



Inflation Reduction Act (IRA) – how Energy Storage & Solar tax credits affect project economics

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Webinar Presenters



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Agenda

1. IRA overview: Storage and Solar tax credit provisions
2. Standalone ESS economics with the 30% ITC
3. What state markets are now viable for ESS?
4. How do PV+ESS economics change?
5. PTC vs ITC: what's the better incentive for PV?
6. Developers: how to capitalize on the IRA
7. Energy Toolbase's IRA support services
8. Q & A



The Inflation Reduction Act, Explained

What the Biggest Clean Energy Bill in History Means for Your Business

SEIA Webinar



Powering the Solar+ Decade



Section 48 Investment Tax Credit and Production Tax Credit >1 MW_{AC}

**Pre-Guidance
through 2024**

ITC: 30%
PTC: 100%

**60 Days
Post-Guidance
through 2024**

ITC: 6%+24%
PTC: 20%+80%

**Tech
Neutral 48E**

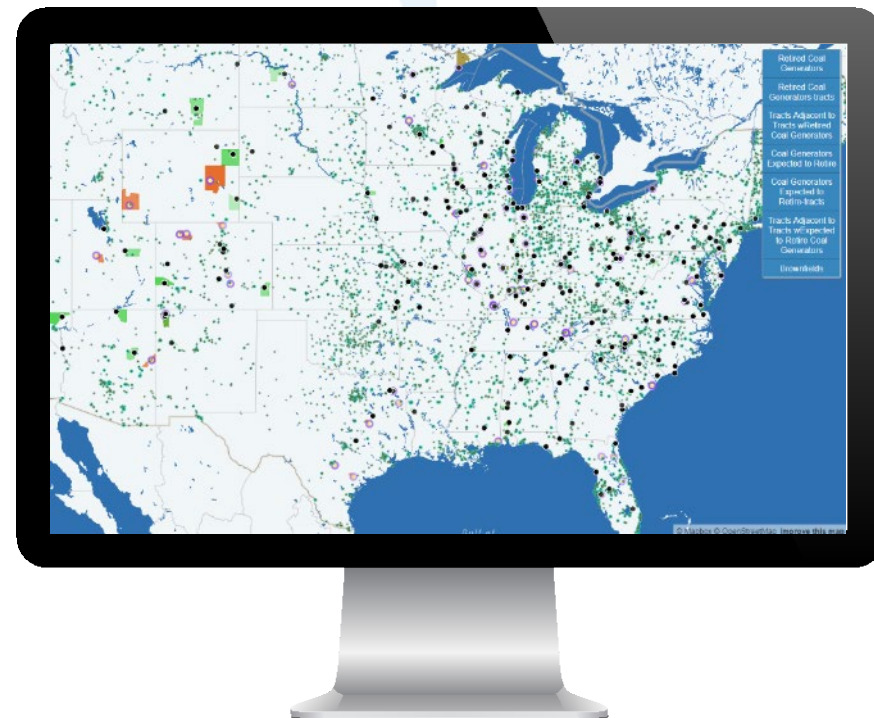
2025-2032+

ITC: 6%+24%
PTC: 20%+80%

Adder Credits

- **Energy Communities**
 - Certain areas with histories related to fossil fuel extraction, use and employment.
 - Map tool for premium SEIA members to view coal-fired power plants that have retired since 2010 or have expired retirements through 2036, as well as the census tracts (and adjacent tracts) to these facilities
- **Domestic Content**
 - CFR 661
 - 100% Steel/Iron (661.5)
 - 40% Manufactured Products (40/45/50/55%)
- **Low Income Allocated Credit**
 - 10%: the project is located in a low-income community or on Indian land
 - 20%: the project is part of a qualified low-income residential building project or a qualified low-income economic benefit project
 - 1.8 GW_{DC} total per year

**Bonus credits for projects placed in service next year.



www.seia.org/ECmap

Section 25D 30% ITC for 10 years followed by a phase down

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Credit Prior to IRA	26%	22%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Credit Under IRA	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	26%	22%	0%



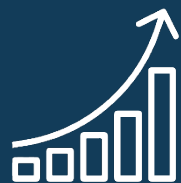
Storage ITC

- Standalone energy storage projects are added as qualifying under the section 48 ITC and for 25D.
- Nameplate capacity of not less than 5 kilowatt hours for Sec. 48
- Nameplate capacity of not less than 3 kilowatt hours for 25D.
- The standalone storage credit for section 48 is available for projects placed in service after December 31, 2022.
- The storage credit for 25D is available for expenditures made after December 31, 2022.

Interconnection

- For projects below 5 MW, interconnection costs can be included in Sec. 48 ITC.

Inflation Act Manufacturing Incentives



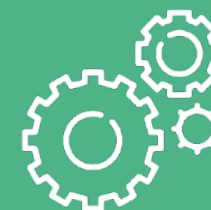
Demand

- Long-term extension of the Investment Tax Credit (30%)
- Domestic Content Bonus Credit (10%)
- Energy Community Bonus Credit (10%)



CapEx

- 48C Manufacturing Tax Credit (30%)
- Covers new facilities and equipment



Scale

- 45X Advanced Production Manufacturing Credit
- Targets module value chain, trackers, inverters, and battery value chain

48C and 45X

1. 48C is a 30% allocated investment tax credit for eligible investment costs in facilities and equipment
 - a) \$10 billion allocated for the Section 48C tax credits, and up to \$6 billion can go to projects located outside of census tracts (or adjacent tracts) where a coal mine closed after 1999 or a coal-fired power plant was retired after 2009
2. 45X is a manufacturing production credit for certain components based on the volume of product manufactured
3. Manufacturers can only seek to take or the other; that is, a manufacturer cannot claim the 48C investment tax credit and then claim the 45X production credit for product from the same factory

									100%	75%	50%	0%
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Solar												
PV Modules	7 ¢/Wdc	7 ¢/Wdc	7 ¢/Wdc	7 ¢/Wdc	7 ¢/Wdc	7 ¢/Wdc	7 ¢/Wdc	7 ¢/Wdc	5.3 ¢/Wdc	3.5 ¢/Wdc	1.8 ¢/Wdc	0.0 ¢/Wdc
Thin-Film PV Cells	5 ¢/Wdc	5 ¢/Wdc	5 ¢/Wdc	5 ¢/Wdc	5 ¢/Wdc	5 ¢/Wdc	5 ¢/Wdc	5 ¢/Wdc	3.8 ¢/Wdc	2.5 ¢/Wdc	1.3 ¢/Wdc	0.0 ¢/Wdc
Crystalline Silicon PV Cells	4 ¢/Wdc	4 ¢/Wdc	4 ¢/Wdc	4 ¢/Wdc	4 ¢/Wdc	4 ¢/Wdc	4 ¢/Wdc	4 ¢/Wdc	3.0 ¢/Wdc	2.0 ¢/Wdc	1.0 ¢/Wdc	0.0 ¢/Wdc
Crystalline Silicon PV Wafers	\$12/m2	\$12/m2	\$12/m2	\$12/m2	\$12/m2	\$12/m2	\$12/m2	\$12/m2	\$9/m2	\$6/m2	\$3/m2	\$0/m2
Solar Grade Polysilicon	\$3/kg	\$3/kg	\$3/kg	\$3/kg	\$3/kg	\$3/kg	\$3/kg	\$3/kg	\$2.25/kg	\$1.50/kg	\$0.75/kg	\$0/kg
Polymer Backsheets	\$0.40/m2	\$0.40/m2	\$0.40/m2	\$0.40/m2	\$0.40/m2	\$0.40/m2	\$0.40/m2	\$0.40/m2	\$0.30/m2	\$0.20/m2	\$0.10/m2	\$0/m2
Inverters*												
Central Inverter	0.25 ¢/Wac	0.25 ¢/Wac	0.25 ¢/Wac	0.25 ¢/Wac	0.25 ¢/Wac	0.25 ¢/Wac	0.25 ¢/Wac	0.25 ¢/Wac	0.19 ¢/Wac	0.13 ¢/Wac	0.06 ¢/Wac	0.00 ¢/Wac
Utility Inverter	1.50 ¢/Wac	1.50 ¢/Wac	1.50 ¢/Wac	1.50 ¢/Wac	1.50 ¢/Wac	1.50 ¢/Wac	1.50 ¢/Wac	1.50 ¢/Wac	1.13 ¢/Wac	0.75 ¢/Wac	0.38 ¢/Wac	0.00 ¢/Wac
Commercial Inverter	2.00 ¢/Wac	2.00 ¢/Wac	2.00 ¢/Wac	2.00 ¢/Wac	2.00 ¢/Wac	2.00 ¢/Wac	2.00 ¢/Wac	2.00 ¢/Wac	1.50 ¢/Wac	1.00 ¢/Wac	0.50 ¢/Wac	0.00 ¢/Wac
Residential Inverter	6.50 ¢/Wac	6.50 ¢/Wac	6.50 ¢/Wac	6.50 ¢/Wac	6.50 ¢/Wac	6.50 ¢/Wac	6.50 ¢/Wac	6.50 ¢/Wac	4.88 ¢/Wac	3.25 ¢/Wac	1.63 ¢/Wac	0.00 ¢/Wac
Microinverter	11.00 ¢/Wac	11.00 ¢/Wac	11.00 ¢/Wac	11.00 ¢/Wac	11.00 ¢/Wac	11.00 ¢/Wac	11.00 ¢/Wac	11.00 ¢/Wac	8.25 ¢/Wac	5.50 ¢/Wac	2.75 ¢/Wac	0.00 ¢/Wac
Trackers												
Torque tube or longitudinal purlin	\$0.87/kg	\$0.87/kg	\$0.87/kg	\$0.87/kg	\$0.87/kg	\$0.87/kg	\$0.87/kg	\$0.87/kg	\$0.65/kg	\$0.44/kg	\$0.22/kg	\$0.00/kg
Structural fasteners	\$2.28/kg	\$2.28/kg	\$2.28/kg	\$2.28/kg	\$2.28/kg	\$2.28/kg	\$2.28/kg	\$2.28/kg	\$1.71/kg	\$1.41/kg	\$0.57/kg	\$0.00/kg
Batteries												
Electrode active materials**	10%	10%	10%	10%	10%	10%	10%	10%	7.5%	50%	2.5%	0%
Cells (\$/kWh)	\$35	\$35	\$35	\$35	\$35	\$35	\$35	\$35	\$26.3	\$17.5	\$8.8	\$0
Modules (\$/kWh)	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$7.5	\$5	\$2.5	\$0
Modules that don't use cells (\$/kWh)	\$45	\$45	\$45	\$45	\$45	\$45	\$45	\$45	\$33.8	\$22.5	\$11.3	\$0
Critical Materials**	10%	10%	10%	10%	10%	10%	10%	10%	7.5%	5%	2.5%	0%

Source: SEIA Summary of Inflation Reduction Act (H.R. 5376)

DOE Loan Program Office

1. \$40 billion in additional commitment authority.
2. With some exceptions, including national interest transmission corridor projects, loan guarantees now require Presidential certification that the project is not receiving other federal funding or assistance.
3. New \$250 billion commitment authority for projects that “retool, repower, repurpose, or replace” electricity or fossil fuel infrastructure that has ceased operations, or enable operating infrastructure to avoid, reduce, utilize, or sequester air pollutants or greenhouse gases; terms limited to 30 years.

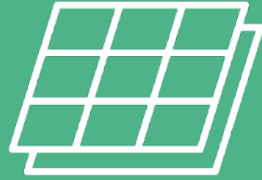


Transmission Loans

- \$2 billion for loans to non-federal entities for constructing new electric transmission facilities in designated national interest corridors.
- The loan can't exceed 80% of the cost of the project, can't be subordinate to other financing, and is limited to a term that is the lesser of 90% of the project's life or 30 years.

Grants to Facilitate the Siting of Interstate Electricity Transmission Lines

- \$760 million for the Department of Energy to issue grants to state, local, or tribal entities for studying covered transmission projects 275 kV and higher and carrying out related economic development and regulatory proceedings.
- Funding is contingent on the transmission project being approved or, in the case of a non-permitting entity, commencement of construction.



Solar Right-of-Way Restrictions

- For a period of 10 years post-enactment, DOI is prohibited from issuing a solar right-of-way on onshore federal lands unless Interior has held an onshore oil and gas lease sale in the previous 120 days at which the lesser of 2,000,000 acres or 50% of acreage for which expressions of interest have been submitted are offered.
- \$150,000,000 for additional hiring of Interior personnel for project review and permitting.



Department of Agriculture Programs

- Additional \$1 billion for rural renewable energy electrification loans and expansion of the program to include storage.
- Additional \$1 billion for REAP, with total grants limited to 50% of the total cost of an eligible project
- \$9.6 billion for loans and financing for rural co-ops to purchase renewable energy, generation, zero-emission systems, and related transmission, limited to 25% of total cost.



SEIA Links

Detailed questions on the IRA? Send an email to IRA@seia.org

Public - IRA factsheet:

<https://ira.seia.org/sites/default/files/2022-09/Inflation%20Reduction%20Act%20Summary%20PDF%2008.24.22.pdf>

SEIA Members – Detailed summary and FAQ:

<https://ira.seia.org/research-resources/inflation-reduction-act-solar-energy-and-energy-storage-provisions-summary>

SEIA Members: IRA Explained Webinar achieve

<https://ira.seia.org/research-resources/ira-explained-what-biggest-clean-energy-bill-history-means-your-business>

STANDALONE STORAGE ITC

Standalone storage projects have some advantages over solar-only and solar + storage projects

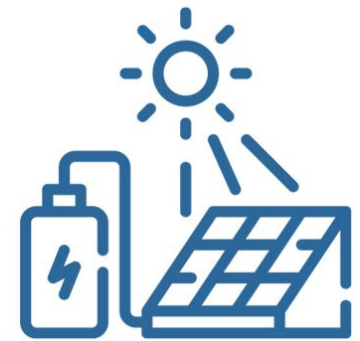
Some rate tariffs are not great for solar

- high demand charges, NEM successor tariffs
- PV+ESS projects in CA rate-switch to solar-friendly rates

Sites constraints to deploying considerable solar

- space limitations
- interconnection requirements

Removing the “must charge from PV” restriction gives ESS ultimate flexibility, enabling more potential value capture



How compelling are the economics of standalone Storage projects with the 30% Investment Tax Credit (ITC)?

The project economics (payback period, IRR, NPV) for standalone storage are primarily influenced by:

Rate tariff

- Demand charges (\$/kW), TOU energy rate (\$/kWh) differentials

Load profile

- Spikey/volatile vs. flat/stable

ESS system size (relative to customer load)

- 25%, 50%, 100%



We used reasonable, market rate assumptions to run our analysis

Proposal inputs:

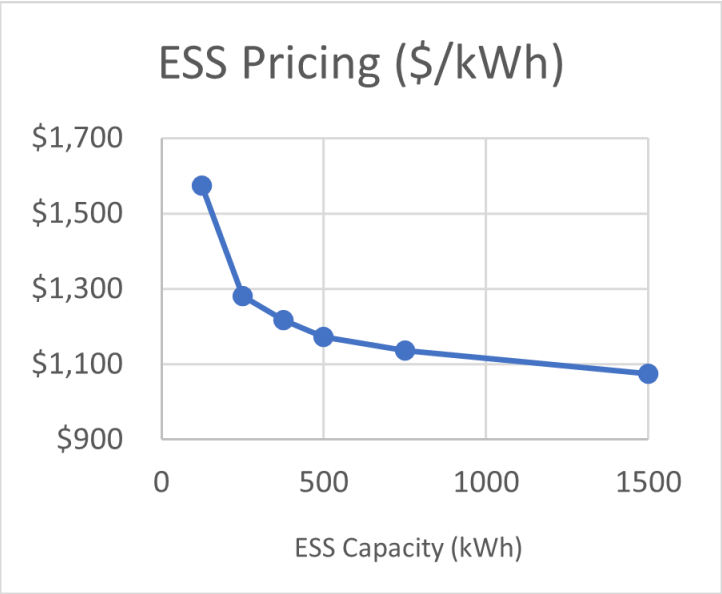
General:	
Fed tax rate	21%
CA State tax rate	8%
Pre/post tax	Pre-tax
Discount rate	5%
Utility escalation	3%
Transaction Term (yr)	15

Incentives:	
Federal ITC	30%
Federal MACRS Depreciation	
State MACRS Depreciation	
SGIP	no

ESS Hardware:	
Max Depth of Discharge	100%
Round trip efficiency	90%
Battery Degradation	2%/yr

ESS Pricing:

ESS capacity (kWh)	ESS cost (\$/kWh)
125	\$1,573
250	\$1,280
375	\$1,217
500	\$1,173
750	\$1,137
1500	\$1,076

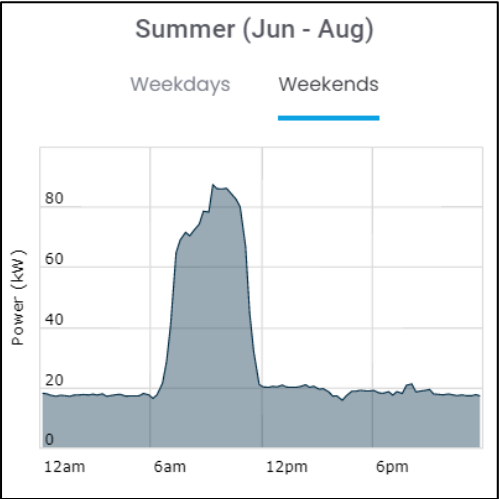


We used a range of different customer Load Profiles, to get an understanding of their influence on savings and economics

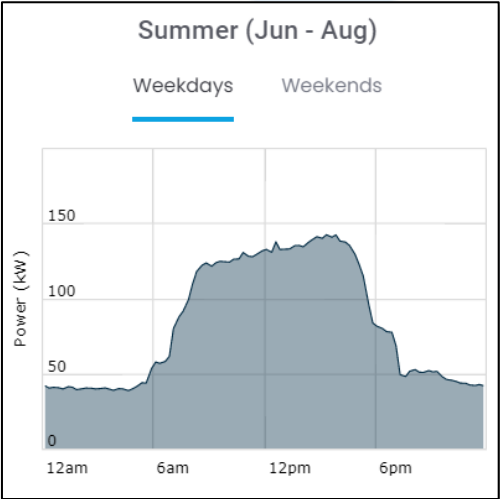
Building Type:	Load Factor:
Church	14%
Office building	36%
Admin Buidling	69%
Data Center	94%

Load Factor = avg kW demand / peak kW demand

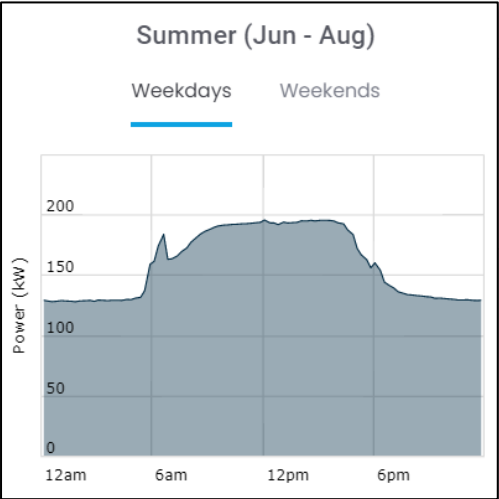
Church



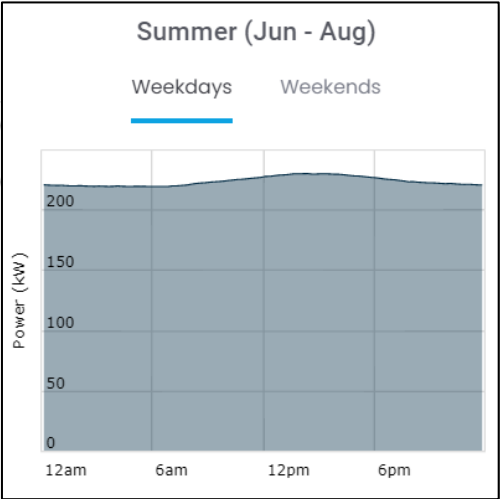
Office



Admin Building



Data Center



An office building in the SDG&E territory on the AL-TOU tariff, with an ESS sized at 50% of customer max demand

Project assumptions:

Building type:	Office building
Load factor:	36%
Annual usage:	592,138 kWh
Max demand:	250 kW
ESS size:	125 kW / 250 kWh (ESS 50% of max demand)
ESS cost:	\$320,000 (\$1,280/kWh ESS)
Term:	15-years (no ESS replacement)

	SDG&E, AL-TOU		
	Energy (\$/kWh)	Demand (\$/kW)	Time-of-use windows
Summer			
Non-coincident		\$33.13	
On-peak	\$0.200	\$42.29	4p - 9p
Off-peak	\$0.122		6a - 4p, 9p - 12a
Super Off-peak	\$0.117		12a - 6a
Winter			
Non-coincident		\$33.13	
On-peak	\$0.233	\$30.40	4p - 9p
Off-peak	\$0.135		6a - 4p, 9p - 12a
Super Off-peak	\$0.107		12a - 6a

6/1/2022: effective date
Secondary: connection type
True: inside SD city limits



Results: standalone storage system for an office building in SDG&E on the AL-TOU rate has very compelling economics

ESS Savings:

\$58,562 yr 1 savings

\$234 ESS savings (\$/kWh)

Project Economics:

2.6 Payback period (yrs)

30.6% IRR (15-yr)

\$483,626 NPV

3.2 Cash Purchase (15-year term)

Assumptions and Key Financial Metrics

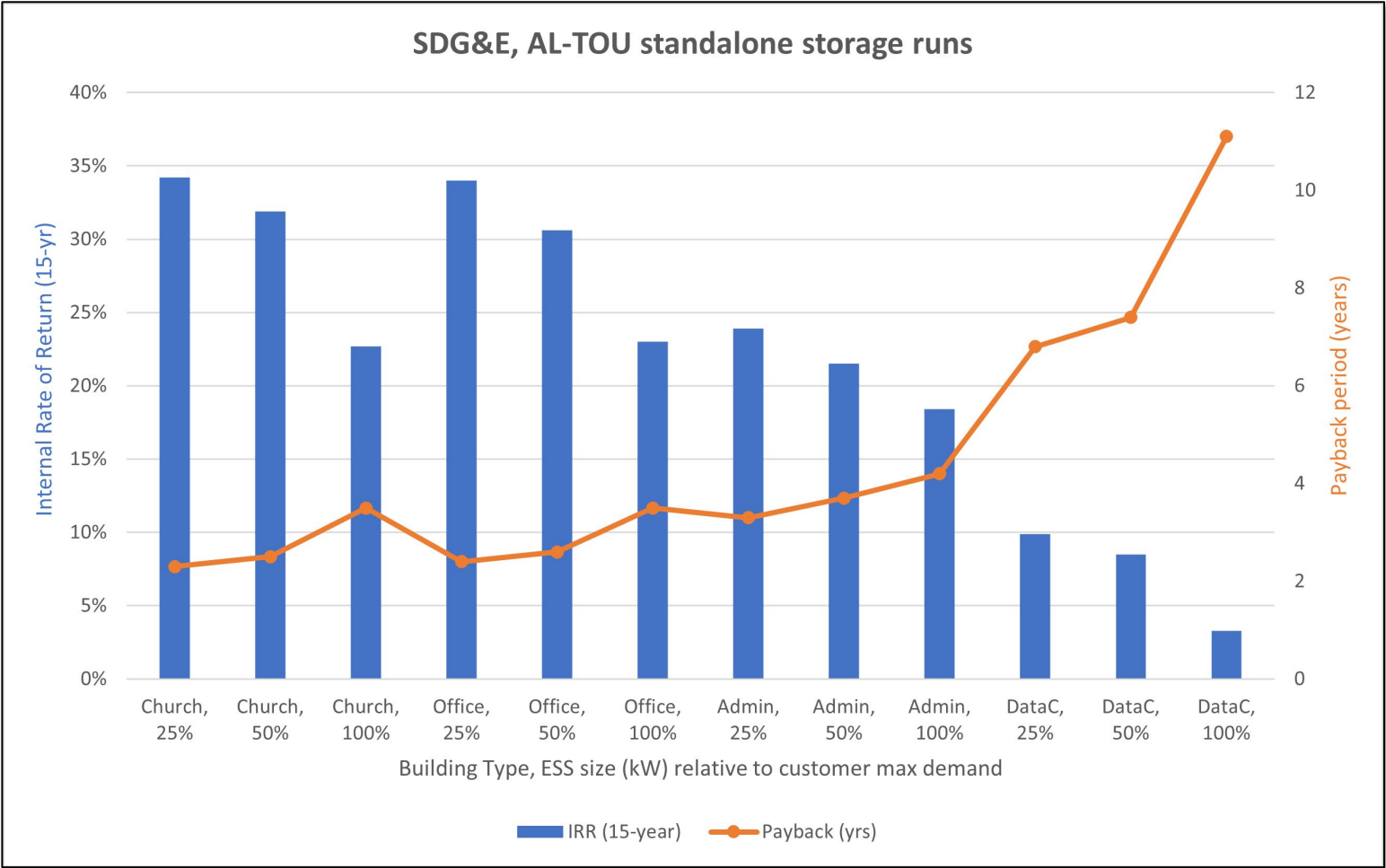
IRR - Term	30.6%	Payback Period	2.6 Years	ROI	244.8%
Net Present Value	\$483,623	PV Degradation Rate	0.00%	Total Project Costs	\$320,000

Years	Project Costs	Electric Bill Savings	State Tax Effect	Federal Tax Effect	Total Cash Flow	Cumulative Cash Flow
Upfront	-\$320,000	-	-	-	-\$320,000	-\$320,000
1	-	\$58,562	\$5,120	\$143,981	\$207,663	-\$112,337
2	-	\$59,113	\$8,192	\$3,656	\$70,960	-\$41,377
3	-	\$59,644	\$4,915	\$2,193	\$66,752	\$25,376
4	-	\$60,153	\$2,949	\$1,316	\$64,418	\$89,794
5	-	\$60,639	\$2,949	\$1,316	\$64,904	\$154,698
6	-	\$61,101	\$1,475	\$658	\$63,233	\$217,932
7	-	\$61,535	-	-	\$61,535	\$279,467
8	-	\$61,941	-	-	\$61,941	\$341,408
9	-	\$62,315	-	-	\$62,315	\$403,723
10	-	\$62,657	-	-	\$62,657	\$466,379
11	-	\$62,962	-	-	\$62,962	\$529,342
12	-	\$63,230	-	-	\$63,230	\$592,571
13	-	\$63,457	-	-	\$63,457	\$656,028
14	-	\$63,640	-	-	\$63,640	\$719,669
15	-	\$63,778	-	-	\$63,778	\$783,447
Totals:	-\$320,000	\$924,727	\$25,600	\$153,120	\$783,447	-

We ran the economics of standalone ESS on the SDG&E, AL-TOU rate across (4) load profiles, and (3) storage system sizes

			Specs				ESS Bill Savings						Project Economics		
Load Profile	load factor	Rate schedule	Annual usage (kWh)	ESS kW relative to Load kW	ESS (kW)	ESS (kWh)	Total Bill Savings	"Energy" Savings	"Energy" Savings %	"Demand" Savings	"Demand" Savings %	ESS savings (\$/kWh)	Payback (yrs)	IRR (25-year)	NPV (25-year)
Church	14%	AL-TOU	218,581	25%	62.5	125	40,836	2,958	7%	37,878	93%	327	2.3	34.2%	349,890
Church		AL-TOU	218,581	50%	125	250	61,505	3,675	6%	57,829	94%	246	2.5	31.9%	515,592
Church		AL-TOU	218,581	100%	250	500	77,381	3,961	5%	73,420	95%	155	3.5	22.7%	560,953
Office building	36%	AL-TOU	592,138	25%	62.5	125	40,622	3,957	10%	36,665	90%	325	2.4	34.0%	347,561
Office building		AL-TOU	592,138	50%	125	250	58,562	7,354	13%	51,209	87%	234	2.6	30.6%	483,623
Office building		AL-TOU	592,138	100%	250	500	78,645	9,792	12%	68,853	88%	157	3.5	23.0%	574,679
Admin Building	69%	AL-TOU	1,326,589	25%	62.5	125	27,440	3,998	15%	23,441	85%	220	3.3	23.9%	204,331
Admin Building		AL-TOU	1,326,589	50%	125	250	39,979	8,054	20%	31,925	80%	160	3.7	21.5%	281,714
Admin Building		AL-TOU	1,326,589	100%	250	500	62,721	15,623	25%	47,098	75%	125	4.2	18.4%	401,666
Data Center	94%	AL-TOU	1,989,472	25%	62.5	125	12,496	3,535	28%	8,962	72%	100	6.8	9.9%	41,969
Data Center		AL-TOU	1,989,472	50%	125	250	18,488	5,068	27%	13,421	73%	74	7.4	8.5%	48,210
Data Center		AL-TOU	1,989,472	100%	250	500	22,331	5,256	24%	17,075	76%	45	11.1	3.3%	(37,184)

SDG&E, AL-TOU standalone ESS runs are generally strong; there is a lot of variance due to the load profile



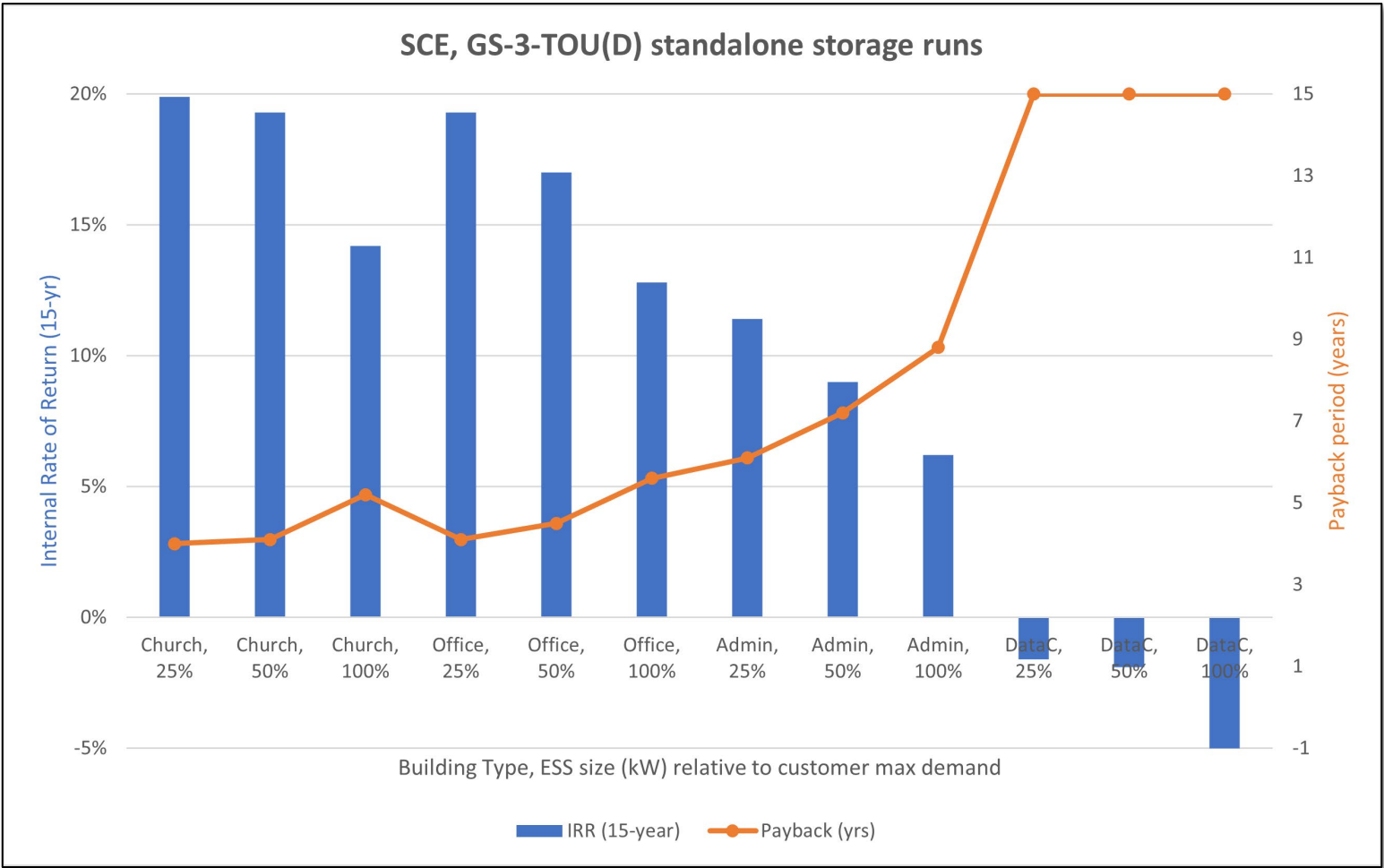
Payback periods range from 2.3 to 11.1 years

IRRs (15-yr) range from 3.3% to 34.2%

NPV's range from (\$37,184) to \$574,679

ESS savings range from \$45 to \$327/kWh

SCE, GS-3-TOU(D) standalone ESS runs are generally strong; there is a lot of variance due to the load profile



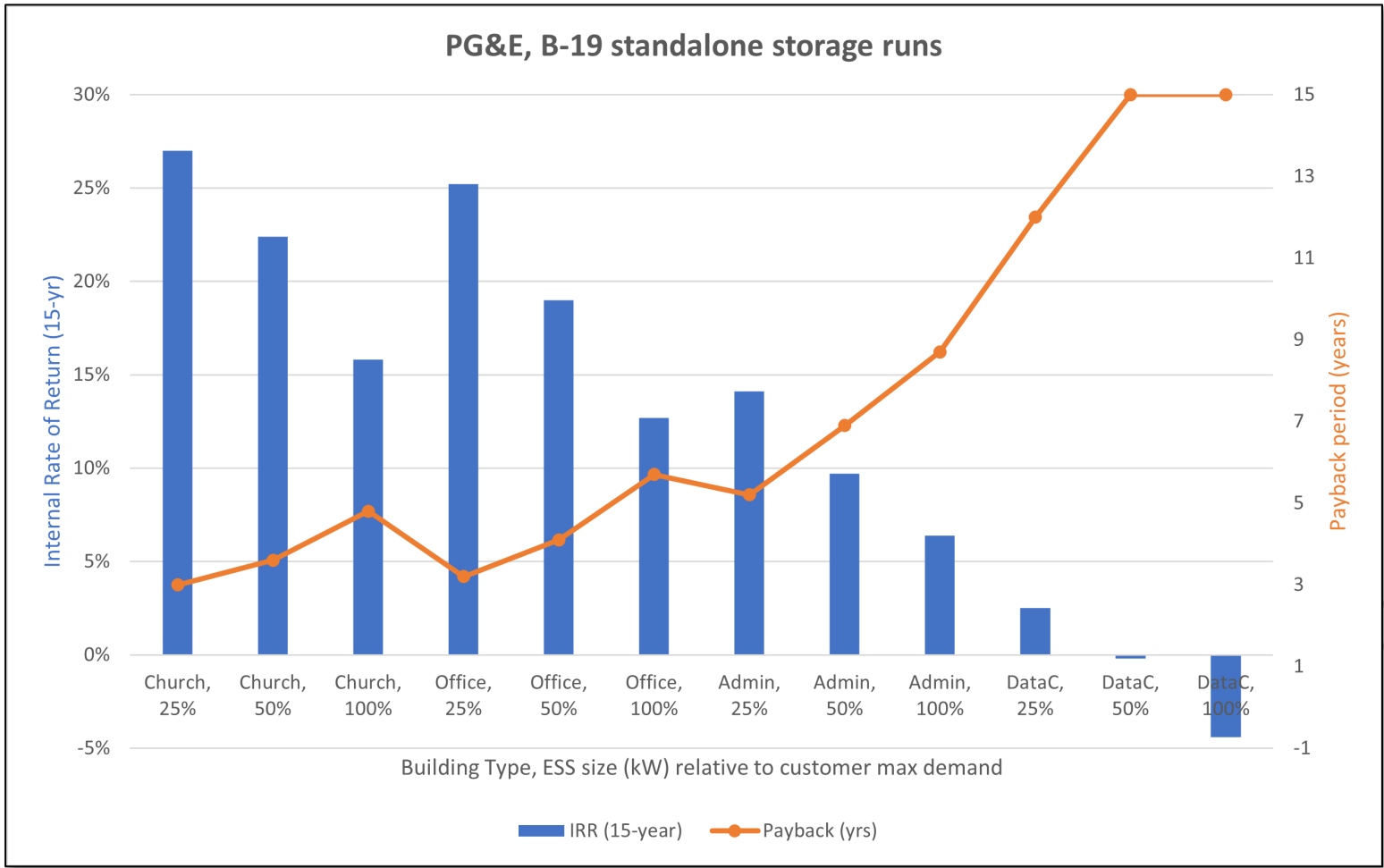
Payback periods range from 4 to 15+ years

IRRs (15-yr) range from (5%) to 20%

NPV's range from (\$176,339) to \$255,204

ESS savings range from \$19 to \$181/kWh

PG&E, B-19 standalone ESS runs are generally strong; there is a lot of variance due to the load profile



Payback periods range from 3 to 15+ years

IRRs (15-yr) range from (4%) to 27%

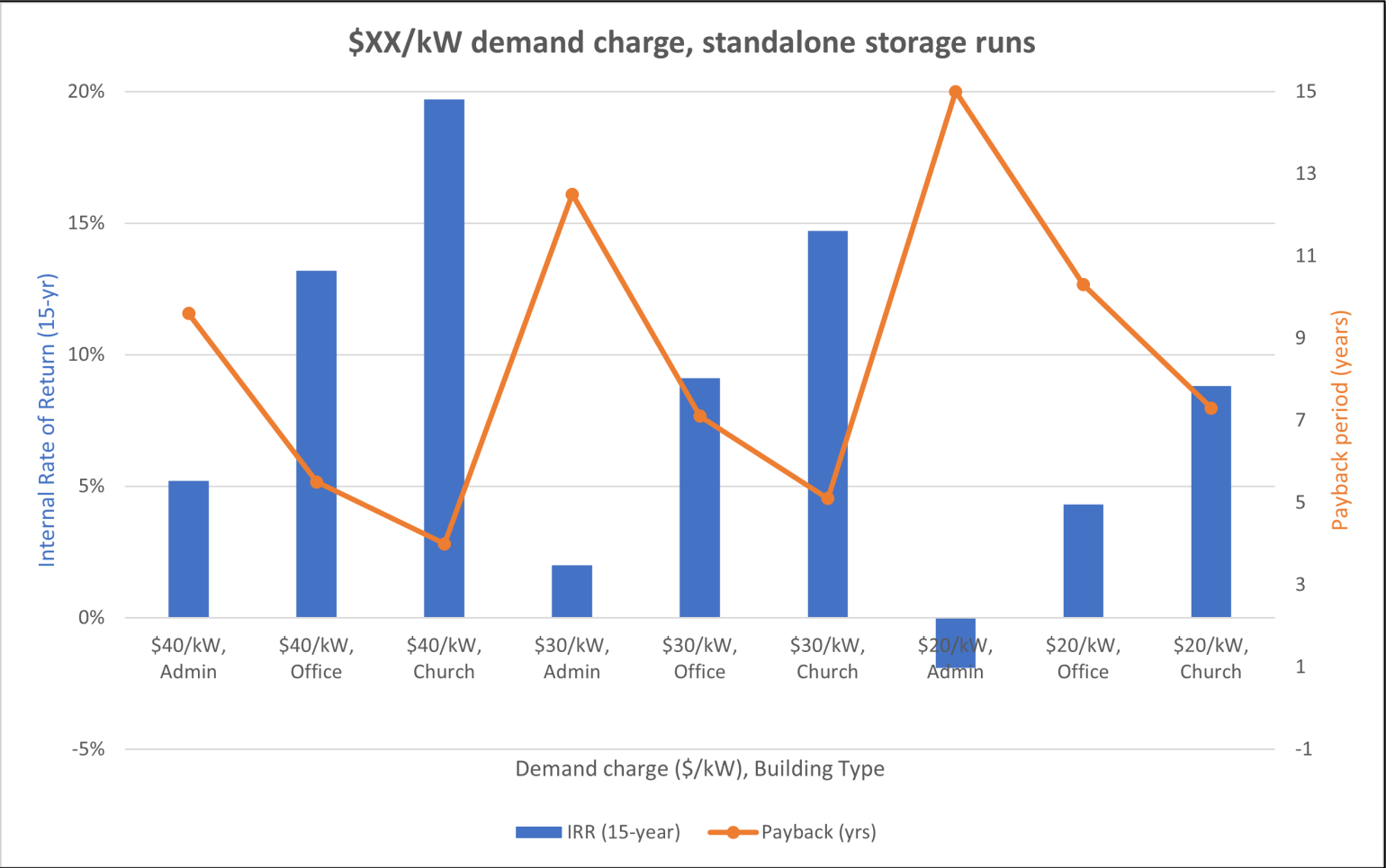
NPV's range from (\$463,868) to \$853,013

ESS savings range from \$19 to \$194/kWh

We ran the economics of standalone ESS against different fixed \$XX/kW demand charges

			Specs				ESS Bill Savings						Project Economics		
Load Profile	load factor	\$/kW NC demand charge	Annual usage (kWh)	ESS kW relative to Load kW	ESS (kW)	ESS (kWh)	Total Bill Savings	"Energy" Savings	"Energy" Savings %	"Demand" Savings	"Demand" Savings %	ESS savings (\$/kWh)	Payback (yrs)	IRR (25-year)	NPV (25-year)
Admin Building	69%	\$20/kW	1,326,589	50%	125	250	7,334	414	6%	6,920	94%	29	15+	-1.9%	(72,985)
Office building	36%	\$20/kW	592,138	50%	125	250	13,270	1,190	9%	12,080	91%	53	10.3	4.3%	(8,486)
Church	14%	\$20/kW	218,581	50%	125	250	18,882	1,282	7%	17,600	93%	76	7.3	8.8%	52,486
Admin Building	69%	\$30/kW	1,326,589	50%	125	250	10,794	414	4%	10,380	96%	43	12.5	2.0%	(35,391)
Office building	36%	\$30/kW	592,138	50%	125	250	19,310	1,190	6%	18,120	94%	77	7.1	9.1%	57,140
Church	14%	\$30/kW	218,581	50%	125	250	27,682	1,282	5%	26,400	95%	111	5.1	14.7%	148,100
Admin Building	69%	\$40/kW	1,326,589	50%	125	250	14,254	414	3%	13,840	97%	57	9.6	5.2%	2,203
Office building	36%	\$40/kW	592,138	50%	125	250	25,350	1,190	5%	24,160	95%	101	5.5	13.2%	122,766
Church	14%	\$40/kW	218,581	50%	125	250	36,482	1,282	4%	35,200	96%	146	4	19.7%	243,714

For different Demand Charges (\$XX/kW), standalone ESS runs can vary greatly due to both demand charge and load profile



Payback periods range from 4 to 15+ years

IRRs (15-yr) range from (2%) to 20%

NPV's range from (\$72,985) to \$243,714

ESS savings range from \$29 to \$146/kWh

Disclaimer: all of these were run at 50% sizing

Key takeaways of our standalone ESS with 30% ITC analysis

Economics vary greatly; ranging from very compelling to not viable

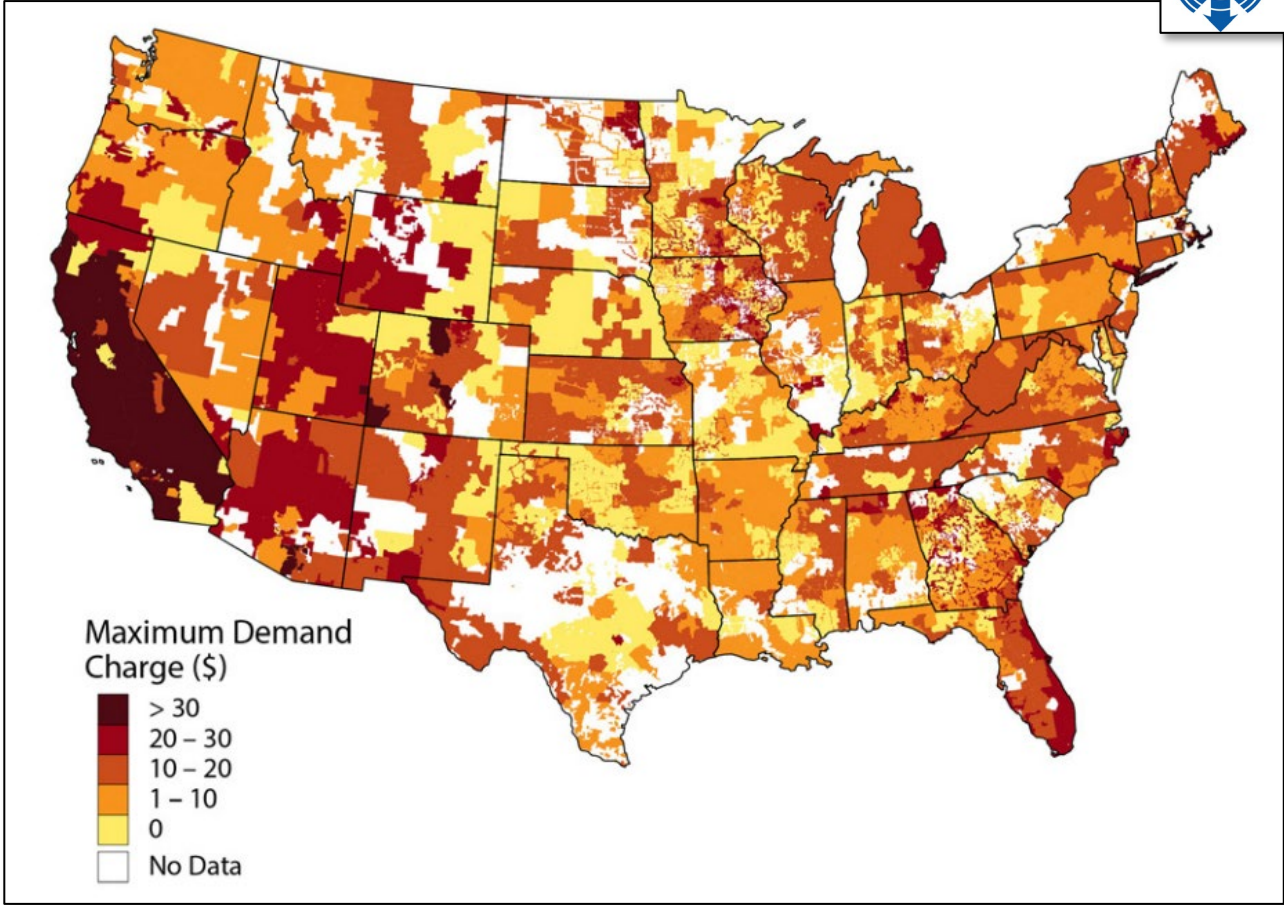
Demand charges are the most critical factor

Load Profile matters a lot

Ideal combo: high demand charge + spikey load profile

Optimal ESS sizing: strongest economics were the smaller-sized systems (ESS sized @ 25%, 50% of customer's max demand)

Which state markets are viable for standalone ESS projects with the 30% ITC?



Number of Customers Eligible for Demand Charge >\$20/kW	
California	1,081,000
New York	648,000
Georgia	216,000
Michigan	205,000
Massachusetts	180,000
Kentucky	41,000
New Mexico	24,000
Alabama	23,000
Texas	23,000
Iowa	23,000

Source: NREL, Identifying Potential Markets for Behind-the-Meter
Battery Energy Storage: A Survey of U.S. Demand Charges

For PV + ESS projects, savings can improve as a result of not having to 'charge from PV'

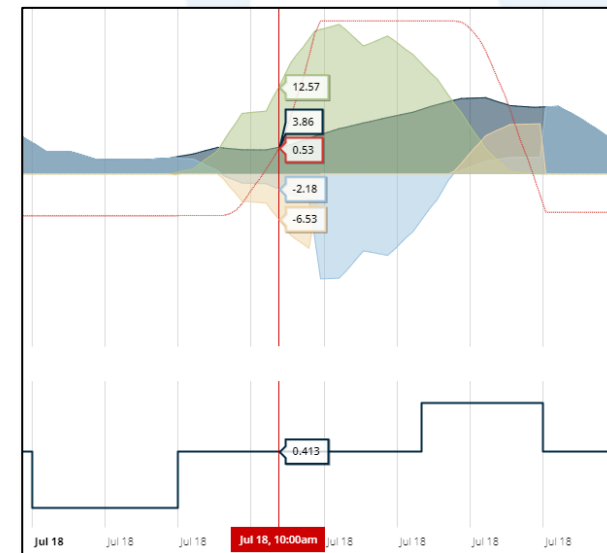
Remove 'charge from PV' requirement, gives more flexibility to ESS dispatch, increases value capture

The additional ESS savings depends on the rate tariff: big marginal savings are possible IF the night-time \$/kWh rate is much lower than the mid-day \$/kWh rate

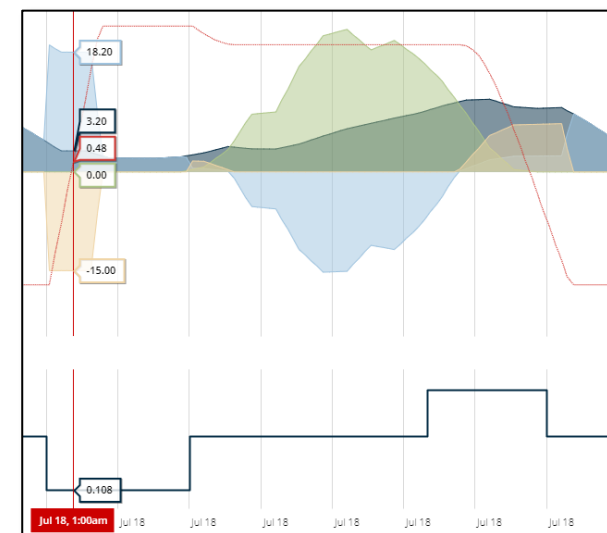
Middle of night charging de-risks ESS for early morning dispatch, enables EMS to get more aggressive

Disclaimer: likely only applicable for ESS projects placed in service post 12/31/22

Charge from PV



Charge from grid



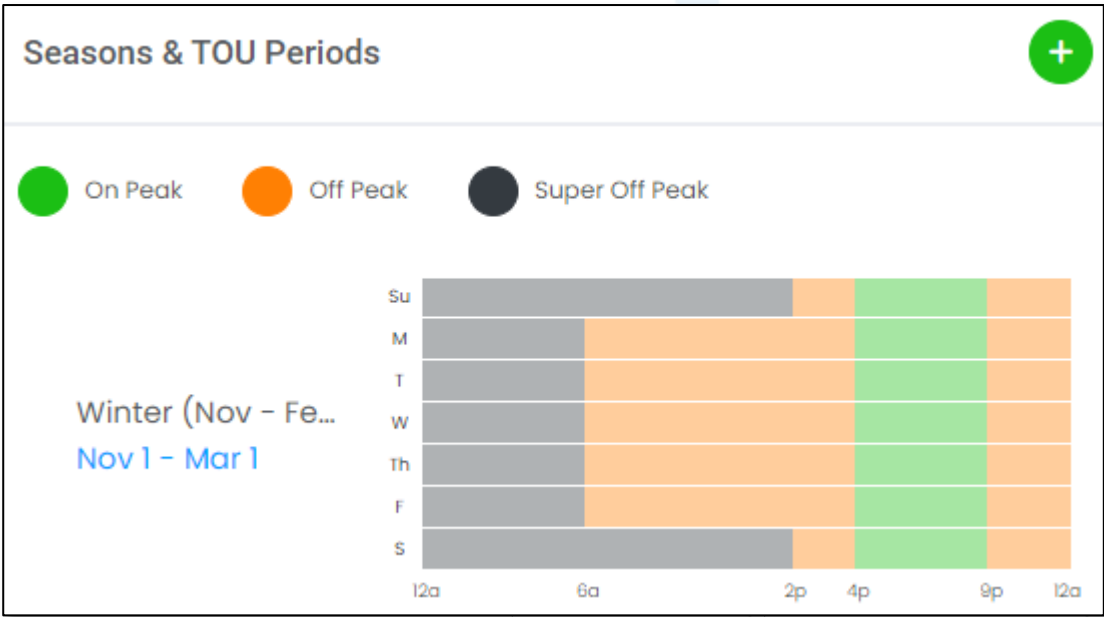
The SDG&E, EV-TOU-5 rate provides an extreme example where removing ‘charge from PV’ requirement would meaningfully boost ESS savings

Energy Charges +

TOU

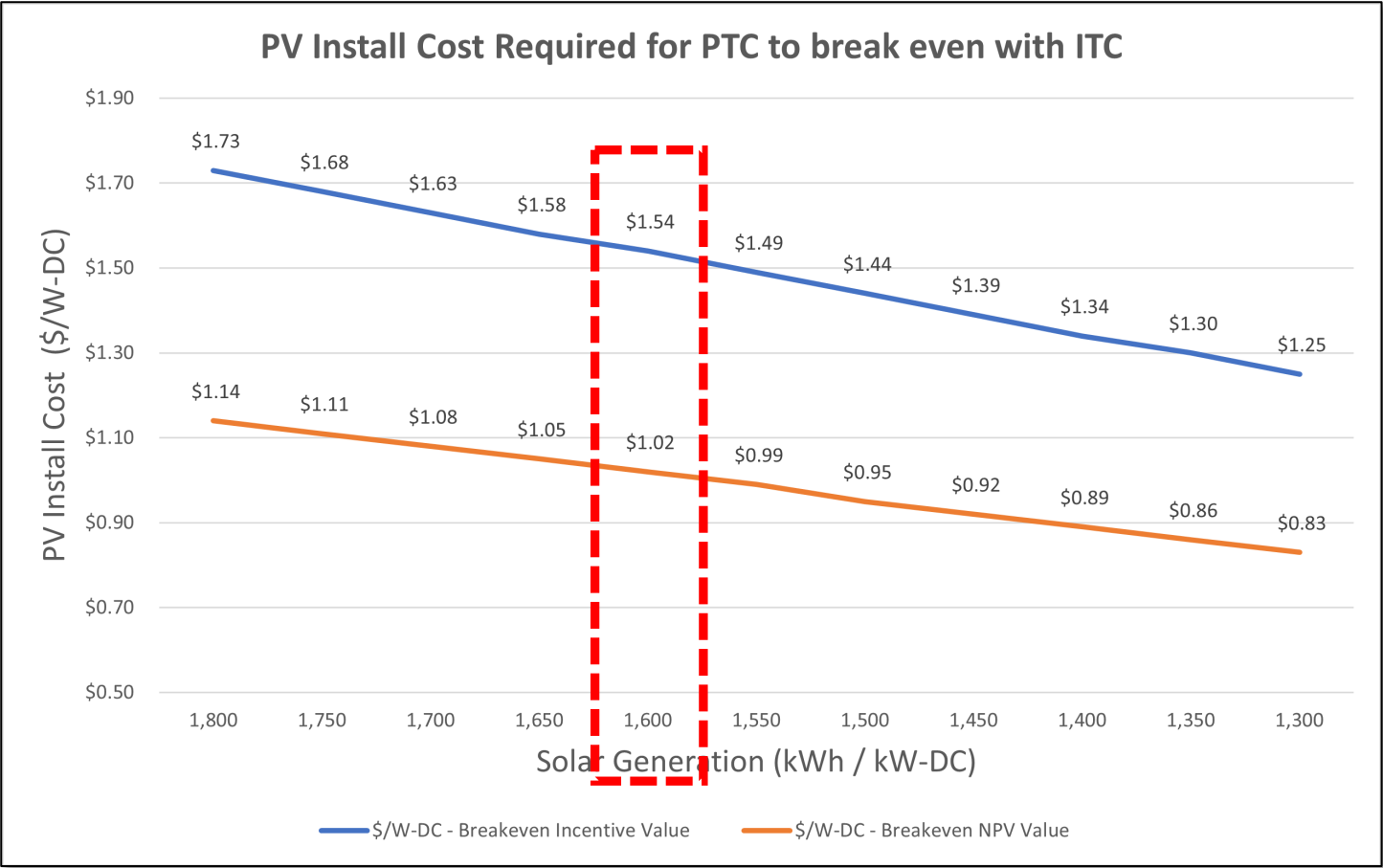
Bundled

Imports	W1	W2	W3	S1
On	\$0.4368	\$0.4368	\$0.4368	\$0.6758
Off	\$0.3869	\$0.3869	\$0.3869	\$0.4132
Super Off	\$0.1018	\$0.1018	\$0.1018	\$0.1083



Removing ‘charge from PV requirement’
ESS would capture **80% more savings**

For behind-the-meter PV projects, we think it will almost always make sense to select the ITC over the PTC



Production Tax Credit:
PTC \$26/MWh for 2022
10-year pay out
Rises with inflation

- Assumptions:
- \$26/MWh PTC
 - 3%/yr Inflation
 - 0.5% Degradation
 - 8% Discount Rate
 - no PTC adders

Actionable next steps to capitalize on IRA tax credits

1. **Circle back** to “on the fence projects” where economics were close (PV, PV+ESS)
2. **Standalone storage** seek out high demand charge + spikey load opportunities
3. **Retrofit opportunities** to add ESS to projects with PV
4. **Seek out ITC Adder opportunities:** low income, energy community, domestic content
5. **Direct pay opportunities:** non-profit, tax-exempt customers are great targets

ETB is supporting solar and storage developers to capitalize on the new tax credits within the IRA

All variations of the IRA tax credits are loaded into our incentive database (ITC, PTC, adders, direct pay)

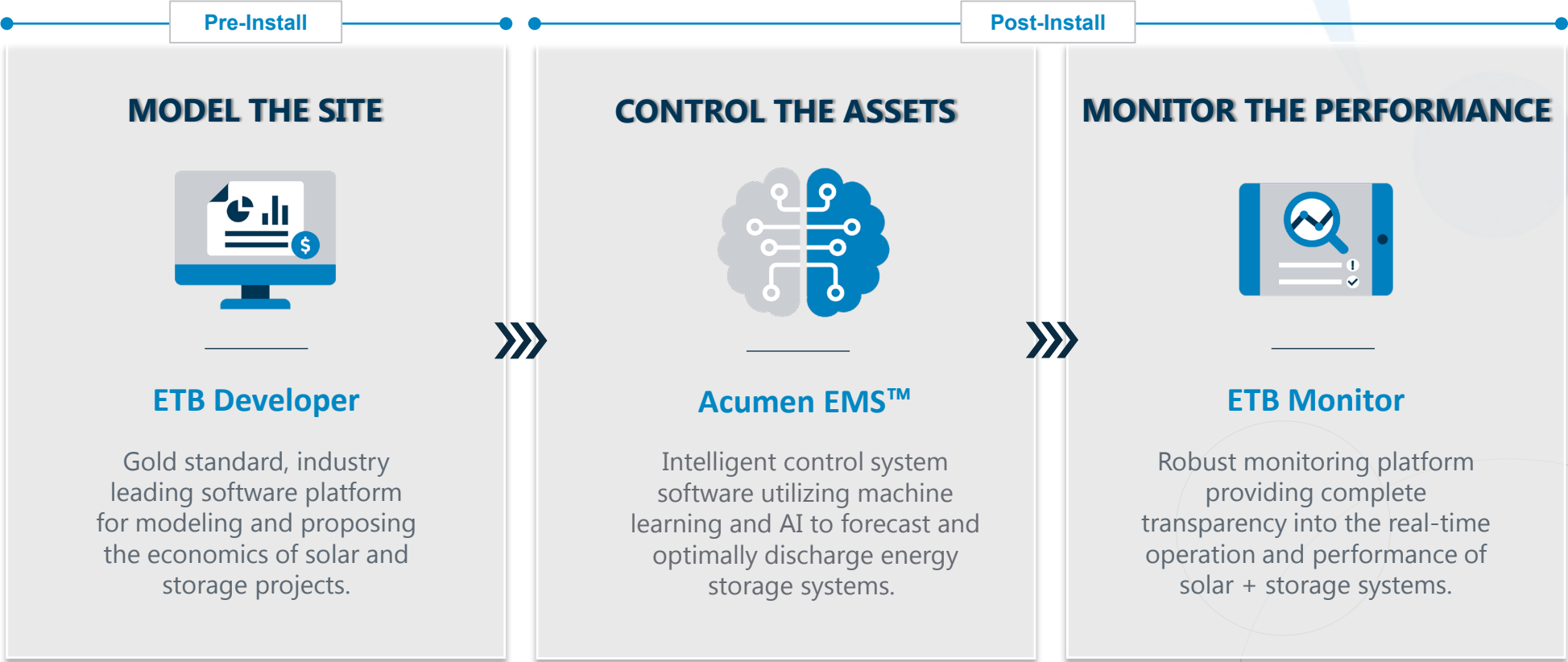
You can simulate ESS projects with either: 'charge from PV' or 'no charge requirements'

Retrofit modeling functionality is coming soon

Identify projects that qualify for adders (low-income, energy communities) in the geographies you operate

From Project Conception through End of Life

Our team and suite of products takes you through every step of your project's lifecycle





Q&A

Have additional questions? Contact us:

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APPENDIX SLIDES

SDG&E, AL-TOU standalone energy storage runs

			Specs				ESS Bill Savings						Project Economics		
Load Profile	load factor	Rate schedule	Annual usage (kWh)	ESS kW relative to Load kW	ESS (kW)	ESS (kWh)	Total Bill Savings	"Energy" Savings	"Energy" Savings %	"Demand" Savings	"Demand" Savings %	ESS savings (\$/kWh)	Payback (yrs)	IRR (25-year)	NPV (25-year)
Church	14%	AL-TOU	218,581	25%	62.5	125	40,836	2,958	7%	37,878	93%	327	2.3	34.2%	349,890
Church		AL-TOU	218,581	50%	125	250	61,505	3,675	6%	57,829	94%	246	2.5	31.9%	515,592
Church		AL-TOU	218,581	100%	250	500	77,381	3,961	5%	73,420	95%	155	3.5	22.7%	560,953
Office building	36%	AL-TOU	592,138	25%	62.5	125	40,622	3,957	10%	36,665	90%	325	2.4	34.0%	347,561
Office building		AL-TOU	592,138	50%	125	250	58,562	7,354	13%	51,209	87%	234	2.6	30.6%	483,623
Office building		AL-TOU	592,138	100%	250	500	78,645	9,792	12%	68,853	88%	157	3.5	23.0%	574,679
Admin Building	69%	AL-TOU	1,326,589	25%	62.5	125	27,440	3,998	15%	23,441	85%	220	3.3	23.9%	204,331
Admin Building		AL-TOU	1,326,589	50%	125	250	39,979	8,054	20%	31,925	80%	160	3.7	21.5%	281,714
Admin Building		AL-TOU	1,326,589	100%	250	500	62,721	15,623	25%	47,098	75%	125	4.2	18.4%	401,666
Data Center	94%	AL-TOU	1,989,472	25%	62.5	125	12,496	3,535	28%	8,962	72%	100	6.8	9.9%	41,969
Data Center		AL-TOU	1,989,472	50%	125	250	18,488	5,068	27%	13,421	73%	74	7.4	8.5%	48,210
Data Center		AL-TOU	1,989,472	100%	250	500	22,331	5,256	24%	17,075	76%	45	11.1	3.3%	(37,184)

SCE, GS-3-TOU(D) standalone energy storage runs

			Specs				ESS Bill Savings						Project Economics		
Load Profile	load factor	Rate schedule	Annual usage (kWh)	ESS kW relative to Load kW	ESS (kW)	ESS (kWh)	Total Bill Savings	"Energy" Savings	"Energy" Savings %	"Demand" Savings	"Demand" Savings %	ESS savings (\$/kWh)	Payback (yrs)	IRR (25-year)	NPV (25-year)
Church	14%	GS-3-TOU	218,581	25%	62.5	125	22,612	905	4%	21,707	96%	181	4	19.9%	151,871
		GS-3-TOU	218,581	50%	125	250	35,728	1,307	4%	34,421	96%	143	4.1	19.3%	235,520
		GS-3-TOU	218,581	100%	250	500	49,241	1,280	3%	47,961	97%	98	5.2	14.2%	255,204
Office building	36%	GS-3-TOU	592,138	25%	62.5	125	21,935	1,046	5%	20,889	95%	175	4.1	19.3%	144,519
		GS-3-TOU	592,138	50%	125	250	31,679	1,590	5%	30,089	95%	127	4.5	17.0%	191,529
		GS-3-TOU	592,138	100%	250	500	45,418	1,897	4%	43,521	96%	91	5.6	12.8%	213,658
Admin Building	69%	GS-3-TOU	1,326,589	25%	62.5	125	13,894	781	6%	13,113	94%	111	6.1	11.4%	57,158
		GS-3-TOU	1,326,589	50%	125	250	19,185	1,220	6%	17,965	94%	77	7.2	9.0%	55,781
		GS-3-TOU	1,326,589	100%	250	500	28,368	2,154	8%	26,214	92%	57	8.8	6.2%	28,411
Data Center	94%	GS-3-TOU	1,989,472	25%	62.5	125	4,669	554	12%	4,115	88%	37	15+	-1.6%	(43,078)
		GS-3-TOU	1,989,472	50%	125	250	7,338	880	12%	6,458	88%	29	15+	-1.9%	(72,940)
		GS-3-TOU	1,989,472	100%	250	500	9,524	948	10%	8,576	90%	19	15+	-5.0%	(176,339)

PG&E, B-19 standalone energy storage runs

			Specs				ESS Bill Savings						Project Economics		
Load Profile	load factor	Rate schedule	Annual usage (kWh)	ESS kW relative to Load kW	ESS (kW)	ESS (kWh)	Total Bill Savings	"Energy" Savings	"Energy" Savings %	"Demand" Savings	"Demand" Savings %	ESS savings (\$/kWh)	Payback (yrs)	IRR (25-year)	NPV (25-year)
Church	14%	B-19	655,741	25%	187.5	375	72,583	4,695	6%	67,888	94%	194	3	27.0%	570,902
		B-19	655,741	50%	375	750	110,919	6,173	6%	104,746	94%	148	3.6	22.4%	798,322
		B-19	655,741	100%	750	1,500	149,379	5,804	4%	143,575	96%	100	4.8	15.8%	853,013
Office building	36%	B-19	1,776,411	25%	187.5	375	67,429	5,376	8%	62,054	92%	180	3.2	25.2%	514,899
		B-19	1,776,411	50%	375	750	93,700	9,081	10%	84,619	90%	125	4.1	19.0%	611,230
		B-19	1,776,411	100%	750	1,500	124,100	10,983	9%	113,117	91%	83	5.7	12.7%	578,347
Admin Building	69%	B-19	3,979,771	25%	187.5	375	38,101	4,513	12%	33,588	88%	102	5.2	14.1%	196,237
		B-19	3,979,771	50%	375	750	53,490	7,946	15%	45,544	85%	71	6.9	9.7%	174,337
		B-19	3,979,771	100%	750	1,500	79,033	14,334	18%	64,699	82%	53	8.7	6.4%	88,682
Data Center	94%	B-19	5,968,418	25%	187.5	375	16,130	3,789	23%	12,341	77%	43	12	2.5%	(42,474)
		B-19	5,968,418	50%	375	750	23,320	5,207	22%	18,113	78%	31	15+	-0.2%	(153,465)
		B-19	5,968,418	100%	750	1,500	28,178	5,920	21%	22,258	79%	19	15+	-4.4%	(463,868)

\$XX/kWh demand charge, standalone energy storage runs

			Specs				ESS Bill Savings						Project Economics		
Load Profile	load factor	\$/kW NC demand charge	Annual usage (kWh)	ESS kW relative to Load kW	ESS (kW)	ESS (kWh)	Total Bill Savings	"Energy" Savings	"Energy" Savings %	"Demand" Savings	"Demand" Savings %	ESS savings (\$/kWh)	Payback (yrs)	IRR (25-year)	NPV (25-year)
Admin Building	69%	\$20/kW	1,326,589	50%	125	250	7,334	414	6%	6,920	94%	29	15+	-1.9%	(72,985)
Office building	36%	\$20/kW	592,138	50%	125	250	13,270	1,190	9%	12,080	91%	53	10.3	4.3%	(8,486)
Church	14%	\$20/kW	218,581	50%	125	250	18,882	1,282	7%	17,600	93%	76	7.3	8.8%	52,486
Admin Building	69%	\$30/kW	1,326,589	50%	125	250	10,794	414	4%	10,380	96%	43	12.5	2.0%	(35,391)
Office building	36%	\$30/kW	592,138	50%	125	250	19,310	1,190	6%	18,120	94%	77	7.1	9.1%	57,140
Church	14%	\$30/kW	218,581	50%	125	250	27,682	1,282	5%	26,400	95%	111	5.1	14.7%	148,100
Admin Building	69%	\$40/kW	1,326,589	50%	125	250	14,254	414	3%	13,840	97%	57	9.6	5.2%	2,203
Office building	36%	\$40/kW	592,138	50%	125	250	25,350	1,190	5%	24,160	95%	101	5.5	13.2%	122,766
Church	14%	\$40/kW	218,581	50%	125	250	36,482	1,282	4%	35,200	96%	146	4	19.7%	243,714