

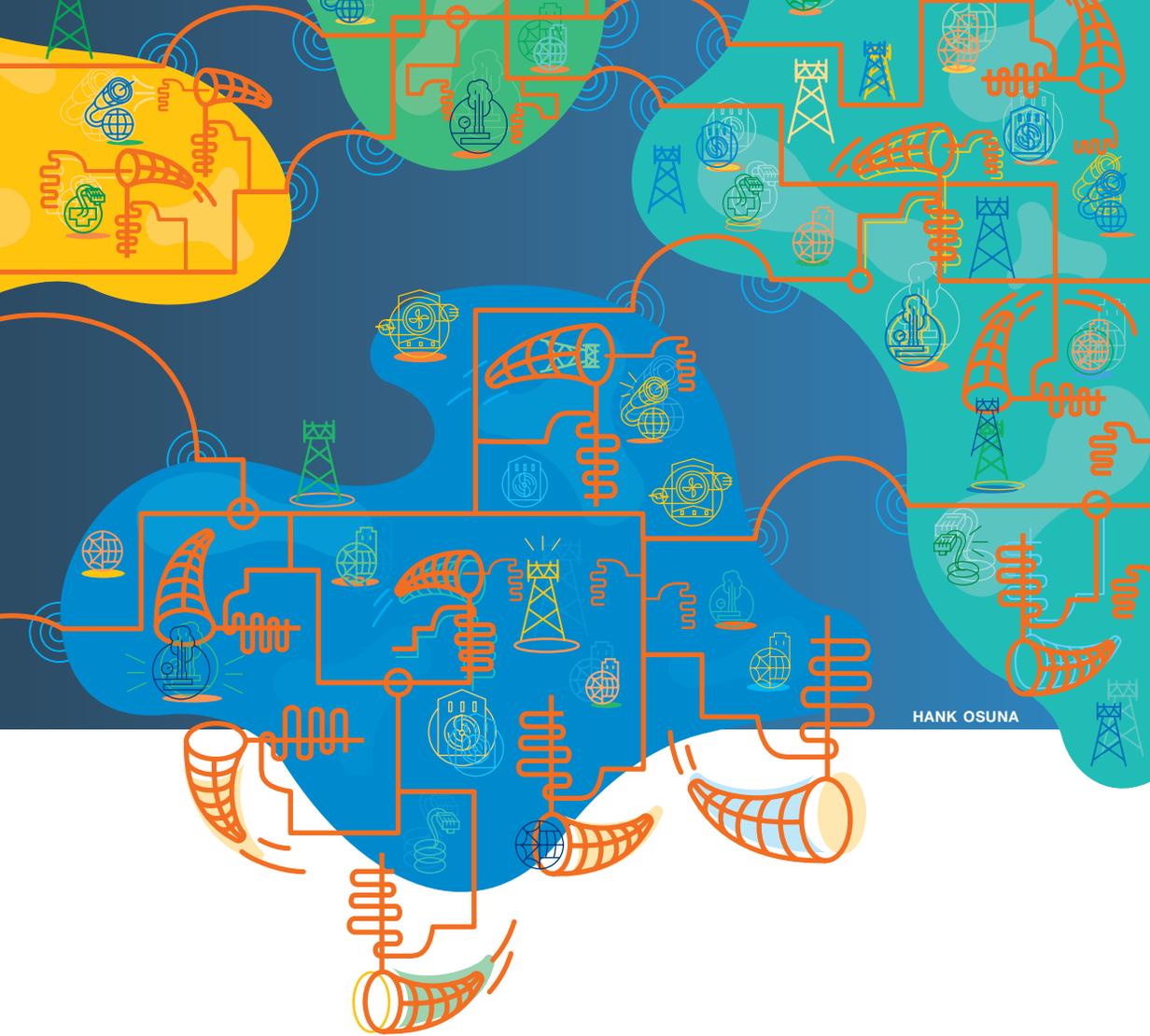


A shopper's
guide to **electricity assets**
in Europe

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Three distinct kinds of markets have emerged since Europe's electricity industry was deregulated. Each sends a different message to asset hunters.

Europe's electricity markets show every sign of speeding toward free competition since deregulation last year. Indications include the swift fall of electricity prices in Germany; the breakup of Italy's national electricity producer, ENEL; the opening of an electricity-trading exchange in Amsterdam, with another to follow in Frankfurt; and the growing availability, across the Continent, of price information.



HANK OSUNA

Indeed, the rapid pace of liberalization in some countries has led producers and consumers to pressure other countries to catch up. Low prices in Germany, for example, are making consumers in the United Kingdom ask why their prices are so high. Meanwhile, German producers feel that they should have the right to buy electricity-generating companies in France if they are to be subject to foreign bids such as the one the French producer EdF made for the German generator EnBW.

Indeed, all sorts of companies—including upstream oil and gas companies, downstream commodity retailers, and utilities wishing to move sideways—want to buy or build electricity-generating plants in Europe. Deregulation

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has put the sector into play, but though European Union legislation aims to create a level playing field, national markets are leveling out from different starting points and at different speeds. The truth is that markets still differ a good deal. So where are the right assets? How much are they worth? And what is likely to happen to prices and to the power industry in general?

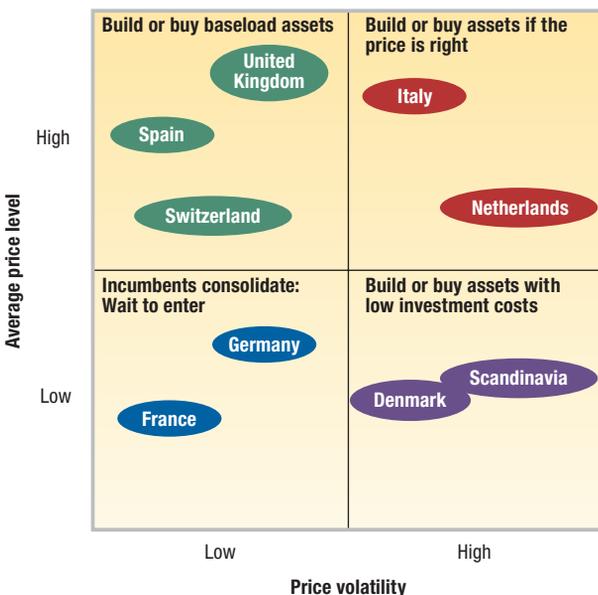
In any national market, prices mostly reflect the structure of industries: the number of competitors, their generation assets, and conditions of supply and demand (*see* sidebar, “Distinguishing features,” on the next spread). Thus the first thing an asset hunter should do is look at this structure.

The value of volatility

Patterns of average prices and price volatility in each national market send messages to asset hunters about what kind of assets, if any, to build or to buy (exhibit). Markets with low average prices, for instance, might seem unattractive, but any degree of price volatility could indicate that companies have a chance to make money by building new, efficient plants to satisfy peak demand. Markets with high average prices and a degree of price volatility could provide companies with openings to invest in plants that would satisfy normal and peak demand. And markets with high but stable average prices offer the possibility of investment in “baseload” assets—generators designed to serve normal levels of demand efficiently.

EXHIBIT

Sending signals to asset hunters



So far, so good. But to get a clearer picture of how prices and competition will probably develop, asset hunters must look at two more elements: regulatory policy and competitors.

European regulators, naturally, want lower prices for the consumer, and their views on policy appear to be converging: in general, they favor fragmented industry structures, though countries with hitherto concentrated ones (Italy, Spain, and

the United Kingdom) are fragmenting slowly. Regulators also favor the price transparency that characterizes standard commodity markets. In Scandinavia, for instance, electricity is traded in forward contracts supported by a spot market—which accounts for about 20 percent of total volume—and by derivative markets. The United Kingdom is moving toward this model, and Germany and Switzerland are likely to follow, though Italy and Spain might balk.

To complete the dynamic picture, asset hunters must scrutinize their competitors. Managers of Europe's old electricity-generating companies are already learning how to compete in the private sector by driving down operating costs and hedging income on futures markets, and the arrival of sophisticated US companies is forcing the Europeans to master novel skills

Sophisticated US companies are forcing their European counterparts to master **new skills** more quickly

even faster. But more experienced newcomers can still exploit gaps. Reliant, a Texas-based electricity producer that recently bought UNA (the Netherlands), plans to set up shop as an asset-backed trader in the European power market. Although many European companies wish to become traders as well, none has Reliant's experience.

Three markets, three messages

We classified each national market according to its industry structure, its regulatory policy, and the commercial skills of its participants. Three distinct types of markets emerged, each sending a different message to asset hunters.

1. Commodity markets

The most freely competitive European markets are those of the Benelux countries, Germany, and Scandinavia. Here, a fragmented industry structure and a profusion of contenders make for liquid markets with abundant transmission capacity, which permits electricity to flow freely among market sectors. Production costs are similar, and “deregulated” management skills are fast reaching a uniform standard.

Message: there is room for consolidation. The Benelux countries and Germany are awash in transmission capacity. (Germany alone boasts 450 generating companies.) Mergers, which give incumbents a way to ease the pain of the price wars arising from such intense competition, are already taking place in Germany—between Viag and Veba and between RWE and VEW—and are likely to occur soon in the Netherlands.

Distinguishing features

Five elements shape the electricity industry's structure in each national market: the concentration of ownership, the balance of supply and demand, the types of energy-producing plants, transmission systems, and growth in demand.

Concentration of ownership: In Italy and the United Kingdom, the few big companies can manage prices (Exhibit A).

Balance of supply and demand: Prices fall in competitive markets that are oversupplied. On average, European Union countries now have more generating capacity than they need (Exhibit B).

Types of energy-producing plants: The mix of generating plants in a market—hydroelectric, nuclear, coal, gas turbine, and combined-cycle gas turbine (CCGT)—affects not only average prices (because of differing costs of production) but also the volatility of prices (Exhibit C). Countries with mostly nuclear and coal-fired generators will probably have low average prices. But if such a country (Italy, for example) uses gas- or oil-based plants to satisfy a surge in demand, the price level will vary widely around the mean as a result of start-up costs and higher fuel prices. If a country has spare sources of cheap hydroelectricity that can flow into the grid as soon as demand starts to surge, prices won't rise far.

EXHIBIT A

Concentration in European markets

Austria: 100% = 17.0 GW		The Netherlands: 100% = 21.0 GW		Switzerland: 100% = 15.6 GW	
Company	Market share, percent	Company	Market share, percent	Company	Market share, percent
State-controlled monopoly	100	EPON	30	NOK	27
Belgium: 100% = 15.0 GW		EPZ	21	BKW	9
Company	Market share, percent	UNA	17	EOS	7
ElectraBel	100	EZH	13	Atel	6
France: 100% = 107.0 GW		Other	19	EGL	3
Company	Market share, percent	Norway: 100% = 27.7 GW		Other	48
EDF	80	Company	Market share, percent	United Kingdom¹: 100% = 64.0 GW	
Other	20	Statkraft	31	Company	Market share, percent
Germany: 100% = 112.0 GW		Norsk Hydro	12	National Power	19
Company	Market share, percent	Oslo Energy	6	PowerGen	16
RWE	21	Other	51	British Energy	11
PE	15	Poland: 100% = 44.0 GW		Eastern Group	11
Other	64	Company	Market share, percent	East Midlands Electricity	9
Italy: 100% = 73.0 GW		PSE (state-controlled monopoly)	100	AES	6
Company	Market share, percent	Sweden: 100% = 34.0 GW		Magnox Electric	5
ENEL	80	Company	Market share, percent	Imports	5
Other	20	Vattenfall	53	Other (new entrants)	18
		Sydkraft	19		
		Stockholm Energy	7		
		Other	21		

¹After 1999 divestiture.

Transmission systems: In a region with an interconnected electricity grid and spare transmission capacity, suppliers can send electricity to buyers in different parts of the region. But in Greece, Italy, Spain, and the United Kingdom, it is difficult to import or export electricity beyond national borders.

Growth in demand: Prices can jump to levels attractive to potential new entrants if growth

in demand pushes against the limits of capacity. Experience suggests that this happens when average demand comes within 10 percent of capacity and brownouts (shortages) occur. Demand in most Western European countries is growing by less than 1.5 percent a year, but in Eastern Europe and Mediterranean countries it is growing faster, at an annual average of 5 percent.

EXHIBIT B

Overcapacity in Europe, 1997–98

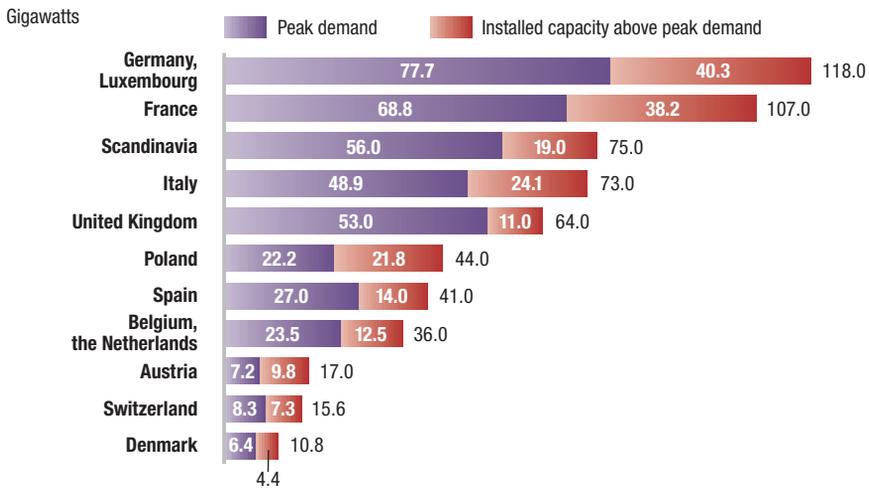


EXHIBIT C

Share of generating mix

Share of total installed capacity, percent

Country	Type of plant				
	Hydroelectric	Nuclear	Coal	Gas	Oil, other
Austria	72	0	11	13	4
Belgium, the Netherlands	1	36	28	32	3
Denmark	0	0	96	0	4
France	14	78	5	0	3
Germany, Luxembourg	4	34	54	6	2
Italy	18	0	10	22	50
Poland	3	0	91	0	6
Scandinavia	59	27	11	3	0
Spain	32	15	23	20	10
Switzerland	58	39	0	1	2
United Kingdom	6	15	39	34	6

Acquisitions will have to be timed carefully. New entrants should wait for electricity prices to hit bottom (the cost of the marginal producer) before buying anything. Incumbents, however, can merge while prices are going down and preserve value by cutting duplicated costs.

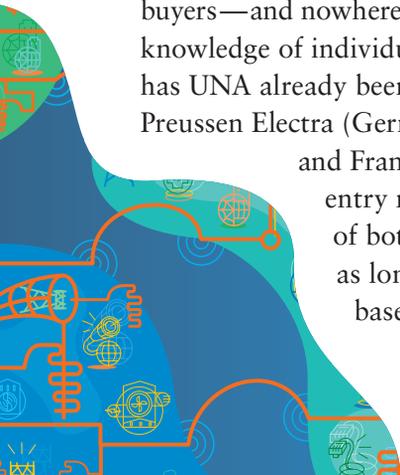
2. Umbrella markets

The electricity markets of Italy, Spain, and the United Kingdom have a highly concentrated, illiquid structure that limits transmission between countries. By persuading regulators to accept high average electricity prices, vertically integrated old utilities have inadvertently given new entrants an attractive price umbrella—at least for now, since as new entrants come in, it will slowly but surely fold.

Message: hurry, hurry while stocks and the umbrella last! Assets in the United Kingdom have already been snapped up, including the 4,000-megawatt Drax power plant, bought for \$3.1 billion in July 1999 by the Virginia-based power producer AES. The high price suggests that AES expected the UK market price for electricity to remain well above the plant's marginal cost of production for some time. Nonetheless, British regulators are steadily closing the price umbrella. To promote competition, last year they obliged the formerly state-owned generators National Power and PowerGen to divest themselves of about 8,000 megawatts of plant. The regulators have also introduced new, more transparent trading arrangements and plan (in 2003) to lift the moratorium preventing new entrants from building plants with combined-cycle gas turbines (CCGTs).

Electricity prices must fall in umbrella markets as regulators become increasingly sophisticated and as more entrants challenge incumbents. But few regulators are likely to allow prices to fall to the cost of marginal producers. Even some commodity markets offer acquirers an opportunity to “generate low and sell high” during the transition to deregulated markets.

To judge how long this window of opportunity will remain open for buyers—and nowhere is it likely to last more than five years—a detailed knowledge of individual markets is needed. In the Netherlands, not only has UNA already been acquired by Reliant but EPZ has been acquired by Preussen Electra (Germany), leaving little for other contenders. In Belgium and France, pressure to offer foreign competitors reciprocal entry might create opportunities, though the governments of both countries will want to keep electricity prices high as long as possible to preserve the value of their nuclear-based industries.



3. Growth markets

Demand for electricity is growing so fast in Eastern Europe, Greece, Portugal, southern Spain, and Turkey that more plant will be needed in all of these markets within five years. Although several countries in this group are not yet members of the EU, all would like to join it and thus become subject to its rules on competitive electricity generation.

Message: build new, efficient generators—but not too many. If a lot of incumbents and new entrants follow that course, uncomfortable cycles of under- and overcapacity might develop in these markets. Companies contemplating investments here should consider this possibility.

Companies *can* cut the risks of entering growth markets, by acquiring incumbents as well as building new plant. The old plant of incumbents is typically fully depreciated and likely to run on cheap coal or lignite (whereas new plant runs on expensive gas). Old plant is also likely to become more operationally efficient as competition pushes companies toward best practice. Electricity produced by “bundled” assets—a combination of old and new plant—will probably cost less than electricity from new plant alone.

Risk can be cut further through cogeneration projects, in which generators produce energy for a particular industrial process (often in the form of steam) and sell spare electricity on spot markets. 