

APPLYING STRESS TESTS BEYOND BANKING

The technique can provide important insights to many companies operating under uncertainty.

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In response to the financial crisis, US authorities tested how banks would perform under a variety of stresses, including a slumping economy, high unemployment, stock and bond market shocks, and foreign-currency gyrations. However, banks aren't the only institutions that find themselves vulnerable when the external environment tosses a curveball. In recent years, power companies, oil and gas firms, healthcare operators, media firms, and others all have been subject to adverse scenarios that far exceeded their planners' imagination. Using stress tests, managers can identify and mitigate potential shocks by turning over every rock to give extreme "what-ifs" a closer look.

Consider what happened with Germany's *Energiewende*, the national transition to sustainable energy. To predict the effects of the policy on electricity prices, most energy companies relied on the classic scenarios—a base case, with best and worst cases that skewed slightly to either side. However, out of the blue, the

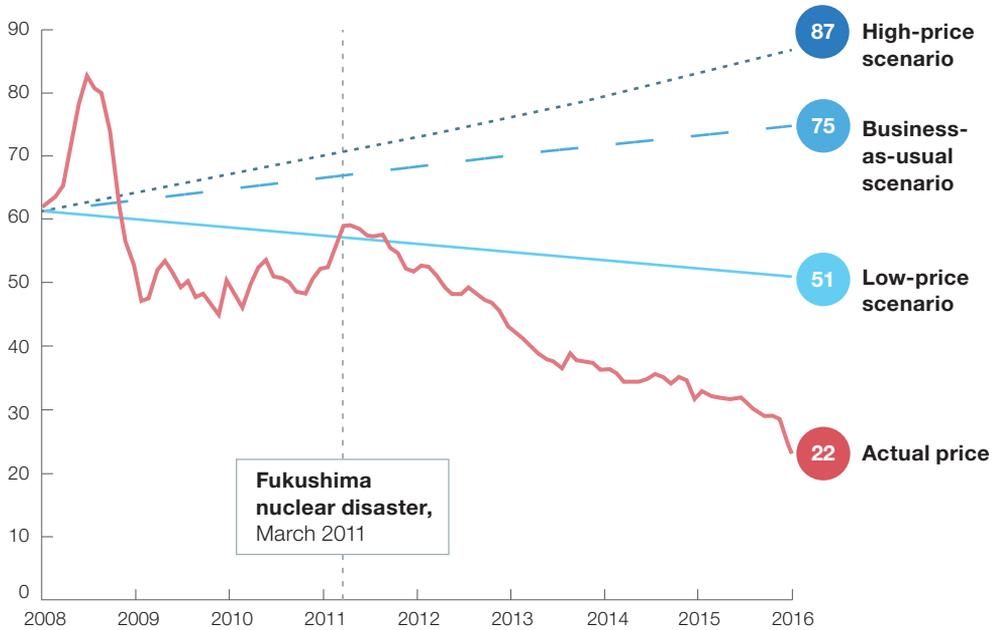
Fukushima nuclear disaster vastly accelerated Germany's switch to renewables. The price of power tanked by more than 50 percent—far worse than the gloomiest projections (Exhibit 1). The effect was devastating: power producers had to write off tens of billions of euros.

If planners had deployed the stress-testing techniques of banks, they might have avoided or mitigated the fallout. To illustrate, we modeled the potential impact of five extreme scenarios on a hypothetical energy utility (including free energy offered by digital players in return for customer information and power produced from decentralized sources such as rooftop solar systems). Specifically, we examined their effects on the profits and losses, balance sheets, and cash flows for each of several business segments: generation, renewables, trading, distribution, and retail. After modeling the effects of a scenario separately for each business, we combined them to show the effect on the enterprise (Exhibit 2).

Exhibit 1

Conventional scenario analysis failed to predict the effects of Germany's sustainable-energy policy on power prices.

German wholesale-power prices, € per megawatt hour



Source: BBC; European Energy Exchange; Umweltbundesamt; McKinsey analysis

The financial implications would be considerable across the scenarios, though none would necessarily bankrupt the company. Significant profit and liquidity risks appear, especially in the generation and retail businesses. In the absence of successful countermeasures, all five scenarios lead to negative

recurring earnings before interest and taxes, revealing major risks for the sustainability of the current business portfolio. Furthermore, the scenarios suggest a 10 to 60 percent drop in equity and a 5 to 40 percent increase in net debt, which might trigger liquidity concerns.

Exhibit 2

Using stress tests, companies model the effects of extreme scenarios on their finances.



Effects of extreme scenarios on a hypothetical utility	Revenue	EBITDA ²	Capital expenditures	Net debt
Energy for free				
Decentralized energy landscape				
Emissions fraud				
Cyberattack on critical infrastructure				
Radical price transparency				

¹ Calculated based on current revenue with all other financial indicators indexed to revenue.

² Earnings before interest, taxes, depreciation, and amortization.

We don't doubt that stress testing can be improved. But the new techniques can already deliver powerful results for companies that take them up. 

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For more on this topic, see "From scenario planning to stress testing: The next step for energy companies," on McKinsey.com.

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