Financing Options for Solar PV Projects in the County

Background

At its meeting on December 19, 2017, the Board of Supervisors authorized Public Works to submit Interconnection Applications (IAs) to PG&E for eleven County-owned facilities with the intent of grandfathering advantageous time-of-use time periods for ten years (ending on December 31, 2027). The County successfully submitted eleven IAs, and the solar potential of these projects is shown in Figure 1.

Site	Energy Consumption (kWh/yr)	Annual Energy Cost ($)	Est. PV Capacity (kWac)	Est. Annual PV Production (kWh)	Est. 1st Year PV Savings ($)	Solar % of Load
1000 WARD ST	2,526,524	$ 417,536	1,313	1,900,000	$ 323,000	75%
30 DOUGLAS DR	2,034,165	$ 309,944	842	1,200,000	$ 192,000	59%
50 DOUGLAS DR	985,486	$ 216,344	370	540,000	$ 118,800	55%
30 MUIR RD	320,993	$ 65,815	149	218,000	$ 45,780	68%
1305 MACDONALD AVE	468,109	$ 50,244	241	350,000	$ 56,000	75%
4800 IMHOFF PL	315,606	$ 48,325	184	265,000	$ 42,400	84%
2935 PINOLE VALLEY RD	106,516	$ 30,404	66	96,000	$ 21,120	90%
597 Center	651,674	$ 143,631	196	285,000	$ 62,700	44%
2530 Arnold	1,067,935	$ 210,914	462	676,000	$ 135,200	63%
4545 Delta Fair	753,365	$ 129,798	396	579,000	$ 104,220	77%
4549 Delta Fair	429,169	$ 92,394	198	290,000	$ 62,350	68%
TOTALS	9,659,542	$ 1,715,349	4,417	6,399,000	1,163,570	66%

Figure 1: Facilities with grandfathered Interconnection Agreements (IAs)

Financing Options

The three most common and successful financing options for PV projects such as those listed in Figure one are Cash, Power Purchase Agreement (PPA) and Tax Exempt Lease Purchase (TELP).

Cash

The simplest path to financing a solar project is to purchase the system directly. The problem is that the County is tax exempt and cannot directly benefit from any available federal tax incentives which when taken in total can offset up to 50% of the project cost. Never-the-less the benefits of a cash purchase include:

- Faster and more streamlined processing reduces the total time required for a solar installation, allowing you to begin benefiting from clean, solar electricity as quickly as possible
- Greater potential savings since you avoid third party expenses and interest rates
- Protection against rising utility rates
- Access to 100% of available non-tax related solar incentives.

In a cash purchase the responsibility of system operation and maintenance and performance monitoring is an additional contractual burden.

Power Purchase Agreement

A Power Purchase Agreement (PPA) is a financing arrangement that allows the County to purchase solar electricity with no upfront capital cost. To achieve this, the County provides unused rooftop, land, or parking lot space as a location for a solar installation. A third party PPA provider pays for the cost of the solar installation and assumes all responsibility for ownership, operation, and maintenance once the solar project is complete. As the host organization, the County enters into an agreement to purchase the electricity produced by the system owned by the PPA provider at a predetermined rate per kilowatt-hour, the same unit of measurement on your standard utility bill. A well-structured PPA allows you to reduce electricity costs immediately and realize increased savings over time as grid electricity prices rise. Once the PPA contract period expires (typically 15 - 20 years), you can purchase the system at a reduced price, initiate another PPA, or have the solar installation removed.

The benefits of the PPA include:

- No initial capital investment since you only pay for the solar electricity that is produced
- Fixed energy rates (a PPA provides a powerful hedge against volatile electricity prices)
- No responsibility for system operation or maintenance
- Benefit from solar tax credits and depreciation, even if your organization has no tax liability to offset. The PPA financier is able to monetize available tax incentives and pass these savings on to you in the form of a lower PPA rate

PPAs provide access to solar electricity without the burden of owning or operating solar equipment by transferring the initial project cost to a PPA provider. Entering into a PPA requires a detailed contract and thorough credit review. As a result, choosing a PPA will typically extend a project's timeline relative to other financing options.

Tax Exempt Lease Purchase (Ownership Model)

When properly structured, this type of financing makes it possible for public sector agencies to draw on dollars to be saved in future utility bills to pay for new, energy-efficient equipment and related services today.

In a tax-exempt lease-purchase agreement the public sector organization owns the assets. Interest rates are appreciably lower than those on a taxable commercial lease-purchase agreement because the interest paid is exempt from federal income tax for public sector organizations (current interest rate at around 3.75%). The financing terms for lease-purchase agreements may extend as long as 15 to 20 years and are limited by the useful life of the equipment. The lending agency also has the ability to "lock" a rate for up to six months, typically the length of time needed to finalize the project specifications.

The loan is secured by the solar PV equipment.

Many believe that this is the most economical and expeditious financing approach even though the Federal Investment Tax credit and accelerated depreciation are not utilized.