APPENDIX E

Site Energy Load Evaluation

Site Energy Load Evaluation

The Ranch at Madison
La Quinta, California

SECURE ENERGY SOURCES

June 4, 2026

Executive Summary

The purpose of this analysis is to use a different approach to identify the peak electrical demand and overall electrical use of the proposed development. The typical and current method at this stage of the development's process is to use an approximation based on size of electrical panels using connected load. This approach yielded results of ~10,500 kW peak demand.

A different approach is to perform the analysis using realistic annual hourly load profiles for all the energy uses in the development and overlay them to find the coincident peak demand and total energy use. The rest of this report describes how to use this approach to evaluate The Ranch at Madison project.

The coincident peak demand is the period of the highest system load or the maximum of the sum of all the loads during the same time interval. To find this, (14) loads were identified and realistic hourly load profiles were developed for each. The load profiles were developed using a combination of Excel tools and online microgrid analysis software, Xendee.

The resulting Xendee model provides an actual expected coincident peak demand of 3,324 kW which is about 30% of the typical approach. Additionally, the Xendee model produces the expected annual electrical use of about 5,886,765 kWh of which 990,197 kWh is provided by the 580 kW DC community solar PV arrays and the remaining 4,896,567 kWh by the linear generators.

The baseline, island mode, microgrid solution, not connected to the utility, is installation of (11) 250kW Mainspring linear generators and (1) 1,000kW/2,500kWh battery energy storage system (BESS). The recommended solution is (13) linear generators and (3) 1,000kW/2,500kWh BESS units to provide significant redundancy and continued full load operation for an island mode microgrid. This provides an N+2 level design for the linear generators and N+2 level solution for the BESS units.

Project Overview

The proposed project is a master-planned community blending restoration and recreation in a high-quality residential setting. It will feature custom home lots, "sports cottages", villas, golf amenities, a clubhouse with fitness and spa, family play areas, sports courts, a scenic lagoon for water activities, internal trails for multi-modal use, and authentic farm-to-table dining with unique on-property experiences. The project is being developed by the Discovery MM Club, LLC. See below for a Master Plan Concept plan.

Secure Energy Sources, LLC
PO Box 671
La Quinta, CA 92247

LEGEND

1. **Main Entry**
   - Guard House (± 800 SF)
2. **Racquet Courts**
   - (1) Entry Pavilion (± 2500 SF)
   - (2) Tennis
   - (3) Padel
   - (12) Pickleball
3. **Kids Playground**
4. **Farm to Table**
   - (1) Greenhouse (± 3000 SF)
   - (1) Kitchen (± 1500 SF)
   - (1) Bar (± 300 SF)
   - (2) Restrooms (± 120 SF)
   - (1) Storage (± 150 SF)
5. **Event Barn (± 10000 SF)**
   - Golf Simulator
   - Bar
   - F&B / Grill
   - Kid's Club
6. **Conceptual Village Units (20 unit)**
7. **Event Lawn**
8. **Activity Lagoon**
   - (9) Cabanas (± 120 SF)
   - (1) Beach Club (± 850 SF)
9. **Fitness**
10. **Wellness /SPA**
11. **Starter Shack (± 1000 SF)**
12. **Short Game Area**
13. **Back of House**
    - (1) Commissary (± 2000 SF)
    - (1) Golf Course Maintenance Facility
14. **Emergency Vehicular Access (EVA)**
15. **Service Access**
16. **Secondary Entry**
17. **Community Maintenance Access**
18. **Recirculating Water Feature & Irrigation Ponds**
19. **Golf Cart Tunnel**

The Ranch At Madison

Development Summary

August 14, 2025

LAND USE	PRODUCT DESCRIPTION	
Estate Lots	±0.75 AC (160' X 200')	31
Golf Cottages	± 0.30 AC (85' X 150')	34
Village Units	± 2,500 SF	20
TOTAL		85

Master Plan - Concept 10.0

AUGUST 14,2025

VITA

PLANNING | LANDSCAPE ARCHITECTURE | ARCHITECTURE

THE RANCH AT MADISON

La Quinta, CA

SECURE ENERGY SOURCES

Residential Analysis and Load Profiles

The residential load profile is the most significant of the (14) load profiles so was subsequently evaluated the most critically and confirmed diligently.

The base home energy use and load profile starts by using 2022 California Title 24 certified hourly energy models of seven different model home configurations with a variety of total square footage from a **different** project. These models were created by approved professionals. The hourly energy use and solar photovoltaic (PV) performance were output from the seven model homes and were input into an Excel spreadsheet for further modification and analysis. See **Exhibit C Residential Load Profile Description** and **Exhibit B Basis for Residential Energy Use** for details on the origination of the data, modifications to match expected actual energy consumption, and outside references confirming the resulting peak electrical demand and annual energy consumption. The following is a summary of the effort.

Once the Title 24 hourly load profiles were in the Excel file, the following modifications were performed to more accurately reflect the total energy use of the specific homes in the development.

Pool Pumping and Lights, Landscape Lights Profile

An hourly load profile was created to simulate the pool pumping and spa pumping, pool and spa lights, and the landscape lighting and their respective hours of operation. The resulting hourly profile is created with an Excel spreadsheet based on each type of load and which hours of the day the load operates. This data was added to the previous hourly load profile.

EV Charging Load Profile

An EV charging load profile was created and added to the base energy use. The EV charging profile used was based on the average of eight different charging habits, mileage driven, efficiency in kWH/mile, battery size, charging levels, and charging timing. All charging is assumed to use a Level 2 peak charging output of 9.6 kW and each home was expected to have one charger. This hourly profile was added to the base hourly profile.

Actual Bill Tuning/Modifications

Once the total expected base energy use profile was created as a sum of the base energy plus the EV charging and pool/spa energy use, it was compared to the actual monthly and annual consumption for one of the model homes, to a large database of residential energy

use on the ResStock website, and to the 2020 Residential Energy Consumption Survey (RECS). See **Exhibit B Basis for Residential Energy Use** for a detailed description of the data from ResStock and RECS. Using the actual data, the hourly load profiles were "tuned" for each month to match the monthly actual usage. The tuning increased the overall annual home use by roughly 50%. The tuning by month was applied to the hourly load profile for the respective month. The results by using this approach were then compared to the ResStock and RECS data for the same size home. The comparison found the current analysis results of 35,754 kWh to be appropriately in line with the ResStock annual usage of 36,856 kWh and the 2020 RECS data of 36,302 kWh for a 4,038 SF residential home built to current standards with the same amenities in the Coachella Valley. This validates the overall approach and creation of reasonable residential hourly load profiles for use in the current analysis.

One final adjustment was made to accommodate the expected seasonal use of The Ranch at Madison development. Using the monthly tuning factors, the six months from the middle of April to the middle of October were reduced by 5% to reflect a lower occupancy.

Balancing Home Quantities

Since the hourly load profiles are representative of the seven model homes from the **different** project, an added modification must be made to account for the total residential square footage of The Ranch at Madison. The Ranch at Madison is expected to have (31) estates of 16,335 SF each, (34) golf cottages of 6,375 SF each, and (20) villas of 2,500 SF each for a total of 773,135 SF of residential space.

To get the same amount of residential space as The Ranch at Madison required (209) of the model home profiles from the **other** project. See table below for the calculations.

Equivalent Original Houses to TRAM Houses								
201	202	301	302	303	401	402		
22	33	30	30	32	31	31		
					Total	209		
Plan Cond. SF								
2,315	2,635	3,333	3,694	4,038	4,426	5,090		
Total SF								TOTAL SF
50,930	86,955	99,990	110,820	129,216	137,206	157,790		772,907

Rough # and SF of TRAM Housing									
Golf Cottage	Custom	Village Units							
34	31	20	0	0	0	0			
					Total	85			
Plan Cond. SF									
6,375	16,335	2,500	-	-	-	-	0		
Total SF								TOTAL SF	
216,750	506,385	50,000	-	-	-	-		773,135	1.000295

This approach created a solid total residential energy profile but overestimates the energy use in the following areas.

This first area is the impact of the pool and spa pumping, pool and spa lighting, and landscape lighting energy. As the created load profile for this energy use was multiplied by (209) when in fact there will only be (85) new homes, the energy use is overstated by about 70% even when calculating some increase for the larger home sizes. Therefore, a reduction factor of 0.5885 was used to adjust this use down to match expected. See table below for the respective calculations. By using the reduction factor in this way, the hourly load profiles reduced total energy consumption and peak demand which should accurately reflect the actual expected use.

	Equivalent Original Houses to TRAM Houses								
	201	202	301	302	303	401	402		
	22	33	30	30	32	31	31		
Pool/Spa	9,383	9,383	9,383	9,383	9,383	9,383	9,383		
EV Charging	-	-	-	-	-	-	-		
Subtotal	9,383	9,383	9,383	9,383	9,383	9,383	9,383	Total kWh	
Total	206,426	309,639	281,490	281,490	300,256	290,873	290,873	1,961,047	
						Other Use Ratio		0.5885	
						Difference		806,938	kWh

	Rough # and SF of TRAM Housing			
	Golf Cottage	Custom	Village Units	
	34	31	20	
Pool/Spa	9,383	9,383	9,383	
EV Charging	-	-	-	
Subtotal	9,383	9,383	9,383	
Factor	1.5	2.0	0.5	
Subtotal	14,075	18,766	4,692	Total kWh
Total	478,533	581,746	93,830	1,154,109

The second area where using the analysis approach for the **other** development overstates energy consumption for The Ranch at Madison is the impact of (209) EV charging use profiles. The Ranch at Madison intends to install one EV charging outlet for each Estate, Cottage, and Villa plus two other four-charger stations for a total of (93). The annual use of

each of the (209) chargers modeled as part of the base usage is 4,818.9 kWh resulting in an overestimation of 558,992 kWh to the project. This was a large enough impact it was pertinent to factor it out of the final analysis. To eliminate this overestimation, two areas of the car charging profile were modified. Each of the eight profiles used to create the average profile were modified by the ratio of 93 to 209 which is 44.5%. The first section modified is the number of annual miles driven which was reduced by the 44.5% ratio to obtain an average annual use of 2,144.3 kWh. The second change made was to reduce the peak demand of each charger from 9.6 kW to 4.272 kW. The results of both changes reasonably reflect the expected annual usage and peak demand from the car chargers for The Ranch at Madison project.

The third and last item which causes overestimation of energy consumption and peak demand is the amount of exposed wall area to conditioned space. The approach of using (209) smaller homes has a significantly higher exterior wall to conditioned square footage ratio than will occur when using (85) homes sized at 16,335 SF, 6,375 SF, and 2,500 SF respectively for the Estates, Villas, and Village Units. A reasonable comparison was made which resulted in an expected overstated energy use of 7.42%. See table below.

	Equivalent Original Houses to TRAM Houses							
	201	202	301	302	303	401	402	
	22	33	30	30	32	31	31	
						Total	209	
1.618	Plan Cond. SF							
use 1:1.618 ratio	2,315	2,635	3,333	3,694	4,038	4,426	5,090	
W	38	40	45	48	50	52	56	
L	61	65	73	77	81	85	91	
Check	2,315	2,635	3,333	3,694	4,038	4,426	5,090	
Wall Perimeter	198	211	238	250	262	274	294	
H	12	12	12	12	12	12	12	
Wall Area	2,377	2,536	2,852	3,002	3,139	3,286	3,524	SF
Total Wall Area	52,287	83,675	85,552	90,066	100,444	101,873	109,248	623,145
Wall Aspect Ratio - Architectural Golden Ratio of 1:1.618.						Wall Area Ratio		1.3712
Known as the "divine proportion". Derived from the Fibonacci sequence.						% of Total Energy Use		20% Minimum Portion of Total Energy Use by Exterior Walls for New Home Construction
Wall heights for all houses are estimated.						Overall Impact		7.42%

	Rough # and SF of TRAM Housing			
	Golf Cottage	Custom	Village Units	
	34	31	20	
		Total	85	
1.618	Plan Cond. SF			
use 1:1.618 ratio	6,375	16,335	2,500	
W	63	100	39	
L	102	163	64	
Check	6,375	16,335	2,500	
Wall Perimeter	329	526	206	
H	14	16	9	
Wall Area	4,601	8,418	1,852	SF
Total Wall Area	156,443	260,947	37,047	454,437

The base energy use of the residential loads is 3,948,471 kWh prior to adding Pool & Landscape, Car Charge, and impacts of Title 24 solar PV and batteries. This results in overstated energy use of 292,976 kWh annually. There was no reasonable way to eliminate this overstatement in the hourly load profiles, so this impact was **not** factored out of the final analysis.

The final hourly load profile for the combined residential use at The Ranch at Madison contained modifications for summer reduced occupancy, correction of the pool and spa pumping, pool and spa lighting, and landscape lighting energy use, and correction of the car charging energy use. This profile also includes the required Title 24 solar PV and battery required for each residence. The profile was imported into Xendee.

Load Profiles for Other Buildings

The load profiles for the various common area facilities including the guard house, entry pavilion, farm to table, event barn, beach club, fitness center, wellness/spa, starter shack, and commissary were created using different methods.

The effort started with evaluating the ComStock database of energy use for commercial building types in the US. ComStock tracks (15) different building types in all climate types in the U.S. This includes age and size of all the facilities. All the data is stored and available from the Open Energy Data Initiative (OEDI). See **Exhibit A Basis for Commercial Building Energy Use** for detailed information on the effort and results from downloading and analyzing the data to accurately reflect the peak demand and total energy use for the (15) different building types appropriate for this region. The data was collected on a per square foot basis to be applicable to any sized facility. See below for results.

	Phoenix, AZ	Peak kW	Ave SF	Peak Summer W/SF	Annual kWh/SF	Annual kWh	Load Factor
1	Full Service Restaurant	128.62	9,419	13.6553	64.298	605,623	0.5375
2	Grocery Store	262.81	36,762	7.1490	45.489	1,672,284	0.7264
3	Hospital	1,350.15	299,918	4.5017	24.002	7,198,760	0.6087
4	Large Hotel	278.94	134,676	2.0712	11.652	1,569,242	0.6422
5	Large Office	630.40	249,006	2.5317	13.577	3,380,832	0.6122
6	Medium Office	164.48	52,291	3.1455	15.123	790,814	0.5488
7	Outpatient	152.98	37,973	4.0285	18.627	707,313	0.5278
8	Primary School	217.26	46,539	4.6683	21.075	980,796	0.5154
9	QuickService Restaurant	47.54	3,071	15.4819	81.354	249,803	0.5999
10	Retail Standalone	116.17	22,980	5.0550	19.995	459,501	0.4516
11	Retail Stripmall	305.40	55,348	5.5178	26.624	1,473,581	0.5508
12	Secondary School	547.79	109,954	4.9820	21.021	2,311,392	0.4817
13	Small Hotel	45.62	24,706	1.8467	8.870	219,152	0.5483
14	Small Office	45.49	12,987	3.5025	15.174	197,064	0.4946
15	Warehouse	82.10	104,982	0.7820	3.918	411,300	0.5719

Another benefit from the OEDI data is the creation of hourly energy use load profiles (EULP) for the (15) different facility types. The EULPs were modeled and tuned with real usage data, to provide hourly energy use load profiles for all the building types. These profiles are utilized in Xendee for creating profiles for specific buildings entered in the program. For more information on how the EULPs were created and their basis, refer to **Exhibit A Basis for Commercial Building Energy Use** and the OEDI website. See **Exhibit E Xendee Input Data** for specifics on each building load profile including a visual representation.

For The Ranch at Madison, one of the building types from above was selected to best represent the energy use and peak demand for the guard house, entry pavilion, farm to table, event barn, beach club, fitness center, wellness/spa, starter shack, and commissary buildings. The building types chosen are expected to be conservative representations of the actual use. See the rows highlighted in blue below for the building and building type assigned and the expected corresponding peak electrical demand and energy use.

The Ranch At Madison									
Approximate Energy Summary by Use									
								Data from Xendee Load Profiles	
Building Name	**Building Use Profile**	**Building Size**	**Peak W/SF**	**Peak kW**	**Annual kWh/SF**	**Annual kWh**	**Load Factor**	**Peak kW**	**Annual kWh**
Estates, Golf Cottages, Villas	Modified Modeling Data	773,135	3.78	2,925.54	2.74	2,118,651	8%	2,741.60	2,118,651
Guard House	Small Office	800	3.50	2.80	15.17	12,139	49%	2.80	14,372
Entry Pavilion	Small Office	2,500	3.50	8.76	15.17	37,935	49%	8.80	45,169
Farm to Table	Full Service Restaurant	2,070	13.66	28.27	64.30	133,096	54%	28.30	178,762
Event Barn	Full Service Restaurant	10,000	13.66	136.55	64.30	642,977	54%	136.60	862,856
Beach Club	Quick Service Restaurant	850	15.48	13.16	81.35	69,151	60%	13.20	83,362
Fitness Center	Retail Standalone	20,000	5.05	101.10	20.00	399,907	45%	101.10	465,333
Wellness/Spa	Retail Standalone	14,000	5.05	70.77	20.00	279,935	45%	70.80	325,871
Starter Shack	Retail Stripmall	1,000	5.52	5.52	26.62	26,624	55%	5.60	25,567
Commissary	Retail Standalone	2,000	5.05	10.11	20.00	39,991	45%	10.10	46,487
Maintenance Building	Modified Actual Data	N/A		97.10		114,856	14%	97.10	114,856
Pump Station	Modified Actual Data	N/A		433.90		724,222	19%	433.90	724,222
Activity Lagoon Pumping	Calculated Data	N/A		22.55		156,596	79%	22.55	156,596
Area Lights	Calculated Data	N/A		113.25		315,999	32%	113.25	315,999
				3,969.38		**5,072,079**	**Total**	**3,785.70**	**5,478,103**
									406,024

The buildings were input into Xendee using the peak W/SF factor for each building as this was the most conservative approach and is of most importance when designing a microgrid. Other important input factors were the use of Phoenix, AZ weather data and "New Construction". The Phoenix weather data is comparable to the California climate zone 15 designation for this project. California climate zone 15 uses the weather data from Palm Springs airport. Details on the most current ASHRAE design weather data for both locations are in **Exhibit A Basis for Commercial Building Energy Use**.

Once the buildings were input, Xendee provides the corresponding annual energy use for each building. The Xendee calculated amount overstates the annual energy use calculated above by a total of 406,024 kWh validating the conservative approach.

When the 406,024 kWh overestimation is combined with the overestimation of the residential energy use by 292,976 kWh, the project energy consumption is overestimated by 13.8% from the annual project kWh noted in the table above. This appears to be an adequate level of conservative usage for the project.

Pump Station Load Profile

For this load profile and the following profiles, see **Exhibit D Other Loads Descriptions** for more information. The basis for this load profile was the actual hourly use data from Imperial Irrigation District (IID) for a similar pump station for a similar sized development located in the area. The IID data was only available for about six months of the year so a matrix of weekday and weekend hourly energy use profiles during the summer, winter, and shoulder months were created from the actual data and then input into the appropriate days of the respective missing data. The actual monthly utility bills were obtained to compare and modify the extrapolated days. The newly created hourly data for the missing days was summed up for the meter read dates corresponding to the monthly utility bills and compared to the utility bill reading. This comparison was used to create a modification factor for each month which was applied to the extrapolated data and results in an hourly load profile that matches the respective utility bills and provides a reasonable corresponding hourly load profile. The resulting hourly load profile was imported into Xendee.

Maintenance Building Load Profile

The basis for this load profile was the actual hourly use data from Imperial Irrigation District (IID) of a similarly sized maintenance building for a similar sized development located in the area. Like the Pump Station Load Profile, the IID data was only available for six months of the year, so it was extrapolated and modified as described above to create a full year load profile. The resulting hourly load profile was imported into Xendee. See **Exhibit D Other Loads Description** for more information.

Area Lighting Load Profile

The area lighting load profile was created using the three main types of lighting uses. One use covers the racquet courts, event lawn, kid's playground, and short game area called Activity Lighting. Another covers the greenhouse and the final one covers all the common areas such as streets, parking, cart paths, tunnels, entrances, and common areas by the activity lagoon, event lawn, fitness, and wellness buildings.

The Master Plan was used to calculate all areas and distances for the three types of lighting. See **Exhibit D Other Loads Description** for the basis of the areas used and subsequent calculations. The number of watts per square footage for the different activities was referenced from the 2022 California Energy Efficiency Standards (Title 24), section 140.6 and 140.7 for lighting power allowances. The common areas were assigned

0.019 watt/SF and totaled 16.75 kW. The racquet courts were assigned 1.10 watt/SF and the rest of the activity areas were assigned 0.15 watt/SF for a total of 95.0 kW. The greenhouse was assigned 0.50 watt/SF for a total of 1.5 kW. The common area and greenhouse lights are expected to operate 12 hours per day and the activity areas 7 hours per day in the evenings, every day of the year.

The three individual hourly load profiles were created within Excel and summed for each hour, and the resulting load profile was input into Xendee.

Activity Lagoon Pumping

The Activity Lagoon pumping load profile is based on two 20 HP pumps using variable frequency drives which operate at 90% speed for 18 hours per day and at 50% speed for the remaining six hours per day for every day of the year. This hourly load profile was created using Excel and imported into Xendee. See **Exhibit D Other Loads Description** for the basis of the calculations used to size the pumps.

Modeling a Solution

A project was created in Xendee and the (14) load profiles from above were input and overlaid upon the development site satellite view in a rough fashion like the Master Concept layout. The actual location of the project components is not pertinent to this effort and does not affect the solution. See **Exhibit E Xendee Input Data** for details of the effort.

The next step involved putting information about the community solar PV amount of 580kW DC, battery energy storage system (BESS), and linear generators into Xendee. Xendee will use this information when it performs a simulation to satisfy the load. The community solar PV was input such that Xendee had to use it as part of the solution, but Xendee was allowed to determine the optimum combination of linear generators and BESS units.

Xendee was then asked to perform an optimization simulation based on upfront capital costs of the different generation sources. This case was called Base Solution. The expected results are the combination of generation sources necessary to satisfy the project load profile assuming all equipment is available every hour of the year.

See **Exhibit F Xendee Output Data** for details on the results.

The result for the Base Solution was (11) Mainspring 250kW linear generators, one 1,000 kW/2,500 kWh Generac BESS, and 580kW of community solar PV.

The Xendee model notes a coincident peak demand for the development of 3,324 kW, electrical production from the linear generators of 4,896,567 kWh and the community solar PV production of 990,197 kWh for a total of 5,886,765 kWh. The coincident peak demand occurs on June 29 at 8:00 p.m when the outside temperature is 111°F and is mostly determined by the peak demand for the residential loads. These values are inclusive of the power factor input for each load profile.

A total of 372,614 therms of natural gas were consumed by the linear generators based on their respective efficiency at producing the necessary electrical usage. The Xendee output reports the natural gas use in kWh, so this value was converted to therms.

Evaluating Xendee Solution

Manually validating the reasonableness of the Xendee solution was the next step. See **Exhibit G Manual Load Profile Analysis** for the complete results. The evaluation begins by downloading the hourly time series profiles for the nine buildings Xendee created. These .csv files were added to a new Excel file named "TRAM Hourly Load Profile Summary". The other five hourly load profiles were also added to the new Excel file. The power factor for each load that was input into Xendee was then applied to each profile. The (14) hourly load profiles were then summed up to create the appropriate load for the generation system. The result is a total annual use of 5,759,383 kWh. This is 127,382 kWh less than the Xendee calculated amount of power produced by the linear generators and community solar PV. The manual methodology does not include the BESS parasitic losses of 42,223 kWh. The remaining 85,159 kWh is attributed to the unique DayTypes data reduction methodology used by Xendee. This manually validates the Xendee model.

The community solar PV hourly load profile was created by using the Title 24 hourly profile and extrapolating it to the 580 kW of community solar PV in the Xendee solution. This profile was also added to the Excel file. A simple change for size allows seeing the impact on the overall load profile and microgrid solution if different sized community solar PV is utilized however the comparison used the 580-kW size.

Two columns were then calculated to model the microgrid BESS solutions impact on the load being passed to the Mainspring units. The BESS model is like the model used for each home profile such that it has a minimum state of charge, capacity, charge and discharge efficiencies. For the community level BESS, a C rate was also modeled. The C rate is how fast the BESS can charge and discharge. All the BESS inputs are easy to change to allow seeing the impact on the microgrid solution. Adding the BESS columns with the ability to see immediate changes was helpful but did not allow controlling the discharge rate to

reduce the peak loads seen by the linear generators. Adding the programming for this function was beyond the scope of the manual analysis. The benefits of using the BESS programming were subsequently restricted to seeing what the addition of more BESS units or size would do to limit the amount of residential and community solar PV that was curtailed.

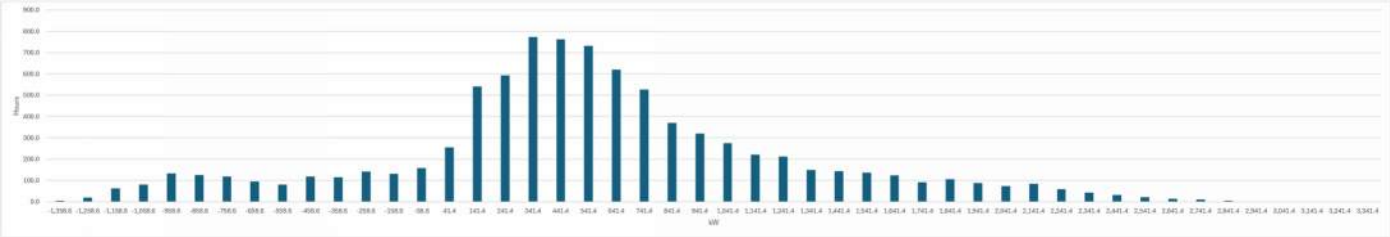
Some analysis was performed to increase and decrease the community solar PV and community BESS separately and the result shows engaging one of the additional BESS units will be considered to maximize use of the excess electricity produced by the residential and community solar PV. The Xendee output shows a curtailment of 56,655 kWh.

Modifying the Excel file to use 580 kW of community solar PV and **no** BESS results in the best view of the project load profile for manual analysis and comparison to the Xendee solution.

A series of tables and graphs were created to analyze the resulting data. The two most valuable pieces of data are the table where the load profile data can be grouped into data bins of kW ranges and the subsequent bar chart of the data bins. These visually and mathematically represent how many hours the peak load spends in the ranges. See below. It is important to note this data does **NOT** include using the BESS for peak shaving. The peak load is only above 2,750 kW for 21 hours of the year and above 2,500 kW for 55 hours of the year. The use of one BESS unit will reduce the peak load seen by the linear generators to a maximum of 2,750 kW.

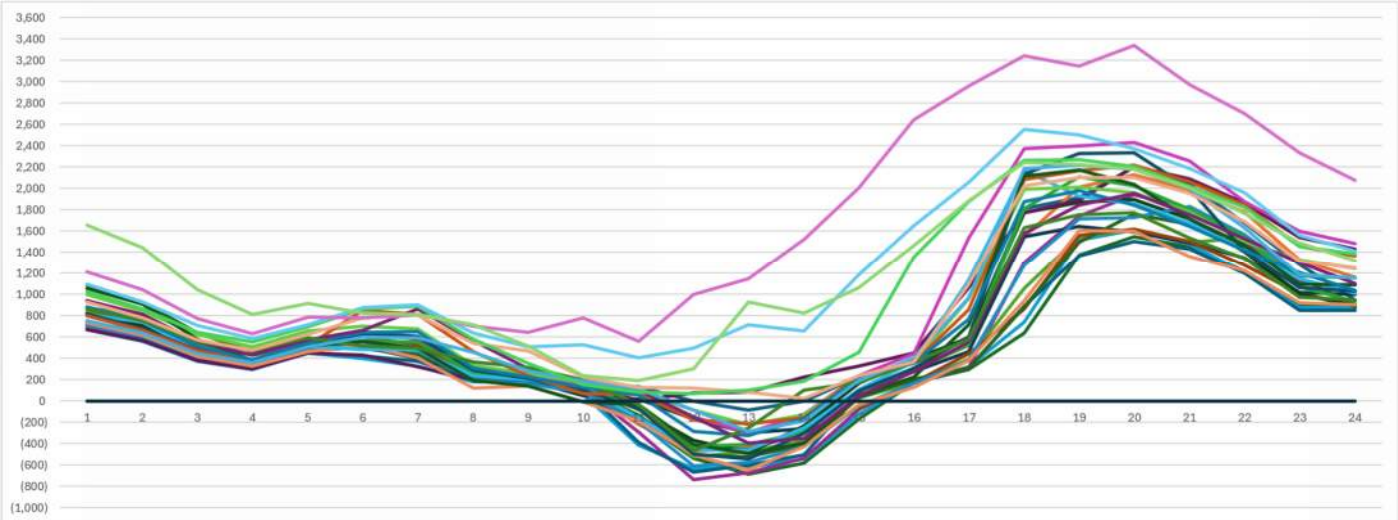
kVA Analysis Set Size		100 kVA		
Load Range (Low)	**Load Range (High)**	**Load Range (Average)**	**Hours**	**Percent of Time**
-1,408.6	-1,308.6	-1,358.6	4.0	0.05%
-1,308.6	-1,208.6	-1,258.6	19.0	0.22%
-1,208.6	-1,108.6	-1,158.6	62.0	0.71%
-1,108.6	-1,008.6	-1,058.6	81.0	0.92%
-1,008.6	-908.6	-958.6	132.0	1.51%
-908.6	-808.6	-858.6	126.0	1.44%
-808.6	-708.6	-758.6	118.0	1.35%
-708.6	-608.6	-658.6	94.0	1.07%
-608.6	-508.6	-558.6	80.0	0.91%
-508.6	-408.6	-458.6	118.0	1.35%
-408.6	-308.6	-358.6	114.0	1.30%
-308.6	-208.6	-258.6	141.0	1.61%
-208.6	-108.6	-158.6	130.0	1.48%
-108.6	-8.6	-58.6	158.0	1.80%
-8.6	91.4	41.4	255.0	2.91%
91.4	191.4	141.4	541.0	6.18%
191.4	291.4	241.4	594.0	6.78%
291.4	391.4	341.4	773.0	8.82%
391.4	491.4	441.4	763.0	8.71%
491.4	591.4	541.4	733.0	8.37%
591.4	691.4	641.4	621.0	7.09%
691.4	791.4	741.4	527.0	6.02%
791.4	891.4	841.4	371.0	4.24%
891.4	991.4	941.4	320.0	3.65%
991.4	1,091.4	1,041.4	274.0	3.13%
1,091.4	1,191.4	1,141.4	221.0	2.52%
1,191.4	1,291.4	1,241.4	211.0	2.41%
1,291.4	1,391.4	1,341.4	149.0	1.70%
1,391.4	1,491.4	1,441.4	143.0	1.63%
1,491.4	1,591.4	1,541.4	136.0	1.55%
1,591.4	1,691.4	1,641.4	123.0	1.40%
1,691.4	1,791.4	1,741.4	92.0	1.05%
1,791.4	1,891.4	1,841.4	105.0	1.20%
1,891.4	1,991.4	1,941.4	87.0	0.99%
1,991.4	2,091.4	2,041.4	73.0	0.83%
2,091.4	2,191.4	2,141.4	84.0	0.96%
2,191.4	2,291.4	2,241.4	58.0	0.66%
2,291.4	2,391.4	2,341.4	42.0	0.48%
2,391.4	2,491.4	2,441.4	32.0	0.37%
2,491.4	2,591.4	2,541.4	21.0	0.24%
2,591.4	2,691.4	2,641.4	13.0	0.15%
2,691.4	2,791.4	2,741.4	11.0	0.13%
2,791.4	2,891.4	2,841.4	5.0	0.06%
2,891.4	2,991.4	2,941.4	2.0	0.02%
2,991.4	3,091.4	3,041.4	0.0	0.00%
3,091.4	3,191.4	3,141.4	1.0	0.01%
3,191.4	3,291.4	3,241.4	1.0	0.01%
3,291.4	3,391.4	3,341.4	1.0	0.01%

Secure Energy Sources, LLC
PO Box 671
La Quinta, CA 92247



The data below is for the month of June when the peak loads occur. The data tables have all the values, and the line graph shows the hourly load profile for every day of the month.

June																									Monthly Max	Monthly Avg
Hour of Day																									3,338	702
Day of Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Max	Daily Avg
1	738	648	430	331	489	538	493	274	240	148	135	(1)	(84)	(1)	233	354	600	1,810	1,918	2,199	2,037	1,678	1,282	950	2,199	727
2	839	714	482	373	516	525	485	238	209	120	(220)	(475)	(438)	(285)	94	296	520	1,550	2,009	2,126	1,987	1,782	1,329	1,160	2,126	664
3	941	781	486	323	467	508	420	198	241	131	(173)	(536)	(686)	(583)	(166)	172	299	641	1,372	1,550	1,451	1,217	894	872	1,550	451
4	671	561	372	298	449	402	327	182	187	62	(411)	(632)	(622)	(546)	(121)	171	320	739	1,514	1,610	1,479	1,206	876	874	1,610	415
5	688	582	382	303	448	646	582	282	233	113	(290)	(737)	(674)	(536)	(81)	175	313	1,301	1,741	1,938	1,815	1,501	1,126	1,032	1,938	537
6	832	709	516	433	510	519	434	194	165	87	(131)	(522)	(471)	(377)	32	174	395	1,055	1,545	1,609	1,498	1,533	1,173	1,154	1,609	544
7	747	631	447	349	487	510	398	256	191	54	15	(171)	(297)	(260)	95	277	461	1,547	1,645	1,593	1,487	1,347	1,020	996	1,645	576
8	862	737	500	388	545	599	529	221	200	117	(149)	(423)	(451)	(295)	(71)	172	446	862	1,558	1,621	1,502	1,274	1,008	908	1,621	527
9	817	705	464	356	512	556	484	216	199	126	(76)	(369)	(482)	(236)	170	390	595	1,773	1,872	1,893	1,713	1,402	1,006	892	1,893	624
10	715	598	403	310	448	425	375	202	197	117	(391)	(664)	(601)	(502)	66	191	308	890	1,369	1,505	1,433	1,202	848	849	1,505	429
11	670	566	378	302	448	432	321	196	205	139	4	73	80	228	329	451	1,064	1,776	1,892	2,208	2,089	1,862	1,541	1,429	2,208	778
12	1,087	928	634	463	594	489	440	219	203	130	(138)	(506)	(521)	(405)	30	204	311	883	1,496	1,761	1,664	1,440	1,152	901	1,761	561
13	707	603	418	333	473	538	471	201	160	81	(197)	(610)	(572)	(426)	(43)	164	381	1,275	1,713	1,729	1,833	1,565	1,185	1,154	1,833	547
14	735	615	420	327	465	523	402	122	141	(6)	(190)	(502)	(644)	(427)	(32)	129	382	938	1,608	1,599	1,361	1,226	921	905	1,608	459
15	872	811	523	387	514	558	551	261	211	123	(57)	(425)	(409)	(289)	94	291	528	1,809	2,106	2,026	1,805	1,548	1,070	937	2,106	660
16	814	738	469	360	512	482	481	236	199	125	(155)	(458)	(462)	(255)	109	366	1,135	2,169	1,927	1,856	1,676	1,424	1,145	1,012	2,169	663
17	807	675	479	381	525	644	607	321	232	153	88	(149)	(298)	(121)	238	444	1,536	2,374	2,400	2,428	2,257	1,873	1,598	1,485	2,428	874
18	997	845	624	509	654	702	674	336	256	172	88	(82)	(220)	(130)	230	361	958	1,994	2,014	1,959	1,776	1,501	1,328	1,247	2,014	783
19	816	679	475	387	532	634	603	286	213	102	(69)	(497)	(542)	(306)	95	306	602	2,133	2,326	2,332	2,002	1,414	1,067	1,031	2,332	692
20	796	663	470	380	525	849	811	463	238	71	64	(176)	(213)	(153)	235	363	854	2,085	2,168	2,216	2,061	1,846	1,458	1,365	2,216	810
21	1,057	908	580	378	512	561	499	195	140	(10)	(32)	(407)	(490)	(396)	48	223	716	2,112	2,173	2,039	1,714	1,469	1,095	1,090	2,173	674
22	880	753	513	389	544	647	647	308	222	125	56	(286)	(325)	(164)	210	363	764	1,876	1,980	1,844	1,647	1,420	1,204	1,035	1,980	694
23	940	810	556	433	572	664	864	566	303	191	99	(151)	(394)	(349)	50	274	557	1,582	1,841	1,953	1,751	1,525	1,301	1,101	1,953	710
24	865	752	562	476	593	514	498	366	317	199	(33)	(465)	(255)	105	176	366	578	1,630	1,754	1,775	1,536	1,342	974	948	1,775	649
25	751	637	447	363	506	599	595	459	280	186	113	(84)	(287)	(188)	192	404	964	2,185	2,218	2,177	2,000	1,629	1,184	1,151	2,218	770
26	930	781	570	475	622	782	804	538	467	226	127	120	84	26	237	365	1,099	2,026	2,104	2,104	1,956	1,687	1,314	1,252	2,104	862
27	1,028	864	646	554	693	864	890	577	355	153	85	70	101	183	459	1,351	1,875	2,265	2,271	2,206	2,021	1,826	1,457	1,386	2,271	1,008
28	1,097	927	710	587	715	879	900	636	508	529	403	496	717	657	1,184	1,651	2,058	2,556	2,504	2,371	2,188	1,958	1,559	1,411	2,556	1,217
29	1,213	1,047	774	634	784	783	812	704	645	780	558	996	1,147	1,525	2,008	2,646	2,963	3,241	3,147	3,338	2,974	2,704	2,335	2,075	3,338	1,660
30	1,656	1,445	1,043	812	912	826	813	715	513	240	192	305	926	826	1,061	1,462	1,880	2,242	2,226	2,176	2,007	1,769	1,489	1,319	2,242	1,202
31																									0	0



See **Exhibit G Manual Load Profile Analysis** for the remaining results.

The manual analysis verifies the base solution from Xendee as being appropriate for normal operation due to the limited hours the load is above the 2,750kW peak output of the generators. The table and graph from above show the peak hours are from 5:00 pm to 8:00 pm and drop significantly when the sun goes down. The same distinct drop in daily peak demand correlates throughout the year with sunset. This correlation is discussed in the California Energy Commission Title 24 weather component regarding climate zone 15. For operation, the importance is the load drops enough every day to allow the generation to recharge the battery for the next day.

The other key takeaway from the data is how many hours of the year the residential and community solar PV over produced the total energy use of the entire site. This energy is used to recharge the BESS units, but once they are filled, it must be curtailed. The analysis shows the situation of over production occurs for about 1,377 hours of the year. During these hours, no natural gas generation is required, and the BESS units are being charged. The Xendee output reports also show this scenario.

After consideration of all the information from the Xendee Base Solution and the manual analysis, the following microgrid solution is recommended to provide an N+2 design for the linear generators and an N+2 design for the BESS units which will provide substantial redundancy and reliable operation under all reasonably considered extreme conditions. The recommended solution would entail installing (13) Mainspring 250kW linear generators and (3) 1,000kW/2,500kWh BESS units plus appropriate isolation/step-up transformers, and active main distribution panel with smart, manageable breakers with all equipment and breakers controlled by the microgrid control system. This level of equipment provides for two more linear generators and two more BESS units than required for normal operation. This recommendation is reasonable for an off-grid, island mode microgrid power generation system. Additional, applicable components of IEEE1547-2018 will be implemented in the final design.

Example Generation Site Layout

For any project, site constraints are of concern. To provide an indication of the required space for a site-specific power generation project of the magnitude noted here, the following rough layout for the recommended solution is provided for information only. The final layout will be created from the final generation solution and design process.

The Ranch at Madison
Preliminary Microgrid Generation Layout

LGEN LINEAR GENERATOR
BESS BATTERY ENERGY STORAGE SYSTEM
IT ISOLATION/STEP-UP TRANSFORMER
MDP MAIN DISTRIBUTION PANEL
XFR/DP SERVICE TRANSFORMER/PANEL

Summary

Using realistic, hourly load profiles of the (14) individual electric loads within the development and modeling the resulting total energy profile using Xendee, produces a more accurate picture of actual expected peak demand and energy use. The supporting information for the underlying load profiles is significant and provides reliable outcomes. Due to the diligence in creating the underlying load profiles, the results project a high overall project confidence in the evaluation.

The Xendee solution of 3,324 kW peak demand and 5,886,765 kWh of annual use reasonably aligns with the load's summary once other overstatements of use and losses are included. These findings are 70% less than using the connected load approach. The recommended off-grid, island mode microgrid solution of (13) Mainspring 250kW linear generators, three 1,000kW/2,500kWh battery energy storage systems, and 580kW of community solar PV provides a robust, reliable solution with N+2 configuration for the linear generators and the BESS units. A final configuration will be subject to a more detailed analysis once the project is in design.

EXHIBIT A

The Ranch at Madison

Basis for Commercial Building Energy Use

The following description is to provide the basis for the hourly energy load profiles used in Xendee and the expected peak and annual electrical use for the commercial buildings in The Ranch at Madison development.

The ComStock website is a collection of data regarding commercial building energy use with exceptional scientific review and analysis and regular new releases. Please see the following websites for more information on the quality of data on the site and supporting documentation on the effort and analysis that went into creating the data. As this was put together over many years by the National Renewable Energy Laboratory, now known as the National Laboratory of the Rockies, this is the most comprehensive dataset of information and a solid foundation on which to obtain the necessary data needed to analyze The Ranch at Madison project. The ComStock website will be the starting location for research, but it will immediately link to the Open Energy Data Initiative website for more information.

ComStock website – natlabrockies.github.io/ComStock.github.io/

Open Energy Data Initiative (OEDI)

End-Use Load Profiles for the U.S. Building Stock

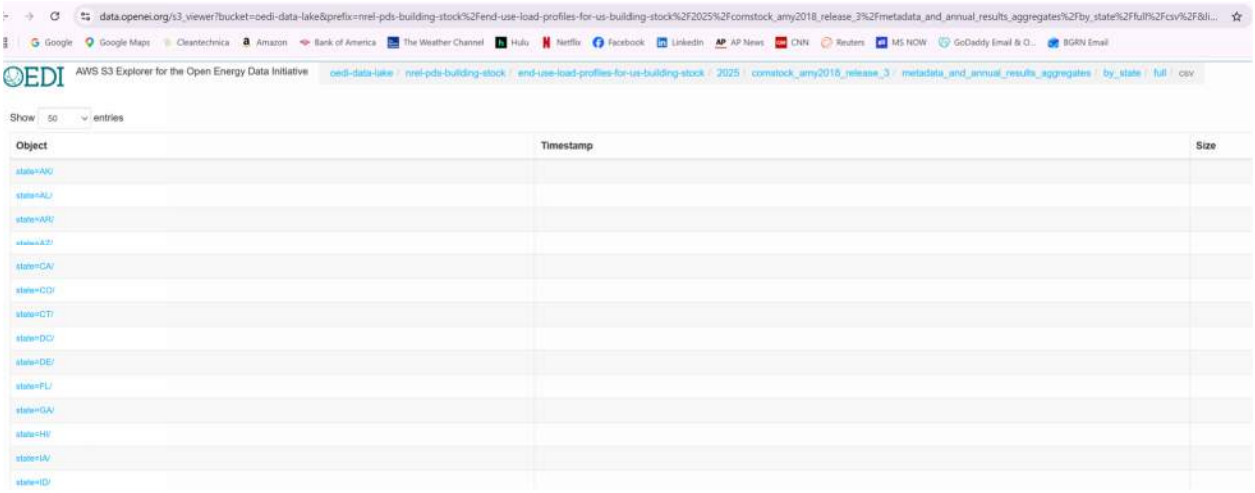
National Renewable Energy Laboratory (NREL)

https://data.openei.org/submissions/4520

This is a description on the OEDI website for this dataset.

> The United States is embarking on an ambitious transition to a 100% clean energy economy by 2050, which will require improving the flexibility of electric grids. One way to achieve grid flexibility is to shed or shift demand to align with changing grid needs. To facilitate this, it is critical to understand how and when energy is used. High quality end-use load profiles (EULPs) provide this information, and can help cities, states, and utilities understand the time-sensitive value of energy efficiency, demand response, and distributed energy resources. Publicly available EULPs have traditionally had limited application because of age and incomplete geographic representation. To help fill this gap, the U.S. Department of Energy (DOE) funded a three-year project, End-Use Load Profiles for the U.S. Building Stock, that culminated in this publicly available dataset of calibrated and validated 15-minute resolution load profiles for all major residential and commercial building types and end uses, across all climate regions in the United States. These EULPs were created by calibrating the ResStock and ComStock physics-based building stock models using many different measured datasets, as described in the "Technical Report Documenting Methodology" linked in the submission.

Two sets of data were downloaded from the OEDI data lake for use in the evaluation. One is for the State of Arizona which has many datasets for the chosen climate and the other is California. The following screenshot shows the location of both datasets and the following description is how to reach this page.



Once on the ComStock page, choose the button named “Available Datasets”. Scroll down the page to the November 2025 Publication Date, Release 2025_3 row and in the OEDI Data Lake column choose “OpenEI Data” link, https://data.openei.org/s3_viewer?bucket=oedi-data-lake&prefix=nrel-pds-building-stock%2Fend-use-load-profiles-for-us-building-stock%2F2025%2Fcomstock_amy2018_release_3%2F. This links to an openei page. See separate information regarding this website. On this page select “metadata_and_annual_results aggregates”. On the next page choose “by_state/”. At the next page, select “full/”. At the next page, select "csv/”. At the next page, select "state=AZ/”. On the next page select “AZ_upgrade0_agg.csv.gz”. This will download the information for the State of Arizona. Next, back up and select “state=CA/”. Then select “CA_upgrade0_agg.cs.gz”. This will download the information for the State of California.

Download each of the .csv files and open them with Excel to convert each file into an Excel workbook. Once converted the CA file is about 136MB and the AZ file is about 44MB.

Perform the following for each file.

Highlight the entire workbook and choosing “filtering”.

The next series of filters is to reduce the 13,871 datasets for CA and 4,291 datasets for AZ by climate zone and building type to create an energy intensity and expected peak energy use. This data will be used to tune the hourly load profiles in Xendee which were also created in the ComStock website. However, the hourly load profile models have too much

data to access and filter for this exercise so this analysis will check the Xendee output with data from the information available for evaluation. The specific data resulting from the following efforts will provide peak electrical energy demand and annual electrical consumption that will provide a reasonable comparison for the evaluation.

Please open the file “data_dictionary(1).txt” in Excel for a better understanding of what each column means.

Once filtering for the file is established, use the first filter on column AV for ASHRAE climate zone. Remove any items except 2B and 3B. 3B was kept in this database to provide enough model information to cover all building types.

The second filter will be column BM for ComStock building type. This filter will be changed individually, one at a time, for each of the fifteen types of facilities with the resulting information gathered after each sort.

No other filters were applied including “vintage” as this removed too many datasets from the information. The effect will be that the results show higher usage than will occur with a facility built to new standards but that is acceptable for this exercise.

It is also important to note that all units for energy use are in kWh, including for natural gas, propane, fuel oil, etc.

Once the filters for a specific building type are done, go to column HW which provides electrical consumption intensity in kW/SF, “out.electricity.purchased.energy_consumption_intensity..kwh_per_ft2”. As this data is per square foot, the average of this column as well as the quantity of datasets and average square footage were gathered and put into the summary sheet.

The next data was gathered from column KC which provides the peak summer electrical intensity in watts per square foot, “out.qoi.maximum_daily_use_summer_intensity..w_per_ft2”. The average of this column was collected and put into the summary sheet.

Of note, the CA file only has 59 datasets of climate zone 2B and 10,035 datasets of climate zone 3B. As climate zone 3B is not as hot as 2B, this tends to skew the data a bit lower than would be expected. For the AZ file, there are 1,592 datasets of climate 2B and 1,756 datasets of climate 3B. As the datasets were calibrated for a wide range of building vintages, the data was not changed as it will more accurately reflect the usage of a building constructed to the latest standards. This is a trade-off between building construction standards and weather and is the best approach with the data available. See below for more information on the weather data and comparisons.

A weight average summary of total square footage per dataset was used to create the OEDI Data Summary information for each building type. See results below.

	Phoenix, AZ	Peak kW	Ave SF	Peak Summer W/SF	Annual kWh/SF	Annual kWh	Load Factor
1	Full Service Restaurant	128.62	9,419	13.6553	64.298	605,623	0.5375
2	Grocery Store	262.81	36,762	7.1490	45.489	1,672,284	0.7264
3	Hospital	1,350.15	299,918	4.5017	24.002	7,198,760	0.6087
4	Large Hotel	278.94	134,676	2.0712	11.652	1,569,242	0.6422
5	Large Office	630.40	249,006	2.5317	13.577	3,380,832	0.6122
6	Medium Office	164.48	52,291	3.1455	15.123	790,814	0.5488
7	Outpatient	152.98	37,973	4.0285	18.627	707,313	0.5278
8	Primary School	217.26	46,539	4.6683	21.075	980,796	0.5154
9	QuickService Restaurant	47.54	3,071	15.4819	81.354	249,803	0.5999
10	Retail Standalone	116.17	22,980	5.0550	19.995	459,501	0.4516
11	Retail Stripmall	305.40	55,348	5.5178	26.624	1,473,581	0.5508
12	Secondary School	547.79	109,954	4.9820	21.021	2,311,392	0.4817
13	Small Hotel	45.62	24,706	1.8467	8.870	219,152	0.5483
14	Small Office	45.49	12,987	3.5025	15.174	197,064	0.4946
15	Warehouse	82.10	104,982	0.7820	3.918	411,300	0.5719

This data was used to create the expected energy consumption for The Ranch at Madison facilities using the building type associated with each facility. See file "TRAM Loads Summary", tab "Energy Summary". These are the facilities highlighted in light blue in the column titled Building Use Profile.

The Ranch At Madison							
Approximate Energy Summary by Use							
Building Name	**Building Use Profile**	**Building Size**	**Peak W/SF**	**Peak kW**	**Annual kWh/SF**	**Annual kWh**	**Load Factor**
Estates, Golf Cottages, Villas	Modified Modeling Data	773,135	3.78	2,925.54	2.74	2,118,651	8%
Guard House	Small Office	800	3.50	2.80	15.17	12,139	49%
Entry Pavilion	Small Office	2,500	3.50	8.76	15.17	37,935	49%
Farm to Table	Full Service Restaurant	2,070	13.66	28.27	64.30	133,096	54%
Event Barn	Full Service Restaurant	10,000	13.66	136.55	64.30	642,977	54%
Beach Club	Quick Service Restaurant	850	15.48	13.16	81.35	69,151	60%
Fitness Center	Retail Standalone	20,000	5.05	101.10	20.00	399,907	45%
Wellness/Spa	Retail Standalone	14,000	5.05	70.77	20.00	279,935	45%
Starter Shack	Retail Stripmall	1,000	5.52	5.52	26.62	26,624	55%
Commissary	Retail Standalone	2,000	5.05	10.11	20.00	39,991	45%
Maintenance Building	Modified Actual Data	N/A		97.10		114,856	14%
Pump Station	Modified Actual Data	N/A		433.90		724,222	19%
Activity Lagoon Pumping	Calculated Data	N/A		22.55		156,596	79%
Area Lights	Calculated Data	N/A		113.25		315,999	32%
				3,969.38		**5,072,079**	**Total**

Weather

Further explanation is provided below with respect to ASHRAE climate zone 2B and its relevance to California Title 24 climate zone 15. ASHRAE (American Society of Heating,

Refrigeration, and Air-Conditioning Engineers) has provided design weather data for thousands of locations in the U.S. and large portions of the world to design engineers for several decades. The State of California decided to create 16 climate zones to reflect the more regional microclimates within the state and drive specific prescriptive requirements to meet the Title 24 energy code. The ASHRAE climate most similar to climate zone 15 (CZ15) is climate zone 2B for hot-dry. CZ15 is specifically linked to weather from the Palm Springs airport. The OEDI data uses the ASHRAE climate zones so climate zone 2B was the main filter used to obtain representative data from the database. ASHRAE climate zone 2B is classified as areas with cooling degree days (CDD), using a base 50°F, greater than 6,300 and less than 9,000 with long, hot summers, mild winters, very low humidity, and minimal rainfall. Imperial County, California and Maricopa County, Arizona are specifically listed in the OEDI database as two areas categorized as 2B. The weather below will show the recent design conditions higher than 9,000 CDD.

More specifically, when inputting the buildings into Xendee, the Phoenix weather from SkyHarbor airport was used. See below for details of the Phoenix and Palm Springs airport weather data from ASHRAE. The extreme cooling dry bulb temperature for Palm Springs is 117.8°F with a corresponding temperature of 115.0 for Phoenix. This is within the range of standard deviation. Annual cooling degree days for Phoenix are slightly higher than Palm Springs. Similar comparisons for the 0.4% Cooling DB/MCWB, Evaporation WB/MCDB, Dehumidification DP/MCDB and HR, and Enthalpy/MCDB can be made with Palm Springs slightly higher in all four categories. This comparison shows that using Phoenix weather is a reasonable substitute for Palm Springs weather when creating the EULPs.

One additional note is that the solar radiation potential in PVWatts is nearly identical between the two locations and this is important to how the buildings respond to the sun going down.

This is the link to the ASHRAE weather data.

https://ashrae-meteo.info/v3.0/

2025 ASHRAE Handbook - Foundamentals (IP)

Compare

PALM SPRINGS, CA, USA (WMO: 722868)

Lat: **33.822N** Lon: **116.504W** Elev: **409** StdP: **14.48** Time zone: **-8.00 (NAP)** Period: **1999-2023** Grade: **A** WBAN: **93138**

Annual Heating, Humidification, and Ventilation Design Conditions

Coldest Month	Heating DB		Humidification DP/MCDB and HR						Coldest month WS/MCDB				MCWS/PCWD to 99.6% DB		WSF
			99.6%			99%			0.4%		1%				
	99.6%	99%	DP	HR	MCDB	DP	HR	MCDB	WS	MCDB	WS	MCDB	MCWS	PCWD	
12	41.6	44.2	0.0	5.6	65.5	4.2	6.9	67.0	21.9	60.9	17.8	61.5	4.0	330	0.443

Annual Cooling, Dehumidification, and Enthalpy Design Conditions

Hottest Month	Hottest Month DB Range	Cooling DB/MCWB						Evaporation WB/MCDB						MCWS/PCWD to 0.4% DB	
		0.4%		1%		2%		0.4%		1%		2%			
		DB	MCWB	DB	MCWB	DB	MCWB	WB	MCDB	WB	MCDB	WB	MCDB	MCWS	PCWD
7	25.9	113.0	70.4	110.4	70.2	108.2	69.8	78.2	97.8	76.8	97.5	75.2	98.1	10.1	320

Dehumidification DP/MCDB and HR									Enthalpy/MCDB						Extreme Max WB
0.4%			1%			2%			0.4%		1%		2%		
DP	HR	MCDB	DP	HR	MCDB	DP	HR	MCDB	Enth	MCDB	Enth	MCDB	Enth	MCDB	
72.7	123.3	89.7	70.2	112.8	90.8	66.8	100.0	92.2	41.9	97.1	40.3	96.8	38.8	97.5	89.8

Extreme Annual Design Conditions

Extreme Annual WS				Extreme Annual Temperature				n-Year Return Period Values of Extreme Temperature							
				Mean		Standard deviation		n=5 years		n=10 years		n=20 years		n=50 years	
1%	2.5%	5%		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
22.4	19.9	17.6	DB	36.0	117.8	3.1	2.8	33.8	119.8	32.0	121.5	30.2	123.0	28.0	125.1
			WB	28.7	81.5	2.5	3.7	26.8	84.2	25.4	86.3	23.9	88.4	22.1	91.1

Monthly Climatic Design Conditions

			Annual	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Temperatures, Degree-Days		DBAvg	75.7	59.2	61.3	67.1	73.0	80.2	88.6	94.4	93.6	88.1	77.7	66.6	57.9
		DBStd	14.26	5.96	6.48	7.07	7.22	7.00	6.15	4.42	4.55	5.97	6.84	6.83	5.46
		HDD50	10	5	1	0	0	0	0	0	0	0	0	0	4
		HDD65	701	194	137	61	15	1	0	0	0	0	3	61	229
		CDD50	9400	292	318	531	690	935	1157	1377	1351	1144	857	498	250
		CDD65	4613	16	34	126	255	471	707	912	886	694	395	108	9
Wind		WSAvg	6.5	5.0	5.5	6.5	8.0	8.9	8.1	7.2	6.6	6.4	6.0	5.3	4.7
Precipitation		PrecAvg	4.0	0.9	0.8	0.4	0.1	0.0	0.0	0.2	0.2	0.2	0.2	0.3	0.7
		PrecMax	9.7	4.5	4.4	2.5	1.1	0.1	0.1	1.1	3.2	1.2	1.8	1.3	3.7
		PrecMin	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		PrecStd	2.7	1.3	1.1	0.6	0.2	0.0	0.0	0.4	0.7	0.4	0.4	0.4	0.9
Monthly Design Dry Bulb and Mean Coincident Wet Bulb Temperatures	0.4%	DB	83.1	86.8	95.0	101.9	108.4	115.5	117.0	115.3	111.4	103.8	92.6	81.6	
		MCWB	54.2	56.2	60.8	64.9	68.9	69.0	73.2	71.5	69.5	64.4	59.6	55.3	
	2%	DB	78.9	82.8	90.3	97.3	103.8	110.9	113.3	112.0	108.1	99.6	88.5	76.7	
		MCWB	53.5	55.1	59.5	61.9	65.3	68.1	70.9	71.1	68.9	64.4	58.4	53.7	
	5%	DB	75.1	79.5	86.6	93.3	100.1	107.8	110.5	109.3	105.6	96.0	84.5	72.9	
		MCWB	52.1	54.3	57.8	60.6	65.6	67.5	71.0	70.8	68.1	63.1	57.2	51.8	
	10%	DB	72.1	75.2	82.6	89.5	97.0	104.8	107.9	106.9	102.3	92.4	80.7	69.9	
		MCWB	51.2	52.7	56.8	59.3	63.9	67.0	70.6	70.8	67.6	62.1	55.9	50.7	
Monthly Design Wet Bulb and Mean Coincident Dry Bulb Temperatures	0.4%	WB	59.2	60.2	64.3	69.2	73.3	78.0	80.3	80.5	78.2	71.0	62.3	59.1	
		MCDB	73.2	75.2	84.8	94.9	98.6	96.9	99.0	100.7	94.8	88.3	83.1	71.6	
	2%	WB	56.8	57.5	61.7	64.4	69.9	73.7	77.9	78.4	76.1	68.5	60.2	56.7	
		MCDB	69.0	74.1	83.1	90.8	97.2	99.8	97.0	99.0	94.9	90.1	82.3	68.9	
	5%	WB	54.9	56.0	59.8	62.3	67.4	71.4	76.5	77.0	74.3	66.2	58.8	54.7	
		MCDB	68.6	73.3	81.7	87.9	94.7	100.5	97.6	98.4	95.0	89.7	80.3	67.5	
	10%	WB	53.2	54.5	58.3	60.6	65.6	69.6	75.0	75.3	72.3	64.2	57.2	52.8	
		MCDB	68.2	71.2	78.8	84.8	92.2	98.9	98.9	98.6	94.6	87.6	77.1	66.0	
Mean Daily Temperature Range		MDBR	21.4	22.0	23.7	25.2	26.4	28.8	25.9	25.5	25.3	24.2	22.7	20.8	
	5% DB	MCDBR	25.5	27.2	28.4	30.2	30.2	31.6	28.8	27.9	28.0	27.6	26.7	24.8	
		MCWBR	11.2	11.4	10.1	9.9	9.2	8.3	7.9	8.6	8.2	9.8	11.3	11.4	
	5% WB	MCDBR	21.0	23.6	26.4	27.9	28.4	28.4	21.6	20.9	20.9	24.2	23.9	20.9	
		MCWBR	9.9	10.4	10.0	10.0	9.7	10.5	10.2	11.8	9.9	9.2	10.5	10.1	
Clear Sky Solar Irradiance		taub	0.293	0.305	0.341	0.372	0.384	0.367	0.413	0.392	0.359	0.324	0.301	0.290	
		taud	2.515	2.464	2.366	2.278	2.272	2.333	2.293	2.322	2.377	2.446	2.503	2.523	
		Ebn at noon	293	300	295	289	285	288	274	279	285	288	287	287	
		Edn at noon	26	31	37	42	43	40	42	40	36	31	26	25	
All-Sky Solar Radiation		RadAvg	1076	1403	1833	2266	2531	2673	2431	2287	1987	1589	1203	961	
		RadStd	72	115	107	89	109	108	122	102	78	83	43	66	

Historical Trends

		DBAvg	Heating		Cooling			Degree-Days			
			99% DB	99% DP	1% DB	1% WB	1% DP	HDD50	HDD65	CDD50	CDD65
Station	Trend	+1.19	N/S	N/S	+1.82	N/S	N/S	N/S	-92	+477	+374
	Variability	1.3	1.6	4.1	1.6	1.6	2.9	11	162	470	362
Regional Trend (__ neighbors)		+1.13	N/S	-1.98	+1.57	N/S	N/S	N/S	-157	+407	+245

2025 ASHRAE Handbook - Foundamentals (IP)

Compare

PHOENIX SKY HARBOR, AZ, USA (WMO: 722780)

Lat: **33.428N** Lon: **112.004W** Elev: **1113** StdP: **14.11** Time zone: **-7.00 (W07)** Period: **1999-2023** Grade: **A** WBAN: **23183**

Annual Heating, Humidification, and Ventilation Design Conditions

Coldest Month	Heating DB		Humidification DP/MCDB and HR						Coldest month WS/MCDB				MCWS/PCWD to 99.6% DB		WSF
			99.6%			99%			0.4%		1%				
	99.6%	99%	DP	HR	MCDB	DP	HR	MCDB	WS	MCDB	WS	MCDB	MCWS	PCWD	
12	**39.6**	**42.2**	**1.7**	**6.3**	**67.3**	**6.1**	**7.8**	**66.7**	**19.9**	**56.1**	**16.8**	**59.9**	**3.7**	**100**	**0.442**

Annual Cooling, Dehumidification, and Enthalpy Design Conditions

Hottest Month	Hottest Month DB Range	Cooling DB/MCWB						Evaporation WB/MCDB						MCWS/PCWD to 0.4% DB	
		0.4%		1%		2%		0.4%		1%		2%			
		DB	MCWB	DB	MCWB	DB	MCWB	WB	MCDB	WB	MCDB	WB	MCDB	MCWS	PCWD
7	**20.2**	**111.2**	**69.4**	**109.1**	**69.0**	**107.1**	**68.8**	**75.4**	**93.1**	**74.6**	**93.6**	**73.8**	**94.1**	**9.9**	**260**

Dehumidification DP/MCDB and HR									Enthalpy/MCDB						Extreme Max WB
0.4%			1%			2%			0.4%		1%		2%		
DP	HR	MCDB	DP	HR	MCDB	DP	HR	MCDB	Enth	MCDB	Enth	MCDB	Enth	MCDB	
71.4	**120.8**	**81.5**	**69.5**	**112.9**	**83.8**	**67.4**	**105.1**	**86.4**	**39.6**	**91.7**	**38.8**	**92.9**	**38.0**	**93.5**	**82.0**

Extreme Annual Design Conditions

Extreme Annual WS				Extreme Annual Temperature				n-Year Return Period Values of Extreme Temperature							
				Mean		Standard deviation		n=5 years		n=10 years		n=20 years		n=50 years	
1%	2.5%	5%		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
19.5	**16.5**	**14.3**	DB	**34.7**	**115.0**	**2.8**	**2.3**	**32.7**	**116.6**	**31.1**	**118.0**	**29.5**	**119.3**	**27.5**	**120.9**
			WB	**27.8**	**77.1**	**2.6**	**1.8**	**25.9**	**78.4**	**24.4**	**79.4**	**22.9**	**80.5**	**21.1**	**81.8**

Monthly Climatic Design Conditions

			Annual	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Temperatures, Degree-Days		DBAvg	**75.9**	**57.0**	**59.7**	**66.4**	**73.6**	**82.2**	**92.2**	**95.9**	**94.3**	**89.4**	**77.6**	**65.8**	**56.3**
		DBStd	**15.38**	**5.42**	**5.95**	**6.60**	**6.57**	**6.32**	**5.03**	**4.75**	**4.67**	**5.06**	**6.53**	**6.86**	**5.36**
		HDD50	**25**	**10**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**10**
		HDD65	**843**	**251**	**163**	**65**	**13**	**0**	**0**	**0**	**0**	**0**	**4**	**74**	**273**
		CDD50	**9495**	**227**	**276**	**507**	**708**	**1000**	**1265**	**1422**	**1372**	**1182**	**856**	**475**	**205**
		CDD65	**4838**	**3**	**15**	**107**	**271**	**535**	**815**	**957**	**907**	**732**	**395**	**98**	**3**
Wind		WSAvg	**6.3**	**4.9**	**5.7**	**6.5**	**7.4**	**7.4**	**7.4**	**7.8**	**7.0**	**6.4**	**5.7**	**5.1**	**4.8**
Precipitation		PrecAvg	**6.9**	**0.8**	**0.8**	**0.7**	**0.2**	**0.1**	**0.0**	**0.9**	**1.0**	**0.6**	**0.6**	**0.6**	**0.7**
		PrecMax	**13.3**	**5.2**	**3.1**	**3.0**	**1.1**	**1.2**	**0.4**	**3.0**	**3.5**	**5.1**	**5.4**	**2.8**	**3.0**
		PrecMin	**2.8**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
		PrecStd	**2.3**	**1.1**	**0.9**	**0.7**	**0.3**	**0.2**	**0.1**	**0.7**	**0.9**	**0.9**	**1.1**	**0.7**	**0.7**
Monthly Design Dry Bulb and Mean Coincident Wet Bulb Temperatures	0.4%	DB	**78.8**	**83.8**	**92.8**	**98.7**	**106.8**	**113.7**	**114.6**	**112.7**	**108.8**	**101.4**	**90.8**	**78.2**	
		MCWB	**52.9**	**54.6**	**58.5**	**60.4**	**65.0**	**67.6**	**71.0**	**70.7**	**69.3**	**63.5**	**59.3**	**53.3**	
	2%	DB	**74.9**	**79.8**	**87.6**	**94.9**	**102.9**	**109.9**	**111.5**	**110.1**	**106.1**	**97.3**	**86.4**	**74.1**	
		MCWB	**51.4**	**53.4**	**56.9**	**59.1**	**63.0**	**66.1**	**70.3**	**70.6**	**68.5**	**63.4**	**57.6**	**52.3**	
	5%	DB	**71.8**	**76.5**	**84.5**	**91.7**	**99.8**	**107.7**	**109.4**	**107.8**	**103.7**	**94.3**	**83.0**	**70.7**	
		MCWB	**50.6**	**52.2**	**55.6**	**57.8**	**61.7**	**65.6**	**70.1**	**70.6**	**67.8**	**62.6**	**56.8**	**51.1**	
	10%	DB	**68.7**	**72.9**	**81.1**	**88.5**	**97.1**	**105.5**	**107.1**	**105.5**	**101.3**	**91.2**	**79.4**	**67.5**	
		MCWB	**49.5**	**51.4**	**54.3**	**56.8**	**60.8**	**65.0**	**70.1**	**70.6**	**67.7**	**61.7**	**55.5**	**49.8**	
Monthly Design Wet Bulb and Mean Coincident Dry Bulb Temperatures	0.4%	WB	**58.3**	**58.8**	**60.9**	**62.4**	**67.3**	**73.1**	**76.8**	**76.8**	**75.2**	**71.0**	**63.2**	**59.4**	
		MCDB	**65.3**	**71.1**	**78.5**	**92.1**	**97.6**	**98.5**	**93.2**	**95.5**	**89.3**	**81.8**	**77.7**	**66.1**	
	2%	WB	**55.5**	**56.9**	**58.9**	**60.5**	**65.5**	**71.3**	**75.4**	**75.4**	**73.9**	**67.9**	**60.8**	**56.3**	
		MCDB	**65.3**	**69.1**	**81.7**	**89.6**	**95.3**	**97.7**	**93.5**	**93.3**	**91.1**	**86.0**	**76.8**	**66.4**	
	5%	WB	**53.5**	**55.1**	**57.2**	**59.2**	**63.8**	**69.9**	**74.6**	**74.8**	**72.9**	**66.0**	**59.0**	**54.2**	
		MCDB	**65.2**	**69.0**	**78.6**	**86.9**	**94.3**	**97.8**	**94.1**	**93.8**	**91.6**	**85.9**	**77.3**	**64.6**	
	10%	WB	**51.9**	**53.4**	**55.7**	**57.8**	**62.1**	**68.2**	**73.8**	**74.0**	**71.7**	**64.2**	**57.1**	**52.3**	
		MCDB	**64.3**	**68.6**	**76.6**	**85.0**	**93.6**	**98.8**	**94.6**	**94.3**	**91.4**	**85.4**	**76.5**	**63.5**	
Mean Daily Temperature Range		MDBR	**20.8**	**21.1**	**22.5**	**23.5**	**23.7**	**24.1**	**20.2**	**19.9**	**21.0**	**22.1**	**21.6**	**19.7**	
	5% DB	MCDBR	**25.1**	**26.7**	**27.4**	**27.6**	**26.7**	**25.7**	**21.6**	**21.8**	**23.2**	**25.3**	**25.7**	**23.9**	
		MCWBR	**10.5**	**10.9**	**9.5**	**9.4**	**8.2**	**7.3**	**5.5**	**5.5**	**6.7**	**8.5**	**9.8**	**10.1**	
	5% WB	MCDBR	**18.4**	**20.9**	**24.2**	**25.0**	**24.6**	**20.6**	**19.4**	**19.4**	**18.1**	**19.1**	**21.0**	**17.8**	
		MCWBR	**8.7**	**9.1**	**8.8**	**8.9**	**7.9**	**6.4**	**4.8**	**5.1**	**6.1**	**7.5**	**9.0**	**8.5**	
Clear Sky Solar Irradiance	taub		**0.290**	**0.304**	**0.335**	**0.358**	**0.376**	**0.376**	**0.439**	**0.421**	**0.381**	**0.328**	**0.303**	**0.291**	
	taud		**2.534**	**2.487**	**2.404**	**2.327**	**2.298**	**2.318**	**2.272**	**2.307**	**2.376**	**2.465**	**2.515**	**2.539**	
	Ebn at noon		**295**	**301**	**298**	**293**	**287**	**286**	**267**	**271**	**279**	**288**	**287**	**288**	
	Edn at noon		**26**	**30**	**36**	**40**	**42**	**41**	**43**	**41**	**36**	**30**	**26**	**24**	
All-Sky Solar Radiation	RadAvg		**1095**	**1418**	**1853**	**2318**	**2578**	**2655**	**2335**	**2179**	**1916**	**1592**	**1207**	**965**	
	RadStd		**80**	**105**	**97**	**63**	**95**	**95**	**113**	**71**	**73**	**88**	**47**	**56**	

Historical Trends

		DBAvg	Heating		Cooling			Degree-Days			
			99% DB	99% DP	1% DB	1% WB	1% DP	HDD50	HDD65	CDD50	CDD65
Station	**Trend**	**+0.74**	**N/S**	**N/S**	**+0.94**	**N/S**	**N/S**	**N/S**	**N/S**	**+265**	**+193**
	Variability	**0.9**	**1.6**	**4.1**	**1.4**	**0.9**	**2.2**	**22**	**148**	**297**	**236**
Regional Trend (__ neighbors)		**+0.63**	**N/S**	**N/S**	**+0.79**	**N/S**	**N/S**	**N/S**	**N/S**	**+194**	**+153**

EXHIBIT B

The Ranch at Madison

Basis for Residential Energy Use

The purpose of this exhibit is to provide supporting documentation of the expected annual and peak energy consumption of residential space. This data will be used to compare and validate the hourly load profiles used in The Ranch at Madison project. Two sources of information were identified. The first data point came from the ResStock database, and the second data point came from the 2020 Residential Energy Consumption Survey (RECS).

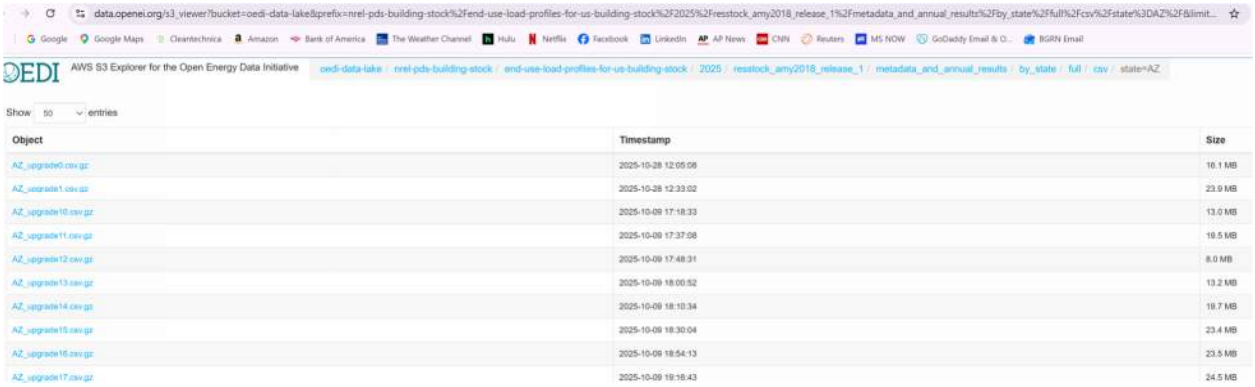
ResStock

The ResStock website is a collection of data regarding residential energy use with exceptional scientific review and analysis and regular new releases. Please see the following website for more information on the quality of data on the site. As this was put together over many years by the National Renewable Energy Laboratory, now known as the National Laboratory of the Rockies, this appears to be a very solid foundation on which to compare the existing data set and modifications with a larger dataset of similar homes to obtain better resulting actual energy consumption.

ResStock website – restock.nlr.gov/datasets

Once the website is accessed, select the Data Viewer button. This takes you to an openei.org page. See separate information regarding this website.

Scroll down the new page to choose “metadata_and_annual_results” from the October 2025 row as this uses the AMY2018 data which is the actual meteorological data for that year. At the next page, choose “by_state/”. At the next page, select “full/”. At the next page, select "csv/”. At the next page, select "state=AZ/”. Arizona was chosen as it has a large sample of data sets for ASHRAE climate zone 2B which is designated “hot-dry”. This data is most appropriate to La Quinta, CA. The next page shows thirty-two upgrade selection options plus the baseline. Below is a screenshot of the page viewed at this point in the selection process.



The “AZ_upgrade0.csv.gz” file contains the baseline aggregate annual results for residential stock.

The file “AZ_upgrade16.csv.gz” file was selected as this upgrade includes air sealing plus attic floor insulation plus duct sealing plus wall insulation. This was the best package available to fit upgraded new homes.

Make this selection and download the .csv file. Then, convert the file into an Excel workbook.

Once converted, highlight the entire workbook and choosing “filtering”.

The next series of filters is to reduce the 11,434 options to most appropriately fit the types of homes for The Ranch at Madison as used in the current analysis. Please open the file “data_dictionary(1).txt” in Excel for a better understanding of what each column means.

Once filtering for the entire spreadsheet is in place, use the filter for column G for SF to remove all choices lower than 2,000SF. This is the first filter. Continue with the following filters in sequence to obtain the best set of appropriate information.

The second filter is column L for median income. Remove all items lower than 80% of the median income.

The third filter is column M for ASHRAE climate zone. Remove any items except 2B. ASHRAE climate zone 2B is the most similar to California climate zone 15 and will represent the most suitable information for validation. See **Exhibit A Basis for Commercial Building Energy Use** for more information on the weather analysis.

The fourth filter is column CO for HVAC efficiency. Remove item saying “None”.

The fifth filter is column DN for attic insulation. Remove item saying “None”.

The sixth filter is column DW for lighting type. Remove all items except LED.

The seventh filter is column FI for vintaged. Remove all items except 2010s.

The resulting eighty-six model dataset appears to best represent the types of homes in a new development such as The Ranch at Madison.

Note, the 2025 baseline includes EV charging in the home. This data set shows how many homes have EVs in column AZ, homes with a pool in column EI, and homes with PV in column EW.

It is from this data, a solid representation of what the actual home energy use should be by square foot.

It is also important to note that all units for energy use are in kWh, including for natural gas, propane, fuel oil, etc.

Column RK shows EV Charging electrical energy use intensity in kW/SF, “out.electricity.ev_charging.energy_consumption_intensity..kwh_per_ft2”. This was only applied to four models even though all remaining models had EVs so it will be ignored in the baseline energy intensity of the house.

Column IG shows the annual energy consumption in kWh for the pool pumps allotted to the homes, “out.electricity.pool_pump.energy_consumption..kwh”. Of the twenty-five models with a value shown, there was an average annual consumption of 2,748 kWh and a maximum of 4,720 kWh. Modifying this value on a weight average basis means it affects the final energy intensity by 0.2479 kWh/SF. In this context, not removing this adjustment would make the base energy use from this process higher for comparison purposes to the results shown in **Exhibit C Residential Load Profile Description**. As shown below, this process still results in a lower comparison which would suggest the results from the efforts in **Exhibit C** should be lower.

Column IA shows the amount of exterior lighting electrical energy consumption, “out.electricity.lighting_exterior.energy_consumption..kwh”. Seventy-eight models had values which averaged 43.35 kWh annually. Modifying this value on a weight average basis means it affects the final energy intensity by 0.0122 kWh/SF. This value is insignificant and not considered in any other comparisons.

Column HX shows the spa pump energy consumption on kWh, “out.electricity.permanent_spa_pump.energy_consumption..kwh”. Only thirteen models had consumption which averaged 1,204 kWh annually. Modifying this value on a weight average basis means it affects the final energy intensity by 0.0506 kWh/SF. This value is also insignificant and not considered in any other comparisons.

For the remaining analysis, only two columns are of importance. The are column G for square footage and column TC for total electrical energy consumption per square foot, “out.electricity.total.energy_consumption_intensity..kwh_per_ft2”. The average of column G for the 86 models is 3,223 SF. The average from column TC is 5.6102 kWh/SF. As the consumption is intensity, it is mathematically correct to use the averages of each to provide a net outcome. These values provide annual usage for a 3,223 SF home of 18,082 kWh with the attributes noted above.

One other reference point that will be used in the final solution analysis is Column JW which shows the summer peak kW, “out.qoi.peak_intensity_summer”. These values were divided by the respective SF values for the 86 models and then averaged to get a peak

summer kW/SF of 0.003757186. This number does not consider any PV or battery installations but is an important guardrail to utilize when calibrating the final residential load profile.

The Plan 303 model home used to tune the EnergyPro models in the base analysis is 4,038 SF. Using the average intensity of 5.6102 kWh/SF results in an annual use of 22,654 kWh. This value was used as a comparison to the base model energy consumption.

The additions of the EV charging profile and the pool/spa pumping and lighting profile are applicable and result in an annual usage of 36,856 kWh which is 1,102 kWh more than the current analysis is using. This result confirms using the initial baseline with modifications as a reasonable target for annual energy consumption.

RECS

The second data point comes from the Residential Energy Consumption Survey (RECS) performed by the U.S. Energy Information Administration (EIA). See website https://www.eia.gov/consumption/residential/ .

Once on the website, select the Monthly Estimates Released for the 2020 Residential Energy Consumption Survey (RECS). Link is: https://www.eia.gov/consumption/residential/data/2020/index.php?view=consumption#estimates&src=%E2%80%B9%20Consumption%20%20%20%20%20%20Residential%20Energy%20Consumption%20Survey%20(RECS)-f2

At this page, select the "Summary statistic" arrow to show the sub list of five choices. From these choices, select "CE1.5 Summary consumption and expenditures in the West – totals and intensities" and the XLSX file option for an Excel compatible file of the data. The resulting Excel file CE1.5 will be downloaded. After download, open the file in Excel and select the tab "data" and go to cell F46 which represents the Per square foot (thousand Btu) intensity of homes built from 2016 to 2020. The resulting value is 30.7 thousand Btu. Using a conversion of 3,412.1 BTU/kWh results in an annual use of 8.99 kWh per square foot. This value is applicable to a home in a hot climate with pool and spa and EV charging which is the resulting load in Exhibit C after tuning and adding the other profiles. Applying this number to a 4,038 SF home results in an annual use of 36,302 kWh which is only 548 kWh more than the base analysis with modifications.

As supporting information for using the 8.99 kWh value, additional information was downloaded. Under "Detailed end-use consumption and expenditure estimates" on the website, select CE5.1a and CE5.1b and the respective XLSX file for each. Once downloaded and opened in Excel, select the "kwh" tab for each file. Note the end-uses labeled in row 4 for each tab. These identify all the end uses which are included as part of

the sum equaling the 8.99 kWh/SF value. The file for CE5.1a shows end-uses which include Space heating, Air handlers for heating, Air conditioning, Air handlers for cooling, ceiling fans, Dehumidifiers, Humidifiers, Water heating, Clothes washer, Clothes dryers, Lighting, Electric vehicle charging. The file CE5.1b shows the end-uses which include All refrigerators, Most used refrigerators, Second refrigerators, Separate freezers, Cooking, Microwaves, Dishwashers, All TVs and related, Most-used TVs, Third TVs, Pool pumps, Hot tub pumps, Hot tub heaters. The combination of all the above end-uses is indicative of our Plan 303 Model home analysis including the added profiles for Pool & Landscape and Car Charge, therefore, using the 8.99 kWh/SF value is a good reference point.

EXHIBIT C

The Ranch at Madison

Residential Load Profile Description

For background on the residential energy use profile, an in-depth analysis was recently completed on the energy loads and profiles for a **different** residential development project located less than five miles from the proposed Ranch at Madison project. The **other** development has many similarities to The Ranch at Madison and the detail of analysis, accuracy, and data from that project was appropriate to use as a basis for this analysis.

For additional background, a comparison of the expected occupancy of the residences is necessary as they are different. The other development has about half the homes occupied year-round and the other half occupied for only six months. The Ranch at Madison is expected to be occupied significantly less than that with many residences only occupied one or two months of the year and almost no residences occupied year-round.

Base Home Energy Analysis and Assumptions

The following is an explanation of the analysis process from the **other** project with underlying decisions and then how the original analysis was modified and applied to create a reasonable residential load profile for The Ranch at Madison project.

The base home energy analysis begins with the Title 24 EnergyPro output for seven different model homes from the **other** project located within five miles of The Ranch at Madison. This data was available and provides hourly output to use in creating accurate load profiles. The data was provided directly from the registered professional Title 24 consultant used by the other developer and included EnergyPro output data and the data on the required PV and battery systems.

The base hourly profiles are a good foundation as they consider current building envelope and HVAC codes along with the local weather for residential energy use.

The **other** residential development project had seven model homes. These are labeled 201, 202, 301, 302, 303, 401, and 402. The homes are sized at 2,315 SF, 2,635 SF, 3,333 SF, 3,694 SF, 4,038 SF, 4,426 SF, and 5,090 SF respectively.

Each model home had been approved to meet the 2022 Title 24 standards using a software called EnergyPro which has been approved by the State of California for performance-based analysis. EnergyPro software uses the DOE2 engine for energy calculations and local weather data to provide hourly analysis and output. The input follows a prescriptive path outlined in the Title 24 documentation to create the loads. The input includes hourly schedules for all loads, temperature settings, etc. This data is combined with an hourly TMY (Typical Meteorological Year) weather file from Palm Springs airport for all calculations. The hourly output from the EnergyPro software was procured for all seven models. To meet Title 24 using software verification, each model home is analyzed pointing in the four cardinal directions therefore, twenty-eight model outputs were provided. The

four individual output files were combined and averaged for each model home for use in the analysis.

The average hourly results for each model are the basis for the analysis performed in the Excel file “TRAM House Only Hourly Profile Summary” and located in tabs labeled Plan 201, Plan 202, Plan 301, Plan 302, Plan 303, Plan 401, and Plan 402. To track the following explanations, it is recommended the Excel file be open and followed as the explanations occur. See the Excel file and this explanation for the series of modifications adapted to the EnergyPro load profiles to create a reasonable load profile for The Ranch at Madison project for the residential square footage.

The file “TRAM House Only Hourly Profile Summary” is the Excel file containing all the tab references, cell, and column references to follow. This Excel file shows the calculations used to modify the base hourly load profiles to reasonably represent actual annual energy use.

The following descriptions outline the modifications applied to the base EnergyPro data in the Excel file and reference decisions made in the **other** project which are pertinent to this project.

The initial analysis of the EnergyPro outputs for the different model homes, without PV or battery, revealed total electrical energy usage significantly lower than any of the people participating in the project had seen in their respective similar sized homes or what the PV installer had been seeing with the data they had collected. An in-depth review of what might be different revealed two major areas. The first was due to pool and spa lights and pumping. The other was due to electrical vehicle charging. It was determined that any remaining differences would occur due to how the occupants operate the home.

The next step was to add a typical hourly load profile for the impact of pool and spa pumping and landscape lighting energy use typical for residential homes in the **other** development.

On tab "Pool & Landscape", the assumptions for pumps and lighting are noted in cells N6 through AC17. These are common quantities and sizes of equipment and lights for the homes in the **other** development and do not significantly change with the size of the homes in that development. The annual energy consumption was calculated at 9,382.7 kWh.

The second step was to add a typical hourly load profile for the impact of EV charging. To do this it is recognized that the occupants for The Ranch at Madison development may work out of the home, but no regular commuting will occur. Almost all occupancy will be considered vacation. For EV charging, even if the homes become full time, occupants will have a variety of work from home choices, "normal" commutes, or commutes to LA or San

Diego which will utilize other supercharging as well as home charging. Additionally, even normal commutes will have a wide variety of hours and days which will result in different charging times, durations, and days. Subsequently, for the EV charging load profile, in tab "Car Charge", eight different load profiles were created and then averaged to apply the range of diversity for charging to an individual home. Each of the eight different load profiles are created using different driving habits, mileage drive, car battery capacities, and charging habits. See cells G4 through W15 on tab “Car Charge” for inputs determining how each profile was created. The current settings for miles driven and charger size are AFTER modifications to eliminate the overestimation of energy use. The original profile numbers are in the cells next to those used in the calculation and are highlighted in yellow. The results of the original average car charger are a use of 4,818.9 kWh annually and a peak kW of 9.6 for a Level 2 charger.

The Pool & Landscape and Car Charge load profiles were added to the base hourly load profiles for a new summary. The next step was to validate the new totals by comparing them to actual usage to calibrate the hourly profiles.

To calibrate the hourly profiles, actual annual energy use is necessary. For the **other** project, only one set of actual utility bills was obtained which is not necessarily a reliable point of reference. This was due to the difficulty in obtaining the data. The data obtained was from one family living in a popular model home with a Title 24 compliant PV installation (PV only, no battery) and one EV vehicle. The family also provided access to their usage information from the PV installer. The annual summary of their usage and PV production is on tab "Monthly Tune", cells B3 through H17 and totals 35,754 kWh annually. Note, the billing months aren't sequential. The provided home data was for Plan 303 model home which was occupied year-round.

To compare modeled energy use to actual data, the base profile with the two load profile additions was performed on the Plan 303 model usage and resulted in annual usage of 26,893 kWh. This was still 8,861 kWh less than the actual data. The comparison occurred in tab “Monthly Tune”, in cells F20 through J33, **prior to** the adjustments noted below to account for the non-linearity of the Pool & Landscape profile addition and the Car Charge profile addition. The comparison showed significant additional modifications were necessary. To perform those modifications, a monthly tuning factor was used. The monthly tuning factor was calculated for each month and then was applied to every hour of the load profile for that month. These calculations occur on tab “Plan Qty Summary” using column E and columns titled Subtotal-No PV/Batt columns for each model home. For Plan 201, this is column I.

From this information, the monthly "tuning" factors for base energy use are calculated on tab "Monthly Tune", cells K21 through K32, for the Plan 303 model home and applied to all the models. Once the total expected home use tuning modifiers were determined, these were “locked” so adjustments for quantities of homes and non-linear scalability could not affect the home use. See explanation below for these changes.

To reverse the modifications from the non-linear Pool & Landscape modifier and the Car Charge modifier to represent the data noted above, several changes must be made. The first is to change the yellow highlighted cell U10 on tab “Pool & Landscape” from 0.5885 back to 1.0. The second is enter the seventeen yellow highlighted cells in the “Car Charge” tab into the cells immediately to their left. The third step is to copy the saved programming on tab “Monthly Tune”, cells K36 through K47, and paste only the programming into cells K21 through K32. The last step is to change the yellow highlighted cell N25 to 100. These changes will reproduce the original values for tuning.

The application of all tuning factors to the Plan model home profiles and total energy use load profile is shown on tab "Plan Qty Summary", in columns E and F.

To add reliability to the annual consumption based on the one data point available, additional references were necessary. See **Exhibit B – Basis for Residential Energy Use** for two additional sources of annual energy use as guidance and validation in this analysis. The first source utilized is the ResStock data which provides a significant foundation for comparison and reliability. The data from this site is considered most applicable to this analysis. Using the average intensity of 5.6102 kWh/SF from the ResStock analysis results in an annual use of 22,654 kWh for a 4,038 SF home the size of Plan 303 model. After adding the car charging and pool & landscape modifiers, the ResStock analysis would use 1,102 kWh more than the Plan 303 model uses in this analysis.

Exhibit B – Basis for Residential Energy Use also shows data from another source for reference. This source is the 2020 Residential Energy Consumption Survey (RECS). The data from this source showed an annual usage of 8.99 kWh/SF for newer homes in similar climate zones with pools, spas, and electric vehicles. This results in a total use of 36,302 annual kWh for a 4,038 SF Plan 303 model or 548 kWh annually more than the tuned models. This guideline also supports the reasonableness of using the new, tuned hourly load profiles but the lack of granularity makes it less applicable than the ResStock source.

As a result of the outside sources, the references and modifications described above are sound adaptations of the base hourly load profiles and result in reliable energy use for residential spaces.

All analysis, calibration, and tuning above were done prior to considering the impacts of Title 24 required solar PV and battery applications. The following description addresses the application of the Title 24 PV and battery impacts.

The EnergyPro data from the **other** project also came with the hourly load profile for the solar PV and battery data as recommended by the Title 24 consultant based on the 2022 requirements. In the **other** project analysis this data was modified but, for The Ranch at Madison, the base EnergyPro calculated PV production was used so the tuning modifications for solar production stay at 100% as this reflects the baseline Title 24 amount of solar PV and battery sizes. This is reflected in tab "Monthly Tune", cells E21 through E32. The only change was to the data for the Plan 402 model home which appears to be mistakenly sized, so it was modified to match the hourly data for Plan 401 as a better representation of size. The application of the required Title 24 solar PV is closely linked with the conditioned square footage of space therefore scaling the value of the Title 24 solar PV by square footage is reasonable. The impact of the respective solar PV and battery on the model homes of the **other** project is shown in the tab "Plan Qty Summary" in columns titled "PV, Subtotal PV, Battery, Battery Storage, Subtotal Battery" for each Plan type. For Plan 201, this represents columns N through R.

The application of the impact of the battery for each model home was changed from how it was applied in the EnergyPro models. In this analysis, a minimum state of charge (SOC) of 20% was incorporated as well as charging and discharging efficiencies due to the inverter. These are input as 95%. All battery sizes applied to all models are a common residential size of 10 kWh. These changes result in a better approximation of the impact of this technology. The application of the battery impact is simply to charge from the solar PV until full and then discharge until the minimum SOC is reached. No controls to manage peak load are applied.

The result of the application of the Title 24 required solar PV and battery is a **net** annual energy use of each residence. The **net** annual energy use and subsequent load profile is used in The Ranch at Madison analysis therefore the individual impacts of Title 24 on each residence **are** included in the evaluation. The 2022 Title 24 solar requirements are identical in the 2025 version.

The **other** project similarly was attempting to quantify the total electrical load for the development from a multitude of houses with varying quantities of each model type. See Excel file "TRAM House Size Balancing" for how the different quantities of each model home from the **other** project were chosen to balance the conditioned square footage to reflect the square footage of the respective Estates, Golf Cottages, and Villas at The Ranch at Madison. See results below.

Equivalent Original Houses to TRAM Houses								
201	**202**	**301**	**302**	**303**	**401**	**402**		
22	**33**	**30**	**30**	**32**	**31**	**31**		
					Total	**209**		
Plan Cond. SF								
2,315	2,635	3,333	3,694	4,038	4,426	5,090		
Total SF								TOTAL SF
50,930	86,955	99,990	110,820	129,216	137,206	157,790		772,907

Rough # and SF of TRAM Housing									
Golf Cottage	**Custom**	**Village Units**							
34	**31**	**20**	**0**	**0**	**0**	**0**			
					Total	**85**			
Plan Cond. SF									
6,375	16,335	2,500	-	-	-	-	0		
Total SF								TOTAL SF	
216,750	506,385	50,000	-	-	-	-		773,135	1.000295

The quantities of individual model homes from the **other** project which equate to The Ranch at Madison analysis are shown above and applied in the file "TRAM House Only Hourly Profile Summary" Excel file, on tab "Plan Qty Summary", in cells C8 through C14, which are subsequently applied to the base use, car charging, pool/landscape, PV, and battery columns of the individual model homes. The quantity applications are first shown on tab “Plan Qty Summary” for each model. See columns titled “Subtotal-No PV/Batt, Subtotal Car Charging, Subtotal Pool Landscape, Subtotal PV, Subtotal Battery for these calculations. For Plan 201, these are columns I, K, M, O, and R.

The final results for each home model are summarized on tab "Project Summary" tab, columns F through L, and summed in column M for a total expected load profile of all homes. This approach accurately uses a similar quantity of each model home from the **other** project to represent the square footage of residential space at The Ranch at Madison but does overstate the energy consumption in a couple of ways. See below for these explanations and analysis.

As reference, other tuning options were available on tab "Monthly Tune". The first set of factors in cells V21 through V25 can be used to evaluate the sensitivity of changing the base load, PV output, battery performance, EV charging, and pool/landscape modifications. These factors were not used for this analysis and are set at 100%.

The second set of tuning factors is a seasonal tune to allow for changing home energy use due to off-season or part time occupancy. This tuning is in the yellow highlighted cell N25 and applies through cell N30. Due to the expected occupancy, a small factor for seasonal

tuning of 95% was applied to this analysis and reduces the total annual calculated residential energy consumption by 150,356 kWh. To reverse this adjustment, change the value in cell N25 to 100. This factor is not quantifiable but sound judgement indicates this will be a conservative factor based on how homes at The Ranch at Madison will be occupied.

The above analysis is a reasonable attempt at quantifying the total energy use of The Ranch at Madison using the modified data from the **other** project. However, there are several items with the approach which cause an over estimation of annual energy use.

The first area where using the analysis approach for the **other** development overstates energy consumption for The Ranch at Madison is the non-linear scalability of the (209) sets of pool pumps, spa pumps, pool & spa lights, landscape lights. These are not scalable additions in the overall analysis to the (85) residences at The Ranch at Madison. Meaning, even though The Ranch at Madison residences are much larger, the energy use for these items will not linearly go up by the ratio of square footage.

To calculate the impact of the non-linearity of the pool/spa pumping and lighting and landscape lights, a separate calculation was used. To reasonably represent the additional energy use for the sizes of residences at The Ranch at Madison, factors were applied. For the Estates, a factor of 2 was used as this doubles the energy use of the smaller homes. This is reasonable as the pumps for a much larger pool and spa will only double to 5HP and 3HP respectively, and the lighting will be a similar size difference. A factor of 1.5 was used for the Cottages, and a factor of 0.5 for the Villas. This represents the equivalent energy use of (123) of the Pool & Landscape load profiles. See Excel file "TRAM Pool and Lights Ratio Analysis" for details with the summary below.

	Equivalent Original Houses to TRAM Houses							
	201	**202**	**301**	**302**	**303**	**401**	**402**	
	22	**33**	**30**	**30**	**32**	**31**	**31**	
Pool/Spa	9,383	9,383	9,383	9,383	9,383	9,383	9,383	
EV Charging	-	-	-	-	-	-	-	
Subtotal	9,383	9,383	9,383	9,383	9,383	9,383	9,383	**Total kWh**
Total	206,426	309,639	281,490	281,490	300,256	290,873	290,873	**1,961,047**
							Other Use Ratio	**0.5885**
							Difference	**806,938** **kWh**

	Rough # and SF of TRAM Housing			
	Golf Cottage	**Custom**	**Village Units**	
	34	**31**	**20**	
Pool/Spa	9,383	9,383	9,383	
EV Charging	-	-	-	
Subtotal	9,383	9,383	9,383	
Factor	1.5	2.0	0.5	
Subtotal	14,075	18,766	4,692	**Total kWh**
Total	478,533	581,746	93,830	**1,154,109**

The results show the current base annual consumption as 1,961,047 kWh when it should be 1,154,109 kWh. The difference of 806,938 kWh is significant and therefore must be subtracted from the current analysis. The ratio of the actual expected use and the current analysis is 0.5885. This factor equally impacts total energy use and peak demand which is accurate. To implement this change, two items were modified in the Excel file "TRAM House Only Hourly Profile Summary". The first was on tab "Monthly Tune". In cells K21 through K32, the initial tuning numbers were copied and pasted onto the same cells as numbers

only. These numbers are saved in cells M36 through M47 highlighted in green for reference. By doing this action first, all baseline tuning values used in the “Plan Qty Summary” tab don’t change. The second change was applied in tab “Pool & Landscape”, cell U10, highlighted in yellow. This changes the values to 0.5885 to address the ratio of energy use as shown above and results in more accurate annual energy consumption for the entire project.

The second area where using the analysis approach for the **other** development overstates energy consumption for The Ranch at Madison is the direct multiplication of the (209) EV charging use and profiles. The Ranch at Madison intends to install one EV charging outlet for each Estate, Cottage, and Villa plus two other four-charger stations for a total of (93). In the current analysis, the consumption of the difference (209-93=116) in charger quantities is included. Each charger is calculated to use 4,818.9 kWh per year, so this difference amounts to 558,992 kWh. To eliminate this overestimation, two areas of the car charging profile were modified. Each was modified by the ratio of 93 to 209 which is 44.5%. The first is the average number of annual miles driven during the weekday and weekend for the eight different charging profiles being reduced. These values used to reflect the reduction are in the cells immediately to the left of the 16 yellow highlighted cells on rows 6 and 9. The second change made to implement the reduction is by reducing the peak demand of each charger from 9.6 kW to 4.272 kW. This is shown in cell I14. The results of both changes accurately reflect the expected annual usage and peak demand from the car chargers for The Ranch at Madison.

The Ranch at Madison analysis reflects the adjustments for the “Pool & Landscape” and “Car Charge” modifications in the “Plant Qty Summary” and “Project Summary” tabs.

The third and last item which causes overestimation of energy consumption and peak demand is the amount of exposed wall area to conditioned space. The approach of using more quantities of smaller homes has a significantly higher exterior wall to conditioned square footage ratio than will occur when homes are sized at 16,335 SF and 6,375 SF as well as the multi-family configuration of the 2,500 SF Village Units. In new construction, the square footage of exterior wall area minimally impacts 20% of the overall energy consumption. Note, this factor doesn’t just impact the total energy use but also the peak energy demand.

	Equivalent Original Houses to TRAM Houses							
	201	202	301	302	303	401	402	
	22	33	30	30	32	31	31	
						Total	209	
1.618	Plan Cond. SF							
use 1:1.618 ratio	2,315	2,635	3,333	3,694	4,038	4,426	5,090	
W	38	40	45	48	50	52	56	
L	61	65	73	77	81	85	91	
Check	2,315	2,635	3,333	3,694	4,038	4,426	5,090	
Wall Perimeter	198	211	238	250	262	274	294	
H	12	12	12	12	12	12	12	
Wall Area	2,377	2,536	2,852	3,002	3,139	3,286	3,524	**SF**
Total Wall Area	52,287	83,675	85,552	90,066	100,444	101,873	109,248	**623,145**
Wall Aspect Ratio - Architectural Golden Ratio of 1:1.618.						**Wall Area Ratio**		**1.3712**
Known as the "divine proportion". Derived from the Fibonacci sequence.						**% of Total Energy Use**		**20%**
Wall heights for all houses are estimated.						**Overall Impact**		**7.42%**

	Rough # and SF of TRAM Housing			
	Golf Cottage	Custom	Village Units	
	34	31	20	
		Total	85	
1.618	Plan Cond. SF			
use 1:1.618 ratio	6,375	16,335	2,500	
W	63	100	39	
L	102	163	64	
Check	6,375	16,335	2,500	
Wall Perimeter	329	526	206	
H	14	16	9	
Wall Area	4,601	8,418	1,852	**SF**
Total Wall Area	156,443	260,947	37,047	**454,437**

Minimum Portion of Total Energy Use by Exterior Walls for New Home Construction

See Excel file “TRAM Wall to Space Ratio Analysis” for the detailed analysis of this impact showing where a reasonable difference in the exposed wall area to conditioned space ratio causes 7.42% too much annual energy use in the residential loads. The base energy use of the residential loads is 3,948,471 kWh prior to adding Pool & Landscape, Car Charge, and impacts of Title 24 solar PV and batteries. This results in overstated energy use of 292,976 kWh annually. There was no reasonable way to eliminate this overstatement in the hourly load profiles, so this impact was **not** factored out of the final analysis.

This ends the description for the residential space hourly load profile creation and modifications.

EXHIBIT D

The Ranch at Madison

Other Loads Descriptions and Data

This document provides information regarding the creation and supporting data for the other loads and respective hourly profiles in The Ranch at Madison project. These loads include the Maintenance Building, Pump Station, Activity Lagoon Pumping, and Area Lights.

For background on the Maintenance Building and Pump Station load profiles, a recently completed in-depth analysis on the energy loads and profiles for a different residential development project located less than five miles from the proposed Ranch at Madison project was performed. The other development has many similarities to The Ranch at Madison and the accuracy and data from that project seemed to fit well for use in this analysis, so it was used as the basis for many of the load profiles.

Pump Station

For background, actual Imperial Irrigation District (IID) interval data was available for a pump station currently serving an 18-hole golf course with lagoons, development amenities including clubhouse, fitness center, pool, courts, etc., and about 400 luxury homes on about 600 acres **nearby** The Ranch at Madison location. The pump station provides the golf course and residence irrigation and lagoon water pumping with the farthest served point about one mile away. All pumps are headered together and equipped with VFDs to operate to maintain constant pressure. As this application is very similar to The Ranch at Madison, it is reasonable to use the available data as a representation of the expected hourly load profile for this evaluation.

See the “TRAM Pump Station Load Profile” Excel file for the load profile of the Pump Station. This data is based off a large portion of 15-minute interval data from IID. The actual data covers the dates from 7/18/2024 at noon through 1/22/2025 at 7:00a.m. This data is on the "Pump Int Data" tab along with the calculations to create an hourly load profile. The actual data covers the most important times of the year for these facilities as it includes some summer months, but the most important month is October when a lot of turf maintenance and reseeding are performed. On the "Pump House" tab is an in-depth effort to extrapolate data for the remaining months using the interval data and the monthly bill data. A matrix of weekday and weekend hourly energy use profiles during the summer, winter, and shoulder months was created from the actual data and then input into the appropriate days of the respective missing data. The actual monthly utility bills were obtained to compare and modify the extrapolated days. The newly created hourly data for the missing days was summed up for the meter read dates corresponding to the monthly utility bills and compared to the utility bill reading. This comparison was used to create a modification factor for each month which was applied to the extrapolated data and results in an hourly load profile that matches the respective utility bills and provides a reasonable

corresponding hourly load profile. The monthly bill data is in the upper left-hand corner of the tab and shows the read dates, usage, and demand. Cell J22 in this tab has the header for the final load profile created which appears to be a reasonable approximation to the actual utility bills for total usage and the peak demand from the actual data covers the maximums for the year.

Maintenance Building

See the “TRAM Maintenance Building Load Profile” Excel file of the Maintenance Building. The Maintenance Building has a unique set of operating characteristics and having actual interval and bill data from a similar sized and operated building in the area is a better approach to creating a load profile than using one of the options in Xendee.

This data is based off a large portion of 15-minute interval data from the Imperial Irrigation District utility (IID) for a similar sized and utilized maintenance building **near** The Ranch at Madison location. The actual data covers the dates from 7/18/2024 at 4:30pm through 1/22/2025 at 7:30a.m. This data is on the "Maint Int Data" tab along with the calculations to create an hourly load profile. The actual data covers a significant portion of the summer, shoulder, and winter months. On the "Maintenance Building" tab is an in-depth effort to extrapolate data for the remaining months using the interval data and the monthly bill data. A matrix of weekday and weekend hourly energy use profiles during the summer, winter, and shoulder months was created from the actual data and then input into the appropriate days of the respective missing data. The actual monthly utility bills were obtained to compare and modify the extrapolated days. The newly created hourly data for the missing days was summed up for the meter read dates corresponding to the monthly utility bills and compared to the utility bill reading. This comparison was used to create a modification factor for each month which was applied to the extrapolated data and results in an hourly load profile that matches the respective utility bills and provides a reasonable corresponding hourly load profile. The monthly bill data is in the upper left-hand corner of the tab and shows the read dates, usage, and demand. Cell J22 in this tab has the header for the final load profile created which appears to be a reasonable approximation to the actual utility bills for total usage.

Activity Lagoon Pumping

The current activity lagoon shown on the master concept plan is about 42,000 SF. At an average depth of 4’, this amounts to 168,000 gallons. Water turnover rate is expected to be every 6 hours for an activity lagoon which results in 470 gallons per minute (GPM). A common design head is 50’ which accounts for all losses. A common pump efficiency is about 60% and the specific gravity of water is 1.0. Using the standard equation for calculating pump brake

horsepower of (GPM x head)/(3960 x pump efficiency x specific gravity of water), results in a calculated brake horsepower of 9.90. Therefore, two 20-HP pumps are more than adequate for this evaluation.

See the “TRAM Activity Lagoon Pumping Profile” Excel file for the load profile for the Activity Lagoon. The profile is based on two 20HP pumps with variable frequency drives (VFD) operating simultaneously to provide the necessary pumping. The pumps are expected to slow down at night to maintain some water flow.

This load was created specifically for The Ranch at Madison and is not based on any previous data or information.

Area Lights

The area lighting load profile was created using the three main types of lighting uses. One use covers the racquet courts, event lawn, kid’s playground, and short game area called Activity Lighting. Another covers the greenhouse and the final one covers all the common areas such as streets, parking, cart paths, tunnels, entrances, and common areas by the activity lagoon, event lawn, fitness, and wellness buildings.

The Master Plan was used to calculate all areas and distances for the three types of lighting. The number of watts per square footage for the different activities was referenced from the 2022 California Energy Efficiency Standards (Title 24), section 140.6 and 140.7 for lighting power allowances. The common areas were assigned 0.019 watt/SF and totaled 16.75 kW. The racquet courts were assigned 1.10 watt/SF and the rest of the activity areas were assigned 0.15 watt/SF for a total of 95.0 kW. The greenhouse was assigned 0.50 watt/SF for a total of 1.5 kW. The common area and greenhouse lights are expected to operate 12 hours per day and the activity areas 7 hours per day in the evenings, every day of the year.

The three individual hourly load profiles were created within Excel and summed for each hour, and the resulting load profile was input into Xendee.

See the “TRAM Area Lights Profile” Excel file for the load profile on tab “Area Lights Profile”. The tab “Area Lights Backup Calculations” tab has a summary of the different areas and lighting types as well as the watts per square foot used for each type. It also includes references for the watts per square foot values used noted above. See the PDF files “TRAM Plan Other Lighting Areas” and “TRAM Plan Streets and Cart Path Areas” for scaled site plans and areas and lengths used in the backup calculations.

EXHIBIT E

The Ranch at Madison

XENDEE Input Data

Xendee is an online software tool for developing and designing microgrids.

https://xendee.com/

> The Most Comprehensive DER Design & Operation Platform
>
> Model and control 25+ DER technologies and 14 distinct value streams (e.g. electric vehicle charging and demand charge reduction), enabling you to quickly screen, design, and operate your DER project of any size.
>
> Model power and energy flow in your microgrid or EV charging network together with financial constraints to create the optimal energy infrastructure design, without the need for time-consuming manual iterations.

The tool is only accessible via the internet. All project information must be entered into the online input user interface.

For The Ranch at Madison, Xendee was used to create load profiles for the following facilities highlighted in blue using the Building Use Profiles noted. Xendee will also be used to input the five other manually developed load profiles and create an overall project load profile used to evaluate the appropriate microgrid power solution.

Building Name	**Building Use Profile**
Estates, Golf Cottages, Villas	Modified Modeling Data
Guard House	Small Office
Entry Pavilion	Small Office
Farm to Table	Full Service Restaurant
Event Barn	Full Service Restaurant
Beach Club	Quick Service Restaurant
Fitness Center	Retail Standalone
Wellness/Spa	Retail Standalone
Starter Shack	Retail Stripmall
Commissary	Retail Standalone
Maintenance Building	Modified Actual Data
Pump Station	Modified Actual Data
Activity Lagoon Pumping	Calculated Data
Area Lights	Calculated Data

Xendee has built in the ComStock hourly load profiles created from the efforts outlined on that website as part of the US commercial building stock. This data is available on the OEDI website (https://data.openei.org) but accessing the data is for users knowledgeable in the Python programming language. For reference, the name of the data lake in OEDI is “End-

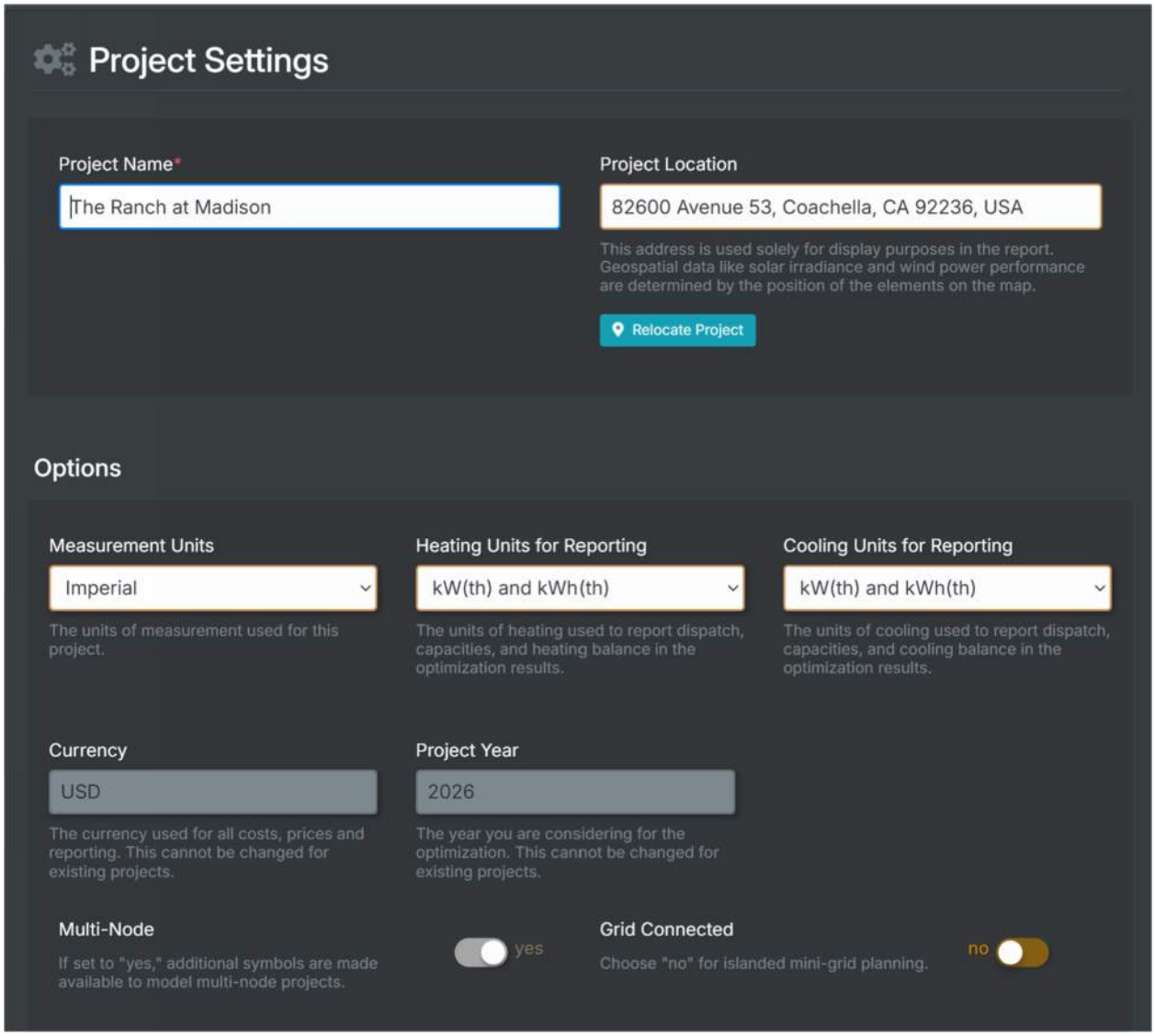
Use Load Profiles for the U.S. Building Stock". See **Exhibit A Basis for Commercial Building Energy Use** for more information.

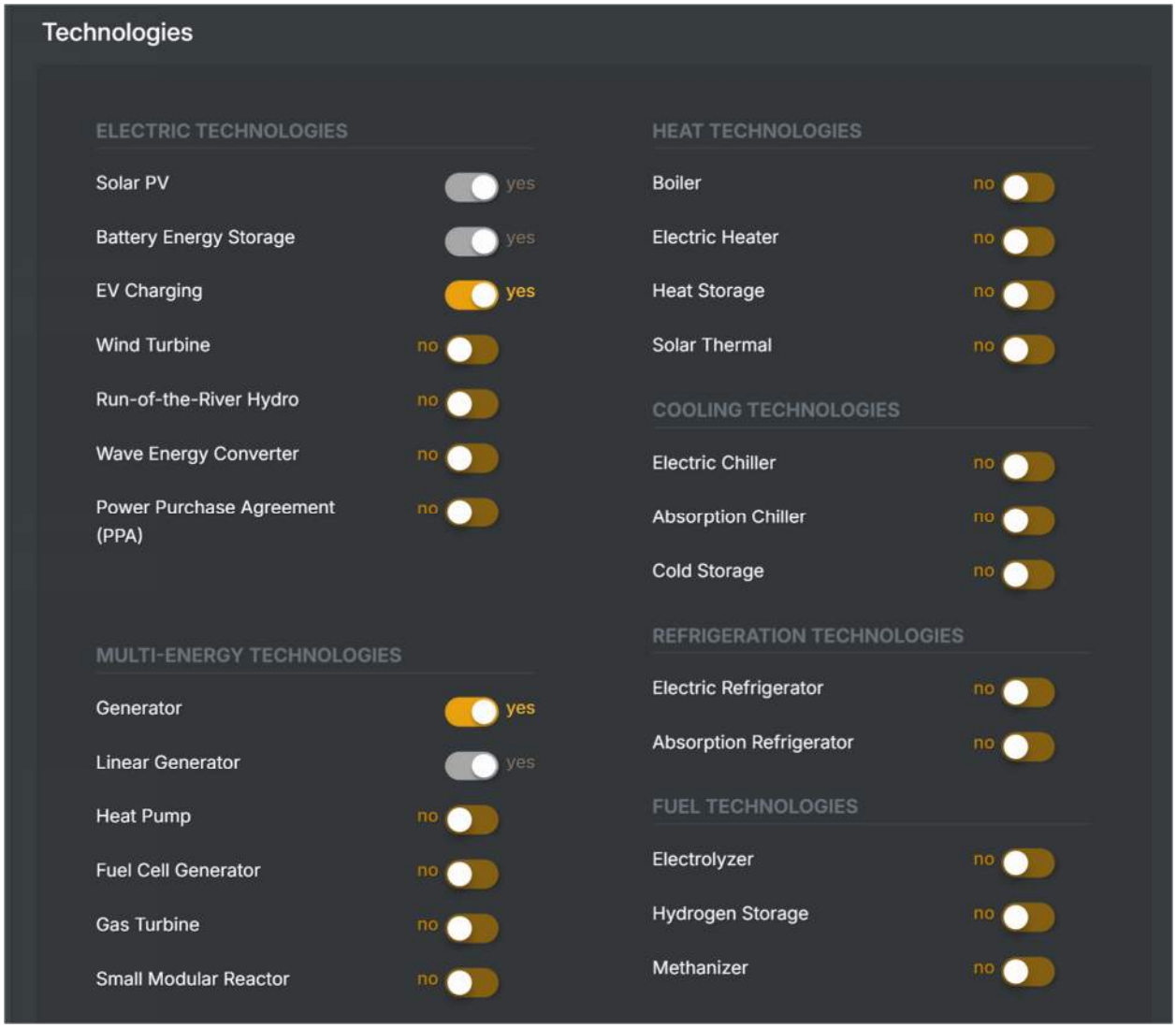
The building use profile chosen for each facility is selected based on the best available fit for hours of operation and energy use intensity using experience and judgement with the intent to error on the side of caution for a profile that would use more energy than anticipated.

Each of the facilities was created as a load in the software and the built-in load profiles were applied and modified by the annual usage. The resulting peak demand in Xendee was compared to the "OEDI Data Summary" tab information in Excel file "TRAM Loads Summary" for reasonableness.

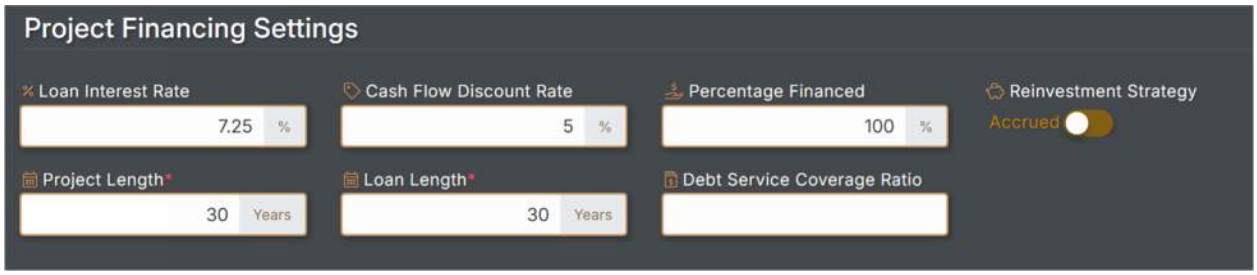
It was determined the modified hourly load profiles will reasonably model the energy use of the facilities for purposes of identifying the overall coincident electrical peak demand and energy consumption of The Ranch at Madison project.

The Xendee project starts with project level information such as address or GPS location, measurement units, units for reporting, currency type, year of model, and technologies used. For The Ranch at Madison, the technologies used include solar PV, BESS, generator, and linear generator.

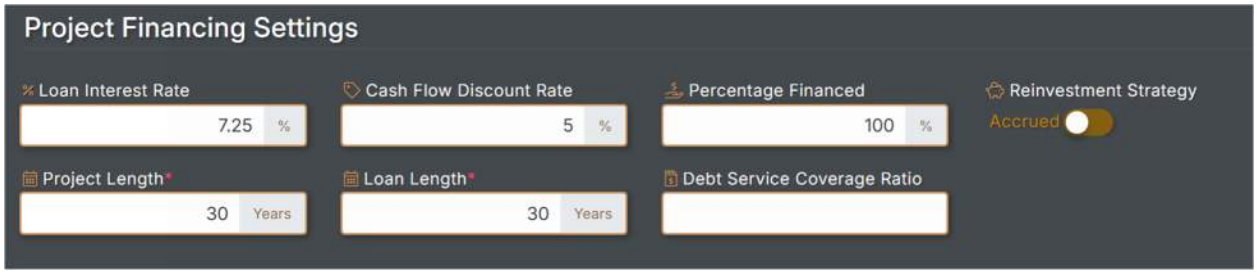

Project Settings
Project Name*
The Ranch at Madison
Project Location
82600 Avenue 53, Coachella, CA 92236, USA
This address is used solely for display purposes in the report. Geospatial data like solar irradiance and wind power performance are determined by the position of the elements on the map.
Relocate Project
Options
Measurement Units
Imperial
The units of measurement used for this project.
Heating Units for Reporting
kW(th) and kWh(th)
The units of heating used to report dispatch, capacities, and heating balance in the optimization results.
Cooling Units for Reporting
kW(th) and kWh(th)
The units of cooling used to report dispatch, capacities, and cooling balance in the optimization results.
Currency
USD
The currency used for all costs, prices and reporting. This cannot be changed for existing projects.
Project Year
2026
The year you are considering for the optimization. This cannot be changed for existing projects.
Multi-Node
If set to "yes," additional symbols are made available to model multi-node projects.
yes
Grid Connected
Choose "no" for islanded mini-grid planning.
no



Xendee has fuel settings which were modified to show $0.55/therm cost for natural gas. This rate is the current rate available for delivered fuel in a long-term bulk purchase agreement.

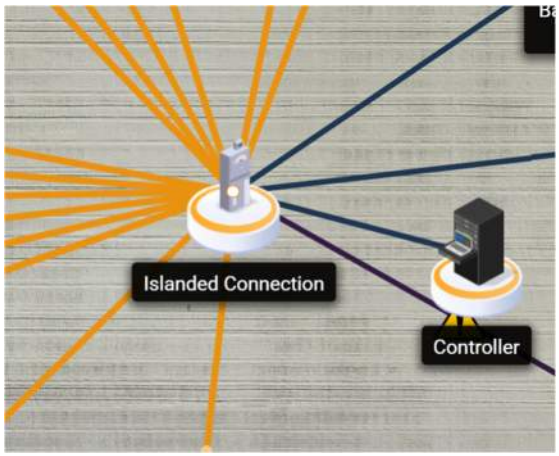


Xendee has detailed project financing settings which were set to 100% financing at 7.25% interest rate for a 30-year term which is available using a commercial property assessed clean energy (PACE) financial product.



No financial incentives are included.

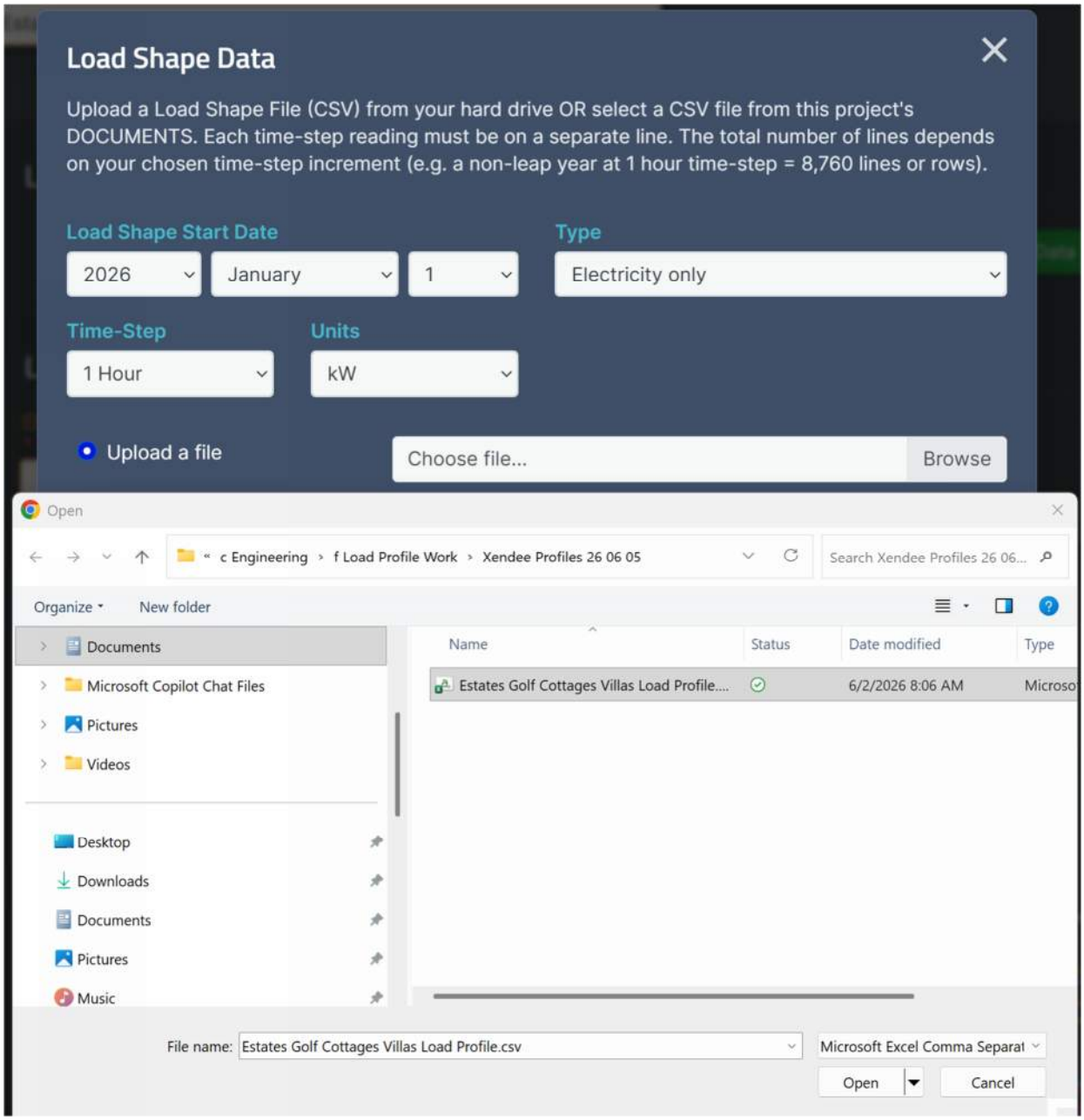
Once the project setup is complete, the configuration of the project is started. The base portion of the project is already in place and includes the Islanded Connection and Controller.

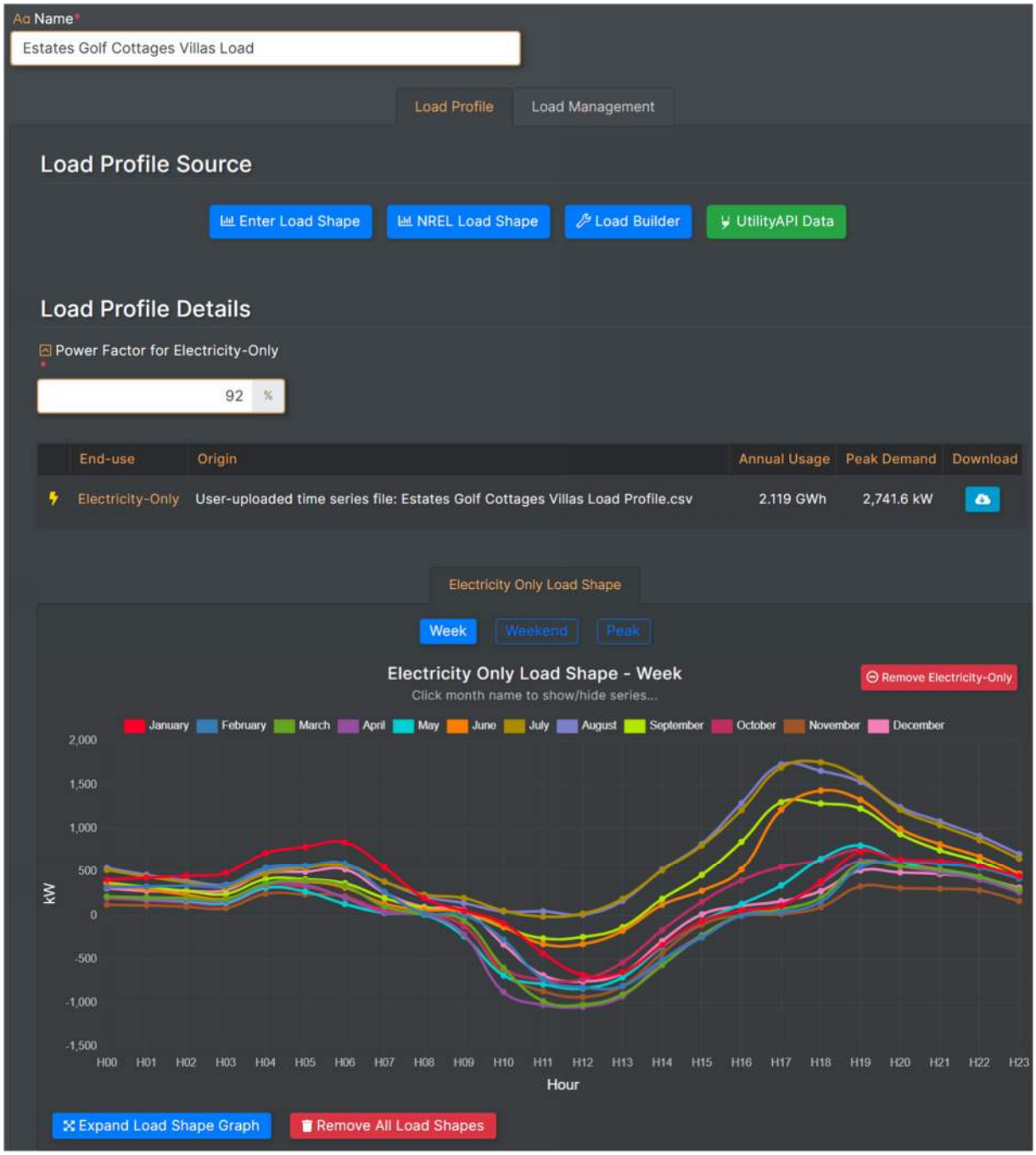


The next steps were to add Nodes and Cable for each load. In this case, there were (14) Nodes and Cables added. In this case, the cables are rated at 12.47kV. All nodes are located on the project site such that cable lengths are approximated to determine voltage drop and line losses. Following is an example of one cable to the guard house.

The following is a series of screenshots from the input process for each of the nine facilities and any pertinent decisions used in the process.

Estates, Golf Cottages, Villas – The hourly load profile for this load was created in the Excel file "TRAM House Only Hourly Load Profile". The combined results were copied to a .csv file and then imported into Xendee. See below.



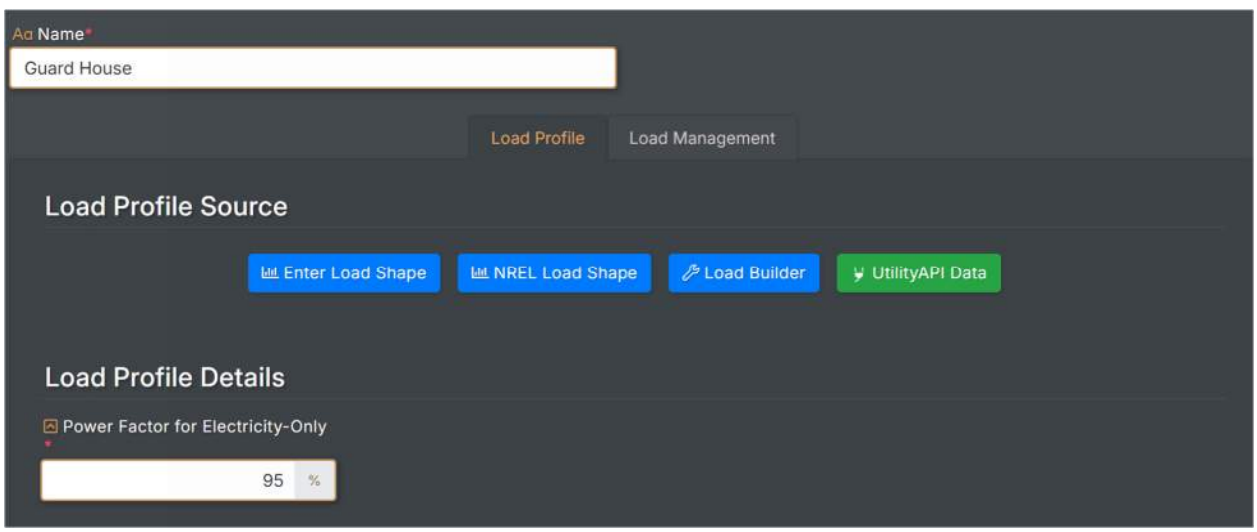


Guard House – Building Use Profile - Small Office

The Small Office NREL Load Shape was chosen for this facility. Step 1: The Site Climate Zone chosen is Phoenix, AZ, ASHRAE Climate Zone 2B. Note, NREL (National Renewable Energy Laboratory) is now the NLR (National Laboratory of the Rockies).

Step 2: Building Information – The Small Office Building Type was entered, then a Building Age of New Construction, and Units of MWH and kW. The annual consumption value was deleted and the Annual Peak Demand from the "TRAM Loads Summary" file, tab Energy Summary, was input. The load shapes and annual consumption were automatically calculated by Xendee. No information on Chiller Use or Natural Gas Use was entered as these do not apply. The Load Shapes to Import were deselected to choose Electricity Only. Then the Import Load Shape button was selected.

Following are screenshots of the final resulting load profile.

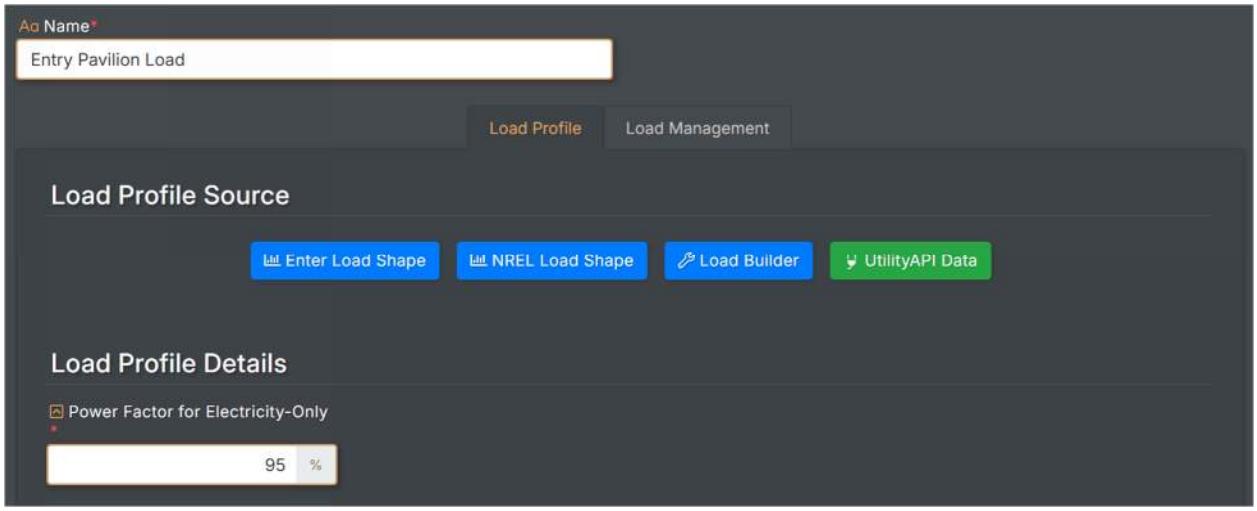


Note, the 0.014 GWh calculated by Xendee is about 2,233 kWh higher than the Energy Summary table is calculating. For this analysis, using the demand calculated in the "Energy Summary" tab of the "TRAM Loads Summary" file is most important. This is also true for the remaining loads created using the built-in Xendee end use load profiles.

Entry Pavilion – Building Use Profile - Small Office

The Small Office NREL Load Shape was chosen for this facility. Step 1: The Site Climate Zone chosen is Phoenix, AZ, ASHRAE Climate Zone 2B.

Step 2: Building Information – The Small Office Building Type was entered, then a Building Age of New Construction, and Units of MWH and kW. The annual consumption value was deleted and the Annual Peak Demand from the "TRAM Loads Summary" file, tab Energy Summary, was input. The load shapes and annual consumption were automatically calculated by Xendee. No information on Chiller Use or Natural Gas Use was entered as these do not apply. The Load Shapes to Import were deselected to choose Electricity Only. Then the Import Load Shape button was selected. See screenshots for Guard House for process. Following are screenshots of the final resulting load profile.

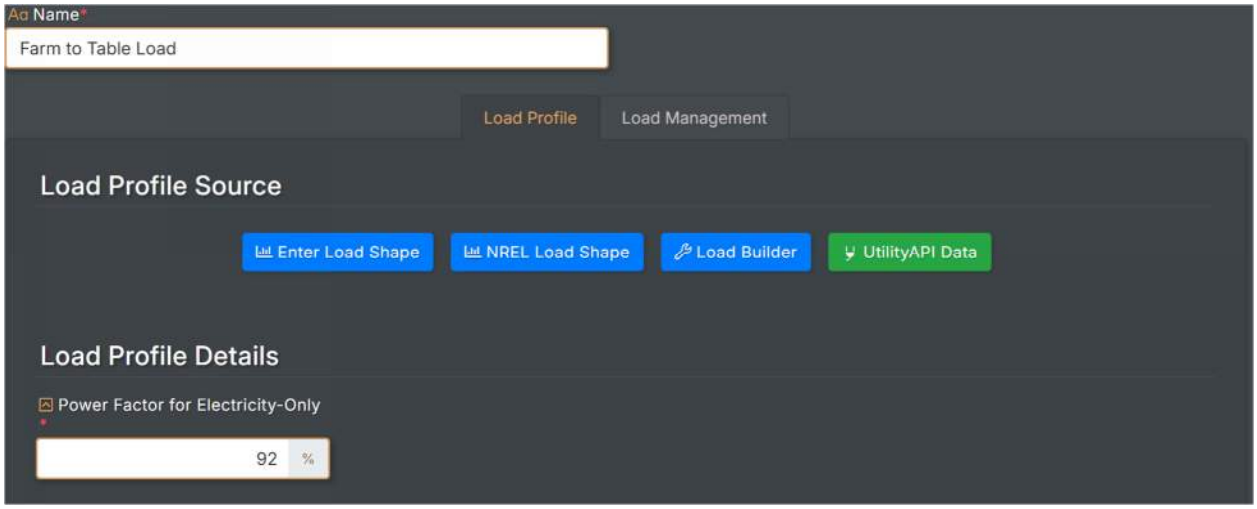


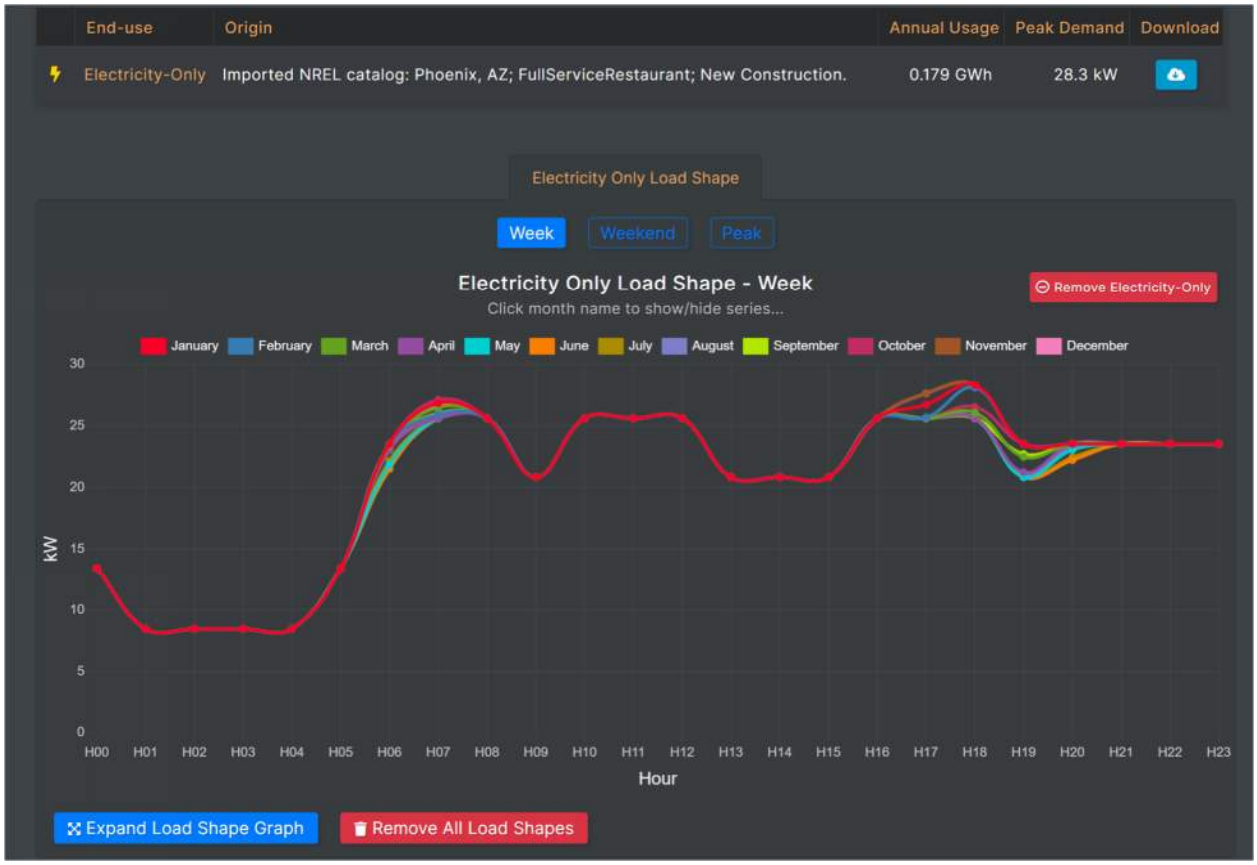
Note, the 0.045 GWh calculated by Xendee is about 7,234 kWh higher than the Energy Summary table is calculating.

Farm to Table – Building Use Profile – Full-Service Restaurant

The Full-Service Restaurant NREL Load Shape was chosen for this facility. Step 1: The Site Climate Zone chosen is Phoenix, AZ, ASHRAE Climate Zone 2B.

Step 2: Building Information – The Full-Service Restaurant Building Type was entered, then a Building Age of New Construction, and Units of MWH and kW. The annual consumption value was deleted and the Annual Peak Demand from the “TRAM Loads Summary” file, tab Energy Summary, was input. The load shapes and annual consumption were automatically calculated by Xendee. No information on Chiller Use or Natural Gas Use was entered as these do not apply. The Load Shapes to Import were deselected to choose Electricity Only. Then the Import Load Shape button was selected. See screenshots for Guard House for process. Following are screenshots of the final resulting load profile.



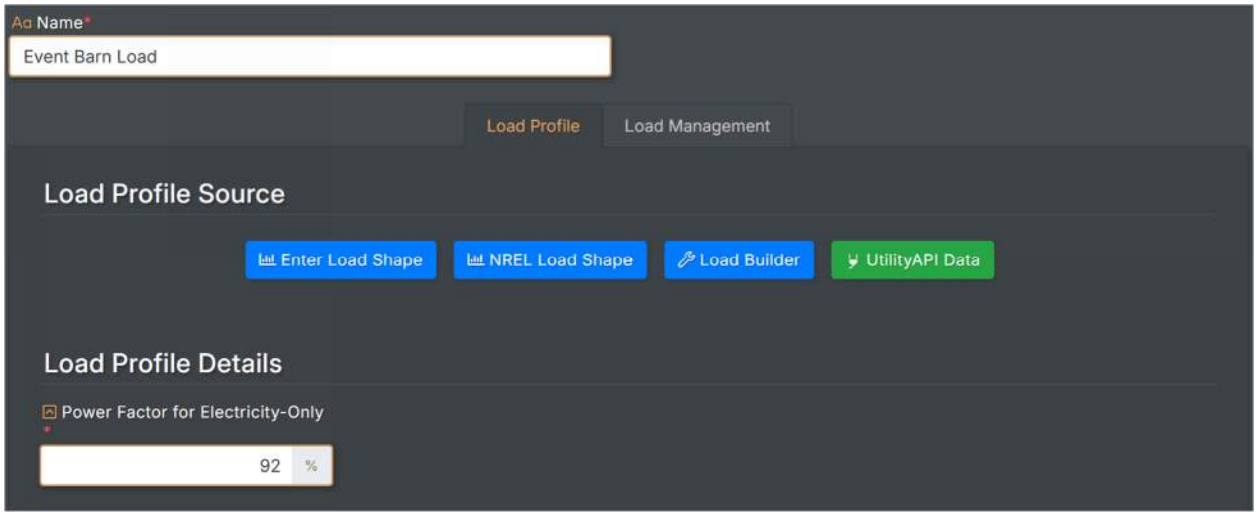


Note, the 0.179 GWh calculated by Xendee is about 45,666 kWh higher than the Energy Summary table calculated.

Event Barn – Building Use Profile - Full-Service Restaurant

The Full-Service Restaurant NREL Load Shape was chosen for this facility. Step 1: The Site Climate Zone chosen is Phoenix, AZ, ASHRAE Climate Zone 2B.

Step 2: Building Information – The Full-Service Restaurant Building Type was entered, then a Building Age of New Construction, and Units of MWH and kW. The annual consumption value was deleted and the Annual Peak Demand from the "TRAM Loads Summary" file, tab Energy Summary, was input. The load shapes and annual consumption were automatically calculated by Xendee. No information on Chiller Use or Natural Gas Use was entered as these do not apply. The Load Shapes to Import were deselected to choose Electricity Only. Then the Import Load Shape button was selected. See screenshots for Guard House for process. Following are screenshots of the final resulting load profile.

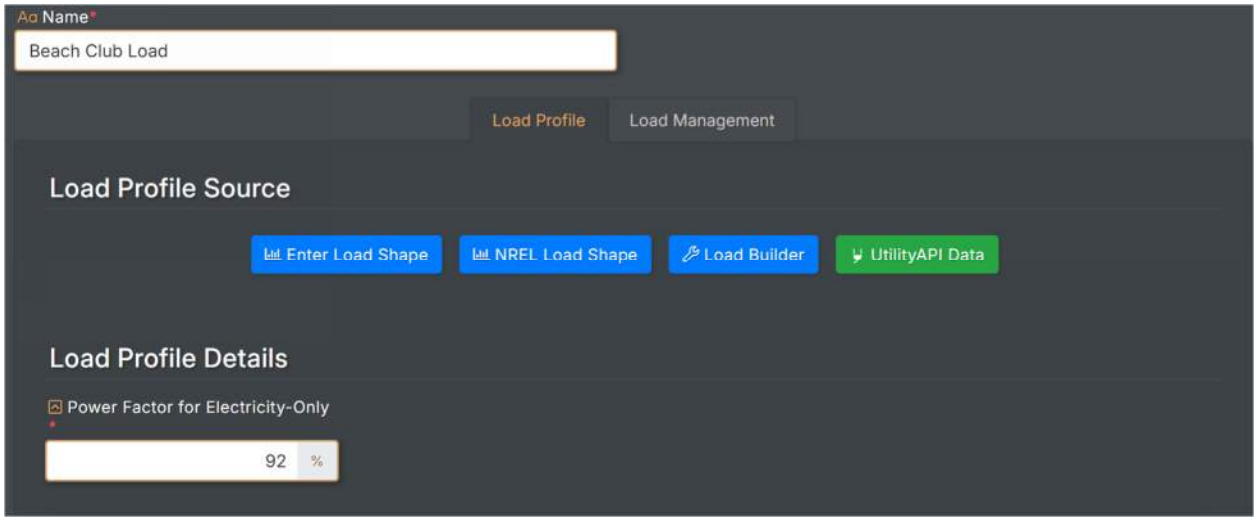


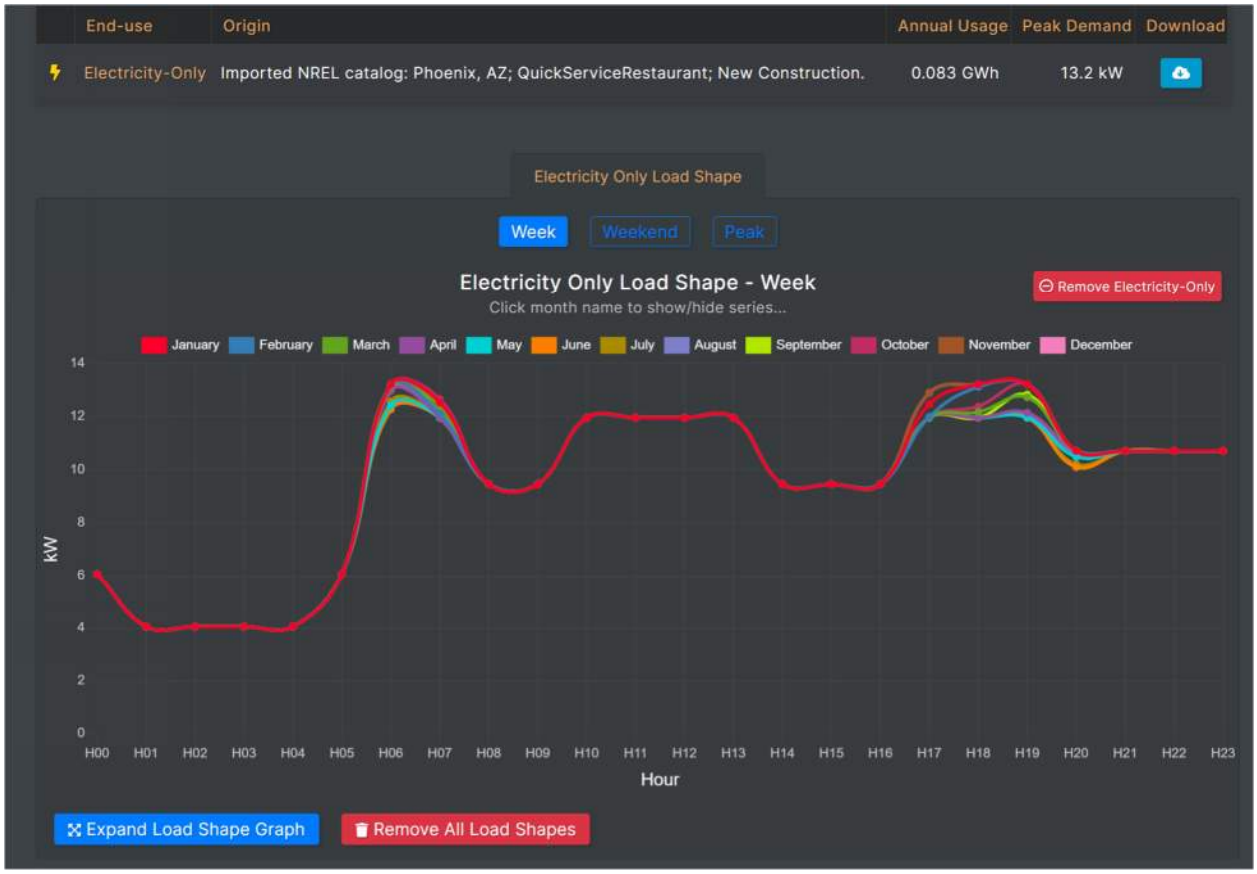
Note, the 0.863 GWh calculated by Xendee is about 219,879 kWh higher than the Energy Summary table is calculating.

Beach Club – Building Use Profile – Quick Service Restaurant

The Quick Service Restaurant NREL Load Shape was chosen for this facility. Step 1: The Site Climate Zone chosen is Phoenix, AZ, ASHRAE Climate Zone 2B.

Step 2: Building Information – The Quick Service Restaurant Building Type was entered, then a Building Age of New Construction, and Units of MWH and kW. The annual consumption value was deleted and the Annual Peak Demand from the "TRAM Loads Summary" file, tab Energy Summary, was input. The load shapes and annual consumption were automatically calculated by Xendee. No information on Chiller Use or Natural Gas Use was entered as these do not apply. The Load Shapes to Import were deselected to choose Electricity Only. Then the Import Load Shape button was selected. See screenshots for Guard House for process. Following are screenshots of the final resulting load profile.



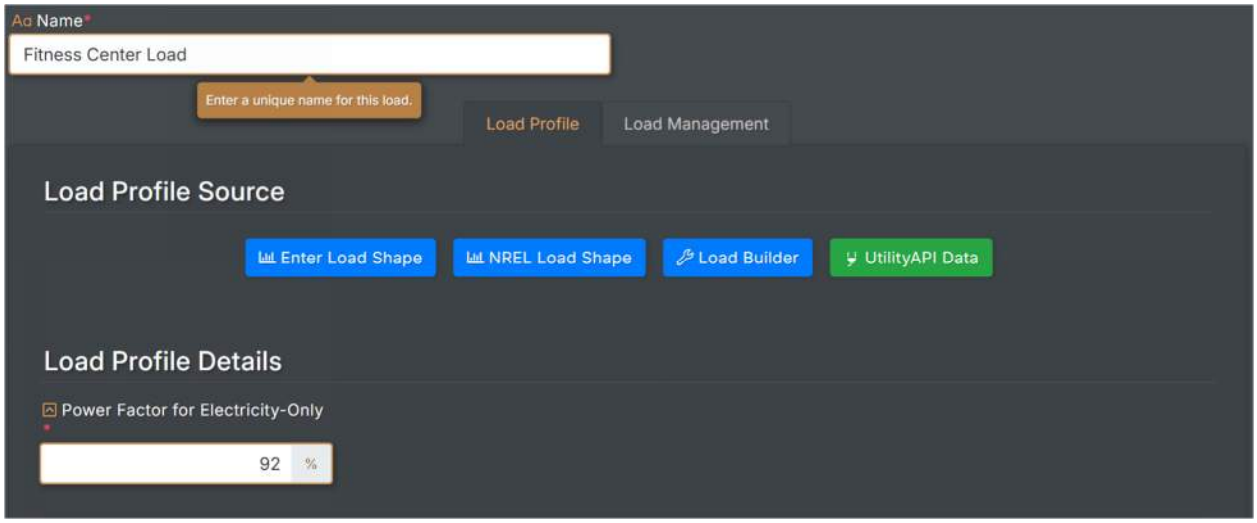


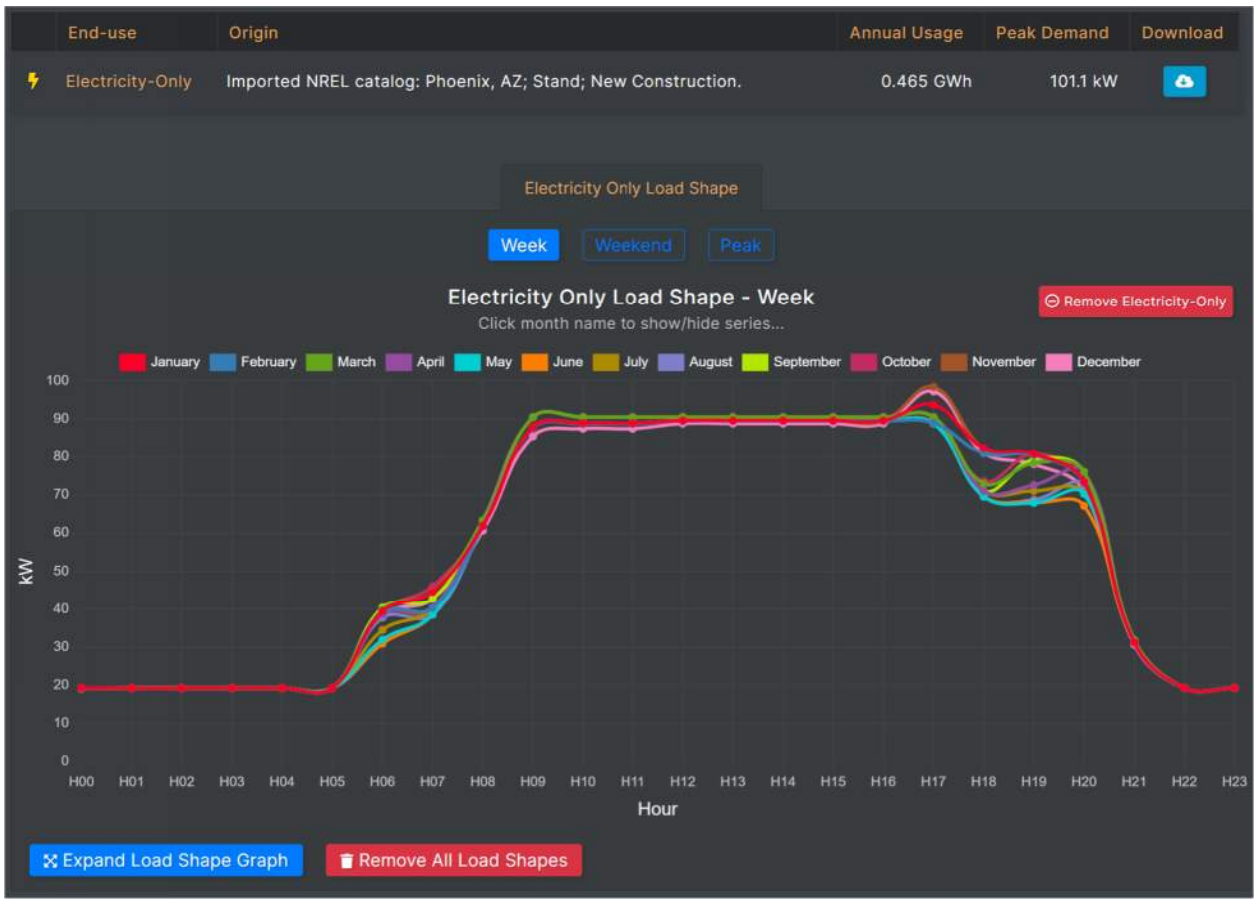
Note, the 0.083 GWh calculated by Xendee is about 14,211 kWh higher than the Energy Summary table is calculating.

Fitness Center – Building Use Profile – Retail Standalone

The Retail Standalone NREL Load Shape was chosen for this facility. Step 1: The Site Climate Zone chosen is Phoenix, AZ, ASHRAE Climate Zone 2B.

Step 2: Building Information – The Retail Standalone Building Type was entered, then a Building Age of New Construction, and Units of MWH and kW. The annual consumption value was deleted and the Annual Peak Demand from the "TRAM Loads Summary" file, tab Energy Summary, was input. The load shapes and annual consumption were automatically calculated by Xendee. No information on Chiller Use or Natural Gas Use was entered as these do not apply. The Load Shapes to Import were deselected to choose Electricity Only. Then the Import Load Shape button was selected. See screenshots for Guard House for process. Following are screenshots of the final resulting load profile.



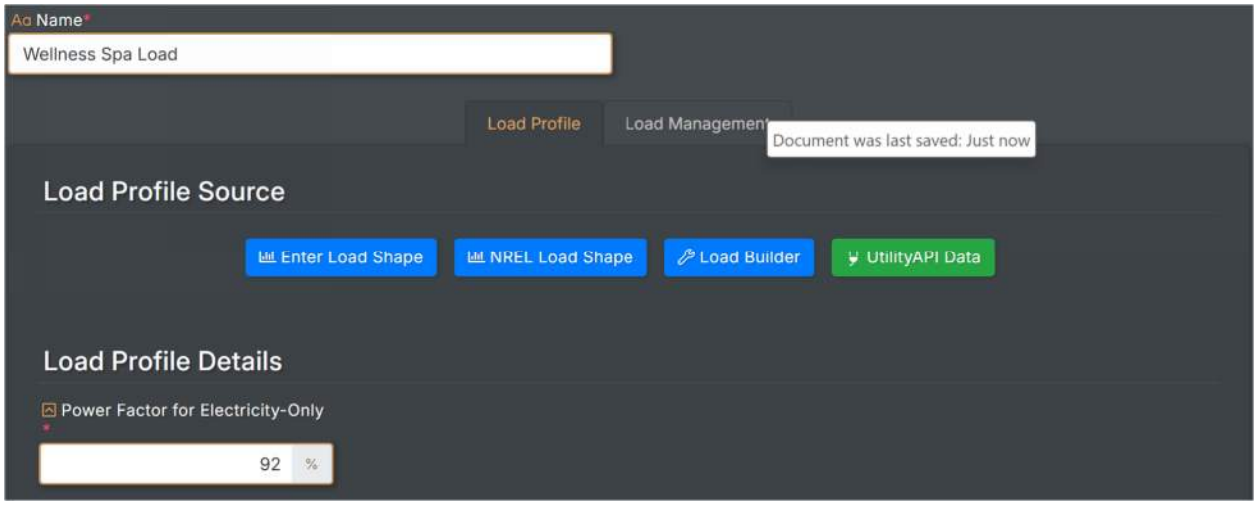


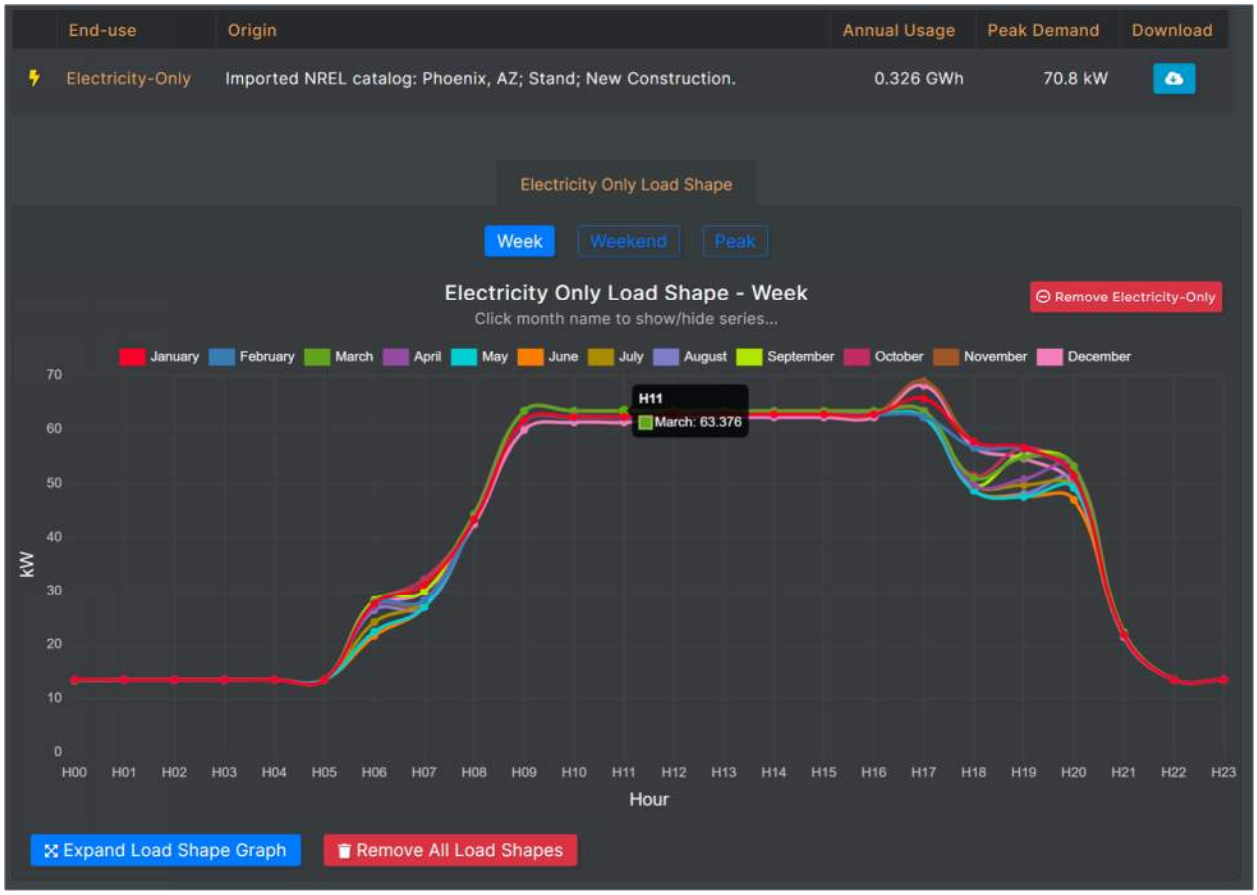
Note, the 0.465 GWh calculated by Xendee is about 65,426 kWh higher than the Energy Summary table is calculating.

Wellness/Spa – Building Use Profile – Retail Standalone

The Retail Standalone NREL Load Shape was chosen for this facility. Step 1: The Site Climate Zone chosen is Phoenix, AZ, ASHRAE Climate Zone 2B.

Step 2: Building Information – The Retail Standalone Building Type was entered, then a Building Age of New Construction, and Units of MWH and kW. The annual consumption value was deleted and the Annual Peak Demand from the “TRAM Loads Summary” file, tab Energy Summary, was input. The load shapes and annual consumption were automatically calculated by Xendee. No information on Chiller Use or Natural Gas Use was entered as these do not apply. The Load Shapes to Import were deselected to choose Electricity Only. Then the Import Load Shape button was selected. See screenshots for Guard House for process. Following are screenshots of the final resulting load profile.



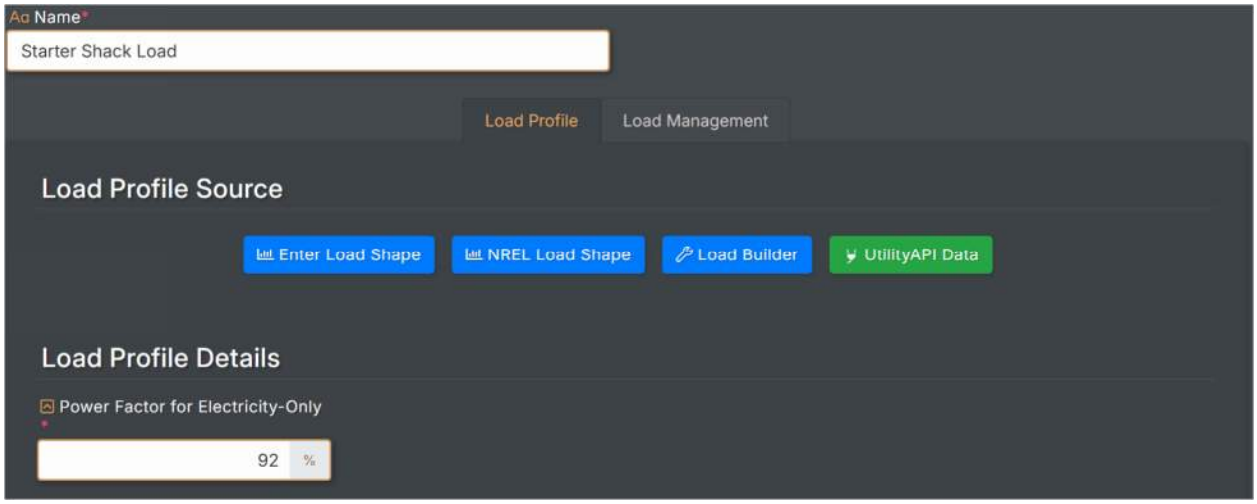


Note, the 0.326 GWh calculated by Xendee is about 45,936 kWh higher than the Energy Summary table is calculating.

Starter Shack – Building Use Profile – Retail Stripmall

The Retail Stripmall NREL Load Shape was chosen for this facility. Step 1: The Site Climate Zone chosen is Phoenix, AZ, ASHRAE Climate Zone 2B.

Step 2: Building Information – The Retail Stripmall Building Type was entered, then a Building Age of New Construction, and Units of MWH and kW. The annual consumption value was deleted and the Annual Peak Demand from the "TRAM Loads Summary" file, tab Energy Summary, was input. The load shapes and annual consumption were automatically calculated by Xendee. No information on Chiller Use or Natural Gas Use was entered as these do not apply. The Load Shapes to Import were deselected to choose Electricity Only. Then the Import Load Shape button was selected. See screenshots for Guard House for process. Following are screenshots of the final resulting load profile.

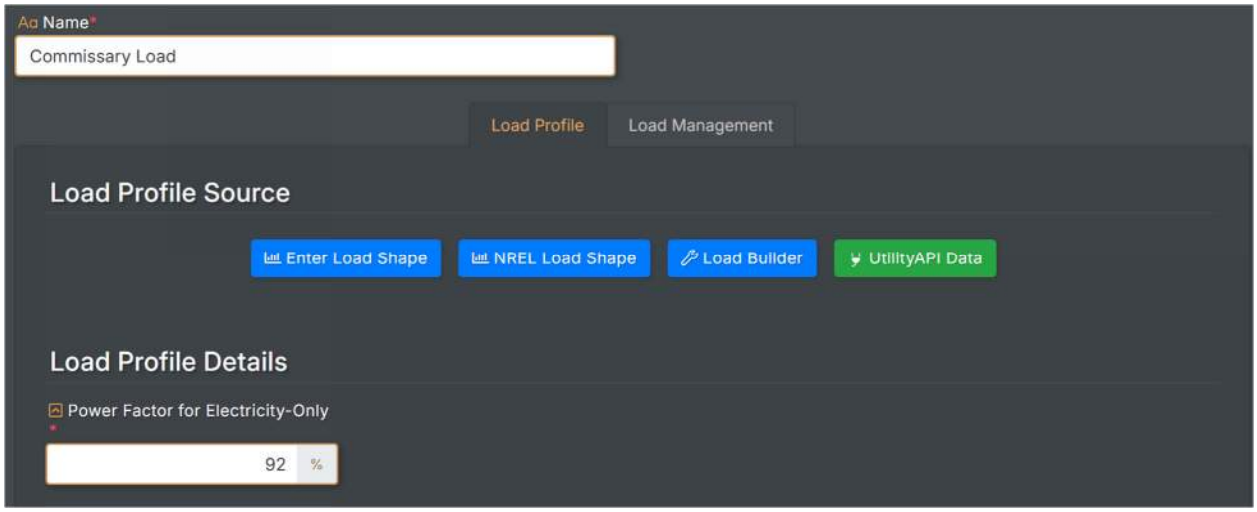


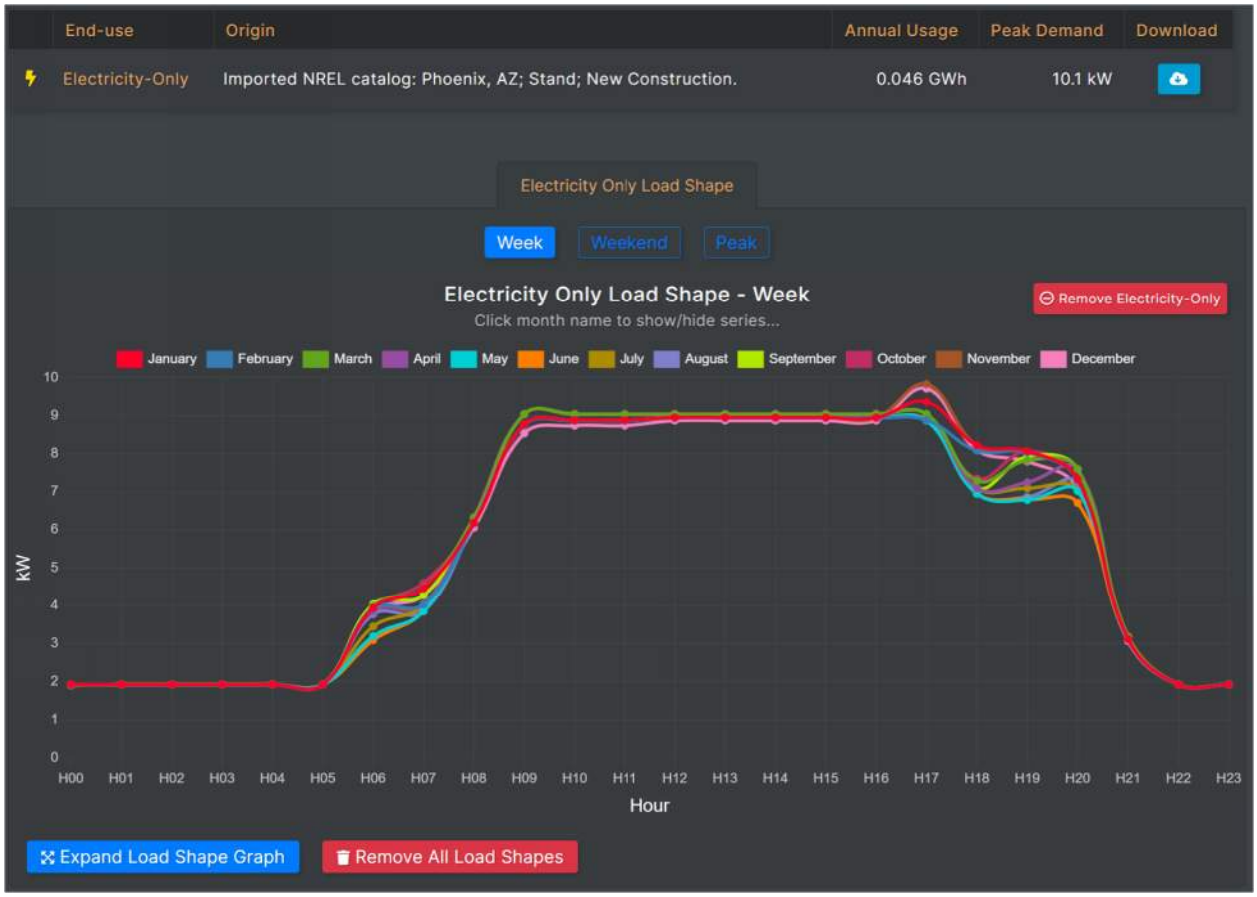
Note, the 0.026 GWh calculated by Xendee is 1,057 kWh less than the value calculated in the Energy Summary table.

Commissary – Building Use Profile – Retail Standalone

The Retail Standalone NREL Load Shape was chosen for this facility. Step 1: The Site Climate Zone chosen is Phoenix, AZ, ASHRAE Climate Zone 2B.

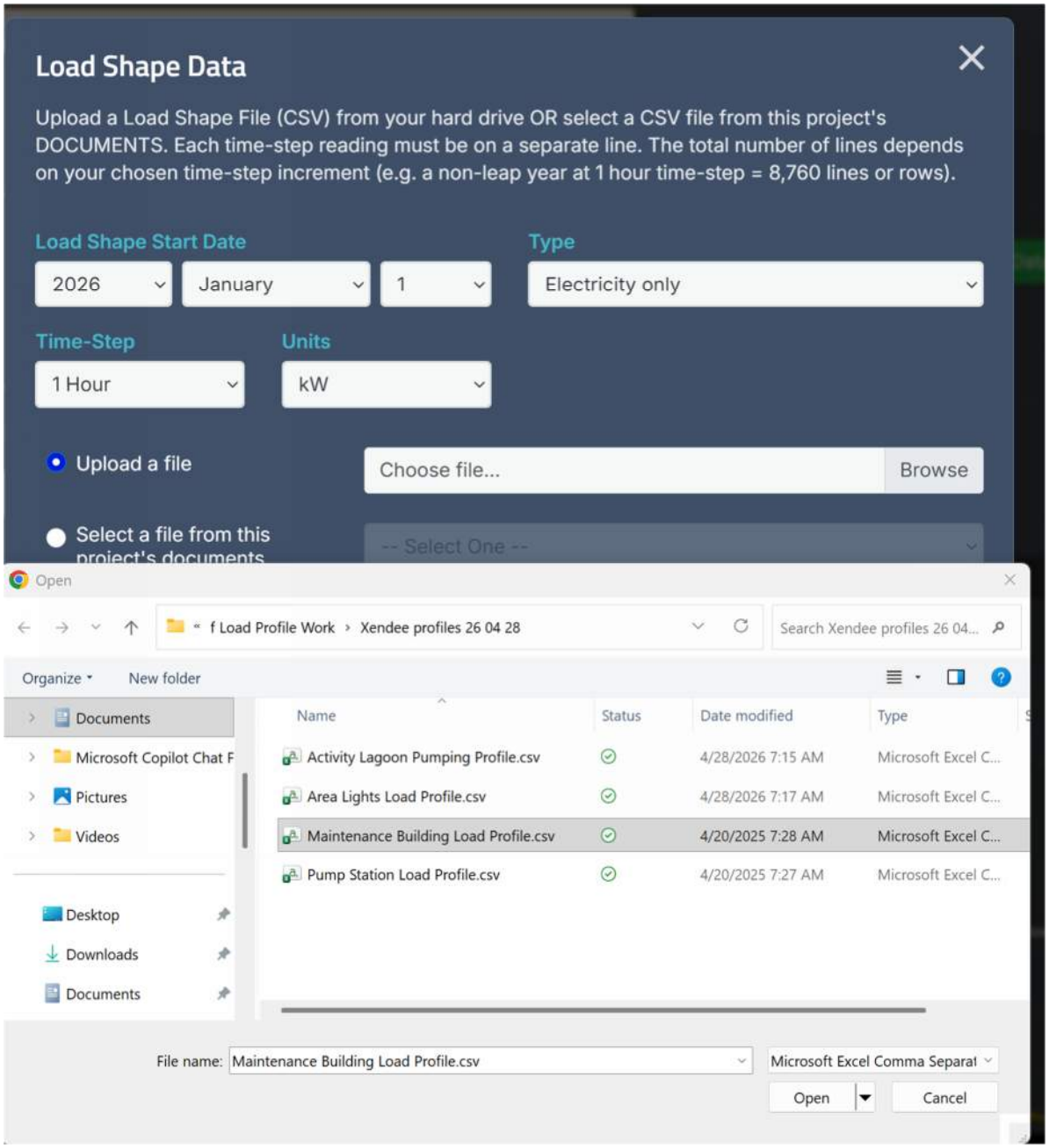
Step 2: Building Information – The Retail Standalone Building Type was entered, then a Building Age of New Construction, and Units of MWH and kW. The annual consumption value was deleted and the Annual Peak Demand from the “TRAM Loads Summary” file, tab Energy Summary, was input. The load shapes and annual consumption were automatically calculated by Xendee. No information on Chiller Use or Natural Gas Use was entered as these do not apply. The Load Shapes to Import were deselected to choose Electricity Only. Then the Import Load Shape button was selected. See screenshots for Guard House for process. Following are screenshots of the final resulting load profile.





Note, the 0.046 GWh calculated by Xendee is about 6,496 kWh higher than the Energy Summary table is calculating.

Maintenance Building – Imported hourly load profile from Excel data converted to .csv for import. The Enter Load Shape for Load Profile Source was used to import the .csv file with this data.


Load Shape Data
Upload a Load Shape File (CSV) from your hard drive OR select a CSV file from this project's DOCUMENTS. Each time-step reading must be on a separate line. The total number of lines depends on your chosen time-step increment (e.g. a non-leap year at 1 hour time-step = 8,760 lines or rows).
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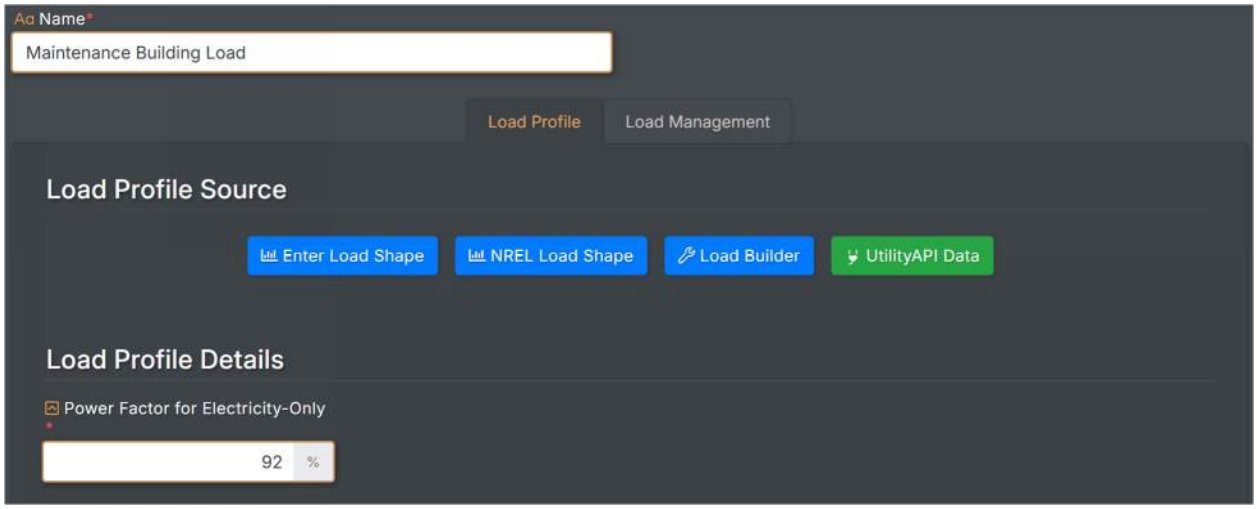
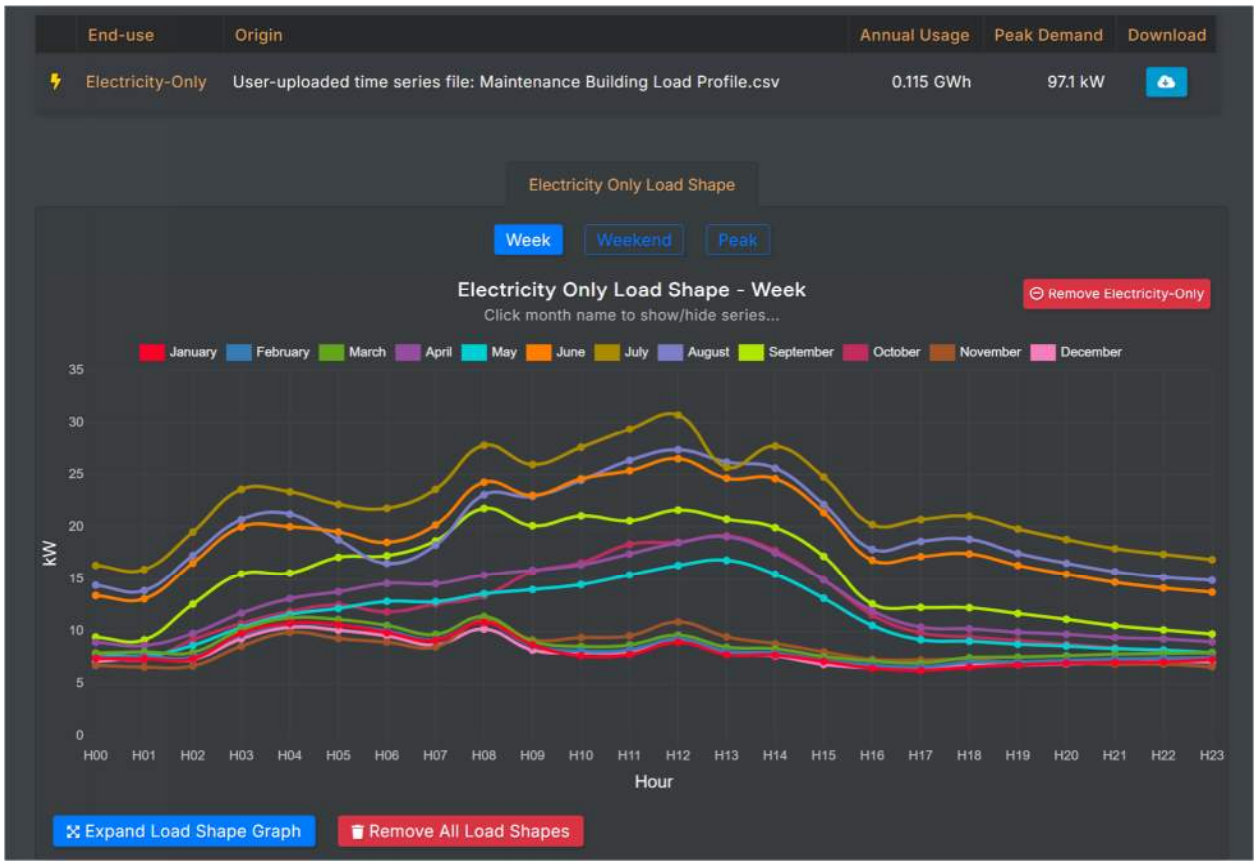
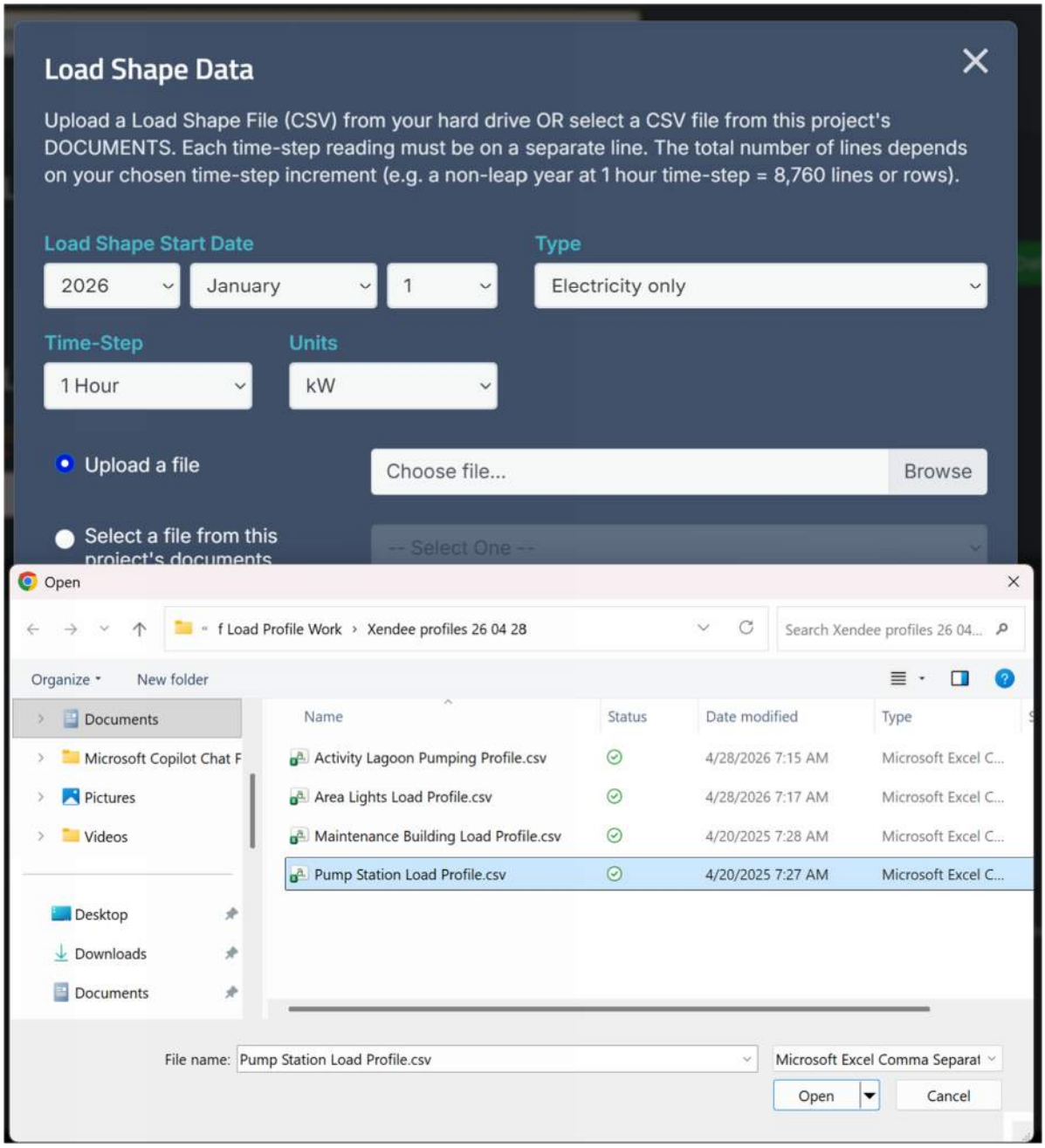




Pump Station - Imported hourly load profile from Excel data converted to .csv for import. The Enter Load Shape for Load Profile Source was used to import the .csv file with this data.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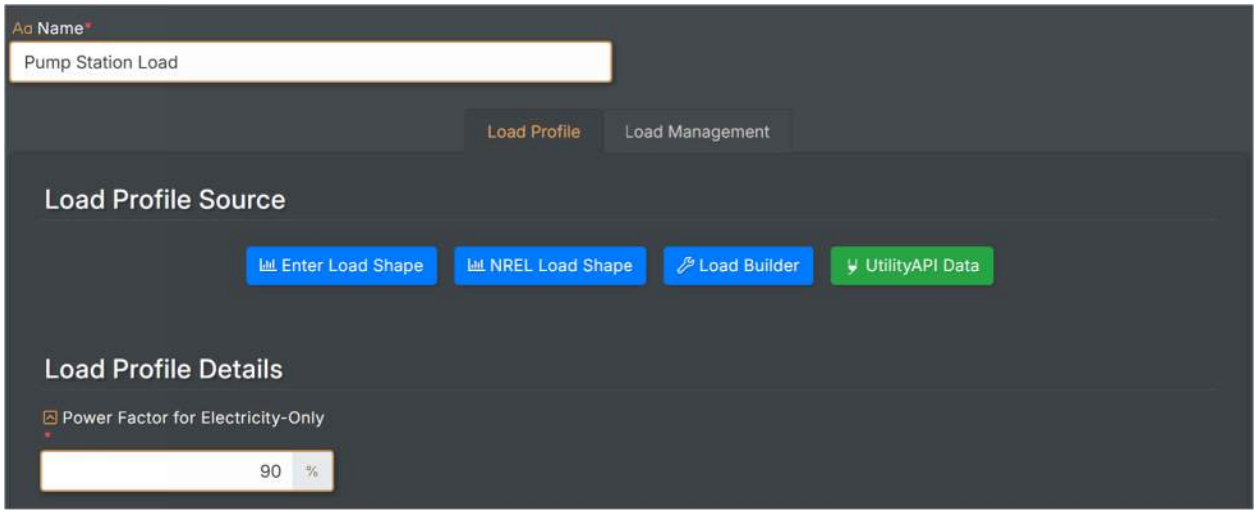
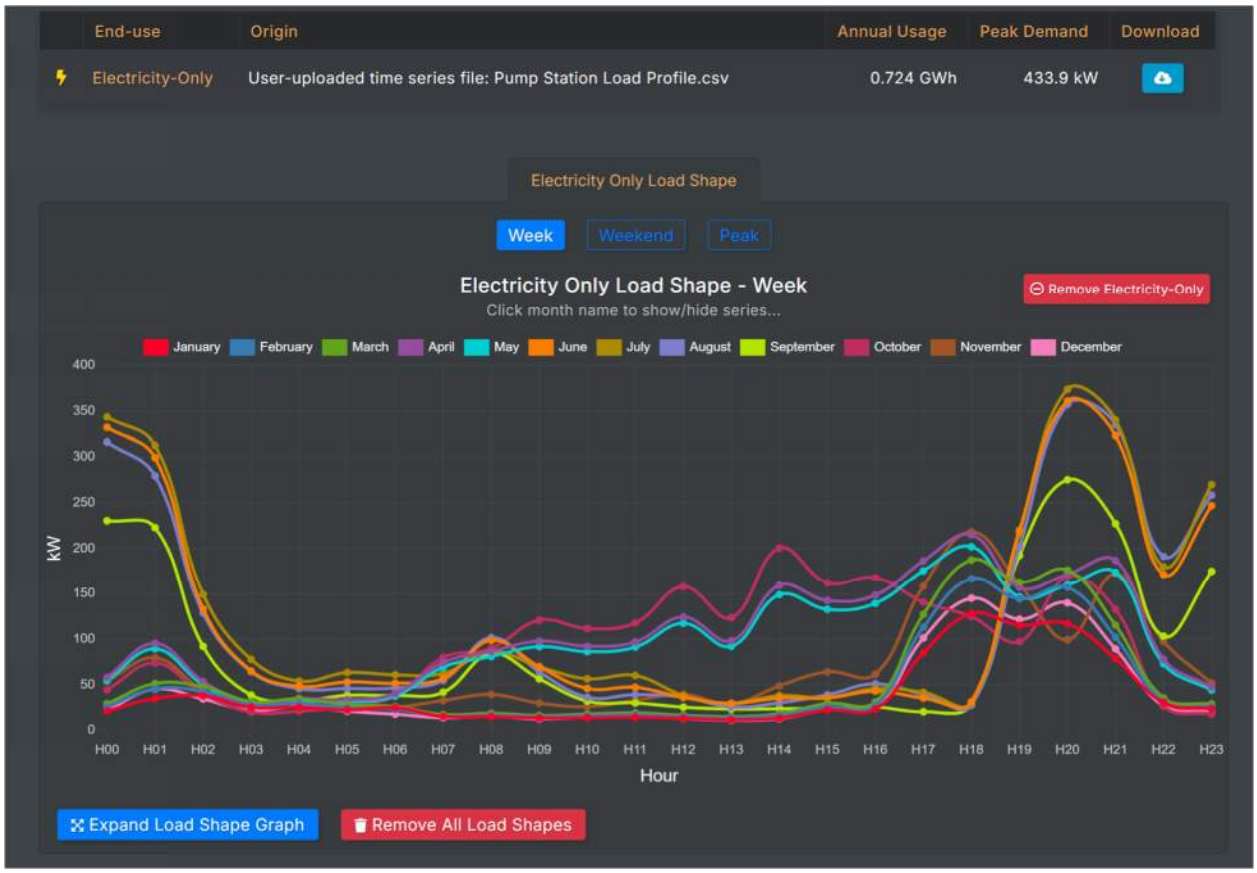
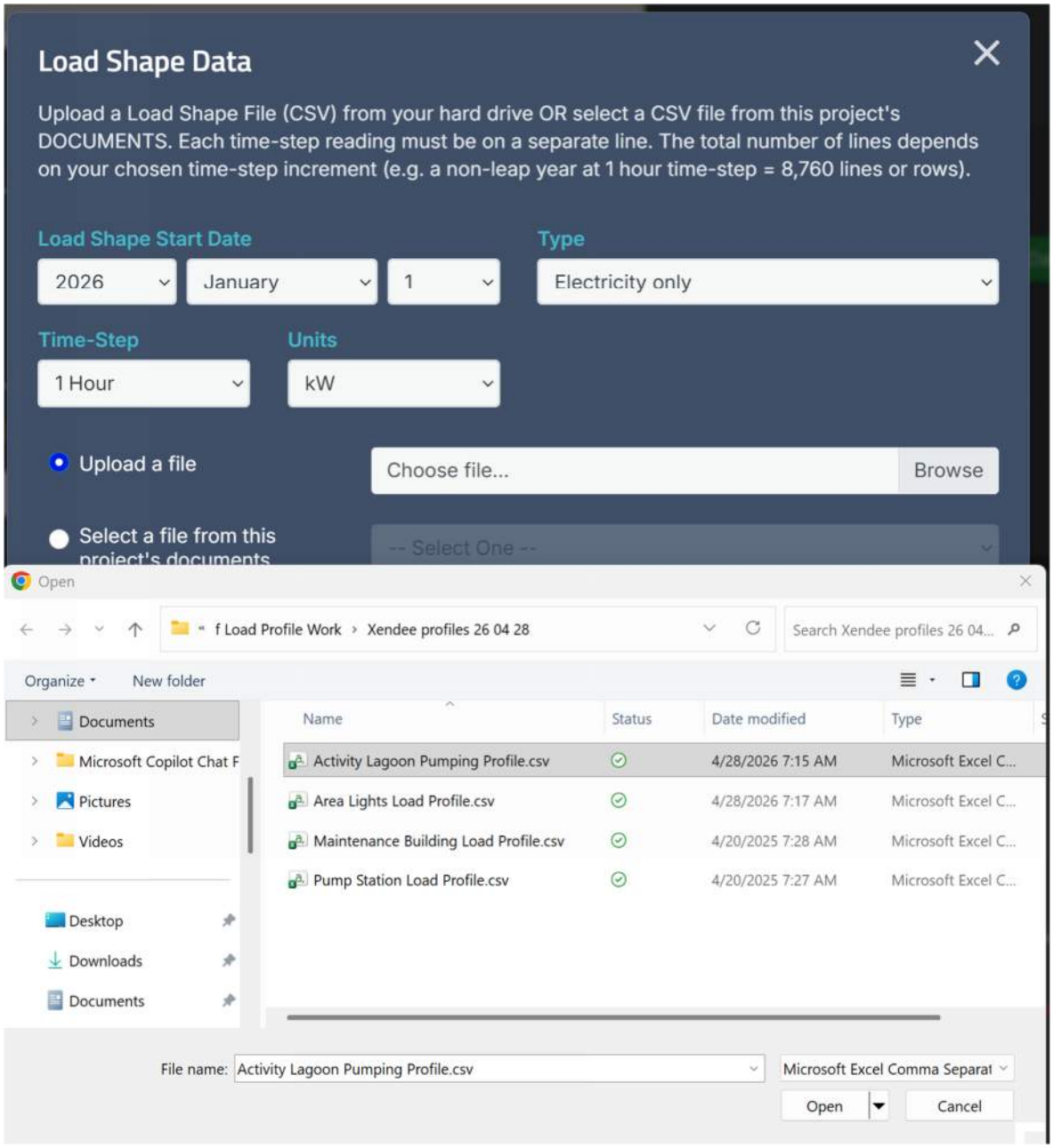




Activity Lagoon Pumping - Imported hourly load profile from Excel data converted to .csv for import. The Enter Load Shape for Load Profile Source was used to import the .csv file with this data.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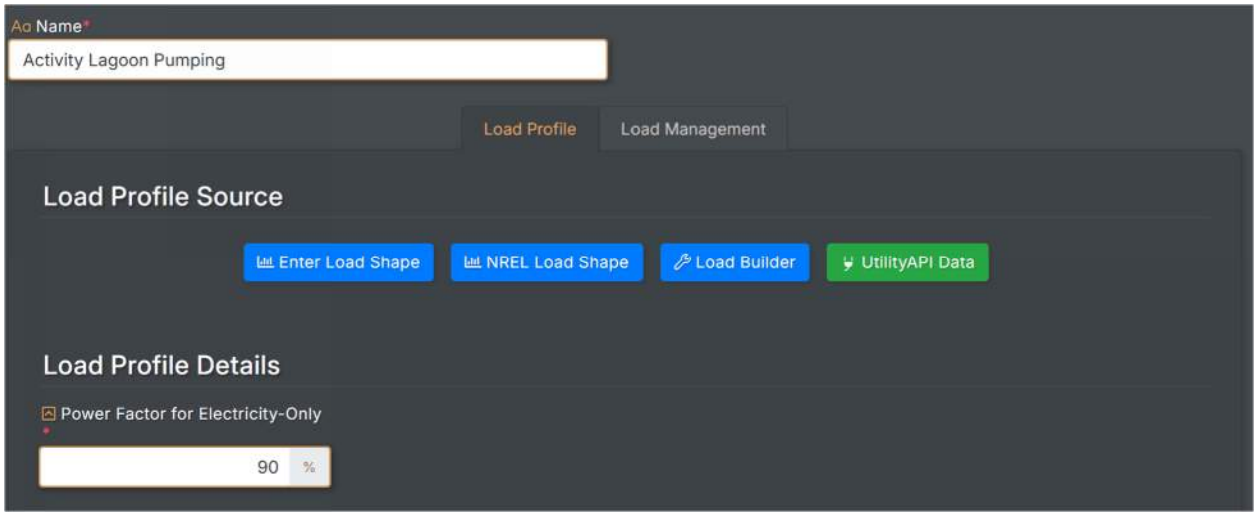
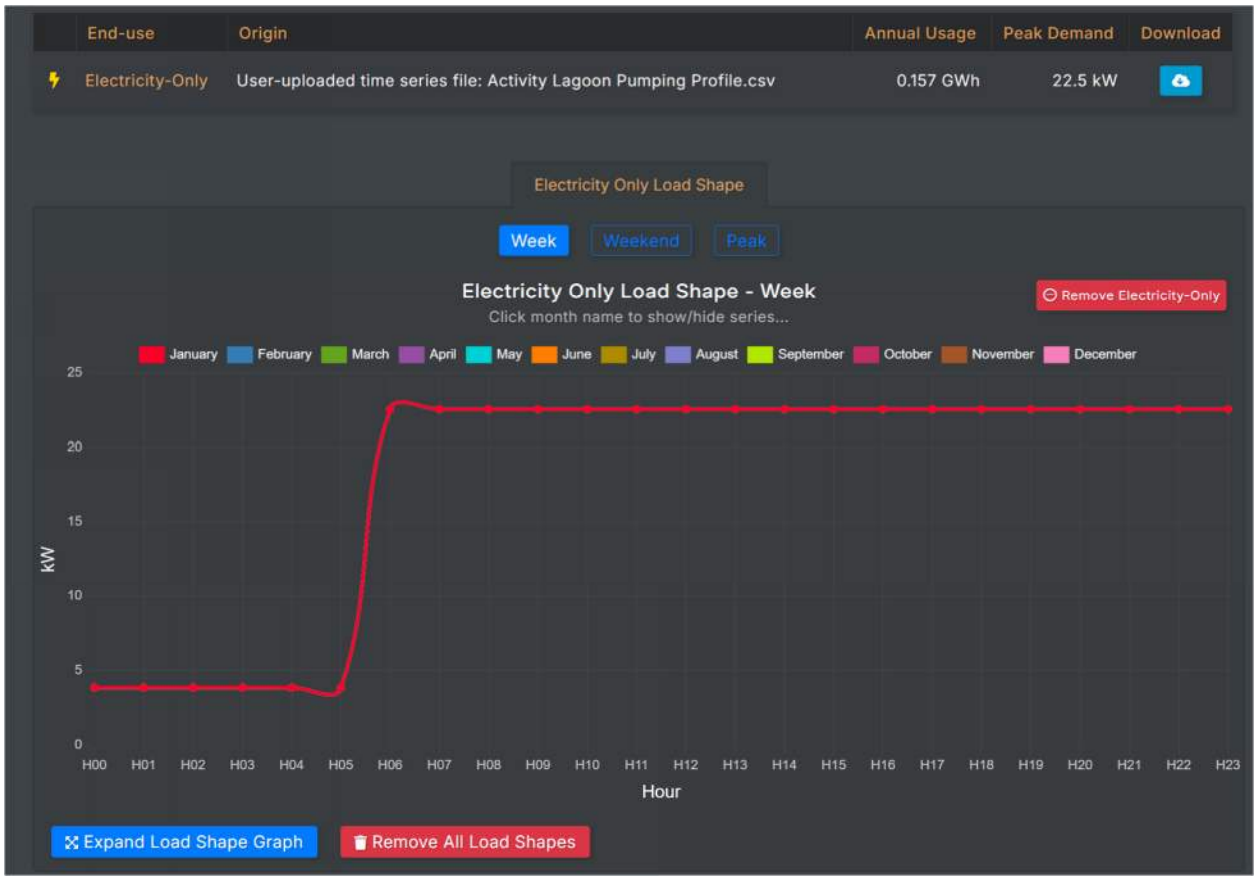
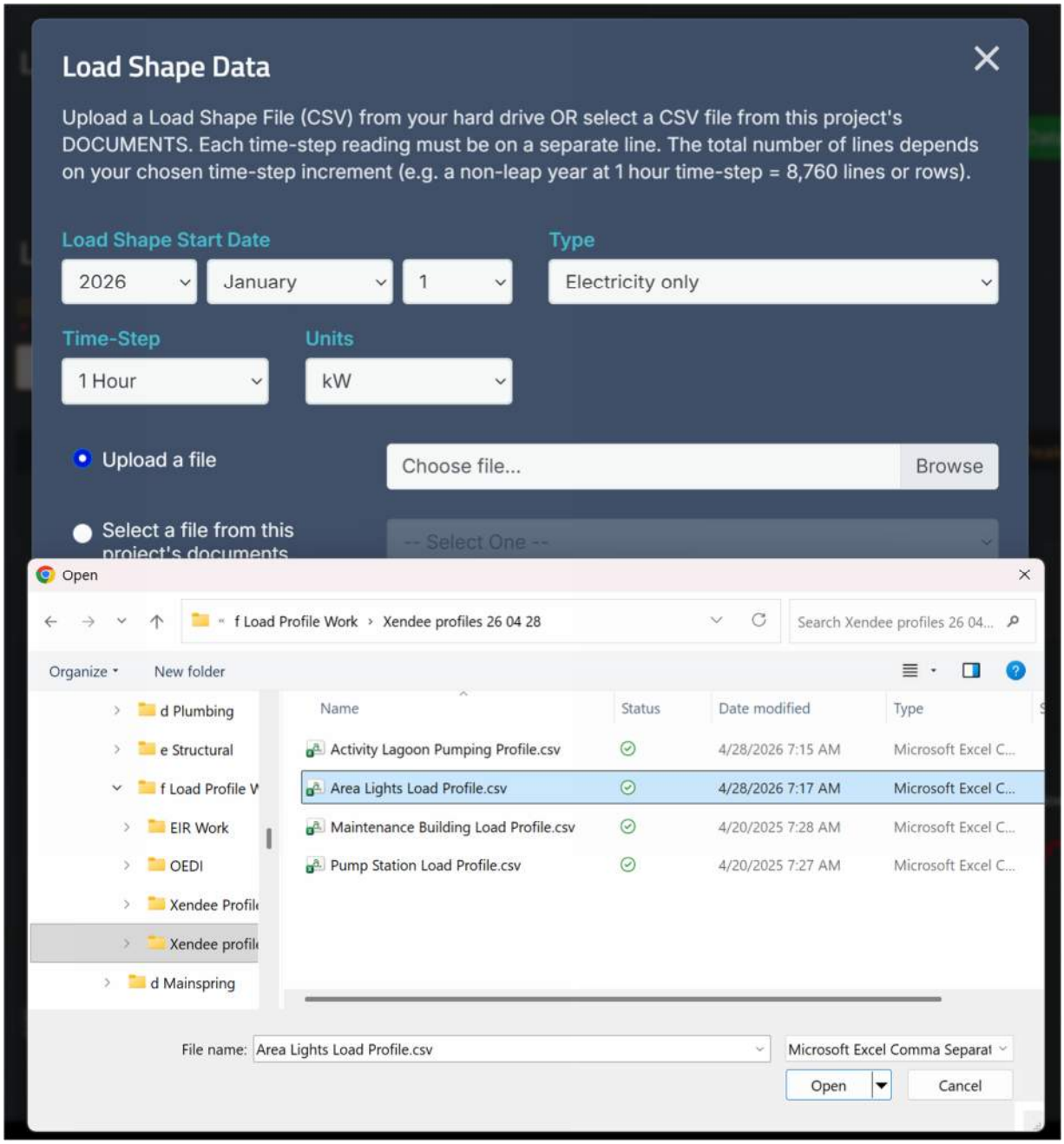




Area Lights - Imported hourly load profile from Excel data converted to .csv for import. The Enter Load Shape for Load Profile Source was used to import the .csv file with this data.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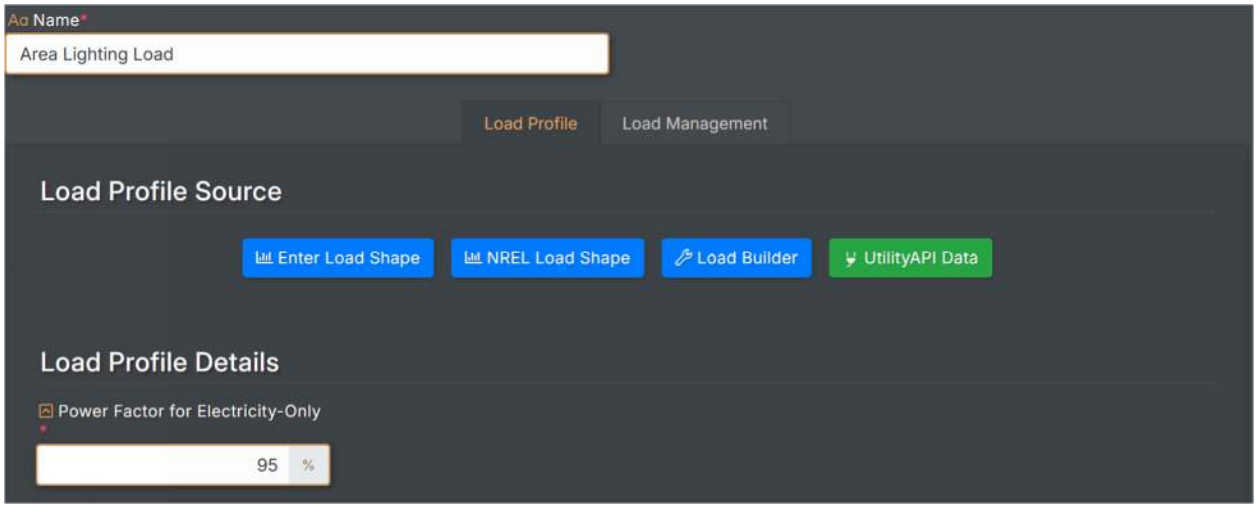
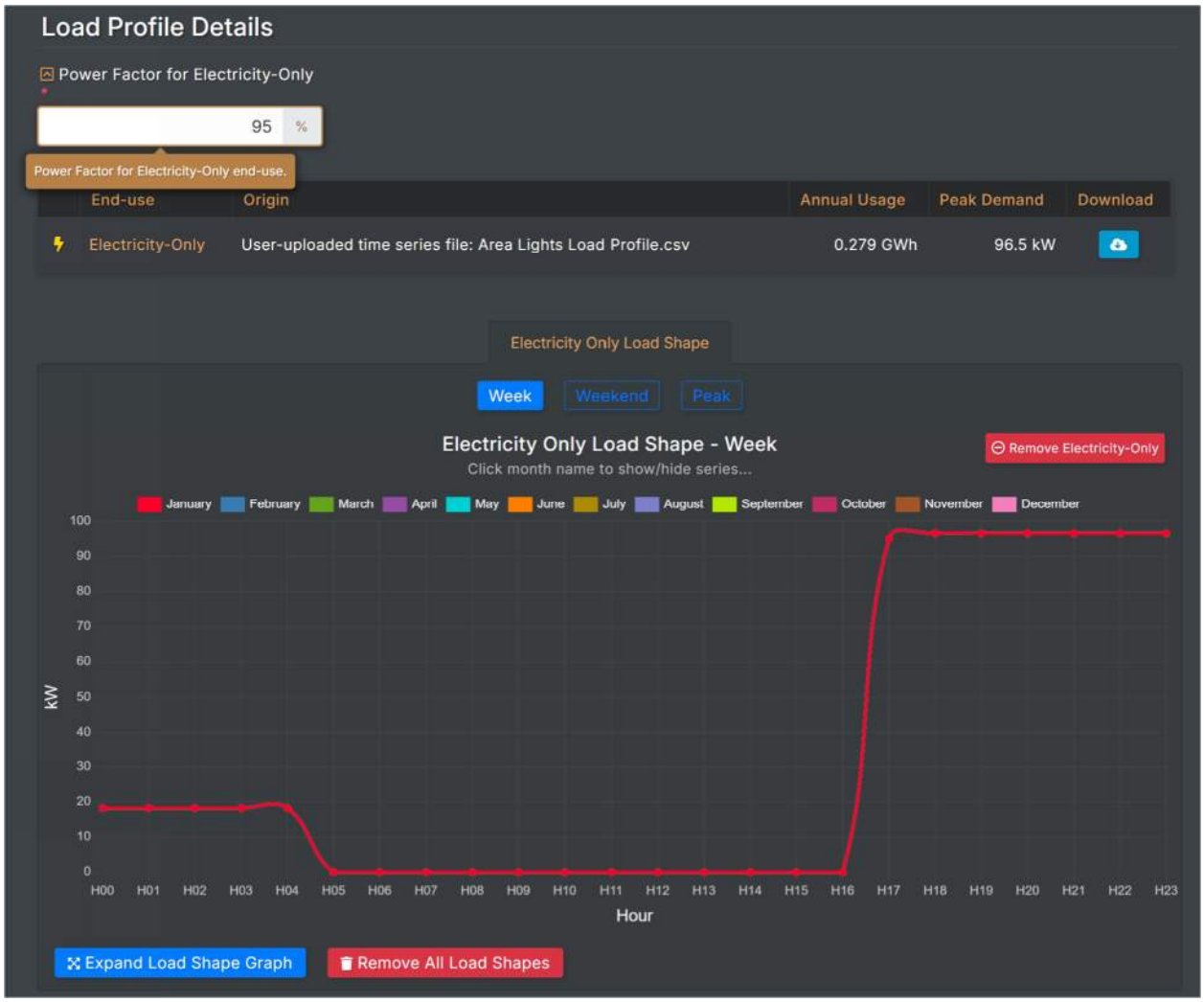




Final Note on the Loads Inputs

The Xendee created load profiles for just the commercial building portions of the project added 406,024 kWh to the annual project energy use over the total calculated usage in the file “TRAM Loads Summary”, tab “Energy Summary”. This is an 8.0% overestimation which lends to the conservate approach of this analysis. See below for summary.

The Ranch At Madison										
Approximate Energy Summary by Use										
								Data from Xendee Load Profiles		
Building Name	**Building Use Profile**	**Building Size**	**Peak W/SF**	**Peak kW**	**Annual kWh/SF**	**Annual kWh**	**Load Factor**	**Peak kW**	**Annual kWh**	**Difference**
Estates, Golf Cottages, Villas	Modified Modeling Data	773,135	3.78	2,925.54	2.74	2,118,651	8%	2,741.60	2,118,651	0
Guard House	Small Office	800	3.50	2.80	15.17	12,139	49%	2.80	14,372	2,233
Entry Pavilion	Small Office	2,500	3.50	8.76	15.17	37,935	49%	8.80	45,169	7,234
Farm to Table	Full Service Restaurant	2,070	13.66	28.27	64.30	133,096	54%	28.30	178,762	45,666
Event Barn	Full Service Restaurant	10,000	13.66	136.55	64.30	642,977	54%	136.60	862,856	219,879
Beach Club	Quick Service Restaurant	850	15.48	13.16	81.35	69,151	60%	13.20	83,362	14,211
Fitness Center	Retail Standalone	20,000	5.05	101.10	20.00	399,907	45%	101.10	465,333	65,426
Wellness/Spa	Retail Standalone	14,000	5.05	70.77	20.00	279,935	45%	70.80	325,871	45,936
Starter Shack	Retail Stripmall	1,000	5.52	5.52	26.62	26,624	55%	5.60	25,567	(1,057)
Commissary	Retail Standalone	2,000	5.05	10.11	20.00	39,991	45%	10.10	46,487	6,496
Maintenance Building	Modified Actual Data	N/A		97.10		114,856	14%	97.10	114,856	0
Pump Station	Modified Actual Data	N/A		433.90		724,222	19%	433.90	724,222	0
Activity Lagoon Pumping	Calculated Data	N/A		22.55		156,596	79%	22.55	156,596	0
Area Lights	Calculated Data	N/A		113.25		315,999	32%	113.25	315,999	0
				3,969.38		**5,072,079**	**Total**	**3,785.70**	**5,478,103**	**406,024**
										8.01%

Microgrid Solution Input

After all the loads were added to their respective nodes, the technologies used to support operation of the microgrid were added. This includes the solar PV, BESS, and linear generators.

Solar PV – The solar PV added for this project is a reasonable amount based on providing covered parking at the five parking areas. The areas are denoted in Exhibit xx for Area Lighting backup documentation. The total areas are: 22,150 + 10,500 + 12,250 + 8,900 + 5,140 = 58,940 SF. Not all this space will be covered so a factor of 50% was used and then rounded down to 29,000 SF. Calculating size using a 600W DC panel by Q-Cell at 30SF per panel, provides a size of 580 kW DC. A rough installation cost per kW was input and incentives were removed. All other data is the standard information from Xendee. The solar PV performance profiles are calculated by Xendee. Xendee references PVWatts data for the performance of the installation at this location.

Aa Name*

Solar PV

Technology Decision

Consider | Existing | Existing + More | Forced | Forced + More

Exact Size* 580 kWDC

Existing Age Years

Max New Size kWDC

When performing an analysis with an Existing, Existing + More, Forced or Forced + More Solar PV, Xendee will allow for a continuous size, regardless of the Panel Rating specified.

Investment Specifications

Inverter

$ Inverter Cost $ 0 /kW

Lifetime * 12 Years

Power Factor * 100 %

Custom Inverter

Solar PV

$ Per Unit Install Cost $ 4,125 /kWDC

Lifetime * 30 Years

$ Variable Maintenance $ 0 /kWh output

$ Monthly Fixed Maintenance $ 0 /kWDC/Month

$ Fixed Install Fees $ 0

Define Space

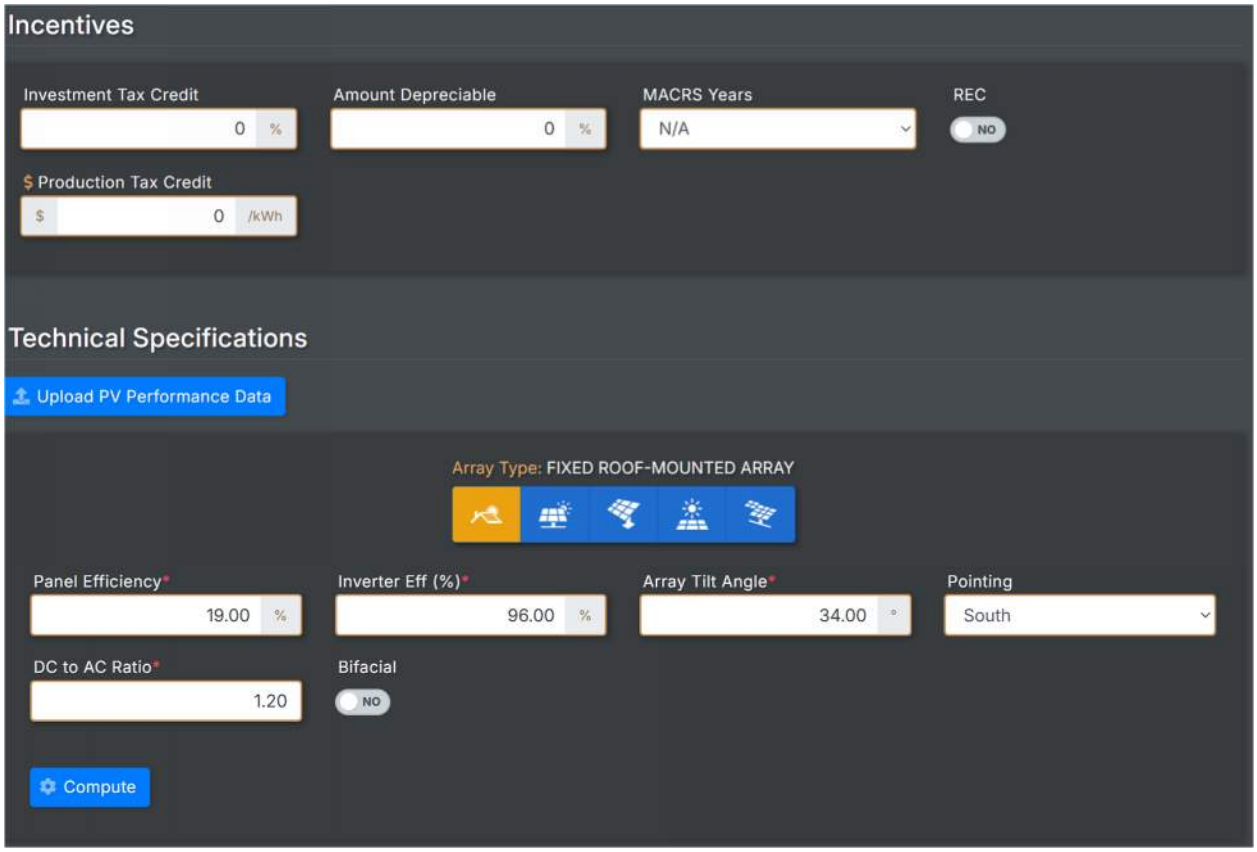
Define

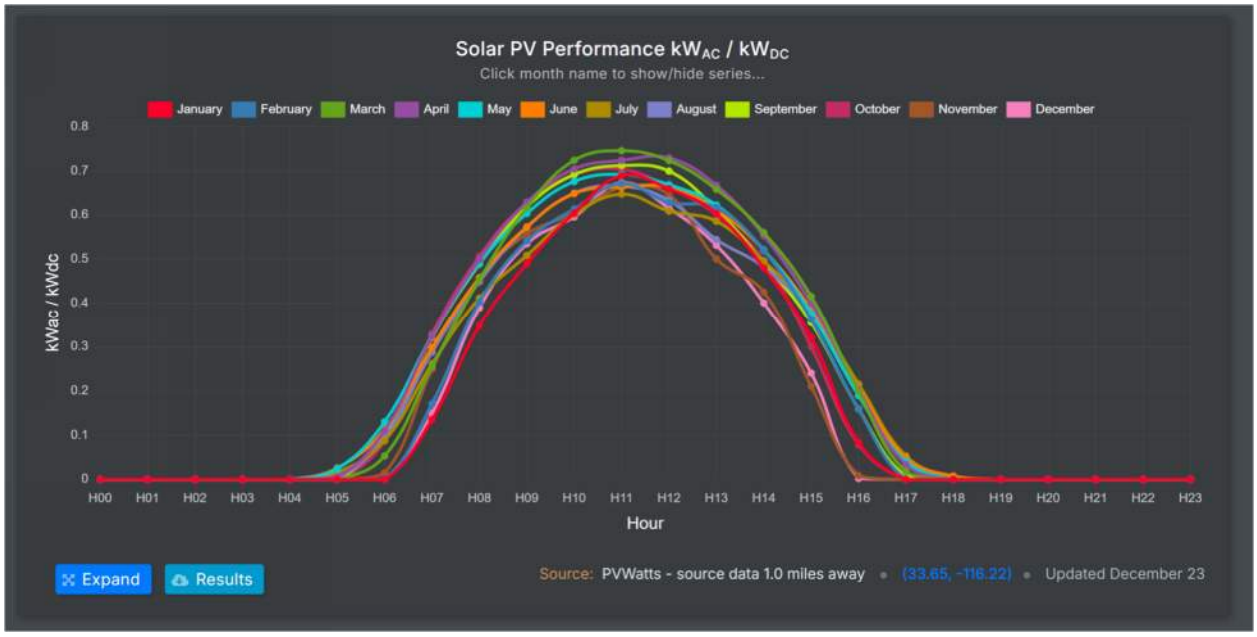
Install Space* 29,000 ft²

Panel Rating 600 W

Custom Power-to-Space Ratio

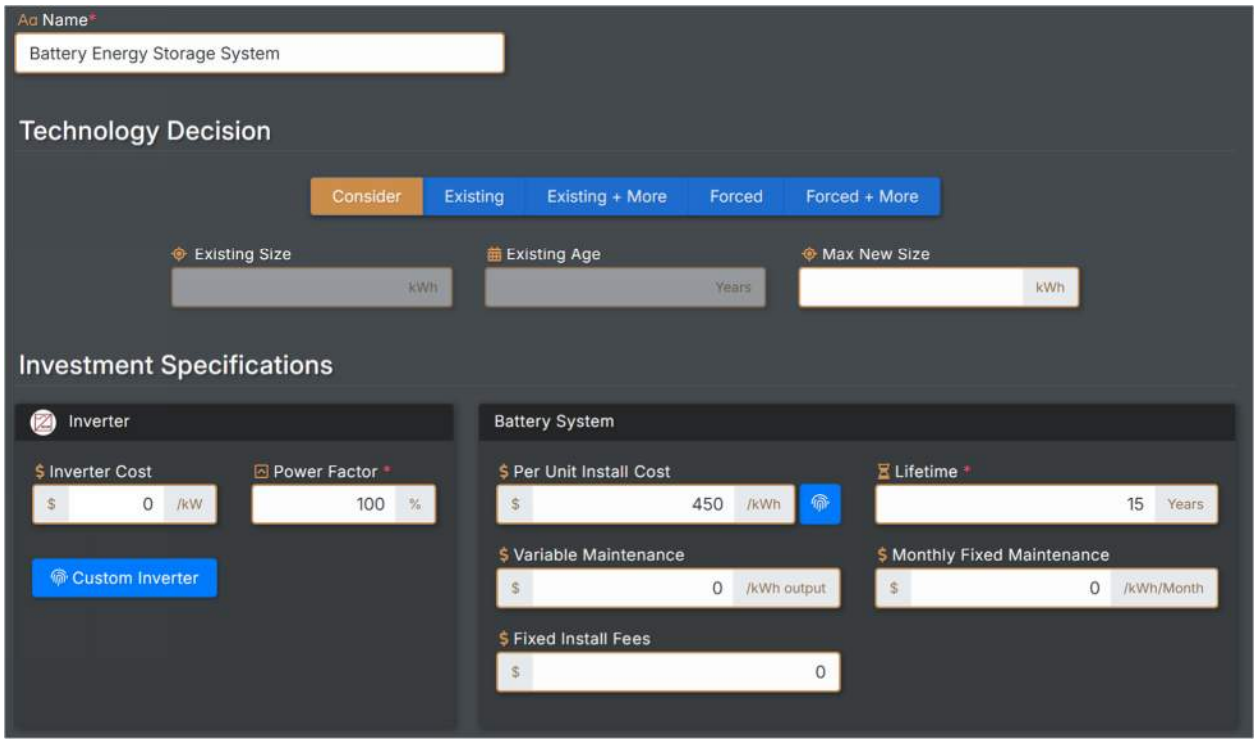
NO

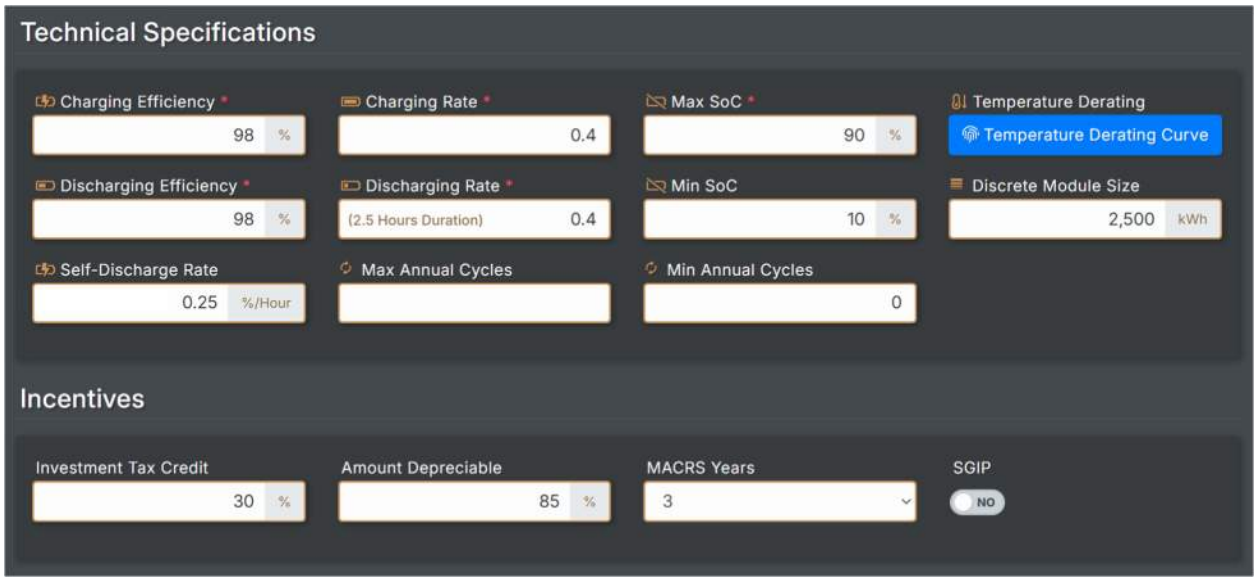




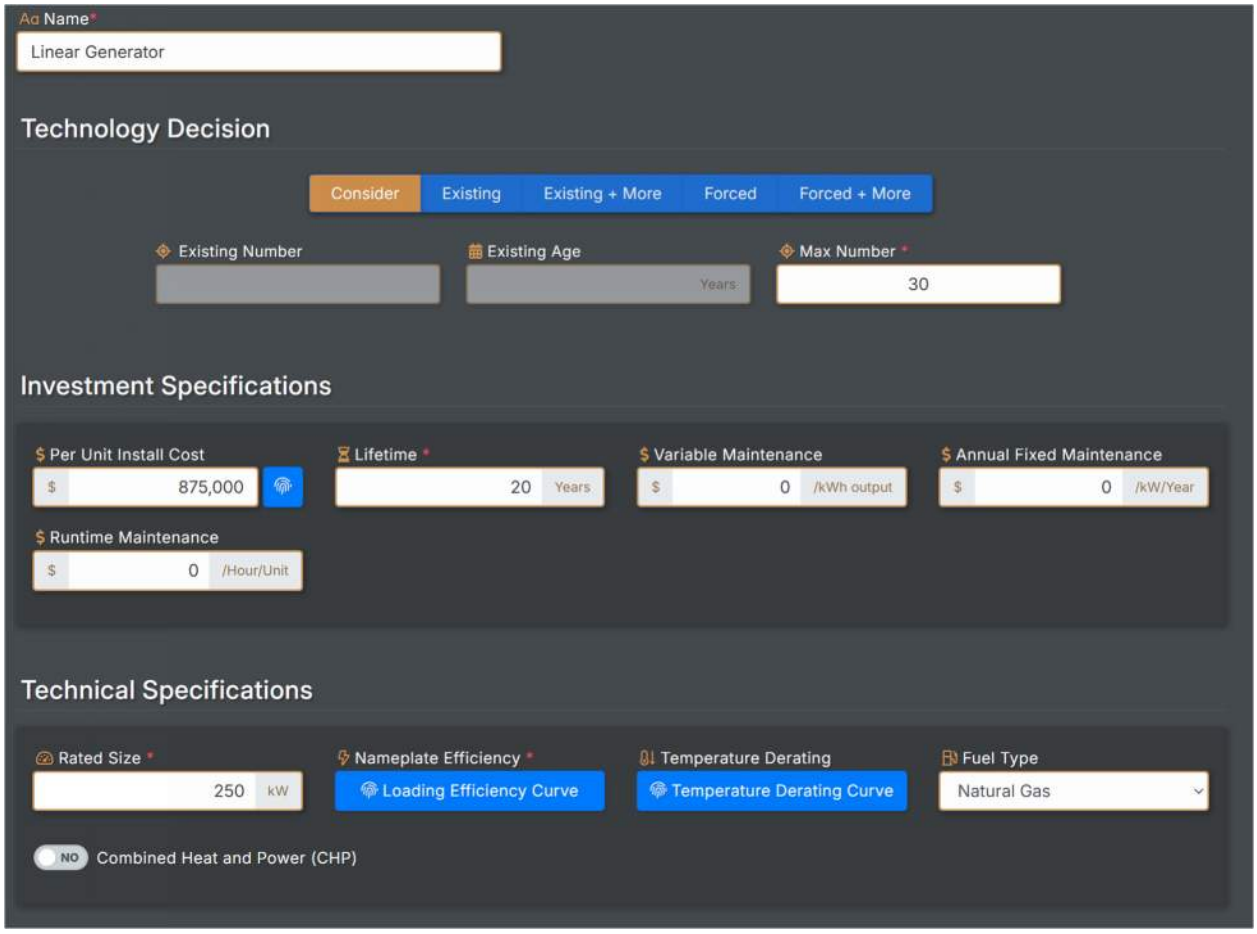
Battery Energy Storage System (BESS) – The BESS units input in Xendee are based on the Generac SBE Block 2.5-5 MWh DC storage units and the SBE Cabinet inverters. The 1,000 kW/2,500 kWh unit was selected as this is FEOC (foreign entity of concern) compliant and will qualify for incentives. See **Exhibit H Equipment Technical Information** for details on

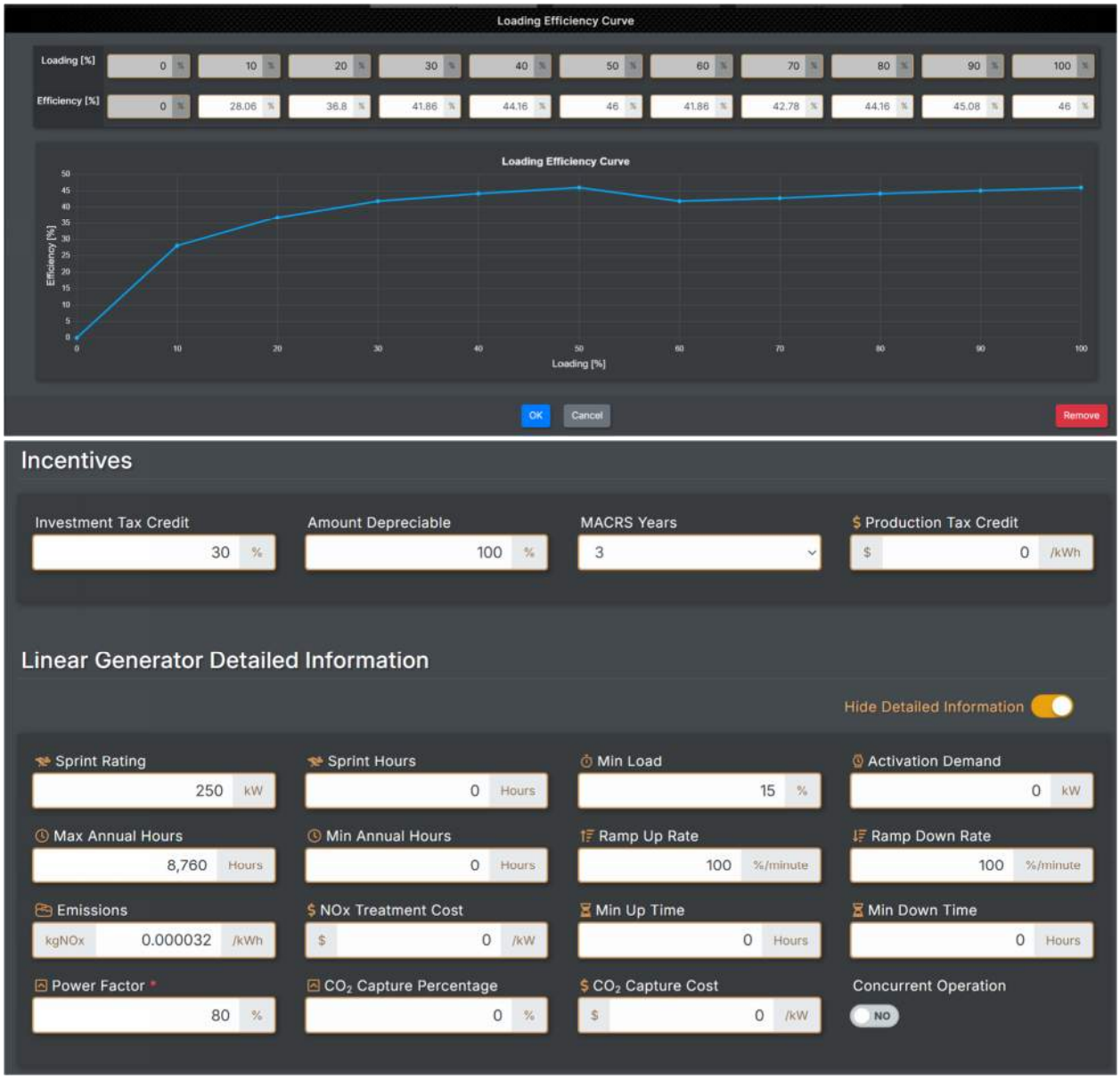
these units. The information for these units was input from the technical information provided. The Self-Discharge Rate was adjusted to account for parasitic losses of the unit. The losses are calculated to be 54,750 kWh annually per unit. This amounts to a 0.25%/hour discharge rate. The Temperature Derating Curve was modified for a 5% reduction at 45°C. No maximum amount of BESS was input for consideration in the microgrid solution. A rough installation cost per kWh was added.





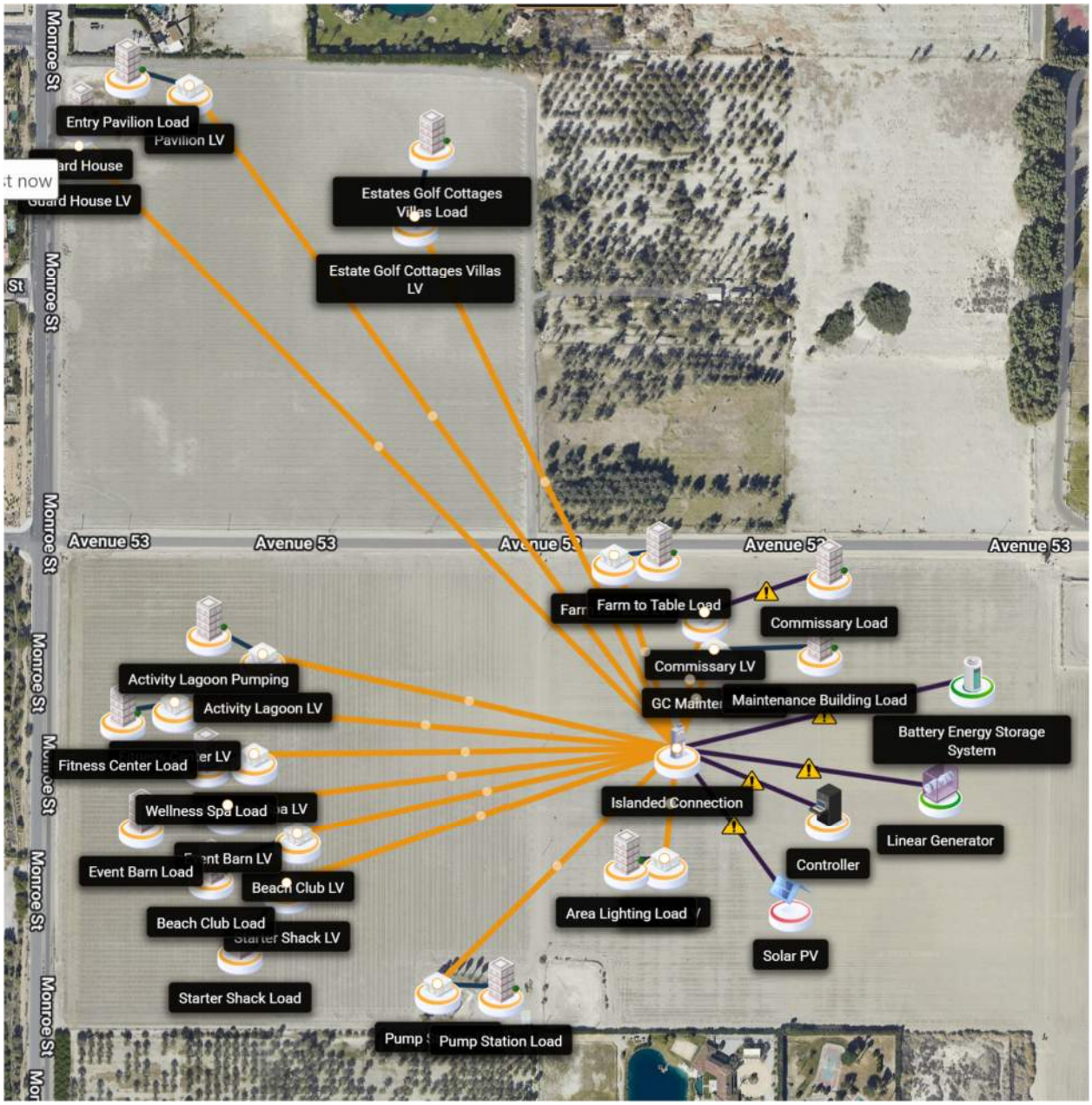
Linear Generators – The linear generators by Mainspring are used as the base case generation asset. See **Exhibit H Equipment Technical Information** for details on these units. The Mainspring linear generator is in the standard Xendee catalog. The unit was selected from the catalog. A modification was made for a rough approximation of "Per Unit Installed Cost". Additional modifications were made to "Incentives" to reflect the current available incentives for linear generators, and the Temperature Derating Curve was modified for a 5% reduction at 45°C. An existing efficiency curve based on part load is already included in the Xendee profile for this equipment. The settings were adjusted to consider a maximum of 30 of these units as part of the solution.





The **Controller** for this project is assumed to be the Ageto microgrid control system by Generac. See **Exhibit H Equipment Technical Information** for details on this product.

See below for a graphical representation of the project in Xendee.

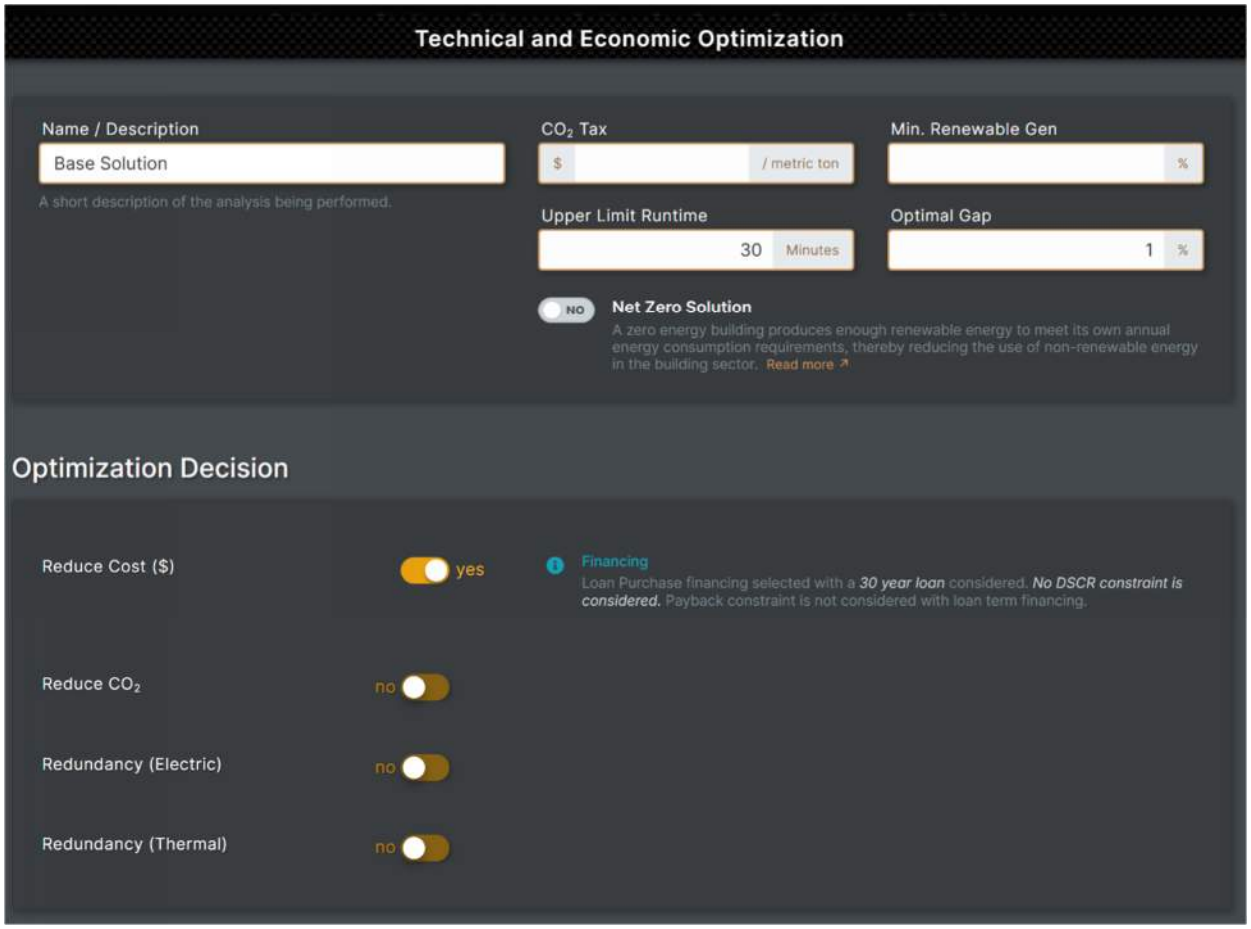


Microgrid Solutions

After the microgrid system configuration and project load profiles were entered, Xendee was used to perform an initial solution as configured through the Technical and Economic Optimization tab.

The goal is to determine the minimum generation configuration required to meet the load requirements of the project, without any redundancy, and using installation cost of the

potential generation as a determining factor. No other configuration options were chosen. This solution was called Base Solution.



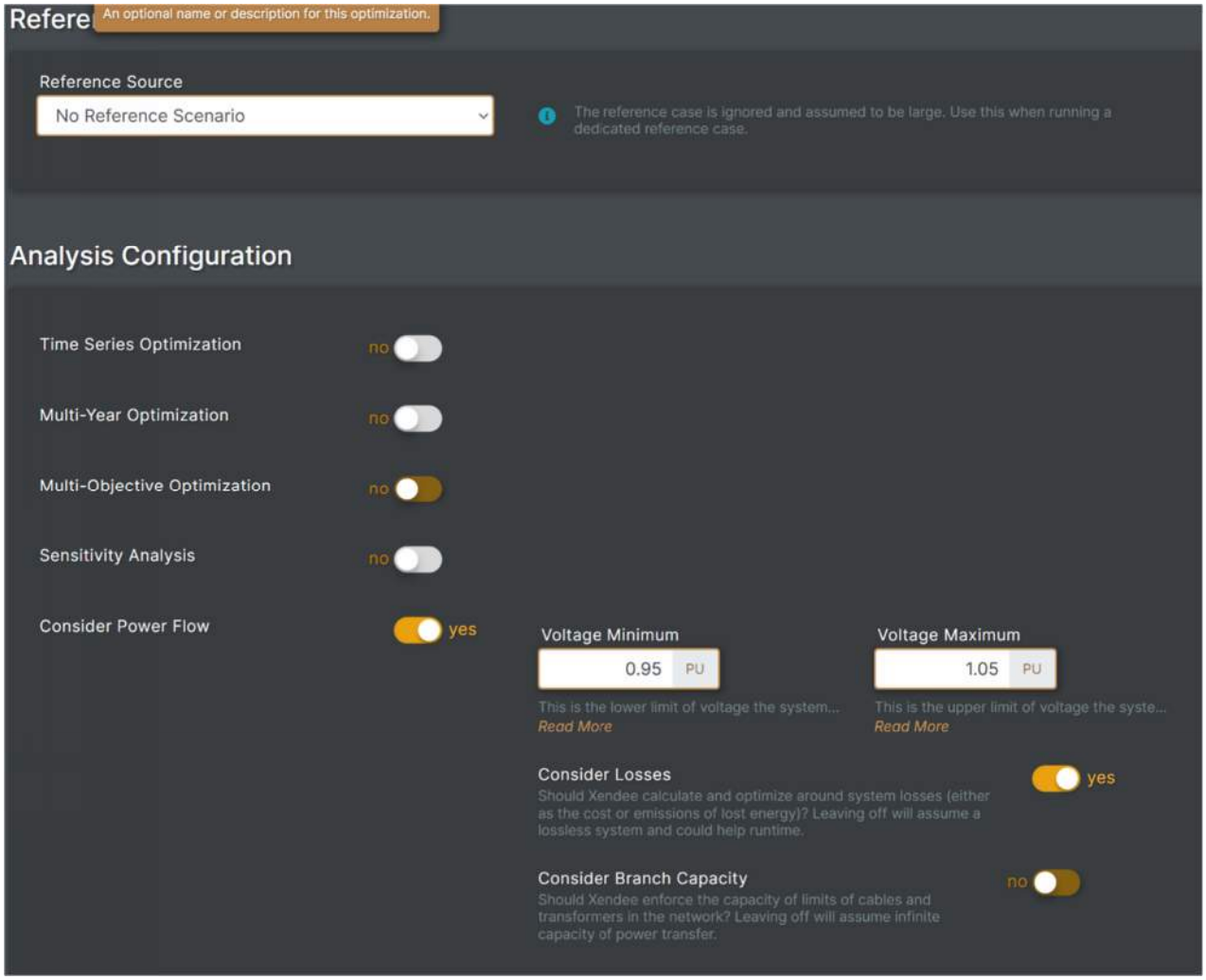

Refere
An optional name or description for this optimization.
Reference Source
No Reference Scenario
The reference case is ignored and assumed to be large. Use this when running a dedicated reference case.
Analysis Configuration
Time Series Optimization
no
Multi-Year Optimization
no
Multi-Objective Optimization
no
Sensitivity Analysis
no
Consider Power Flow
yes
Voltage Minimum
0.95
PU
This is the lower limit of voltage the system...
Read More
Voltage Maximum
1.05
PU
This is the upper limit of voltage the syste...
Read More
Consider Losses
Should Xendee calculate and optimize around system losses (either as the cost or emissions of lost energy)? Leaving off will assume a lossless system and could help runtime.
yes
Consider Branch Capacity
Should Xendee enforce the capacity of limits of cables and transformers in the network? Leaving off will assume infinite capacity of power transfer.
no

EXHIBIT F

The Ranch at Madison

XENDEE Output Data

Microgrid Solutions

Base Solution

After the microgrid system configuration and project load profiles were entered, Xendee was used to perform the base solution as configured through the Technical and Economic Optimization tab.

The goal is to determine the minimum generation configuration required to meet the load requirements of the project, without any redundancy, and the only goal being least installation cost. No other configuration options were chosen. This solution is called Base Solution.

See below for the output report from Xendee for details regarding this solution.

Results Report for

The Ranch at Madison

POWERED BY: XENDEE

Prepared by **Brett Green**

Created on **Wednesday, June 3, 2026**

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- Utility Billing Period 7

Energy Balance and Technology Investments **8**

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- Aggregated Demand 8
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- Storage Technologies 9
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- Monthly On-Site Generation 24
- Technology Capacity Factor 24
- Storage Cycling 24

Model Input

The Ranch at Madison

82600 Avenue 53, Coachella, CA 92236, USA

Objectives

Minimize cost.

Financing

Interest Rate	**7.25 %**
Investment Tax Credit	**Yes**
MACRS	**Yes**

Energy Costs

Energy Price	**N/A**
Avg. Natural Gas Cost	**$0.6 / therm**
Avg. Diesel Fuel Cost	**N/A**
Reference LCOE	**$153.41 / kWh**

Demand Charges

Peak TOU Rate	**N/A**
Non-Coincident	**N/A**

Demand Characteristics

Peak Demand	**3.3 MW**
Annual Consumption	**6.5 GWh**
Schedulable EV	**N/A**

Financial Indicators for Investment

$10,365.3M	**$15,352.5M**	**0 Years**
Project NPV (at year 15)	Project NPV (at year 30)	Payback Period

Impact

$0	**99.9%**	**99.8%**
Upfront Capital Cost	Annual Cost Reductions	Emission Savings

	Total Annual System Costs (dollars in thousands)	Total Annual CO_2 Emissions (metric tons)
Reference	N/A	N/A
Investment scenario (incl. annualized capital costs and electricity sales)	$1,299.4	1,977
Total Savings (%) (incl. annualized capital costs and electricity sales)	N/A	N/A

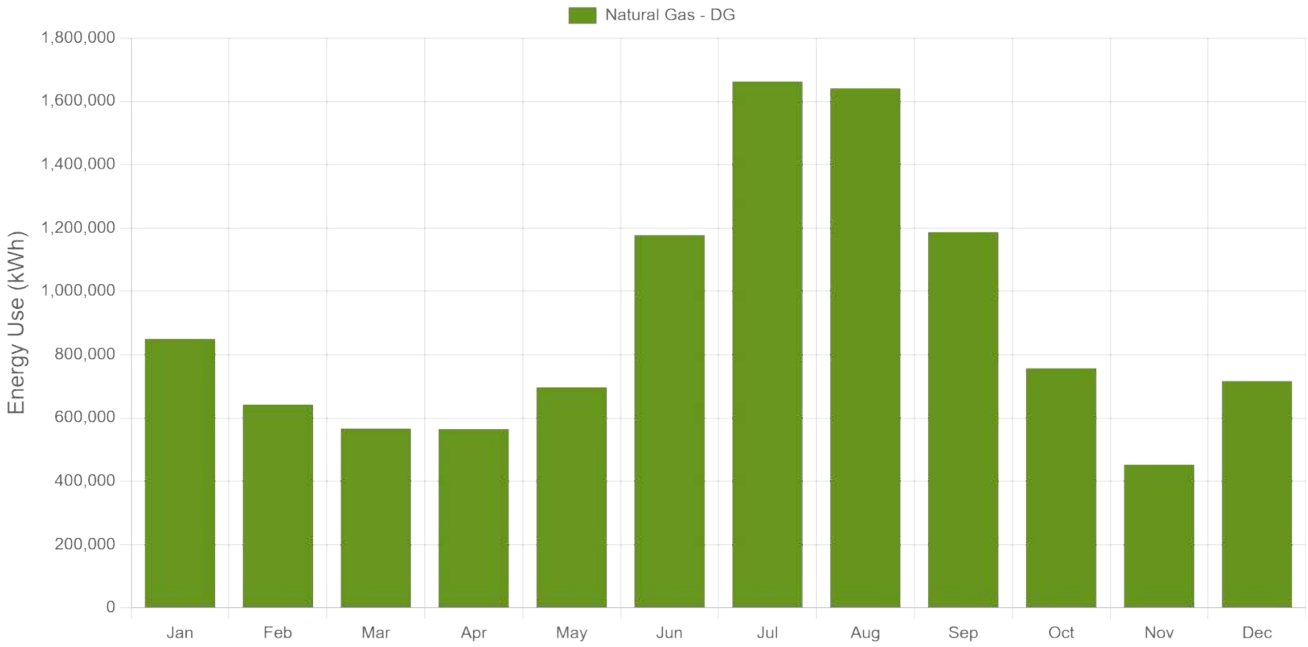
Result	Value
Generation-Based Levelized Cost of Electricity ($ / kWh)	$0.1981 / kWh
Load-Served Levelized Cost of Electricity ($ / kWh)	$0.1993 / kWh
Opex Savings (%)	99.9776%
Break-Even Year	1 year
Payback Year	< 1 year
IRR at End of Project (%)	N/A
NPV at End of Project	$15,352,476k

Type	Total New Capacity	Technology (New Capacity)	Init. Equip. Cost
	580 kW	Islanded Connection: Solar PV (580 kW)	2,393 k$
	2.5 MWh	Islanded Connection: Battery Energy Storage System (2.5 MWh)	1,125 k$
	2.75 MW	Islanded Connection: Linear Generator (2.75 MW) (11 units)	9,625 k$
			Total Cost: 13,142 k$

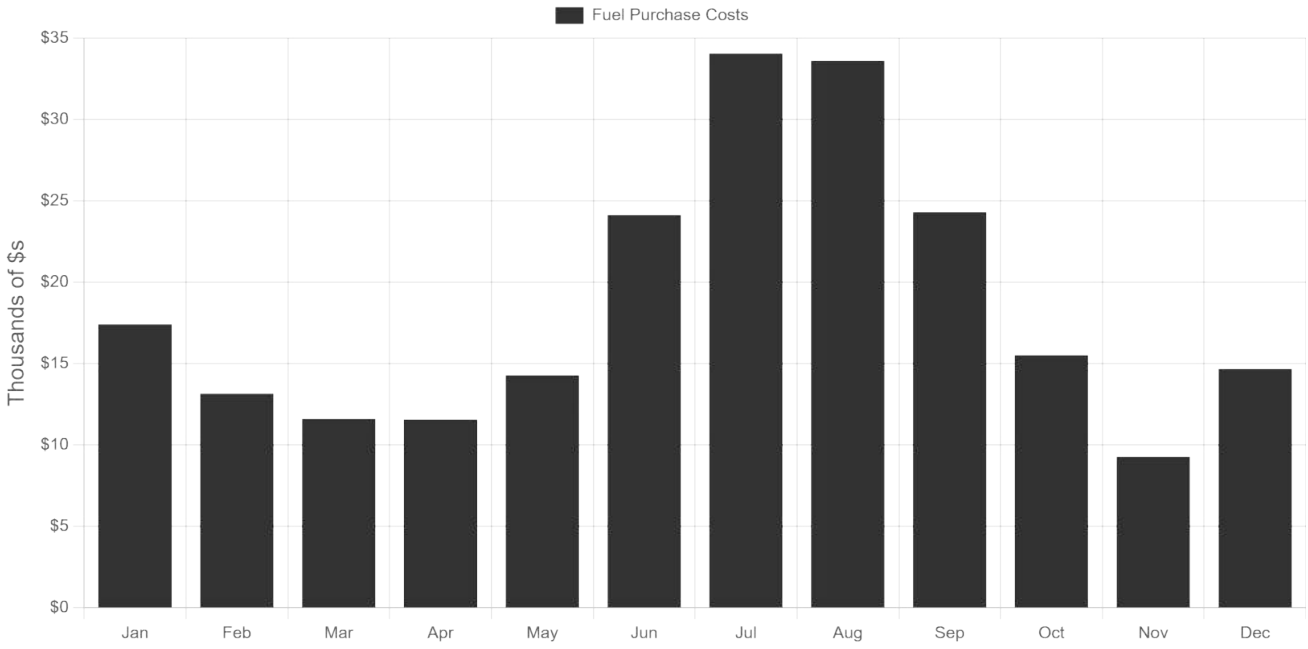
Utility Data

This section provides a summary of electricity and fuel utility purchases. Monthly breakdowns of energy consumption [kWh], demand by time-of-use period [kW], and total charges [k$] are included.

Monthly Energy Consumption (kWh)



Monthly Utility Charge Breakdown



Utility Billing Period

Billing for Annual

Annual Summary of Charges	
Fuel Purchase Costs [$]	223,625
Total [$]	223,625

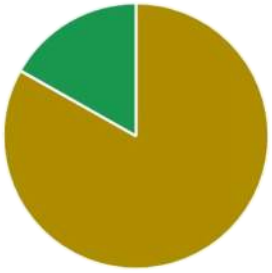
Annual Fuel Charges

Fuel Category	Consumption [kWh]	Rate [$/kWh]	Fuel Charge [$]
Natural Gas - DG - Contracted	10,920,240	-	223,625
Fuel Subtotal [$]			223,625

Energy Balance and Technology Investments

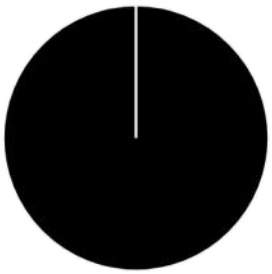
This section provides data on system energy demand and portfolio technologies. Included are details on total annual demand for each end-use modeled, share of demand met by utility purchases and on-site DER assets, total capacities of existing and new DER assets, and upfront investment costs.

Annual Electricity Balance (kWh)



	Total annual on-site generation from conventional DG (kWh)	4,896,567
	Total annual on-site generation from renewables (kWh)	990,197
	Total	**5,886,765**

Aggregated Demand (kWh)

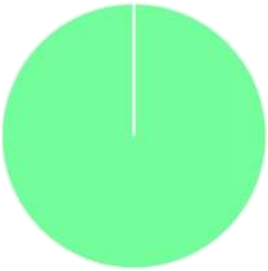


	Electricity-Only Demand	6,518,674

Generation Technologies (kWh)

	New PV (kWdc)	580
	New DG (kW) (11 units)	2,750
	Total	**3,330**

Storage Technologies



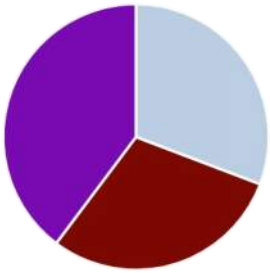
	New Electric Battery Storage Capacity (kWh)	2,500
	Total	**2,500**

Node	Tech	Inverter Size (kW): Calc. / Specified	Ratio
Islanded Connection	Battery Energy Storage System	1,000 / 1,000	1.00

Annual PV Electricity Balance (kWh)

	Electricity Consumed On-site	990,197
	Electricity Curtailed	56,655
	Total	**1,046,852**

Electric Technology Losses (kWh)

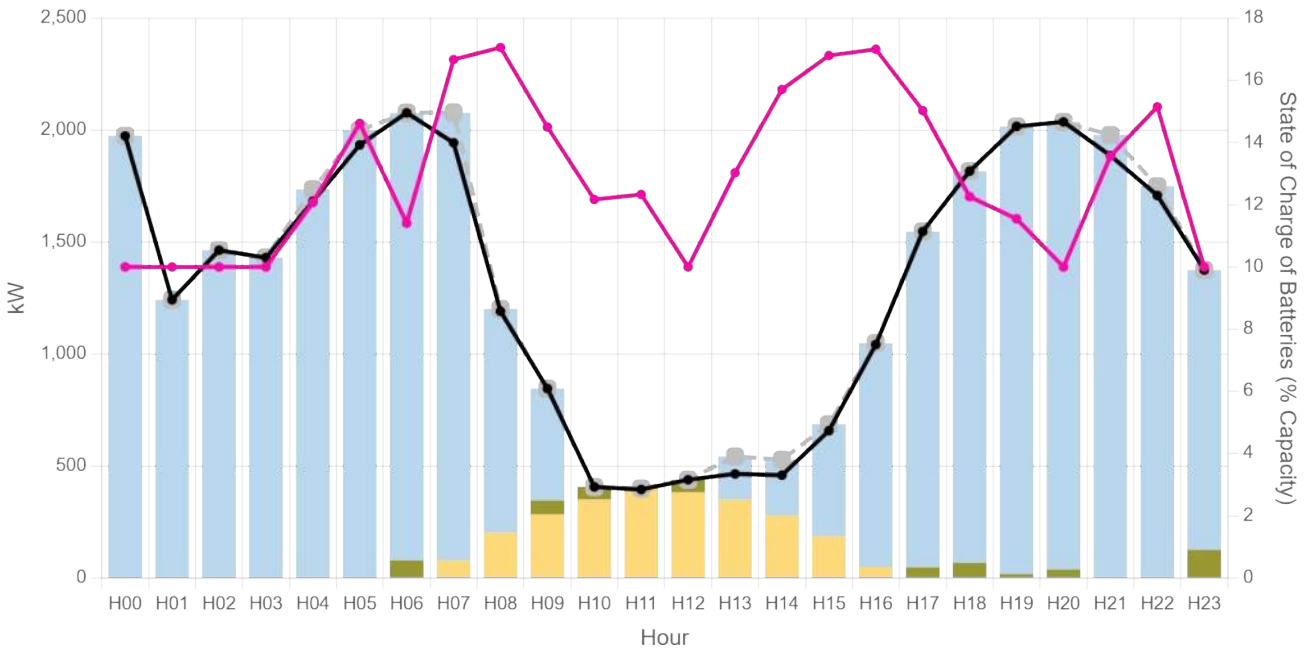


Electric Battery Charging	13,000
Electric Battery Discharging	12,441
Electric Battery Standby	16,782

Electricity Dispatch

The following dispatch curves show the optimal system operation to meet all electricity loads on a selection of modeled days. Electricity dispatch shows both the electricity-only loads and any electricity used to operate cooling and/or refrigeration technologies. System operation includes on-site generation and storage dispatch, utility purchases, and load management strategies.

Electricity Dispatch for January, Peak, Aggregate

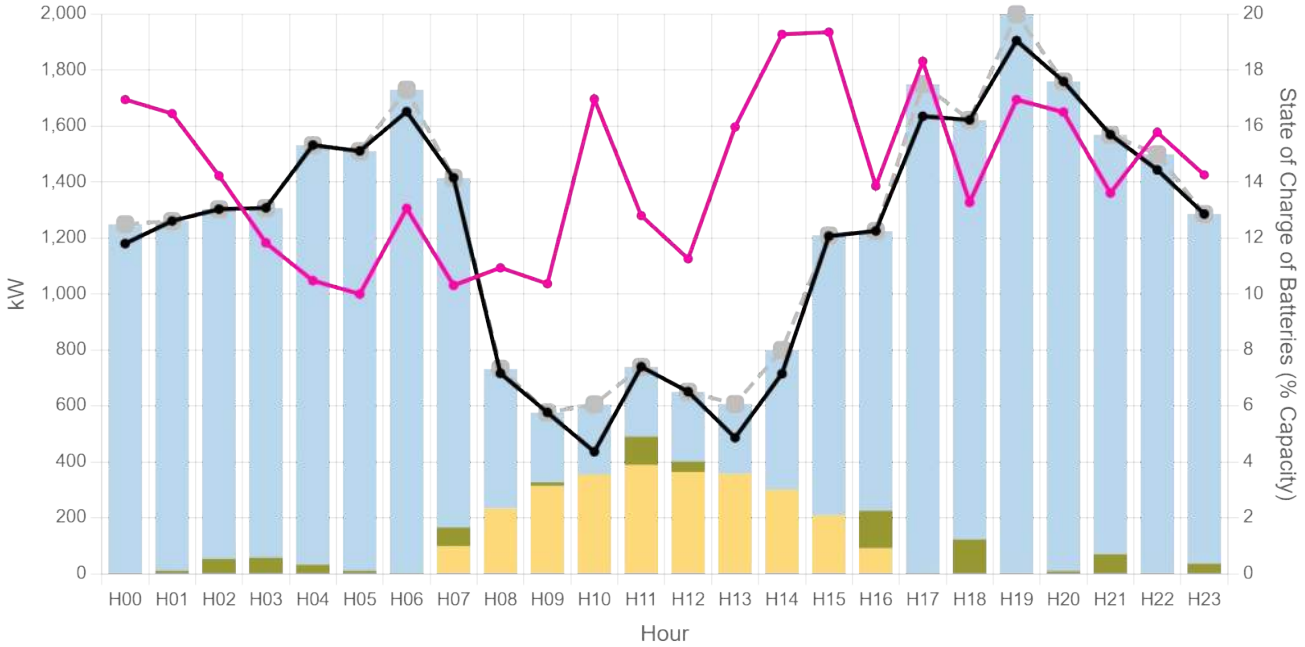


Demand lines are stacked to show the cumulative impact.

Electricity-Only Load	State of Charge of Electric Battery Storage
Electricity Supplied to Storage	
PV for Self Consumption	
Negative Demand for Self Consumption	
Electric Battery Storage for Self Consumption	
DG for Self Consumption	
PV Curtailment	
Negative Demand Curtailment	

* Axes NOT Scaled on Dispatch Graph By Data Across All Months / Day Types

Electricity Dispatch for February, Peak, Aggregate

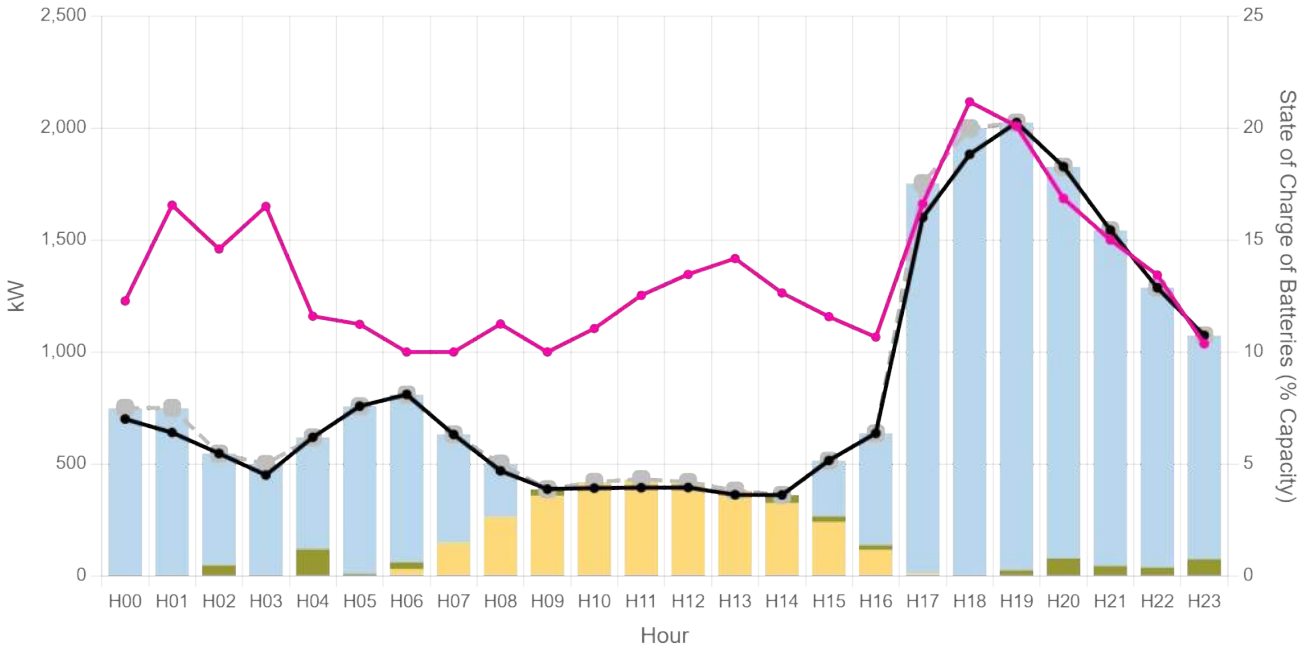


Demand lines are stacked to show the cumulative impact.

Electricity-Only Load	State of Charge of Electric Battery Storage
Electricity Supplied to Storage	
PV for Self Consumption	
Negative Demand for Self Consumption	
Electric Battery Storage for Self Consumption	
DG for Self Consumption	
PV Curtailment	
Negative Demand Curtailment	

* Axes NOT Scaled on Dispatch Graph By Data Across All Months / Day Types

Electricity Dispatch for March, Peak, Aggregate

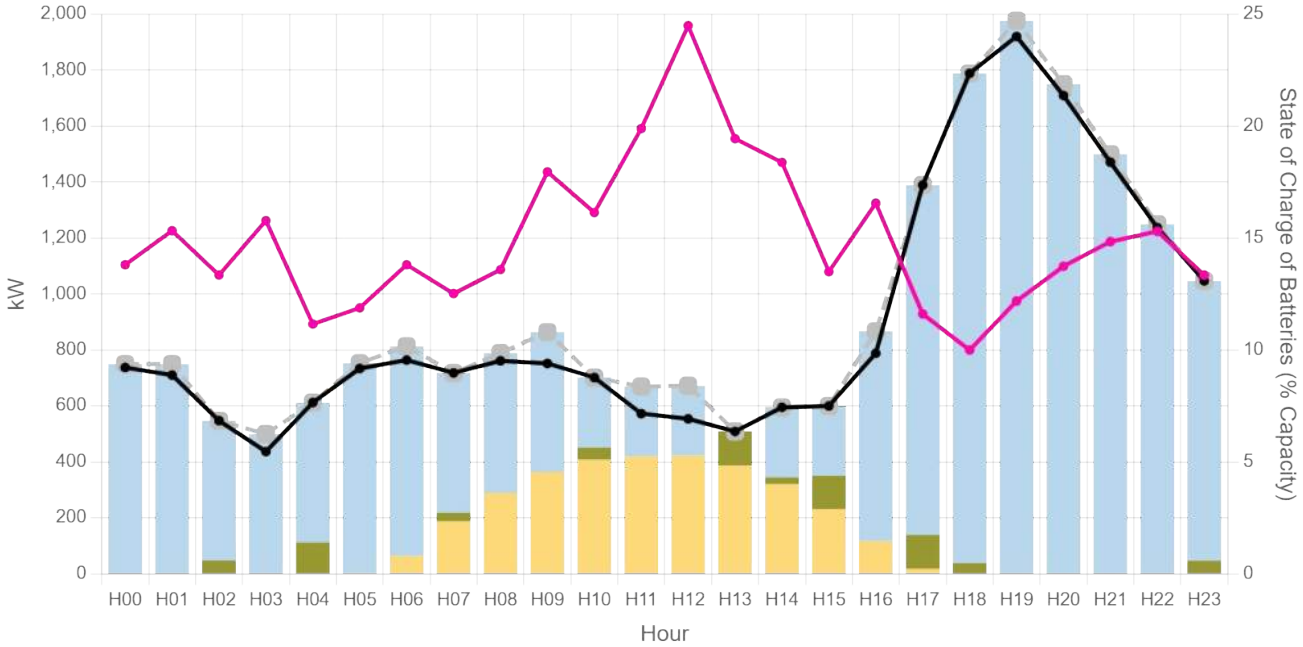


Demand lines are stacked to show the cumulative impact.

Electricity-Only Load	State of Charge of Electric Battery Storage
Electricity Supplied to Storage	
PV for Self Consumption	
Negative Demand for Self Consumption	
Electric Battery Storage for Self Consumption	
DG for Self Consumption	
PV Curtailment	
Negative Demand Curtailment	

* Axes NOT Scaled on Dispatch Graph By Data Across All Months / Day Types

Electricity Dispatch for April, Peak, Aggregate

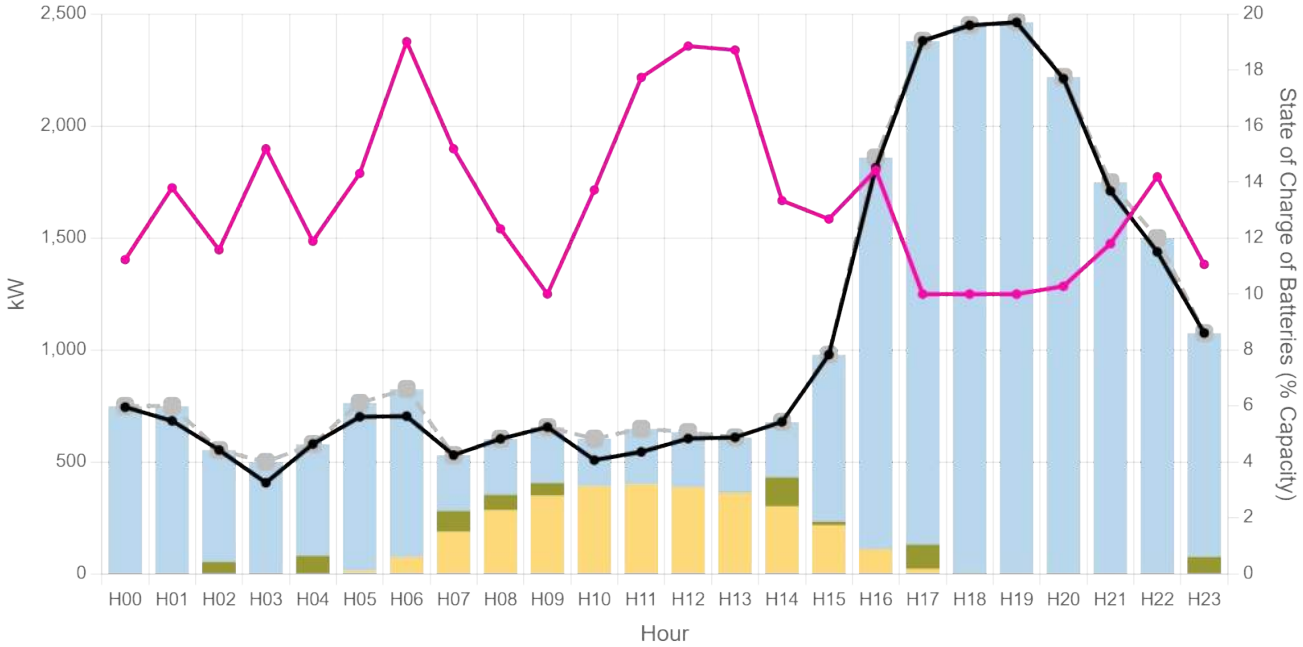


Demand lines are stacked to show the cumulative impact.

Electricity-Only Load	State of Charge of Electric Battery Storage
Electricity Supplied to Storage	
PV for Self Consumption	
Negative Demand for Self Consumption	
Electric Battery Storage for Self Consumption	
DG for Self Consumption	
PV Curtailment	
Negative Demand Curtailment	

* Axes NOT Scaled on Dispatch Graph By Data Across All Months / Day Types

Electricity Dispatch for May, Peak, Aggregate

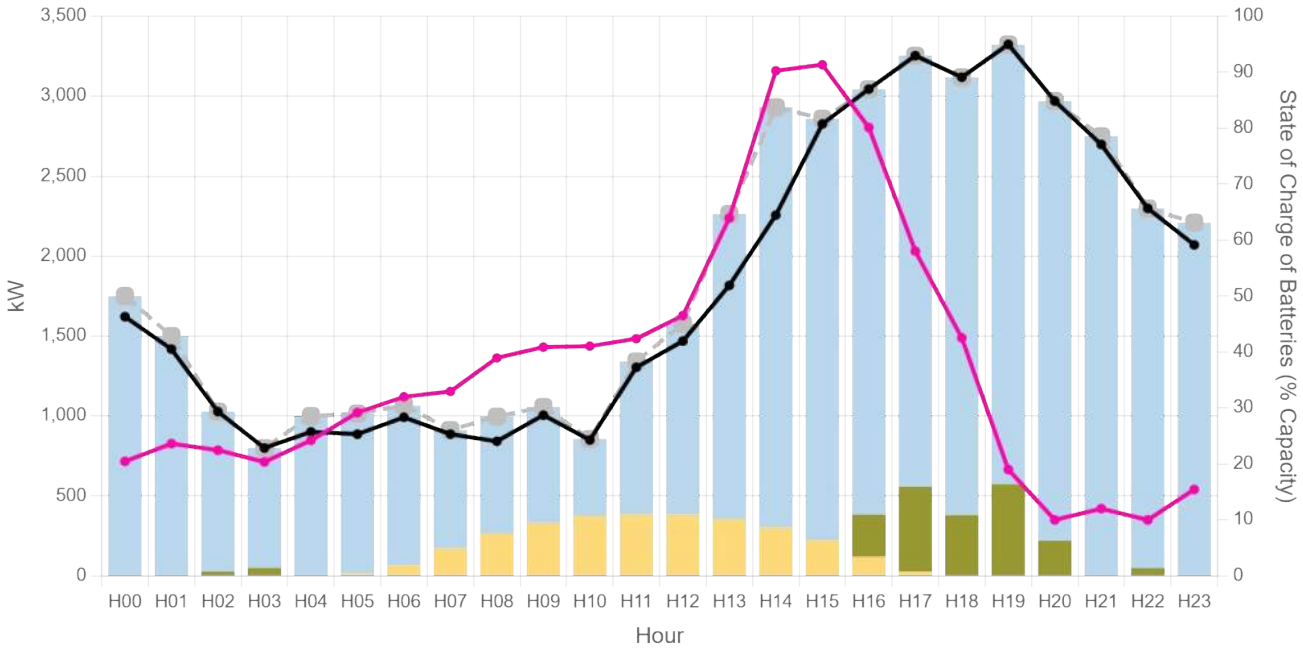


Demand lines are stacked to show the cumulative impact.

Electricity-Only Load	State of Charge of Electric Battery Storage
Electricity Supplied to Storage	
PV for Self Consumption	
Negative Demand for Self Consumption	
Electric Battery Storage for Self Consumption	
DG for Self Consumption	
PV Curtailment	
Negative Demand Curtailment	

* Axes NOT Scaled on Dispatch Graph By Data Across All Months / Day Types

Electricity Dispatch for June, Peak, Aggregate

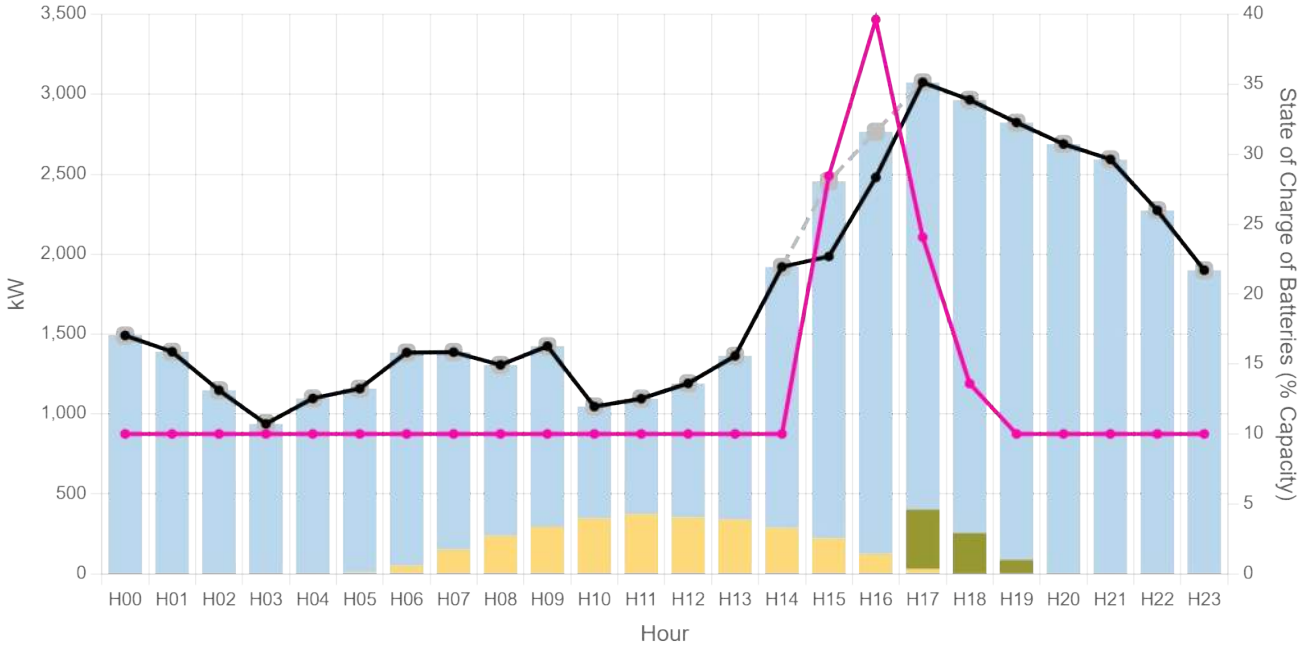


Demand lines are stacked to show the cumulative impact.

Electricity-Only Load	State of Charge of Electric Battery Storage
Electricity Supplied to Storage	
PV for Self Consumption	
Negative Demand for Self Consumption	
Electric Battery Storage for Self Consumption	
DG for Self Consumption	
PV Curtailment	
Negative Demand Curtailment	

* Axes NOT Scaled on Dispatch Graph By Data Across All Months / Day Types

Electricity Dispatch for July, Peak, Aggregate

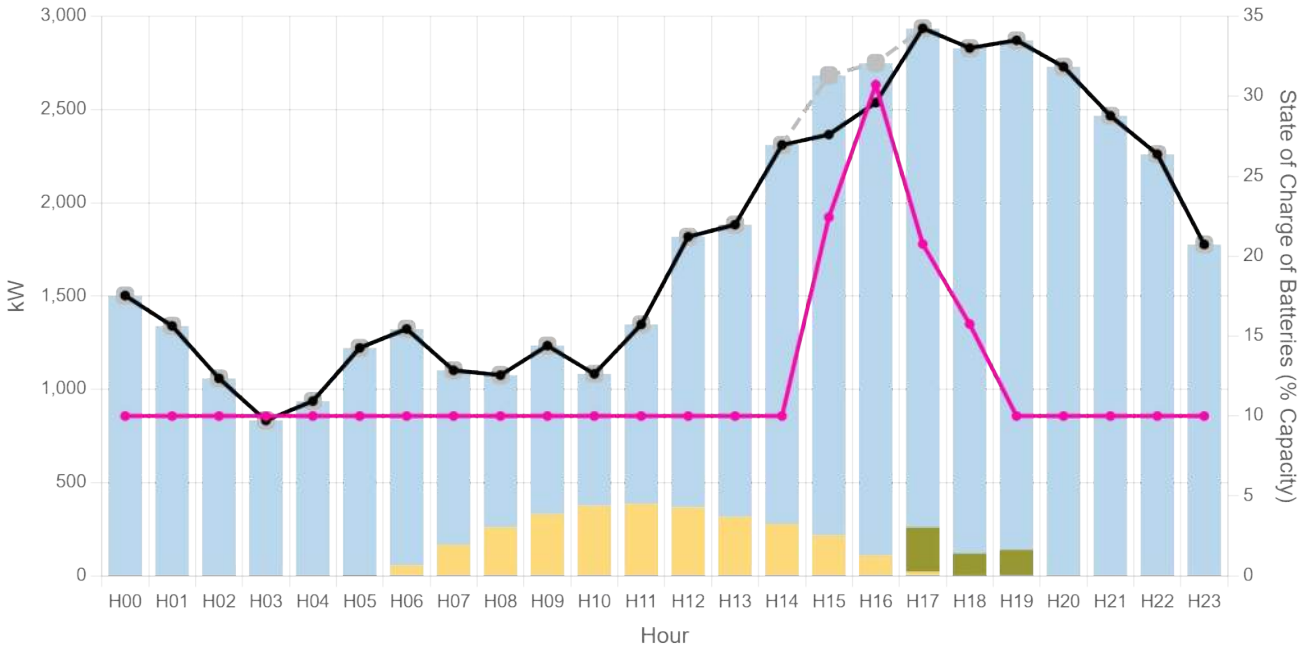


Demand lines are stacked to show the cumulative impact.

Electricity-Only Load	State of Charge of Electric Battery Storage
Electricity Supplied to Storage	
PV for Self Consumption	
Negative Demand for Self Consumption	
Electric Battery Storage for Self Consumption	
DG for Self Consumption	
PV Curtailment	
Negative Demand Curtailment	

* Axes NOT Scaled on Dispatch Graph By Data Across All Months / Day Types

Electricity Dispatch for August, Peak, Aggregate

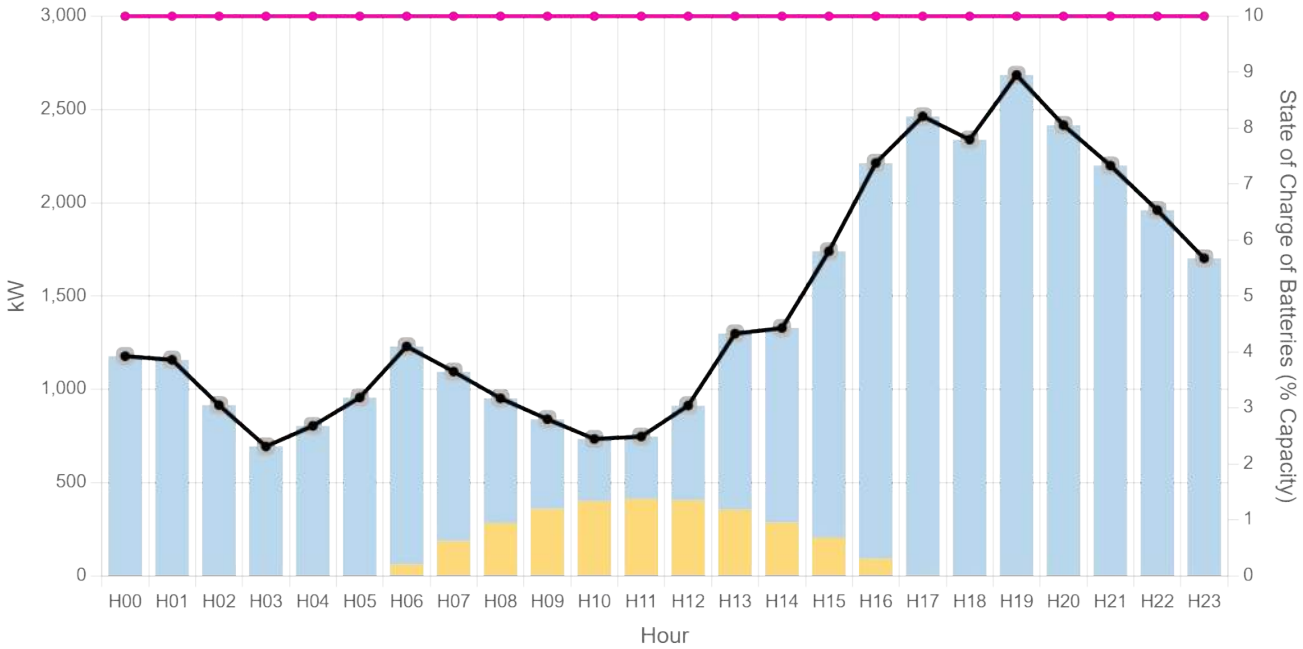


Demand lines are stacked to show the cumulative impact.

Electricity-Only Load	State of Charge of Electric Battery Storage
Electricity Supplied to Storage	
PV for Self Consumption	
Negative Demand for Self Consumption	
Electric Battery Storage for Self Consumption	
DG for Self Consumption	
PV Curtailment	
Negative Demand Curtailment	

* Axes NOT Scaled on Dispatch Graph By Data Across All Months / Day Types

Electricity Dispatch for September, Peak, Aggregate

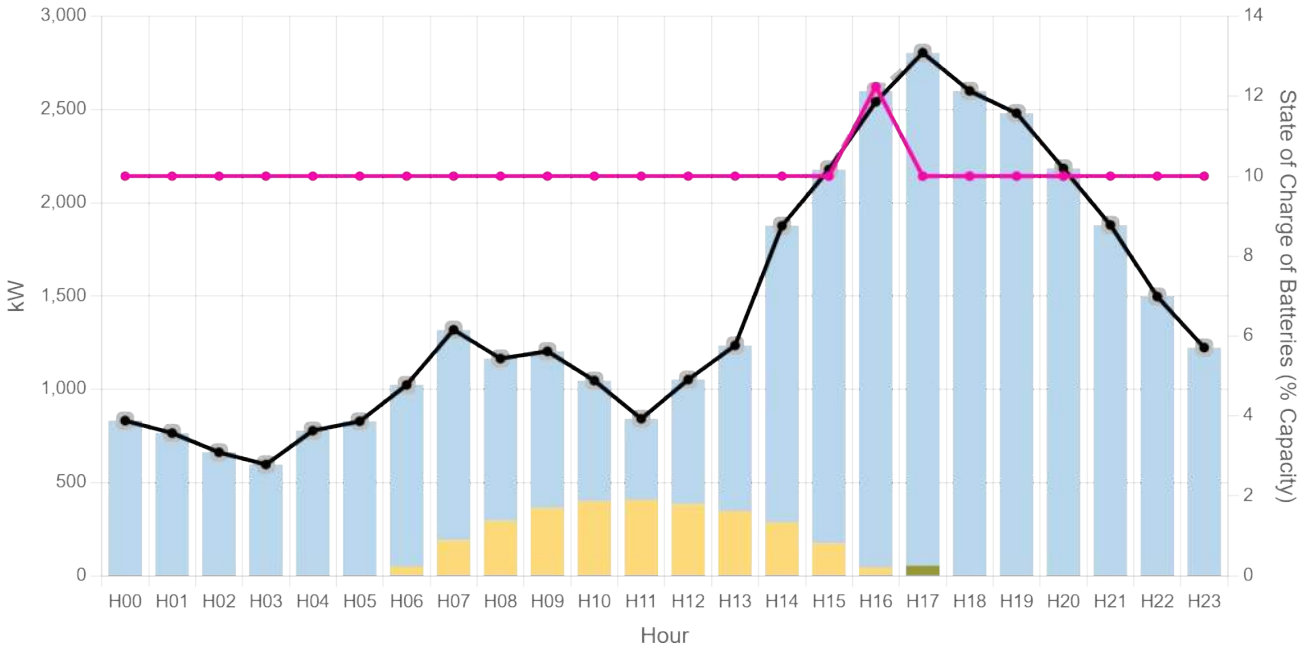


Demand lines are stacked to show the cumulative impact.

Electricity-Only Load	State of Charge of Electric Battery Storage
Electricity Supplied to Storage	
PV for Self Consumption	
Negative Demand for Self Consumption	
Electric Battery Storage for Self Consumption	
DG for Self Consumption	
PV Curtailment	
Negative Demand Curtailment	

* Axes NOT Scaled on Dispatch Graph By Data Across All Months / Day Types

Electricity Dispatch for October, Peak, Aggregate

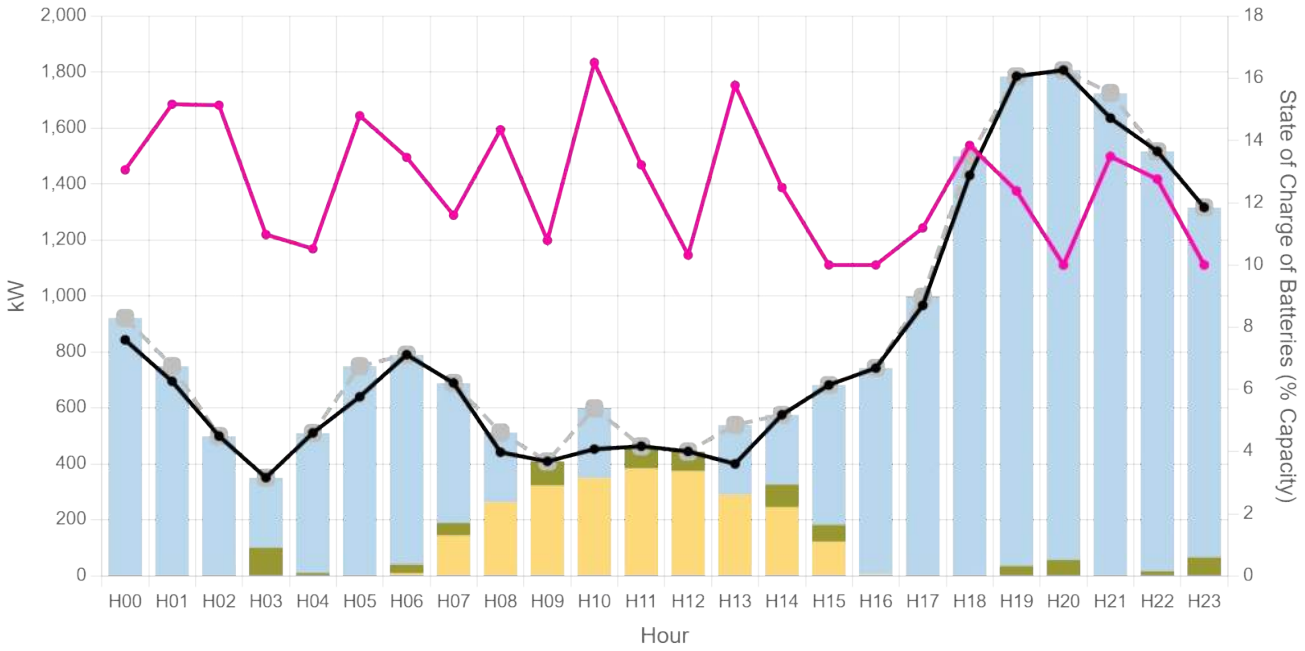


Demand lines are stacked to show the cumulative impact.

Electricity-Only Load	State of Charge of Electric Battery Storage
Electricity Supplied to Storage	
PV for Self Consumption	
Negative Demand for Self Consumption	
Electric Battery Storage for Self Consumption	
DG for Self Consumption	
PV Curtailment	
Negative Demand Curtailment	

* Axes NOT Scaled on Dispatch Graph By Data Across All Months / Day Types

Electricity Dispatch for November, Peak, Aggregate

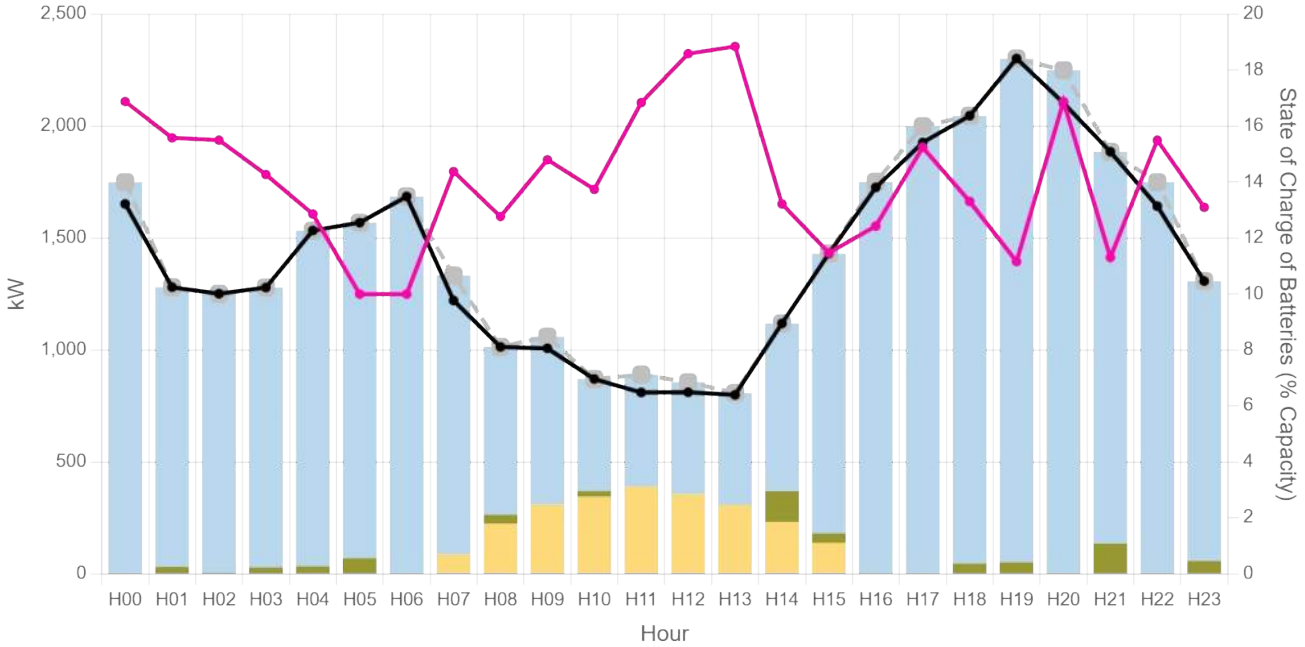


Demand lines are stacked to show the cumulative impact.

Electricity-Only Load	State of Charge of Electric Battery Storage
Electricity Supplied to Storage	
PV for Self Consumption	
Negative Demand for Self Consumption	
Electric Battery Storage for Self Consumption	
DG for Self Consumption	
PV Curtailment	
Negative Demand Curtailment	

* Axes NOT Scaled on Dispatch Graph By Data Across All Months / Day Types

Electricity Dispatch for December, Peak, Aggregate



Demand lines are stacked to show the cumulative impact.

Electricity-Only Load	State of Charge of Electric Battery Storage
Electricity Supplied to Storage	
PV for Self Consumption	
Negative Demand for Self Consumption	
Electric Battery Storage for Self Consumption	
DG for Self Consumption	
PV Curtailment	
Negative Demand Curtailment	

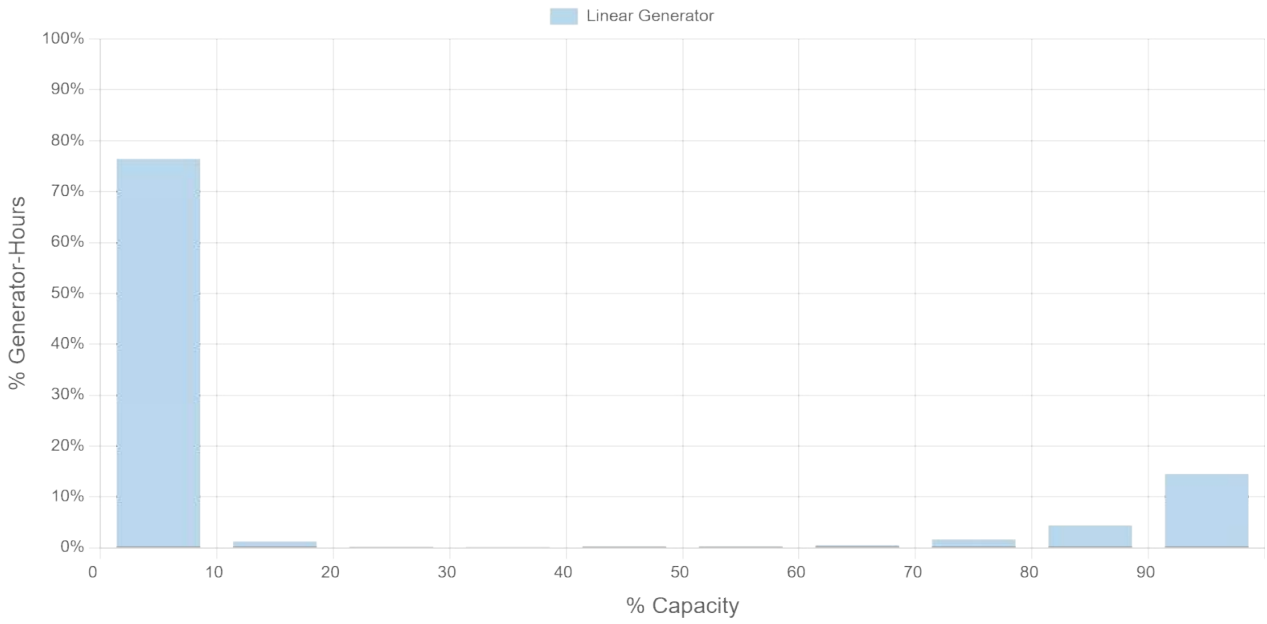
* Axes NOT Scaled on Dispatch Graph By Data Across All Months / Day Types

Operation Summary

This section provides a summary of generator operation and monthly on-site generation.

Generator Operation

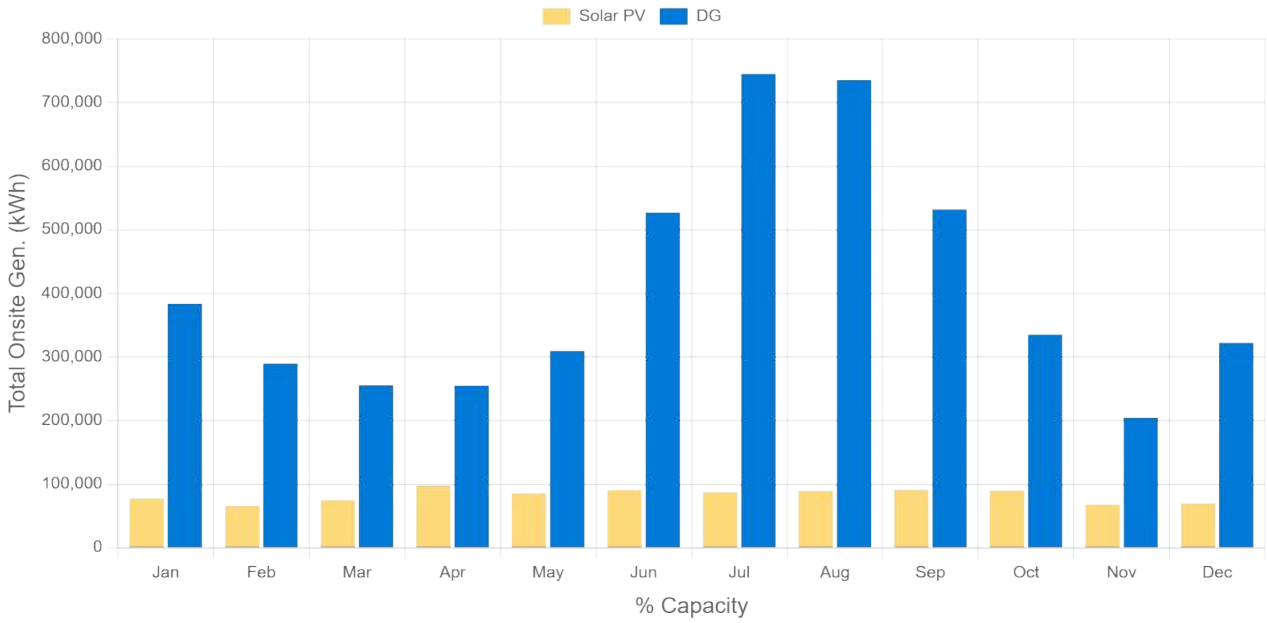
Generator Operation for Annual



Generator Run Hours

Node	Tech	Annual Operation Hours
Islanded Connection	Linear Generator	7,213

Monthly On-Site Generation (kWh)



Technology Capacity Factor

Node	Tech	Capacity Factor
Islanded Connection	Solar PV	19.49%
	Linear Generator	20.33%

Storage Cycling

Node	Tech	Annual / Allowed Cycles	%
Islanded Connection	Battery Energy Storage System	248 / N/A	N/A

EXHIBIT G

The Ranch at Madison

Manual Load Profile Analysis

Manually validating the reasonableness of the Xendee solution was the next step. See **Exhibit G Manual Load Profile Analysis** for the complete results. The evaluation begins by downloading the hourly time series profiles for the nine buildings Xendee created. These .csv files were added to a new Excel file named "TRAM Hourly Load Profile Summary". The other five hourly load profiles were also added to the new Excel file. The power factor for each load that was input into Xendee was then applied to each profile. The (14) hourly load profiles were then summed up to create the appropriate load for the generation system. The result is a total annual use of 5,759,383 kWh. This is 127,382 kWh less than the Xendee calculated amount of power produced by the linear generators and community solar PV. The manual methodology does not include the BESS parasitic losses of 42,223 kWh. The remaining 85,159 kWh is attributed to the unique DayTypes data reduction methodology used by Xendee. This manually validates the Xendee model.

The community solar PV hourly load profile was created by using the Title 24 hourly profile and extrapolating it to the 580 kW of community solar PV in the Xendee solution. This profile was also added to the Excel file. A simple change for size allows seeing the impact on the overall load profile and microgrid solution if different sized community solar PV is utilized however the comparison used the 580-kW size.

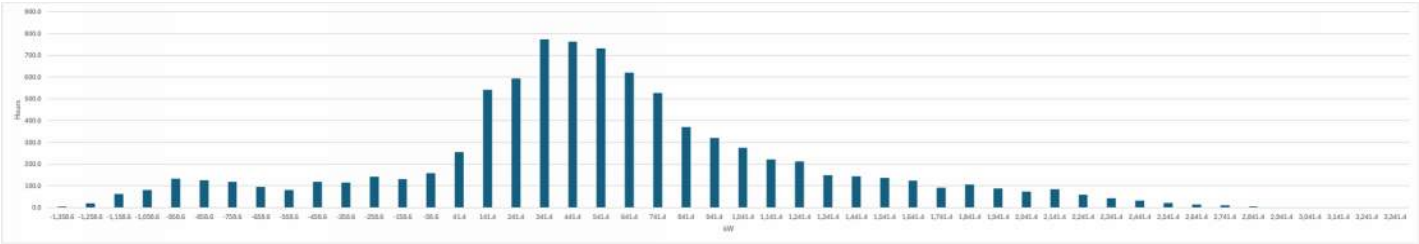
Two columns were then calculated to model the microgrid BESS solutions impact on the load being passed to the Mainspring units. The BESS model is like the model used for each home profile such that it has a minimum state of charge, capacity, charge and discharge efficiencies. For the community level BESS, a C rate was also modeled. The C rate is how fast the BESS can charge and discharge. All the BESS inputs are easy to change to allow seeing the impact on the microgrid solution. Adding the BESS columns with the ability to see immediate changes was helpful but did not allow controlling the discharge rate to reduce the peak loads seen by the linear generators. Adding the programming for this function was beyond the scope of the manual analysis. The benefits of using the BESS programming were subsequently restricted to seeing what the addition of more BESS units or size would do to limit the amount of residential and community solar PV that was curtailed.

Some analysis was performed to increase and decrease the community solar PV and community BESS separately and the result shows engaging one of the additional BESS units will be considered to maximize use of the excess electricity produced by the residential and community solar PV. The Xendee output shows a curtailment of 56,655 kWh.

Modifying the Excel file to use 580 kW of community solar PV and no BESS results in the best view of the project load profile for manual analysis and comparison to the Xendee solution.

A series of tables and graphs were created to analyze the resulting data. The two most valuable pieces of data are the table where the load profile data can be grouped into data bins of kW ranges and the subsequent bar chart of the data bins. These visually and mathematically represent how many hours the peak load spends in the ranges. See below. It is important to note this data does **NOT** include using the BESS for peak shaving. The peak load is only above 2,750 kW for 21 hours of the year and above 2,500 kW for 55 hours of the year. The use of one BESS unit will reduce the peak load seen by the linear generators to a maximum of 2,750 kW.

kVA Analysis Set Size		100	kVA	
Load Range (Low)	**Load Range (High)**	**Load Range (Average)**	**Hours**	**Percent of Time**
-1,408.6	-1,308.6	-1,358.6	4.0	0.05%
-1,308.6	-1,208.6	-1,258.6	19.0	0.22%
-1,208.6	-1,108.6	-1,158.6	62.0	0.71%
-1,108.6	-1,008.6	-1,058.6	81.0	0.92%
-1,008.6	-908.6	-958.6	132.0	1.51%
-908.6	-808.6	-858.6	126.0	1.44%
-808.6	-708.6	-758.6	118.0	1.35%
-708.6	-608.6	-658.6	94.0	1.07%
-608.6	-508.6	-558.6	80.0	0.91%
-508.6	-408.6	-458.6	118.0	1.35%
-408.6	-308.6	-358.6	114.0	1.30%
-308.6	-208.6	-258.6	141.0	1.61%
-208.6	-108.6	-158.6	130.0	1.48%
-108.6	-8.6	-58.6	158.0	1.80%
-8.6	91.4	41.4	255.0	2.91%
91.4	191.4	141.4	541.0	6.18%
191.4	291.4	241.4	594.0	6.78%
291.4	391.4	341.4	773.0	8.82%
391.4	491.4	441.4	763.0	8.71%
491.4	591.4	541.4	733.0	8.37%
591.4	691.4	641.4	621.0	7.09%
691.4	791.4	741.4	527.0	6.02%
791.4	891.4	841.4	371.0	4.24%
891.4	991.4	941.4	320.0	3.65%
991.4	1,091.4	1,041.4	274.0	3.13%
1,091.4	1,191.4	1,141.4	221.0	2.52%
1,191.4	1,291.4	1,241.4	211.0	2.41%
1,291.4	1,391.4	1,341.4	149.0	1.70%
1,391.4	1,491.4	1,441.4	143.0	1.63%
1,491.4	1,591.4	1,541.4	136.0	1.55%
1,591.4	1,691.4	1,641.4	123.0	1.40%
1,691.4	1,791.4	1,741.4	92.0	1.05%
1,791.4	1,891.4	1,841.4	105.0	1.20%
1,891.4	1,991.4	1,941.4	87.0	0.99%
1,991.4	2,091.4	2,041.4	73.0	0.83%
2,091.4	2,191.4	2,141.4	84.0	0.96%
2,191.4	2,291.4	2,241.4	58.0	0.66%
2,291.4	2,391.4	2,341.4	42.0	0.48%
2,391.4	2,491.4	2,441.4	32.0	0.37%
2,491.4	2,591.4	2,541.4	21.0	0.24%
2,591.4	2,691.4	2,641.4	13.0	0.15%
2,691.4	2,791.4	2,741.4	11.0	0.13%
2,791.4	2,891.4	2,841.4	5.0	0.06%
2,891.4	2,991.4	2,941.4	2.0	0.02%
2,991.4	3,091.4	3,041.4	0.0	0.00%
3,091.4	3,191.4	3,141.4	1.0	0.01%
3,191.4	3,291.4	3,241.4	1.0	0.01%
3,291.4	3,391.4	3,341.4	1.0	0.01%



The following is a summary table of the load data with the impact of the community solar PV.

	Annual Usage (kVAh)		Annual Production (kVAh)	Annual Consumption (kVAh)
Estates, Golf Cottages, Villas	2,118,651		-921,680	3,040,331
Guard House	15,622		0	15,622
Entry Pavilion	49,097		0	49,097
Farm to Table	194,306		0	194,306
Event Barn	937,887		0	937,887
Beach Club	90,611		0	90,611
Fitness Center	505,796		0	505,796
Wellness/Spa	354,208		0	354,208
Starter Shack	27,790		0	27,790
Commissary	50,530		0	50,530
Maintenance Building	124,843		0	124,843
Pump Station	787,198		0	787,198
Activity Lagoon Pumping	170,213		0	170,213
Area Lights	332,630		0	332,630
Community PV	-984,395		-984,395	0
Community Battery	0		0	0
Total	**4,774,988**		**-1,906,075**	**6,681,062**
Max Peak (kW)	**3,338**			
Min Peak (kW)	**-1,409**			

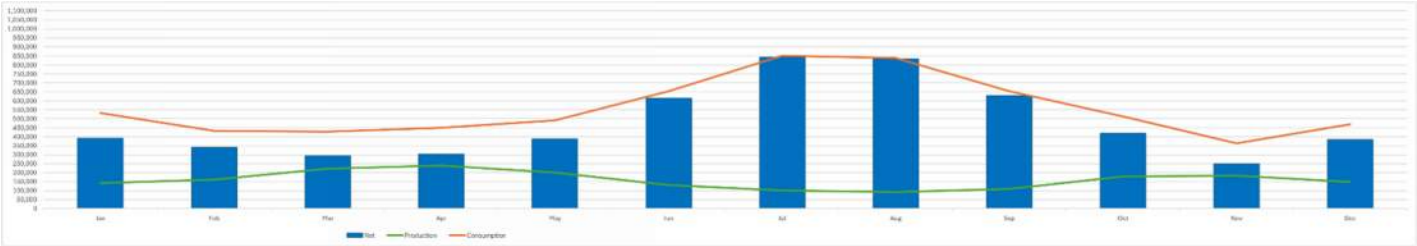
The table below is a monthly summary of the individual loads.

	Monthly House Production (kVAh)	Monthly House Consumption (kVAh)	Monthly Guard House Consumption (kVAh)	Monthly Entry Pavilion Consumption (kVAh)	Monthly Farm to Table Consumption (kVAh)	Monthly Event Barn Consumption (kVAh)	Monthly Beach Club Consumption (kVAh)	Monthly Fitness Center Consumption (kVAh)	Monthly Wellness Spa Consumption (kVAh)	Monthly Starter Shack Consumption (kVAh)	Monthly Commissary Consumption (kVAh)	Monthly Maintenance Building Consumption (kVAh)	Monthly Pump Station Consumption (kVAh)	Monthly Activity Lagoon Pumping Consumption (kVAh)	Monthly Area Lights Consumption (kVAh)	Monthly Area Community PV Production (kVAh)
Jan	-75,351	258,064	1,317	4,139	16,678	80,504	7,778	43,852	30,710	2,433	4,381	6,517	34,140	14,456	28,251	-65,658
Feb	-92,231	182,137	1,172	3,683	14,996	72,386	6,993	39,072	27,362	2,160	3,903	6,066	35,113	13,057	25,517	-68,499
Mar	-132,771	145,593	1,309	4,113	16,509	79,685	7,699	43,167	30,230	2,373	4,312	7,094	43,758	14,456	28,251	-88,707
Apr	-145,825	133,505	1,279	4,019	15,887	76,684	7,409	41,818	29,285	2,285	4,178	10,418	81,336	13,990	27,339	-94,636
May	-103,683	175,647	1,269	3,987	16,343	78,886	7,621	41,715	29,213	2,269	4,167	9,499	78,432	14,456	28,251	-96,050
Jun	-36,631	323,326	1,313	4,125	15,778	76,160	7,358	40,761	28,545	2,213	4,072	14,848	93,285	13,990	27,339	-94,068
Jul	-8,857	504,739	1,405	4,415	16,332	78,833	7,616	42,898	30,042	2,331	4,286	17,602	98,669	14,456	28,251	-90,961
Aug	-5,065	502,113	1,338	4,206	16,406	79,190	7,651	42,010	29,420	2,294	4,197	15,208	92,013	14,456	28,251	-86,925
Sep	-24,274	348,543	1,347	4,235	15,963	77,052	7,444	42,167	29,529	2,315	4,213	11,912	67,838	13,990	27,339	-85,949
Oct	-95,320	188,176	1,315	4,132	16,590	80,079	7,737	43,446	30,425	2,399	4,340	12,737	79,449	14,456	28,251	-83,707
Nov	-114,232	80,968	1,244	3,911	16,119	77,803	7,517	41,354	28,960	2,297	4,131	6,402	51,075	13,990	27,339	-68,178
Dec	-87,438	197,520	1,315	4,132	16,703	80,625	7,789	43,535	30,488	2,422	4,349	6,541	32,089	14,456	28,251	-61,055
Total	**-921,680**	**3,040,331**	**15,622**	**49,097**	**194,306**	**937,887**	**90,611**	**505,796**	**354,208**	**27,790**	**50,530**	**124,843**	**787,198**	**170,213**	**332,630**	**-984,395**
		45.5%	*0.2%*	*0.7%*	*2.9%*	*14.0%*	*1.4%*	*7.6%*	*5.3%*	*0.4%*	*0.8%*	*1.9%*	*11.8%*	*2.5%*	*5.0%*	*-14.7%*

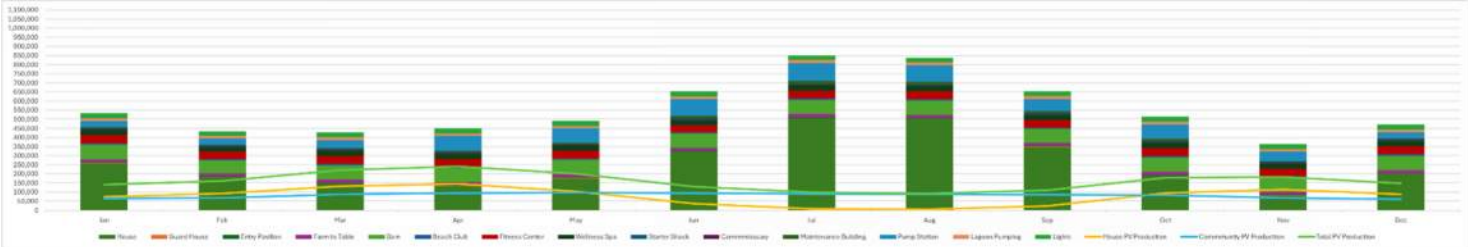
The following table shows the monthly loads in summary with maximum and minimum values.

	Monthly Total Consumption (kVAh)	Monthly Net (kVAh)	Monthly Max Peak (kVA)	Monthly Min Peak (kVA)
Jan	533,220	392,211	2,033	-1,035
Feb	433,617	341,386	1,915	-1,296
Mar	428,548	295,778	2,052	-1,409
Apr	449,431	303,605	1,902	-1,262
May	491,757	388,073	2,372	-1,354
Jun	653,112	616,480	3,338	-737
Jul	851,876	843,019	2,853	-641
Aug	838,753	833,687	2,826	-455
Sep	653,888	629,614	2,552	-884
Oct	513,533	418,213	2,648	-1,181
Nov	363,112	248,879	1,676	-1,203
Dec	470,215	382,777	2,133	-1,119
Total	**6,681,062**	**5,693,724**	**3,338**	**-1,409**

The following graph shows the monthly net, production, and consumption of the project.



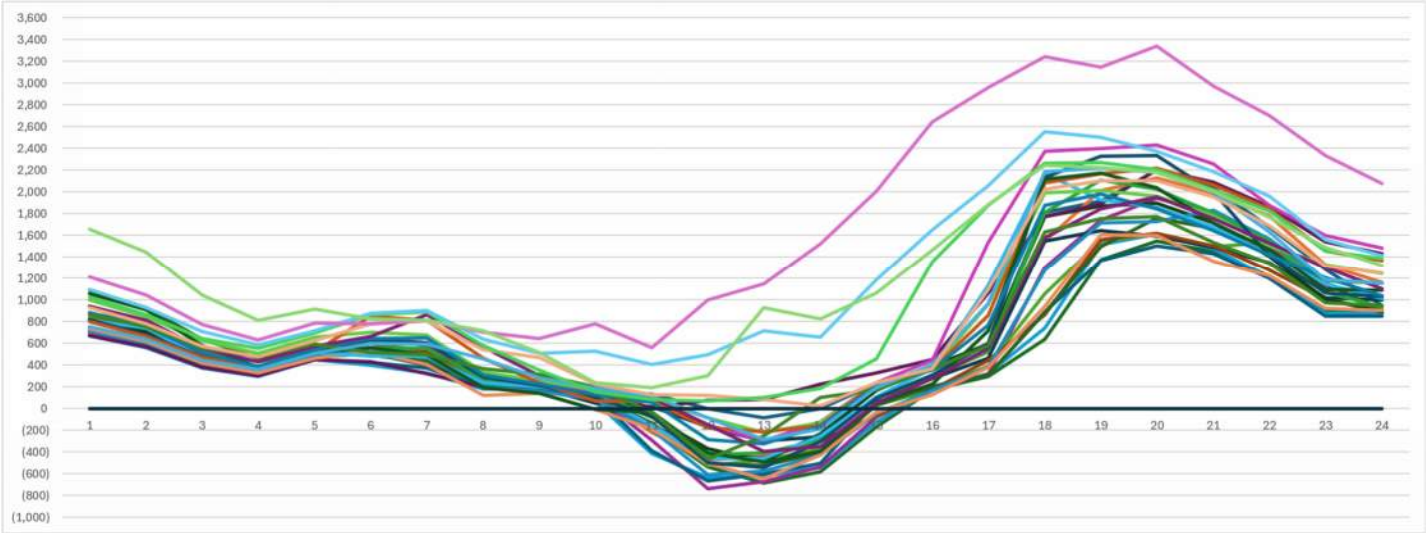
The following graph shows the monthly consumption of all loads in the stacked bars and the house solar PV, community solar PV, and net solar PV in the lines.



The data below is for the month of June when the peak loads occur. This is the most important month of data for sizing the microgrid power solution. The data tables have all the values, and the line graph below shows the hourly load profile for every day of the month.

	June																									
	Hour of Day																								Monthly Max	Monthly Avg
																									3,338	702
Day of Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Max	Daily Avg
1	738	648	430	331	489	538	493	274	240	148	135	(1)	(84)	(1)	233	354	600	1,810	1,918	2,199	2,037	1,678	1,282	950	2,199	727
2	839	714	482	373	516	525	485	238	209	120	(220)	(475)	(438)	(285)	94	296	520	1,550	2,009	2,126	1,987	1,782	1,329	1,160	2,126	664
3	941	781	486	323	467	508	420	198	241	131	(173)	(536)	(686)	(583)	(166)	172	299	641	1,372	1,550	1,451	1,217	894	872	1,550	451
4	671	561	372	298	449	402	327	182	187	62	(411)	(632)	(622)	(546)	(121)	171	320	739	1,514	1,610	1,479	1,206	876	874	1,610	415
5	688	582	382	303	448	646	582	282	233	113	(290)	(737)	(674)	(536)	(81)	175	313	1,301	1,741	1,938	1,815	1,501	1,126	1,032	1,938	537
6	832	709	516	433	510	519	434	194	165	87	(131)	(522)	(471)	(377)	32	174	395	1,055	1,545	1,609	1,498	1,533	1,173	1,154	1,609	544
7	747	631	447	349	487	510	398	256	191	54	15	(171)	(297)	(260)	95	277	461	1,547	1,645	1,593	1,487	1,347	1,020	996	1,645	576
8	862	737	500	388	545	599	529	221	200	117	(149)	(423)	(451)	(295)	(71)	172	446	862	1,558	1,621	1,502	1,274	1,008	908	1,621	527
9	817	705	464	356	512	556	484	216	199	126	(76)	(369)	(482)	(236)	170	390	595	1,773	1,872	1,893	1,713	1,402	1,006	892	1,893	624
10	715	598	403	310	448	425	375	202	197	117	(391)	(664)	(601)	(502)	66	191	308	890	1,369	1,505	1,433	1,202	848	849	1,505	429
11	670	566	378	302	448	432	321	196	205	139	4	73	80	228	329	451	1,064	1,776	1,892	2,208	2,089	1,862	1,541	1,429	2,208	778
12	1,087	928	634	463	594	489	440	219	203	130	(138)	(506)	(521)	(405)	30	204	311	883	1,496	1,761	1,664	1,440	1,152	901	1,761	561
13	707	603	418	333	473	538	471	201	160	81	(197)	(610)	(572)	(426)	(43)	164	381	1,275	1,713	1,729	1,833	1,565	1,185	1,154	1,833	547
14	735	615	420	327	465	523	402	122	141	(6)	(190)	(502)	(644)	(427)	(32)	129	382	938	1,608	1,599	1,361	1,226	921	905	1,608	459
15	872	811	523	387	514	558	551	261	211	123	(57)	(425)	(409)	(289)	94	291	528	1,809	2,106	2,026	1,805	1,548	1,070	937	2,106	660
16	814	738	469	360	512	482	481	236	199	125	(155)	(458)	(462)	(255)	109	366	1,135	2,169	1,927	1,856	1,676	1,424	1,145	1,012	2,169	663
17	807	675	479	381	525	644	607	321	232	153	88	(149)	(298)	(121)	238	444	1,536	2,374	2,400	2,428	2,257	1,873	1,598	1,485	2,428	874
18	997	845	624	509	654	702	674	336	256	172	88	(82)	(220)	(130)	230	361	958	1,994	2,014	1,959	1,776	1,501	1,328	1,247	2,014	783
19	816	679	475	387	532	634	603	286	213	102	(69)	(497)	(542)	(306)	95	306	602	2,133	2,326	2,332	2,002	1,414	1,067	1,031	2,332	692
20	796	663	470	380	525	849	811	463	238	71	64	(176)	(213)	(153)	235	363	854	2,085	2,168	2,216	2,061	1,846	1,458	1,365	2,216	810
21	1,057	908	580	378	512	561	499	195	140	(10)	(32)	(407)	(490)	(396)	48	223	716	2,112	2,173	2,039	1,714	1,469	1,095	1,090	2,173	674
22	880	753	513	389	544	647	647	308	222	125	56	(286)	(325)	(164)	210	363	764	1,876	1,980	1,844	1,647	1,420	1,204	1,035	1,980	694
23	940	810	556	433	572	664	864	566	303	191	99	(151)	(394)	(349)	50	274	557	1,582	1,841	1,953	1,751	1,525	1,301	1,101	1,953	710
24	865	752	562	476	593	514	498	366	317	199	(33)	(465)	(255)	105	176	366	578	1,630	1,754	1,775	1,536	1,342	974	948	1,775	649
25	751	637	447	363	506	599	595	459	280	186	113	(84)	(287)	(188)	192	404	964	2,185	2,218	2,177	2,000	1,629	1,184	1,151	2,218	770
26	930	781	570	475	622	782	804	538	467	226	127	120	84	26	237	365	1,099	2,026	2,104	2,104	1,956	1,687	1,314	1,252	2,104	862
27	1,028	864	646	554	693	864	890	577	355	153	85	70	101	183	459	1,351	1,875	2,265	2,271	2,206	2,021	1,826	1,457	1,386	2,271	1,008
28	1,097	927	710	587	715	879	900	636	508	529	403	496	717	657	1,184	1,651	2,058	2,556	2,504	2,371	2,188	1,958	1,559	1,411	2,556	1,217
29	1,213	1,047	774	634	784	783	812	704	645	780	558	996	1,147	1,525	2,008	2,646	2,963	3,241	3,147	3,338	2,974	2,704	2,335	2,075	3,338	1,660
30	1,656	1,445	1,043	812	912	826	813	715	513	240	192	305	926	826	1,061	1,462	1,880	2,242	2,226	2,176	2,007	1,769	1,489	1,319	2,242	1,202
31																									0	0

The table shows the peak hours are from 5:00 pm to 8:00 pm and drop significantly when the sun goes down.



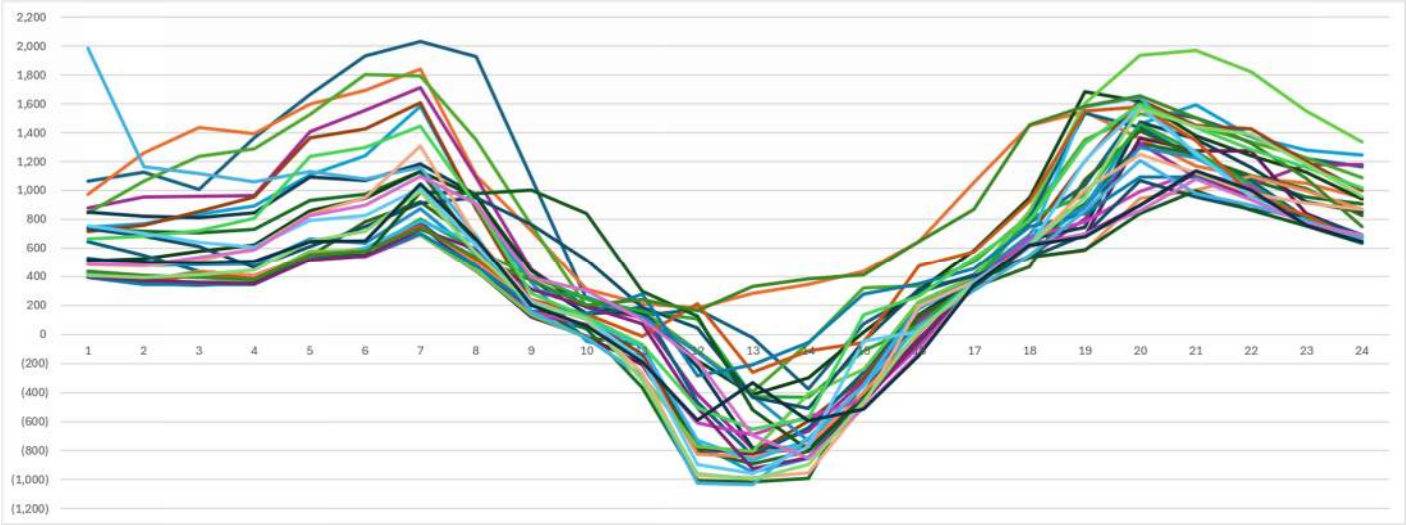
The following tables and graphs are for the other months of the year.

January

Monthly Max	Monthly Avg
2,033	527

Day of Month	January																							
	Hour of Day																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1,065	1,127	1,008	1,362	1,663	1,934	2,033	1,927	1,086	245	128	171	(23)	(375)	72	285	410	776	1,037	1,569	1,503	1,374	1,220	1,163
2	976	1,259	1,435	1,394	1,597	1,695	1,843	1,102	721	312	212	184	283	342	433	643	1,056	1,449	1,543	1,360	1,169	1,090	1,050	949
3	741	718	707	732	932	972	1,132	614	160	37	(367)	(1,005)	(1,014)	(991)	(314)	110	352	658	906	1,327	1,251	1,073	953	907
4	746	771	835	891	1,109	1,239	1,585	867	357	(48)	(153)	(753)	(950)	(854)	(399)	70	327	610	886	1,459	1,594	1,374	1,279	1,247
5	880	956	959	962	1,407	1,554	1,711	1,086	448	189	114	(412)	(784)	(666)	(317)	98	377	544	803	1,326	1,091	1,034	1,177	1,177
6	843	1,063	1,237	1,286	1,527	1,803	1,794	1,351	757	191	162	(114)	(396)	(63)	320	336	502	831	1,348	1,533	1,451	1,337	1,226	1,088
7	848	823	811	843	1,091	1,070	1,185	967	377	146	157	(221)	(779)	(779)	(410)	133	379	662	746	1,472	1,357	1,160	919	852
8	715	761	853	954	1,364	1,427	1,610	873	223	106	(139)	(769)	(829)	(594)	(301)	177	379	693	1,205	1,629	1,450	1,424	1,202	997
9	509	528	578	622	860	944	1,131	954	439	189	136	(178)	(414)	(297)	16	299	581	950	1,683	1,615	1,379	1,240	1,128	940
10	642	547	437	350	524	579	778	476	157	134	187	(467)	(835)	(642)	(261)	203	356	817	1,534	1,437	1,233	1,070	806	678
11	425	368	435	408	546	595	762	439	118	(12)	(210)	(782)	(828)	(777)	(441)	(28)	327	617	681	1,364	1,274	1,272	838	690
12	425	365	357	363	543	783	922	646	213	(23)	(69)	(801)	(892)	(807)	(436)	129	327	467	1,073	1,414	1,236	1,104	1,014	825
13	531	479	480	486	663	636	876	558	306	257	118	(124)	(424)	(734)	(350)	206	399	692	890	1,296	1,225	1,030	790	683
14	430	366	435	405	545	587	753	501	206	112	(191)	(822)	(845)	(757)	(401)	11	373	539	582	943	1,002	1,097	998	868
15	419	368	427	383	545	576	803	586	404	246	159	103	(429)	(435)	(116)	63	371	808	969	1,462	1,267	1,041	799	667
16	419	368	360	355	520	603	789	637	229	106	(92)	(729)	(865)	(724)	(351)	180	369	649	1,577	1,647	1,239	1,017	790	665
17	399	348	418	383	542	541	694	434	153	67	(181)	(611)	(692)	(566)	(447)	(87)	342	673	785	995	1,124	1,028	762	645
18	401	348	338	377	577	585	693	441	133	(22)	(284)	(773)	(804)	(411)	(240)	223	395	857	1,602	1,937	1,970	1,824	1,551	1,338
19	736	685	609	463	613	749	910	951	762	516	187	42	(433)	(511)	(45)	312	404	534	694	1,069	952	869	825	690
20	399	347	421	384	554	580	755	519	237	138	(14)	209	(263)	(113)	(55)	473	575	924	1,550	1,581	1,345	973	827	646
21	398	348	342	354	549	551	988	980	1,002	841	295	125	(521)	(795)	(448)	(50)	362	537	589	842	997	864	753	634
22	394	345	346	342	522	546	700	471	196	143	275	(286)	(210)	(55)	278	347	453	751	839	1,095	1,094	960	776	640
23	398	373	360	347	515	545	729	593	309	191	71	(505)	(926)	(849)	(469)	(39)	369	628	696	899	1,122	946	783	643
24	433	408	392	379	548	577	742	534	374	200	242	164	330	381	412	647	868	1,455	1,583	1,653	1,504	1,324	1,085	750
25	1,984	1,164	1,115	1,060	1,131	1,077	1,159	689	151	(21)	(293)	(1,025)	(1,035)	(713)	(354)	58	300	548	860	1,206	976	899	790	679
26	480	472	513	602	833	952	1,306	672	230	101	(265)	(970)	(986)	(951)	(489)	195	363	623	1,002	1,252	1,122	978	912	870
27	665	682	719	809	1,237	1,299	1,447	898	282	121	(70)	(503)	(654)	(574)	136	262	532	792	1,326	1,599	1,436	1,284	1,161	1,015
28	752	701	641	605	793	826	1,018	615	221	107	(175)	(895)	(959)	(771)	(45)	18	361	610	1,208	1,577	1,261	955	769	651
29	488	483	536	587	827	898	1,097	906	391	302	101	(180)	(695)	(852)	(505)	(127)	344	622	696	858	1,079	934	770	690
30	405	392	410	444	651	715	991	564	206	113	(317)	(958)	(995)	(897)	(464)	29	340	621	948	1,572	1,440	1,390	1,182	957
31	520	500	498	507	645	651	1,046	662	200	60	(192)	(590)	(331)	(594)	(513)	(147)	338	619	676	895	1,133	1,001	761	646

Daily Max	Daily Avg
2,033	948
1,843	1,004
1,327	441
1,594	587
1,711	655
1,803	892
1,472	575
1,629	642
1,683	660
1,534	447
1,364	337
1,414	382
1,296	457
1,097	322
1,462	479
1,647	407
1,124	323
1,970	544
1,069	524
1,581	541
1,002	439
1,095	457
1,122	322
1,653	708
1,984	517
1,306	409
1,599	663
1,577	452
1,097	427
1,572	406
1,133	375



February

Day of Month	February – Hour of Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Max	Daily Avg
																									Monthly Max: 1,915	Monthly Avg: 367
1	471	519	658	783	1,098	1,219	1,407	960	162	(34)	(264)	(958)	(1,032)	(950)	(541)	(21)	296	551	1,394	1,587	1,207	1,061	957	780	1,587	471
2	618	618	634	652	916	1,014	1,192	656	202	159	214	(28)	(343)	(730)	(348)	(61)	359	632	822	927	1,104	1,002	900	887	1,192	500
3	703	697	688	690	900	956	1,107	963	326	140	364	318	275	12	(21)	29	338	691	806	885	1,034	903	980	902	1,107	612
4	562	547	594	600	811	918	1,079	501	175	155	100	(297)	(374)	(391)	(92)	144	342	739	835	1,205	1,091	975	884	851	1,205	498
5	670	727	774	820	1,297	1,411	1,558	807	228	89	(207)	(798)	(870)	(777)	(454)	114	323	770	1,459	1,915	1,764	1,553	1,462	1,305	1,915	664
6	1,188	1,262	1,305	1,309	1,530	1,516	1,670	1,377	301	119	(20)	(794)	(811)	(933)	(624)	(207)	327	610	696	687	1,149	1,047	954	901	1,670	607
7	751	956	1,105	1,165	1,373	1,462	1,547	893	213	61	(27)	(770)	(998)	(952)	(640)	(156)	350	605	676	741	1,037	939	776	673	1,547	491
8	499	533	611	666	899	968	1,155	496	106	(32)	(490)	(927)	(938)	(846)	(487)	(246)	265	531	629	544	927	870	752	637	1,155	297
9	395	420	450	487	649	681	870	401	164	96	(315)	(809)	(812)	(577)	(401)	47	320	728	1,189	1,585	1,336	1,024	814	631	1,585	391
10	388	357	347	338	511	535	699	355	156	130	(74)	(585)	(794)	(878)	(564)	(51)	381	602	675	862	1,064	927	761	627	1,064	282
11	389	391	364	339	512	536	699	388	166	87	(294)	(892)	(974)	(973)	(329)	(27)	356	596	675	1,302	1,483	1,334	1,183	992	1,483	346
12	501	475	463	449	606	536	699	377	164	99	(428)	(920)	(935)	(985)	(645)	(217)	302	607	696	645	1,260	1,127	959	830	1,260	278
13	390	364	352	338	507	537	709	601	250	121	85	(324)	(260)	(590)	(377)	(132)	347	612	804	1,240	1,192	922	959	848	1,240	396
14	392	361	347	335	504	532	692	607	322	509	392	717	612	346	576	1,191	1,206	1,638	1,604	1,683	1,468	1,319	1,151	960	1,683	811
15	647	616	482	332	504	529	645	250	83	(54)	(810)	(1,227)	(1,296)	(1,257)	(765)	(299)	240	530	624	1,196	1,208	909	740	620	1,208	185
16	387	397	391	380	539	571	689	235	78	(51)	(592)	(1,076)	(1,075)	(1,120)	(754)	(341)	216	528	624	1,078	1,161	878	743	623	1,161	188
17	390	357	382	374	547	570	730	316	150	74	(639)	(1,057)	(1,127)	(1,041)	(602)	47	325	593	1,166	1,689	1,562	1,253	1,184	1,006	1,689	344
18	527	470	459	451	610	538	700	414	201	115	(189)	(712)	(722)	(859)	(493)	(98)	294	593	671	729	1,074	945	762	644	1,074	297
19	397	377	364	345	515	542	678	364	204	153	21	(815)	(989)	(693)	(286)	59	360	643	758	1,289	1,198	1,154	967	845	1,289	352
20	450	468	518	464	652	711	850	403	211	213	139	(665)	(997)	(757)	(279)	38	319	638	794	1,209	1,135	952	780	647	1,209	370
21	416	470	496	529	757	826	966	486	312	225	124	(383)	(976)	(686)	(23)	291	367	750	1,298	1,345	1,229	1,020	808	656	1,345	471
22	402	391	394	405	605	651	778	648	629	134	77	1	57	(212)	6	32	221	674	806	690	953	902	761	648	953	444
23	438	473	568	612	865	983	1,066	444	187	113	(176)	(374)	(682)	(648)	(54)	214	448	841	1,269	1,850	1,691	1,520	1,334	1,112	1,850	587
24	744	722	626	545	740	684	802	388	204	160	104	(376)	(686)	(409)	91	(195)	309	621	845	1,391	1,289	1,139	765	635	1,391	464
25	400	408	376	365	580	679	788	293	137	60	(652)	(878)	(887)	(755)	(404)	(92)	313	620	813	1,397	1,314	1,048	775	635	1,397	306
26	397	378	364	346	516	544	856	567	264	72	(291)	(1,055)	(1,043)	(1,114)	(719)	(300)	244	632	730	680	1,089	950	763	636	1,089	230
27	398	378	387	352	520	545	648	292	152	82	(584)	(1,008)	(1,085)	(1,087)	(690)	(298)	308	631	730	1,335	1,143	1,057	843	645	1,335	237
28	398	379	364	363	523	542	623	266	132	98	(245)	(929)	(971)	(806)	(472)	(89)	303	629	710	787	1,071	987	783	636	1,071	253
29																									0	0
30																									0	0
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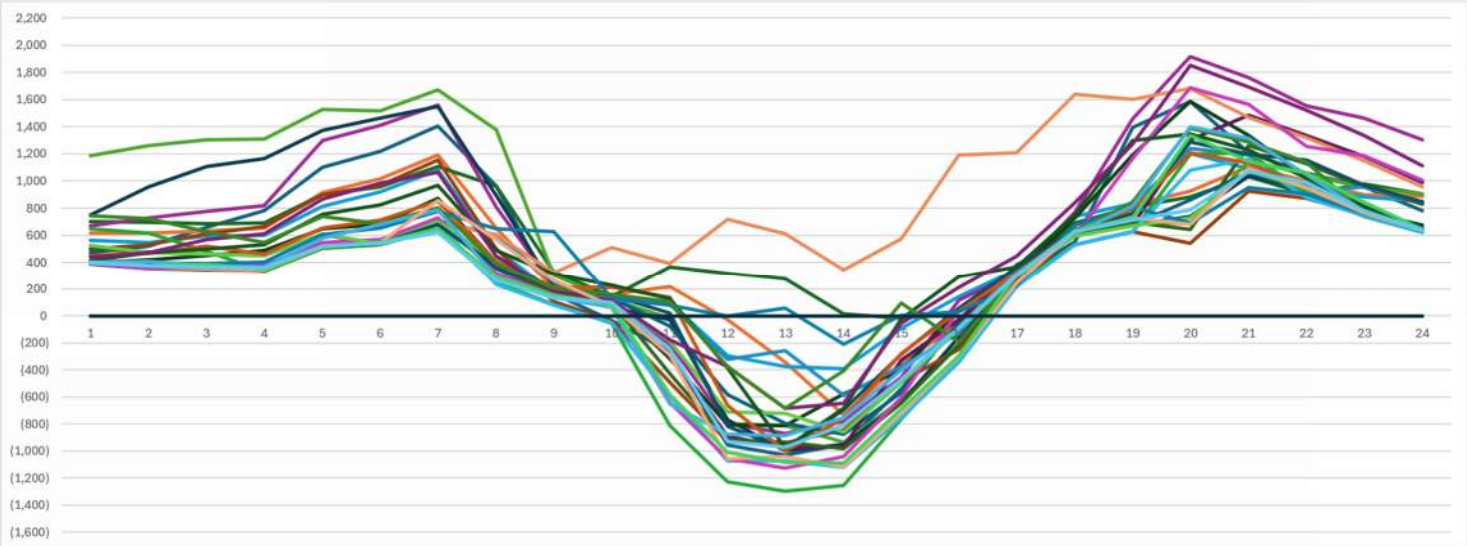
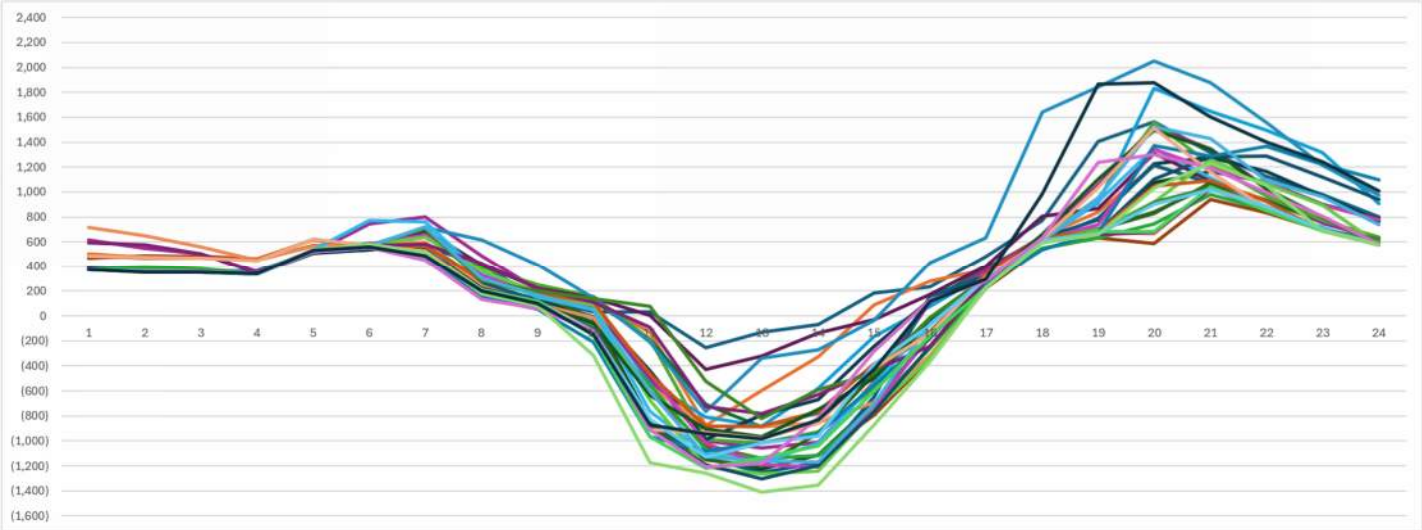


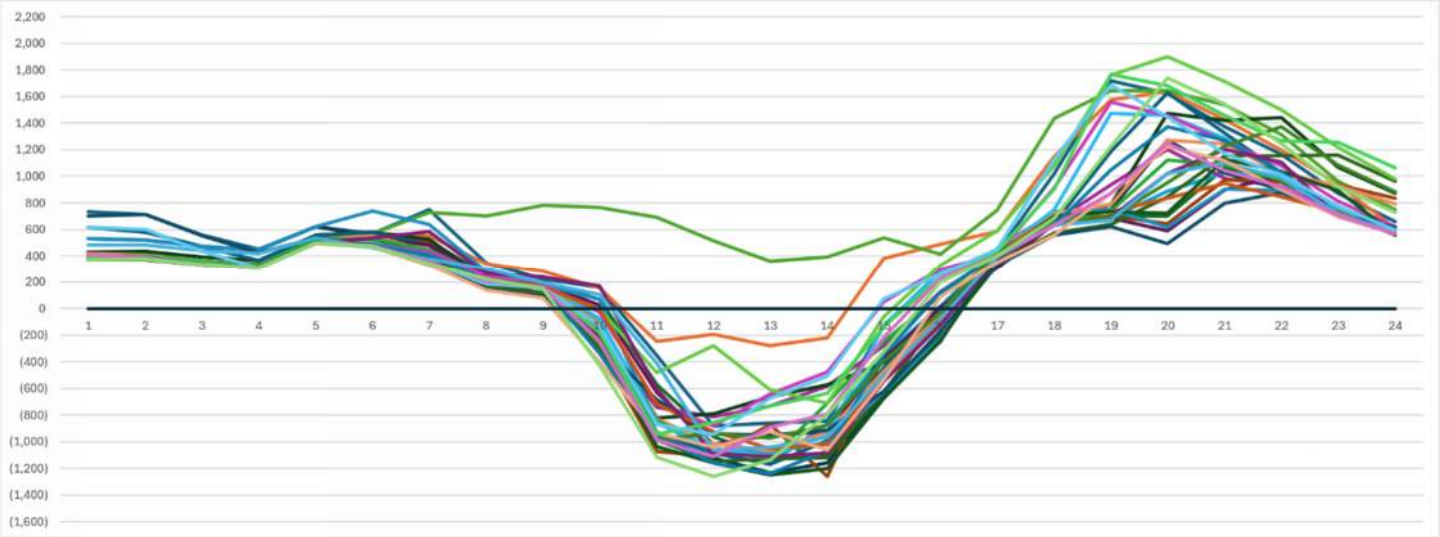
March

Day of Month	March																								Monthly Max	Monthly Avg
	Hour of Day																								2,052	278
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Max	Daily Avg
1	391	372	358	363	519	535	563	412	137	30	34	(255)	(130)	(71)	182	235	478	771	1,404	1,565	1,317	1,126	979	800	1,565	505
2	504	475	485	462	613	537	685	339	200	123	(132)	(875)	(598)	(326)	90	279	374	644	840	1,207	1,088	936	755	630	1,207	389
3	392	363	353	342	518	537	673	415	241	119	(189)	(710)	(891)	(778)	(481)	120	383	630	704	842	1,055	932	753	624	1,055	289
4	391	371	359	340	511	539	653	334	166	96	(537)	(807)	(881)	(578)	(167)	77	333	629	912	1,831	1,645	1,497	1,315	904	1,831	414
5	614	548	501	356	515	742	802	486	208	77	(502)	(1,001)	(1,055)	(1,010)	(527)	108	370	645	1,058	1,526	1,345	1,040	748	628	1,526	343
6	392	374	363	342	511	537	650	390	248	155	(187)	(987)	(1,017)	(928)	(579)	(182)	311	629	954	1,555	1,220	968	775	637	1,555	297
7	392	372	358	340	510	536	581	247	115	57	(438)	(987)	(793)	(668)	(245)	129	324	630	777	1,224	1,277	1,167	971	766	1,277	318
8	470	484	479	451	568	560	539	184	80	(83)	(603)	(1,039)	(1,140)	(1,116)	(795)	(344)	222	548	631	585	938	836	693	582	938	155
9	378	359	358	345	536	573	590	263	128	(6)	(836)	(1,147)	(1,226)	(1,115)	(697)	(170)	297	608	671	1,073	1,162	1,082	901	784	1,162	205
10	380	359	357	345	536	573	586	255	123	(52)	(847)	(1,134)	(1,254)	(1,176)	(645)	160	323	608	791	1,213	1,070	867	693	582	1,213	196
11	380	366	362	342	530	572	692	412	220	144	2	(426)	(323)	(137)	(27)	174	399	803	868	1,309	1,091	871	701	583	1,309	413
12	379	366	362	342	532	568	579	282	171	(17)	(885)	(1,149)	(1,202)	(939)	(470)	(125)	301	624	697	826	1,073	871	697	583	1,073	186
13	379	386	367	343	531	571	716	616	414	143	(210)	(765)	(341)	(269)	(34)	428	632	1,642	1,843	2,052	1,878	1,557	1,217	971	2,052	628
14	715	651	558	453	567	580	595	242	93	(13)	(564)	(885)	(890)	(856)	(691)	(314)	228	620	677	664	1,033	885	692	582	1,033	234
15	379	394	381	340	527	560	512	179	83	(75)	(554)	(1,070)	(1,139)	(1,117)	(721)	(261)	244	550	631	744	977	858	695	603	977	155
16	378	360	358	347	539	771	763	342	151	49	(766)	(1,099)	(1,173)	(1,018)	(540)	(57)	303	607	926	1,348	1,113	878	716	582	1,348	245
17	377	356	354	342	534	579	652	321	176	90	(464)	(1,018)	(1,189)	(1,208)	(732)	(153)	325	613	741	1,347	1,184	1,076	893	780	1,347	249
18	376	363	359	339	527	576	639	363	190	87	(676)	(1,209)	(1,262)	(1,243)	(752)	(337)	238	620	697	917	1,260	1,062	896	580	1,260	192
19	374	359	355	337	524	586	539	223	116	(111)	(904)	(1,193)	(1,303)	(1,196)	(767)	(241)	277	611	683	1,104	1,284	1,287	1,122	943	1,287	209
20	486	470	467	450	623	560	565	288	181	110	(468)	(880)	(884)	(762)	(382)	(134)	340	637	683	1,047	1,093	922	689	578	1,093	278
21	376	356	359	336	520	558	524	218	89	(59)	(638)	(905)	(967)	(748)	(500)	(41)	286	659	1,103	1,498	1,343	1,025	798	579	1,498	282
22	373	356	353	334	520	554	475	148	52	(212)	(969)	(1,077)	(1,015)	(947)	(551)	(169)	250	536	677	1,371	1,287	1,367	1,223	1,096	1,371	251
23	595	578	501	345	531	570	579	425	224	110	(91)	(723)	(780)	(630)	(433)	(243)	288	599	659	676	1,025	864	692	578	1,025	289
24	376	353	352	340	533	568	706	284	201	139	76	(526)	(823)	(589)	(455)	(14)	306	597	659	919	1,036	851	694	627	1,036	300
25	376	360	356	337	525	566	723	299	168	56	(602)	(1,126)	(1,163)	(1,171)	(703)	(61)	297	611	949	1,526	1,428	1,094	964	738	1,526	273
26	485	477	469	448	620	568	523	211	115	(121)	(913)	(936)	(977)	(862)	(419)	(140)	310	622	1,035	1,514	1,161	870	691	575	1,514	264
27	373	357	354	335	523	558	505	206	114	(159)	(965)	(1,218)	(1,134)	(1,040)	(601)	(161)	224	609	683	680	1,041	850	687	576	1,041	142
28	374	355	352	333	520	551	479	199	87	(118)	(827)	(1,128)	(1,016)	(964)	(386)	(76)	294	607	664	899	1,020	885	699	579	1,020	183
29	374	355	360	337	521	553	451	132	59	(119)	(912)	(1,209)	(1,178)	(813)	(283)	128	280	632	1,238	1,300	1,190	999	804	581	1,300	241
30	373	353	351	339	535	583	512	179	83	(315)	(1,175)	(1,259)	(1,409)	(1,352)	(871)	(367)	226	592	659	1,030	1,230	1,054	685	576	1,230	109
31	375	352	351	338	530	557	487	199	97	(146)	(871)	(947)	(984)	(834)	(428)	117	295	984	1,865	1,875	1,600	1,401	1,240	1,008	1,875	394



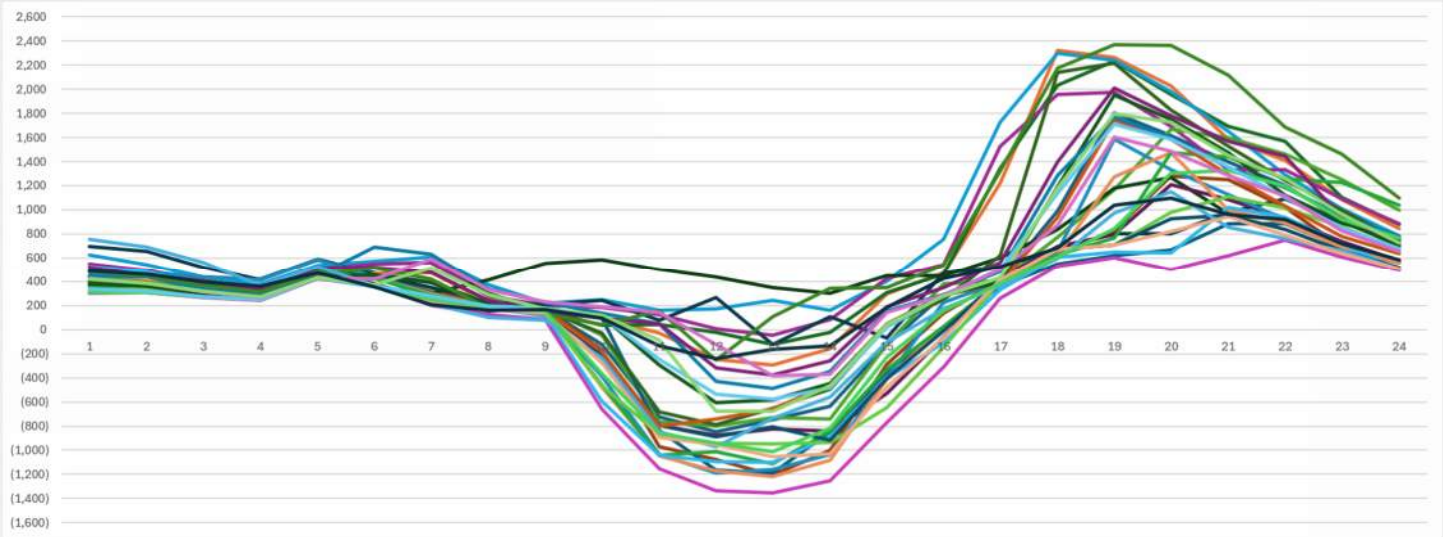
April

Day of Month	April – Hour of Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Monthly Max	Monthly Avg
																									1,902	281
																									Daily Max	Daily Avg
1	731	712	559	449	623	570	748	342	222	157	(351)	(883)	(858)	(843)	(132)	283	423	1,022	1,719	1,622	1,371	1,167	872	658	1,719	466
2	418	409	362	339	530	568	552	339	280	154	(245)	(193)	(280)	(218)	383	489	586	1,149	1,577	1,640	1,425	1,194	939	603	1,640	542
3	397	404	362	336	528	573	516	256	199	70	(570)	(964)	(1,123)	(1,102)	(626)	(205)	329	651	703	701	1,063	960	768	610	1,063	201
4	400	401	360	335	524	561	509	234	141	(230)	(938)	(1,090)	(1,163)	(863)	(352)	21	410	646	683	889	1,027	998	743	600	1,027	202
5	396	401	359	333	523	563	475	209	111	(199)	(742)	(814)	(733)	(584)	(279)	125	398	661	938	1,201	985	927	734	598	1,201	275
6	419	412	362	335	530	568	726	704	782	763	688	516	360	390	538	415	744	1,436	1,645	1,643	1,538	1,317	963	748	1,645	773
7	531	521	472	445	622	546	494	214	171	(124)	(968)	(1,122)	(1,231)	(1,158)	(642)	(248)	459	727	749	1,273	1,026	897	726	586	1,273	207
8	395	402	359	334	527	558	504	233	167	(306)	(1,071)	(1,110)	(873)	(1,262)	(356)	(111)	370	652	703	642	971	955	934	835	971	186
9	430	436	392	366	556	581	524	224	162	(104)	(822)	(790)	(661)	(573)	(406)	(57)	419	662	787	1,473	1,419	1,442	1,067	872	1,473	350
10	616	576	474	367	558	581	484	231	177	(174)	(927)	(1,084)	(1,170)	(994)	(447)	(2)	420	648	1,188	1,630	1,326	1,027	741	599	1,630	285
11	396	399	356	331	520	533	483	244	185	23	(629)	(1,019)	(950)	(924)	(375)	7	308	644	683	591	899	1,010	731	599	1,010	210
12	398	400	358	332	522	524	418	168	117	(233)	(990)	(1,148)	(1,126)	(1,121)	(628)	(63)	346	572	637	844	1,155	1,154	1,161	960	1,161	198
13	529	522	472	445	622	737	636	282	178	65	(857)	(1,073)	(1,080)	(1,011)	(626)	(227)	400	732	749	619	902	895	730	587	902	218
14	418	407	359	332	525	550	436	214	165	(105)	(829)	(1,014)	(1,070)	(930)	(472)	(32)	448	721	785	1,274	1,245	1,024	932	790	1,274	257
15	396	405	360	334	524	532	444	245	191	(82)	(838)	(1,062)	(1,128)	(712)	(247)	98	418	647	739	1,123	1,083	971	746	601	1,123	241
16	372	379	336	311	500	491	419	237	191	(75)	(860)	(1,049)	(1,104)	(958)	(123)	273	421	747	1,473	1,456	1,285	1,026	757	602	1,473	296
17	375	374	333	312	497	485	429	245	181	(31)	(712)	(882)	(641)	(475)	50	295	412	917	1,557	1,457	1,263	1,077	813	620	1,557	373
18	378	397	350	307	496	479	399	208	150	(8)	(482)	(281)	(612)	(709)	(62)	331	591	1,082	1,762	1,902	1,714	1,501	1,218	980	1,902	504
19	704	712	554	422	536	478	354	143	88	(268)	(686)	(941)	(953)	(911)	(618)	(169)	330	558	623	495	796	880	714	616	880	186
20	388	378	333	308	497	475	393	193	161	(9)	(714)	(922)	(1,049)	(1,019)	(501)	(116)	424	704	733	837	947	844	732	559	947	191
21	390	378	333	307	501	488	381	189	155	(287)	(1,035)	(1,159)	(1,248)	(1,200)	(674)	(242)	378	703	733	722	1,127	1,037	891	558	1,127	143
22	368	391	337	311	497	481	411	212	161	(339)	(963)	(1,158)	(1,237)	(1,068)	(344)	122	408	634	1,048	1,370	1,270	1,034	699	570	1,370	217
23	369	373	333	310	500	535	582	266	240	169	(606)	(1,091)	(1,112)	(1,086)	(544)	(124)	379	634	689	1,021	1,204	1,107	699	571	1,204	226
24	369	373	333	309	499	471	356	213	173	(275)	(981)	(941)	(971)	(876)	(395)	(28)	428	637	689	951	1,231	1,375	1,087	884	1,375	246
25	481	482	442	418	535	463	374	303	193	105	(411)	(1,064)	(1,043)	(967)	(497)	(74)	392	629	669	1,023	1,103	987	715	577	1,103	243
26	374	375	332	311	495	464	327	135	78	(403)	(936)	(1,039)	(922)	(1,064)	(533)	90	352	556	873	1,225	1,118	897	698	569	1,225	182
27	389	379	334	308	499	477	356	189	155	(180)	(944)	(852)	(732)	(635)	(135)	231	433	905	1,765	1,680	1,458	1,267	1,255	1,062	1,765	403
28	615	599	434	308	499	469	350	186	158	(138)	(868)	(944)	(673)	(507)	70	259	451	1,128	1,688	1,448	1,172	1,008	777	593	1,688	378
29	407	388	334	310	499	478	354	206	162	(247)	(986)	(1,109)	(893)	(792)	(214)	225	404	630	870	1,251	1,043	920	706	570	1,251	230
30	369	374	333	310	498	474	338	222	150	(428)	(1,114)	(1,258)	(1,135)	(795)	(322)	198	396	687	1,222	1,739	1,545	1,246	921	727	1,739	279
31																									0	0



May

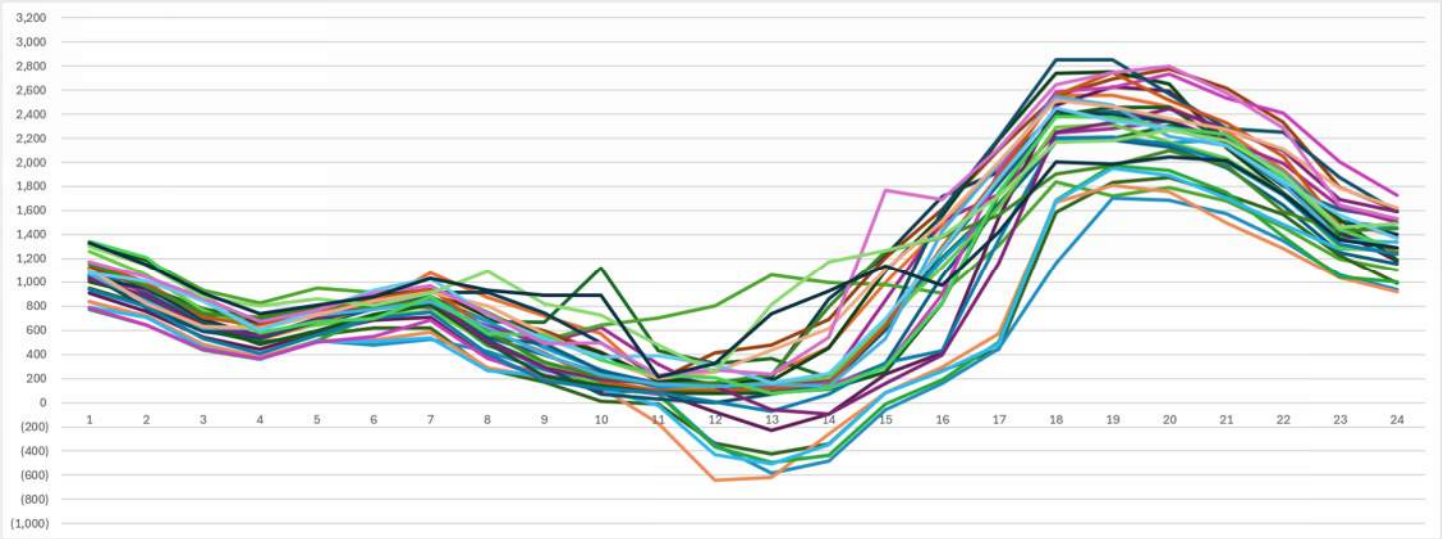
Day of Month	May																								Monthly Max	Monthly Avg
	Hour of Day																								2,372	393
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Max	Daily Avg
1	476	480	439	418	590	472	391	222	168	(120)	(720)	(846)	(748)	(634)	(125)	290	413	991	1,803	1,618	1,399	1,201	914	694	1,803	408
2	442	401	332	304	489	469	474	229	154	96	(27)	(245)	(293)	(161)	294	475	1,218	2,323	2,262	2,028	1,584	1,411	1,082	843	2,323	674
3	546	483	406	348	506	553	558	299	155	40	42	(22)	(124)	(20)	310	460	1,346	2,033	2,234	1,956	1,691	1,566	1,101	879	2,234	723
4	628	543	439	375	535	573	610	370	219	250	159	174	240	160	400	753	1,725	2,297	2,241	1,983	1,653	1,292	1,009	787	2,297	809
5	551	498	401	330	507	550	561	276	199	183	128	8	(44)	82	426	540	1,524	1,957	1,976	1,694	1,334	1,333	1,091	886	1,976	708
6	435	393	332	303	491	456	346	251	177	(48)	(766)	(798)	(728)	(739)	(123)	378	406	772	1,169	1,667	1,600	1,464	1,252	998	1,667	404
7	695	654	518	413	585	457	351	225	209	242	79	263	(123)	106	(70)	471	524	672	803	803	978	1,089	891	760	1,089	483
8	358	364	323	300	485	438	315	220	171	(170)	(968)	(1,079)	(1,204)	(999)	(287)	134	408	627	831	1,279	1,250	1,017	689	561	1,279	211
9	362	372	335	301	486	449	299	415	556	582	500	438	348	299	450	451	603	840	1,181	1,269	969	907	681	558	1,269	569
10	360	362	324	300	486	435	267	152	181	95	(837)	(1,162)	(1,189)	(845)	(349)	13	358	551	621	665	885	883	689	559	885	158
11	381	372	327	300	490	442	305	184	160	(210)	(796)	(877)	(826)	(843)	(529)	(61)	427	697	797	1,211	1,087	934	740	579	1,211	221
12	403	378	326	302	493	438	305	192	158	(31)	(679)	(786)	(650)	(496)	31	249	617	2,141	2,214	1,829	1,527	1,246	997	747	2,214	498
13	483	480	438	415	586	439	304	193	145	(389)	(1,034)	(1,189)	(1,157)	(1,034)	(401)	228	398	657	1,583	1,333	1,127	919	698	565	1,583	241
14	362	367	326	303	491	428	293	194	150	(476)	(1,045)	(1,172)	(1,218)	(1,080)	(413)	26	397	624	1,271	1,476	999	891	688	562	1,476	185
15	361	367	327	302	489	428	287	194	151	(458)	(1,042)	(1,012)	(1,113)	(841)	(329)	23	398	623	767	1,471	1,438	1,255	1,229	1,041	1,471	265
16	527	482	349	245	426	355	241	178	116	(594)	(1,040)	(1,092)	(1,102)	(887)	(400)	(110)	332	606	648	641	1,017	937	721	504	1,017	129
17	302	306	268	246	427	367	200	122	81	(659)	(1,154)	(1,337)	(1,354)	(1,252)	(772)	(312)	260	533	602	501	619	749	609	498	749	(6)
18	322	345	279	250	431	378	247	171	144	(461)	(870)	(940)	(949)	(935)	(649)	(146)	394	675	709	977	1,109	1,014	858	664	1,109	167
19	442	459	391	361	528	377	250	169	141	(191)	(794)	(889)	(805)	(916)	(403)	(9)	412	675	709	925	957	836	664	522	957	200
20	316	310	270	248	431	369	258	194	160	(184)	(799)	(740)	(657)	(450)	47	282	393	938	1,747	1,587	1,292	1,033	777	637	1,747	352
21	381	358	298	262	442	457	388	215	167	114	(292)	(606)	(582)	(446)	45	286	394	1,190	1,952	1,753	1,473	1,122	903	710	1,952	458
22	450	436	337	286	454	692	632	339	226	134	50	(428)	(489)	(344)	155	289	485	1,285	1,770	1,597	1,350	1,183	949	781	1,770	526
23	520	452	370	337	513	518	481	242	150	98	51	(314)	(376)	(259)	192	347	562	1,395	2,011	1,777	1,566	1,443	938	734	2,011	573
24	486	445	367	315	469	516	419	181	129	43	157	(254)	108	345	350	539	1,323	2,172	2,372	2,361	2,115	1,684	1,460	1,097	2,372	800
25	753	689	558	366	528	368	212	99	80	(237)	(849)	(973)	(734)	(559)	(102)	174	361	598	975	1,152	854	761	663	505	1,152	260
26	327	315	272	249	431	358	237	167	138	(277)	(896)	(955)	(1,050)	(1,027)	(477)	(67)	411	673	705	823	942	791	635	506	942	135
27	309	310	271	250	430	365	248	191	153	(367)	(856)	(943)	(1,014)	(817)	(226)	153	386	608	841	1,301	1,325	1,199	923	769	1,325	242
28	338	322	273	249	430	367	281	195	176	113	(247)	(534)	(575)	(479)	16	282	504	1,136	1,711	1,583	1,355	1,103	847	679	1,711	422
29	424	382	310	267	433	420	591	329	228	189	143	(124)	(384)	(371)	144	285	502	871	1,605	1,485	1,288	1,112	826	657	1,605	484
30	420	381	322	274	433	374	513	287	169	121	(84)	(673)	(675)	(466)	43	279	431	1,180	1,798	1,725	1,452	1,259	959	724	1,798	469
31	489	459	398	363	470	353	206	159	165	93	(133)	(238)	(166)	(133)	181	423	525	682	1,040	1,098	964	922	721	582	1,098	401



July

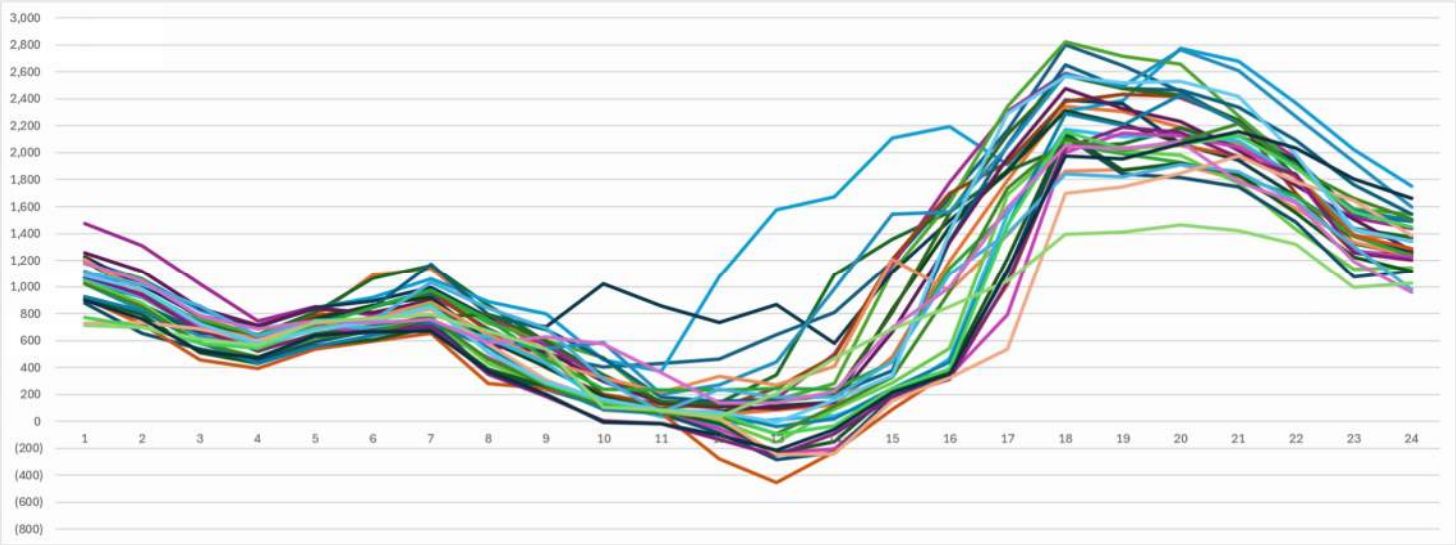
Day of Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Max	Daily Avg
1	1,099	905	661	558	651	780	833	541	394	244	130	116	130	150	603	1,264	1,821	2,382	2,419	2,364	2,138	1,803	1,609	1,533	2,419	1,047
2	1,058	869	635	526	656	810	1,077	870	718	573	156	150	238	461	998	1,476	1,966	2,557	2,557	2,465	2,255	1,940	1,521	1,378	2,557	1,163
3	1,113	958	776	691	803	874	878	669	664	1,121	432	322	364	208	638	1,207	1,656	2,175	2,199	2,304	2,170	1,859	1,403	1,284	2,304	1,115
4	1,057	930	750	654	805	829	854	674	457	274	133	109	130	182	626	1,192	1,638	2,184	2,189	2,162	2,187	1,918	1,515	1,454	2,189	1,038
5	1,031	933	747	646	784	793	791	637	488	623	321	87	145	187	848	1,517	1,731	2,247	2,281	2,343	2,180	1,989	1,633	1,500	2,343	1,103
6	1,317	1,183	933	823	950	916	962	749	516	645	700	800	1,063	994	979	907	1,306	1,837	1,718	1,793	1,678	1,462	1,197	1,102	1,837	1,105
7	1,037	946	690	551	698	781	915	916	741	493	221	154	212	860	1,223	1,713	1,922	2,426	2,394	2,337	2,151	1,809	1,508	1,403	2,426	1,171
8	1,128	958	739	637	780	876	931	710	592	421	186	413	477	691	1,206	1,611	2,104	2,550	2,692	2,775	2,618	2,330	1,791	1,601	2,775	1,284
9	1,337	1,190	872	655	768	890	968	710	560	412	186	155	181	454	1,099	1,558	2,188	2,738	2,753	2,651	2,123	1,748	1,369	1,285	2,753	1,202
10	1,022	853	631	533	676	837	878	538	487	266	157	141	111	135	325	1,050	1,634	2,165	2,186	2,126	1,955	1,645	1,248	1,154	2,186	948
11	905	753	541	445	581	681	708	373	208	100	90	(78)	(228)	(92)	236	414	1,541	2,472	2,627	2,594	2,193	1,867	1,425	1,178	2,627	897
12	951	805	600	504	559	619	619	275	172	12	(8)	(333)	(422)	(341)	85	265	440	1,583	1,833	1,874	1,730	1,566	1,228	987	1,874	650
13	839	705	471	366	513	477	522	423	271	170	80	(347)	(584)	(481)	(59)	158	449	1,160	1,706	1,683	1,574	1,350	1,063	938	1,706	560
14	837	717	485	375	514	517	586	291	208	124	(170)	(641)	(616)	(259)	82	294	573	1,668	1,806	1,753	1,494	1,282	1,036	922	1,806	578
15	774	641	439	361	512	726	806	473	331	123	72	(363)	(491)	(436)	(11)	188	501	1,687	1,971	1,934	1,749	1,387	1,041	1,002	1,971	642
16	790	709	451	361	508	505	539	264	226	118	(22)	(431)	(505)	(348)	81	262	484	1,680	1,949	1,889	1,705	1,486	1,280	1,286	1,949	636
17	782	640	440	364	503	546	681	363	228	142	70	85	74	150	298	895	1,926	2,585	2,619	2,735	2,533	2,409	2,004	1,729	2,735	1,033
18	1,258	1,061	765	587	644	713	763	500	331	143	95	128	165	205	674	1,123	1,619	2,291	2,318	2,169	2,032	1,747	1,290	1,257	2,318	995
19	1,061	783	592	534	673	821	862	517	294	69	27	1	69	153	620	1,605	2,195	2,851	2,853	2,570	2,280	2,250	1,876	1,593	2,853	1,131
20	1,170	997	706	636	761	857	941	610	414	176	99	102	116	153	634	1,297	1,885	2,556	2,744	2,515	2,328	2,048	1,472	1,256	2,744	1,103
21	999	882	646	483	593	732	816	492	217	141	81	74	85	113	254	823	1,730	2,389	2,459	2,456	2,165	1,881	1,523	1,192	2,459	968
22	940	798	533	408	557	700	750	408	180	119	82	4	(68)	70	329	429	1,353	2,202	2,208	2,151	2,001	1,724	1,321	1,235	2,208	851
23	1,027	885	635	552	689	811	855	501	287	196	154	133	(57)	(95)	160	393	1,162	2,251	2,330	2,444	2,272	2,096	1,692	1,593	2,444	957
24	1,157	959	739	705	794	789	855	586	334	212	153	164	228	797	1,261	1,377	1,564	1,901	1,975	2,098	1,972	1,592	1,430	1,447	2,098	1,045
25	1,067	836	620	612	727	771	837	618	402	232	152	134	153	136	530	1,428	1,984	2,545	2,476	2,215	2,138	1,818	1,353	1,337	2,545	1,047
26	1,110	821	630	621	723	845	913	801	573	361	199	251	435	613	1,108	1,509	2,002	2,516	2,463	2,364	2,271	2,108	1,784	1,620	2,516	1,193
27	1,343	1,207	850	575	672	693	878	572	560	357	232	204	75	117	294	831	1,750	2,380	2,372	2,287	2,235	1,866	1,446	1,276	2,380	1,045
28	1,079	1,006	844	604	766	932	1,033	724	528	378	390	315	165	240	696	1,275	1,862	2,448	2,346	2,284	2,137	1,846	1,558	1,369	2,448	1,118
29	1,175	1,043	863	669	767	910	965	736	489	496	233	271	238	540	1,767	1,693	2,116	2,643	2,745	2,796	2,577	2,287	1,646	1,533	2,796	1,300
30	1,300	1,144	879	804	861	807	906	1,090	822	727	480	254	812	1,174	1,267	1,382	1,719	2,169	2,181	2,267	2,179	1,905	1,462	1,493	2,267	1,253
31	1,331	1,146	905	738	810	878	1,031	933	888	887	215	325	736	928	1,138	972	1,422	2,000	1,984	2,042	2,014	1,735	1,353	1,288	2,042	1,154

Monthly Max	Monthly Avg
2,853	1,011



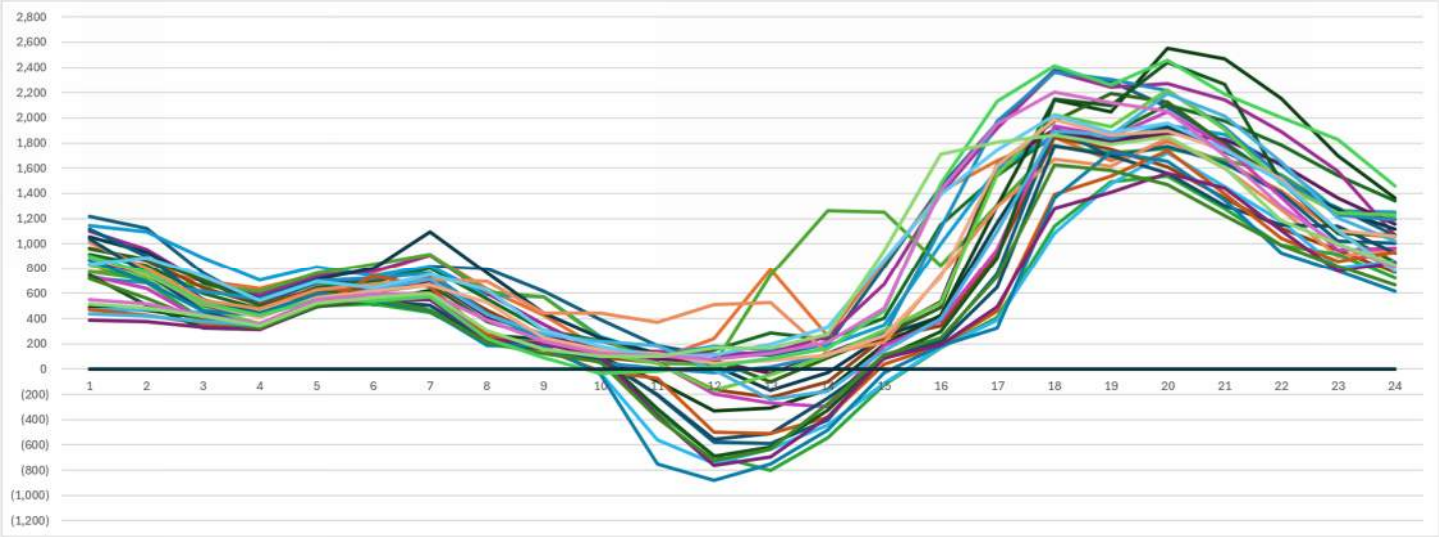
August

Day of Month	August																								Monthly Max	Monthly Avg
	Hour of Day																								2,826	1,004
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Max	Daily Avg
1	1,117	971	737	643	735	850	948	684	487	406	429	465	642	808	1,186	1,666	2,166	2,802	2,645	2,456	2,221	1,961	1,537	1,488	2,802	1,252
2	1,237	976	719	632	774	1,091	1,138	792	514	82	60	53	83	122	478	1,191	1,795	2,345	2,304	2,191	2,074	1,832	1,378	1,369	2,345	1,051
3	1,192	960	730	646	808	1,065	1,163	864	588	196	92	138	343	1,092	1,358	1,558	1,866	2,044	2,065	2,181	2,037	1,819	1,439	1,373	2,181	1,151
4	1,197	1,058	827	703	841	923	1,060	889	799	458	372	1,074	1,574	1,674	2,110	2,193	1,910	2,308	2,385	2,775	2,679	2,369	2,023	1,754	2,775	1,498
5	1,476	1,312	1,021	743	853	786	910	762	562	322	145	141	168	498	1,167	1,781	2,305	2,590	2,483	2,409	2,244	1,960	1,519	1,437	2,590	1,233
6	1,174	1,059	758	643	767	851	966	730	603	471	127	110	161	280	1,119	1,628	2,343	2,826	2,715	2,660	2,276	1,909	1,583	1,546	2,826	1,221
7	1,226	1,012	781	704	848	896	994	771	700	1,022	856	731	865	579	1,114	1,493	1,855	2,389	2,367	2,065	1,943	1,677	1,387	1,258	2,389	1,231
8	1,053	847	657	614	781	848	970	668	398	202	127	101	248	482	1,208	1,700	1,928	2,378	2,436	2,416	2,235	1,696	1,257	1,250	2,436	1,104
9	1,038	847	659	604	758	862	921	600	401	187	61	72	116	145	831	1,449	1,869	2,314	2,214	2,069	2,124	1,944	1,559	1,500	2,314	1,048
10	1,066	868	668	577	725	847	1,171	792	683	467	180	148	165	199	376	1,343	2,056	2,652	2,474	2,467	2,336	2,092	1,760	1,542	2,652	1,152
11	1,258	1,118	842	711	837	811	896	560	520	296	136	111	97	141	664	1,337	1,960	2,474	2,326	2,232	2,017	1,759	1,505	1,270	2,474	1,078
12	1,045	920	685	520	650	708	775	792	595	347	147	125	149	194	810	1,549	2,135	2,572	2,475	2,429	2,241	1,822	1,323	1,243	2,572	1,094
13	1,020	824	632	549	707	742	844	588	541	585	201	273	441	982	1,546	1,560	2,046	2,586	2,493	2,767	2,610	2,267	1,934	1,597	2,767	1,264
14	1,211	952	699	559	713	773	884	645	447	326	220	333	272	410	1,206	967	1,392	1,865	1,876	1,912	1,797	1,588	1,338	1,236	1,912	984
15	1,046	940	721	564	713	846	973	753	465	240	231	231	246	240	439	1,141	1,562	2,069	1,989	1,928	1,827	1,678	1,378	1,236	2,069	977
16	1,059	919	708	567	691	696	735	624	432	141	34	(28)	12	40	186	469	1,544	2,171	2,120	2,134	2,089	1,828	1,429	1,342	2,171	914
17	1,107	931	690	603	723	642	693	474	285	122	63	(54)	(237)	(203)	151	338	793	2,000	2,145	2,124	2,040	1,821	1,274	1,224	2,145	823
18	1,039	880	580	473	623	676	760	429	262	130	61	5	(158)	90	288	541	1,688	2,078	2,015	1,981	1,773	1,433	1,135	1,146	2,078	830
19	877	654	536	458	593	678	739	366	239	111	58	(87)	(281)	(230)	185	360	1,111	2,123	1,841	1,818	1,748	1,488	1,076	1,118	2,123	732
20	908	725	459	392	537	598	654	284	244	125	63	(277)	(455)	(227)	88	364	1,016	2,049	2,032	2,058	1,977	1,831	1,385	1,291	2,058	755
21	921	791	509	428	565	606	696	386	261	136	77	(19)	(233)	(150)	215	380	1,213	2,148	1,871	1,924	1,836	1,556	1,225	1,119	2,148	769
22	924	818	585	428	558	637	729	555	272	87	58	56	(39)	22	242	442	1,460	2,288	2,207	2,426	2,220	1,897	1,569	1,493	2,426	914
23	1,076	941	676	533	636	676	706	348	187	6	(19)	(133)	(251)	(92)	179	311	1,040	2,035	2,190	2,150	1,964	1,842	1,255	1,204	2,190	811
24	1,021	850	578	480	621	664	769	460	268	114	59	38	(90)	111	332	961	1,734	2,100	2,018	2,085	2,215	1,884	1,660	1,508	2,215	935
25	1,110	1,014	856	631	751	749	1,033	841	690	311	68	240	180	181	448	1,095	1,398	1,842	1,819	1,914	1,859	1,638	1,302	979	1,914	956
26	727	733	685	600	731	755	830	573	309	152	79	27	(247)	(239)	155	326	534	1,697	1,746	1,850	1,976	1,786	1,644	1,383	1,976	784
27	771	703	581	541	692	736	866	510	282	144	82	55	(98)	(31)	242	390	1,458	2,155	2,031	2,058	2,127	1,890	1,559	1,445	2,155	883
28	1,086	977	723	578	678	747	849	517	289	163	86	70	(8)	159	339	1,410	2,292	2,569	2,521	2,529	2,417	1,984	1,430	1,342	2,569	1,073
29	1,184	1,041	780	687	747	734	753	586	626	574	363	138	136	222	698	998	1,593	2,048	2,028	2,084	1,783	1,630	1,190	957	2,084	982
30	713	698	613	561	738	768	792	669	536	106	82	35	209	467	688	852	1,042	1,393	1,409	1,462	1,421	1,321	993	1,027	1,462	775
31	899	760	520	475	638	663	672	370	199	(5)	(20)	(102)	(212)	(57)	215	352	1,130	1,977	1,953	2,067	2,155	2,036	1,806	1,663	2,155	840



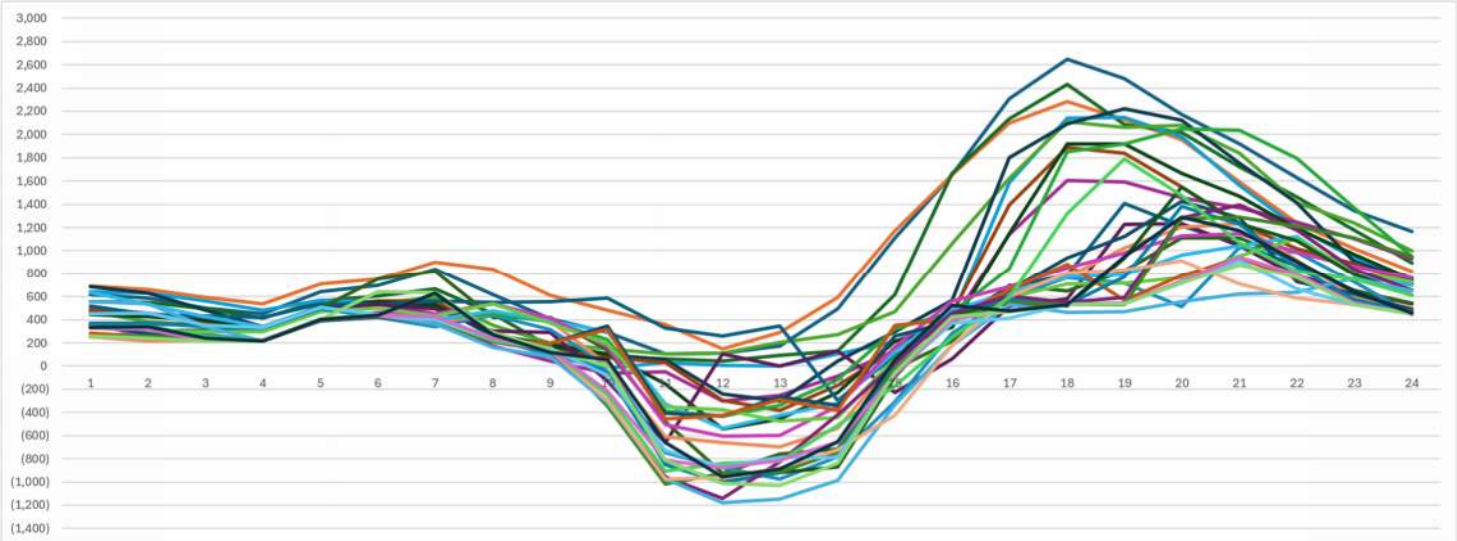
September

Day of Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Max	Daily Avg
September — Hour of Day																									Monthly Max: 2,552	Monthly Avg: 731
1	1,217	1,121	763	516	685	693	821	794	617	395	184	108	111	193	813	1,455	1,960	2,381	2,289	2,087	1,807	1,493	1,283	1,064	2,381	1,035
2	765	783	700	639	751	767	911	633	427	160	77	240	793	264	857	1,415	1,658	1,843	1,658	1,811	1,650	1,420	1,090	1,054	1,843	932
3	914	827	600	477	651	689	800	557	307	226	108	151	284	235	405	1,149	1,542	1,864	1,872	2,103	1,973	1,784	1,544	1,343	2,103	934
4	1,144	1,093	885	705	813	738	821	587	572	255	114	178	154	186	347	999	1,590	1,861	1,830	1,943	1,867	1,621	1,260	1,251	1,943	951
5	1,097	954	689	587	740	778	909	602	353	133	138	120	129	257	673	1,398	1,918	2,364	2,246	2,272	2,142	1,887	1,577	1,066	2,364	1,043
6	776	714	664	617	764	833	914	608	572	248	47	40	745	1,260	1,251	822	1,306	1,769	1,723	1,756	1,666	1,547	1,259	1,203	1,769	963
7	1,052	933	691	558	714	802	1,095	764	444	244	124	28	(170)	(30)	261	415	1,167	1,863	1,802	1,926	1,733	1,513	1,267	1,117	1,926	846
8	965	862	643	511	632	641	723	464	247	94	48	(162)	(224)	(99)	249	342	907	1,845	1,748	1,607	1,363	1,119	949	770	1,845	677
9	490	466	402	361	521	539	623	269	233	95	(97)	(334)	(311)	(162)	198	426	1,301	2,144	2,049	2,552	2,469	2,152	1,697	1,364	2,552	810
10	1,114	896	549	443	594	509	502	242	219	99	(206)	(576)	(589)	(406)	110	231	758	1,914	1,694	1,773	1,640	1,399	1,019	1,004	1,914	622
11	871	759	503	413	572	619	700	414	277	141	76	59	(33)	122	293	531	1,627	1,909	1,805	1,878	1,827	1,629	1,363	1,155	1,909	813
12	961	872	709	496	603	612	666	374	244	156	109	71	(103)	90	271	489	1,627	1,972	2,194	2,127	1,789	1,495	1,088	850	2,194	823
13	722	681	614	554	702	723	760	435	233	49	8	(29)	17	113	277	1,124	1,977	2,359	2,306	2,215	1,926	1,532	1,230	1,190	2,359	905
14	1,010	803	543	477	628	674	712	693	444	444	370	508	526	126	213	746	1,296	1,670	1,613	1,839	1,601	1,274	895	955	1,839	836
15	833	681	392	323	501	514	451	213	209	96	(342)	(684)	(800)	(543)	(124)	167	411	1,138	1,493	1,538	1,277	985	914	721	1,538	432
16	468	472	446	426	596	560	464	187	170	(30)	(562)	(746)	(634)	(444)	(111)	174	387	1,080	1,475	1,724	1,455	1,179	809	859	1,724	434
17	742	639	388	315	512	554	600	245	187	158	49	(198)	(269)	(299)	186	381	955	1,937	1,849	2,049	1,772	1,367	947	962	2,049	668
18	828	733	484	358	514	553	554	246	206	125	45	(171)	(45)	109	306	521	1,548	2,024	1,928	2,219	1,905	1,473	1,243	1,230	2,219	789
19	1,037	761	460	332	504	541	505	208	156	77	(203)	(556)	(513)	(233)	84	213	650	1,780	1,697	1,558	1,303	1,150	1,136	927	1,780	566
20	472	428	361	328	501	738	649	270	157	(17)	(74)	(499)	(509)	(382)	37	186	458	1,392	1,534	1,741	1,394	1,044	857	930	1,741	500
21	747	504	325	313	493	545	460	196	200	106	(317)	(690)	(615)	(325)	95	298	885	2,147	2,100	2,439	2,264	1,489	1,084	1,072	2,439	659
22	868	687	459	433	596	547	459	188	183	(42)	(752)	(884)	(751)	(483)	(29)	183	324	1,365	1,728	1,655	1,346	925	780	616	1,728	433
23	385	375	333	315	507	546	548	237	200	108	(370)	(763)	(696)	(384)	88	192	496	1,281	1,409	1,561	1,444	1,106	777	845	1,561	439
24	719	563	384	326	505	560	465	207	125	56	(385)	(725)	(636)	(274)	111	245	733	1,627	1,579	1,471	1,221	987	820	667	1,627	473
25	439	420	378	346	527	635	714	431	274	220	183	(7)	(243)	(174)	147	401	1,102	1,898	1,863	2,191	2,013	1,650	1,204	1,023	2,191	735
26	893	760	513	411	568	618	668	529	249	153	125	43	65	110	265	727	1,623	1,983	1,860	1,894	1,745	1,512	1,105	1,062	1,983	812
27	895	768	523	425	551	541	570	241	88	(34)	(15)	24	85	165	462	1,475	2,129	2,413	2,260	2,454	2,188	2,002	1,826	1,461	2,454	979
28	834	886	741	545	694	645	754	627	307	177	99	114	198	329	867	1,388	1,744	2,017	1,887	1,955	1,750	1,495	1,107	780	2,017	914
29	547	517	428	360	549	592	599	389	219	124	104	81	120	215	480	1,424	1,950	2,205	2,119	2,052	1,698	1,298	991	811	2,205	828
30	514	483	421	342	522	565	601	304	156	101	101	169	166	275	940	1,708	1,807	1,863	1,787	1,853	1,603	1,183	1,000	827	1,863	804
31																									0	0



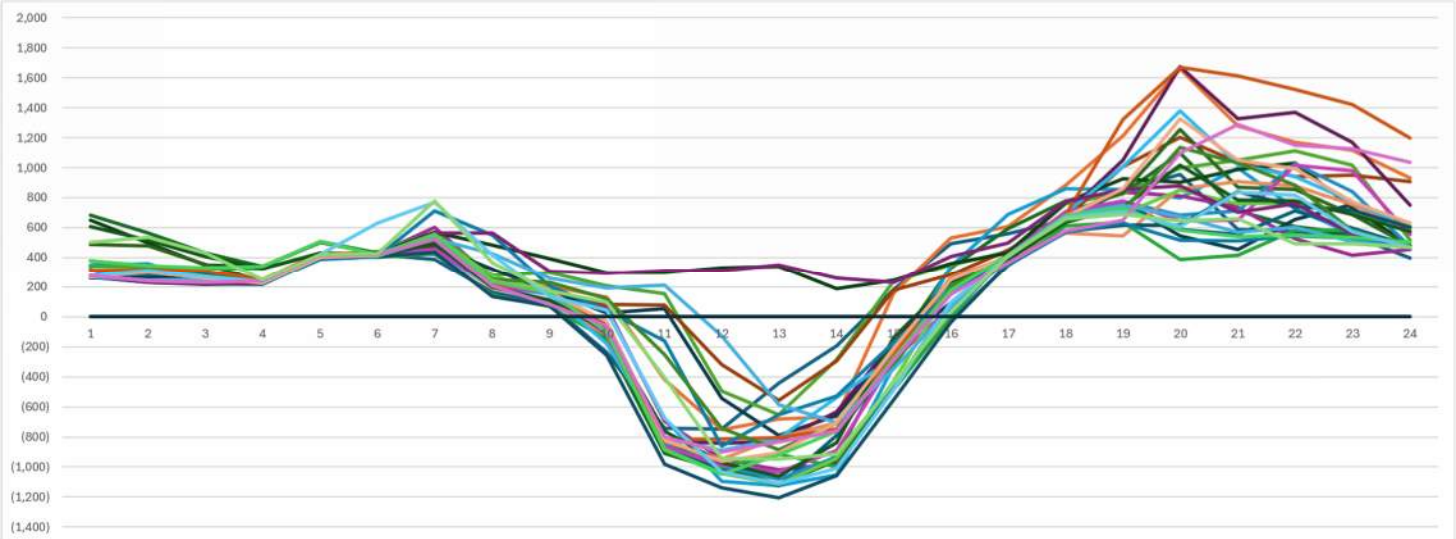
October

Day of Month	October																								Monthly Max	Monthly Avg
	Hour of Day																								2,648	450
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Max	Daily Avg
1	618	585	502	449	640	697	838	615	410	290	105	112	172	495	1,111	1,656	2,309	2,648	2,483	2,169	1,916	1,627	1,345	1,167	2,648	1,040
2	692	659	595	534	712	755	898	838	612	481	359	151	288	590	1,174	1,655	2,097	2,285	2,132	1,955	1,592	1,241	1,020	820	2,285	1,006
3	556	551	494	410	561	603	669	451	168	83	61	46	90	129	616	1,668	2,133	2,429	2,082	2,017	1,720	1,460	1,181	893	2,429	878
4	639	628	563	483	569	555	540	244	86	(18)	28	6	(0)	102	207	428	1,588	2,142	2,149	1,979	1,563	1,202	939	758	2,149	724
5	496	459	396	336	510	536	452	173	45	(59)	(51)	(301)	(255)	(86)	136	384	1,143	1,603	1,594	1,454	1,371	1,247	1,105	930	1,603	567
6	472	381	351	327	506	544	591	350	196	145	107	109	203	272	467	1,061	1,624	2,110	2,058	2,081	1,841	1,412	1,239	998	2,110	810
7	687	630	482	338	511	547	510	269	153	97	57	(239)	(303)	45	297	567	1,801	2,093	2,222	2,122	1,752	1,414	904	748	2,222	738
8	472	443	363	334	506	560	563	282	137	72	32	(297)	(383)	(170)	140	454	1,395	1,890	1,838	1,548	1,236	1,019	891	707	1,890	585
9	444	423	396	328	507	554	529	274	185	102	(152)	(544)	(455)	(230)	219	334	1,148	1,919	1,922	1,663	1,471	1,190	971	755	1,922	581
10	516	443	429	421	535	529	564	552	553	589	328	257	344	(297)	88	387	686	790	1,405	1,216	1,056	867	652	539	1,405	560
11	334	365	353	308	488	529	492	303	292	(128)	(659)	103	(0)	131	(230)	64	519	577	1,228	1,234	1,043	786	644	537	1,234	388
12	331	304	306	306	497	755	820	416	418	134	(482)	(928)	(759)	(716)	(22)	213	696	650	828	1,113	1,108	909	646	544	1,113	337
13	250	291	271	224	391	419	342	436	312	7	(749)	(874)	(973)	(783)	(307)	285	591	766	718	515	1,028	989	729	446	1,028	222
14	255	214	220	220	398	429	378	449	386	14	(608)	(657)	(696)	(537)	49	451	640	774	1,023	1,206	1,237	919	597	498	1,237	327
15	361	288	236	225	401	429	407	449	380	229	(390)	(433)	(342)	(119)	323	465	842	1,852	1,917	2,046	2,038	1,793	1,367	948	2,046	655
16	635	532	427	341	505	438	404	476	391	293	(324)	(539)	(425)	(321)	126	483	635	777	791	965	1,040	1,124	792	696	1,124	428
17	350	268	227	219	395	465	447	536	412	168	(509)	(603)	(601)	(344)	168	561	688	852	979	1,129	1,150	986	866	763	1,150	399
18	352	302	297	298	471	499	433	538	367	190	(355)	(377)	(473)	(442)	65	442	595	709	716	766	955	1,101	822	727	1,101	375
19	359	276	227	222	399	432	418	219	195	346	(406)	(434)	(264)	(338)	259	382	653	935	1,122	1,427	1,281	729	624	489	1,427	398
20	281	254	240	218	394	425	378	216	198	314	(459)	(425)	(290)	(381)	352	400	659	884	569	781	939	757	570	471	939	323
21	336	331	249	218	394	428	372	221	136	(57)	(833)	(1,002)	(920)	(868)	(94)	445	543	521	935	1,546	1,232	1,084	797	611	1,546	276
22	370	372	337	330	492	426	381	219	135	(53)	(852)	(1,004)	(917)	(734)	39	465	573	529	773	1,380	1,230	856	574	462	1,380	266
23	329	318	234	216	396	426	370	213	132	(314)	(959)	(1,142)	(827)	(417)	21	454	603	547	591	1,281	1,392	1,176	838	653	1,392	272
24	262	262	225	216	397	432	367	209	167	(345)	(1,016)	(928)	(913)	(749)	(22)	400	547	531	531	1,275	1,287	1,211	1,108	948	1,287	267
25	556	539	340	216	406	439	364	160	82	(314)	(972)	(1,181)	(1,148)	(988)	(335)	181	532	460	471	556	625	635	761	647	761	126
26	327	324	241	218	400	440	398	223	136	(297)	(977)	(960)	(886)	(720)	(425)	181	599	807	831	910	709	583	529	449	910	168
27	336	348	253	222	408	444	412	223	143	(246)	(910)	(840)	(823)	(511)	(171)	247	591	1,320	1,792	1,472	1,066	820	753	610	1,792	332
28	447	458	354	334	504	446	403	239	152	(80)	(726)	(869)	(791)	(792)	(59)	370	413	532	541	719	912	664	530	449	912	215
29	336	317	223	220	404	439	424	241	151	(214)	(812)	(879)	(815)	(655)	(73)	399	481	531	541	733	946	796	543	450	946	197
30	258	242	216	215	402	639	638	292	143	(1)	(813)	(1,009)	(1,032)	(838)	(54)	424	469	532	538	720	877	773	530	448	877	192
31	331	340	242	218	404	436	629	270	117	53	(658)	(955)	(890)	(654)	56	522	472	531	948	1,291	1,170	908	642	454	1,291	287



November

Day of Month	November																								Monthly Max	Monthly Avg
	Hour of Day																								1,676	243
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Max	Daily Avg
1	261	285	220	218	399	423	388	164	82	(237)	(744)	(750)	(444)	(195)	180	490	560	651	848	954	586	574	551	397	954	244
2	341	355	235	218	400	429	497	248	204	129	(421)	(753)	(683)	(665)	159	532	605	884	1,213	1,662	1,278	1,167	1,118	932	1,662	420
3	683	564	430	342	506	431	436	237	147	(169)	(911)	(1,025)	(1,121)	(928)	(219)	329	595	777	825	1,099	710	605	557	479	1,099	224
4	347	358	232	235	412	440	419	257	166	41	(676)	(1,097)	(1,123)	(1,054)	(326)	341	688	858	855	797	999	726	558	475	999	205
5	275	320	262	233	403	426	603	258	155	64	(696)	(949)	(1,019)	(975)	(475)	8	415	771	836	811	734	524	416	454	836	161
6	339	337	225	232	414	438	570	278	298	207	153	(497)	(654)	(286)	240	347	438	757	830	1,000	1,050	1,112	1,017	515	1,112	390
7	260	260	264	225	405	421	478	322	170	27	54	(542)	(789)	(659)	(203)	93	373	687	775	543	453	656	753	583	775	234
8	261	300	264	235	407	425	462	199	178	83	80	(316)	(559)	(294)	175	281	448	662	1,006	1,203	1,036	942	948	908	1,203	389
9	649	498	348	338	502	423	568	481	394	296	299	330	338	185	245	359	430	770	925	902	989	1,031	730	485	1,031	521
10	263	299	294	234	404	422	459	224	159	(93)	(864)	(1,014)	(1,124)	(791)	(277)	153	404	695	761	586	556	713	596	478	761	147
11	266	228	232	224	397	416	458	225	170	(41)	(822)	(845)	(828)	(632)	(167)	230	395	693	1,048	1,676	1,329	1,370	1,171	750	1,676	331
12	488	477	354	236	412	424	461	209	148	(95)	(832)	(1,002)	(1,115)	(958)	(469)	92	400	698	831	1,254	869	856	688	477	1,254	204
13	263	229	219	230	407	419	455	217	168	(107)	(852)	(997)	(1,079)	(935)	(454)	12	409	709	774	681	710	1,026	840	471	1,026	159
14	263	298	265	227	394	413	439	192	108	(136)	(830)	(949)	(806)	(707)	(229)	263	401	565	547	858	908	879	752	585	908	196
15	376	340	327	326	426	402	428	142	70	(146)	(799)	(1,001)	(913)	(999)	(484)	(11)	343	611	637	387	414	584	583	465	637	105
16	268	317	271	231	411	412	438	203	149	(180)	(806)	(890)	(808)	(538)	(267)	231	409	697	1,006	1,380	1,020	941	776	604	1,380	261
17	272	234	242	236	415	417	453	206	157	(117)	(860)	(985)	(1,036)	(891)	(287)	63	414	706	780	643	651	1,019	980	553	1,019	178
18	269	305	267	228	408	414	542	272	164	(72)	(880)	(1,043)	(1,116)	(944)	(430)	202	409	659	693	852	761	764	701	614	852	168
19	316	228	217	224	394	407	437	133	74	(254)	(980)	(1,139)	(1,203)	(1,056)	(554)	(37)	353	571	614	617	842	740	718	602	842	94
20	312	316	305	251	428	424	495	224	172	(70)	(818)	(816)	(804)	(746)	(256)	256	407	688	1,323	1,669	1,615	1,521	1,422	1,199	1,669	397
21	605	516	409	326	430	405	496	198	112	(93)	(761)	(969)	(1,061)	(838)	(139)	234	390	636	734	1,018	783	780	690	572	1,018	228
22	268	296	268	218	387	406	713	549	207	41	(161)	(860)	(650)	(527)	(170)	162	350	567	630	517	509	544	529	467	713	219
23	268	229	218	226	409	415	565	563	308	290	310	313	349	259	231	408	497	772	852	879	700	759	561	475	879	452
24	270	305	271	233	414	411	528	250	231	120	(250)	(741)	(884)	(708)	(321)	200	417	647	712	1,137	1,032	883	576	474	1,137	259
25	267	243	247	234	413	413	524	426	261	193	211	(126)	(585)	(706)	(347)	65	418	682	747	675	567	600	508	468	747	266
26	267	303	261	226	402	415	555	240	164	(34)	(817)	(960)	(903)	(704)	(208)	250	408	675	859	1,325	1,048	991	775	630	1,325	257
27	379	345	332	340	508	421	556	233	160	(97)	(887)	(1,048)	(920)	(764)	(275)	176	412	680	730	581	540	550	537	499	730	166
28	276	312	268	237	421	628	770	418	135	46	(678)	(1,034)	(1,112)	(1,008)	(486)	98	406	667	706	606	835	817	572	469	835	182
29	276	240	229	239	415	422	520	209	83	(63)	(800)	(898)	(835)	(761)	(289)	149	364	576	652	1,097	1,289	1,151	1,126	1,034	1,289	268
30	502	535	430	249	418	426	776	364	173	95	(404)	(944)	(945)	(912)	(437)	31	412	657	685	643	657	490	490	466	776	202
31																									0	0



December

Day of Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Daily Max	Daily Avg
1	279	244	234	233	397	421	575	433	156	75	(429)	(1,000)	(978)	(861)	(370)	93	402	640	690	658	833	725	594	487	833	189
2	690	540	521	437	563	577	706	254	153	39	(781)	(1,029)	(1,119)	(889)	(394)	224	402	660	1,173	1,669	1,519	1,288	794	672	1,669	361
3	444	405	409	428	604	528	672	250	159	10	(809)	(1,021)	(916)	(804)	(299)	163	411	643	697	649	638	585	609	515	697	207
4	304	349	374	367	561	810	965	638	312	118	(256)	(967)	(1,042)	(589)	(145)	195	411	661	717	672	662	681	661	566	965	293
5	373	425	456	459	622	640	749	702	716	670	474	550	547	668	655	703	798	1,025	1,065	990	773	718	645	563	1,065	666
6	385	433	403	347	545	578	688	304	129	(12)	(226)	(557)	(979)	(770)	(144)	219	357	583	732	1,018	905	696	598	532	1,018	282
7	338	309	316	350	553	559	690	368	219	160	242	36	(232)	(257)	(98)	115	419	700	739	803	1,009	1,060	889	577	1,060	411
8	377	351	349	361	529	542	691	294	171	161	(7)	(80)	(368)	(588)	(196)	263	479	919	1,460	1,475	1,293	1,230	1,128	938	1,475	491
9	641	641	523	433	601	532	675	293	169	109	(610)	(949)	(1,032)	(948)	(464)	20	403	694	729	789	1,060	655	561	474	1,060	250
10	268	228	231	245	440	449	595	258	171	106	(349)	(735)	(755)	(703)	(295)	203	415	557	606	1,017	954	790	564	472	1,017	239
11	265	228	244	237	411	419	583	281	173	104	(621)	(886)	(948)	(823)	(338)	119	415	674	731	1,106	1,186	928	571	474	1,186	231
12	266	298	264	223	394	617	768	403	159	72	(401)	(892)	(961)	(916)	(449)	9	395	564	562	472	490	451	471	470	768	155
13	266	223	219	221	390	411	510	223	120	(20)	(632)	(998)	(1,037)	(973)	(502)	103	344	591	657	676	777	619	551	472	777	134
14	268	231	224	227	403	616	765	431	188	100	(446)	(920)	(988)	(956)	(481)	173	412	686	722	1,227	1,211	890	779	635	1,227	267
15	377	413	378	338	495	414	561	286	165	100	(624)	(948)	(805)	(680)	(229)	170	407	557	582	536	527	450	527	474	582	186
16	267	226	245	228	392	409	785	444	196	94	(476)	(990)	(1,036)	(902)	(401)	70	398	681	722	667	862	646	556	480	862	190
17	268	230	224	227	404	415	557	407	196	94	(266)	(831)	(835)	(706)	(306)	132	410	555	640	1,098	1,062	978	888	746	1,098	274
18	644	635	491	370	546	612	734	397	176	124	(92)	(598)	(679)	(625)	(207)	257	401	862	1,354	1,585	1,418	1,143	794	665	1,585	459
19	420	369	356	363	531	569	719	368	135	62	(249)	(790)	(815)	(677)	(329)	87	375	572	566	1,018	1,025	1,235	1,064	866	1,235	327
20	426	377	371	401	562	598	735	389	133	6	(176)	(637)	(702)	(563)	(159)	153	333	684	964	1,423	1,296	1,212	1,044	841	1,423	405
21	529	551	509	473	637	565	700	413	117	(20)	(200)	(821)	(736)	(546)	(144)	199	354	773	1,057	1,379	1,109	1,000	792	665	1,379	390
22	424	374	364	367	542	580	738	560	382	214	248	58	(479)	(394)	241	271	572	941	1,313	1,386	1,181	914	847	664	1,386	513
23	421	374	360	363	532	570	738	438	208	92	(306)	(854)	(931)	(829)	(387)	88	385	696	713	1,077	1,182	1,129	993	869	1,182	330
24	421	446	440	406	592	628	742	432	183	93	(249)	(862)	(841)	(816)	(392)	81	394	551	582	1,079	1,221	1,192	1,055	908	1,221	345
25	1,660	1,218	1,212	1,281	1,526	1,551	1,683	991	219	87	(68)	(717)	(868)	(763)	(221)	196	388	807	1,137	1,291	1,266	1,054	979	915	1,683	701
26	725	794	990	1,083	1,284	1,339	1,493	1,027	458	229	179	167	197	373	752	1,400	1,730	1,837	1,914	2,133	1,910	1,736	1,602	1,326	2,133	1,112
27	1,078	1,158	1,019	923	1,067	1,024	1,099	1,021	243	52	(0)	(205)	(267)	(624)	(291)	126	343	621	927	1,395	1,271	1,149	858	723	1,395	613
28	501	468	468	490	689	728	883	916	922	889	801	733	762	714	973	1,095	1,211	1,401	1,407	1,305	1,194	1,102	1,012	887	1,407	898
29	661	619	605	600	776	813	988	991	1,022	942	292	548	259	315	454	788	932	1,178	1,288	1,292	1,129	1,072	1,045	1,044	1,292	819
30	869	920	928	1,027	1,431	1,466	1,629	818	202	112	(90)	(777)	(744)	(487)	(225)	257	398	786	1,200	1,458	1,332	1,005	840	761	1,629	630
31	612	643	711	842	1,236	1,313	1,463	1,197	764	594	226	179	415	504	1,129	1,279	1,337	1,738	1,672	1,712	1,616	1,386	1,245	1,125	1,738	1,039

Monthly Max	Monthly Avg
2,133	432

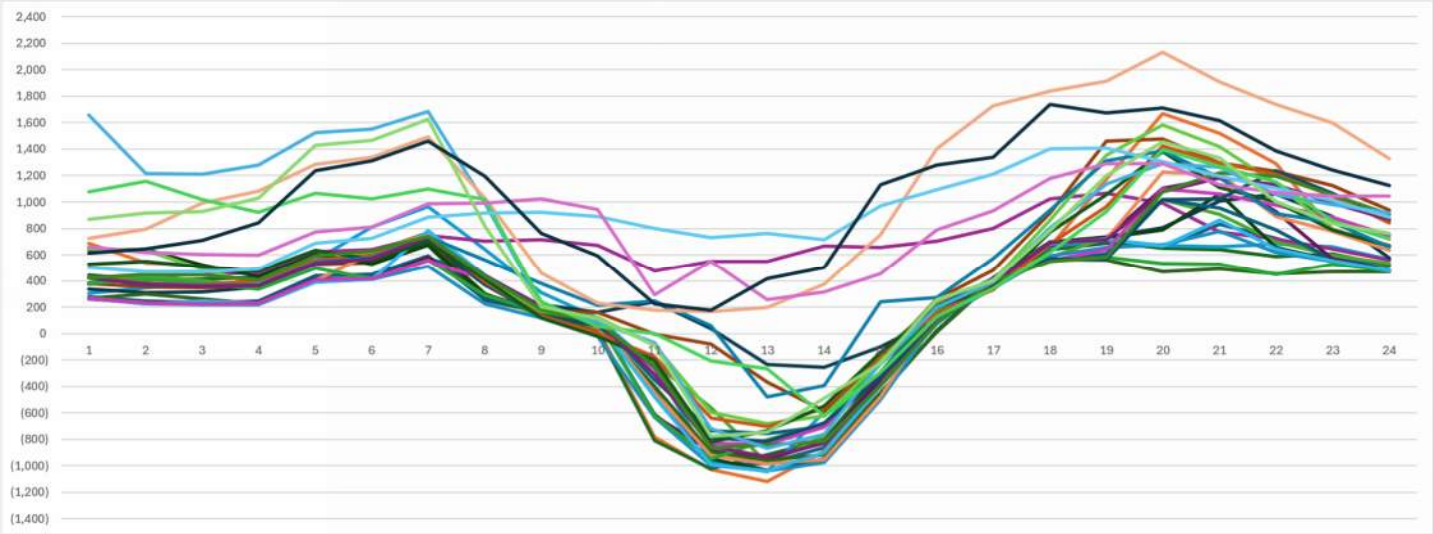


EXHIBIT H

The Ranch at Madison

Equipment Technical Information

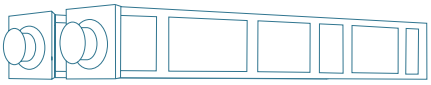
Mainspring - https://www.mainspringenergy.com/

Mainspring

The Mainspring Linear Generator

Local, scalable, fuel-flexible power for commercial and industrial customers, biogas developers, utilities, municipalities, and data centers

Easy, modular installation
High availability & low maintenance
Up to 25 MW per acre scalability



Each package contains two linear generator cores, operated in tandem.

Breakthrough design enables an unmatched combination of features and benefits

High efficiency
Direct conversion of linear motion into electricity

Near-zero NOx
Low-temperature, non-combustion reaction without a flame or burning

Permitting anywhere
Meets any air permitting requirements in the US

Fuel flexibility
Continuous, adaptive control without mechanical constraints

Fully dispatchable
Load-tracking, fast on/off, black start, and islanding

Controllable & configurable
Integrates seamlessly with site components & requirements

Performance specifications

Model No. : MSE 3

Outputs[1]	Power (net AC) Electrical	250 kW 400/480 V, 3 Phase, 50/60 Hz
Inputs	Fuels Input Pressure Water Consumption	Any blend of Biogas[2], Natural Gas, Hydrogen, and Propane 5-20 psig (15 psig nominal) None
Efficiency[3]	Electrical (LHV, net AC) Heat Rate (HHV, net AC)	46% 8,233 BTU/kWh
Emissions[4]	NOx Noise	< 1.5 ppm (<0.04 lb/MWh) < 70 dBA @ 3m, <65 dBA @10m
Physical	Weight Dimensions (L x W x H)	20 tonnes 20.5' x 8.5' x 9.5'

Environment	Temperature Range Humidity	-30 to 50 C 0 to 100%
Operations	Power Output Range Grid Parallel to Island Transfer[5] Maximum Step Load Building Soft Start Capability	0 to 100% power output < 10 sec 300 kVA for up to 10 sec Yes
Other	• UL 2200 package • UL 1741 SB grid-tie inverter • Compliant with CA Rule 21	• Remote monitoring • Secure customer portal • Modbus interface

[1] Rated capacity may vary by fuel type.
[2] Sulfur: < 30 ppmvd I Siloxanes: < 100 ppbvd I Oxygen and nitrogen: no limitations
[3] Measured according to ASME PTC 5O at 15 C and 1 atm on natural gas and biogas. Rated efficiency may vary by fuel type.
[4] Products comply with emissions limits in South Coast AQMD.
[5] Performance with purchase and installation of external site relays and controls equipment.

All data is subject to technical development and modification. R30204

About Mainspring Energy

Driven by its vision of the affordable, reliable, zero carbon grid of the future, Mainspring is delivering a breakthrough new category of power generation – the linear generator – to customers to increase their energy resilience, generate cost savings, and meet their sustainability and climate goals.

3601 Haven Avenue
Menlo Park, CA 94025
mainspringenergy.com

Generac Battery Energy Storage Systems -
https://www.generac.com/industrial/microgrid-solutions/bess/

SBE Cabinet | LFP | 250-1000 kW / 516-2064 kWh

LITHIUM-ION BATTERY ENERGY STORAGE SYSTEM

Power Rating:
250 – 1,000 kW

Energy Rating:
516 – 2,064 kWh

Enclosure Style:
Outdoor rated cabinet

Codes and Standards

- UL 1642
- UL 1973
- UL 9540A
- UL 1741 SB
- UL 9540
- CSA 22.2
- UN 38.3
- IEEE 1547
- NFPA 855
- NFPA 68

The Generac Solution

Energy management today means balancing a combination of carbon reduction, energy savings, and energy resilience goals. Generac's SBE Cabinet is our latest addition to a portfolio of products and technologies helping commercial and industrial (C&I) customers to meet their current and future energy goals.

SBE energy storage systems enable C&I customers to:

- Reduce peak demand charges and save on energy costs.
- Pair with on-site solar and lower both carbon footprint and energy costs.
- Provide site resilience during brownouts/ power quality issues, back up critical loads during shorter duration blackouts, and pair with our line of gas and diesel generators for full facility resilience during long-duration blackouts.
- Earn additional revenue by monetizing the asset to support broader grid resilience.

Modular and scalable using common building blocks

Controls Cabinet

- Controls – Unit & Microgrid
- Fire alarm control panel (pre-installed, NFPA 855 compliant)
- Connectivity & Monitoring
- Auxiliary power equipment
- UPS

Inverter Cabinet

- Bi-directional inverter
- Grid following and forming capability
- Outdoor rated enclosure

DC Cabinet

- Up to 344 kWh/cabinet
- LFP, Liquid cooled
- Aerosol fire suppression
- Smoke detector
- Emergency-Stop
- Dehumidification

3x DC Cabinet configuration with 1000 kW inverter (derated) shown above

EXAMPLE SITE LAYOUT

6x DC Cabinet configuration, back-to-back layout, with 1000 kW inverter

BESS SPECIFICATIONS

1000 kW Inverter	2x DC Cabinet	3x DC Cabinet	4x DC Cabinet	5x DC Cabinet	6x DC Cabinets
	250kW/688kWh	500kW/1032kWh	500kW/1376kWh	750kW/1720kWh	1000kW/2064kWh
Power	250 kW *	500 kW *	500 kW *	750 kW *	1,000 kW
Nameplate DC energy	688 kWh	1,032 kWh	1,376 kWh	1,720 kWh	2,064 kWh
DC voltage range	1,075-1,382 VDC				
DC Nominal voltage	1,228.8 VDC				
AC connection	3-wire (3P3W)				
AC Voltage	480 V				
Frequency	60 Hz				
Overload capacity	105% for 5 min; 115% for 2s				
Power factor	Full 4-quadrant operation				
Inverter efficiency	Up to 98.5%				
Operating temperature (ambient)	-4 °F to 104 °F (-20 °C to 40 °C) -40 °F (-40 °C) option; power derate above +104 °F (40 °C)				
Altitude before derate	3,280 ft (1,000 m)				
Noise	<70 dB @ 3.3 ft (1 m)				
Dimensions (WxDxH)**	13' x 4.3' x 7.6' (4.0 m x 1.3 m x 2.3 m)	17.4' x 4.3' x 7.6' (5.3 m x 1.3 m x 2.3 m)	21.7' x 4.3' x 7.6' (6.6 m x 1.3 m x 2.3 m)	17.4' x 10.2' x 7.6' (5.3 m x 3.1 m x 2.3 m)	17.4' x 10.2' x 7.6' (5.3 m x 3.1 m x 2.3 m)
Weight (approx.)	18,690 lb (8,480 kg)	26,180 lb (11,880 kg)	33,680 lb (15,280 kg)	41,170 lb (18,680 kg)	48,670 lb (22,080 kg)

*Derated inverter
**Approximate dimensions; width assumes minimum required spacing of 30 mm between and 500 mm back-to-back for DC Cabinets. Spacing between DC Cabinets and Inverter is site dependent, but assumed to be 610 mm (2 ft)

SBE Cabinet | LFP | 250-1000 kW / 516-2064 kWh

LITHIUM-ION BATTERY ENERGY STORAGE SYSTEM

GENERAC | INDUSTRIAL POWER

STANDARD FEATURES

CONTROLS
- Battery (unit) controller

ELECTRICAL SYSTEMS
- Ground fault monitoring
- BESS control panel
- Auxiliary power equipment

BIDIRECTIONAL INVERTER
- Grid forming
- Grid following
- 4 quadrant operation
- THD < 2%
- Load imbalance capable

FIRE PREVENTION AND SUPPRESSION SYSTEM
- Aerosol fire suppression
- Smoke detector
- **NFPA 68 compliant:** deflagration panels
- Audible/visual alarms
- Fire alarm control panel
- Door mounted Emergency-Stop
- UPS capable of 24 hours in standby and 2 hours in alarm

ENCLOSURE
- Forklift pockets
- Lifting eyebolts

OPTIONS

EMS & MICROGRID COMPONENTS
- EMS & Microgrid controller (MGC)
- Protective relay cabinet (PRC / SEL-751)
- Load control center (LCC)
- Generator connect cabinet (GCC)
- Revenue meter cabinet (RMC)

ELECTRICAL SYSTEMS
- Isolation transformer

CONTROLS CABINET
- HMI screen
- HVAC for up to 122 °F (50 °C) ambient temperature rating

O&M
- Extended warranty up to 15-years
- Long-term service contract

CONTROL SYSTEM

USE CASES (WITH MGC)
- Peak shaving
- Arbitrage
- Backup power
- Black start
- Renewable energy shifting
- Voltage regulation
- Frequency response
- Grid forming - off-grid

FEATURES
- Local data server
- Cloud based monitoring
- Multilevel authentications for security operation
- Data acquisition and control functions
- Event reporting
- Ramp rate control demand management
- Modbus TCP
- CAN
- Ethernet-based communication
- Compatibility with 3rd party EMS, SCADA systems

PRODUCT MATRIX

	1x DC Cabinet			2x DC Cabinets			3x DC Cabinets			4x DC Cabinets			5x DC Cabinets			6x DC Cabinets		
	Nameplate Energy capacity (kWh)																	
Power (kW)*	258	301	344	516	602	688	774	903	1032	1032	1204	1376	1290	1505	1720	1548	1806	2064
125	2 hour	2 hour	3 hour	4 hour	5 hour	5 hour	6 hour	7 hour	8 hour									
250				2 hour	2 hour	3 hour	3 hour	3 hour	4 hour	4 hour	5 hour	5 hour	5 hour	6 hour	7 hour	6 hour	7 hour	8 hour
500									2 hour	2 hour	2 hour	3 hour	2 hour	3 hour	3 hour	3 hour	3 hour	4 hour
750														2 hour	2 hour	2 hour	2 hour	3 hour
1000																		2 hour

*Power ratings between 250-1000 kW are also allowable; max C-Rate: 0.5C

Product images are for reference only and are subject to change based on product improvements and updates.

Contact Generac for a one stop solution to integrate our line of generators with our SBE battery system.
Contact Generac for partner(s) referral regarding on-site Engineering/Procurement/Construction (EPC) services.

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SBE Block | LFP | 2.5 – 5 MWh

LITHIUM-ION BATTERY ENERGY STORAGE SYSTEM

Power Rating:
1 – 1.5 MW

Energy Rating:
2.5 – 5 MWh

Enclosure Style:
Outdoor rated

Codes and Standards

- UL 1642
- UL 1973
- UL 9540A
- UL 1741 SB
- UL 9540
- UN 38.3
- IEEE 1547
- NFPA 855
- NFPA 68
- NFPA 69

The Generac Solution

Energy management today means balancing a combination of carbon reduction, energy savings, and energy resilience goals. Generac's SBE Block is our latest addition to a portfolio of products and technologies helping commercial and industrial (C&I) customers to meet their current and future energy goals.

SBE energy storage systems enable C&I customers to:

- Reduce peak demand charges and save on energy costs.
- Pair with on-site solar and lower both carbon footprint and energy costs.
- Provide site resilience during brownouts/ power quality issues, back up critical loads during shorter duration blackouts, and pair with our line of gas and diesel generators for full facility resilience during long-duration blackouts.
- Earn additional revenue by monetizing the asset to support broader grid resilience.

Modular and scalable using common building blocks

DC Block

- Up to 5 MWh/block
- LFP, Liquid cooled
- IP55 enclosure
- Single DC output
- Dry pipe & sprinkler system
- Aerosol fire suppression (option)
- Emergency-Stop
- Dehumidification

Controls Cabinet

- Controls – Unit & Microgrid
- Fire alarm control panel
- Connectivity & Monitoring
- Auxiliary power equipment
- Type 3R enclosure
- UPS

Inverter

- Bi-directional inverter
- IP55 enclosure
- Grid following and forming capability
- Outdoor rated enclosure

BESS SPECIFICATIONS

DC Block (Battery)

Nameplate DC energy	**5,016 kWh**	4,180 kWh	3,344 kWh	2,508 kWh
Battery racks/container	**6**	5	4	3
DC voltage range	1,165 – 1,498 VDC			
DC nominal voltage	1,331 VDC			
Max C-rate	0.5C			
Dimensions (WxDxH)	19.9 ft x 8.0 ft x 9.5 ft (6.1 m x 2.4 m x 2.9 m)			
Weight (approx.)	99,200 lb (45,000 kg)	86,900 lb (39,400 kg)	74,500 lb (33,800 kg)	62,200 lb (28,200 kg)
Operating temperature (ambient)	-22 °F to 131 °F (-30 °C to 55 °C)			

Inverter

Power	**1,500 kW**	**1,304 kW**	**1,043 kW**
AC Voltage	690 V	600 V	480 V
Frequency	60 Hz		
AC Connection	3-wire (3P3W)		
Overload capacity	105% for 5 min; 115% for 2 s		
Power factor	Full 4-quadrant operation		
Inverter efficiency	Up to 98.5%		
Dimensions w/ Controls Enclosure (WxDxH)	4.5 ft x 5.7 ft x 7.5 ft (1.4 m x 1.7 m x 2.3 m)		
Weight w/ Controls Enclosure (approx.)	3,520 lb (1,597 kg)		
Operating temperature (ambient)	-4 °F to 104 °F (-20 °C to 40 °C) -40 °F (-40 °C) with option; power derate above +104 °F (40 °C)		
Altitude before power (kW) derate	3,280 ft (1,000 m)		
Noise	<70 dB @ 9.8 ft (3 m)		

STANDARD FEATURES

CONTROLS
- Battery (unit) controller

ELECTRICAL SYSTEMS
- Ground fault monitoring
- BESS control panel
- Auxiliary power equipment

BIDIRECTIONAL INVERTER
- Grid forming
- Grid following
- 4 quadrant operation
- THD < 2%
- Load imbalance capable

FIRE PREVENTION AND SUPPRESSION SYSTEM
- **NFPA 68 compliant:** deflagration panels
- **NFPA 69 compliant**: gas detection and ventilation
- Dry pipe and sprinkler system
- Smoke detector
- Audible/visual alarms
- Fire alarm control panel
- Door mounted Emergency-Stop
- UPS capable of 24 hrs in standby and 2 hrs in alarm

ENCLOSURES
- DC Block: Lifting points
- Inverter: Lifting eyebolts
- Controls Cabinet: Lifting eyebolts and forklift pockets

OPTIONS

EMS & MICROGRID COMPONENTS
- EMS & Microgrid controller (MGC)
- Protective relay cabinet (PRC / SEL-751)
- Load control center (LCC)
- Generator connect cabinet (GCC)
- Revenue meter cabinet (RMC)

ELECTRICAL SYSTEMS
- Isolation transformer

CONTROLS CABINET
- HMI screen
- HVAC for up to 122 °F (50 °C) ambient temperature rating

FIRE PREVENTION AND SUPPRESSION SYSTEM
- Aerosol fire suppression

O&M
- Extended warranty up to 20-years
- Long-term service contract

CONTROL SYSTEM

USE CASES (WITH MGC)
- Peak shaving
- Arbitrage
- Backup power
- Black start
- Renewable energy shifting
- Voltage regulation
- Frequency response
- Grid forming - off-grid

FEATURES
- Local data server
- Cloud based monitoring
- Multilevel authentications for security operation
- Data acquisition and control functions
- Event reporting
- Ramp rate control demand management
- Modbus TCP
- CAN
- Ethernet-based communication
- Compatibility with 3rd party EMS, SCADA systems

PRODUCT MATRIX

		Nameplate energy capacity (kWh)			
AC Voltage	**Power (kW)**	**2508**	**3344**	**4180**	**5016**
480 V	**1043**	*2 hour*	*3 hour*	*4 hour*	*4 hour*
600 V	**1304**	*2 hour*	*2 hour*	*3 hour*	*3 hour*
690 V	**1500**	*2 hour*	*2 hour*	*3 hour*	*3 hour*

Product images are for reference only and are subject to change based on product improvements and updates.

Contact Generac for a one stop solution to integrate our line of generators with our SBE battery system.
Contact Generac for partner(s) referral regarding on-site Engineering/Procurement/Construction (EPC) services.

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Rev. A 04/25/2025

Ageto - https://agetoenergy.com/

ageto

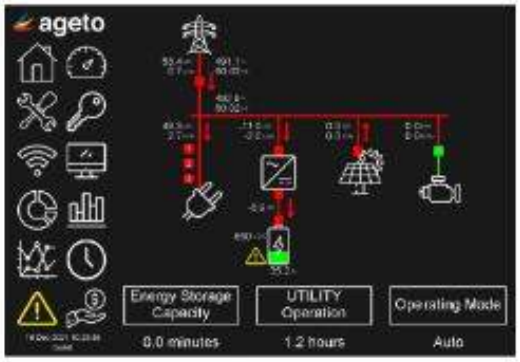
making renewable energy simple

Ageto Renewable Controller™ (ARC) Microgrid Control Software

Product Description

The Ageto ARC Microgrid Controller is a robust, reliable and highly flexible control solution designed to amplify the value of your energy resources in three-phase behind-the-meter and off-grid microgrid installations.

The ARC controller acts as the single interface for your entire system, providing autonomous system control and optimization, data collection and visualization, alarm handling, and countless other features designed to ease the operation and maintenance of these complex systems. ARC maximizes clean, renewable energy by seamlessly integrating and optimizing conventional and renewable energy resources.



ARC control user interface overview

Ageto customer monitoring portal

Product Features

- Energy resource agnostic
- Demand charge management
- Time-of-use arbitrage
- Resilient backup power
- Load management/shedding
- Storage/generator paralleling
- Cycle charging
- Customer dashboard
- Secure remote visibility
- Historian and trending
- Data aggregation and visualization
- Alarm management
- SMS/Email notifications

The Ageto Difference

The microgrid experts at Ageto are committed partners calling on decades of storage and generator experience to exceed project expectations. Visit **agetoenergy.com/energy-resources** to see our 85+ validated energy resources.

www.agetoenergy.com +1 833 247 0365 sales@agetoenergy.com

Ageto Renewable Controller (ARC) - Hardware Technical Specifications

ageto

Cabinet Data	ARC Pro	ARC Lite
External dimensions (height x width x depth)	500 mm x 500 mm x 300 mm (19.7" x 19.7" x 11.8")	424 mm x 373 mm x 219 mm (16.7" x 14.7" x 8.6")
Mounting dimensions (height x width)	460 mm x 460 mm (18.1" x 18.1")	424 mm x 307 mm (16.7" x 12.1")
Mounting style	Wall-mount	Wall-mount
Mounting location	Out of direct sunlight	Out of direct sunlight
Cable entry (width x depth)	Metal gland plate 303 mm x 113 mm (11.9" x 4.4")	n/a - field installed
Certifications	UL 508A	UL 508A
NEMA rating	NEMA 3R NEMA 1 (UL 508A listing)	NEMA 4X
Weight	31 kg (68 lb)	13.6 kg (30 lb)
Power Supply		
Voltage	100 - 240V AC single phase	100 - 240V AC single phase
Frequency	50/60 Hz	50/60 Hz
Current Requirement	2A @ 120V AC	2A @ 120V AC
Wire Gauge	14 AWG	14 AWG
Climate Limit		
Operating Temperature Range	-20 to +55°C (-4 to +131°F)	-10 to +40°C (14 to +104°F)
Humidity	5 - 95% RH (non-condensing)	5 - 80% RH (non-condensing)
Altitude Limit	3000 m (9,842 ft)	3000 m (9,842 ft)
Communication		
Network switch	(16) total, (14) available ports	(8) total, (6) available ports
Remote Communications	Ethernet Cellular	Ethernet Cellular
External Communication Interfaces	Modbus RS485 Modbus TCP DNP3 API	Modbus RS485 Modbus TCP DNP3 API
User Interface		
Screen size	15" viewable	n/a (DisplayPort available)
Touchscreen	IP 66 400 cd/m^2 luminance Sunlight-readable	n/a
Resolution	1024 x 768	n/a

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GENERAC | LINK

Microgrid ARC Controller Cabinets

ARC Pro Cabinet

The ARC Pro Cabinet is the most capable and durable hardware option for the ARC microgrid control solution. The ARC Pro includes an active cooling system that allows for installation in more extreme environments, and a touchscreen for increased ease of operation and on-site access.

Features

- UL508A listed
- NEMA 3R rated
- Gland plate for easy conduit installation
- 16-port network switch
- Active cooling for harsh environments

ARC Cabinet

The ARC Cabinet is a lighter weight and more compact hardware solution. This option may be better suited for projects that have less complexity and fewer assets. Lockable and secure, while capable of remote access, it retains the same software solution and usage of ARC Pro with a simplified design.

Features

- UL508A listed
- NEMA 4X rated
- Compact polycarbonate enclosure
- 8-port network switch
- Lighter weight
- Smaller footprint

	ARC Pro	ARC
CABINET DATA		
External Dimensions (height x width x depth)	500 mm x 500 mm x 300 mm (19.7” x 19.7” x 11.8”)	424 mm x 373 mm x 219 mm (16.7” x 14.7” x 8.6”)
Mounting Dimensions (height x width)	460 mm x 460 mm (18.1” x 18.1”)	424 mm x 307 mm (16.7” x 12.1”)
Mounting Style	Wall-mount	Wall-mount
Mounting Location	Out of direct sunlight	Out of direct sunlight
Cable Entry (width x depth)	Metal gland plate, 303 mm x 113 mm (11.9” x 4.4”)	Not applicable (field installed)
Certifications	UL 508A	UL 508A
NEMA Rating	NEMA 3R NEMA 1 (UL 508A listing)	NEMA 4X
Weight	31 kg (68 lb)	13.6 kg (30 lb)
POWER SUPPLY		
Voltage	100 - 240V AC single phase	100 - 240V AC single phase
Frequency	50/60 Hz	50/60 Hz
Current Requirement	2A @ 120V AC	2A @ 120V AC
Wire Gauge	14 AWG	14 AWG
CLIMATE LIMIT		
Operating Temperature Range	-20 to +55°C (-4 to +131°F)	-10 to +40°C (14 to +104°F)
Humidity	5 - 95% RH (non-condensing)	5 - 80% RH (non-condensing)
Altitude Limit	3000 m (9,842 ft)	3000 m (9,842 ft)
COMMUNICATION		
Network Switch	(16) total, (14) available ports	(8) total, (6) available ports
Remote Communications	Ethernet Cellular	Ethernet Cellular
External Communication Interfaces	Modbus RS485, Modbus TCP, DNP3, API	Modbus RS485, Modbus TCP, DNP3, API
USER INTERFACE		
Screen Size	15” viewable	n/a (DisplayPort available)
Touchscreen	IP 66, 400 cd/m2 luminance Sunlight-readable	Not applicable
Resolution	1024 x 768	Not applicable

Generac Power Systems, Inc., S45 W29290
Hwy. 59, Waukesha, WI 53189

www.Generac.com | 888-GENERAC (436-3722)

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GENERAC®

GENERAC | LINK

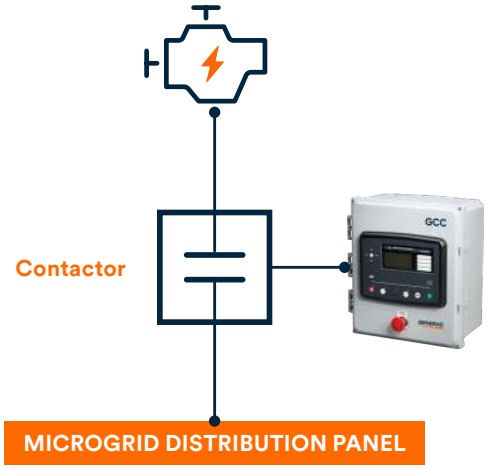
Generator Connect Cabinet

The Generac GCC is a standardized generator start/stop, synchronizing, and paralleling solution enabling generator and energy storage system (ESS) paralleling in microgrid applications.

Including the GCC in your project means avoiding costly generator upgrades while still allowing the generator to run in parallel with the ESS in order to cycle charge the batteries as necessary. The pre-wired enclosure integrates seamlessly into the Generac microgrid control ecosystem and features customer-connection terminal blocks for efficient field installation.

Features

- Remote start existing generator
- Synchronize generator to other microgrid assets
- Parallel and cycle charge ESS with existing generator without costly upgrades
- Direct control of generator contactor
- Generator power metering capabilities
- Customer connection terminal blocks for simplified field wiring
- UL508A Listed



Site Requirements

- Droop capable energy storage inverter
- Single generator design
- Energy storage inverter/generator power ratio < 1.2

	Generator Connect Cabinet (GCC)
CABINET DATA	
External Dimensions (height x width x depth)	430 mm x 339 mm x 187.5 mm (16.93” x 13.35” x 7.38”)
Mounting Dimensions (height x width)	430 mm x 280.5 mm (16.93” x 11.04”)
Mounting Style	Wall-mount
Certifications	UL 508A
NEMA Rating	NEMA 1 (IP65)
Weight	6 kg (13 lb)
POWER SUPPLY	
Voltage	9–36 VDC
Frequency	Not applicable
Current Requirement	5 A
Wire Gauge	14–18 AWG
CLIMATE LIMIT	
Operating Temperature Range	-30 to +55°C (-4 to +122°F)
Humidity	5 - 95% RH (non-condensing)
Altitude Limit	2000 m (6,561 ft)
COMMUNICATION	
External Communication Interfaces	Modbus TCP
INPUT/OUTPUT RATINGS	
Voltage Sensing	415 VAC L-N / 720 VAC L-L, 3-phase + N, 50/60 Hz
Current Sensing	5 A CTs, 3-phase, 50/60 Hz
Remote Start	NO dry contact, rated for 6 A @ 250 VAC
Contactor Close Circuit	NO dry contact, rated for 8 A @ 250 VAC
Contactor Position Feedback	Pre-assigned 0 VDC digital input
Digital Inputs	0 VDC, Quantity (6)
Relay Outputs	6 A, 250 VAC (Form C), Quantity (6)

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