Adding Solar Panel & Battery Scenarios

SAMPLE (EXISTING SOLAR)

123 SAMPLE STREET, BALLARAT VIC 3350

NMI: SAMPLE

2024-02-23

Report: Adding Solar Panel & Battery Scenarios

How to Understand this Report

Understanding the Benefits of Adding Batteries

Adding a Battery to a Grid-Connect Solar Power System can produce:

1. **Economic Benefits:** By using more of the Solar Energy produced by your system within the premises, particularly in the Evening, Overnight or Early Morning (when Solar Generation is less than Demand or zero), Mains Import is further reduced beyond the amount reduced by using Energy directly from the Solar Panels. Solar Industry jargon often describes this as "Increasing Self-Consumption". And it generally results in lower ongoing electricity bills because Earnings from Export per kWh is generally lower than Savings from Avoiding Mains Import. But note that charging a Battery for later use, does reduce Earnings from Export - so that needs to be taken into account. And the additional Savings (ie. the amount by which ongoing electricity bills are reduced) might not actually repay the initial cost of the Battery during its Warranty Period nor even its Working Life (before it requires replacement).
2. **Backup (during a Mains Grid Outage):** Most (but NOT ALL) Battery Systems offer at least some Backup. However, some do not offer any (for Technical or Regulatory Reasons) and some can only backup a limited number of the Circuits / Appliances on site. And it can be necessary to divide the Circuits coming off the Main Switchboard into "Essential Loads" (which are backed-up) and "Non-Essential Loads" (which are NOT backed-up) . When considering whether Battery Backup will do what is desired, a number of questions need to be answered:
    - Does the Battery Inverter have the Power (kW) to support/start all appliances (without overloading) ? (Pumps, Motors & Air-Conditioners) typically draw a lot of Power (kW) when starting up.
    - How Long will Backup last ? The Larger the Battery (and the more Energy (kWh) kept in reserve) the longer Backup will last.
    - Is the Capacity of the Solar PV Panels (kW) enough to charge the Battery adequately ?.
    - If it is not possible to backup the entire site, which appliances will be "Essential Loads" and which "Non-Essential Loads" .

Information Used to Prepare This Report

Site Information:

- **Street Address:** 123 SAMPLE STREET, BALLARAT VIC 3350
- **Mains Connection Details:**
  - **NMI:** SAMPLE
  - **Main Meter:** SAMPLE
  - **Main Meter Register:** E1
  - **Number of Phases:** 1

Pre-Existing Solar PV System:

- 1.54 kW of Solar PV Panels
- 1.5 kW of (Total) Solar Inverter AC Output
- 1 of 1 Mains Phases supplied by Solar Inverter(s)
- 0 kWh Battery Capacity
- 1.5 kW Export Limit

Data Sources:

- **Data Source:** NEM Format Data from your Revenue Smart Meter
- **Data Series from this Source:** E1,B1
- **Data File Name:** SAMPLE_POWERCOR_VECFORMAT.csv

Data Quality:

A Full Year of Actual Revenue Smart Meter Data is available; No Estimations have been made to fill out a Full Model Year. Actual Solar Yield Data from Existing Solar System is *NOT* available; Solar Yield has been estimated using a Data for Typical Performance at this Location. But Solar Export Data is available from the Revenue Smart Meter and has been used.

Mains Electricity Prices:

- **Electricity Retailer:** Sample Retailer
- **Tariff Plan:** Single Rate
- **Supply Charge [$ per Day]:** $ 1.40
- **Mains Import Flat Rate (E1) [$ per kWh]:** $ 0.34
- **Solar Export [$ per kWh]:** $ 0.05
- **Retailer Discount [% for Per kWh Portion]:** 0 %

Acceptable Budget & Payback Period:

- **Budget:** Not Specified
- **Payback Period (Simple):** Not Specified

Comparison of Actual & Modelled Demand Scenarios

How to Interpret the Following Section ...

How Additional Modelled Demand would Increase Mains Import

The following section shows the Sum Total of your Actual Demand for Electricity on the Main/Solar Circuits (as recorded in "NEM" Data from your Revenue Smart Meter on Import Register (E1)) plus Modelled Demand Scenarios as follows:

- Existing Current

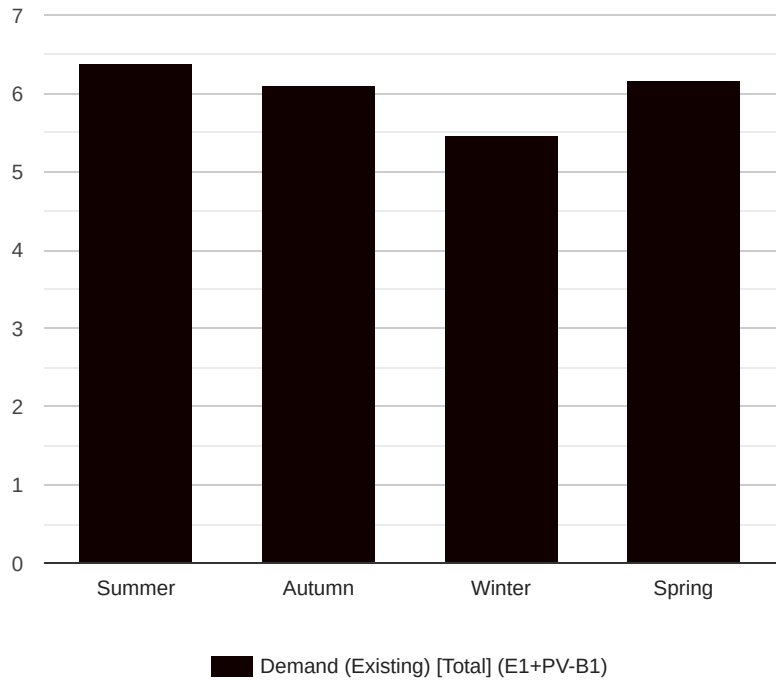
The value shown for the "Import (E1)" Register is the Sum Total of your Actual Demand for Electricity on the Main/Solar Circuits plus the Additional Modelled Demand. In other words, the Amount [kWh] that ***would*** be imported ***if*** the Demand was the Sum Total of your Actual Demand for Electricity on the Main/Solar Circuits plus the Additional Modelled Demand.

The value shown for the "Export (B1)" Register is the Actual Amount [kWh] recorded in your Smart Meter Data minus any Additional Solar Generation that ***would*** be used to meet Demand onsite ***if*** the Demand was the Sum Total of your Actual Demand for Electricity on the Main/Solar Circuits plus the Additional Modelled Demand.

Existing Current

Demand (Existing) [kWh]

Average per Day per Season



	Demand (Existing) [Total] (E1+PV-B1)
Summer	6.39
Autumn	6.11
Winter	5.46
Spring	6.17

Indication of Where Solar PV Generation will Flow To [kWh]

How to Interpret the Following Section ...

The tables on the following pages show the Indicative Annual Energy Flows from the Solar Power System expected for each Action Scenario (Adding PV Panels & Adding Battery) when compared to the Current Situation (including the Existing Solar & Battery System).

Key to Data Series in Energy Flows from Solar Tables

1. **SOLAR YIELD IN TOTAL:** The Total Annual Yield/Generation of the Solar Power System. This is the Sum of "Solar Self-Use Directly" plus "Solar Self-Use via Battery" plus "Solar Export". Note that might be less than the "SOLAR RESOURCE IN TOTAL" and is the "SOLAR RESOURCE IN TOTAL" minus "Solar Not Converted".
2. **Solar Potential Not Converted:** A Solar Inverter can only convert the Electrical Potention of the Solar PV Panels and push the Energy into the Switchboard if there is somewhere for the Electrical to flow to. In an On-Grid/Grid-Connect System, if there is less Demand onsite that the Solar is producing, and any Battery (if applicable) is fully charged, then Excess Solar Generation flows back to the Mains Grid. However, there may be an Export-Limit in place due to Mains Grid Operator (DNSP) Pre-Approval Conditions or Under-sized Cables onsite causing Excessive Voltage Rise.If the Export-Limit is less than the Potential Excess Solar Yield, the Inverter is not permitted to convert the Potential. In an Off-Grid/Standalone System, there is No Mains Grid, so the "Export Limit" is effectively always Zero. It might be possible to make use of this Unused Solar Potential by changing the Energy Demand Profile to use More Electricity during Daylight Hours - eg. putting Appliances like Washing Machines, Dishwashers or Hot Water Services on Timers ...
3. **Savings Export:** Solar Generation that is cannot be used onsite, and so flows back to the Mains Grid, because there is No Demand either to run Appliances or to Charge a Battery (which, if applicable, might be Fully-Charge).
4. **Solar Self-Use via Battery:** Solar Generation that is first used to charge a battery and later used to supply the Loads/Demand.
5. **Savings from Solar used Directly:** Solar Generation that is used to directly from the Solar PV Panels at the time it is being generated.
6. **SOLAR RESOURCE IN TOTAL:** The Total Annual Yield/Generation that the Solar Power System could produce if there was always somewhere for the Energy to flow to - ie. always Demand from Appliances, a Battery to charge or Unlimited Export to the Mains Grid.

Indication of Where Solar PV Generation will Flow To [kWh]

	SOLAR YIELD IN TOTAL	Solar Potential Not Converted	Solar Export	Solar Self-Use via Battery	Solar Self-Use Directly	SOLAR RESOURCE IN TOTAL
Keep Existing Solar PV Panels. Add 10.0 kW of Panels {House_WNW_12P, House_ESE_12P} Add 10.0 kWh of Batteries (90% Use, 10% Backup)	**13,338 kWh (93 %)**	1,068 kWh (7 %)	11,138 kWh (77 %)	627 kWh (4 %)	1,573 kWh (11 %)	**14,406 kWh (100 %)**
Keep Existing Solar PV Panels. Add 10.0 kW of Panels {House_WNW_12P, House_ESE_12P} Add 5.0 kWh of Batteries (90% Use, 10% Backup)	**13,338 kWh (93 %)**	1,068 kWh (7 %)	11,140 kWh (77 %)	625 kWh (4 %)	1,573 kWh (11 %)	**14,406 kWh (100 %)**
Keep Existing Solar PV Panels. Add 10.0 kW of Panels {House_WNW_12P, House_ESE_12P} Add 0.0 kWh of Batteries	**13,338 kWh (93 %)**	1,068 kWh (7 %)	11,765 kWh (82 %)	0 kWh (0 %)	1,573 kWh (11 %)	**14,406 kWh (100 %)**
Keep Existing Solar PV Panels. Add 5.0 kW of Panels {House_ESE_12P} Add 10.0 kWh of Batteries (90% Use, 10% Backup)	**8,389 kWh (100 %)**	0 kWh (0 %)	6,189 kWh (74 %)	642 kWh (8 %)	1,558 kWh (19 %)	**8,389 kWh (100 %)**
Keep Existing Solar PV Panels. Add 5.0 kW of Panels {House_ESE_12P} Add 5.0 kWh of Batteries (90% Use, 10% Backup)	**8,389 kWh (100 %)**	0 kWh (0 %)	6,191 kWh (74 %)	640 kWh (8 %)	1,558 kWh (19 %)	**8,389 kWh (100 %)**
Keep Existing Solar PV Panels. Add 5.0 kW of Panels {House_WNW_12P} Add 10.0 kWh of Batteries (90% Use, 10% Backup)	**8,292 kWh (100 %)**	1 kWh (0 %)	6,092 kWh (73 %)	667 kWh (8 %)	1,534 kWh (18 %)	**8,294 kWh (100 %)**
Keep Existing Solar PV Panels. Add 5.0 kW of Panels {House_WNW_12P} Add 5.0 kWh of Batteries (90% Use, 10% Backup)	**8,292 kWh (100 %)**	1 kWh (0 %)	6,095 kWh (73 %)	664 kWh (8 %)	1,534 kWh (18 %)	**8,294 kWh (100 %)**
Keep Existing Solar PV Panels. Add 5.0 kW of Panels {House_ESE_12P} Add 0.0 kWh of Batteries	**8,389 kWh (100 %)**	0 kWh (0 %)	6,831 kWh (81 %)	0 kWh (0 %)	1,558 kWh (19 %)	**8,389 kWh (100 %)**
Keep Existing Solar PV Panels. Add 5.0 kW of Panels {House_WNW_12P} Add 0.0 kWh of Batteries	**8,292 kWh (100 %)**	1 kWh (0 %)	6,759 kWh (81 %)	0 kWh (0 %)	1,534 kWh (18 %)	**8,294 kWh (100 %)**
Existing Solar System Only (1.5 kW)	**2,277 kWh (100 %)**	0 kWh (0 %)	995 kWh (44 %)	0 kWh (0 %)	1,282 kWh (56 %)	**2,277 kWh (100 %)**

Indication of Where Demand will be Met From [kWh]

How to Interpret the Following Section ...

The tables on the following pages show the Indicative Annual Energy Flows from Each Source of Electricity to Meet Demand expected for each Action Scenario (Adding PV Panels & Adding Battery) when compared to the Current Situation (including the Existing Solar & Battery System).

Key to Data Series in Energy Flows to Demand Tables

1. **DEMAND IN TOTAL:** The Total Annual Demand on the Main/Solar Meter Register which is the sum of the Sources of Energy meeting Demand listed to the Right ...
2. **Demand met by Mains Import:** Import from the Mains Grid on the Main/Solar Meter Register. Demand to Import could be reduced by using more Solar Energy on site if more Solar Generation was available at the time Demand occurs, or conversely, if more Demand occurred at the time Solar Generation was available (eg. by putting appliances on Timers to run during the day),or by using Solar Energy to charge a Battery for later use.
3. **DEMAND MET BY SOLAR DIRECTLY AND VIA BATTERY IN TOTAL:** The Sum Total of "Demand met by Solar used Directly" and "Demand met by Solar via Battery". Everything this is Not Included in this Sum Total must be imported from the Main Grid.
4. **Demand met by Solar via Battery:** Solar Generation that is first used to charge a battery and later used to supply the Loads/Demand reducing Import from the Mains Grid.
5. **Demand met by Solar used Directly:** Solar Generation that is used to directly from the Solar PV Panels at the time it is being generated reducing Import from the Mains Grid.

Indication of Where Demand will be Met From [kWh]

	DEMAND IN TOTAL	Demand met by Mains Import	DEMAND MET BY SOLAR DIRECTLY AND VIA BATTERY IN TOTAL	Demand met by Solar via Battery	Demand met by Solar Directly
Keep Existing Solar PV Panels. Add 10.0 kW of Panels {House_WNW_12P, House_ESE_12P} Add 10.0 kWh of Batteries (90% Use, 10% Backup)	**2,202 kWh (100 %)**	0 kWh (0 %)	**2,202 kWh (100 %)**	629 kWh (29 %)	1,573 kWh (71 %)
Keep Existing Solar PV Panels. Add 10.0 kW of Panels {House_WNW_12P, House_ESE_12P} Add 5.0 kWh of Batteries (90% Use, 10% Backup)	**2,202 kWh (100 %)**	3 kWh (0 %)	**2,199 kWh (100 %)**	626 kWh (28 %)	1,573 kWh (71 %)
Keep Existing Solar PV Panels. Add 10.0 kW of Panels {House_WNW_12P, House_ESE_12P} Add 0.0 kWh of Batteries	**2,202 kWh (100 %)**	629 kWh (29 %)	**1,573 kWh (71 %)**	0 kWh (0 %)	1,573 kWh (71 %)
Keep Existing Solar PV Panels. Add 5.0 kW of Panels {House_ESE_12P} Add 10.0 kWh of Batteries (90% Use, 10% Backup)	**2,202 kWh (100 %)**	0 kWh (0 %)	**2,202 kWh (100 %)**	644 kWh (29 %)	1,558 kWh (71 %)
Keep Existing Solar PV Panels. Add 5.0 kW of Panels {House_ESE_12P} Add 5.0 kWh of Batteries (90% Use, 10% Backup)	**2,202 kWh (100 %)**	3 kWh (0 %)	**2,199 kWh (100 %)**	641 kWh (29 %)	1,558 kWh (71 %)
Keep Existing Solar PV Panels. Add 5.0 kW of Panels {House_WNW_12P} Add 10.0 kWh of Batteries (90% Use, 10% Backup)	**2,202 kWh (100 %)**	0 kWh (0 %)	**2,202 kWh (100 %)**	668 kWh (30 %)	1,534 kWh (70 %)
Keep Existing Solar PV Panels. Add 5.0 kW of Panels {House_WNW_12P} Add 5.0 kWh of Batteries (90% Use, 10% Backup)	**2,202 kWh (100 %)**	3 kWh (0 %)	**2,199 kWh (100 %)**	665 kWh (30 %)	1,534 kWh (70 %)
Keep Existing Solar PV Panels. Add 5.0 kW of Panels {House_ESE_12P} Add 0.0 kWh of Batteries	**2,202 kWh (100 %)**	644 kWh (29 %)	**1,558 kWh (71 %)**	0 kWh (0 %)	1,558 kWh (71 %)
Keep Existing Solar PV Panels. Add 5.0 kW of Panels {House_WNW_12P} Add 0.0 kWh of Batteries	**2,202 kWh (100 %)**	668 kWh (30 %)	**1,534 kWh (70 %)**	0 kWh (0 %)	1,534 kWh (70 %)
Existing Solar System Only (1.5 kW)	**2,202 kWh (100 %)**	919 kWh (42 %)	**1,282 kWh (58 %)**	0 kWh (0 %)	1,282 kWh (58 %)

Indicative Annual Electricity Bills and Savings [$]

How to Interpret the Following Section ...

The tables on the following pages show the Indicative Annual Electricity Bill Payments expected for each Action Scenario (Adding PV Panels & Adding Battery) when compared to the Current Situation (including the Existing Solar & Battery System).

The Electricity Tariffs used to calculate Indicative Bills & Savings are as stated in earlier section of this report with heading "Information Used to Prepare This Report".

Key to Data Series in Annual Electricity Bill Tables

1. **PAYMENT FOR ELEC BILL IN TOTAL:** The Total Annual Electricity Bill Payable which is the sum of "Payment for Supply Charge" plus "Payment for Mains Import". Or in other words, the "PAYMENT FOR ELEC BILL IN TOTAL"for the Current Electricity Bill minus "SAVINGS IN TOTAL" for this Scenario.
2. **Payment for Supply Charge:** The Fixed Daily Charge for Connection to Property and Metering, payable regardless of how much Energy [kWh] is Imported from or Exported to the Mains Grid.
3. **Payment for Mains Import:** Import from the Mains Grid that is paid for per KiloWatt Hour [kWh] (and so can be reduced by using Solar Energy on site).
4. **SAVINGS IN TOTAL:** The Total Annual Savings which is the sum of "Savings from Solar used Directly".plus "Savings from Solar via Battery" plus "Savings from Solar Export". Or in other words, the Difference between the "PAYMENT FOR ELEC BILL IN TOTAL"for this Scenario when compared to the "PAYMENT FOR ELEC BILL IN TOTAL" for the Current Electricity Bill.
5. **Savings from Solar Export:** A "Feed-in Tariff (FiT)" or "Solar Credits" that is earned per KiloWatt Hour [kWh] for excess Solar Generation that is Exported back to the Mains Grid.
6. **Savings from Solar via Battery:** reduction when compared to current electricity bill when solar generation is first used to charge a battery and later used to reduce import from the mains grid .
7. **Savings from Solar used Directly:** Reduction when compared to Current Electricity Bill when Solar Generation is used to directly from the Solar PV Panels at the time it is being generated to reduce Import from the Mains Grid .

Notes about Annual Electricity Bill Tables

Savings based on: Mains Import Flat Rate (E1) = $0.34 per kWh, Solar Export = $0.05 per kWh

No Retailer Discount(s) have been applied / are applicable to Mains Import Rate

A Solar Battery can provide both SAVINGS (by using Stored Solar Energy to avoid Import from the Mains Grid) and BACKUP (of Some or potentially All Electrical Appliances during a Blackout). However, the more a Battery is discharged to meet Demand while the Mains Grid is up, the less might be available in the event of a Blackout; conversely, the more kept in reserve in the Battery waiting for a Blackout,the less Savings can be achieved by using the Stored Solar Energy.

Indicative Annual Electricity Bills and Savings [$]

	PAYMENT FOR ELEC BILL IN TOTAL	Payment for Mains Import	Payment for Supply Charge	SAVINGS IN TOTAL	Savings from Solar Export	Savings from Solar via Battery	Savings from Solar used Directly
Keep Existing Solar PV Panels. Add 10.0 kW of Panels {House_WNW_12P, House_ESE_12P} Add 10.0 kWh of Batteries (90% Use, 10% Backup)	**$ -119**	$ 0	$ 438	**$ -1,305**	$ -557	$ -214	$ -535
Keep Existing Solar PV Panels. Add 10.0 kW of Panels {House_WNW_12P, House_ESE_12P} Add 5.0 kWh of Batteries (90% Use, 10% Backup)	**$ -118**	$ 1	$ 438	**$ -1,305**	$ -557	$ -213	$ -535
Keep Existing Solar PV Panels. Add 10.0 kW of Panels {House_WNW_12P, House_ESE_12P} Add 0.0 kWh of Batteries	**$ 63**	$ 214	$ 438	**$ -1,123**	$ -588	$ 0	$ -535
Keep Existing Solar PV Panels. Add 5.0 kW of Panels {House_ESE_12P} Add 10.0 kWh of Batteries (90% Use, 10% Backup)	**$ 129**	$ 0	$ 438	**$ -1,058**	$ -309	$ -219	$ -530
Keep Existing Solar PV Panels. Add 5.0 kW of Panels {House_ESE_12P} Add 5.0 kWh of Batteries (90% Use, 10% Backup)	**$ 129**	$ 1	$ 438	**$ -1,057**	$ -310	$ -218	$ -530
Keep Existing Solar PV Panels. Add 5.0 kW of Panels {House_WNW_12P} Add 10.0 kWh of Batteries (90% Use, 10% Backup)	**$ 133**	$ 0	$ 438	**$ -1,053**	$ -305	$ -227	$ -521
Keep Existing Solar PV Panels. Add 5.0 kW of Panels {House_WNW_12P} Add 5.0 kWh of Batteries (90% Use, 10% Backup)	**$ 134**	$ 1	$ 438	**$ -1,052**	$ -305	$ -226	$ -521
Keep Existing Solar PV Panels. Add 5.0 kW of Panels {House_ESE_12P} Add 0.0 kWh of Batteries	**$ 315**	$ 219	$ 438	**$ -871**	$ -342	$ 0	$ -530
Keep Existing Solar PV Panels. Add 5.0 kW of Panels {House_WNW_12P} Add 0.0 kWh of Batteries	**$ 327**	$ 227	$ 438	**$ -859**	$ -338	$ 0	$ -521
Existing Solar System Only (1.5 kW)	**$ 701**	$ 313	$ 438	**$ -486**	$ -50	$ 0	$ -436

Indicative System Cost [$] & Payback Period [Years]

How to Interpret the Following Section ...

The tables on the following pages show the Indicative System Cost & Payback Period expected for each Action Scenario (Adding PV Panels & Adding Battery) when compared to the Current Situation (including the Existing Solar & Battery System).

The Electricity Tariffs used to calculate Indicative Bills & Savings are as stated in earlier section of this report with heading "Information Used to Prepare This Report".

Action Scenarios that are Technically Possible are included in this section whether or not the Economics are Viable ie. whether or not the Indicative Price is under Budget and the Payback Period (Simple) is acceptable.

Key to Data Series in Indicative System Cost & Payback Period Tables

1. **PAYMENT FOR ELEC BILL IN TOTAL:** The Total Annual Electricity Bill Payable which is the sum of "Payment for Supply Charge" plus "Payment for Mains Import". Or in other words, the "PAYMENT FOR ELEC BILL IN TOTAL"for the Current Electricity Bill minus "SAVINGS IN TOTAL" for this Scenario.
2. **Payback Period (Simple):** The Number of Years it might take for Savings from each Action Scenrio (the Adding of Solar Panels and/or a Battery) to repay the "Indicative Purchase Price". Note that this is a "Simple" / "Back of the Envelope" measure that does not consider things like: changes in Mains Electricity Prices over the Life of the System, changes in Solar Panel and Battery Prices over the Life of the System, the General Inflation Rate over the Life of the System, cost of any Maintenance or Repair, Financial Concepts like "Net Present Value" (NPV). Rather it is simply the "Indicative Purchase Price [$]" divided by the "SAVINGS IN TOTAL" (Annual Savings) in Todays Dollars (without considering Inflation). As such it is useful for comparing the Relative Payback Periods of the Different Action Scenarios (Combinations of Adding Solar Panels and/or Adding Batteries), but cannot accurately predict the Payback Period compared to Other Investments (eg. Term Deposits, Property or Shares) the Return on Investment Percentage of these options versus such Other Investments. And so does not constitute Financial Advice. Please refer to Your Accountant or Financial Advisor for exhaustive Financial Advice.
3. **SAVINGS IN TOTAL:** The Total Annual Savings which is the sum of "Savings from Solar used Directly".plus "Savings from Solar via Battery" plus "Savings from Solar Export". Or in other words, the Difference between the "PAYMENT FOR ELEC BILL IN TOTAL"for this Scenario when compared to the "PAYMENT FOR ELEC BILL IN TOTAL" for the Current Electricity Bill.
4. **Indicative Purchase Price:** An Indicative Bottom Line Purchase Price for the Action Scenario (Combination of Adding Solar Panels and/or Adding Batteries). Price assumes: Deductions have been applied for Goverment Incentives that are typically applicable (and where Government Incentives are Means-Tested, an Average Household Income permitting the claiming of the Incentive). Price assumes: High but not necessarily Top Quality Components; a Straight-Forward Installation on a Single Storey Building with a Typical Pitch of Around 22 Degrees, Typical Labor Rates for the Geographic Area. Actual Prices can vary due to factors including but not limited to: Difficult/Slow Installations (eg. Terracotta Tile Roof, Long Cable Runs); Higher than Typical OH&S Costs (eg. Steep Roof); Upgrades to Existing Switchboards to make room for Solar & Battery Insolation Switches; Mandatory Upgrades to Existing Solar Panels & Battery Systems or Switchboards to bring them up to Compliance with New/Current Safety Regulations, and, where a Battery is added to an Existing Solar Panel System, the extent to which Existing Inverters can be reused.
5. **Add PV Panels:** The Number of KiloWatts (kW) of Solar PV Panels to be added in this Action Scenario.
6. **Add Battery:** The Number of KiloWatts Hours (kWh) of Useable Battery Storage Capacity to be added in this Action Scenario.

Indicative System Cost [$] & Payback Period [Years]

	PAYMENT FOR ELEC BILL IN TOTAL	Payback Period (Simple) [Years]	SAVINGS IN TOTAL	Indicative Purchase Price [$]	Add PV Panels [kW]	Add Battery [kWh]
Keep Existing Solar PV Panels. Add 10.0 kW of Panels {House_WNW_12P, House_ESE_12P} Add 10.0 kWh of Batteries (90% Use, 10% Backup)	$ -119	19.1 Years	$ -1,305	$ 24,989	10.0 kW	10.0 kWh
Keep Existing Solar PV Panels. Add 10.0 kW of Panels {House_WNW_12P, House_ESE_12P} Add 5.0 kWh of Batteries (90% Use, 10% Backup)	$ -118	13.5 Years	$ -1,305	$ 17,653	10.0 kW	5.0 kWh
Keep Existing Solar PV Panels. Add 10.0 kW of Panels {House_WNW_12P, House_ESE_12P} Add 0.0 kWh of Batteries	$ 63	10.5 Years	$ -1,123	$ 11,813	10.0 kW	0.0 kWh
Keep Existing Solar PV Panels. Add 5.0 kW of Panels {House_ESE_12P} Add 10.0 kWh of Batteries (90% Use, 10% Backup)	$ 129	19.4 Years	$ -1,058	$ 20,577	5.0 kW	10.0 kWh
Keep Existing Solar PV Panels. Add 5.0 kW of Panels {House_ESE_12P} Add 5.0 kWh of Batteries (90% Use, 10% Backup)	$ 129	12.5 Years	$ -1,057	$ 13,241	5.0 kW	5.0 kWh
Keep Existing Solar PV Panels. Add 5.0 kW of Panels {House_WNW_12P} Add 10.0 kWh of Batteries (90% Use, 10% Backup)	$ 133	19.5 Years	$ -1,053	$ 20,577	5.0 kW	10.0 kWh
Keep Existing Solar PV Panels. Add 5.0 kW of Panels {House_WNW_12P} Add 5.0 kWh of Batteries (90% Use, 10% Backup)	$ 134	12.6 Years	$ -1,052	$ 13,241	5.0 kW	5.0 kWh
Keep Existing Solar PV Panels. Add 5.0 kW of Panels {House_ESE_12P} Add 0.0 kWh of Batteries	$ 315	8.5 Years	$ -871	$ 7,401	5.0 kW	0.0 kWh
Keep Existing Solar PV Panels. Add 5.0 kW of Panels {House_WNW_12P} Add 0.0 kWh of Batteries	$ 327	8.6 Years	$ -859	$ 7,401	5.0 kW	0.0 kWh
Existing Solar System Only (1.5 kW)	$ 701	0.0 Years	$ -486	$ 0	0.0 kW	0.0 kWh

Section: Detailed Seasonal Tables & Charts

How to Interpret the Following Section ...

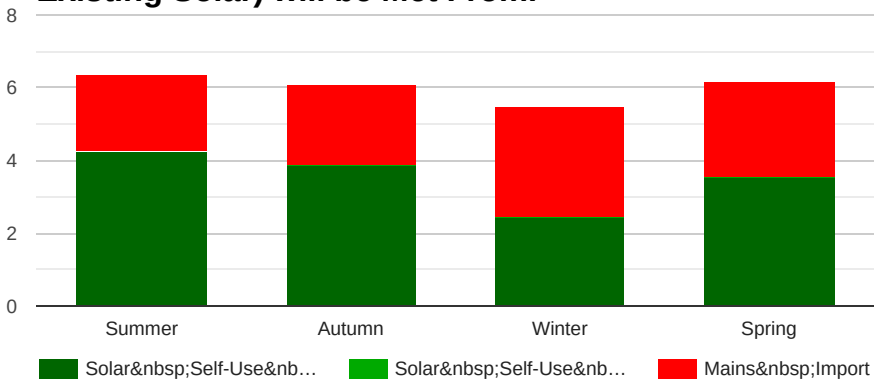
Your Energy Assessor (or Solar Retailer) can talk you through these Detailed Tables & Charts ...

Detailed Seasonal Tables & Charts

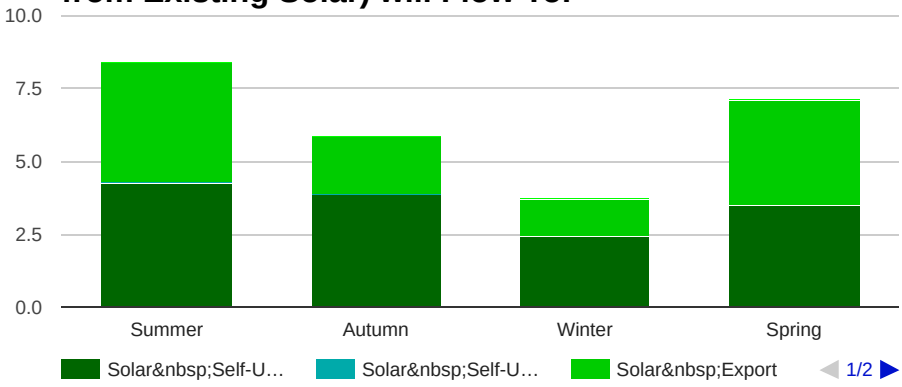
- **Adding PV Panels:** 0.0 kW {Existing Only}
- **Adding Battery:** 0.0 kWh
- **Battery Capacity Utilization:** Not Applicable
- **Pre-Existing System:** 1.54kW PV Panels; 1.5kW Inverter AC Output; 0kWh Battery
- **Electricity Demand Scenario:** Existing Current

Average Energy Flows [kWh] per Day for Each Season.

Where Remaining Demand (not currently met from Existing Solar) will be Met From.



Where Additional Solar PV Generation (and Export from Existing Solar) will Flow To.



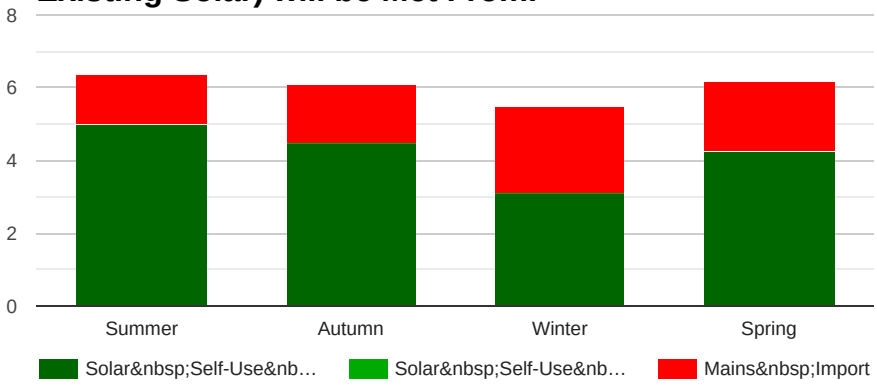
	Summer	Autumn	Winter	Spring
Solar Self-Use Directly	4.3	3.9	2.4	3.5
Solar Self-Use via Battery	0.0	0.0	0.0	0.0
Solar Export	4.1	2.0	1.2	3.6
Solar Potential Not Converted	0.0	0.0	0.0	0.0
Solar Self-Use from Battery	0.0	0.0	0.0	0.0
Mains Import	2.1	2.3	3.0	2.7

Detailed Seasonal Tables & Charts

- **Adding PV Panels:** 5.0 kW {House_WNW_12P}
- **Adding Battery:** 0.0 kWh
- **Battery Capacity Utilization:** Not Applicable
- **Pre-Existing System:** 1.54kW PV Panels; 1.5kW Inverter AC Output; 0kWh Battery
- **Electricity Demand Scenario:** Existing Current

Average Energy Flows [kWh] per Day for Each Season.

Where Remaining Demand (not currently met from Existing Solar) will be Met From.



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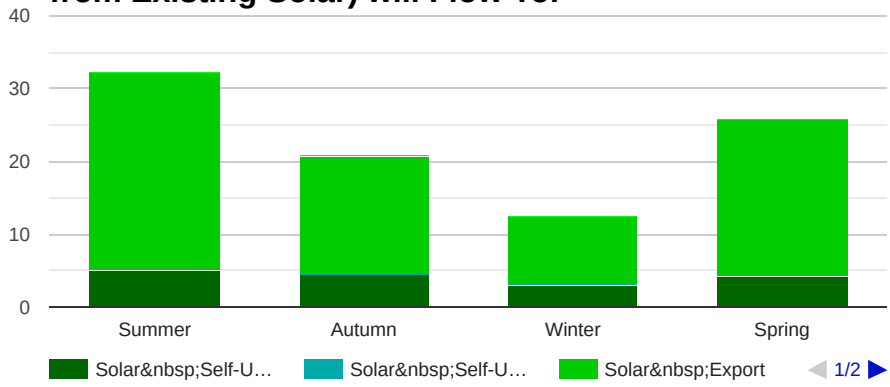

	Summer	Autumn	Winter	Spring
Solar Self-Use Directly	5.0	4.5	3.1	4.3
Solar Self-Use via Battery	0.0	0.0	0.0	0.0
Solar Export	27.2	16.3	9.3	21.5
Solar Potential Not Converted	0.0	0.0	0.0	0.0
Solar Self-Use from Battery	0.0	0.0	0.0	0.0
Mains Import	1.4	1.7	2.4	1.9

Detailed Seasonal Tables & Charts

- **Adding PV Panels:** 5.0 kW {House_WNW_12P}
- **Adding Battery:** 5.0 kWh
- **Battery Capacity Utilization:** 90% (4.5 kWh) Use, 10% (0.5 kWh) Backup
- **Pre-Existing System:** 1.54kW PV Panels; 1.5kW Inverter AC Output; 0kWh Battery
- **Electricity Demand Scenario:** Existing Current

Average Energy Flows [kWh] per Day for Each Season.

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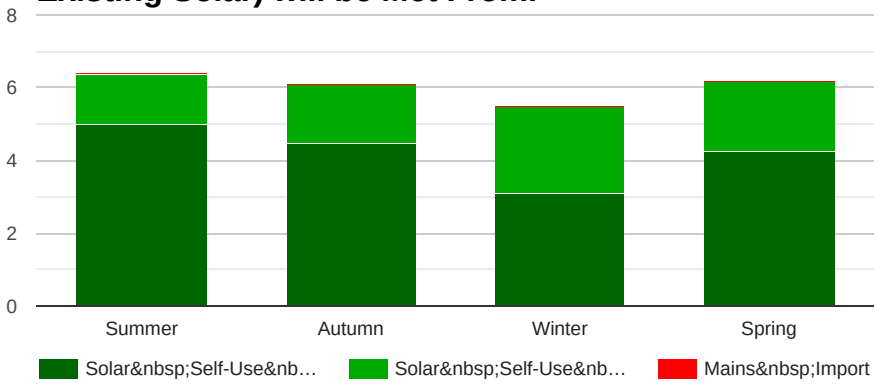

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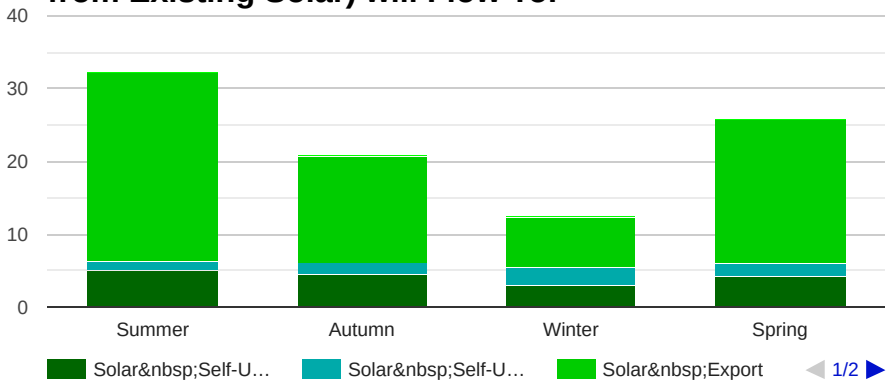


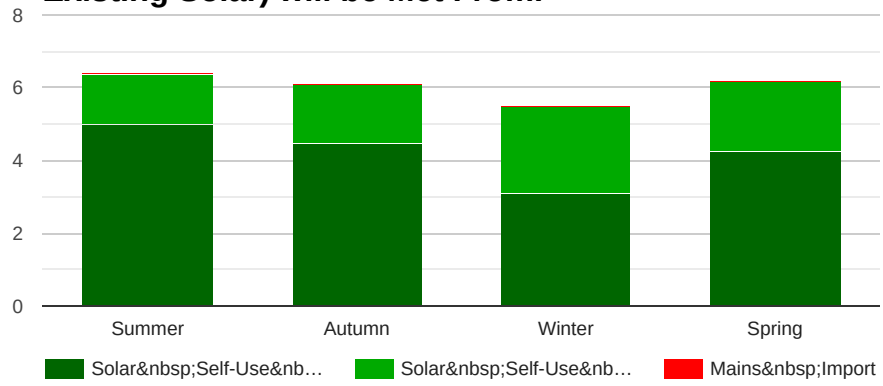
	Summer	Autumn	Winter	Spring
Solar Self-Use Directly	5.0	4.5	3.1	4.3
Solar Self-Use via Battery	1.4	1.6	2.4	1.9
Solar Export	25.9	14.7	6.9	19.6
Solar Potential Not Converted	0.0	0.0	0.0	0.0
Solar Self-Use from Battery	1.4	1.6	2.4	1.9
Mains Import	0.0	0.0	0.0	0.0

Detailed Seasonal Tables & Charts

- **Adding PV Panels:** 5.0 kW {House_WNW_12P}
- **Adding Battery:** 10.0 kWh
- **Battery Capacity Utilization:** 90% (9.0 kWh) Use, 10% (1.0 kWh) Backup
- **Pre-Existing System:** 1.54kW PV Panels; 1.5kW Inverter AC Output; 0kWh Battery
- **Electricity Demand Scenario:** Existing Current

Average Energy Flows [kWh] per Day for Each Season.

Where Remaining Demand (not currently met from Existing Solar) will be Met From.



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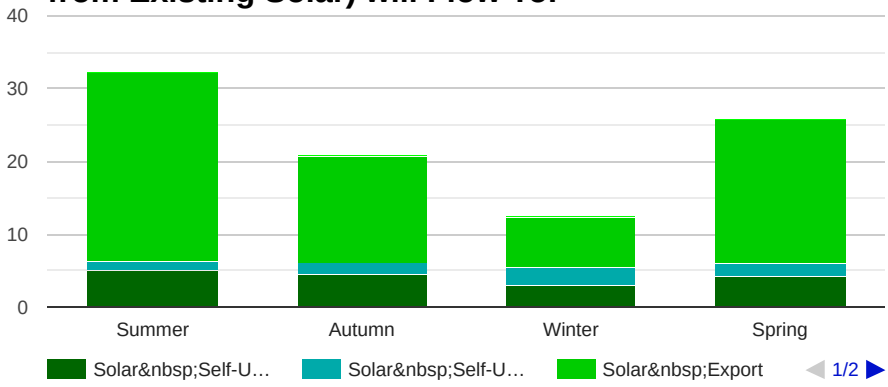


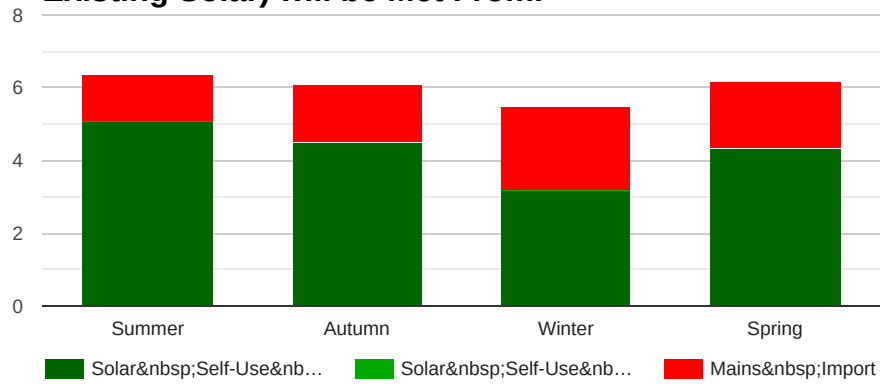
	Summer	Autumn	Winter	Spring
Solar Self-Use Directly	5.0	4.5	3.1	4.3
Solar Self-Use via Battery	1.4	1.7	2.4	1.9
Solar Export	25.9	14.6	6.9	19.6
Solar Potential Not Converted	0.0	0.0	0.0	0.0
Solar Self-Use from Battery	1.4	1.7	2.4	1.9
Mains Import	0.0	0.0	0.0	0.0

Detailed Seasonal Tables & Charts

- **Adding PV Panels:** 5.0 kW {House_ESE_12P}
- **Adding Battery:** 0.0 kWh
- **Battery Capacity Utilization:** Not Applicable
- **Pre-Existing System:** 1.54kW PV Panels; 1.5kW Inverter AC Output; 0kWh Battery
- **Electricity Demand Scenario:** Existing Current

Average Energy Flows [kWh] per Day for Each Season.

Where Remaining Demand (not currently met from Existing Solar) will be Met From.



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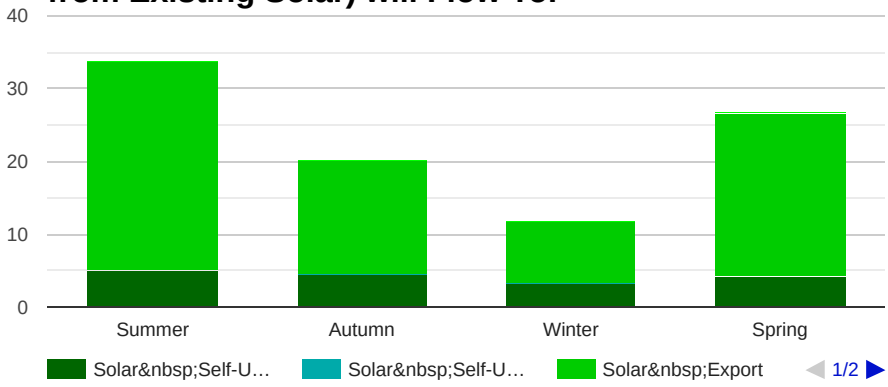

	Summer	Autumn	Winter	Spring
Solar Self-Use Directly	5.1	4.5	3.2	4.3
Solar Self-Use via Battery	0.0	0.0	0.0	0.0
Solar Export	28.6	15.5	8.6	22.3
Solar Potential Not Converted	0.0	0.0	0.0	0.0
Solar Self-Use from Battery	0.0	0.0	0.0	0.0
Mains Import	1.3	1.6	2.3	1.8

Detailed Seasonal Tables & Charts

- **Adding PV Panels:** 5.0 kW {House_ESE_12P}
- **Adding Battery:** 5.0 kWh
- **Battery Capacity Utilization:** 90% (4.5 kWh) Use, 10% (0.5 kWh) Backup
- **Pre-Existing System:** 1.54kW PV Panels; 1.5kW Inverter AC Output; 0kWh Battery
- **Electricity Demand Scenario:** Existing Current

Average Energy Flows [kWh] per Day for Each Season.

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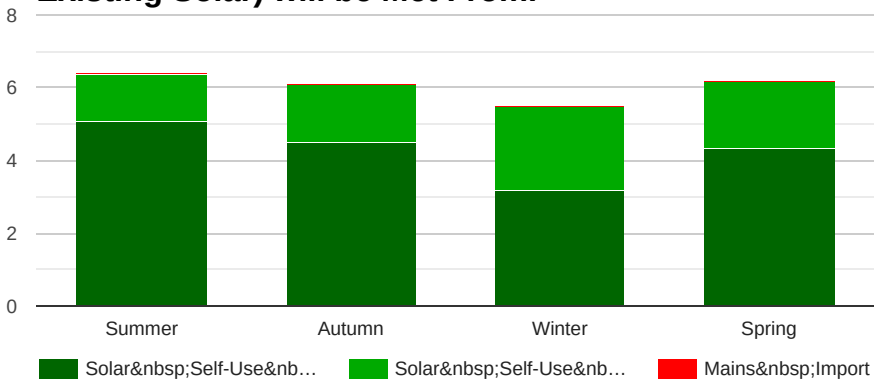

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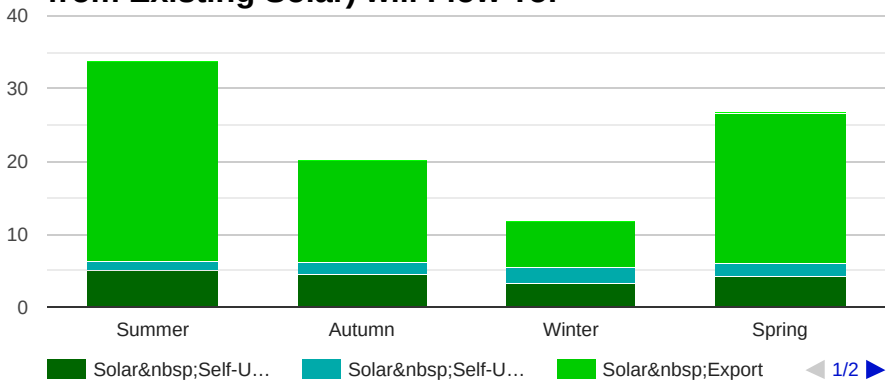

	Summer	Autumn	Winter	Spring
Solar Self-Use Directly	5.1	4.5	3.2	4.3
Solar Self-Use via Battery	1.3	1.6	2.3	1.8
Solar Export	27.3	14.0	6.3	20.5
Solar Potential Not Converted	0.0	0.0	0.0	0.0
Solar Self-Use from Battery	1.3	1.6	2.3	1.8
Mains Import	0.0	0.0	0.0	0.0

Detailed Seasonal Tables & Charts

- **Adding PV Panels:** 5.0 kW {House_ESE_12P}
- **Adding Battery:** 10.0 kWh
- **Battery Capacity Utilization:** 90% (9.0 kWh) Use, 10% (1.0 kWh) Backup
- **Pre-Existing System:** 1.54kW PV Panels; 1.5kW Inverter AC Output; 0kWh Battery
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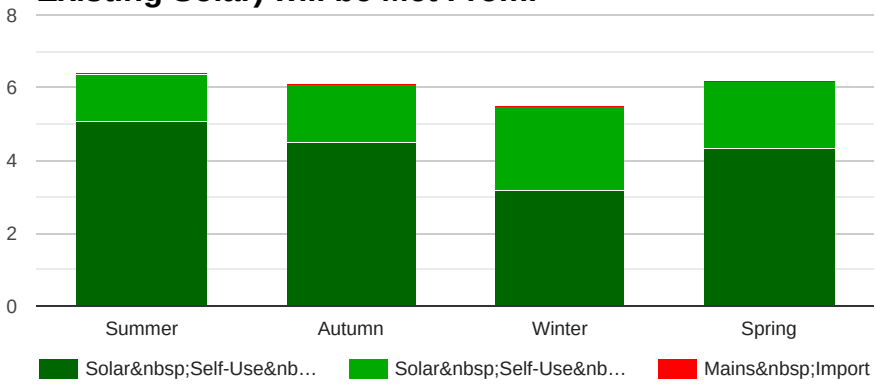

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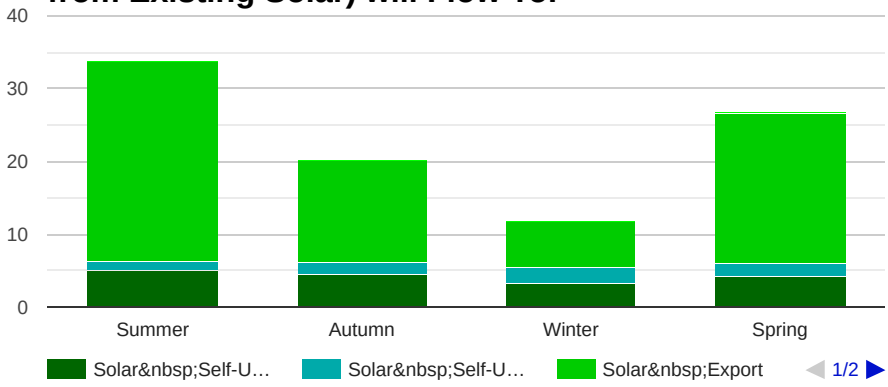

	Summer	Autumn	Winter	Spring
Solar Self-Use Directly	5.1	4.5	3.2	4.3
Solar Self-Use via Battery	1.3	1.6	2.3	1.8
Solar Export	27.3	13.9	6.3	20.5
Solar Potential Not Converted	0.0	0.0	0.0	0.0
Solar Self-Use from Battery	1.3	1.6	2.3	1.8
Mains Import	0.0	0.0	0.0	0.0

Detailed Seasonal Tables & Charts

- **Adding PV Panels:** 10.0 kW {House_WNW_12P, House_ESE_12P}
- **Adding Battery:** 0.0 kWh
- **Battery Capacity Utilization:** Not Applicable
- **Pre-Existing System:** 1.54kW PV Panels; 1.5kW Inverter AC Output; 0kWh Battery
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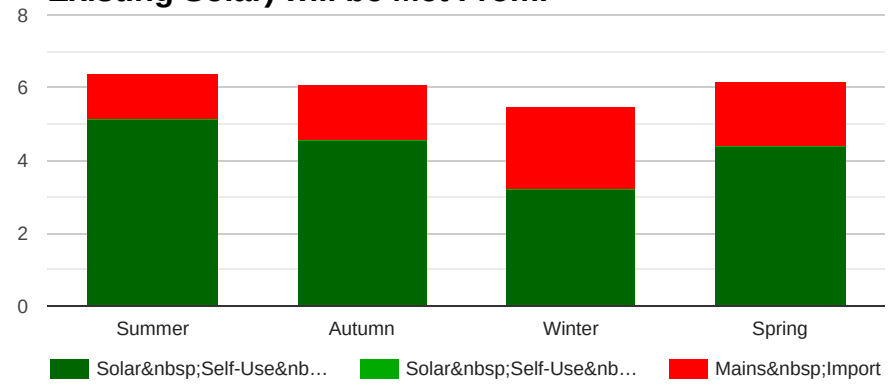

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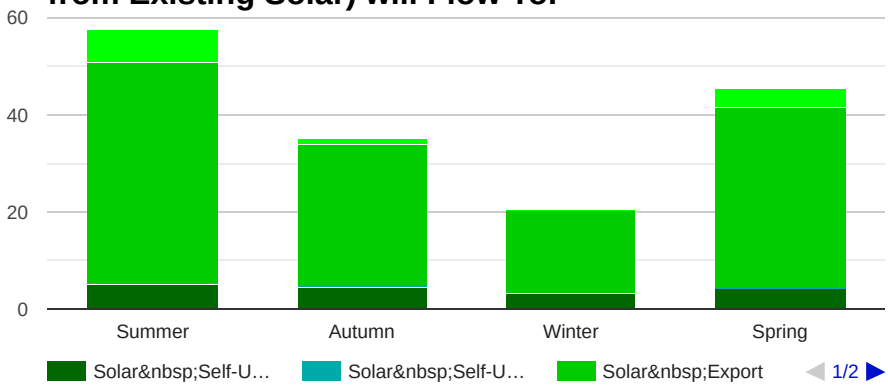

	Summer	Autumn	Winter	Spring
Solar Self-Use Directly	5.1	4.5	3.2	4.4
Solar Self-Use via Battery	0.0	0.0	0.0	0.0
Solar Export	45.6	29.3	17.2	37.1
Solar Potential Not Converted	6.8	1.1	0.0	3.8
Solar Self-Use from Battery	0.0	0.0	0.0	0.0
Mains Import	1.3	1.6	2.2	1.8

Detailed Seasonal Tables & Charts

- **Adding PV Panels:** 10.0 kW {House_WNW_12P, House_ESE_12P}
- **Adding Battery:** 5.0 kWh
- **Battery Capacity Utilization:** 90% (4.5 kWh) Use, 10% (0.5 kWh) Backup
- **Pre-Existing System:** 1.54kW PV Panels; 1.5kW Inverter AC Output; 0kWh Battery
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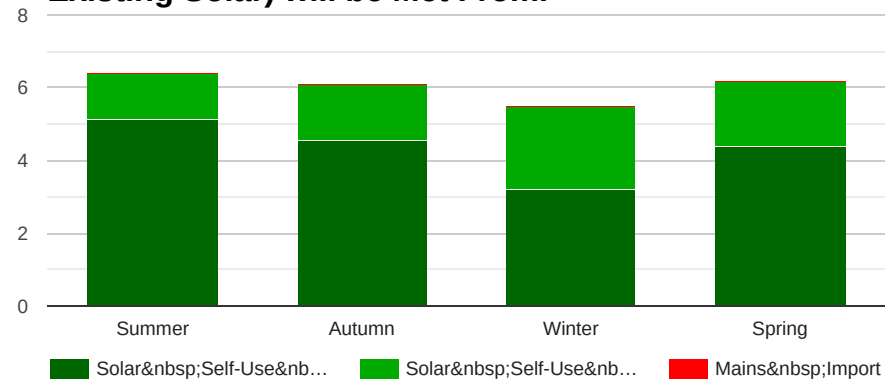

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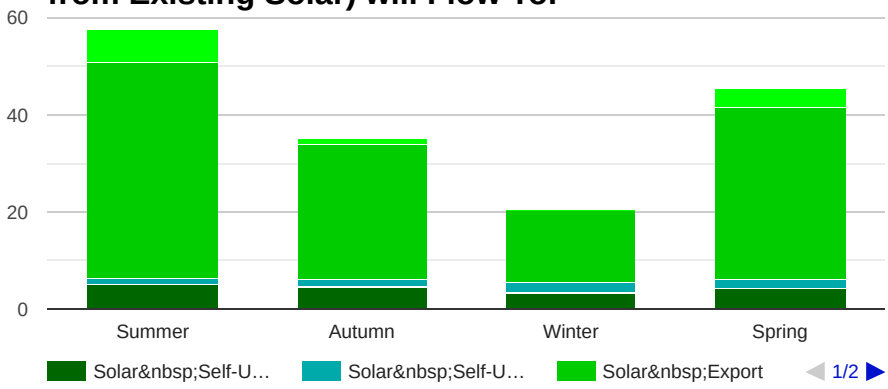

	Summer	Autumn	Winter	Spring
Solar Self-Use Directly	5.1	4.5	3.2	4.4
Solar Self-Use via Battery	1.3	1.5	2.2	1.8
Solar Export	44.4	27.7	15.0	35.4
Solar Potential Not Converted	6.8	1.1	0.0	3.8
Solar Self-Use from Battery	1.3	1.5	2.2	1.8
Mains Import	0.0	0.0	0.0	0.0

Detailed Seasonal Tables & Charts

- **Adding PV Panels:** 10.0 kW {House_WNW_12P, House_ESE_12P}
- **Adding Battery:** 10.0 kWh
- **Battery Capacity Utilization:** 90% (9.0 kWh) Use, 10% (1.0 kWh) Backup
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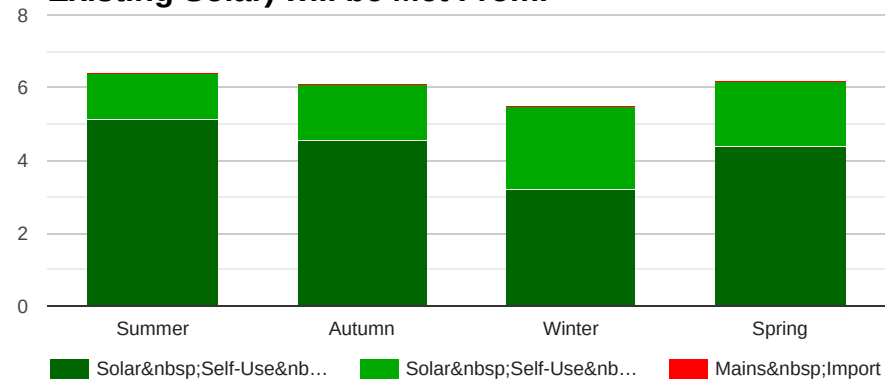

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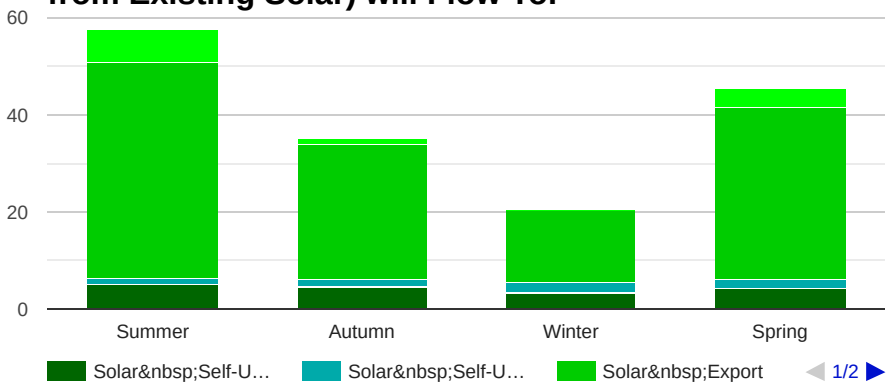

	Summer	Autumn	Winter	Spring
Solar Self-Use Directly	5.1	4.5	3.2	4.4
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Solar Export	44.4	27.7	15.0	35.4
Solar Potential Not Converted	6.8	1.1	0.0	3.8
Solar Self-Use from Battery	1.3	1.6	2.2	1.8
Mains Import	0.0	0.0	0.0	0.0