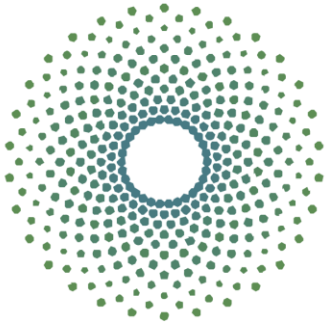


Nexus Renewables

Connecting Power, People, Planet

Workshop on the Demand Response Provider 2022 Load Impact Protocol Final Reports

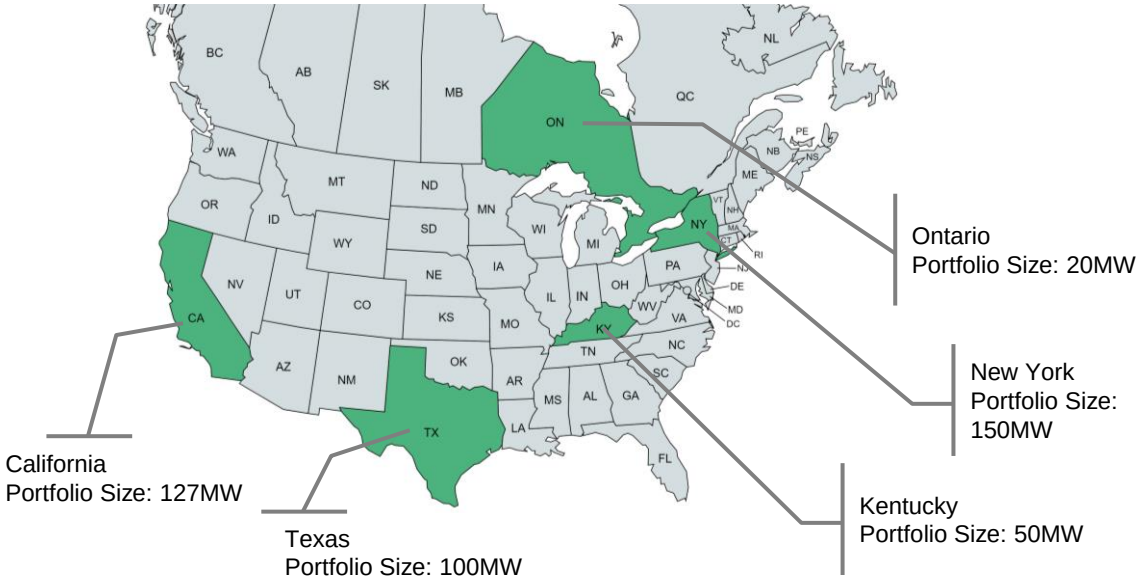
May 18, 2022

NEXUS Renewables

- **NEXUS is a pure-play renewable development company.** NEXUS focuses on *development-stage* activities, advancing projects from concept to NTP, and partners with efficient capital providers to advance *execution-stage* activities to commercial operation.
- **NEXUS has a very different DNA than your typical renewable energy developer.** Management brings decades of experience formulating ideas and selling solutions to institutional investors and off-takers alike – which lends well to deal origination and identifying longer-term market trends.
- **NEXUS is a fast-growing, clean energy, North American developer.** Established in 2020, NEXUS has developed a product pipeline in excess of 300MW across multiple jurisdictions, far exceeding initial targets and expectations.

NEXUS Renewables

- **NEXUS is North America's fast growing clean energy developer.** Established in 2020, NEXUS has 70+MW under management, supported by ~300MW under development in states such as New York, California, and Ontario.



- **NEXUS is not a typical renewable energy developer.** Uniquely positioned with a 24/7 energy trading desk equipped to extract value from grid-stability programs, NEXUS continually reinforces its assets to maximize operational returns.
- **NEXUS operates under a de-risked platform**. Combining global Tier 1 equipment with local engineering and construction expertise, NEXUS delivers time-bound and cost-effective projects tailored to suit regional needs.
- **NEXUS believes in a clean and green future.** Deploying cutting-edge clean tech to reduce carbon emissions and boost sustainability in the United States, NEXUS aims to contribute to the 2030 Sustainable Development Goals set out by the United Nations.

Overview

- In 2019, the CPUC ordered state utilities and community-choice aggregators to procure a total of 3.3 GW of new resources by 2023 to help offset planned capacity reductions from pending closures of natural-gas-fired power plants along Southern California's coast. **PG&E was amongst one of these utilities and was mandated to procure 700MW+ of incremental capacity.**
- Utilities meet their obligations through (i) direct ownership – integrating into their own rate base, or (ii) 3rd-party ownership – contracting out through RFP solicitation. **PG&E elected to fulfil its mandate by contracting out through RFP solicitation (3rd party ownership).**
- **Nexus was selected as one of six projects to meet PG&E's Resource Adequacy obligation.** The Nexus project represents PG&E's first and only large-scale contract for behind-the-meter batteries to serve grid needs.

Resource Adequacy

- **What is Resource Adequacy (RA) ?** In simplest terms, RA is a regulatory construct developed to ensure there will be sufficient resources available to serve electric demand under all but the most extreme conditions.
- **How frequent are RA resources dispatched?** Very infrequently. CAISO's RA program is designed to address transmission constraints during periods of exceptional demand. CAISO has yet to call on a RA event to meet system demand. To date, the CAISO has only issued "test" notifications to ensure RA resources are available when called.
- **How long are dispatch events?** Under CAISO guidelines, an RA resource must be available for a minimum of 4 hours of continuous operation. The quantity of RA provided is commonly measured in MW, and reflects a resources average ability to service demand over a 4-hour window
- **How are RA resources compensated?** RA resources are compensated via fixed stand-by payment, quoted in $/kW-month.
- **How large is Nexus project?** Nexus' project is sized at 10MW and provides 4-hours of duration.

NEXUS' PG&E RA Contract

In December 2020, NEXUS won a Resource Adequacy PG&E contract to build battery storage systems in California.

Nexus Renewables' energy storage assets will serve three primary goals under a 15-year power purchase agreement (PPA) with PG&E:

1. The provision of targeted local capacity and enhance grid reliability during peak periods.
2. The provision of regulation services to improve the effective load-carrying capacity from renewable resources that are otherwise intermittent (energy storage assets = fast-acting stabilization devices).
3. Facilitation of (i) bill savings, and (ii) resiliency benefits for certain commercial and industrial host sites through the implementation of behind-the-meter infrastructure.

Nexus' battery energy storage assets will assist the State of California achieve its targets of 60 percent renewable energy penetration by 2030 and 100 percent by 2050.

Project Overview

- Nexus and PG&E are treating this Battery energy storage/ Non-export project as a **Demand Resource Provider (DRP) rated at 10MW/ 40MWH.**

- This asset will function as a **Behind the Meter (BTM)** under the Resource Adequacy program within the PG&E territory.

- The storage resource will be registered as a **PDR (Proxy Demand Resource) with CAISO**

- Nexus is seeking QC via LIPs as a DR for RA as a **BTM service.**

- Nexus plans register the system in the following CAISO markets (i) Day-Ahead market (ii) Real – time market (iii) Ancillary services for **(a) Demand Charge Management (E20 Billing Tariff) (b) Resource Adequacy and (c) Energy Arbitrage**

- **IOU:** PGE, **Local Capacity Area**: Greater Bay Area, Solano County, Fairfield

Project Overview

- **Measurement hours:** 4PM to 9PM, Between on peak and part peak durations (When resources are needed most)
- **Monthly QC proposing for Aug 2023 :** 10MW
- **Expected Max load at the customer site:** 12.84MW
- **Max Load expected during 4 PM to 9 PM interval for AUGUST:** 12.84MW @ 16:45:00.
- **Max expected net load would be as part of the non-event baseline**: 11.2MW
- **On site load** is a Plastics manufacturing shop
- **Battery Commercial Operations (COD):** August 2023

Nexus Approach

- **Ex- Ante analysis:** The battery systems are deterministic, and the simulation considers the battery's ability to dispatch centered on baselines and building loads.

- **Forecasted Event performance:** Baseline data from non-event days is compared against event day data to estimate event performance using an internal forecasting tool that predict dispatch participation, timing, and at-the-meter load.

- **Proxy:** The past performance of integrator/operator's systems is presumed as a proxy for an ex- ante analysis. Since the load is different between peak and net peak, the QC will reflect DR capability at those times i.e., one value for peak and another for the net peak.

- **Operations:** At the premise level, Nexus operates and interacts based on real time needs

- **Weather data:** (1-in-10 and 1-in-2) using PG&E's database to understand the best-case deployment based on ambient temperature

Nexus Approach

- **Simulation:** Nexus considers the resource conditions of “energy in” and “energy out” for every hour in kwh.

- **RA Dispatch:** based on likelihood of load during relevant RA hours.

- **Statistical Analysis:** Within the 35,036 net load datapoints collected during the Peak and Part peak (summer + winter of 2020 and 2021), **92% (32,060 datapoints out of 35,037) are greater than 10MW.** This is used as a proxy for RA hours, filtering out holidays and weekends to increase average load.

Event History (Ex- Ante Analysis)

- **Simulation:** Nexus considers the resource conditions of “energy in” and “energy out” for every hour in kwh and defines results based on forecasted **events.**

- **Forecasted Events** are defined by a unique combination of date, utility, event types, start and end

- **Highest net load:** 11.198 MW for the on-peak hours and it’s a constant value specifically because it is a “net” load – the battery system is expected to keep it at that value by consistently discharging.

Nexus DCM Analysis (Ex-Ante Analysis)

Start Date Time	Season	TOU	Cost Demand	Cost Energy	DateOnly	TimeOnly	Usage kWh	Load kW	Initial SoC kWh	Inverter state	Inverter power kW	Resulting SoC kWh	Set point kW
2020.08.24 17:30:00	Summer	Peak	0	0.26896	2020-08-24	5:30:00 PM	2880.00	11520.00	39821.97	Discharge	-330.98	39739.23	11189.03
2020.08.24 17:45:00	Summer	Peak	0	0.26896	2020-08-24	5:45:00 PM	2889.00	11556.00	39739.23	Discharge	-366.98	39647.48	11189.03
2020.08.24 18:00:00	Summer	Peak	0	0.26896	2020-08-24	6:00:00 PM	2682.00	10728.00	39647.48	Charge	461.03	39762.74	11189.03
2020.08.24 18:15:00	Summer	Peak	0	0.26896	2020-08-24	6:15:00 PM	2718.00	10872.00	39762.74	Charge	317.03	39841.99	11189.03
2020.08.24 18:30:00	Summer	Peak	0	0.26896	2020-08-24	6:30:00 PM	2775.60	11102.40	39841.99	Charge	86.63	39863.65	11189.03
2020.08.24 18:45:00	Summer	Peak	0	0.26896	2020-08-24	6:45:00 PM	3000.60	12002.40	39863.65	Discharge	-813.38	39660.31	11189.03
2020.08.24 19:00:00	Summer	Peak	0	0.26896	2020-08-24	7:00:00 PM	2804.40	11217.60	39660.31	Discharge	-28.58	39653.16	11189.03
2020.08.24 19:15:00	Summer	Peak	0	0.26896	2020-08-24	7:15:00 PM	2831.40	11325.60	39653.16	Discharge	-136.58	39619.02	11189.03
2020.08.24 19:30:00	Summer	Peak	0	0.26896	2020-08-24	7:30:00 PM	3018.60	12074.40	39619.02	Discharge	-885.38	39397.68	11189.03
2020.08.24 19:45:00	Summer	Peak	0	0.26896	2020-08-24	7:45:00 PM	3034.80	12139.20	39397.68	Discharge	-950.18	39160.13	11189.03
2020.08.24 20:00:00	Summer	Peak	0	0.26896	2020-08-24	8:00:00 PM	2968.20	11872.80	39160.13	Discharge	-683.78	38989.19	11189.03
2020.08.24 20:15:00	Summer	Peak	0	0.26896	2020-08-24	8:15:00 PM	2901.60	11606.40	38989.19	Discharge	-417.38	38884.84	11189.03
2020.08.24 20:30:00	Summer	Peak	0	0.26896	2020-08-24	8:30:00 PM	2926.80	11707.20	38884.84	Discharge	-518.18	38755.30	11189.03
2020.08.24 20:45:00	Summer	Peak	0	0.26896	2020-08-24	8:45:00 PM	2934.00	11736.00	38755.30	Discharge	-546.98	38618.56	11189.03
2020.08.24 21:00:00	Summer	Part-Peak	0	0.15034	2020-08-24	9:00:00 PM	2998.80	11995.20	38618.56	Discharge	-806.18	38417.01	11189.03
2020.08.25 16:00:00	Summer	Peak	0	0.26896	2020-08-25	4:00:00 PM	3033.00	12132.00	37471.84	Discharge	-942.98	37236.10	11189.03
2020.08.25 16:15:00	Summer	Peak	0	0.26896	2020-08-25	4:15:00 PM	3078.00	**12312.00**	37236.10	Discharge	-1122.98	36955.36	11189.03
2020.08.25 16:30:00	Summer	Peak	0	0.26896	2020-08-25	4:30:00 PM	3198.60	**12794.40**	36955.36	Discharge	-1605.38	36554.01	11189.03
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2020.08.25 17:00:00	Summer	Peak	0	0.26896	2020-08-25	5:00:00 PM	2961.00	**11844.00**	36140.07	Discharge	-654.98	35976.33	11189.03
2020.08.25 17:15:00	Summer	Peak	0	0.26896	2020-08-25	5:15:00 PM	3002.40	**12009.60**	35976.33	Discharge	-820.58	35771.18	11189.03
2020.08.25 17:30:00	Summer	Peak	0	0.26896	2020-08-25	5:30:00 PM	3069.00	**12276.00**	35771.18	Discharge	-1086.98	35499.44	11189.03
2020.08.25 17:45:00	Summer	Peak	0	0.26896	2020-08-25	5:45:00 PM	3038.40	**12153.60**	35499.44	Discharge	-964.58	35258.29	11189.03

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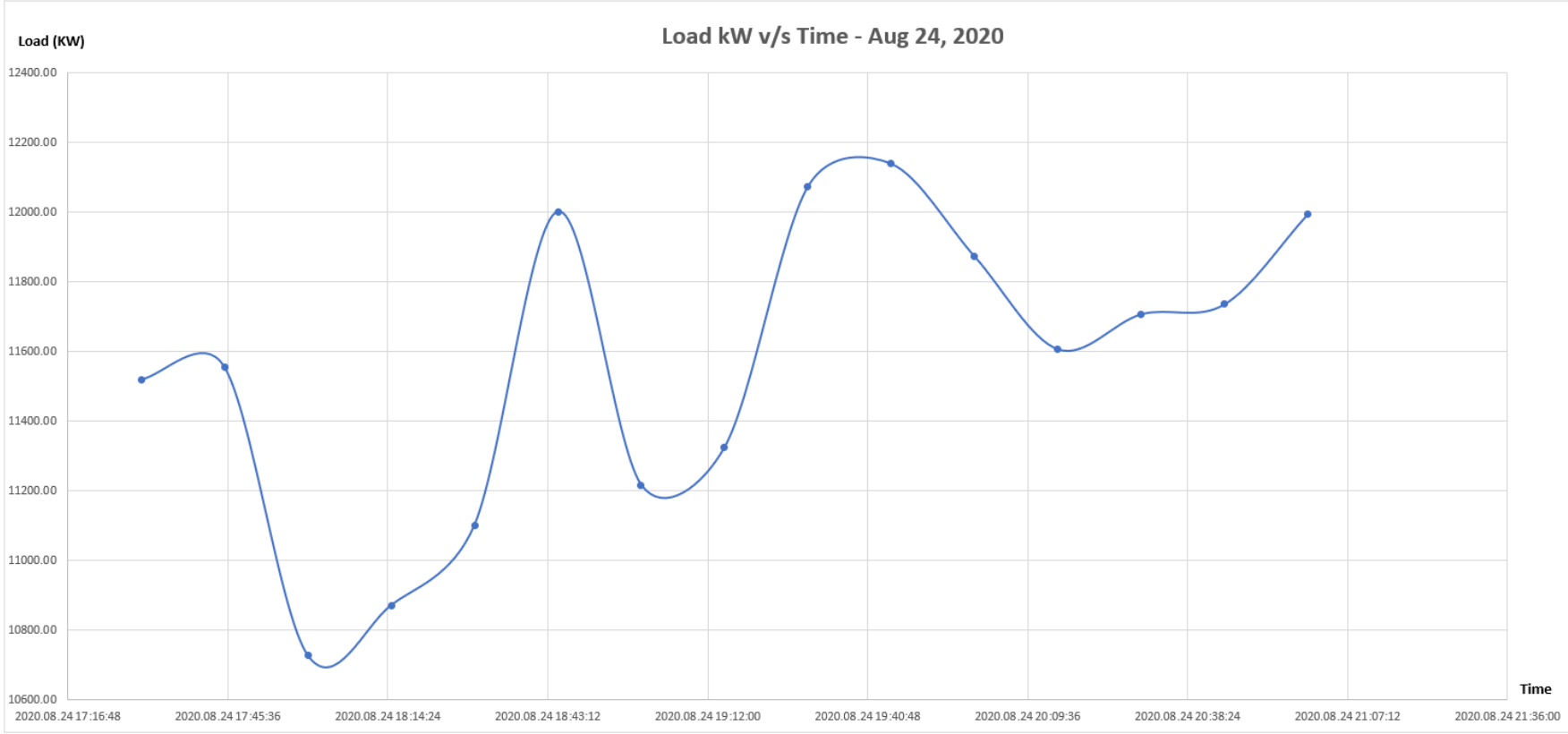

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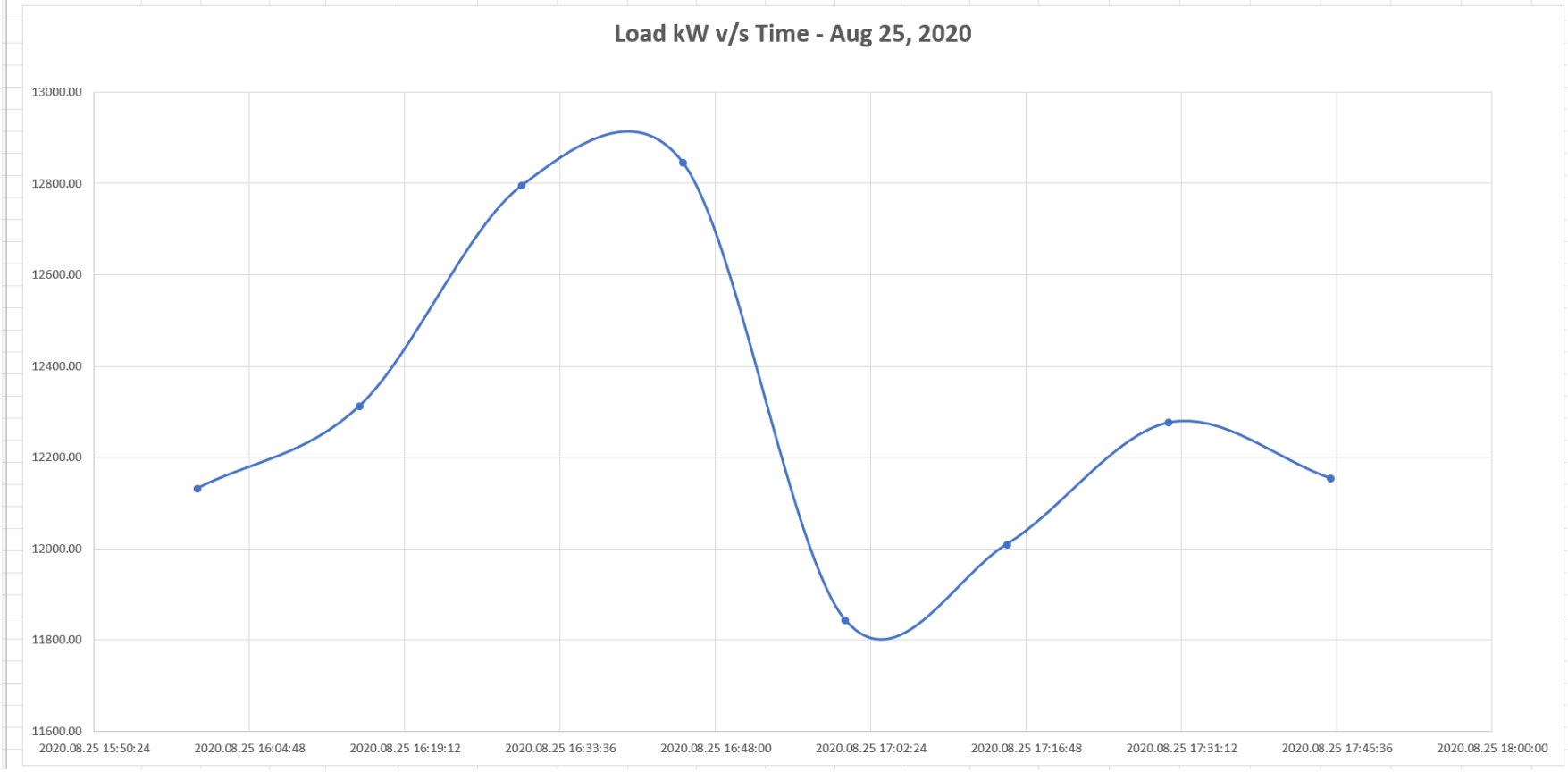


Market Participation

- Nexus plan to participates in the BIP (PGE) and DRAM (PGE)

- The **DRAM** is a pay-as-bid auction system for DR RA that allows sellers to bid directly into the CAISO day-ahead .

- The **BIP** is a day-of tariff-based program that provides load reductions when called upon by the CAISO. BIP participants receive 30 minutes of notification prior to events.

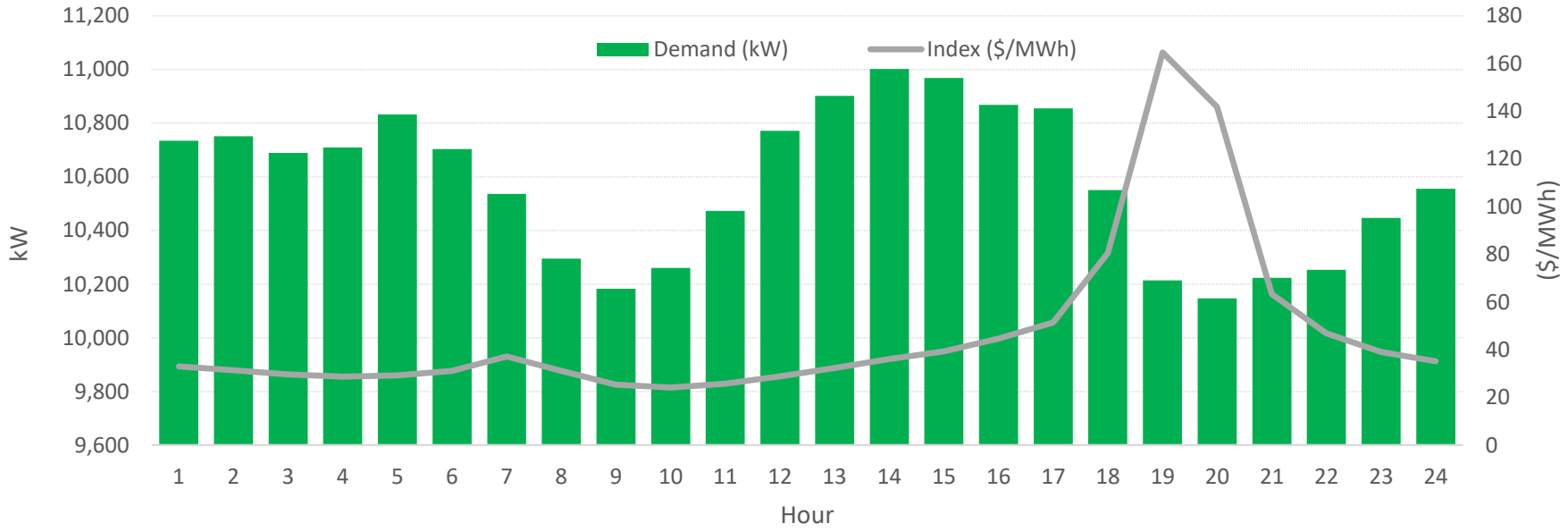
Dispatch Strategy

- **NEXUS will operate the Project to provide Behind-the-Meter Services.** These Services will result in (i) tangible benefits and, (ii) intangible benefits. Net tangible benefits will be realized as follows:

Activity	Season	Description
(+) Energy Arbitrage	Summer	NEXUS will discharge during high-cost hours in August and September, taking care to avoid discharging against the fixed-price hedge, and looking to recharge as much as possible during lower-cost On-Peak hours to minimize BIP impact.
(+) Demand Charge Management	Winter	Outside of EA months, NEXUS will reduce peak demand by ~1.5MW and associated demand charges from PG&E and Shell, while limiting impact on BIP through a lengthy, low-power discharge strategy.
(+) Power Factor Correction	Annual	NEXUS' battery provides Power Factor correction, thereby removing any such Adjustment from Host site's utility bill.
(-) BIP Impact	Annual	By charging during On-Peak summer hours and limiting winter operation as described above, NEXUS is able to provide a net positive bill impact every month.

Energy Arbitrage

- In August and September energy prices surpass $160/MWH most evenings and remain below $40/MWH the rest of the time. The Nexus battery will discharge during high-cost periods and recharge during lower cost periods.
- Because this concentrated On-Peak discharge would have an adverse effect on the Host site's PLR, Nexus will prioritize any charging opportunity during the On-Peak period. Whereas prices spike to $160+, the On-Peak TOU typically features a couple of hours near the lowest rates for the day; these will be prime opportunities to recharge at an advantageous price differential while increasing the Host site's BIP baseline and improving the PLR.
- This dispatch strategy should yield discharges of 13MWH concentrated around the two highest-cost hours, on every applicable day, at a price differential of approximately $125/MWH. At that rate, it should be possible to generate EA savings while reducing BIP credits

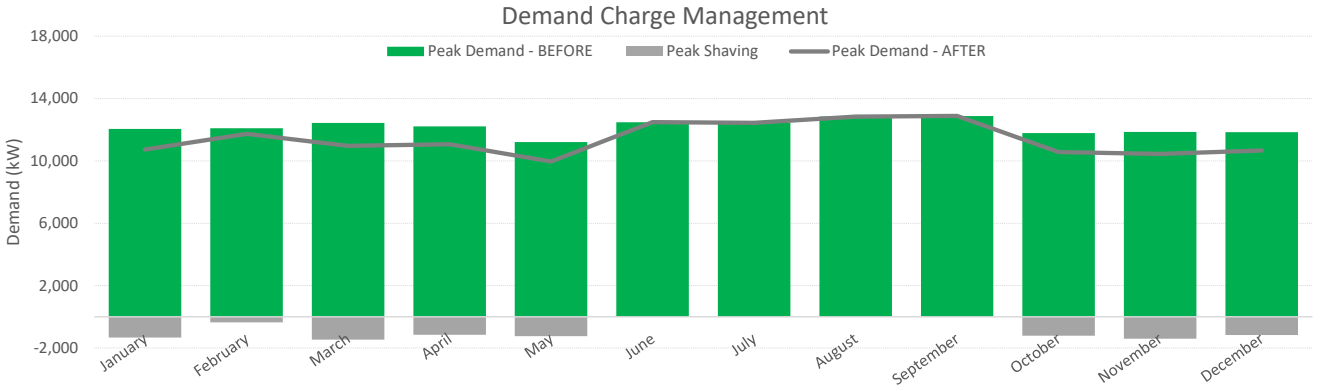


Demand Charge Management

- With no incentive to reduce on-peak load in any season, our demand charge management strategy is limited to the all-hours Winter & Summer Demand TOUs. While this provides lower savings than an approach focused on On-Peak reduction, the detrimental impact on the BIP baseline is greatly mitigated.

- Each month, our trading desk identifies the so-called “set point (kW)” that optimizes the value provided by a battery of this specific size, for your particular load. Because the Host site load changes, that set point also varies on a monthly basis. Each month, the system will discharge whenever the Host site load rises above that set point, and recharge when the load drops below the set point.

- In order to estimate potential savings, we’ve applied our DCM assumptions to your last year of historical load data, modeling exactly what our battery system would do throughout the entire year, 15-minutes at a time.



Demand Charge Management – January Example

- Using January as an example (middle of the road in terms of winter DCM performance expected) we anticipate being able to maintain the Host site's load at 10,723kW, down from a peak of 12,053kW.
- In this particular January example, successfully reducing the load by 1330kW requires system discharges in (748) 15-minute intervals, for a total of nearly 82MWH discharged. Necessarily, most of this isn't continuous; likely alternating charges and discharges as the Host site's load fluctuates around the monthly set point.
- In addition to the forecast detailed above, Nexus has identified an opportunity to further mitigate the detrimental impact to the BIP PLR: the baseline is set by consumption during on-peak hours only, which provide no particular DCM benefit to the Host site due to your flat demand rates. Accordingly, we will endeavor to recharge the battery as aggressively as possible during those hours (without increasing max demand), to increase the Host site's PLR.

Start Date Time	Initial SoC	Demand	Usage	Inverter state	Inverter power	Throughput	Utility Load	Resulting SoC
1/14/2021 19:00	32000	9907.2	2476.8	Idle	0	0	9907.2	32000
1/14/2021 19:15	32000	10144.8	2536.2	Idle	0	0	10144.8	32000
1/14/2021 19:30	32000	10094.4	2523.6	Idle	0	0	10094.4	32000
1/14/2021 19:45	32000	10922.4	2730.6	Discharge	-199.4	-49.85	10723	31950.15
1/14/2021 20:00	31950.15	11109.6	2777.4	Discharge	-386.6	-96.65	10723	31853.5
1/14/2021 20:15	31853.5	11354.4	2838.6	Discharge	-631.4	-157.85	10723	31695.65
1/14/2021 20:30	31695.65	11116.8	2779.2	Discharge	-393.8	-98.45	10723	31597.2
1/14/2021 20:45	31597.2	10612.8	2653.2	Charge	110.2	27.55	10723	31624.75
1/14/2021 21:00	31624.75	10821.6	2705.4	Discharge	-98.6	-24.65	10723	31600.1
1/14/2021 21:15	31600.1	11275.2	2818.8	Discharge	-552.2	-138.05	10723	31462.05
1/14/2021 21:30	31462.05	10807.2	2701.8	Discharge	-84.2	-21.05	10723	31441
1/14/2021 21:45	31441	10497.6	2624.4	Charge	225.4	56.35	10723	31497.35
1/14/2021 22:00	31497.35	10656	2664	Charge	67	16.75	10723	31514.1
1/14/2021 22:15	31514.1	11383.2	2845.8	Discharge	-660.2	-165.05	10723	31349.05

COVID Adjustment

- **COVID Adjustment** has not been factored into the analysis.
- Apply a 120% scaling factor to typical annual gross load.

www.nexusrenewables.ca