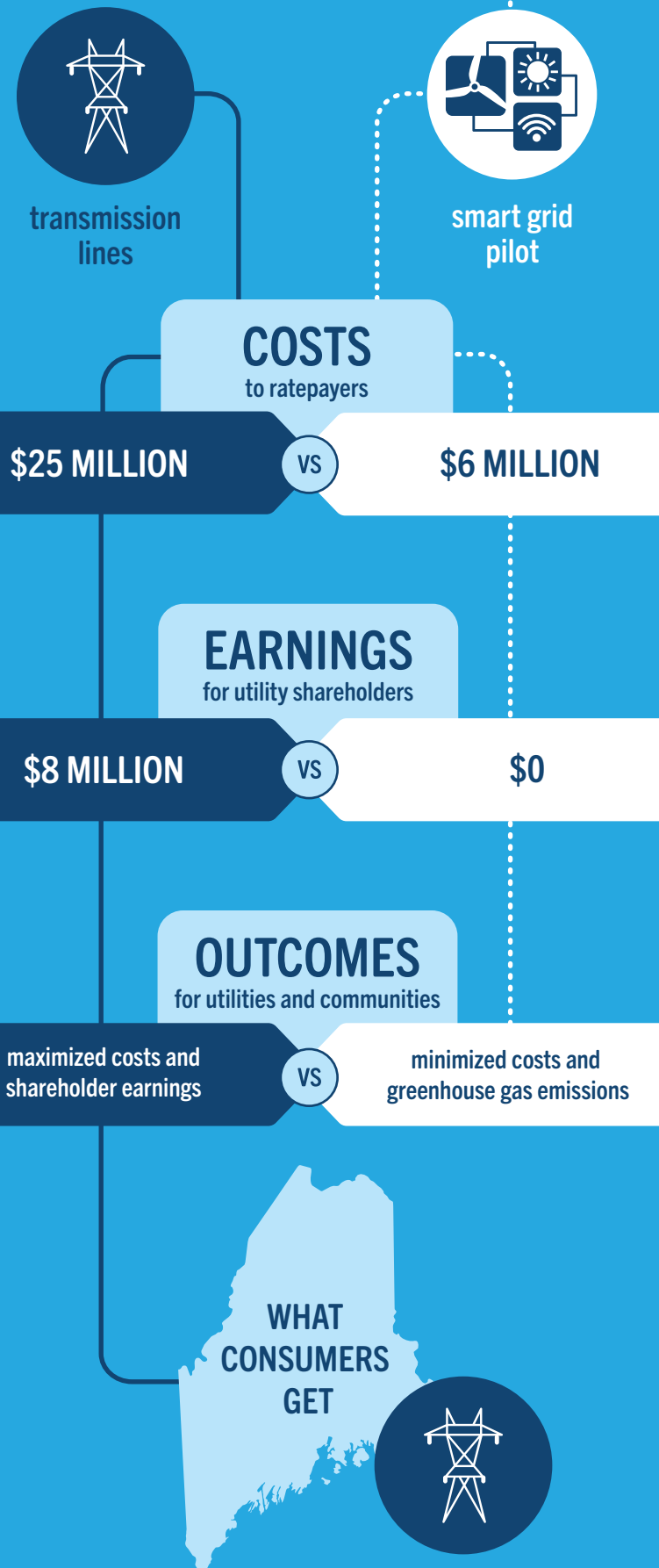


WHAT'S THE BEST ENERGY DELIVERY CHOICE FOR CONSUMERS & THE ENVIRONMENT?



Incentives for Change: Why Utilities Continue to Build and How Regulators Can Motivate Them to Modernize

Outdated utility financial incentives are inhibiting the transition to a clean energy future, increasing consumer costs, and stifling new technologies. Yet, this state of affairs is hardwired into the regulatory system. Under current rules, utilities can earn more money on infrastructure expenditures like natural gas pipelines and electric transmission lines than on cleaner, customer-centric energy resources like energy efficiency, rooftop solar, and highly efficient electric heat pumps. Without changes to the way they are regulated and rewarded, utilities will continue to advocate for infrastructure over local energy resources because their fiduciary duty to shareholders requires it.

In the early years of the grid, utilities were encouraged to expand their systems to expand access to electricity. To facilitate grid construction, regulators allow utilities to collect enough money from customers to cover their costs and earn a profit on their infrastructure investments (and those of their shareholders). Today, however, demand for electricity is no longer growing, reducing the need for expensive utility infrastructure. Increasingly, the region's energy needs can be met by local energy resources and smart energy management instead of more transmission or pipelines. But because a new system of incentives has not been created, utilities earn far less—or nothing at all—for lower cost, clean energy solutions. Thus, utilities continue to build expensive infrastructure with insufficient regard for how the grid's needs may change or what lower cost, more flexible options are available to meet them.

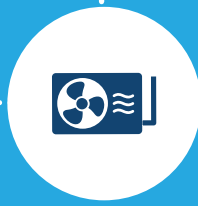
The inevitable outcome of the current regulatory system is costing consumers. Customers are spending billions of dollars to build long-lived infrastructure, while lower cost options are typically not considered.

The example on the left shows how current rules in New England are stacked in favor of electric transmission lines that can earn utilities as much as 11.74% on equity. In 2007, Maine's Public Utility Commission approved Central Maine Power's \$1.5 billion Maine Power Reliability Project, consisting of nearly 350 miles of transmission lines and related infrastructure, and rejected a GridSolar, LLC, proposal to meet the reliability need for \$800 million through a combination of energy efficiency, local solar, and back-up generation. In response to arguments that cleaner, cheaper alternatives were not adequately considered, Maine regulators approved the Boothbay Reliability Pilot Project to replace one spur of the proposed transmission line with local energy resources, but ratepayers are still on the hook for the rest of the transmission project.

WHAT'S THE BEST HEATING CHOICE FOR CONSUMERS & THE ENVIRONMENT?



natural gas pipeline



heat pumps

COSTS to ratepayers

\$16 MILLION

VS

\$500,000

EARNINGS for utility shareholders

\$4 MILLION

VS

\$22,000

OUTCOMES for utilities and communities

maximized costs and shareholder earnings

VS

minimized costs and greenhouse gas emissions

WHAT CONSUMERS GET



A Better Alternative is Here

Recent technological advances have made highly efficient electric heating a compelling alternative to natural gas and oil for heating homes and businesses¹. Electric heat pumps utilize the existing electric power grid to heat buildings with fewer greenhouse gas emissions than oil or natural gas, at comparable or even lower cost. Despite these benefits, few utilities are favoring heat pumps. As shown in the example to the left, utilities like Avangrid in Connecticut—which owns both gas and electric distribution companies—can earn over 9% by converting customers to natural gas and expanding the local gas network. The rewards to the utility for promoting heat pumps are much lower. When an electric utility does not own gas, support for heat pumps can be greater. For example, Emera Maine—an electric utility that does not own a gas company in the same territory—is promoting heat pumps through education and marketing, rate design, and a piloted lease program².

Recommendations

Outdated regulations produce utility financial incentives that are locking in our energy future at a time when local energy resources like energy efficiency, rooftop solar, heat pumps, and smart energy management are reducing the need for large infrastructure. The existing rules and financial incentives are driving utilities to pick higher cost infrastructure investments while the best choices for consumers and the environment are disadvantaged. Acadia Center recommends the following reforms:

- Federal and regional electric grid regulators must allow utilities to recover costs and earn comparable returns on local energy solutions.
- Regulators must ensure that spending on the energy system is aligned with a state's goals for climate change mitigation and consumer protection.
- Regulators should develop a holistic approach towards utilities to address the conflicting incentives facing business units owned by the same parent company. To increase competition, regulators can consider prohibiting joint ownership of electric and natural gas utilities as well as transmission and distribution companies.

¹ In 2016, Acadia Center calculates that the annual heating costs for a typical Connecticut home converting from oil are approximately \$1,173 for heat pumps and \$1,236 for a natural gas boiler.

² <http://www.emeramaine.com/energy-solutions/heat-pumps/>

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