

MANAGING IN TURBULENT TIMES

EUROPE'S POWER-GENERATION MARKET

By Christophe Brognaux and Patrick Herhold

THE ENERGY POLICIES OF Europe as a whole and of individual European countries have created a seriously flawed power market. Across the board, well-intentioned initiatives have led to pricing and market distortions that pose significant challenges to industry players and consumers alike. Efforts aimed at achieving the best of all possible worlds—market liberalization, reduction of carbon-dioxide emissions, and affordability—have resulted in policies whose outcomes fail to meet most of their intended objectives.

After several years of denial, European power generators have come to understand that these problems are not cyclical—that is, they are not symptoms of a slow economy—and that they cannot be easily fixed by a few regulatory patches and changes. Rather, they are structural. In addition, given the nature of European decision making, these problems will not likely be solved in a holistic manner anytime soon. The fundamentals of the business drivers of many companies have been jeopardized for good and will likely continue to deteriorate. As a re-

sult, companies need to first rethink their business models and portfolios, then adopt a new mentality, try to work within the dysfunctional system as it is, and be prepared for further regulatory changes.

The Problems

Focusing on pan-European problems—although the precise symptoms differ country by country—we see four principal problems:

- Policy is made at a microlevel, without taking into account the way it affects the broader power system.
- Policy making doesn't take into account the broader economic impact of changes.
- The array of programs intended to bolster renewable energy is ineffective and expensive.
- Constantly shifting market dynamics create great uncertainty across the value chain.

Too frequently, *policy is made at a microlevel* as if policy makers were wearing blinders and were able to see only one specific issue or policy objective. In many cases, the potential side effects on other policy objectives are overlooked. For example, subsidizing solar photovoltaic and wind energy crowds out much-needed conventional backup-generation capacity in existing power markets. And, in turn, it necessitates additional support for conventional power plants to ensure the security of supply. Furthermore, feed-in tariffs and net metering guarantee that anyone who owns, say, a rooftop solar-photovoltaic system earns a set rate from the utility for all the electricity that system generates and feeds into the grid. This leaves fewer customers to pay the costs of maintaining the grid.

Even more significant is that renewable production cannot be reintegrated into the power market: the presence of solar or wind energy will collapse the market prices that would be needed to compensate the new sources of energy supply. To ensure that new “solutions” do not create new sets of problems, regulators and authorities should take a much broader perspective on the way the system functions and should think through the impacts of the initiatives they propose.

Too many decisions are made *without taking the economic impact into account*. Some European countries have decided to close down existing nuclear-power plants without first determining how the disappearance of a large amount of existing (and depreciated) capacity will affect industrial competitiveness. Elsewhere in Europe, countries add new nuclear plants without thinking through or communicating clearly the costs this solution will impose on society. Although European power markets are interconnected, there is no such thing as a unified European energy policy.

The European Union Emissions Trading System highlights another example of the lack of economic consideration. To encourage the power sector’s truly significant reduction of CO₂ emissions, the price of emissions would have to rise to much higher levels. At current

price levels, the cost of CO₂ does nothing more than create a burden for consumers and has no significant positive impact on emissions. And if Europe were to act alone—without its trading partners and competitors around the world—to boost the cost of emissions sharply, the effects on European industry would be devastating.

Aggressive targets for renewable energy sources (RES) at the country level often lead to *inefficient “carpet bombing” of subsidies* when targeted support would be a more effective strategy. For now, only countries with the highest levels of solar radiation should focus on solar, and windswept regions should focus on wind. But that’s not how it works in practice. And the costs are rising. RES subsidies are a form of hidden public debt, and countries are already struggling with high debt loads. In Belgium, green-certificate requirements will likely cost power consumers nearly €2 billion in 2020.

This set of circumstances, combined with the fact that *authorities frequently change the rules of the game*, creates great uncertainty for power producers. According to our estimates, more than half of Germany’s plants that burn hard coal and gas had negative cash flow in 2013. There are periods of negative prices when conventional producers are forced to pay others to take energy off their hands so that they don’t have to shut down. In many cases, the current system removes the incentive to keep such plants alive—let alone invest in the new capacity that will be needed as demand rises. And it also makes life difficult for other players, including renewable-energy developers, retailers, and power consumers. Even investors in network operators—until now relatively well protected by a regulated return remuneration—must be concerned about the future. Will they be the next ones to build stranded assets? It’s not surprising that private investors are growing more and more wary of committing money in this sector.

A Reality Check

Europe needs a revolution in the way it thinks about energy. Decision makers must

admit that Europe can't have it all. Europe can't have secure supplies, energy independence, low costs, stable prices, competition, falling CO₂ emissions, and an end to nuclear power all at the same time. Unfortunately, most politicians do not seem to have come to grips with this reality, and those who have haven't dared to admit it to the public.

In theory, we could envision a *market-based system that works more effectively*. Truly embracing competition would mean placing all sources of electricity—renewables, nuclear, coal, and gas—on an equal footing. Rather than privilege or artificially reduce or increase the price of one form, policy makers should let the market sort out prices on the basis of demand. Payments received by generators—including renewable-energy generators—should be tied directly to the market price. Producers of intermittent renewable energy who are exposed to the market would have to hedge to compensate for the low prices they'll receive when they produce lots of electricity, as well as for the fact that they may not receive any revenues when the sun is not shining and the wind is not blowing. Shifting to such a system would

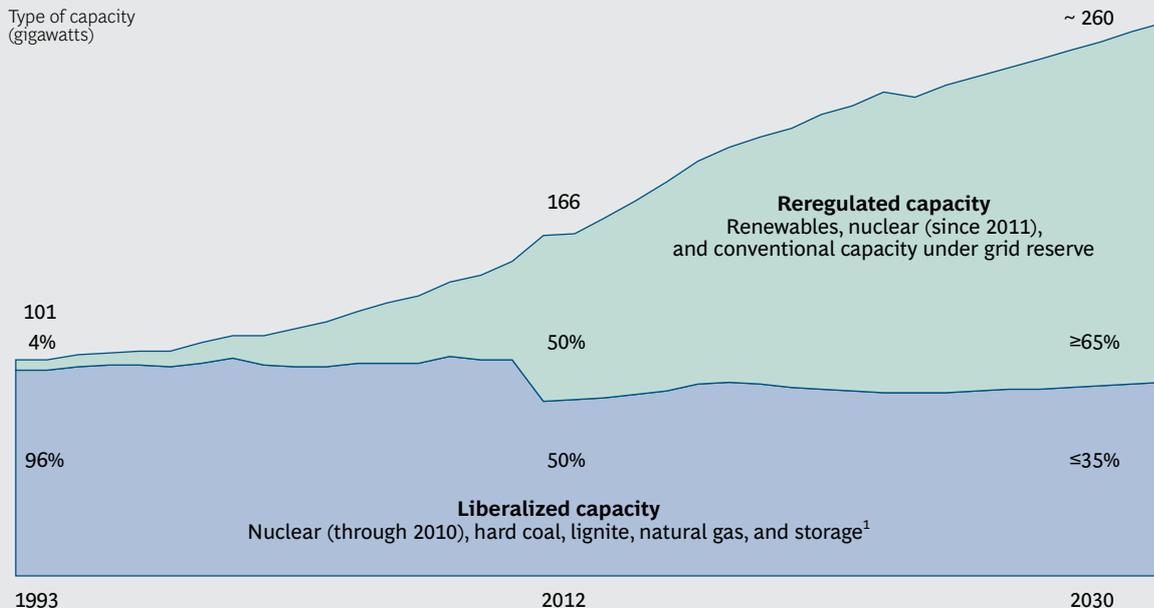
send positive signals to the market about investment and promote private-sector investment in activities such as demand response and energy efficiency.

This seems too much like wishful thinking. A fully market-based system would produce a set of results that public officials would likely find unpalatable. Under such a regime, prices would increase during extended periods when capacity lags behind demand, and that would be difficult to tolerate politically and potentially disruptive economically. It is hard to imagine policy makers abstaining from intervening in the power sector. And even if they were willing to refrain from interfering, private investors would need lots of convincing before they would believe that the policy makers were really maintaining a hands-off attitude.

One alternative workable model implies *de facto reregulation of power generation*. (The exhibit below shows the rising proportion of Germany's power-generation capacity that is reregulated.) In this model, conventional generation would be re-

Will the Growing Share of Reregulated Capacity End Market Liberalization?

Germany's installed power-generation capacity



Source: BCG analysis.

Note: This BCG scenario is based on 2013 and 2014 policy updates.

¹Conventional capacities not under grid reserve or a similar mechanism.

regulated, for example, by reintroducing power purchase agreements (PPAs) awarded to power generators by public tendering, by a single buyer, or by instituting broad capacity mechanisms. For renewables, regulation could continue by means of tendering mechanisms (which are equivalent to PPAs): there would be no “market integration.”

Collectively, these moves would imply a shift away from today’s energy-only market. The merit order would be relegated to a mere dispatching tool. Competition in the power generation sector would be limited to bidding for, developing, and operating predefined capacities with a guaranteed return over a long period of time.

Although many recently introduced policies amount to latent reregulation, we are pessimistic about the short-term prospects for large-scale reform. As we’ve noted, the structure of Europe’s energy and political systems render holistic broad reform difficult and unlikely. What’s more, there’s a perceived lack of urgency. Politicians and other leaders are inclined to take face-saving approaches, to let short-term political concerns trump strategic planning, and to defer problem-solving measures until after the next elections.

We expect no major shift in policy making as long as security of supply is somehow maintained and the lights stay on. (In Germany, for example, under current policies, supply should be largely secure until 2017 or 2018.) Such a significant shift would require Europe to acknowledge that its deregulation strategy has been flawed.

Consequently, the most likely outcome is a muddling-through scenario—at least for the medium term. Each country will continue to put in place individual measures to address local symptoms—patches that claim to fix parts of the problems—without fundamentally rethinking the system. And as has been the case in the past, such fixes will create new distortions that will, in turn, require further adjustments. Rather than muster the courage to address the problem in a systemic, holistic, and, ideally,

Europe-wide way, politicians and regulators will continue to tinker around the edges.

How to React

How should businesses and stakeholders react and adjust to this reality? Companies in the sector should expect further shifts in value pools, and they should become versatile and should prepare to adapt much more quickly to changes in the business environment. They should not take current market design for granted. Instead, they should understand that the market will continue to evolve in ways that won’t necessarily solve the core problems. And they should seek to protect themselves by changing their business models.

Energy consumers should also adjust to the new reality. They should plan for a future in which they will continue to foot an increasing bill created by the accumulation of patches and short-term, blindsided measures. Companies can make themselves less vulnerable to rising energy costs and uncertainty by investing in efficiency—if they have a long enough horizon for an industrial presence. Businesses and individuals certain about their long-term location should also reduce their consumption and consider developing their own local solutions for power supply. But they should be wary of relying on and investing too much in incentive schemes such as subsidies for renewable generation that will continue to change in the future.

While being realistic about the prospects for immediate change, stakeholders should not give up pushing for fundamental reform. Beyond proposing specific reforms, they should communicate the need to build a useful framework for building an effective and functioning European power system. These imperatives require long-term thinking, ongoing appreciation for the consequences of taking short-term actions, making stability a priority, coordinating on a Europe-wide basis, and acting with political courage. In effect, stakeholders must encourage policy makers to put the broader interests of Europe’s economy ahead of their own parochial concerns.

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