

ABC Engineering Proposal

Solar PV Assessment and Proposal

Prepared for:

ABC Engineering
123 Fake Street, Fakeville QLD
4000, Australia

Prepared by:

Insert Company
Details Here



Proposal for ABC Engineering – 123 Fake Street, Fakeville QLD 4000, Australia

In an ever-evolving business landscape, unique energy requirements deserve tailored solutions. We take immense pride in crafting bespoke renewable energy solutions that precisely align with your business needs.

As energy costs continue to rise, coupled with the growing emphasis on environmental stewardship, the significance of sustainable alternatives becomes paramount. The integration of a solar energy system stands as a financially astute and ecologically conscious choice, allowing you to reduce both your carbon footprint and energy expenditure.

As an accredited authority in deploying the most esteemed solar solutions across Australia, we'll detail our journey to not only discover the ideal solution tailored to your distinctive needs and aspirations but also to unravel the rationale behind this choice.

Our approach involves an exhaustive analysis encompassing countless system variations. Through our detailed analysis and comparison, we've pinpointed the optimal solution best suited to your requirements.

Throughout the following pages, you will find a comprehensive exposition of the recommended technologies and their corresponding attributes, engineered precisely for **123 Fake Street, Fakeville QLD 4000, Australia** (NMI 12345678). We delve into the anticipated energy savings, providing insights into system performance that underpin the foundation of our proposal. Financial advantages are broken down in detail, and we explain the intricate mechanisms orchestrating these benefits.

We are deeply appreciative of the encouragement and enthusiasm you've extended to date. Your endorsement fuels our passion, and we eagerly anticipate embarking on this transformative journey towards a renewable energy future with you.

Kind Regards,

Insert Company Details Here

Project Summary

Reference: #2843533

ABC Engineering
123 Fake Street, Fakeville QLD 4000, Australia (NMI
4001281959)

Proposed Solution

506.2 kWp / 380.0 kW Solar
This proposed solar solution offers the below
est. key metrics:

Energy Independence:
35.4%

First Year Earnings:
\$194,732

Net Upfront Costs:
-\$759,330

Net Present Value:
\$2,344,573

Independent Rate of Return:
29.1%

Simple payback period:
4 years



Your cutting-edge solar system will offset a **remarkable 442.4** tonnes of CO2 emissions per year – a feat equivalently impactful as **1,017.5** unburned barrels of oil and growing **7,299.2** tree seedlings for 10 years.

System and Performance

Solar

We've specified this Solar PV system as the leading system size for **123 Fake Street, Fakeville QLD 4000, Australia** to seamlessly achieve your business objectives.

Based on the system size and location, your Solar PV is expected to generate **726,876 kWh** per year.

Whilst the monthly generation figures fluctuate in line with seasonality, the system generation will offset your site load by an est. **553,321 kWh** per year.

Solar Size

506.2
kWp

Inverter Size

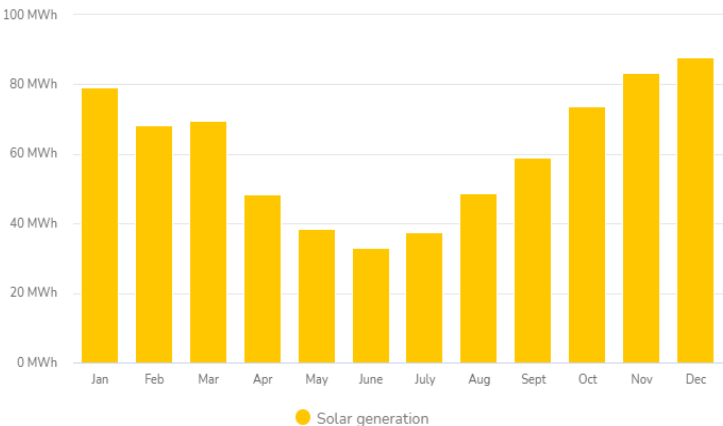
380.0 kW

Annual Generation

726,876
kWh

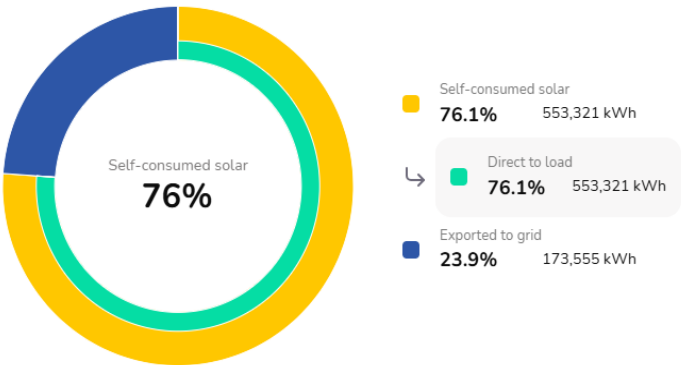
Solar generation

MWh (excl. existing PV generation), year 1 (Jan 25 to Dec 25)



Solar PV consumption

By activity, year 1 (Jan 25 to Dec 25)



System Assumptions: ABC Engineering solar, 0.4% PV Module degradation PA

Consumption and Energy Flows

Energy Flows

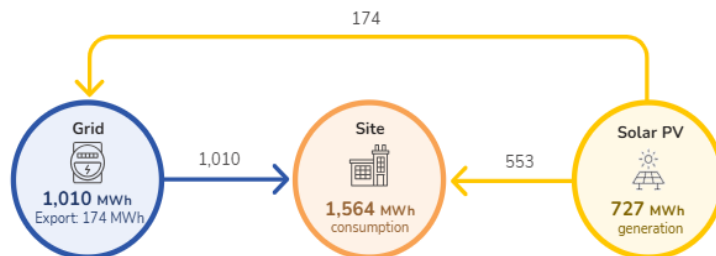
From your solar solution, in the first year we estimate:

- **553,321 kWh** to flow from solar to your site
- **173,555 kWh** to flow from solar to the grid

This leaves only **1,010,201 kWh** of energy consumed by the site from the grid.

Annual energy flow

MWh per annum, year 1 (Jan 25 to Dec 25)



Key Metrics

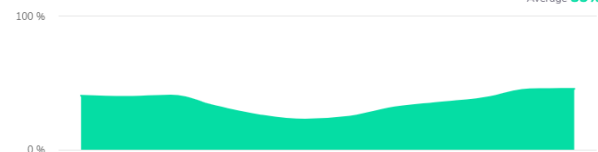
By proceeding with the proposed solution, you're on track to **achieve 35.4%** energy independence in your first year, with **76.1%** solar utilisation.

Energy Metrics

Average monthly metrics, year 1 (Jan 25 to Dec 25)

Energy independence

Average **35%**



Solar utilisation

Average **76%**



Consumption and Energy Flows

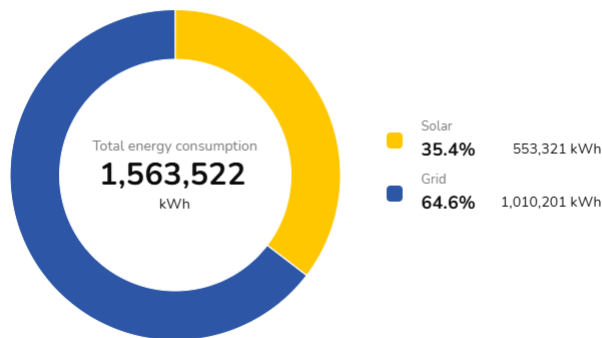
Site Energy Consumption

Currently your site is consuming **1,563,842 kWh** per year, with 100% of this coming from the grid. With our proposed solution, your site energy consumption breakdown will be the following:

Consumption from solar	553,321 kWh	35.4%
Consumption from grid	1,010,201 kWh	64.6%

Site energy consumption

By source of supply, year 1 (Jan 25 to Dec 25)

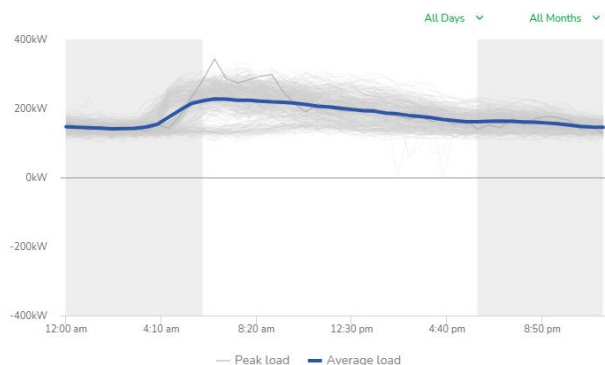


Solar not only helps reduce energy consumption, but it can also aid in demand reduction, providing the potential for significant savings on network tariff demand charges.

Below is a view of your site's daily demand profile before (left) and after (right) installation:

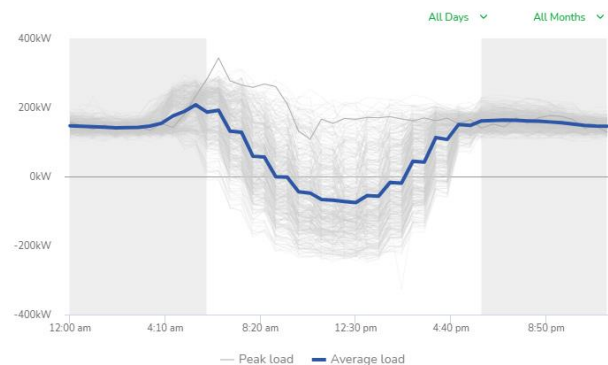
Daily load profile

Net load profile, by day (kW), year 1 (Jan 25 to Dec 25)



Daily load profile

Net load profile, by day (kW), year 1 (Jan 25 to Dec 25)



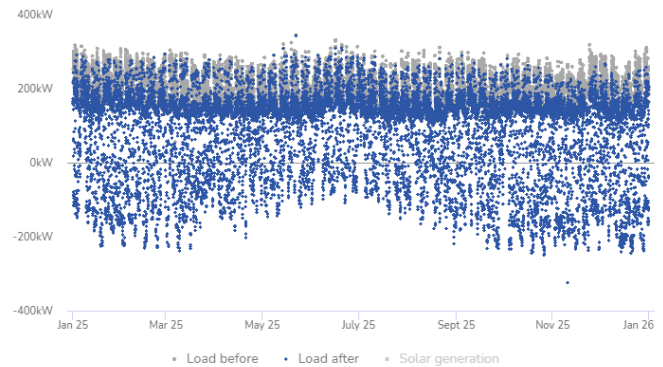
Consumption and Energy Flows

Site Energy Consumption

Following the daily load profile view on the previous page, this is the view of your site's demand profile before and after installation on an interval-by-interval basis over the course of a year.

Annual load profile

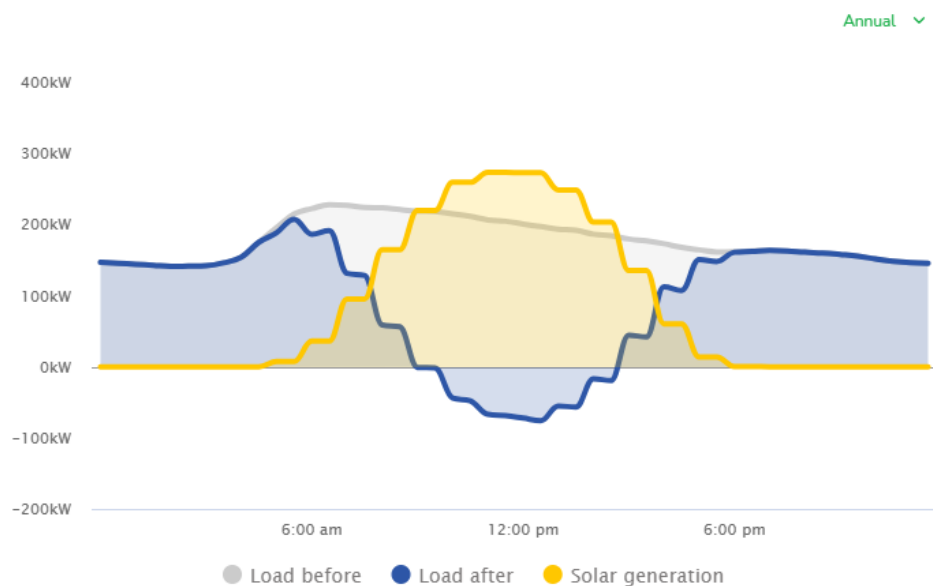
Various data for all intervals, year 1 (Jan 25 to Dec 25)



How your solar works

Daily energy activity

Annual and monthly averages year 1 (Jan 25 to Dec 25)



We can see the impact the solar system will have on your average daily load clearly – at 6am, the solar kicks in reduces the site consumption to below 0.

Financial Benefits and Cashflow

Based on the current annual electricity spend, the proposed solution offers significant savings and earnings potential over the project lifetime.

Invoice Comparison

Below is a comparison of your current annual energy spend vs expected first year spend after the project is commissioned, and a breakdown of the savings on a line-item basis.

Bill calculations All prices in nominal terms.

Before

Year 1	Quantity	Unit	Tariff*	Unit	MLF	DLF	Charges
Retail							\$180,087
Metering Charge	365	days	2.35	\$/day			\$858
Supplementary Metering Charge	365	days	81.967	c/day			\$299
Service Charge	365	days	40.001	\$/mth			\$479
AEMO FRC Operations	365	days	3.066	c/day			\$11
Peak	133,729	kWh	11.914	c/kWh	1.009	1.059	\$17,027
Shoulder	654,189	kWh	11.914	c/kWh	1.009	1.059	\$83,296
Off Peak	775,604	kWh	9.424	c/kWh	1.009	1.059	\$78,116
Network							\$140,950
Network	365	days	19.181	\$/day			\$7,001
Peak	213 x 12	kVA x mth	11.068	\$/kVA/mth			\$28,178
Shoulder	314 x 12	kVA x mth	10.014	\$/kVA/mth			\$37,670
Off Peak	302 x 12	kVA x mth	2.624	\$/kVA/mth			\$9,477
Peak	133,729	kWh	5.489	c/kWh			\$7,341
Shoulder	654,189	kWh	4.419	c/kWh			\$28,906
Off Peak	775,604	kWh	2.885	c/kWh			\$22,376
Other Usage Charges							\$197,492
AEMO Participant Charge	1,563,522	kWh	0.05	c/kWh		1.059	\$828
AEMO Ancillary Charge	1,563,522	kWh	0.025	c/kWh		1.059	\$414

Bill calculations All prices in nominal terms.

Savings

Year 1	Quantity Unit	Tariff* Unit	MLF	DLF	Charges
Retail					\$136,321
Usage Components					\$69,891
Volume Components					\$66,430
Network					\$29,274
Volume Components					\$22,169
Demand Components					\$7,106
Other Income					\$29,136
LGCs					\$29,136
Total excl. GST					\$194,732

Bill calculations All prices in nominal terms.

After

Year 1	Quantity	Unit	Tariff*	Unit	MLF	DLF	Charges
Retail							\$113,657
Metering Charge	365	days	2.35	\$/day			\$958
Supplementary Metering Charge	365	days	81.967	c/day			\$299
Service Charge	365	days	40.001	\$/mth			\$47
AEMO FRC Operations	365	days	3.066	c/day			\$11
Peak	130,164	kWh	11.914	c/kWh	1.009	1.059	\$16,573
Shoulder	255,618	kWh	11.914	c/kWh	1.009	1.059	\$32,547
Off Peak	624,419	kWh	9.424	c/kWh	1.009	1.059	\$62,889
Network							\$111,676
Network	365	days	19.181	\$/day			\$7,001
Peak	212 x 12	kVA x mth	11.068	\$/kVA/mth			\$28,006
Shoulder	259 x 12	kVA x mth	10.014	\$/kVA/mth			\$31,044
Off Peak	292 x 12	kVA x mth	2.624	\$/kVA/mth			\$9,170
Peak	130,164	kWh	5.489	c/kWh			\$7,145
Shoulder	255,618	kWh	4.419	c/kWh			\$11,295
Off Peak	624,419	kWh	2.885	c/kWh			\$18,014
Other Usage Charges							\$127,601
AEMO Participant Charge	1,010,201	kWh	0.05	c/kWh		1.059	\$535
AEMO Ancillary Charge	1,010,201	kWh	0.025	c/kWh		1.059	\$268
PRC Charge	1,010,201	kWh	0.061	c/kWh		1.059	\$653
ESC Charge	1,010,201	kWh	3.537	c/kWh		1.059	\$37,853
SREC Charge	1,010,201	kWh	4.00	c/kWh		1.059	\$42,808
LREC Charge	1,010,201	kWh	4.25	c/kWh		1.059	\$45,484
Other Income							-\$29,136
LGCs							-\$29,136
Total excl. GST							\$323,797

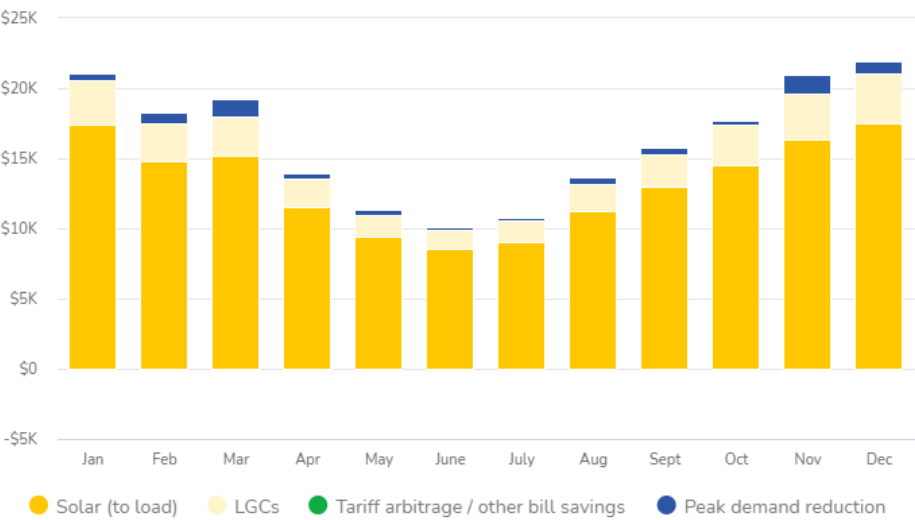
Financial Benefits and Cashflow

Solution Earning

The proposed solution offers a potential first year earnings of **\$194,732**. Below is how this is expected to flow in on month-by-month basis throughout the first year:

Earnings

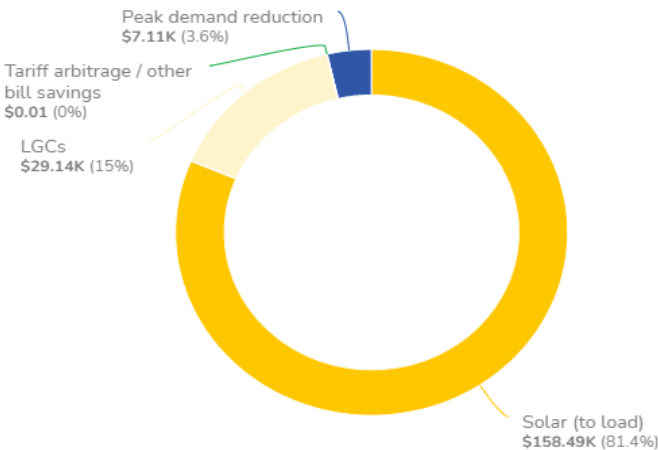
Earnings by value stream, year 1 (Jan 25 to Dec 25)



\$7,106	\$158,490	\$0	\$0	\$29,136
Peak demand	Solar to load	Solar exports	Tariff arb. & other bill savings	LGCs

Earnings breakdown

Earnings attributed to specific value stream, year 1 (Jan 25 to Dec 25)



Financial Benefits and Cashflow

Upfront Costs

The upfront costs for the proposed solution come to **-\$759,330**, ex GST, providing a simple payback period of **4** years.

Upfront costs

Summary of costs at time of commissioning (month 0)



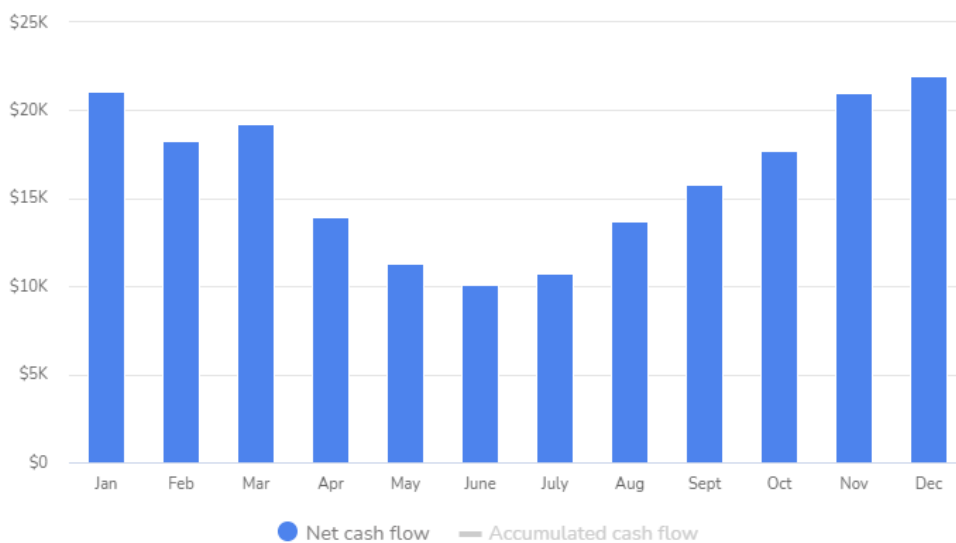
Financial Benefits and Cashflow

Cashflow

With an outright purchase option, you could expect to see the below cashflow over the first year and the **25** year project lifetime.

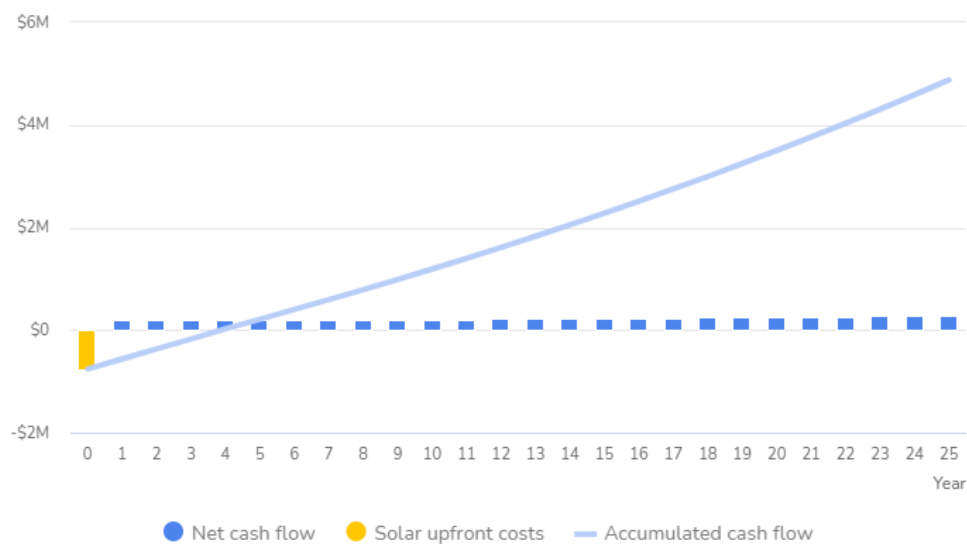
Cashflow

Net & accumulated cashflows (nominal \$), year 1 (Jan 25 to Dec 25)



Cashflow

Net & accumulated cashflows (nominal \$), all years

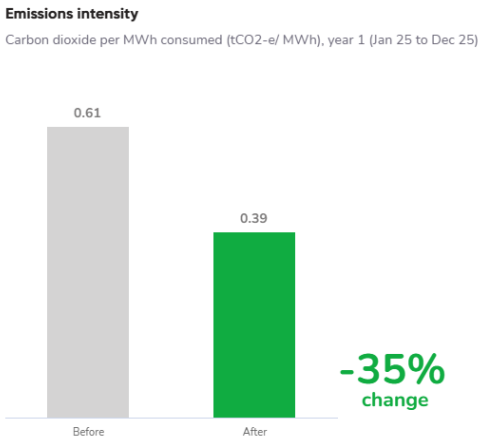


Environmental Impacts

Emissions Intensity

Currently, we estimate **0.6 tCO₂-e/MWh** are consumed at **ABC Engineering** each year.

With our proposed solution, this is expected to reduce to **0.4 tCO₂-e/MWh** per year.



Emissions Reduction

This high-level overview demonstrates the impact the proposed solution will have on carbon emissions reduction including emissions reduction from grid exports.

Carbon emissions reduction
Various metrics, year 1 (Jan 25 to Dec 25)

Include emissions reduction from exports ☒

- 35%** reduction in carbon emissions
- 336.8t** tCO₂-e avoided per annum
- 774.5** barrels of oil unburned (CO₂ equivalent)
- 5,556.4** tree seedlings grown for 10 years

	Including grid exports	Excluding grid exports
Reduction in carbon emissions	46.5%	35.4%
Tonnes of CO2 avoided per year	442.4	336.8
Barrels of unburned oil	1,017.5	774.5
Tree seedlings grown	7,299.2	5,556.4

Analysis Insights

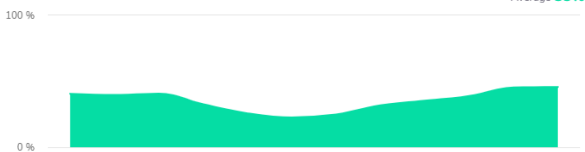
First Year vs Lifetime

Below is breakdown of our analysis results, comparing the project first year figures to the project lifetime figures.

Energy Metrics

Average monthly metrics, year 1 (Jan 25 to Dec 25)

Energy independence

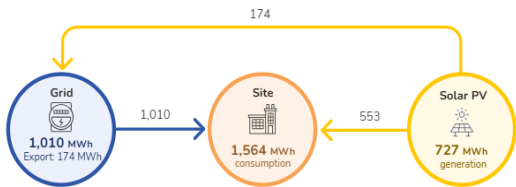


Solar utilisation



Annual energy flow

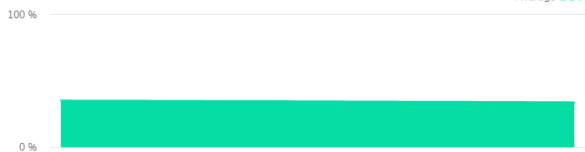
MWh per annum, year 1 (Jan 25 to Dec 25)



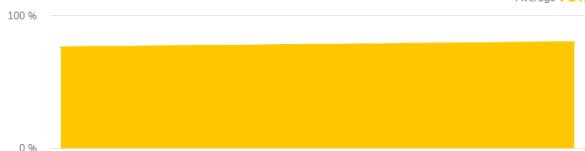
Energy Metrics

All years

Energy independence

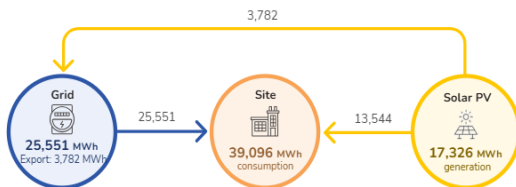


Solar utilisation



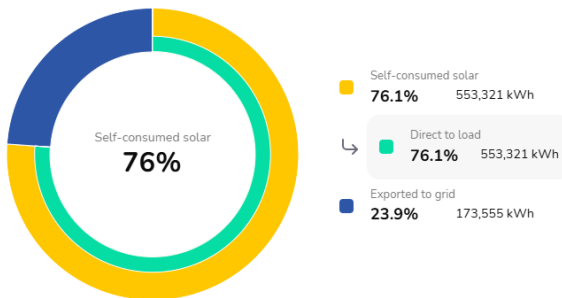
Annual energy flow

MWh over project lifetime, all years



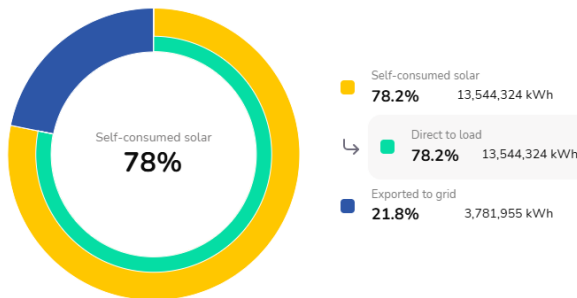
Solar PV consumption

By activity, year 1 (Jan 25 to Dec 25)



Solar PV consumption

By activity, all years



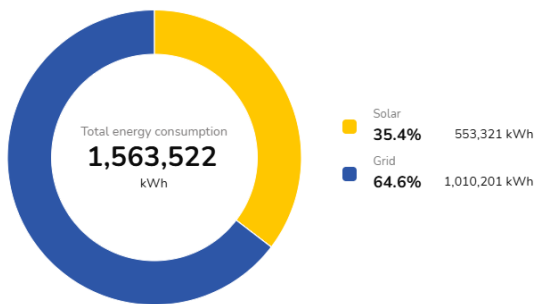
Analysis Insights

First Year vs Lifetime

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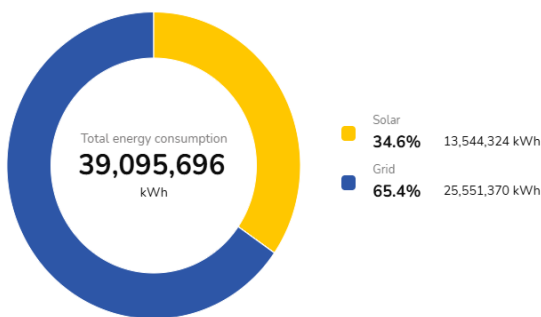
Site energy consumption

By source of supply, year 1 (Jan 25 to Dec 25)



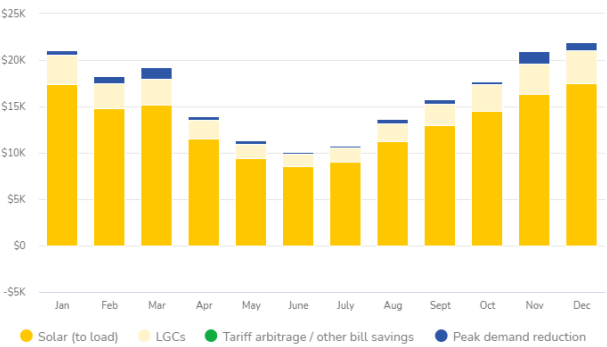
Site energy consumption

By source of supply, all years



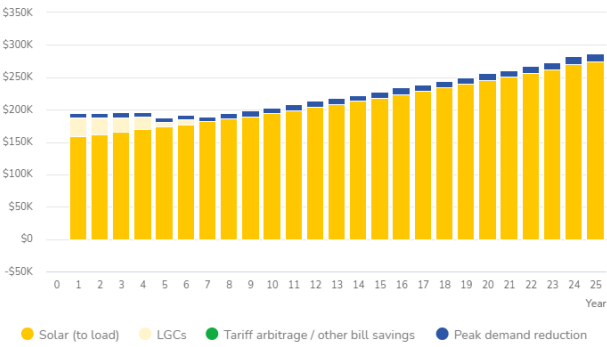
Earnings

Earnings by value stream, year 1 (Jan 25 to Dec 25)



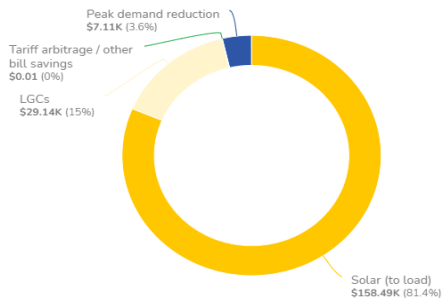
Earnings

Earnings by value stream, all years



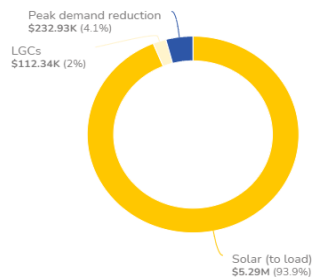
Earnings breakdown

Earnings attributed to specific value stream, year 1 (Jan 25 to Dec 25)



Earnings breakdown

Earnings attributed to specific value stream, all years



Negative earnings omitted for display purposes
Tariff arbitrage / other bill savings: -\$0.24