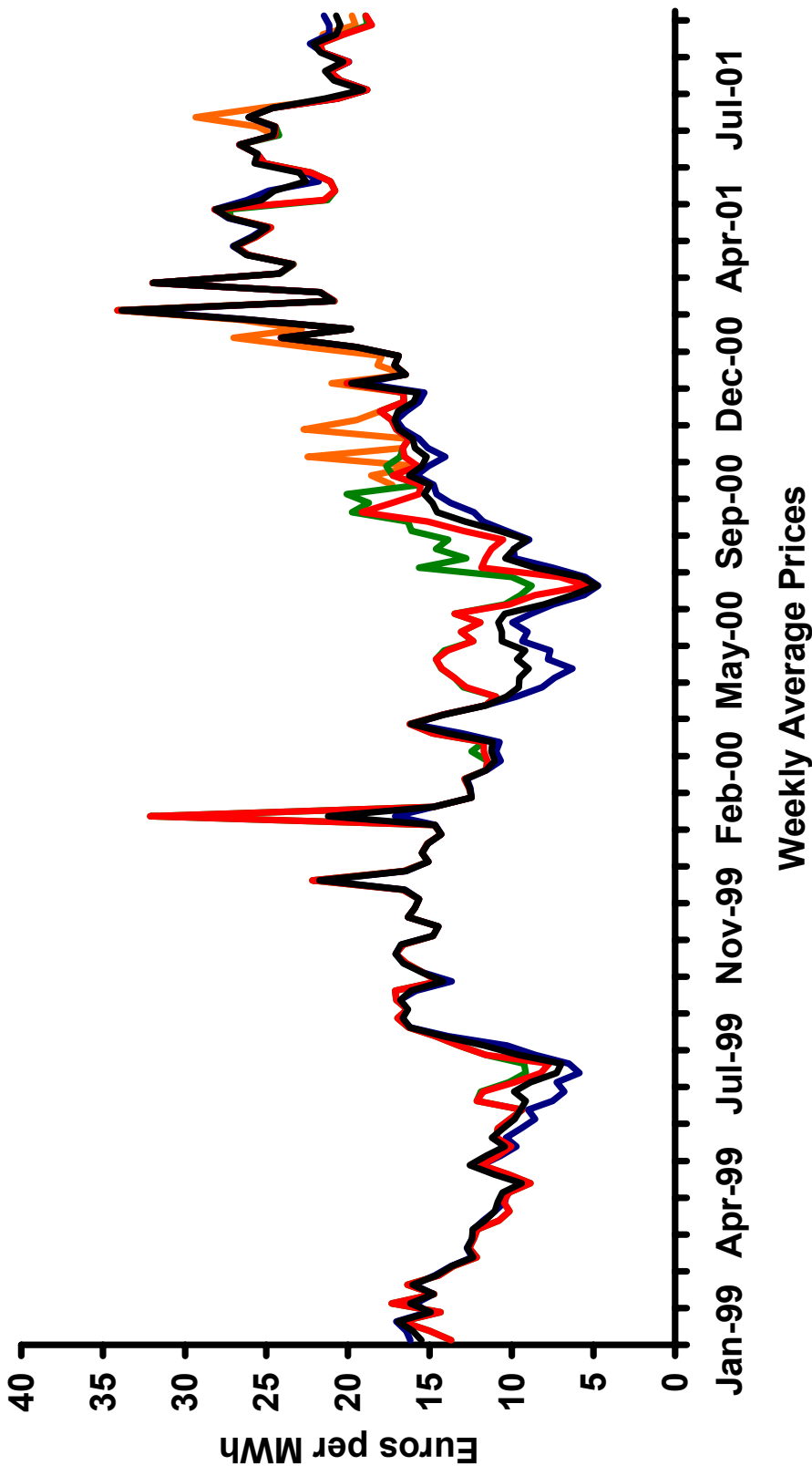
** Gas feed prices of 0.9 euros/cents/kWh
90801-6

Northwest Europe Power Market, 2000: Short-Run Marginal Cost (SRMC) Pricing



NordPool Spot – Increasing Prices, Volatility and Basis Risk

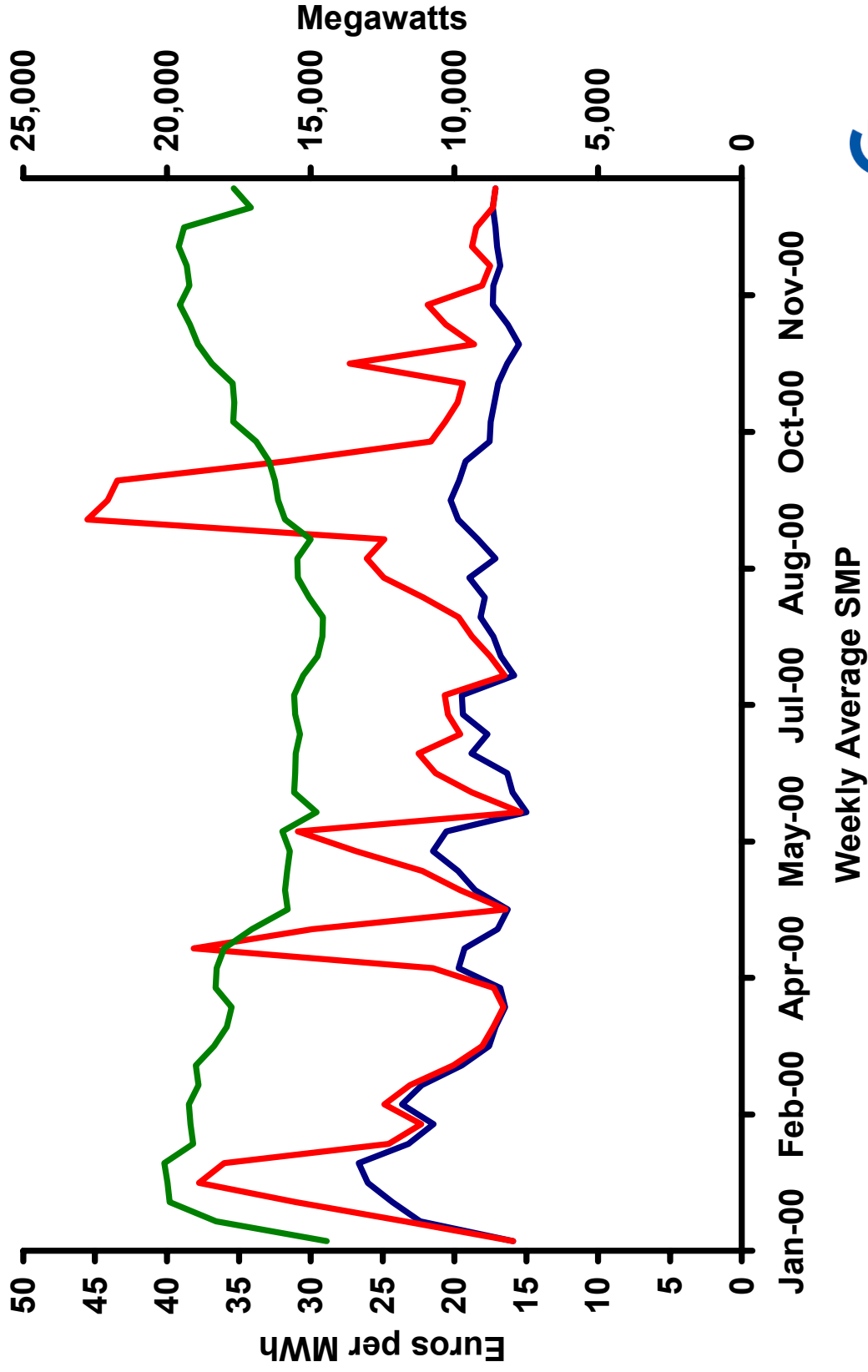
January 1999 - September 2001



— Copenhagen — Helsinki — Oslo — Stockholm — System

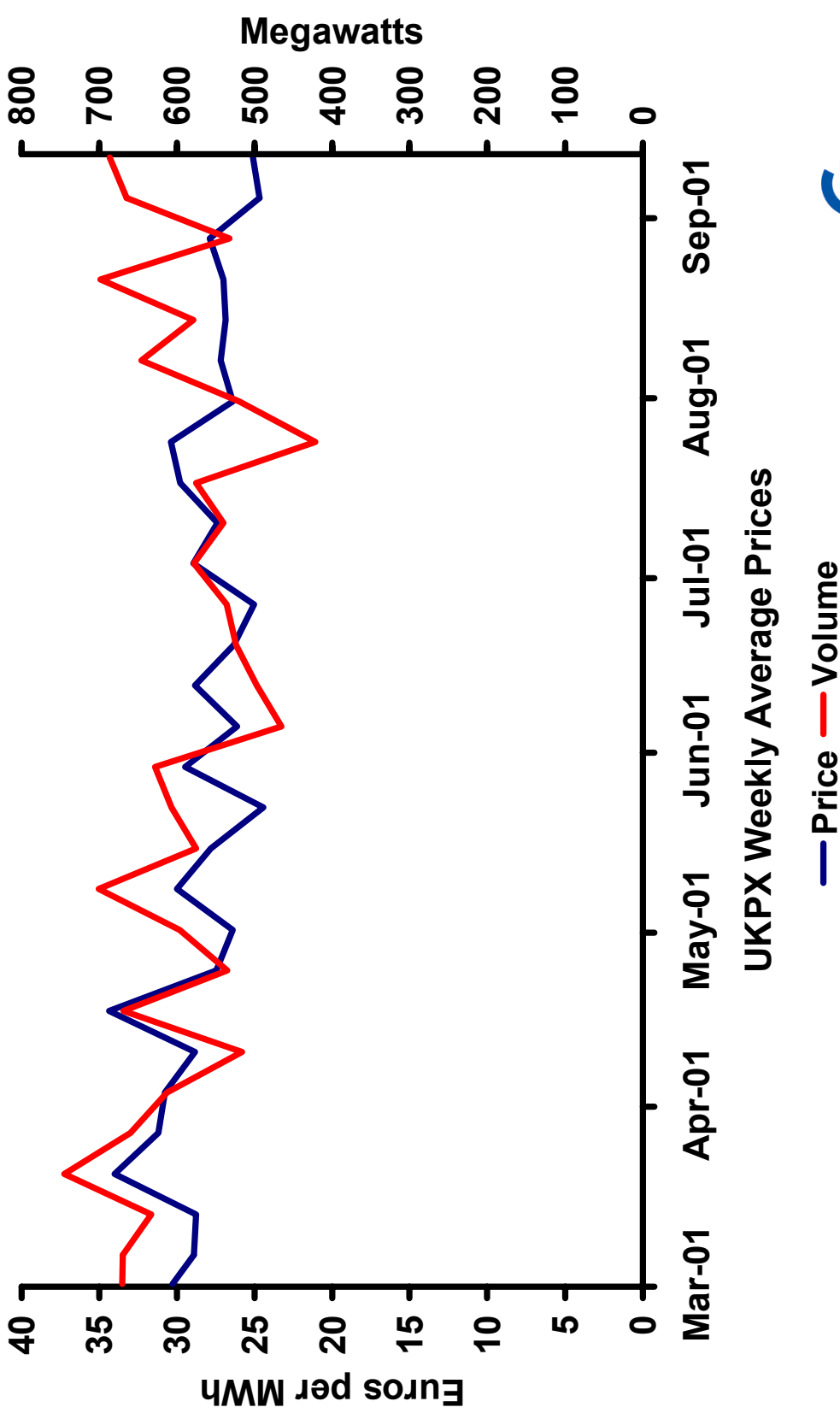


UK Spot—The Pool in 2000



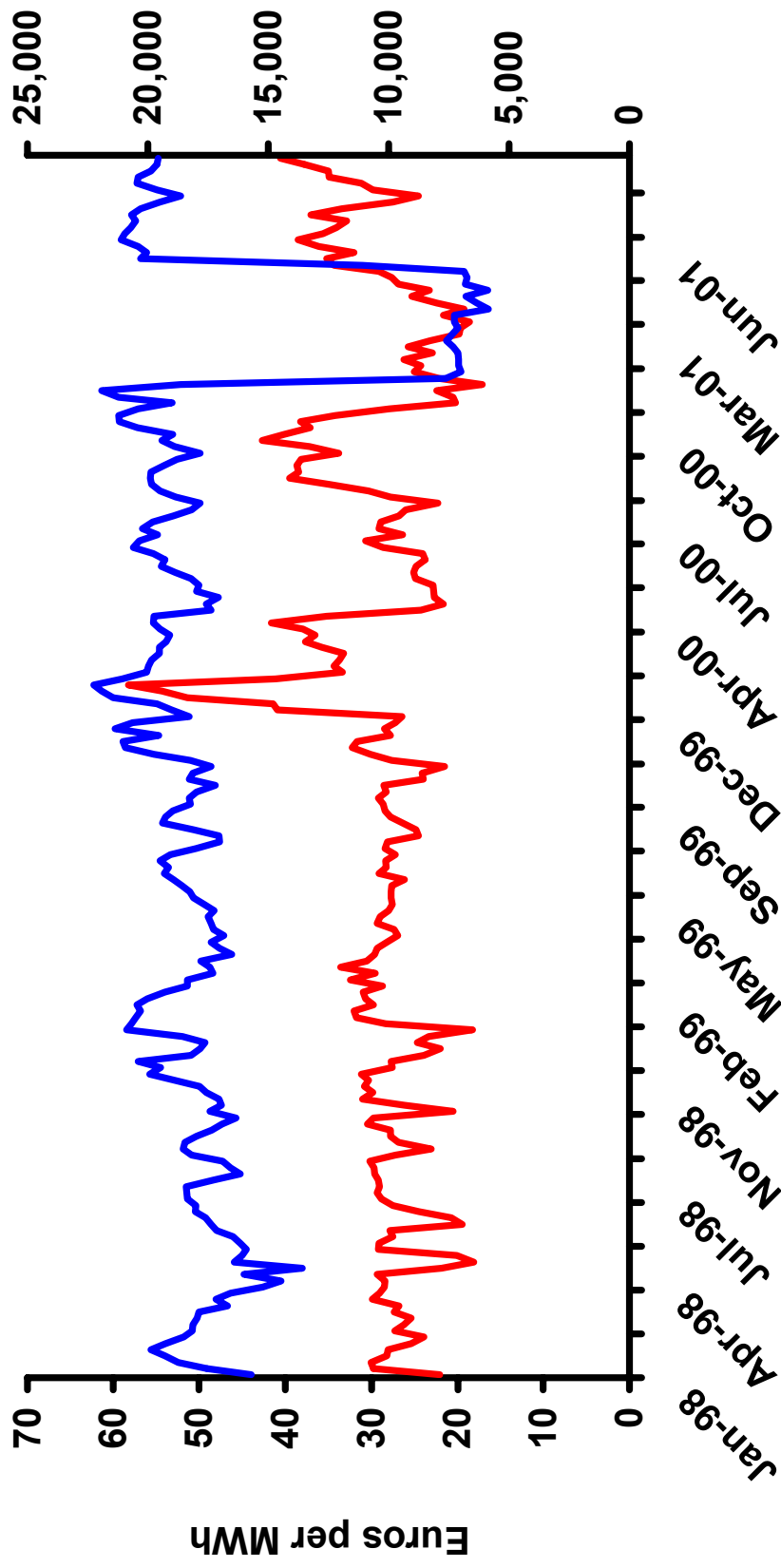
UK Spot—Low Volumes and Volatility

March 2001 - October 2001



Spanish Spot – Hydro, CTC and New Competition from Bilateral Trade

January 1998 - September 2001

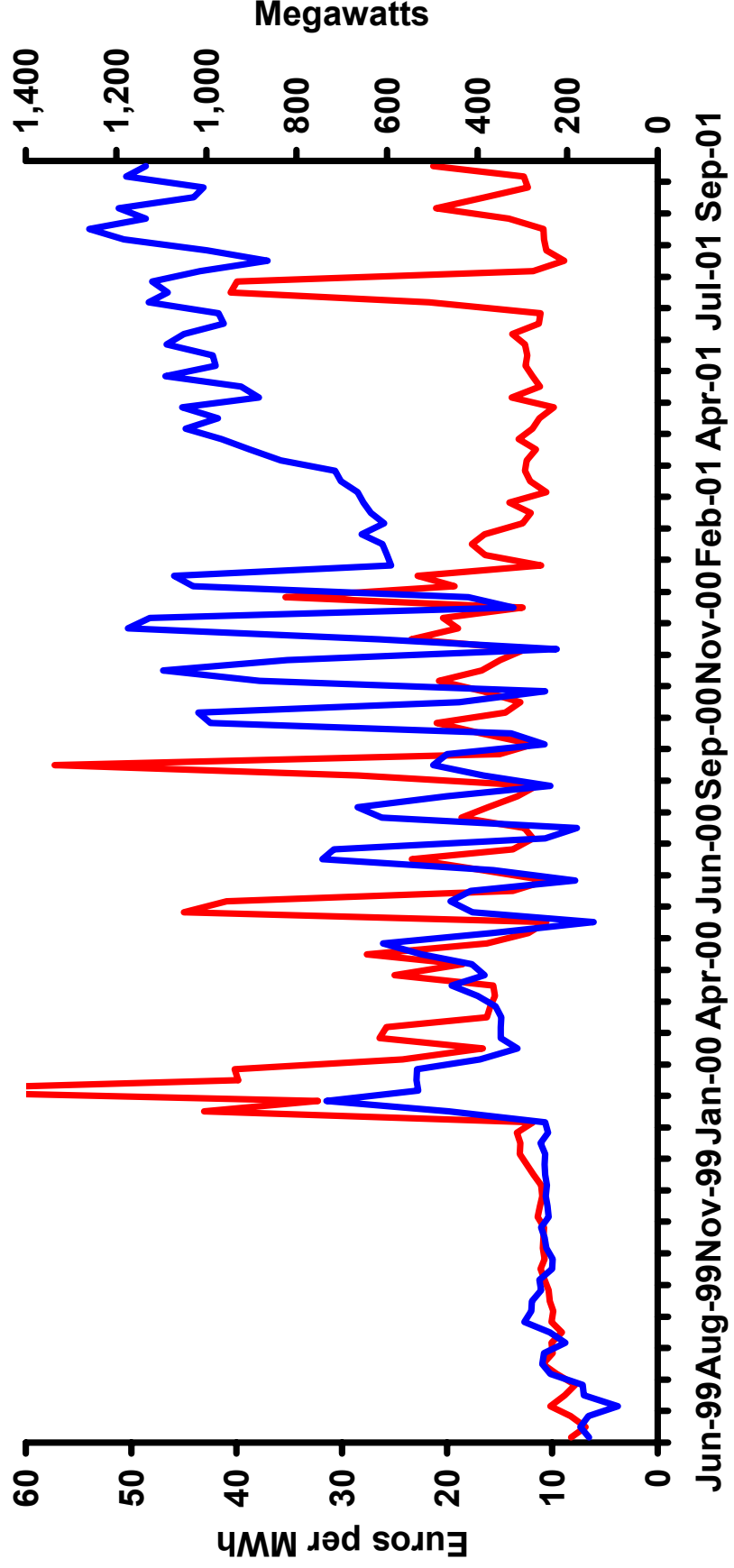


Weekly Average Day Ahead Market Results

— Price — Volume

Netherlands Spot—Gaining Momentum and Credibility

June 1999 - September 2001

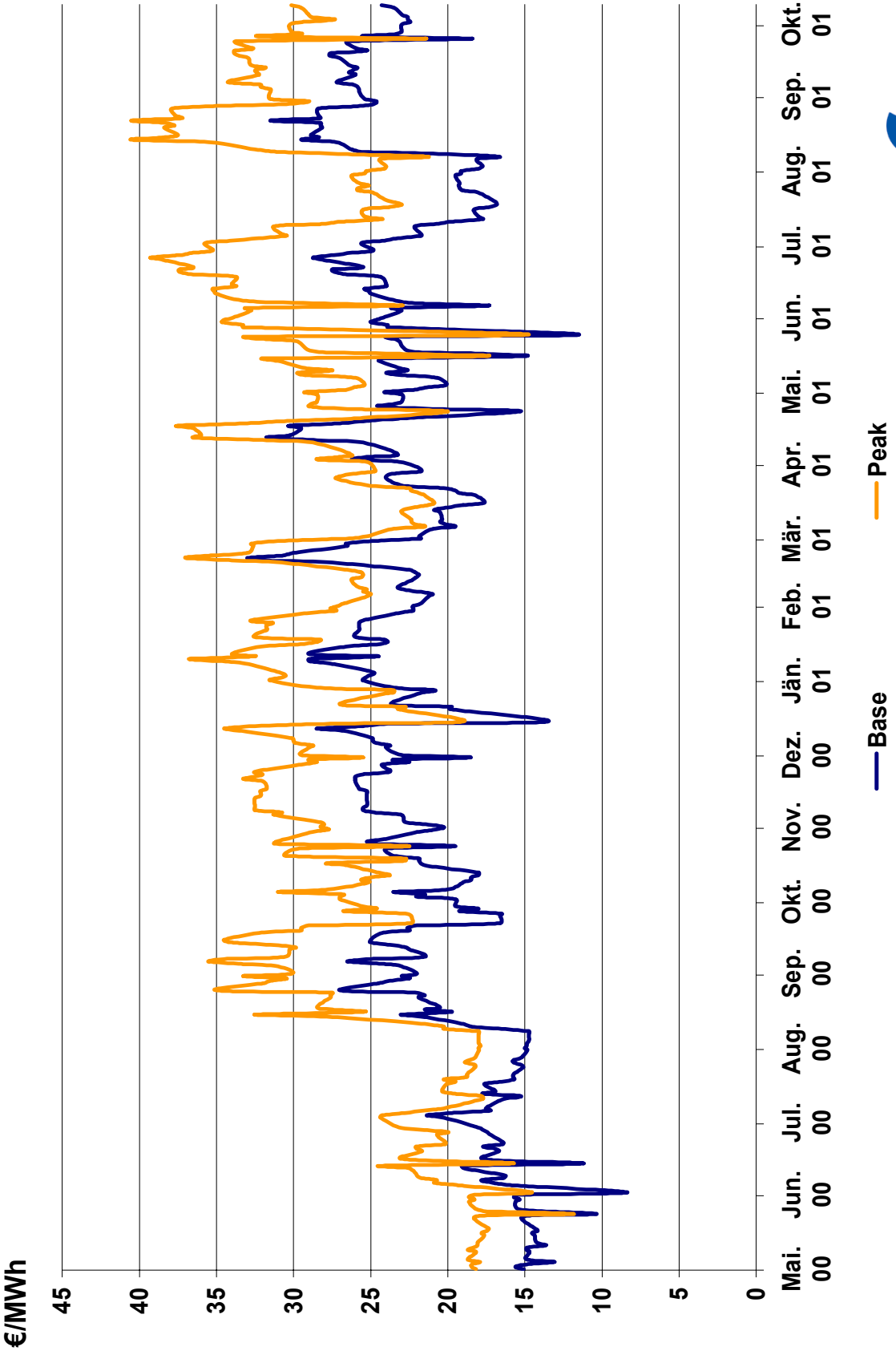


APX Weekly Average Spot Market Prices

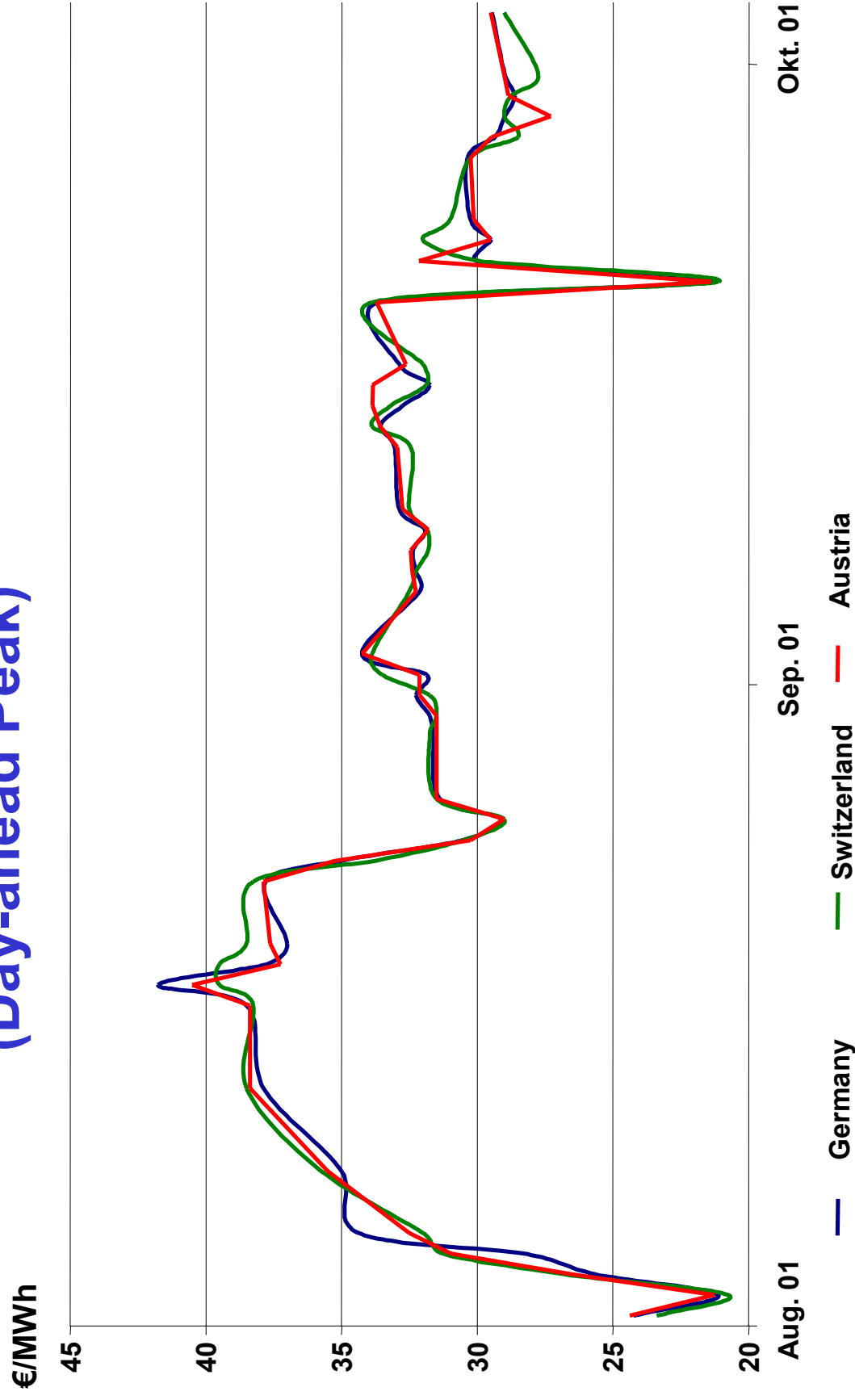
— APX Price — APX Volumes



Austrian Spot Prices

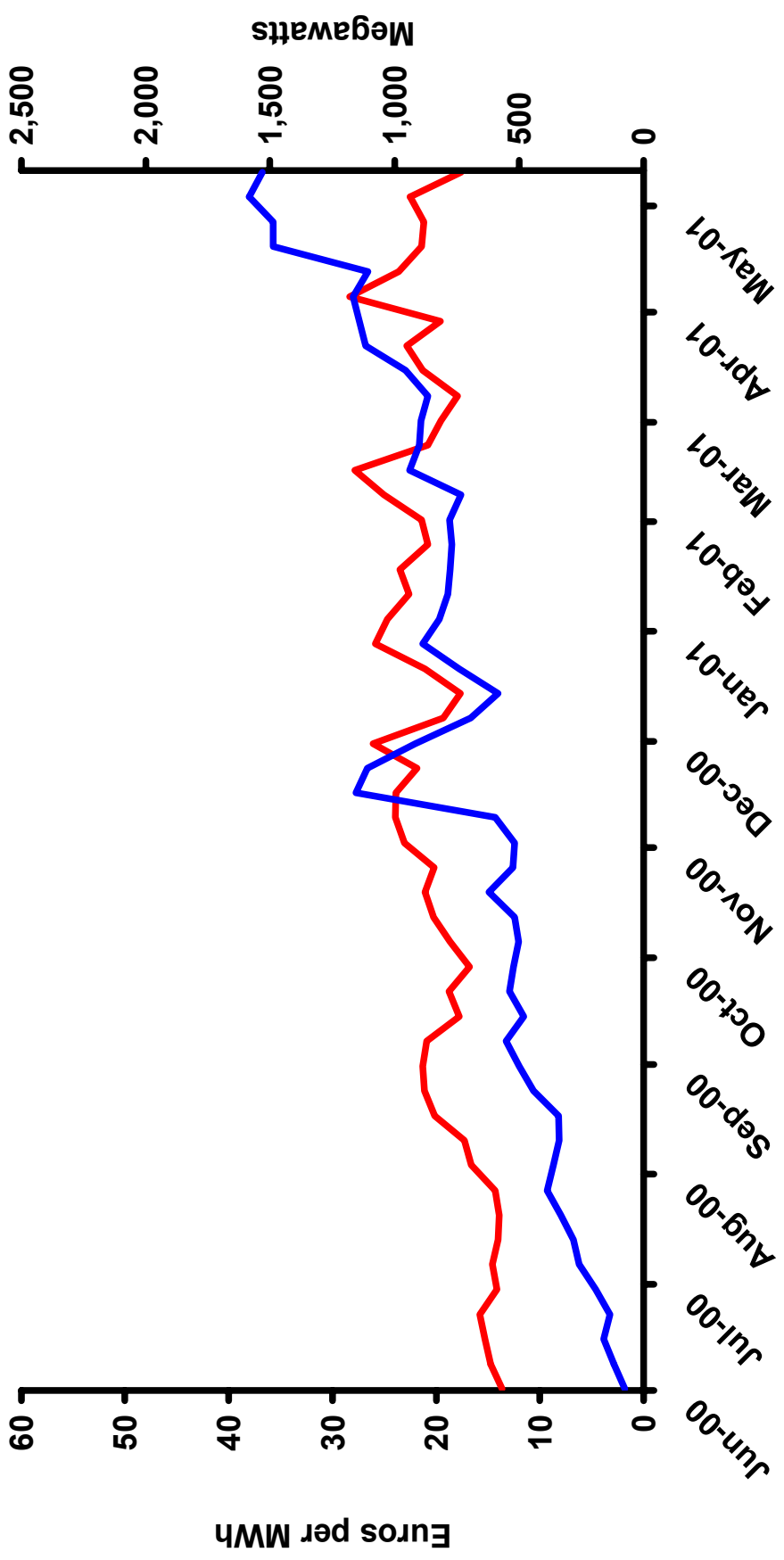


Many European Markets are linked e A, CH, GER (Day-ahead Peak)



German LPX Spot—Growing Liquidity, Stable Prices

June 2000 - September 2001



LPX Weekly Average Spot Market Results

— LPX MCP — LPX Volumes

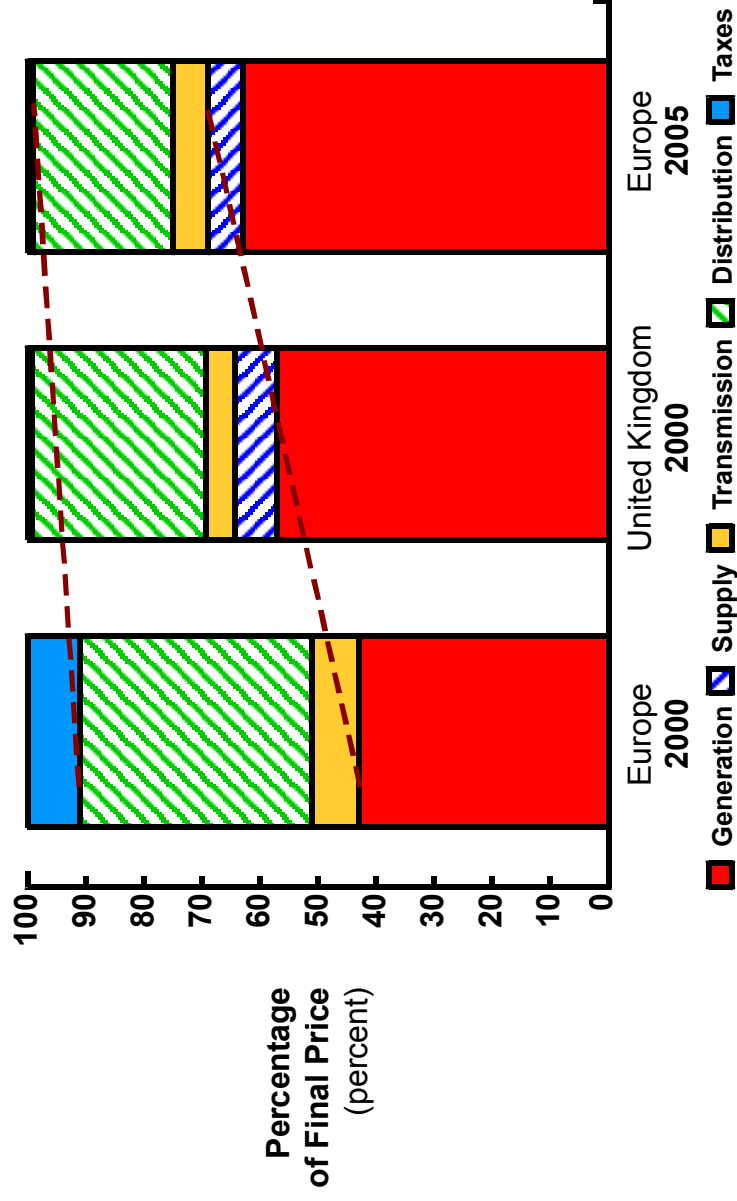




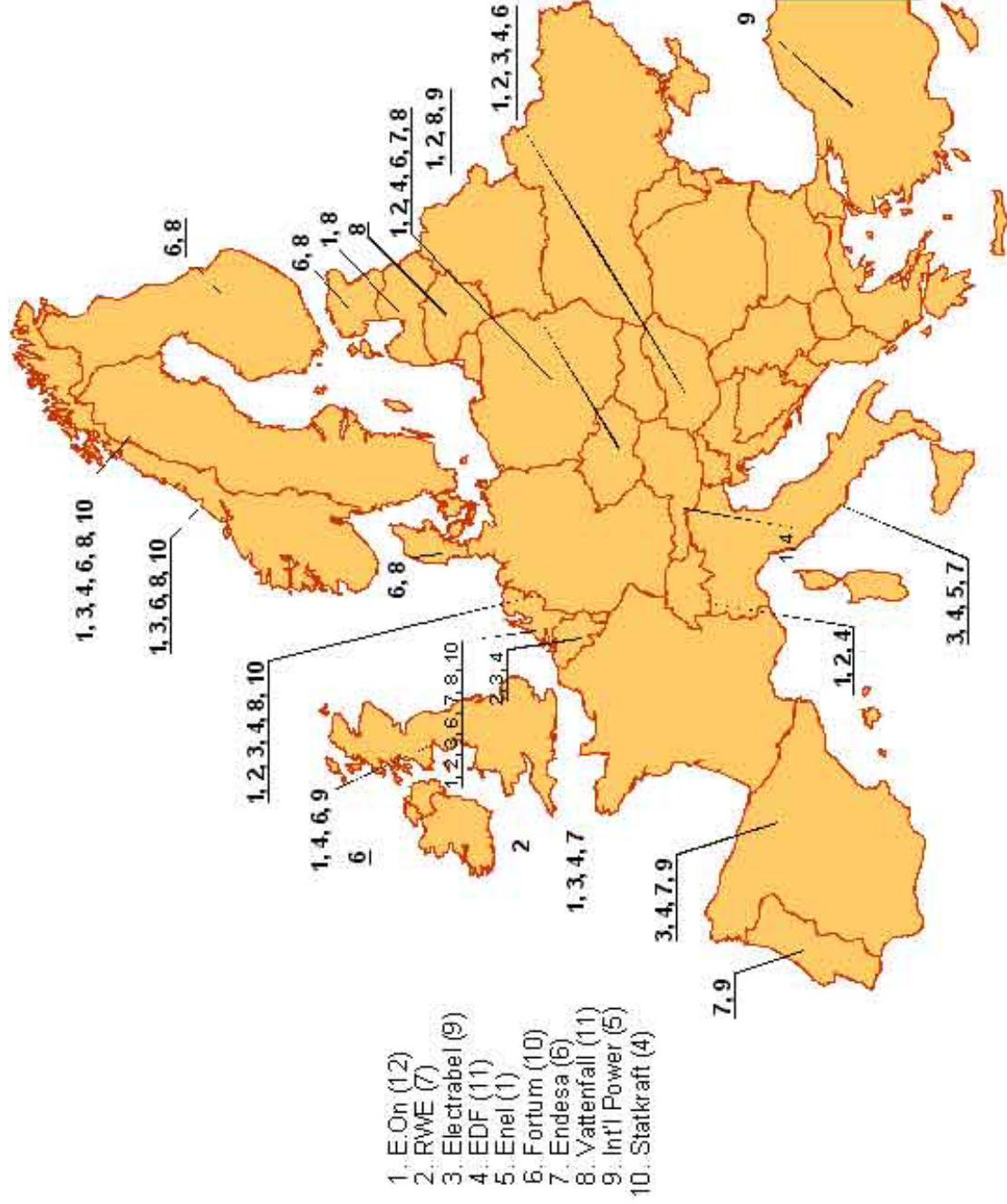
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European Power Industry

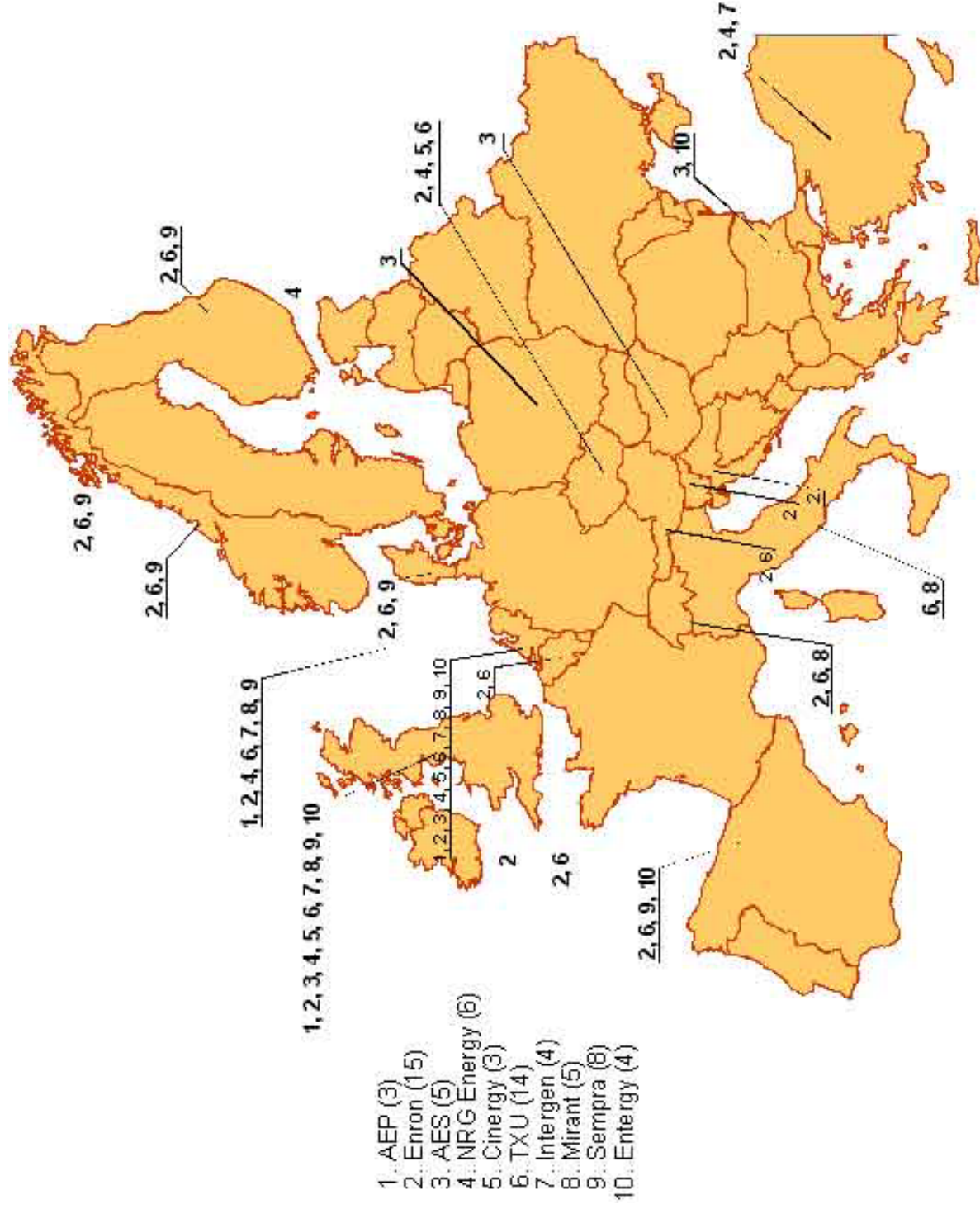
A Future European Value Chain: Increasing Competitive Opportunities



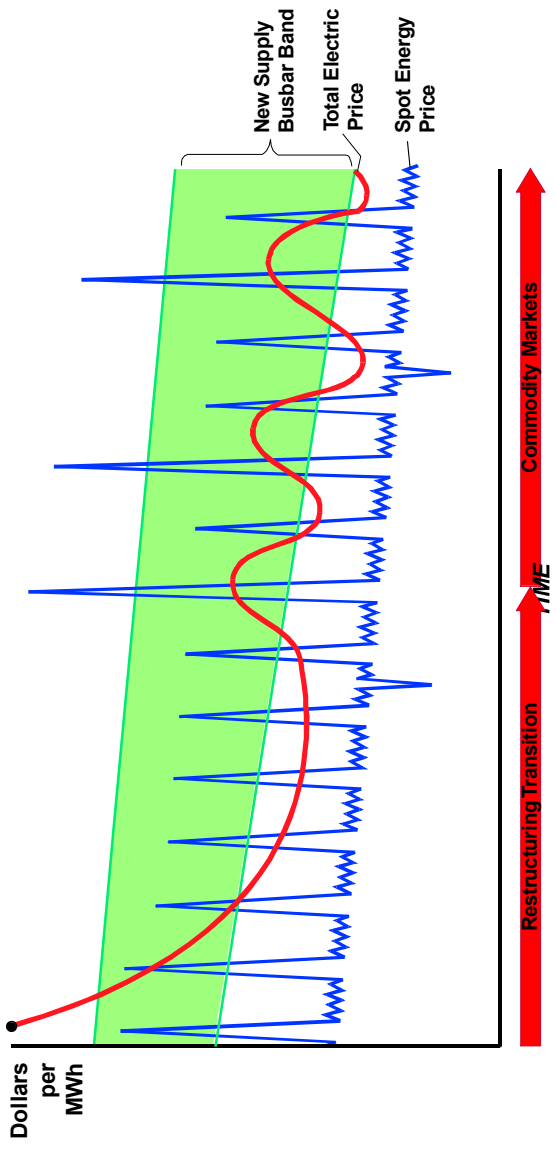
European Power Presence: Top 10 Incumbents



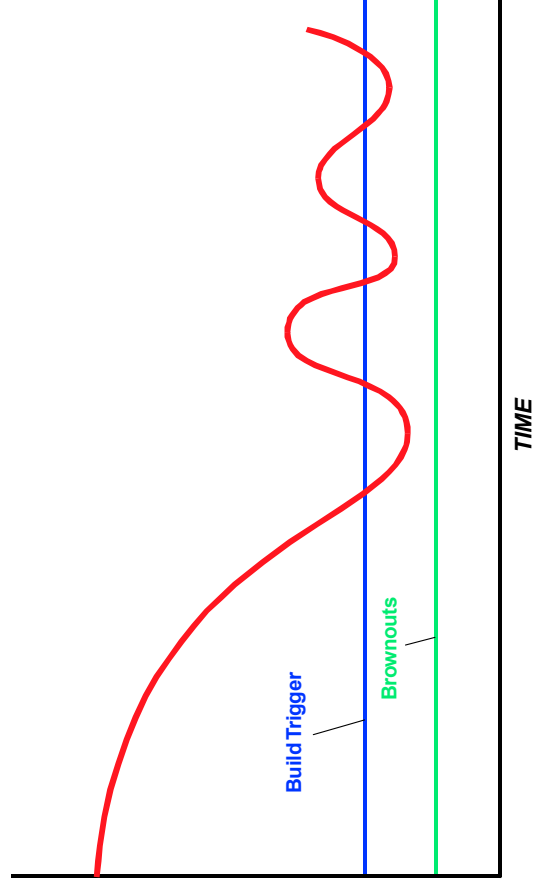
European Power Presence: Top 10 New Entrants



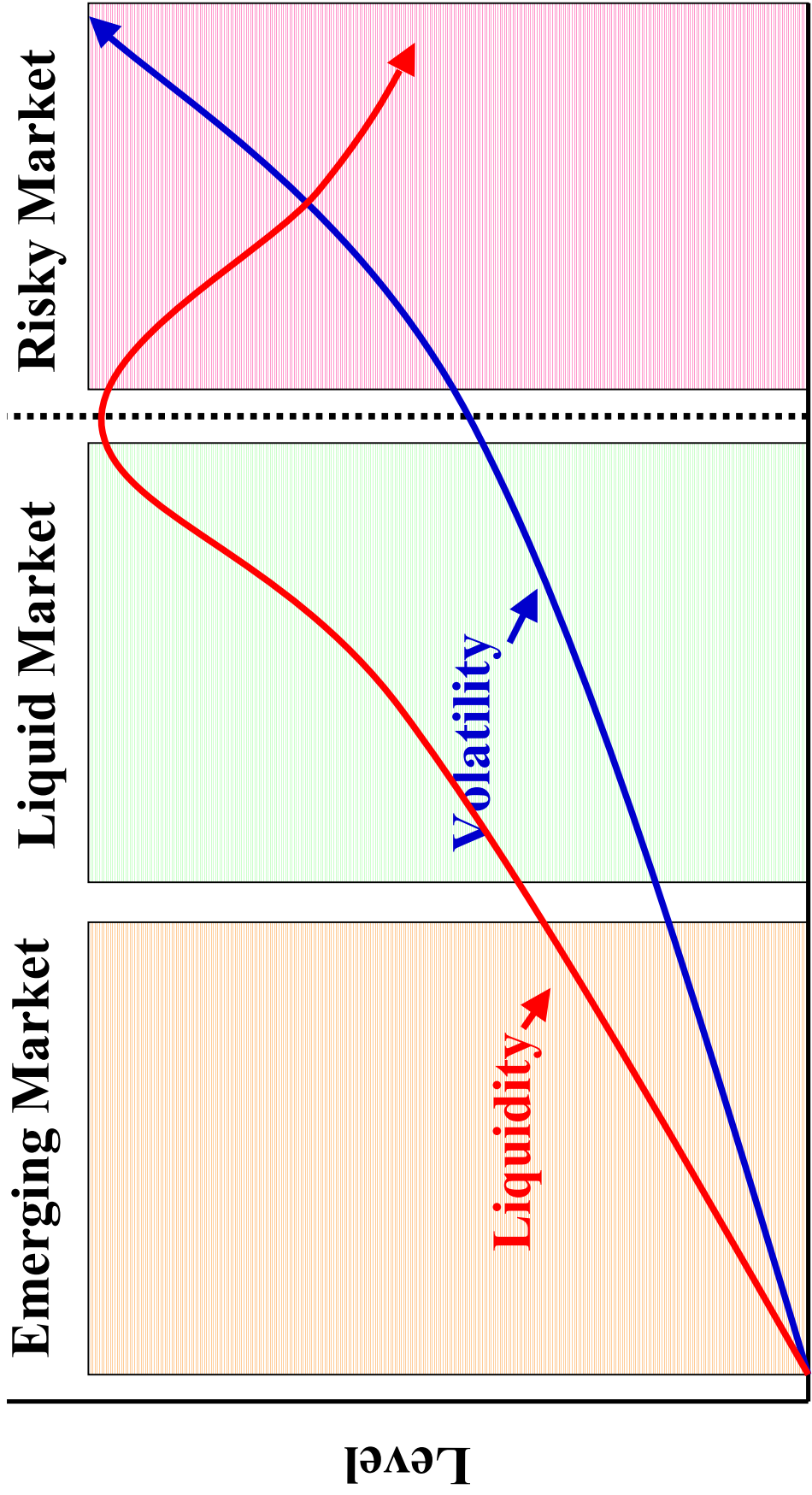
Economics of Capital Intensive Industries and Investor Momentum Drive Boom-Bust Price Cycles



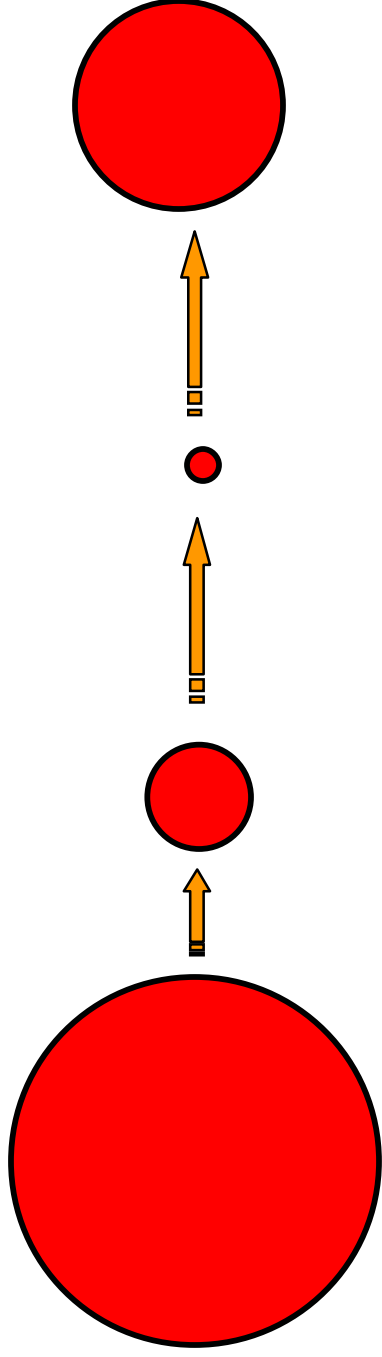
ELECTRIC PRODUCER PRICE



Risk and Liquidity in Gas and Power Markets Follow Three Phases



Sizing Up Power Markets: Major Variations Among Markets



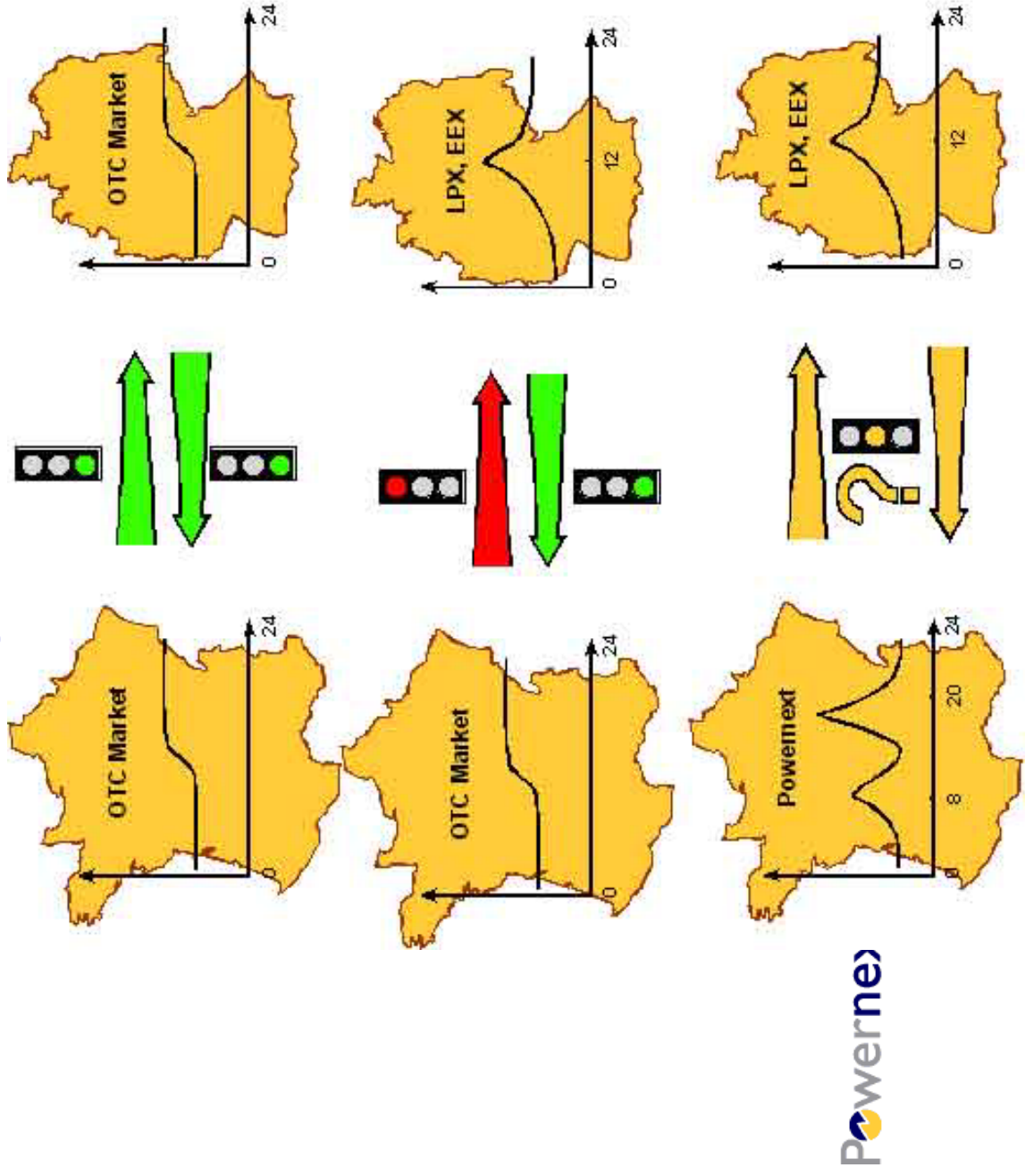
	Financial Markets	Spot Markets	Regulating Market	Physical Market
Time	3 Years to 1 Month	Day Ahead	24 - 2 Hours	Real Time
Size	100% - 500%	15% - 25%	2% - 3%	100%
Volatility	Low	High	Extreme	-
Dominant Players	Banks Traders Merchants	Generators Consumers	Generators Merchants	Generators Consumers



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**The Future of Power
Transmission in Europe**

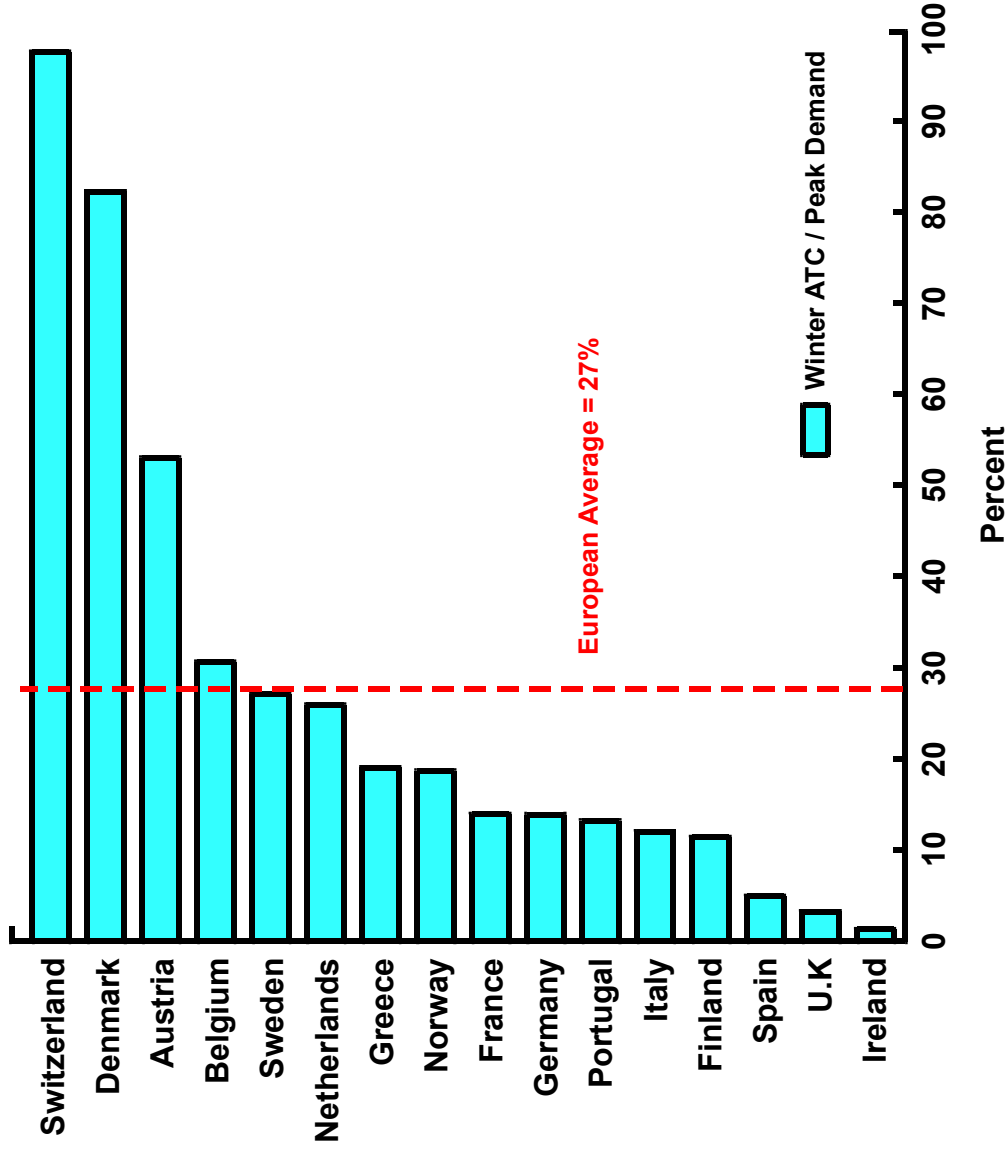
France, Germany: Hourly Price Spreads Create New Congestion



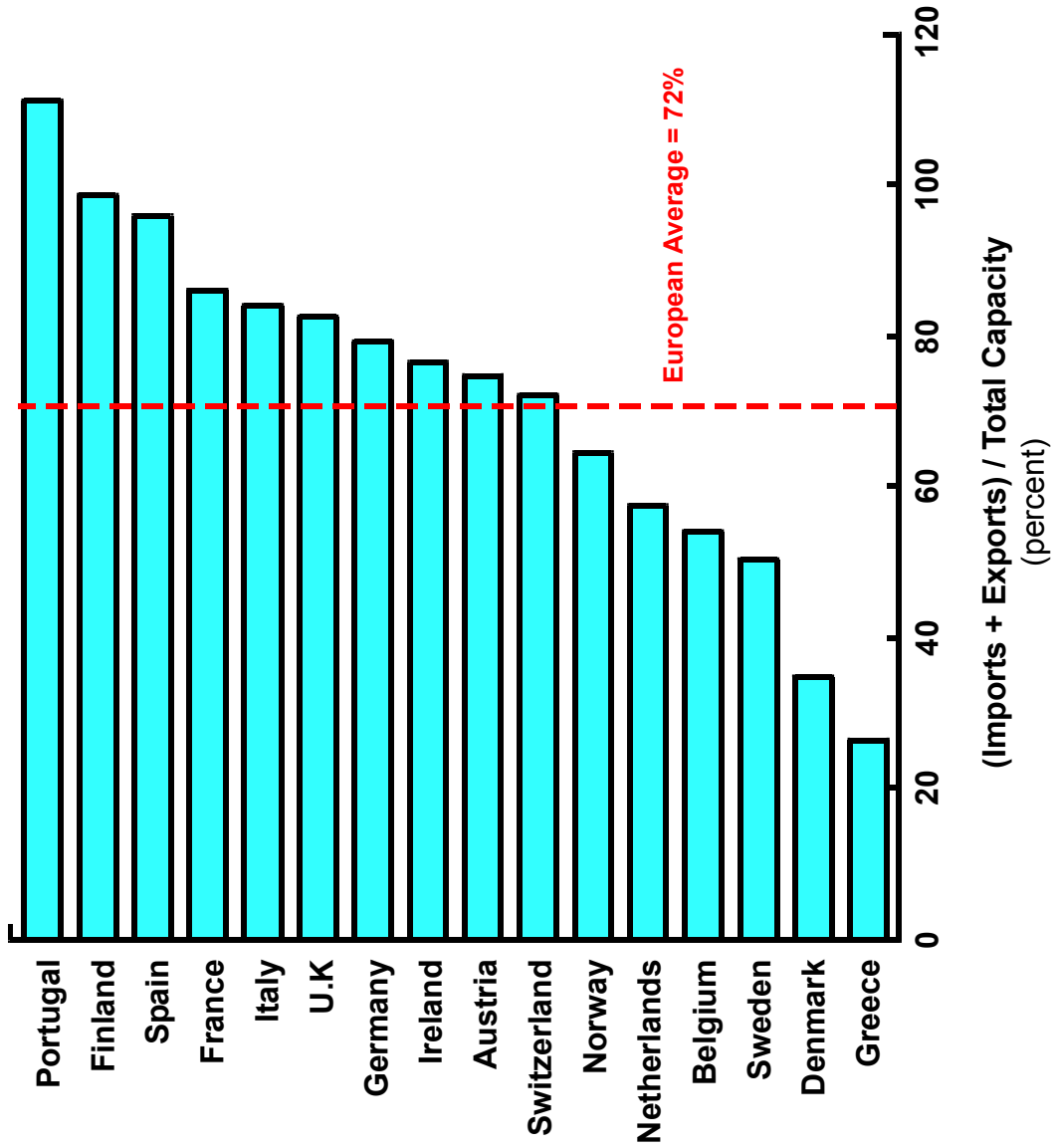
Powerne>



Transmission Capacity Adequacy in 2000: Gauging the Import Threat



Assessing European Transmission Utilization: A Comparison of National Transmission in 2000



Source: Cambridge Energy Research Associates.
11002-10





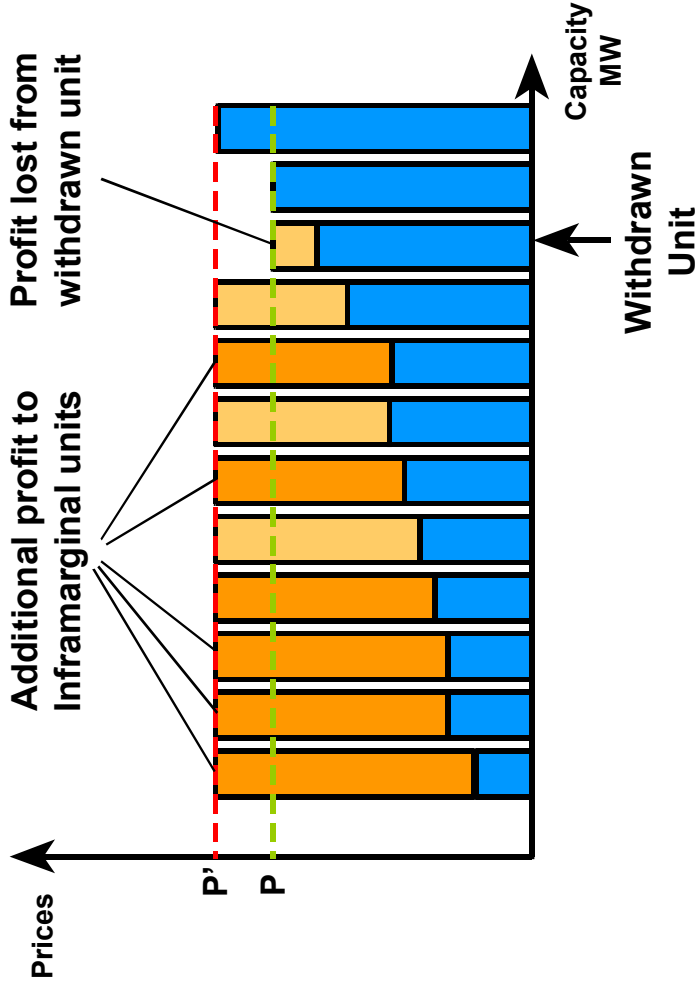
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Market Power and Pricing Behaviour



Market Power in the Wholesale Markets

- **What is Market Power ?**
 - The ability of a generator to raise prices consistently and profitably above competitive levels
- **How would a generator raise prices ?**
 - by withholding capacity or bidding high prices





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Regulatory Developments

Commission Proposal for a New Directive on Gas and Electricity—March 13, 2001

- I. A New Timetable for Market Opening**
 - All EU companies for Electricity (2003), for Gas (2004)
 - All EU consumers for Electricity and Gas: 2005
- II. Extended Unbundling**
 - Legal and functional unbundling for independent transmission system operators and independent distribution system operators
- III. Regulated Third Party Access**
- IV. Independent Regulators**
- V. Improving Standards of Services**
 - Better protection of consumers rights
 - Increased concern for security of supply

Main Regulatory Issues (ex Ante)

- **Transmission and Distribution Tariffs**
- **Market Transparency**
- **Organizing Trans Border Trade**
- **Long Term Security of Supply**

Main Competitive Issues (ex Post)

- **Distortion of Competition (conspiracy—price manipulation)**
- **Abuse of Dominant Position**
- **Mergers and Acquisitions (ex ante)**

For further questions:

- Walter Boltz
- Austrian Electricity Regulation Authority
 - Rudolfsplatz 13a
 - A-1010 Vienna
 - Tel.: + 43 1 24 7 24 201
 - Austria
- Walter.Boltz@e-control.at
- www.e-control.at