



Public investment in infrastructure is a promising option to support California's energy transition and reduce ratepayer costs

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Public investments in new electric infrastructure can yield significant ratepayer savings because projects may attract lower interest rates, eliminate payments to utility shareholders (return on equity), and realize tax advantages unavailable to private companies. Any of these savings could then be directly passed on and minimize effective costs to ratepayers. In a representative analysis from the Public Advocates Office, a new transmission line that monetizes these savings reduces net costs to ratepayers by **about one-quarter** compared to the current rate recovery process. Due to the scale of investments to support California's energy transition, realizing even a fraction of these estimated benefits could translate to billions of dollars in ratepayer savings over the long-term.

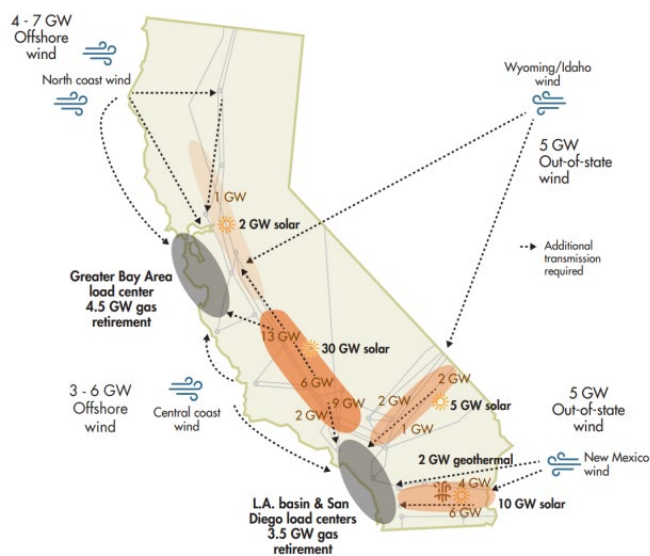
Background

Residential electricity bills in California have significantly grown over the past decade. California's residential electric rates are consistently among the highest in the continental United States. Furthermore, California's power grid demands new investments at scale to meet the state's energy targets. The state needs several billion dollars in investments each year across its power plants, transmission lines, and other critical investment needs that will be funded by ratepayers. Historically, utility-driven investments have provided the foundation for today's expansive electric grid. Looking forward, however, the sheer amount of necessary capital investments in the electric grid may strain ratepayers if only traditional finance instruments are used to meet future needs.

Public investment is an emerging option to provide necessary capital and reduce associated ratepayer borne costs. Similar to a 30-year mortgage on a house purchased today, the cost of electric grid investments made this year will be paid off by ratepayers over the next several decades. Projects using public financing can access debt with significantly lower interest rates compared to projects financed by investor-owned utilities and other transmission developers. Selective public financing and/or ownership can augment traditional utility investments and provide a foundation for future public-private partnerships. As is the case with a home mortgage, even a small interest rate reduction can have large implications for annual payments over the lifetime of the project.

The Public Advocates Office conducted a representative cost comparison analysis of transmission lines to estimate the relative benefits of public investments. The buildout of transmission infrastructure - the large power lines that connect distant, renewable generation to cities and other places where power is needed- is becoming more important. In particular, new transmission is needed to support California’s clean energy targets and grid reliability. Looking forward to 2045, the state’s nonprofit grid operator (“CAISO”) expects to need over \$30 billion in new infrastructure investments alone.¹

Figure 1. Representative Map of New California Transmission Line Needs



CAISO expects new transmission investments will be needed to incorporate vast, new renewable and energy storage projects (more than twice the current generating ability of the state’s investor-owned utilities) across the state. The dotted lines represent the general areas where new transmission capacity will likely be needed.

Source: CAISO Draft 2022-2023 Transmission Plan

Transmission cost impacts on ratepayers have historically been small, yet they have recently been a growing share of rapidly rising [ratepayer bills](#) (Figure 2).² The costs of building new transmission and distribution have been major cost drivers, as noted in the California Public Utilities Commission’s 2022 report to the legislature on energy affordability.³ Since transmission serves broader state needs, some projects could warrant additional state-level support and incentives.

¹ 20 Year Transmission Outlook, CAISO, May 2022, p. 3. Available at:

<http://www.caiso.com/InitiativeDocuments/20-YearTransmissionOutlook-May2022.pdf>

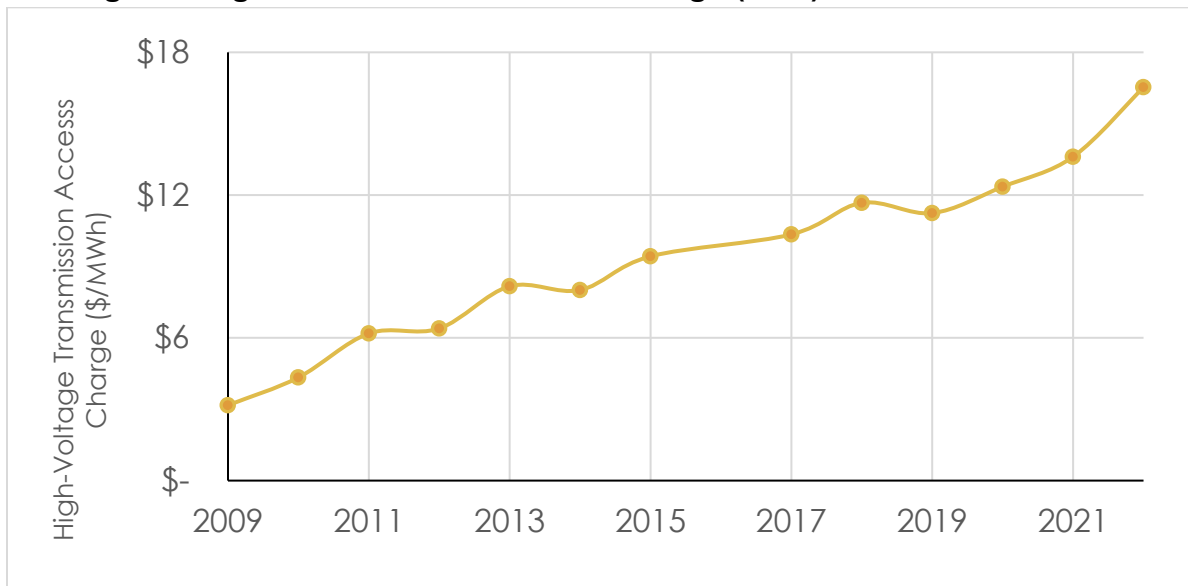
² Figure 2 is the past historical high-voltage transmission access charge from 2009 to 2012. The high-voltage transmission access charge is a component of transmission infrastructure costs that is ultimately paid for by ratepayers. Data is taken from CAISO’s reported high-voltage TAC rates available here:

<http://www.caiso.com/Pages/documentsbygroup.aspx?GroupID=570D3E00-5AB5-408D-9142-5AA547D419A8> and data for 2016 is incomplete.

³ California Public Utilities Commission. *2022 Senate Bill 695 Report*, May 2022, p. 9. Available at:

<https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/office-of-governmental-affairs-division/reports/2022/2022-sb-695-report.pdf>

Figure 2. High-Voltage Transmission Access Charge (TAC) Rate from 2009-2022



Source: Public Advocates Office analysis from CAISO data.

Transmission Cost Analysis

The Public Advocates Office conducted a comparative cost analysis between a “traditional” utility-funded and utility-owned million transmission project relative to a project driven by public investment. Based on the analysis, the public model resulted in ratepayer savings on the order of \$184 million over the lifetime of a single project.

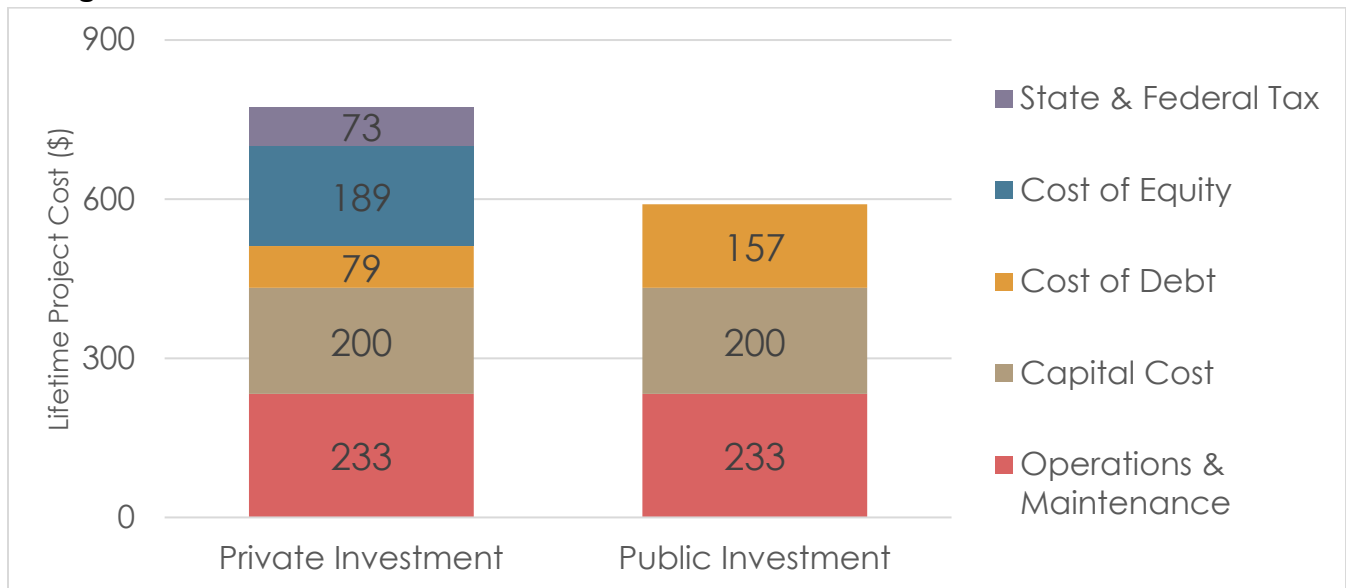
As seen in Figure 3, majority of the benefits stem from eliminating the need to compensate shareholders (return on equity) with non-private project ownership. Lower-cost public bonds that are available to non-privately owned projects further reduces the effective interest rate paid by ratepayers over the lifetime of the project.⁴ A smaller proportion of savings could be achieved through state and federal tax advantages.

⁴ The following assumptions were used in the comparative analysis:

Utility model: 40 year depreciation period, 50% debt at 4.58% interest rate, 50% equity at 11% interest rate, federal income tax: 21%, state income tax: 8.84%.

Public model: 40 year depreciation period, 100% debt at 4.58% interest rate.

Figure 3. Representative Lifetime Cost Comparison of a \$200 million Transmission Line Using Private vs. Public Investment ⁵



Source: Public Advocates Office analysis

Assuming the entire CAISO transmission need was met with these benefits, ratepayers could realize an estimated \$28 billion in savings over the next several decades. Other public-private partnerships, such as public financing and private ownership, are also promising alternatives. These approaches would likely result in intermediate ratepayer savings between the bookends of pure public and pure private investment options. Reducing electric rates would have the significant benefit of making electrification of the grid more affordable.

Solutions

California policymakers should explore pathways to build electric transmission and other types of infrastructure with more public support. These options include: (1) creating a public California “infrastructure authority” with bonding authority and/or the ability to own infrastructure, a model that has been instituted in other states such as New Mexico, and (2) leveraging federal financing programs such as the U.S. Department of Energy’s Western Area Power Administration’s (WAPA) transmission finance program.

⁵ The estimates in Figure 3 are directional, as actual projects are sensitive to federal interest rates, the individual circumstances of each utility, and many other factors. These benefits may be understated, as the utility cost of debt is typically more expensive to finance and requires higher interest rates than public debt. Like a home mortgage, even a small increase in interest rates can result in large differences in payments over the lifetime of the project. For the purposes of this analysis, both the public and private bond interest rates are assumed to be equal.

The Public Advocates Office represents utility customer interests before the California Public Utilities Commission and in other forums. We develop recommendations that advance the state's climate goals in the most affordable ways for ratepayers.

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