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COMMENTARY

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Shedding Light

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The Northeast electricity blackout of Aug. 14, 2003, should not have happened. That was the immediate and refreshingly candid reaction of the leader of the North American Electric Reliability Council. The observation could apply to other similar blackouts, such as in Italy a month later. But what happened, why and what to do about it were far from obvious at the time.

The necessary and politically convenient response was to form a task force to investigate. Reasonable people could be excused for having low expectations for a potentially divisive investigation run by the ad hoc U.S.-Canada Power System Outage Task Force, a large committee with international co-chairs.

The simple problem of standardizing time records illustrates the complexity of the analysis. Just a few seconds' difference in the synchronization of clocks across several states and two countries could confuse the description of cause and effect in the cascade of falling dominos. The task force could easily have disappeared into the vast data files needed to track components of the largest machine in the world, the interconnected electricity system.

Now we have had the final report on causes and recommendations. It contains surprises, and is surprisingly good. For those who are not engineers, this report is about as good as it gets in explaining the inner workings of the electricity system. For those worried about the diagnosis and prescriptions, the report is clear and forward-looking.

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The technical diagnosis largely repeats the litany presented in an earlier interim report. The immediate causes were predictable and largely predicted by analyses of earlier blackouts. Trees grow and power lines sag. When they meet, trouble follows. Ordinarily, the system handles these events without a cascading blackout. But coupled with faulty

software, inadequate operator procedures and poor coordination between neighboring systems, the reaction needed to restore security was too little and too late. First Energy of Ohio and the nascent Midwest Independent System Operator bear the brunt of the finger-pointing, but there is plenty of blame to go around.

Fortunately for all of us, the report goes well beyond the immediate technical analysis to the larger structural problem. The biggest surprise to those outside the electricity industry might be the current status of the reliability rules and procedures. Reliable electricity is crucial. We have seen the electrification of nearly everything in a modern economy. The blackout made apparent our interdependence across the grid. Electricity restructuring policy is reshaping the clubby cooperation of the local monopolies to introduce markets and competition. Yet the current reliability rules and procedures rely on voluntary compliance! The oversight organizations depend on voluntary funding, peer pressure and a consensus that can reach no further than the least common denominator among competitors. Grid operations are balkanized with too many control areas exercising limited control while operating that "one, large interconnected machine." Given this system, more blackouts might be expected.

The report offers (too) many recommendations. But the authors emphasize four broad themes: (1) Mandatory Rules and Market Incentives, (2) No Free Lunch, (3) Act Now, and (4) This Is Important.

The first theme gets to the core of the issue. There is a consensus that reliability standards should be mandatory. There is now reliability legislation before the Congress. Were this a separate bill, it might pass unanimously. Unfortunately, it is such a good idea that it is being used as a locomotive for the energy pork train. The bad ideas in the comprehensive energy bill might be stranded if separated from the reliability legislation. The end result could be no bill at all, restoring our faith in low expectations. In this event, the Federal Energy Regulatory Commission would be the next line of defense to use its powers to make reliability standards as mandatory as possible, for as many as possible, though many parts of the same grid are outside FERC's jurisdiction.

This would be the easy part. The hard part then appears in the precise design of the standards and how to make the mandatory policies stick in the face of market incentives. Here the task force highlights the strong interaction between market rules and reliability rules. These can be made mutually reinforcing, but it is not easy. The task force is clear that any remaining conflicts must be resolved in favor of high reliability.

The next step after the obvious first step of mandatory standards is then to consider how to make the market design and commercial incentives work as part of the reliability solution rather than as a contributor to the reliability problem. Apparently, market

incentives were not an immediate cause of the blackout, but the report emphasizes the challenge going forward.

The task force set this as a subject for further study. Perhaps the team ran out of time, or market analysis was not its comparative advantage. Or perhaps the contentious jurisdictional politics between the FERC and some state regulators provided an antidote to the candor evident in the technical analysis.

However, just as we need good and mandatory reliability standards, the same electricity grid needs good and mandatory market design. The myopic vision of local system operators should be replaced by a larger view of the grid to track operations and respond to problems. Independent, regional system operators should be coordinating at least short-term operations, and probably long-term planning, to facilitate the market while honoring the priority of reliability. We know how to do this, and extending application of the proven standard market design had become FERC's agenda before the blackout and before the state regulatory backlash.

The task force might have failed us by assuming or implying the separation fallacy once advocated most prominently by Enron. Namely, that reliability standards and procedures could be set separately from market design, and a little chaos in market design would be a good thing.

The wreckage of this separation philosophy is apparent everywhere it has been applied. The task-force report makes avoiding this conflict the first of its four broad themes. The logic is compelling, as is the evidence. It would be asking too much to imagine that we could divine reliability rules that would be acceptable no matter what the market incentives, or that would work when the incentives in neighboring markets contradict.

On this point, the current electricity bill reflects the division among the state regulators. It is both for and against good market design. The electricity bill stands for good design in many of its detailed prescriptions, and against the resulting standard market design in a general prohibition. A better bill would resolve the ambiguity in favor of authority for FERC to enforce common wholesale market and reliability rules. A responsible FERC would use its discretion to achieve the same objective to the extent possible under existing or future legislation.

There will be no free lunch, and we will have to pay for better reliability oversight and a more reliable system. The surprisingly good task-force themes make it clear that we must act now. This problem is too important to have the current report cited in a future analysis of blackouts as another unheeded clarion call.

We cannot eliminate any possibility of blackouts. But we can do better as the task force has shown us.

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