Mastercraft Solar Meeting Minutes (AI Generated)

Meeting Date	**10th April 2026**
Location	**Teams Meeting**

Summary:

The meeting reviewed technical and commercial requirements for moving from rooftop to larger ground-mounted and commercial solar installations, prompted by interest in a 300–400 kW site. Attendees introduced company capabilities and who can support design and execution for above-residential-scale systems, and recommended first collecting the site load profile and time-of-use data before design choices. The group flagged network and protection thresholds for larger systems, including secondary grid-fault protection near ~110 kW and variable distributor limits, and discussed consenting risk where councils may require resource consents and associated costs.

Design and construction details were examined next, including typical land area (~1 MW per hectare), table sizing and spacing, layout/shading software options, cable containment and labelling standards, PS1 structural checks for roofs, mains voltage-rise calculations for commercial runs, and discretionary string-fusing for exposed DC. Participants compared commercial inverter platforms and sizing constraints, discussed 800 V inverter use with dedicated transformers and 11 kV connections, and illustrated transformer economics for self-consumption versus export. The group also compared quoting/design tools, agreed to offer paid electrical design checks and training support, addressed earthing and farm-specific bonding practices, reviewed regional pricing and supplier-channel constraints, noted recent panel price and shipping increases, surveyed mounting product preferences, and agreed to coordinate offline on sourcing and resourcing for large jobs.

Chapters & Topics:

Opening and casual introductions

The meeting opened with informal greetings and roll-call style banter as participants joined and exchanged brief social remarks and logistics before the agenda was introduced. This section establishes who was present and that Peter McInally, among others, was driving while participating.

Trilect / Kiwi Solar introductions and meeting topic

Peter introduced guests from Trilect and Kiwi Solar and framed the core question for the session: how to proceed once systems exceed 30 kW, particularly moving toward ground-mounted and grid-scale knowledge transfer. Attendees were invited to ask questions about larger projects.

* The group identified the meeting's primary concern as how to approach systems above 30 kW, particularly ground-mounted projects in the 300–400 kW range.

Project brief — 300–400 kW ground-mount scenario

Nathan described a client planning a new 300–400 kW plant with daytime operations (7–5) and nearby land and network connections, asking where to start and how to plan for offset and potential export. The group discussed basic strategy including prioritizing PV, considering export constraints, and checking time-of-use and operational hours.

* Attendees recommended collecting the customer's time-of-use profile as an initial planning step for a large commercial installation.

* The group advised prioritizing additional PV panels over batteries for larger offset-focused systems unless batteries are specifically required.

Network, protection, and PVDB requirements

Technical requirements were raised for larger installations, including the need for secondary grid-fault protection (PVDB) commonly triggered above ~110 kW, inverter coordination across multiple inverters, and variability by network operator; manufacturing and installation costs for PVDBs were also discussed.

* Above approximately 110 kW most networks require secondary grid-fault protection (a PVDB) to coordinate inverter shutdowns.

* Kiwi Solar / Trilect offered design, mechanical, electrical, and consulting support for larger ground-mounted projects.

Resource consent, site planning, and land area guidance

The group emphasized checking local council rules early since ground-mounted arrays may require resource consent and detailed reporting that can materially increase costs; participants provided practical land-use estimates (~1 MW per hectare) and discussed siting, glare, and spacing considerations.

* Resource-consent requirements vary by council and can impose substantial costs and reporting for ground-mounted arrays, so checking with the local council first is crucial.

* Rough land-area guidance was given as about 1 MW per hectare (≈1,000 m^2 per 100 kW) before accounting for access and infrastructure.

Design practices, containment, PS1, and electrical sizing

Attendees covered commercial installation differences: routing from conduit to cable tray for larger DC string counts, using lidded Cleanergy Runner trays, the need for PS1 structural verification on roofs, and stricter voltage-rise calculations from inverter to point of supply that can require larger mains cables.

* For commercial rooftop jobs, expect to price and install cable tray (not conduit) for DC reticulation and to budget for PS1 structural checks.

Safety practices, string fusing, installer confidence, and market trends

The team discussed discretionary safety measures such as string fusing for exposed or buried DC cables, inspector interpretation variability, and operational challenges on large commercial and public-site installs; speakers encouraged smaller installers that they can scale from 30 kW to 100 kW while noting regional demand differences.

* Lidded cable trays under the array (out of direct UV) are acceptable in the group's view; conduit is not required when properly enclosed and secured.

* String fusing on DC runs is treated as an extra safety measure for exposed or buried cables rather than an absolute regulatory mandate.

Inverter vendor experiences and SIG adoption

Participants compared residential interest driven by EV adoption and then discussed inverter choices for ~100 kW and above, identifying Sungrow and Huawei as prior go-to options and noting occasional failures but generally good support. The group highlighted SIG Energy as a recent preferred commercial inverter with strong self-service fault resolution via its application, though direct tech support can be hard to reach.

* The team's preferred inverter vendors historically were Sungrow and Huawei, and they have installed multiple megawatts using those brands.

* SIG Energy commercial inverters have performed very well in recent installs and the team has switched from Sungrow to SIG with generally positive results.

Design services offer and discussion of high-watt panels and inverter limits

Logan asked whether Peter, Tom, and Andrew would accept referred systems for electrical design checks for a small fee and the group expressed willingness to provide that service. The discussion then moved to panel stringing and that current—not voltage—is the limiting factor when using large 700 W panels, and the need to ensure inverter maximum current and MPP input ratings are not exceeded.

* The group agreed to offer paid electrical design and cable-sizing checks for referred systems from the group perspective.

* Very high-wattage panels (above ~680 W) can exceed inverter current inputs and require checking inverter maximum current or using higher-voltage inverters.

* The team uses 800 V output inverters for solar farms where a dedicated transformer and 11 kV connection exist.

Use of high-voltage inverters, transformers, and commercial rooftop examples

The team explained that 800 V output inverters are used on solar farms where a dedicated transformer steps output up to 11 kV, and that such arrangements are usually inappropriate for self-consumption commercial installs due to poor ROI. The South Park

2.8 MW rooftop example was presented where an on-site transformer was justified because generated power was sold at market rate, improving ROI.

* Installing a transformer for a commercial self-consumption system is usually not ROI-positive unless the site sells generated power, as in the South Park example.

Design tools and platform choices (OpenSolar, Pylon, SolarPlus)

* OpenSolar is widely used because it is free and provides professional-looking quotes, but it currently lacks some commercial stringing and site-plan features compared with paid tools like Pylon.

Participants compared software: OpenSolar is free and produces professional quotes that track customer engagement, while Pylon offers deeper customization (volt-rise, cable lengths, single-line diagrams) but requires paid subscriptions and significant setup. Attendees noted OpenSolar's evolving features and that commercial inverter libraries or site-plan capabilities may be incomplete, prompting some to continue using paid tools until parity is achieved.

Commercial quoting practicalities and procurement behavior

The group discussed the cost trade-offs of paying for software versus per-design fees, with some preferring annual subscriptions to avoid per-design charges and others emphasizing the need to filter unnecessary output from software to avoid overwhelming customers. They reiterated the importance of not driving to sites before confirming client interest to avoid wasting time and potentially educating customers who then buy elsewhere.

Earthing, bonding practices, and farm-specific issues

The team reviewed earthing requirements: rails bonded (commonly 6 mm) to junctions and larger conductors (e.g., 16 mm) back to the MSB, following Table 5.1 and checking earth-fault loop impedance with volt-rise considerations typically leading to oversized cables. They discussed farm issues where animals can react to EMF or stray currents, and described mitigations including additional earth pegs, triple earthing, and ensuring electric-fence units are properly earthed with multiple stakes to prevent current finding the solar array as a return path.

* Proper earthing and bonding practices were specified: bonding rails to junction points with 6 mm and running 16 mm (or per Table 5.1) back to the MSB for commercial arrays.

* Dairy farms can require additional earthing (multiple earth stakes or secondary earth pegs) because animals may be sensitive to EMF or stray currents, which can disrupt milking operations.

Indicative pricing for a 100 kW system

An indicative turnkey installed cost was provided for a 100 kW system, stated as $1.20 to $1.40 per watt.

Pricing variability and estimating

Participants discussed how site specifics and chosen materials cause estimates to differ and that Auckland pricing is higher than other regions. The group emphasized caution when presenting large system sizes to customers to avoid unrealistic expectations.

* Pricing and site requirements vary significantly by location and materials, so estimates must be tailored per site.

* Standardizing on a common inverter and rail can unlock better supplier discounts through repeat orders and stronger relationships.

Standardizing products to improve buying power

The conversation moved to the benefit of selecting a common inverter and rails to approach suppliers for bulk pricing and leverage existing relationships. Attendees noted where participants currently source SIG Energy and who uses Ideal versus Russell's.

* Distribution rights and intermediary agreements are creating local supply constraints and shifting where installers can source SIG Energy products.

Supplier channels and distribution issues

Attendees raised concerns about supplier exclusivity, intermediaries, and rights to sell specific products, with multiple mentions of J Russell's, Ideal, Telfers, and Scotts as

sourcing routes. The group debated the practical implications for local supply continuity.

* The group agreed to coordinate supplier negotiations and to prepare for larger jobs by arranging deposits, client agreements, and potential onsite support from apprentices.

Panel market pricing and shipping impacts

Andrew detailed recent FOB price increases from ~8.5c to ~12.5–13c USD per watt and escalating container surcharges driven by global events, and he highlighted cash-flow timing issues when importing large volumes. Participants discussed how these increases affect project margins and the threshold where importing becomes viable.

* Landed panel costs have increased substantially due to export policy changes and higher shipping rates, which affects job pricing and cash flow for large imports.

* Importing panels or mounting structures can reduce unit cost but requires significant cash up front and only makes sense for large-volume jobs.

Importing components, deposits, and financing

The team weighed the tradeoffs of importing panels, inverters, and mounting structures, noting warranties and compatibility concerns for inverters and favorable unit-costs for rails and mounting. They discussed asking clients for substantial deposits (40–50%) on large jobs to mitigate cash-flow risk.

Mounting products, tactical tips, and closing coordination

The group reviewed preferred mounting solutions including Cleanergy, Mebit, and the Australian Sunlock product, and shared a Schlitter T50 rail tip for roof spacing over 1.2m. The meeting concluded with offers of design help and apprentice support for large jobs and plans to coordinate supplier negotiations offline.

* Cleanergy rails and alternatives like Mebit and the new Sunlock product are being evaluated for commercial use, and Schlitter T50 rails are a practical solution for wider roof spacing.