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Comment on Investigation by the Department of Public Utilities on its own Motion into Modernization of the Electric Grid, by

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It might be worth recalling how we got to where we are, because utilities differ from most other businesses on the one hand and government organizations on the other. A little over a hundred years ago, US states began to set up a framework where utilities were given a monopoly in return for being regulated. It was a good deal for everyone.

As Samuel Insull, perhaps the single most important person behind the construct of state-regulated electrical monopolies, articulated it: electrical utilities thereby avoid having to acquire licenses from local governments, which in those days often involved paying bribes. Freedom to expand led to economies of scale, and utilities were making money hand over fist while reducing the electricity price significantly.

Consumer advocacy began putting pressure on utilities to pass as much value on to the customers as possible. When expansion ceased to be possible, the regulatory body forced utilities to make operational improvements, again putting downward pressure on prices. And in the absence of competition this was a dire necessity: a profit-seeking monopoly without curtailment will not naturally keep prices down.

Over the decades, the grid, in the form of the Eastern Interconnect, has grown to cover more than half the country, involve many sources of power, a partial free market in wholesale energy, and sophisticated dispatch decision making. The National Academy of Engineering chose the grid as the most important engineering achievement of the 20th century.

And yet, all is not right. In most businesses, there is not only competition on price, but also in business models. Telephone landlines and trains have been severely challenged by other offerings, and not just on price.

We know that there are new energy technologies in the offing that have the potential for changing energy supply as we know it, not just to reduce the price. But investment in new, unproven technologies meets with severe disincentives in our set-up of regulated utilities. (And perversely, low-income citizens pay more for electricity when a system is kept in place driving up costs, for example through peaking reserves needed because consumers do not have time of use pricing. Just as condo owners refusing to pay for the upkeep of a roof will eventually land themselves with a larger bill.)

What should we do? For the long term we should chip away at monopolies, thus facilitating the introduction of competition into ever more aspects of energy supply. The status quo cannot possibly deliver what we need: No regulatory set-up can ever force a monopoly to invent and seek new ways to please customers; certainly not regulation focused on low price. Just as in normal markets, we need competitors who introduce new business models, finding early adopters willing to pay a premium (which cannot be done now when energy is sold as a commodity and the price is held hostage by

customer advocacy). And unlike 50 years ago, technological solutions such as microgrids genuinely promise an alternative to a behemoth monopoly.

In the medium term, being stuck with regulated monopolies, we should incentivize what we actually want from utilities, in the grand scheme of things. Do we want to tell them how to run their businesses and, say, which technologies to use? Probably not, and meddling with the details of running a business by outsiders, however well-meaning, is likely to be counter-productive. The NOI does ask “What are the key grid-facing technologies and practices that the distribution companies should be implementing to maximize the reliability and the efficiency of the grid?”, and so the report attempts to answer, especially with the taxonomy of Chapter 3. But for the medium term we should aim to not ask such a question, because it puts the onus of understanding how to run a highly complex business on to a regulatory body neither equipped for nor invested in the task.

In the medium term, the proper responsibility is to prescribe the goals that monopolies have to deliver, in the sense sketched out in the NOI:

- enhance the reliability of electricity services;
- reduce electricity costs;
- empower customers to better manage their use of electricity;
- develop a more efficient electricity system;
- promote clean energy resources; and
- provide new customer service offerings.

The details of this list should be a matter for elected representatives. And the plan for delivering the politically set goals, should be left to those that know best, namely the utilities (as long as this does not perpetuate the system of regulated monopolies). Such a plan amounts to a business plan, with all the complexities that this involves: which investments to make, which technologies to use, the day to day running of a myriad of interconnecting activities and cash flows. The day to day running should not be meddled with, but it is reasonable to set lofty goals for utilities to deliver, precisely because they are not kept on their toes by competition. And while the utilities should be free to design a plan, say to develop the milestones to meet and the metrics to be used, they should be aggressively policed by the DPU. Any plan should address what to do when milestones are missed, how to deliver transparency, so that the regulator can always have insight into the degree to which we are on course to meet the overarching goals. Plans that do not convince the DPU should be reworked and resubmitted at the cost of utility stock owners, not rate payers. In this sense, of the regulatory framework proposals described in Chapter 6, only Utility of the Future Today attempts to place responsibilities where they deliver most value to customers. It is the only proposal that advocates for tomorrow's customers.

In the short term, we are stuck with a monopolistic system in which regulatory authorities prescribe some aspects of the business plan. The utilities rightly complain that this adversely impacts other parts of their business plan, in the end costing both rate payers and utility stock owners money. In the short term, the regulatory bodies need to stay abreast of new technologies and to assess how best to make utilities deliver goals, such as environmental goals. Chapter 4 admirably outlines the state of affairs in 2013, but of course this changes constantly, and a mechanism is needed for the DPU to stay abreast – maybe an advisory role for an academic organization, such as MIT's Energy Initiative?