

A review of Austin Energy solar & battery deployment policies, with improvements identified

Part 2: The AE solar rebate and Inspection

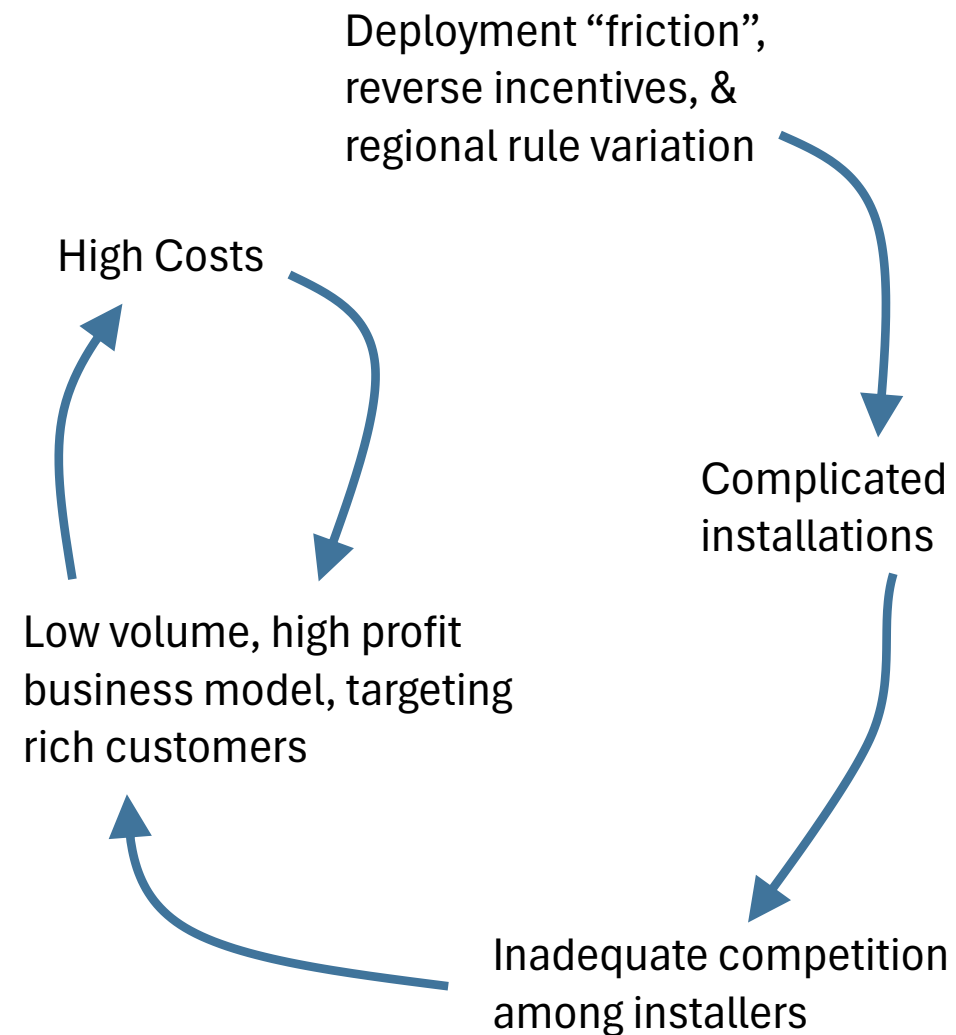
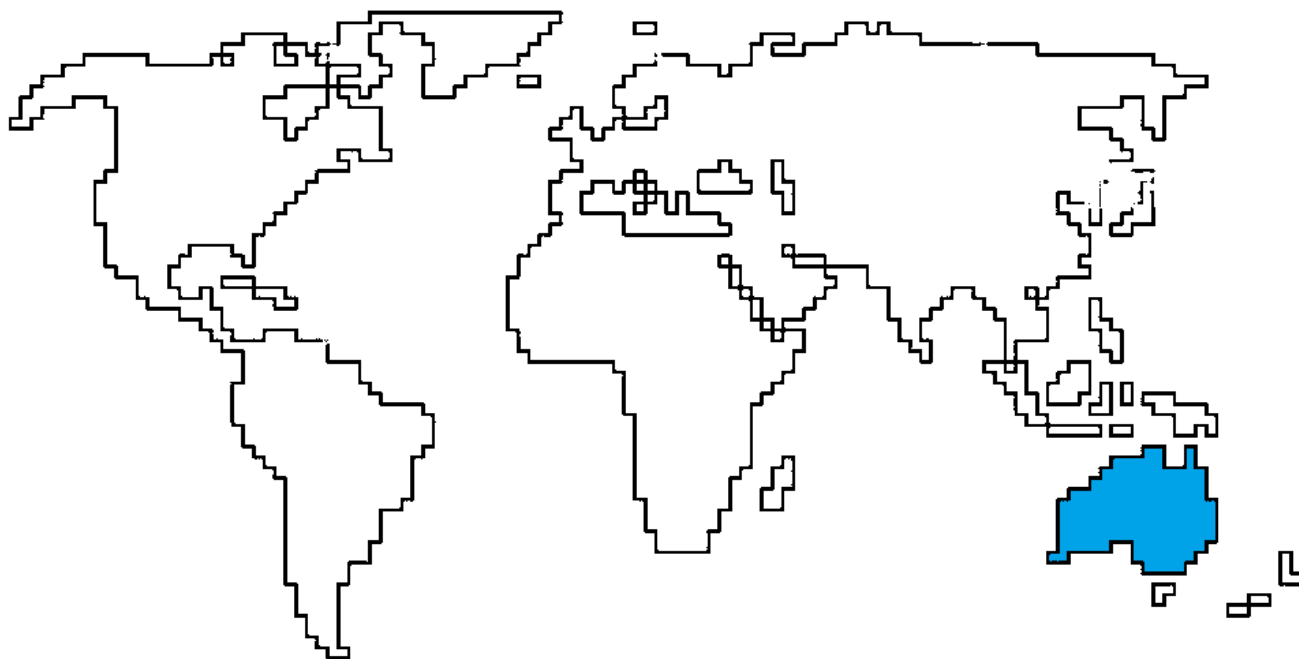
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18 JUNE 2024



AE Solar Rebate

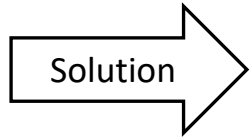
Australia enjoys fully installed solar, on homes, at 1/3 the cost of the USA. **Why?**



AE Solar Rebate - \$2500 Fixed (single family), \$ 0.60 / W (multi family)

Requirements		Problem with Requirement
System	Customers must pass and take a quiz about solar	Useless friction. Customers don't need to memorize / deeply understand solar, they need a few key pieces of information available for reference.
	Systems must be 3 kW or larger for single family home residential	No issue with this, for a fixed rebate.
	Total solar resource fraction (TSRF) must be 75% for entire system. TSRF = how much sun the panels get, all things considered (shade, angle).	Key problem - a 10 kW system with 74% TSRF would receive no rebate, and this has more value than a 3 kW system at 75% TSRF.
	Customer forfeits renewable energy credits generated by system	This takes advantage of customers ignorance - no reason that a small rebate should entitle AE to all future value generated by REC's.
	Systems over 110% of historical usage need an exception	Counterproductive . Having a larger than historical system might mean simply planning for an EV or heat pump, and building your solar to support that.
	Roof penetrations must be flashed, or a pre-approved type	Useless friction. AE is not a test lab and is not qualified to require this- there are UL standards all solar panel mounting systems.
Contractor	Must be approved by AE	Contractor friction decreases competition among contractors.
	Identify subcontractors to AE	
	Be able to provide a shade report	Marginally useful, but still friction .
	Provide 10-year warranty	Having 10-year warranty provides customers with false sense of security and requires contractors to hold those costs on their books. Massive barrier to competition! Contractors can compete on warranty as well as price, for customers.

AE Solar Rebate – an alternative strategy



Rewrite solar rebate rules, eliminating all non-value add rules, particularly:

- Remove the requirement to take a quiz. Instead, provide customers with **up-to-date** quick reference guide for useful facts (\$/W, system types, tradeoffs), and detailed example quotes.
- Change the requirements for whole system at 75% TSRF to minimum 3 kW at 75% TSRF.
- Give REC credits back to customers
- Remove historical 110% oversizing rules
- Remove approved contractor requirements
- Change 10-year parts and labor warranty -> 2-year labor (modules and inverters already come with equipment warranties)
- Offer to rebate contractors the cost of a drone-based shade report, directly. \$200?
- Allow used panels, so long as they are identified as used.

AE Solar Inspection

AE Solar Inspection

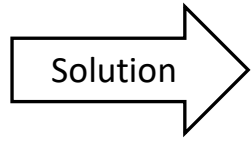


Distributors make special Austin Energy sticker packets, because so many unique labels are required in Austin. **Red labeling everything makes first responders' jobs harder** when they need to disable equipment. How quickly would you be able to find the rapid shutdown switch?

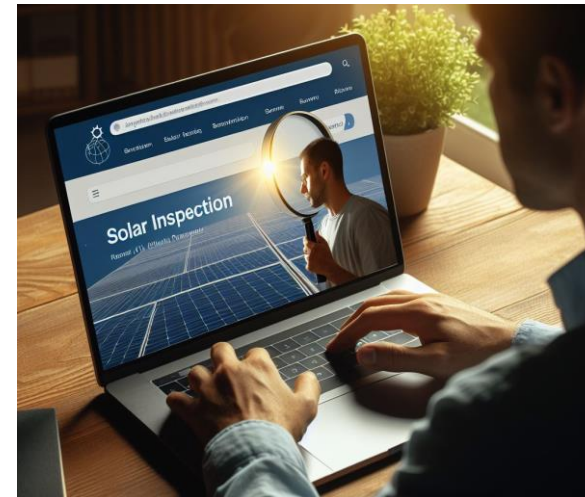
AE Solar Inspection issue highlights:

- An unreasonable amount of red labels on equipment
- EMT conduit is the only type allowed
- Certain installs need a professional engineer's stamp, while others do not
- An expensive type of meter socket is required
- Additional, unnecessary, and oversized wiring is required for installs
- Only copper wiring is allowed
- Only stainless-steel fasteners are allowed

AE Solar Inspection – an alternative strategy



- **Rewrite solar inspection requirements, eliminating all non-value-add requirements. See appendix.**
- **Make solar inspection closed-form. i.e. -> give the contractors the “answer key” before the “test” and inspect ONLY those things.**
- **Allow solar inspections to be submitted online. It comes down to a set of photos / screenshots, which can be uploaded. Scheduling inspections adds unnecessary friction.**



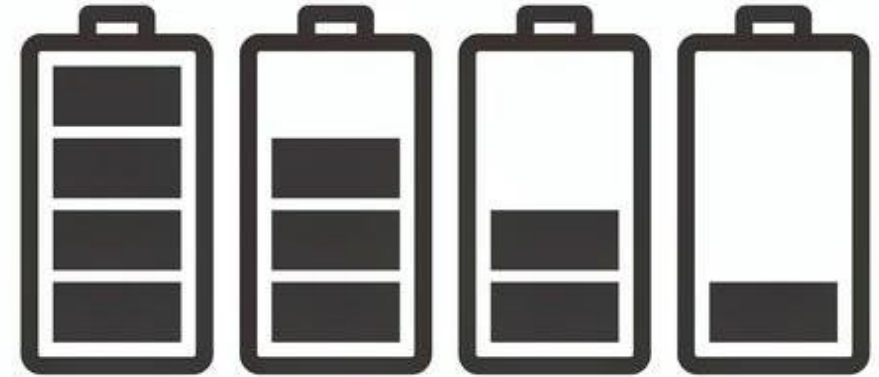
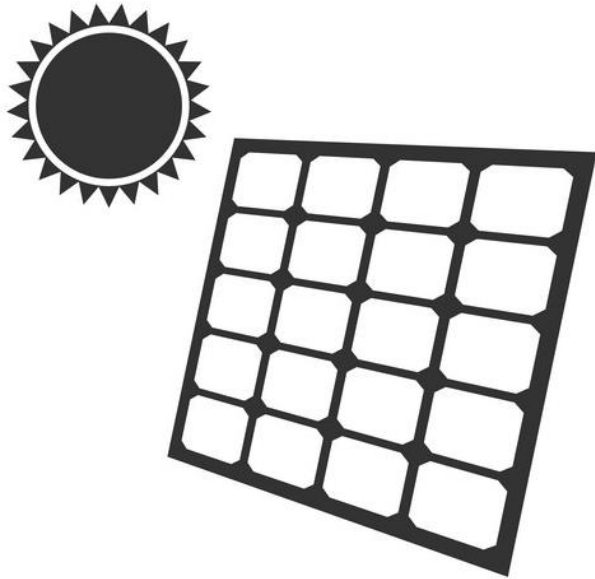
Appendix

Appendix – Issues with Solar Inspection Checklist

Requirement	Problem with Requirement
Solar panels with tilt, solar roof tiles, or extending past roof line need professional engineer approved plans	This seems like excessive install friction. Roof rack mounts and solar roof tiles all have manufacturer instructions that can be followed, and UL certifications.
All Upgrade or Repair electrical permits for the same property are closed.	Excessive. Why is this needed?
Installation is consistent with electrical design drawings.	Design drawings are not reviewed before permit is issued - so why does this matter?
All electrical components are installed per manufacturer's specifications.	Generally OK, but there should be room for common sense deviations. Manufacturing instructions sometimes have errors / are incomplete / overlook obvious alternative strategies. Manufacturing instructions are not reviewed, and sometimes there are no manufacturing instructions at all.
All equipment has permanent labels.	Unclear what this even means. Some equipment is labeled, some isn't.
Any equipment that cannot be grouped has a variance approval	What exactly needs approval here? Can this just be predefined guidance? i.e. group together, unless you can't, in which case, do _____.
Dissimilar metals that have galvanic action are isolated.	All dissimilar metals have "galvanic actions", it is impractical/impossible to "isolate" all dissimilar metals. This requirement is not meaningful.
Solar PV meter socket is installed on line side of AC disconnect.	This makes no difference - why is it required?
For system serving standby loads and isolation point is in inverter, 2nd PV meter socket is installed between inverter and standby loads panel	Moot point in net metering. The need for this illustrates the absurdity of the hardware required to make Value of Solar work.
Meter socket is approved by Austin Energy for use	Moot point in net metering. AE approved meter sockets are \$300, which is excessive and unnecessary. Again, this is what UL listings are for.
Main building disconnect is present and adjacent to the billing meter per AE Design Criteria Manual 1.8.4	Excessive friction. This is always pre-existing equipment. If pre-existing equipment is functional and safe, it should not be disturbed.
Grounding conductor is minimum 6AWG through PV and ESS disconnects.	6 AWG is a very large wire. This drives excessive cost into systems, and there is no functional need to demand a wire of this size for grounding.
Neutral is sized to match largest energized conductor from point of service to service disconnect.	This seems unnecessary - there are no significant loads on the solar side of the service - sometimes just a gateway (a 120V computer which uses the neutral wire), which is a very small load. Many installs have no gateway, but AE still requires a neutral be run, for no reason.
Neutral is broken in PV meter socket and AC disconnect	Why is this necessary?
Manual, bladed disconnect is installed to separate DG/DER system from rest of electrical system.	A bladed disconnect is usually unnecessary, because most systems have another way to be turned off, i.e. breakers in an AC aggregate panel, or an RSD or on/off switch in a DC string inverter system.
SPD is Type 1 or 2, and listed for the purpose.	Is it necessary to install an SPD for a solar system?
Copper only.	Unnecessary requirement, drives installation cost. Modern aluminum wire is safe and used commonly.
PV communication wires are in separate raceway from PV output conductors.	Why is this necessary? Manufacturer instructions may or may not specify this.
Conductors in the attic are in metal conduit.	This is an over-reach. NEC already has rules about this.
Stainless steel fasteners are used on modules and racking.	Unnecessary. Many non-stainless objects exist on roofs, i.e. EMT conduit.
ESS plans are sealed by Professional Engineer.	Why is this necessary?
Inverter de-energizes when disconnected from AC source.	All of this functionality is required by NEC, and verified by the UL standards required for install. Unnecessary to test at install - this wastes time.
Inverter does not reconnect for 300 seconds after AC source is turned back on.	
Rapid shutdown installed, and voltage is below 30V within 30 seconds of shutdown initiation.	
ESS capable of operating in island mode.	

Source:

https://austinenergy.com/-/media/project/websites/austinenergy/contractors/ae_dg_interconnection_guide.pdf



Solar panels make power. **Power is what's happening right now.** Scientific units are Watts.

- 1 watt [W] = average cell phone
- 10 watts [W] = bright LED light
- 100 watts [W] = laptop charger
- 1250 watts [W] = average home power use

Batteries store energy. Energy is the accumulation of power, either stored or spent. **Power x time = Energy.**

- 12 watt hour [Wh] = average cell phone battery
- 80 watt hour [Wh] = use a laptop all day
- 80,000 watt hour [Wh] = Battery of an electric vehicle
- 30,000 watt hour [Wh] = average home daily energy use