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Democratizing the electric grid: Enabling the future of clean distributed generation

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Investor-owned electric utilities (IOUs) in the US have long been a protected monopoly, with no effective competition for electric service. Beginning with the Public Utilities Regulatory Policies Act (1978) and due to efficiency advances in gas-fired generation, IOUs were required to purchase the output of third party generators under certain conditions opening the door to new providers. Since then and especially in the late 1990s and 2000s, advances in photovoltaic (PV) technologies began driving prices down. The combination of public support for solar energy, economic policies that encourage solar, and PV modularity started a wave of deployment across the country that has disrupted the traditional IOU business model. IOUs are now fighting back with additional charges on solar customers, and major changes in rate design, potentially slowing or even stopping the growth in customer-sited PV. Through data gathered in formal IOU rate proceedings, along with academic reports and studies, the author has analyzed the bases for IOU arguments related to cost-causation, subsidization, and cost-shifting. Based on long-standing ratemaking principles, the characteristics, i.e. the load and generation profiles of customers with solar generation are contrasted with non-solar customers in light of establishing utility cost responsibility among retail customers. The arguments made by IOUs are generally not supported by data. The data that is available shows that the benefits of solar generation to the grid, and hence to other customers outweighs costs undermining the bases for the treatment of customers with solar generation differently than similar customers without solar. At the relatively low penetration rates of customer-sited solar today, solar provides benefits to other customers supporting the retention of existing rate structures and suggests new rate structures that more closely align rates with cost incurrence could enhance solar deployment.

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