



Policymaker Summaries highlight real-world solutions from the legal academy.

POLICY CHALLENGE

How to encourage a “participatory grid” that is both efficient and equitable.

ISSUE

State energy regulators are examining a variety of clean energy technologies and policies to decarbonize the electricity sector while maintaining affordable rates for consumers. One strategy is to facilitate a **participatory grid** that transforms passive consumers into active participants, choosing when and how to use energy through smart-meters, distributed generation (e.g., rooftop solar), dynamic pricing, and electric storage technology.

Equity concerns have been raised about the emerging participatory grid; specifically, whether less affluent people subsidize wealthier households, who have the means to more readily manage electricity use by generating their own electricity or timing consumption to take advantage of cheaper electricity rates. If energy saving and clean energy-generating technologies enable affluent Americans to reduce their reliance on the grid, an outsized portion of the costs of grid maintenance may fall upon those unable to afford these technologies.

KEY CONCEPTS

- **Energy Equity** addresses distributional questions, examining how the benefits and costs of electricity are allocated. U.S. electricity law’s treatment of equity reflects a long-standing and ongoing tension between efficiency and fairness.
 - Efficiency theories dictate that services should be priced based on their costs to minimize cross-subsidization, maximize social welfare, and prevent “free-riders.”
 - Fairness theories emphasize that the central goal of electricity law is to bring power to all, including those who have difficulty affording it.
- **Clean Energy Justice** expresses a concern for the concentrated accrual of environmental, economic, and participatory benefits from clean energy technologies to more affluent American households, while leaving others behind. Clean energy justice

highlights these distributional effects, raises concerns about the allocation of impacts of clean energy facility siting, and seeks empowerment of low-income and minority communities to choose how and when to participate in clean energy.

- **Clean Electrification** refers to the author’s proposed adaptation of the ambitious electrification project of the twentieth century to the current era, and describes policies that could promote wider access to participatory grid technologies and benefits.

POLICY CONCLUSIONS

When evaluating whether the participatory grid presents equity problems, it is important to take a broader, longer-term view of energy equity and clean energy justice. Clean energy and the effects of climate change have overlapping, long-term equity concerns. If left unaddressed, many low-income communities may face a triple burden: disproportionate allocation of pollution (environmental injustice); inability to benefit from new clean energy technologies (energy injustice or energy poverty); and outsized vulnerability to climate change’s effects.

Because of these broader inequities, it does not make sense to halt clean energy policies on the argument that they present short-term equity challenges. Instead, regulators should work to redress these short-term equity challenges through tailored policies that work to broaden participation in the grid.

In the 1930s, the United States government intervened to expand electricity to rural, low-income communities that were excluded from private utilities’ service territories. Similarly, today’s market may exclude large segments of society from the benefits of new technologies. As parts of rural America were left “in the dark” by the market, certain communities may likewise be left behind by the new participatory grid. Without policy interventions, affluent Americans will benefit from new energy-saving and clean energy-generating technologies, while poor Americans will be stuck with an aging grid they must pay to maintain.

American electricity law requires a twenty-first century version of government-supported rural electrification: clean electrification, which would work to widen access to the participatory grid. Such a project would encompass policies to address clean energy justice concerns, without slowing progress on inducing necessary shifts in electricity consumption. Like last century's ambitious electrification project, this endeavor will require a combination of government incentives, public utility rate design innovations, and corporate partnerships.

RECOMMENDATIONS

Public utility law's standards of "just and reasonable" rates and "no undue discrimination" are malleable concepts. They could be interpreted to require (1) set-asides for low- and middle-income customers and (2) price protections in dynamic pricing schemes.

- **Set-Asides:** PUCs can earmark ratepayer funds for initiatives, either as a method for avoiding future costs or on fairness grounds alone. California has enacted such a policy, requiring that ten percent of certain solar incentives go to low-income households.¹
- **Dynamic Price Protections:** If dynamic pricing schemes are adopted more fully, PUCs could act to ensure that time-varying pricing schemes do not disproportionately harm low- and middle-income consumers.

PUCs could also consider how broadening access to electricity data—particularly data coming from smart meters—might allow for better targeting of a clean electrification agenda. Washington State, for instance, requires utilities to report energy consumption data in a uniform format. Market participants use this data to offer new products to meet consumer needs.² Energy use data could also inform dynamic pricing schemes that properly protect low- or middle-income consumers, while enabling them to manage their energy consumption. In weighing the privacy implications of such data sharing, PUCs could tilt the scale in favor of facilitating clean energy justice policies.

Utilities might also play an expanded role in the participatory grid, as owners or sellers of technologies that benefit low- or middle-income consumers. Though this expansion is controversial due to market power concerns, PUCs might incentivize utilities to focus on otherwise neglected consumers. For instance, under Reforming the Energy Vision (REV), New York regulators allow utility ownership of participatory grid technology only for programs targeting low or moderate-income customers. PUCs could also explore opportunities for Energy Service Companies (ESCOs) to provide services to low and middle-income communities.³

Ratepayer funded initiatives will likely not fully address clean energy justice concerns. States could explore a variety of complementary legislative mechanisms including:

- **State Funding:** States could earmark funds for low- and middle-income clean electrification projects. For example:
 - The District of Columbia created a "Solar for All" fund, with a mandate to assist in reducing "at least 50% of the electric bills of at least 100,000 of the District's low-income households with high energy burdens" by 2032.⁴
 - California sets aside 25% of revenues from its cap-and-trade auctions for clean energy projects that benefit identified disadvantaged communities.⁵
- **Credit and/or Credit Enhancements:** State governments could offer special credit or credit enhancement options to low- and middle-income consumers to purchase energy-saving or clean energy-generating technology.
 - Connecticut, New York, California, Hawaii, and Rhode Island have introduced **Green Banks** which provide seed funding (and leverage private sector capital) for renewable energy and energy efficiency projects. Green Banks or similar entities could offer special credit services for energy-saving or clean energy-generating technologies to identified disadvantaged communities. These offerings might include loan guarantees for customers with low credit scores, or special incentive and rebate programs that target technologies to help low-income households reduce energy usage.
- **Community Scale Projects:** States could allow community clean energy projects and "micro-grids," to leverage economies of scale and reduce barriers to participation.
 - **Community Net-Metering:** This arrangement allows consumers to purchase shares in a project (sometimes called a "solar garden") and receive credit on their energy bills. At least 11 states and the District of Columbia have authorized community net-metering programs. Such projects may significantly improve the availability of clean energy-generating technology for low- and middle-income consumers while converting blighted land to a productive use. Moreover, emerging evidence suggests that citizens prefer engaging in climate change solutions through collective action.⁶
 - **Micro-Grids:** Community-scale grids connect distributed generation, storage, and demand response resources, enabling communities and critical infrastructure to be "islanded" from the larger electricity grid in case of emergency. These "micro-grids" can promote both grid resiliency and greater participation than household-by-household efforts alone. While some states—such as New York—have incentives for "micro-grid development," many states would require some background legal changes to allow for such systems.⁷

ENDNOTES

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¹Distributed Generation & Distributed Energy Res., D. 06-01-024, 2006 WL 162584 (Cal. Pub. Util. Jan. 12, 2006) 5, 39–40 (interim order).

²Alexandra B. Klass & Elizabeth J. Wilson, *Energy Consumption Data: The Key to Improved Energy Efficiency*, 6 SAN DIEGO J. CLIMATE & ENERGY L. 69, 91 (2015).

³JENNIE C. STEPHENS, ELIZABETH J. WILSON & TARLA RAI PETERSON, SMART GRID (R)EVOLUTION: ELECTRIC POWER STRUGGLES 69–70 (2015)

⁴Council B. No. B21-0650, the Renewable Portfolio Standard Expansion Amendment Act of 2016 (D.C. 2016)(signed July 25, 2016). California ordered a study on "barriers for low-income customers to energy efficiency and weatherization investments," the SB 350 Barriers Study. The Final Report was published in December 2016. http://docketpublic.energy.ca.gov/PublicDocuments/16-OIR-02/TN214830_20161215T184655_SB_350_LowIncome_Barriers_Study_Part_A__Commission_Final_Report.pdf.

⁵See S.B. 535, 2011–12 Reg. Sess. (Cal. 2012) (adopted Sept. 30, 2012).

⁶Eva Heiskanen et al., *Low-Carbon Communities as a Context for Individual Behavioural Change*, 38 ENERGY POL'Y 7586, 7586 (2010).

⁷*Id.*; Sara C. Bronin, *Curbing Energy Sprawl with Microgrids*, 43 CONN. L. REV. 547 (2010).