Much of the U.S. electric power sector has changed little over the past 100 years. But the industry now faces an unfamiliar and uncertain future. Potent new pressures are building that will force fundamental changes in the way that the electric utilities do business. Consumers are demanding a new relationship with the energy they use, and new technologies are proliferating to meet demand. At the same time, innovative new technologies and suppliers have come on the scene, disrupting relationships between traditional utilities, regulators, and customers.

If the U.S. is to meet necessary climate goals with electric utilities remaining healthy contributors to America’s energy future, business models used by these familiar institutions must be allowed and encouraged to evolve. This agenda has implications not only for companies themselves, but also for the legal and regulatory structures in which they operate. A new social compact is needed between utilities and those who regulate them, and this paper suggests ways in which this might evolve.

Several motivations exist to move to an electricity system powered by a high share of renewable energy: changing consumer demand and requirements, improved technology, market and policy trends, a smarter grid, weakened utility financial metrics, aging plants, tougher environmental requirements, climate damages, and “de facto” carbon policy. Utilities will respond to these motivations in different ways, which will result in a range of new utility business models. The minimum utility role may result in a “wires company,” which would maintain the part of the grid that is a physical monopoly – the wires and poles – while competitive providers supply the rest. At the other end of the spectrum lies the maximum utility role, or the “energy services utility,” which would own and operate all necessary systems to deliver energy services to consumers. Between these two, a “smart integrator” or “orchestrator” role for utilities would entail them forming partnerships with innovative firms to coordinate and integrate energy services without necessarily delivering all services themselves.

Because utilities respond first and foremost to the incentives created by the legal and regulatory regimes in which they operate, this paper focuses its recommendations on how utilities are regulated. Regulators must determine desired societal outcomes, determine the legal and market structures under which utilities will operate, and then develop and implement correct market and regulatory incentives. Three new regulatory options emerge. The UK’s RIIO model is an
example of broad-scale performance-based incentive regulation with revenue cap regulation. It focuses on how to pay for what society wants over a sufficiently long time horizon, rather than focusing on whether society paid the correct amount for what it got in the past. The Iowa model stands for a series of settlements entered into by parties and approved by regulators that led to electricity prices that did not change for 17 years. There, the utility and regulators negotiated shared earnings in a less adversarial process than most. The final regulatory model described in the paper is called the “grand bargain,” which combines elements of the RIIO and Iowa models, where a commission would encourage utilities and stakeholders, including commission staff, to negotiate a comprehensive settlement to a range of desired outcomes.

Among the nation's 3,000 or so electric utilities across 50 states, there are many variations but a fundamental truth: current business models were developed for a different time. A modern electricity grid will require a new social compact between utilities, regulators and the public.