AMERICA'S
POWER PLAN

Our nation's electricity system is undergoing a rapid transformation.

Market forces, driven by public demand for cleaner, more efficient energy and technological innovation, are redefining America's power sector.

Americans are demanding a new relationship with the energy they use, and new technologies are proliferating to meet demand. Now consumers can control their own electricity use, make it cleaner, more efficient, more certain and even cheaper. Innovative new power companies are pushing out incumbent industries, disrupting the century-old electricity industry.

In the last five years, the cost of solar has plummeted 80 percent and wind 30 percent. Last year nearly half—46 percent—of all new power generation in the U.S. was renewable, more than three times the amount of new natural gas. And while fracking has transformed the natural gas and power industries in this country, industry experts warn that prices will continue to be volatile and rise as demand for the fuel increases.

Polls show that outside the Beltway, Americans—from the far right to the far left—see clean energy as the future. In cities and states across the country, the public is voting for increased reliance on renewable energy, and decreased waste through energy efficiency.

These trends offer a host of benefits to consumers, industry, national security, the economy, and the environment. But they also threaten the current system.

These trends will change the power system and utility businesses at their core.

As this demand for clean, efficient energy accelerates, it is hitting a brick wall of regulations designed for traditional fossil power plants. The legal, economic and regulatory structures in place, in some cases for more than a century, not only cannot meet public demand for clean energy; they are actively thwarting innovation. Think of the iPhone in a rotary phone era. The markets, utilities, grid and regulatory structures of our system need an upgrade.

In a normal business, new technologies can simply compete in the marketplace. But in the power sector, regulatory decisions made to encourage or discourage this innovation will have a profound impact on the rate of adoption and the ease of the transition.

That is why more than 100 energy experts have joined America's Power Plan, a project of the Energy Foundation and Energy Innovation designed to tackle the tough questions around utility business models, finance, market design transmission and distribution policies, distributed energy resources and siting.

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Caught in the middle are utilities—which need to be successful if we want to keep our lights on.

For some utilities, these market trends constitute a considerable threat to their business model. According to The Edison Electric Institute, which represents investor owned utilities, these disruptive technologies "may compete with utility-provided services. Such technologies include solar photovoltaics (PV), battery storage, fuel cells, geothermal energy systems, wind, micro turbines and electric vehicle (EV) enhanced storage. As the cost curve for these technologies improves, they could directly threaten the centralized utility model."

For a century, vertically integrated monopolies built power plants, strung transmission and distribution lines, billed customers and were rewarded with a predictable return on investment.

In some parts of the country, that old model has changed already. Competitive wholesale and retail power markets have emerged over the last four decades. Some regulators are turning to "performance-based regulation," where power providers earn more by keeping costs low, improving efficiency, and maintaining reliability, rather than getting a profit based on their capital costs or volume of sales. Other states have opened their retail power markets to competition, creating new opportunities - and new obstacles - for innovative technologies.

Over half of the country still operates under the vertically integrated monopoly model. And today, with rapidly proliferating new technologies, that old model is increasingly at risk. Utilities are facing declining sales, a shrinking customer base, and potentially stranded assets. Market rules designed around traditional generation and passive demand create barriers to new resources like wind and solar (which are more variable) and distributed resources. Transmission policies designed to meet local needs are clashing with the regional needs of renewables and wholesale competition. And as consumers are able to produce and control their own power, they are undermining utility profits and traditional distribution grid policies.

These new technologies require new rules—new business models, new market designs and new regulations that foster innovation instead of stifling it.

Considering these forces together, we are at a pivotal point in America's energy history.

Achieving a cleaner, more reliable, more efficient energy future will require removing multiple structural and regulatory barriers. This challenge is the focus of America's Power Plan.

More than 100 top energy experts from academia, industry and non-profits have joined this project, which is designed to tackle the tough questions and provide a vehicle for policymakers at the state and local levels to overcome barriers to a new energy future.

Decisions and investments made in the next decade will shape the course of the power sector, the economy and public health for decades to come.

At the heart of America's Power Plan are detailed recommendations for improving policies in seven critical areas:

1. Utility business models
2. Transmission and grid operations
3. Finance policy
4. Wholesale market design
5. Siting of new energy infrastructure
6. Distributed generation
7. Distributed resource integration

Together these papers form a comprehensive policy plan to help guide the transition to a clean energy future.

America's Power Plan is written for the decision-makers who guide our power system, to enable consumers and producers alike to thrive in the context of this profound shift in the electricity sector.

America's Power Plan presents state-of-the-art thinking on this complicated set of topics. But it is intended to start a discussion about our future, not to be the final word. We invite you to think deeply about, and to join us in discussing, how to build our clean energy future.

Top Recommendations (and major actors)[1]

1. Move away from rate-of-return regulation; use performance-based regulation that gives utilities the freedom to innovate or call on others for specific services. Separate the financial health of the utility from the volume of electricity it sells. (state legislatures and PUCs)

2. Create investor certainty and low-cost financing for renewable energy by steadily expanding Renewable Electricity Standards to provide a long-term market signal. (state legislatures and PUCs)

3. Support distributed generation by acknowledging customers' right to generate their own energy, by charging them a fair price for grid services, and by paying them a fair price for the grid benefits they create. Use net metering, or set a clear methodology for allocating all costs and benefits. (PUCs, utilities, ISOs/RTOs)

4. Ensure that all markets (e.g., energy, ancillary services, capacity) and market-makers (e.g., utilities) include both demand- and supply-side options. All options—central and distributed generation, transmission, efficiency, and demand-response—should compete with one another to provide electricity services. (ISOs/RTOs, PUCs, utilities)

5. Employ electricity markets to align incentives with the desired outcomes, such as rewarding greater operational flexibility. Open long-term markets for new services such as fast-start or fast-ramping. (ISOs/RTOs and PUCs)

6. Before investing in technical fixes to the grid, first make operational changes that reduce system costs, enable more renewables, and maintain reliability. For example, coordinate between balancing areas, dispatch on shorter intervals and use dynamic line rating to make the most of existing transmission lines. (ISOs/RTOs and PUCs)

7. Mitigate investor risk by adopting stable, long-term policies and regulations with low budgetary impact. Financial policies should be predictable, scalable, affordable to public budgets, and efficient for investors. (Congress, state legislatures, PUCs)

8. Reduce siting conflicts by using explicit, pre-set criteria; ensuring access to the grid; respecting landowner rights; engaging stakeholders early; coordinating among regulatory bodies; and providing contract clarity. (federal land managers, state legislatures, PUCs)

[1] See the accompanying series of eight whitepapers for much more detail on how these recommendations can be accomplished. Note that power system governance varies widely across the country, and each region will (and should) take a different approach.