



Memorandum

TO: HONORABLE MAYOR
AND CITY COUNCIL

FROM: Lori Mitchell

SUBJECT: SEE BELOW

DATE: September 8, 2022

Approved

Lori Mitchell

Date

9/12/2022

SUBJECT: BENEFITS AND RISKS OF PROVIDING SAN JOSE ELECTRIC SERVICE TO NEW DEVELOPMENTS – A CASE STUDY OF THE DOWNTOWN WEST MIXED-USE DEVELOPMENT

RECOMMENDATION

Accept the report titled “Benefits and Risks of Providing San José Electric Service to New Developments – A Case Study of the Downtown West Mixed-Use Development” dated August 24, 2022 developed by Flynn Resource Consultants Inc.

OUTCOME

The case study report dated August 24, 2022 is received and accepted by the City Council.

BACKGROUND

On June 12, 2019, the Rules and Open Government Committee directed Community Energy to hold a City Council Study Session to inform the City Council and educate the public about the challenges that San José, and other Northern California cities, face regarding maintaining electric reliability and resilience.

On August 29, 2019, City Council held a Study Session discussing general options to improve the resilience, reliability, efficiency, and cost of electric service in the downtown San José area including the possibility of forming a City of San José owned public utility.

On October 23, 2019, the Rules and Open Government Committee approved a memorandum by Mayor Sam Liccardo titled “PSPS: Making San Jose Grid-Resilient” that included many recommendations and directions to staff to explore various methods to improve grid resiliency.

On February 10, 2020, City Council authorized the City Manager to file a Wholesale Transmission Service Interconnection Application to Pacific Gas and Electric to begin exploration of the option to provide City electrical service to the Downtown West Project.

On March 25, 2021, City Council held a Study Session discussing three options for operating a district systems microgrid to provide electric service to the Downtown West Project. 1) PG&E retail/ Community Microgrid Enablement Program service, 2) City provided service, and 3) private (Google provided) service. All electric service options are being thoroughly evaluated and explored by the City and Google.

On May 25, 2021, City Council approved Google's proposed Downtown West Project (including the Development Agreement), the City-initiated amendments to the Diridon Station Area Plan, and the City's Diridon Affordable Housing Implementation Plan. This approval allowed a maximum of 5,900 residential units; a maximum of 7,300,000 gross square feet (GSF) of office space; a maximum of 500,000 GSF of active uses such as retail, cultural, arts, civic etc.; a maximum of 300 hotel rooms; a maximum of 800 limited-term corporate accommodations; a maximum of two event and conference centers totaling up to 100,000 GSF; a maximum of two central utility plants totaling approximately 130,000 GSF; logistic/warehouse(s) totaling approximately 100,000 GSF and approximately 15 acres of open space on an approximately 78-gross acre site extending approximately one mile from north to south, and generally bounded by Lenzen Avenue and the Union Pacific Railroad tracks to the north; North Montgomery Street, Los Gatos Creek, the Guadalupe River, State Route 87, Barack Obama Boulevard, and Royal Avenue to the east; Auzerais Avenue to the south; and the Caltrain rail corridor and Cahill Street to the west.

A major component of the Downtown West Project is a proposed "District Systems" approach to the utility needs of the development. Consistent with this approach, and in alignment with City Council priorities related to energy resiliency, Google is proposing an advanced microgrid electrical distribution system with renewable energy generation and storage resources distributed throughout the development.

On May 25, 2021, the Environmental Impact Report for the Downtown West Project was certified, including the infrastructure required to provide the district system microgrid served by a City-owned utility.

On May 25, 2021, as part of a supplemental memorandum related to the Development Agreement for Google's Downtown West Project, City Council was provided information regarding the initial legal, regulatory, and economic feasibility as well as the potential benefits and risks of City-provided electric service to new developments such as the Downtown West Project.

ANALYSIS

Summary

The Community Energy Department engaged Flynn Resource Consultants Inc. to prepare a report entitled “Benefits and Risks of Providing San José Electric Service to New Developments – A Case Study of the Downtown West Mixed-Use Development.” The report, dated August 24, 2022, concluded that City-provided electric service could offer rates that are competitive over the long term compared to standard Investor-Owned Utility (IOU) electric service. (The report is attached to this memorandum.) City-provided electric service could also allow more flexibility in the design and construction of the electrical distribution system for new developments. This may encourage the development of more onsite renewable energy than would otherwise be possible for new developments in the City. This could significantly contribute to improved efficiency and resiliency within new developments thereby facilitating progress towards achievement of Climate Smart San José goals.

The case study assumes that the IOU would continue to serve all existing load that it currently serves and that no connection to or utilization of existing IOU distribution assets is contemplated. The connection to the existing electric grid is only to the transmission system operated by the California Independent System Operator. The California Independent System Operator is the independent grid operator in the western United States and it grants equal access to nearly 26,000 circuit miles of transmission lines in California.

The driving force behind many of the benefits of a publicly-owned utility is that the local governing board or city council governs and oversees the design, construction, operation, and rate setting of the electric system, meaning that the local community controls the utility’s priorities through open meetings and transparent business decisions. Service to new developments by a new City utility would not impact existing customers of the IOU-owned and operated distribution system, nor rely on the General Fund. Costs to provide electric service to a new development would be paid by ratepayers within the development via City utility billing. It is also contemplated that startup costs incurred during the early years that exceed City utility revenues would be provided by the developer. The new City utility would reimburse these costs, subject to availability of adequate utility operations funds paid by ratepayers.

The report identified steps to offer this service. Assuming the new development’s in-service date is 2027, key milestones are included below:

Investigation and Start-up Phase

- City Council acceptance of the case study (summer 2022)
- City Council ordinance forming the new City utility (fall/winter 2022)
 - San José Municipal Code revisions
- Business Agreement (fall/winter 2022)
- City Council approval of Utility Design Standards (2023)
- City Council approval of Utility Rules and Regulations (2023)

- City Council approval of Interconnection Agreement with Pacific Gas and Electric and Operating Agreements with California Independent System Operator for Downtown West (2023)

Final Start-up Actions

- Cost of service study for Downtown West (2026)
- Staffing plan and hiring staff (2025-2026)
- City Council approval of rates/tariffs (2027)

Operations Phase

- Retail electric service to the new Downtown West Project begins (2027)

It is important to note that the investigation and startup work could be completed with adequate funding provided by the developer; however, it does not commit the City to providing this service. The City and or the developer may choose to not proceed with the future work necessary to provide this service. A key milestone is the cost-of-service study for the development.

Project Approach

Consistent with standard utility practice, the developer would construct the electric distribution system to serve the development and turn the infrastructure over to the new City utility for ownership, operations, maintenance, and capital improvements over the project life instead of the IOU. The new City utility would charge cost-based rates without payments of shareholder returns or state and federal taxes, which may allow for lower rates than standard IOU service. Included in the costs will be a payment in lieu of taxes and fees to the City's General Fund to mitigate the lost franchise fees, utility taxes, and property taxes that would be associated with IOU service. This is standard public utility practice. Ongoing revenues to the General Fund are not expected to be substantially impacted with establishing a new City utility for this development. The development is expected to use less energy due to the design and the inclusion of more distributed energy resources; this could impact the revenues that the City would have otherwise received from the IOU. As the project progresses, it will be important to monitor and analyze this impact so that the in-lieu payment can be adjusted to ensure neutrality to the General Fund.

The distribution system under consideration for the entire Downtown West development would be operated as a single integrated "district system" using "microgrid" controls and battery storage. This design could provide more efficiency and flexibility as surplus energy from one source in the development can serve other uses at other times within the same area. This approach is not allowed under current California Public Utilities Commission regulations where the distribution system crosses public rights of way. A City-operated utility could benefit customers through greater flexibility to install this type of an electric system as design standards and related tariffs would be approved by the City Council instead of the California Public Utilities Commission.

Governance and Operational Structure

Due to the compact 80-acre geography of Downtown West and the relatively small utility size required, a City division under the Community Energy Department or another department such as Public Works would be the proposed governance structure. Additional analysis following completion of engineering design of the distribution system is needed to determine which department would be the best fit. During design and potential implementation, Public Works would continue its role to oversee permitting and evaluate the project design standards developed specifically for this innovative distribution system. As the City engineer, the Director of Public Works would provide final review. The utility facilities would then be turned over to the appropriate City department, similar to all other capital improvement projects. Utilizing shared management and leveraging the subject matter expertise from Public Works is recommended to reduce costs. This approach is similar to other jurisdictions such as San Francisco, which operates both a public utility and a community choice aggregator, and shares staffing resources to improve efficiency.

Electric Load and Growth

The Downtown West developer supplied the forecast of load growth based on the current building construction schedule. This forecast also included 7.8 megawatts of installed solar based on a developer-provided range of 7.8-10 megawatts. Figure 1 shows the gross and net load beginning in late 2027; onsite generation comes online and grows over time at a similar rate to the development schedule. Full load is expected in about 2035.

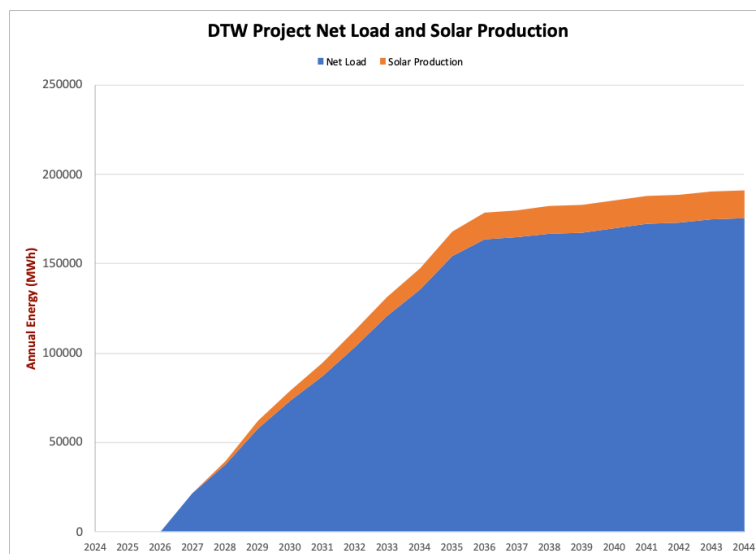


Figure 1: Downtown West Project Net Load and Solar Production (megawatt hour)

Cost of Utility Service

The case study compares the costs to provide City service to projected IOU rates as a benchmark. The energy required to serve project load (blue area in Figure 1) is assumed to be supplied by San José Clean Energy (SJCE) as carbon free 24/7 energy in both City utility and IOU cases, as this is the type of energy that the developer prefers. This product is not currently available from SJCE or the IOU; however, it will likely be available before startup regardless of which utility provides delivery service to Downtown West. The clean energy resources at Downtown West will complement the carbon free 24/7 product from SJCE, helping overcome market challenges of meeting electricity demand with clean energy every hour of every day.

Although City utility service allows additional flexibility that should translate into lower variable energy supply costs, this effect is minor compared to the difference in fixed delivery costs between City utility and IOU service. As detailed in the study, the structural differences in the fixed costs to own and operate the distribution system as an integrated district delivery system under the City utility service option provides the bulk of the rate differences between City utility and IOU service options.

The overall conclusion is that, using base case assumptions, City utility service offers lower rates for customers than IOU service. The base case rates are projected to be comparable to the benchmark in the early years of operation due to startup costs and the electric load starting small and growing over time. Projected rate savings grow as the development is completed, resulting in rates that are projected to be 15-25 percent below the benchmark over the analysis period. Extensive sensitivity analysis and stress testing was completed and concluded that plausible outcomes that are more favorable than the base case would result in rates between 50 percent and 66 percent of the benchmark rates, while multiple overlapping negative outcomes in highly stressed scenarios would result in rates potentially exceeding the benchmark by five percent to 10 percent. Mitigation measures are available to counteract this potential negative outcome. Figure 2 below shows these results graphically. The results are in line with the demonstrated experience of city-owned electric service throughout California as shown in Table 1.

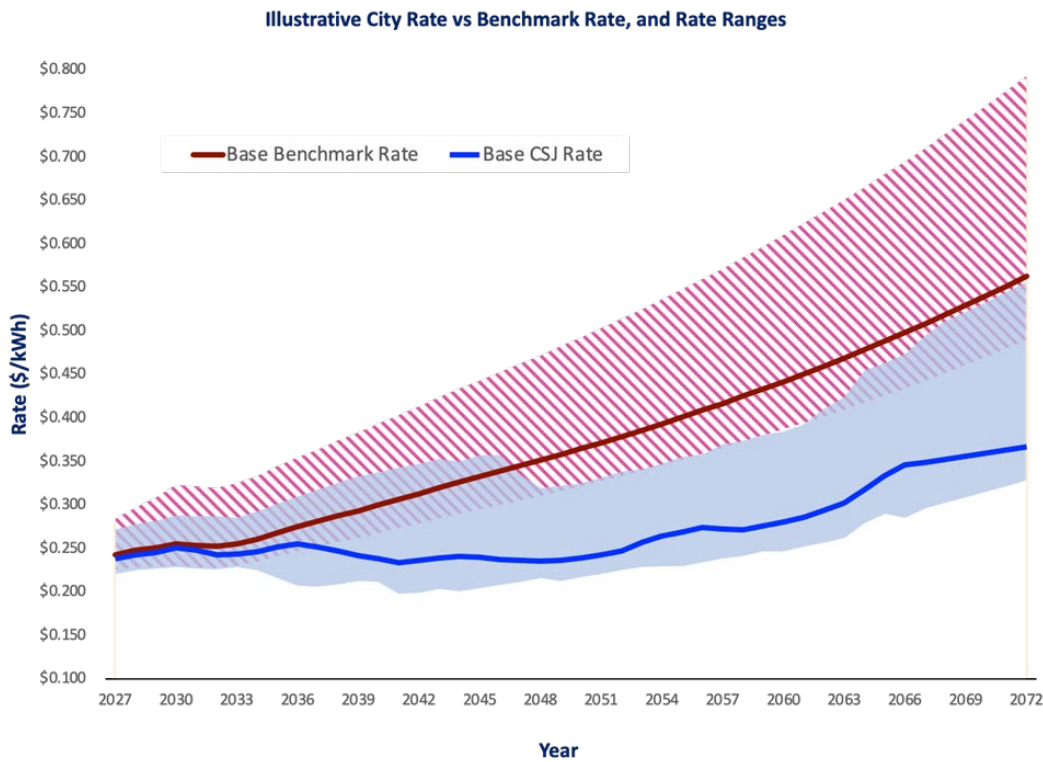


Figure 2: Illustrative Comparison between the IOU Benchmark and City Rate over time

Table 1: California Public Utility rates vs. IOU Utility Rates

	Residential Rates Compared to IOU	Non-Residential Rates Compared to IOU
Silicon Valley Power (City of Santa Clara)	48% Lower	26%-38% Lower
Sacramento Municipal Utility District	33% (Avg.) Lower	31.1%-47.6% Lower
Alameda Municipal Power	14.9%-31.5% Lower	11.3%-18.9% Lower
Los Angeles Department of Water and Power	31% Lower	7-27% Lower

Sources of Savings Between City and IOU Delivery Service

The rates savings for new developments for city utility service vs. IOU service comes from two principal sources. First, the cost of city utility service is lower because a city utility would charge cost-based rates without payment of state and federal taxes or shareholder returns. It is expected that the City Utility would pay a payment in lieu of taxes and fees to the City’s General Fund to mitigate the lost franchise fees, utility taxes, and property taxes that would be associated with IOU service. Second, the legacy IOU distribution system faces significant capital upgrade costs

to deal with the proliferation of customer-owned distributed generation, as well as grid hardening and liability costs to deal with the “new normal” wildfire regime in California driven by drought and climate change. These large upgrade costs to the legacy distribution system are beginning to appear in IOU rates and will likely lead to increased IOU rates for the next several years. The case study used a combination of recent IOU rate requests to the California Public Utilities Commission, published California Energy Commission and California Public Utilities Commission long-term forecasts of utility rates, and third-party independent analyses of Flynn Resource Consultants Inc. assumptions about these costs¹ to arrive at the benchmark rate forecast shown in Figure 2. Details are included in the attached cast study report.

Risk Factors and Mitigation Measures

The best information available and best engineering judgment was used to arrive at the City utility rate forecast and the benchmark shown in Figure 2; however, the future is inherently uncertain. Extensive sensitivity analysis and stress testing was used to ascertain the critical variables that would affect the conclusion that City utility rates are likely to be lower than comparable IOU rates. The stress testing in the case study identified the following three most critical uncertainties around the comparison between City utility and IOU service as 1) the accuracy of the load forecast; 2) uncertainty around future IOU benchmark rates and how costs are recovered; and 3) staffing levels to operate and maintain a relatively small utility.

Accuracy of Load Forecast

Uncertainty in the load forecasts creates startup issues in the early years with lower revenues and high fixed costs relative to revenues. This will be less of a concern as later phases of the project are brought online and revenues increase. To mitigate these risks, the City and developer will enter into a future business agreement that will include all startup costs for the City utility – including power-related costs, capital investment, staffing, etc. – that would be paid back only when customer revenues are sufficient to fully fund operations on an ongoing basis. The City and the developer would also work to resolve some of the load uncertainty before making major financial commitments. Neither customers using the existing IOU distribution system nor the General Fund would bear this risk provided that the business agreement is appropriately structured: if load growth is slower than expected, reimbursement of developer-funded startup costs would be delayed accordingly.

Uncertainty Around Future IOU Benchmark Rates

IOU rates will likely increase significantly to deal with costs such as wildfire-related grid hardening. However, if these costs become too high, it is possible that there will be state action to change the way these costs are recovered in rates that may result in reducing the

¹Flynn Resource Consultants Inc. subcontracted to Aspen Environmental Services, Inc., a California firm with extensive direct experience dealing with IOU General Rate Case proceedings, for an independent review of the assumptions used, including the assumed 50 percent increase in IOU delivery costs recovered in rates between today and the start of City utility operations in 2027.

difference between City utility and IOU service. The case study analysis is conservative in that once the currently contemplated wildfire hardening and modernization of the IOU grid is incorporated in rates over the next several years, both the high and low case costs for IOU delivery service are assumed to only rise at inflation after 2030. The conclusion that City utility service results in comparable or lower rates than IOU service does not rely on the assumption of continuously increasing IOU costs in the long term.

Staffing Levels

A formal Operation and Maintenance plan including staffing levels needs to be conducted following completion of the engineering design and business agreement between the developer and the City. This Operation and Maintenance plan should include strategies to avoid incurring high fixed staffing costs during the early years of operation and instead rely heavily on extended manufacturers warranties.

Next Steps and Future Work

Detailed descriptions of next steps for utility formation are discussed in the case study and outlined below:

2022: Completion of the Investigation Phase. Funding for this phase would continue to be provided by the developer and would be completed following City Council action to form the new City utility. Staff expects to bring this forward for City Council consideration in late 2022.

2023-2026: Start Up Phase. Should the City Council opt to form the utility, the City would begin completing a number of steps to provide this service. These steps include preparing design standards and operating rules and regulations to allow for an advanced microgrid. Staff would also prepare a detailed Operation and Maintenance plan including staffing, physical facilities, spare parts, and prudent reserve balances. Later in this phase, the City would conduct a formal cost of service study to set cost-based rates and bring the study forward to City Council for approval. Staff would also create a staffing plan and potentially create new employee classifications to support the utility. The timing of staff hiring would be closely coordinated with the actual buildout schedule to ensure appropriate staffing and to mitigate the risk of high startup and fixed costs while load and revenues are low in the early years. Funding for this phase is estimated to be between \$25 million and \$40 million made up of pre-startup expenses and high fixed costs relative to limited revenue from early load served as commissioning occurs in phases. Startup funding would be provided by the developer, in phases linked to milestones, and detailed in a future business agreement.

2027-2031: Initial Operations Phase. This phase would start once construction is completed and retail operations begin. It is expected that load and operating revenues will grow over time to cover fixed costs and establish operating reserves. Cost-based rates and tariffs for the various customer classes would be approved annually by City Council. Revenues from operations along with the developer-funded startup costs would allow for rates comparable to rates for IOU service during this period. The City would hire additional staff to support operations during this

period. Subsequent developments served by an existing City utility may not require this level of startup funding support.

2032 onward: **Normal Operations Phase.** The City utility moves into stable, full load operations and is self-funding with City Council approved cost-based rates and tariffs. The microgrid is operated to ensure that reliable clean power is provided to the development.

CONCLUSION

The case study for the Downtown West Project demonstrates the opportunity for the City to partner with developers to achieve the shared objectives of providing reliable, resilient, carbon free power to customers within a new development at a competitive cost compared to traditional IOU service. The base case estimates rate savings for City utility service is in the range of 15-25 percent and is in line with demonstrated experience from small and large public utilities throughout California.

While there could be scenarios with multiple overlapping factors resulting in costs that could exceed benchmark service costs, these scenarios can be monitored and there are mitigation measures the City and the developer can take to address the potential negative outcomes. There are also scenarios that would provide significant savings above the base case, which would translate to lower rates for occupants of the Downtown West development.

In addition to the potential cost savings for customers, the City would have the ability to adopt applicable design standards and rules and regulations that could allow for a more advanced microgrid that accommodates more onsite distributed energy resources and improves electric reliability and resiliency. This would significantly contribute to improved resiliency within new developments, increased onsite distributed energy resources, and facilitate the achievement of Climate Smart San José goals.

EVALUATION AND FOLLOW-UP

The Community Energy Department will bring forward additional recommendations for consideration to allow for a City-operated utility with a microgrid, providing a cleaner and more reliable electric grid.

CLIMATE SMART SAN JOSÉ

The recommendation in this memorandum aligns with one or more Climate Smart San José energy, water, or mobility goals.

PUBLIC OUTREACH

This memorandum will be posted on the City’s Council Agenda website for the September 16, 2022 City Council Special Meeting.

COORDINATION

This memorandum has been coordinated with the Office of Economic Development and Cultural Affairs, the City Attorney’s Office, the City Manager’s Budget Office, along with the departments of Public Works, Environmental Services, Transportation, Finance, Human Resources, and Planning, Building, and Code Enforcement.

COMMISSION RECOMMENDATION/INPUT

This recommendation was not considered by the Clean Energy Community Advisory Commission.

COST SUMMARY/IMPLICATIONS

All costs associated with the actions necessary to study the feasibility of the City providing electric service to the project has been and will be paid by the developer. Further, should the City Council accept the recommended report, staff will bring forward a business agreement with the developer for City Council approval in 2023 that would ensure that all start-up costs of a City utility – including power-related start-up costs, capital investment, staffing, etc. – would also be provided by the developer. To ensure that the General Fund is not at risk, these costs would only be reimbursed once sufficient levels of ongoing customer revenue are achieved.

Ongoing revenues to the General Fund related to electric service in the project area may be lower than if the service is provided by an IOU. The General Fund currently receives ongoing tax revenues for electric service in the form of utility taxes and franchise fees that is based on the amount of a customer’s electric bill. While the City utility would not assess these taxes, the customer rates would include an in-lieu payment roughly equivalent to total assessment that would have otherwise been levied by an IOU. The development is expected to use less energy due to the design and the inclusion of more distributed energy resources; this could impact the revenues that the City would have otherwise received from the IOU. As the project progresses, it will be important to monitor and analyze this impact so that the in-lieu payment can be adjusted to ensure neutrality to the General Fund.

HONORABLE MAYOR AND CITY COUNCIL

September 8, 2022

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CEQA

Not a Project, File No. PP17-009, Staff Reports, Assessments, Annual Reports and Informational Memos that involve no approvals of any City action.

/s/

LORI MITCHELL

Director, Community Energy

For questions, please contact Lori Mitchell, Director of Community Energy, at (408) 535-4880.

Attachment: Benefits and Risks of Providing San José Electric Service to New Developments – A Case Study of the Downtown West Mixed-Use Development