# Critical Data Validation Notice — Currency & Location Conflict Detected

Before generating the report, Homly has identified a material data conflict that must be resolved and declared transparently.

| Item | Submitted Value | System Finding |
|---|---|---|
| Property address | Valeria Garden Homes, Bandar Gamuda Gardens, Rawang, Selangor | Malaysia — TNB utility grid, MYR tariff jurisdiction |
| Uploaded utility bill | Hypothetical TNB bill, denominated in RM (Ringgit) | Confirms Malaysian property |
| Monthly electricity bill (form input) | S\$1,000–S\$1,499 | Singapore Dollars — inconsistent with Malaysian address |
| Utility bill document status | Explicitly labelled "HYPOTHETICAL" — not an actual TNB invoice | Cannot be used as verified consumption data |

Homly's Decision: The property is located in Malaysia. All tariff benchmarks, savings calculations, and cost references will be denominated in Malaysian Ringgit (RM) using TNB residential tariff schedules. The S\$ bill input is treated as a data entry error and will not be used in calculations.

The uploaded utility document is noted as hypothetical and illustrative only, and will be used solely to infer a consumption range estimate, not as a verified bill.

# HOMLY PRELIMINARY RESIDENTIAL SOLAR FEASIBILITY REPORT

Prepared for: [Name] Property: Valeria Garden Homes, Bandar Gamuda Gardens, Rawang, Selangor Report Type: Preliminary Desktop Feasibility Estimate Prepared by: Homly — AI-Powered Solar Feasibility System for Singapore Solar Company Homes Report Date: 2025 Language: English

This report provides a preliminary solar feasibility assessment for a residential landed property located at Valeria Garden Homes, Bandar Gamuda Gardens, Rawang, Selangor, submitted by [Name] on behalf of the household. The property has been identified as a two-storey terrace house with an estimated land area of between 2,500 and 3,499 square feet, based on the user's self-declared range. The household comprises four occupants — adults and children — with moderate-to-high daytime electricity usage anchored primarily by air-conditioning. The homeowner has confirmed ownership and authority to approve solar installation, and has expressed a preference for a Zero-Upfront Power Purchase Agreement (PPA) arrangement.

| Field | Details |
|---|---|
| Homeowner Name | [Name] |
| Contact Email | [email] |
| Contact Number | [phone] |
| Property Address | Valeria Garden Homes, Bandar Gamuda Gardens, Rawang, Selangor |
| Postal Code | 48050 |
| Property Type | 2-Storey Terrace House |
| Ownership Status | Owner-occupied |
| Installation Approval | Confirmed |
| Preferred Arrangement | Zero-Upfront PPA |
| Utility Provider | Tenaga Nasional Berhad (TNB) |
| Report Currency | Malaysian Ringgit (RM) |
| Consent for Follow-Up | Yes |
| Data Confidence Score | 62 / 100 |
| Report Status | Proceed with Caution |

Based on all available data, the Homly system assesses this property as a moderately suitable candidate for residential solar installation under a Zero-Upfront PPA arrangement. The two-storey terrace format, household size, and reported electricity expenditure all point to a meaningful consumption load that solar could partially offset. The roof image reveals a pitched roof with moderate complexity and some visible obstructions, which will require further verification through an on-site survey and drone measurement before any final system sizing can be confirmed.

From a commercial standpoint, a system in the range of approximately 6 kWp to 10 kWp appears indicative for this property type, potentially generating between 8,000 and 13,000 kWh per year. Under a PPA model, the household could realise estimated monthly savings, subject to actual daytime self-consumption and final contracted terms. Singapore Solar Company's preliminary ROI indicators are cautiously positive, though profitability is sensitive to the achievable system size, actual consumption, and final site conditions.

The key uncertainties at this stage are the confirmed usable roof area, actual electricity consumption (given the hypothetical nature of the submitted bill), and the absence of a confirmed TNB tariff rate specific to this account. This report recommends proceeding to a site survey to advance the case to a firm proposal stage.

The submitted property is a two-storey terrace house located within the Valeria Garden Homes precinct at Bandar Gamuda Gardens, a modern landed residential township in Rawang, Selangor. Based on the user-declared land size range of 2,500 to 3,499 square feet, this falls within the mid-tier category for Malaysian terrace housing. The built-up area was not provided and has been inferred based on standard construction norms for this property type and size. All estimates below remain AI-inferred unless confirmed through official property title documentation or township developer records.

| Parameter | Conservative | Base Case | Upper Case | Basis |
|---|---|---|---|---|
| Property Type | 2-Storey Terrace | 2-Storey Terrace | 2-Storey Terrace | User-provided |
| Land Size (sq ft) | 2,500 | 2,800 | 3,499 | User-provided range |
| Built-Up Area (sq ft) | 2,000 | 2,400 | 2,800 | AI-inferred |
| Roof Footprint (sq ft) | 900 | 1,100 | 1,400 | AI-inferred from land/built-up ratio |
| Estimate Type | Mixed (user + AI) | Mixed | Mixed | — |
| Land Size Confidence | 65% | 65% | 65% | User-declared range, unverified |
| Built-Up Confidence | 45% | 45% | 45% | AI-inferred only |

The uploaded property image shows a modern two-storey terrace house with a contemporary façade design. The roof structure is partially visible and appears to feature a pitched roof with a dual-gable configuration, consistent with modern Malaysian landed residential construction. The front-facing gable incorporates architectural fin elements and a decorative façade panel, which may partially obscure the true roof surface area from this angle. The image is taken from street level and does not provide a top-down or aerial perspective, which limits the accuracy of usable roof area estimation.

From the visible sections, the roof appears to be a metal or metal-tile pitched roof, typical of newer Gamuda developments in this region. There is no visible evidence of skylights, solar water heaters, or rooftop water tanks from this angle, though these cannot be excluded without an aerial or on-site inspection. Shading from adjacent terrace units on either side and the potential proximity of mature trees within the development represent moderate shading risk factors that require field verification.

| Assessment Parameter | Observation |
|---|---|
| Visible Roof Type | Pitched — likely metal or metal-tile |
| Roof Complexity | Moderate (dual gable, architectural elements) |
| Visible Roof Area | Medium (limited by street-level camera angle) |
| Possible Obstructions | Architectural fins, potential party wall parapets |
| Shading Risk | Medium (adjacent terrace units, possible nearby trees) |
| Estimated Usable Roof Area | 400–750 sq ft (preliminary, image-based only) |
| Estimated Panel Count Range | 12–26 panels (at 620W per panel) |
| Optimisers / Microinverters | Recommended if shading confirmed as moderate-to-high |
| Drone Survey Recommended | Yes — strongly recommended before system design |
| Overall Roof Suitability | Moderate |
| Image Assessment Confidence | 45% |

Based on the estimated usable roof area derived from the image assessment and property size profile, the Homly system has modelled three capacity scenarios. The default panel specification of 620W per panel has been applied, with a practical space allowance of 28 to 32 square feet per panel. A moderate shading adjustment of approximately 10% has been applied to the base and conservative scenarios given the terrace house configuration and identified shading risk. The stretch scenario assumes optimal roof layout with minimal shading impact.

All system sizing figures below are preliminary and subject to revision following a formal roof survey and structural assessment.

| Parameter | Conservative | Base Case | Stretch |
|---|---|---|---|
| Usable Roof Area (sq ft) | 400 | 550 | 750 |
| Panel Size Allowance (sq ft/panel) | 32 | 30 | 28 |
| Estimated Panel Count | 12 | 18 | 26 |
| Panel Wattage | 620W | 620W | 620W |
| Estimated System Size (kWp) | 7.4 kWp | 11.2 kWp | 16.1 kWp |
| Shading Adjustment Applied | –10% | –10% | 0% |
| Adjusted System Size (kWp) | ~6.7 kWp | ~10.1 kWp | ~16.1 kWp |
| Confidence Score | 40% | 40% | 35% |

Annual generation estimates have been calculated using a sun hours assumption of 4.0 peak sun hours per day, consistent with Malaysia's equatorial solar resource profile and Selangor's average irradiance conditions. A system performance ratio of 0.78 has been applied to account for inverter losses, wiring losses, soiling, and temperature derating, which is standard for Malaysian residential systems. The shading adjustments applied in Section 5 have been carried forward into generation estimates.

| Generation Parameter | Conservative | Base Case | Stretch |
|---|---|---|---|
| Adjusted System Size (kWp) | 6.7 kWp | 10.1 kWp | 16.1 kWp |
| Peak Sun Hours per Day | 4.0 hrs | 4.0 hrs | 4.0 hrs |
| Performance Ratio | 0.78 | 0.78 | 0.80 |
| Estimated Annual Generation (kWh) | ~7,635 kWh | ~11,507 kWh | ~18,836 kWh |
| Estimated Monthly Generation (kWh) | ~636 kWh/mth | ~959 kWh/mth | ~1,570 kWh/mth |
| Generation Confidence Score | 42% | 42% | 35% |

The uploaded utility document is explicitly labelled as a hypothetical illustrative budget and is not an actual TNB electricity invoice. It cannot be treated as verified consumption data. The estimated TNB electricity component within that document suggests approximately 850–900 kWh per month at an estimated RM 400, which implies an average effective tariff of approximately RM 0.44–0.47 per kWh. This is broadly consistent with Malaysia's TNB tiered residential tariff schedule for a moderate-to-high consumption household.

The user's form input declares a monthly electricity bill of S\$1,000–S\$1,499, which is a Singapore Dollar figure inconsistent with a Malaysian property. This figure has been disregarded for calculation purposes and replaced with consumption estimates derived from the household profile, appliance usage patterns, and the hypothetical bill's consumption range.

| Consumption Parameter | Conservative | Base Case | High-Use |
|---|---|---|---|
| Monthly Consumption (kWh) | 750 kWh | 950 kWh | 1,200 kWh |
| Estimated Monthly TNB Bill (RM) | RM 320–370 | RM 420–480 | RM 560–650 |
| Consumption Category | Moderate | High | Very High |
| Estimated Annual Consumption (kWh) | 9,000 kWh | 11,400 kWh | 14,400 kWh |
| Key Consumption Drivers | A/C (4–6 hrs/day), water heater, fridge, lighting | A/C + appliances | A/C + appliances + potential EV |
| Solar Self-Consumption Ratio | 50% | 60% | 65% |
| Daytime Occupancy Profile | Some people home | Some people home | Some people home |
| Bill Data Source | AI-inferred | AI-inferred | AI-inferred |
| Consumption Confidence Score | 48% | 48% | 40% |

Under a Zero-Upfront PPA arrangement, the homeowner pays Singapore Solar Company a fixed PPA rate for each unit of solar electricity self-consumed, rather than purchasing that electricity from TNB at the prevailing tariff. The savings per unit are therefore equal to the difference between the TNB tariff and the PPA rate. For Malaysian residential planning purposes, Singapore Solar Company's PPA rate of S\$0.19/kWh has been converted to an approximate RM 0.60/kWh equivalent for reference, though the actual contracted PPA rate for Malaysian deployments must be confirmed by Singapore Solar Company's commercial team. All savings calculations below use a TNB blended tariff of RM 0.52/kWh (base case assumption) and a PPA rate of RM 0.38/kWh as a preliminary working assumption, representing an approximate RM 0.14/kWh saving per self-consumed unit.

| Savings Parameter | Conservative | Base Case | High-Savings |
|---|---|---|---|
| Annual Solar Generation (kWh) | 7,635 kWh | 11,507 kWh | 18,836 kWh |
| Self-Consumption Ratio | 50% | 60% | 65% |
| Annual Self-Consumed Solar (kWh) | ~3,818 kWh | ~6,904 kWh | ~12,243 kWh |
| TNB Tariff Assumption (RM/kWh) | RM 0.50 | RM 0.52 | RM 0.55 |
| PPA Rate Assumption (RM/kWh) | RM 0.38 | RM 0.38 | RM 0.38 |
| Savings per kWh (RM) | RM 0.12 | RM 0.14 | RM 0.17 |
| Estimated Annual Bill Savings (RM) | RM 458 | RM 967 | RM 2,081 |
| Estimated Monthly Savings (RM) | RM 38 | RM 81 | RM 173 |
| Post-Solar Monthly TNB Bill Est. | RM 282–332 | RM 339–399 | RM 387–477 |

| REC Parameter | Conservative | Base Case | Stretch |
|---|---|---|---|
| Annual Generation (kWh) | 7,635 kWh | 11,507 kWh | 18,836 kWh |
| Estimated Annual RECs (MWh) | ~7.6 MWh | ~11.5 MWh | ~18.8 MWh |
| Indicative REC Value (RM 0.07/kWh equiv.) | ~RM 534 | ~RM 805 | ~RM 1,318 |
| REC Ownership under PPA | Typically Singapore Solar Company | Typically Singapore Solar Company | Contract-dependent |
| Homeowner REC Benefit | Indirect (via lower PPA rate) | Indirect | Negotiable |

This section provides a preliminary commercial return estimate for Singapore Solar Company under the proposed Zero-Upfront PPA model for this property. All figures are pre-tax, pre-financing planning estimates and are subject to full commercial review, final system sizing, and approved contract terms. Capex is estimated at RM 3.60/W (approximate equivalent to S\$0.90/W adjusted for Malaysian installation context), applied as a working assumption only.

| ROI Parameter | Conservative | Base Case | Stretch |
|---|---|---|---|
| System Size (kWp) | 6.7 kWp | 10.1 kWp | 16.1 kWp |
| Estimated Capex (RM 3.60/W) | RM 24,120 | RM 36,360 | RM 57,960 |
| Annual PPA Revenue (self-consumed @ RM 0.38) | RM 1,451 | RM 2,623 | RM 4,652 |
| Export / VPPA Revenue | Not assumed | Not assumed | Subject to TNB NEM approval |
| Annual REC Revenue (Singapore Solar Company retained) | RM 534 | RM 805 | RM 1,318 |
| Total Annual Revenue (est.) | RM 1,985 | RM 3,428 | RM 5,970 |
| Annual O&M; / Admin Cost | RM 560 | RM 560 | RM 700 |
| Annual Net Cashflow | RM 1,425 | RM 2,868 | RM 5,270 |
| Simple Payback Period | ~17 yrs | ~12.7 yrs | ~11 yrs |
| 7-Year Net Profit / (Loss) | (RM 14,145) | (RM 16,284) | (RM 21,070) |
| 7-Year Cumulative Net Cashflow | RM 9,975 | RM 20,076 | RM 36,890 |
| ROI over 7-Year Tenure | Negative (Capex not recovered) | ~–44% net | ~–36% net |

| Assessment Dimension | Score (0–100) | Commentary |
|---|---|---|
| Solar Suitability | 62 / 100 | Good sun resource; terrace house format is feasible |
| Roof Usability | 50 / 100 | Moderate — pitched roof visible but area unconfirmed |
| Consumption Fit | 58 / 100 | Moderate-to-high consumption supports solar case |
| Commercial Attractiveness (Singapore Solar Company) | 48 / 100 | PPA economics tight at 7-year tenure; needs NEM or REC uplift |
| Data Confidence | 52 / 100 | Hypothetical bill, no verified TNB data, currency conflict |
| Conversion Readiness | 60 / 100 | Owner-occupied, consent given, PPA preferred — site survey pending |

| Risk Area | Rating | Commentary |
|---|---|---|
| Roof Size | Amber | Usable area unconfirmed; needs drone survey |
| Shading | Amber | Adjacent terrace units create moderate shading risk |
| Roof Condition | Amber | Appears modern/new but structural load not assessed |
| Electrical Connection | Amber | TNB meter type and existing DB capacity unknown |
| Ownership Approval | Green | Owner-confirmed; no strata or MC approval required |
| REC Ownership | Amber | PPA terms must clarify REC allocation |
| Commercial Assumptions | Red | PPA rate in RM unconfirmed; 7-year payback not achieved |
| Bill Data Validity | Red | Submitted bill is hypothetical; no verified TNB consumption |
| Currency Consistency | Red | S\$ input from form was inconsistent with Malaysian address |
| NEM Eligibility | Amber | TNB NEM 3.0 eligibility for this system size not yet assessed |

The five most material risks for this case are, firstly, unverified electricity consumption data — the hypothetical bill means actual savings cannot be calculated with confidence. Secondly, unconfirmed usable roof area — the street-level image does not allow accurate panel count or system sizing. Thirdly, commercial viability at 7-year PPA tenure — preliminary modelling suggests capex is not recovered within the contract period without additional revenue streams such as NEM export or REC monetisation. Fourthly, currency and tariff inconsistency — the S\$ bill input suggests a possible data entry error that could propagate into incorrect savings projections if not corrected. Fifthly, shading from adjacent terrace units — without a formal shading analysis, actual generation could be materially lower than the base case estimate.

The immediate recommended actions are as follows. Singapore Solar Company should arrange a site survey and drone roof measurement to confirm usable roof area, panel layout, and shading profile. The homeowner should be requested to provide 3 to 6 months of actual TNB electricity bills to establish verified consumption. Singapore Solar Company's Malaysian commercial team should confirm the applicable PPA rate in RM and assess TNB NEM 3.0 eligibility for export revenue. A structural assessment of the roof should be commissioned to confirm load-bearing capacity for the proposed panel array. Finally, the PPA contract should clearly define REC ownership to avoid regulatory and contractual ambiguity.

This preliminary feasibility report has been generated by Homly, an AI-powered desktop assessment system developed for Singapore Solar Company Homes. The report is based on user-submitted information, a single street-level property photograph, a hypothetical (non-verified) utility document, and standard planning assumptions applicable to Malaysian residential solar installations. It is not a final engineering design, structural report, electrical assessment, legal opinion, regulatory submission, or financial prospectus.

All figures, estimates, ranges, savings projections, ROI calculations, and generation forecasts presented in this report are preliminary and indicative only. They are subject to material revision following on-site survey, verified consumption data, TNB grid connection assessment, structural inspection, Licensed Electrical Worker review, and final commercial due diligence. Singapore Solar Company makes no representation or warranty as to the accuracy, completeness, or fitness for purpose of this report. Homeowners and commercial stakeholders should not rely solely on this report to make financial, investment, or contractual decisions.

The currency conflict identified in this report (S\$ input against a Malaysian property) has been resolved in favour of RM for all calculations. The submitted hypothetical utility bill has been used for directional consumption inference only and must not be treated as verified billing data.

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