

Energy Storage System Metering Configuration

ITWG Discussion

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**NEW YORK BATTERY
AND ENERGY STORAGE**
TECHNOLOGY CONSORTIUM

www.ny-best.org

Background - VDER Tariff

Some Uncertainty on Energy Storage compensation in value stack

- ❖ “Energy Storage paired with electric generating equipment, only the non-storage generation can qualify for Alternative 2 compensation.” – one utility tariff
- ❖ Not same in all utility tariffs, DPS has clarified ES green electrons should be eligible for Alt 2
- ❖ Stand alone Storage being fast tracked for VDER eligibility

Implications

Interim period of green/brown eligibility can lead to restrictive configurations

- ❖ Limiting inverter configuration (Limiting to DC coupled system)
- ❖ Preventing battery discharge to the grid

Or not receiving appropriate value

- ❖ Compensation limits (i.e. don't get alt 2)

Implications

Restrictions reduce benefit and value

- ❖ Building application BTM Storage + PV:
 - ❖ If the battery is precluded from discharging during times of injection (to avoid brown electrons) then system can't shift the green energy to higher value periods (i.e. Alt 2)
 - ❖ If can't grid charge the battery then cannot address customer demand
 - ❖ If separate service then no customer BTM benefits

Implications

Restrictions reduce benefit and value

- ❖ Community Solar + Storage:
 - ❖ Station power from the grid is likely necessary
 - ❖ If the Battery is precluded from exporting power then cannot shift CDG output
 - ❖ Battery may need to shift grid-source power to provide ancillary services (inverter configuration matters)

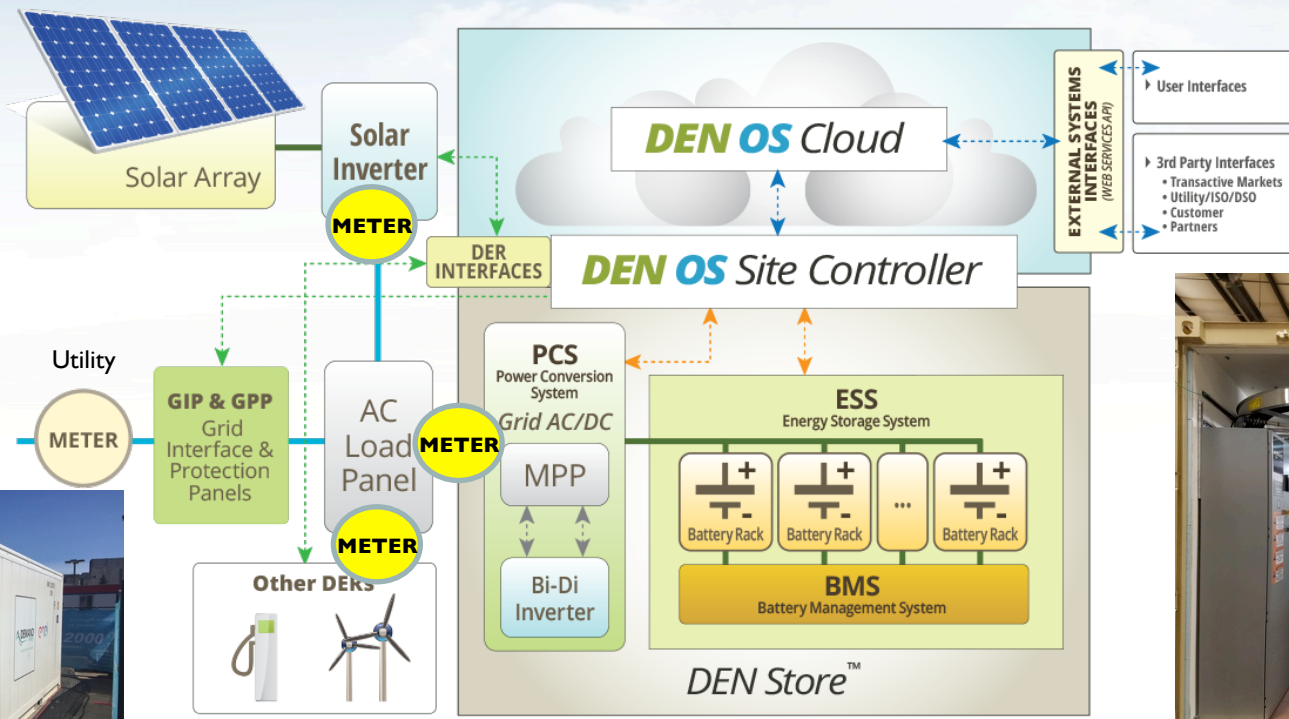
Steps to provide clarity

- ❖ Eligible generation shifted by energy storage can receive VDER Alt 2 Capacity
- ❖ Action should anticipate Standalone Energy Storage VDER
- ❖ Metering as a solution for making sure grid-sourced and green electrons are appropriately compensated (as opposed to restrictive configurations to prevent occurrence)

Key Use Cases

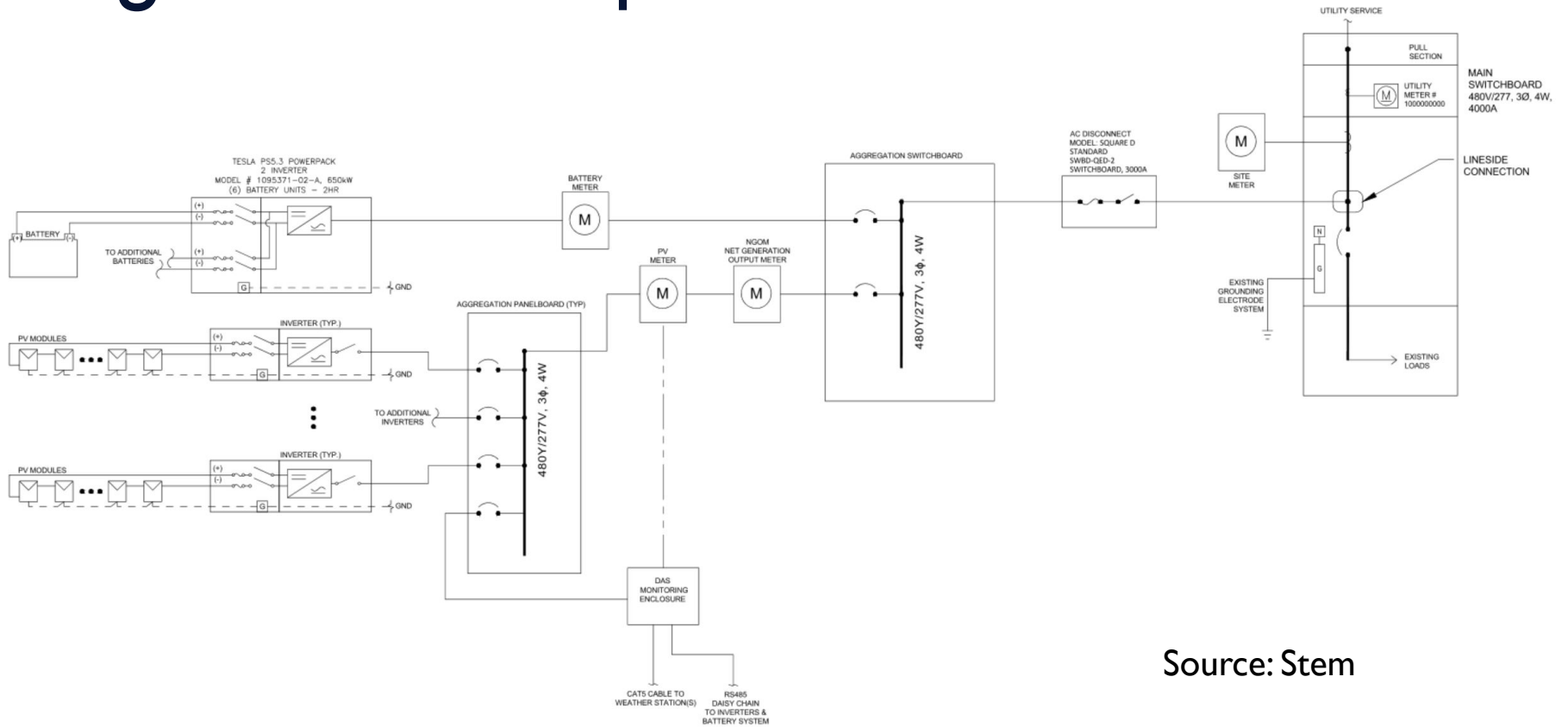
- ❖ Community/Remote Solar + Storage – Alt 2 capacity for PV-sourced energy during summer and flexibility to operate with grid-sourced energy to provide other services i.e. ISO ancillary or DISP...
- ❖ BTM Solar + Storage - Alt 2 capacity for PV-sourced energy during summer and flexibility to use grid-sourced energy to manage demand or provide services (i.e. demand response)

Typical Configuration



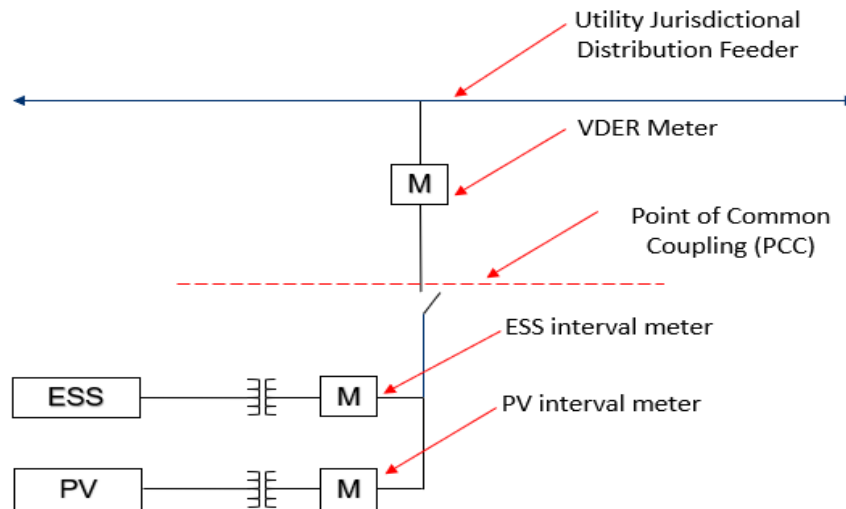
Source: Demand Energy

Single line example



Source: Stem

Flexibility of Multi-meter Configuration



Validate solar only
charging

Track grid and solar
charging

Meter output for future
attribute tracking

Tracking Grid-Sourced and Solar Electrons

Day	Timestamp	PV meter OUT (kWh)	ES meter IN (kWh)	Green Tag	Difference (abs val)	ES meter OUT (kWh)
1-Jun	0	0	0	1	0	0
1-Jun	1	0	0	1	0	0
1-Jun	2	0	0	1	0	0
1-Jun	3	0	0	1	0	0
1-Jun	4	0	200	0	200	0
1-Jun	5	0	0	1	0	0
1-Jun	6	0	0	1	0	0
1-Jun	7	4	4	1	0	0
1-Jun	8	118	118	1	0	0
1-Jun	9	321	371	0	50	0
1-Jun	10	1571	1571	1	0	0
1-Jun	11	1785	1736	0	0	0
1-Jun	12	1848	0	1	0	0
1-Jun	13	1757	0	1	0	0
1-Jun	14	1498	0	1	0	800
1-Jun	15	1004	0	1	0	800
1-Jun	16	152	0	1	0	800
1-Jun	17	0	0	1	0	800
1-Jun	18	0	0	1	0	800
1-Jun	19	0	0	1	0	0
1-Jun	20	0	0	1	0	0
1-Jun	21	0	0	1	0	0
1-Jun	22	0	0	1	0	0
1-Jun	23	0	0	1	0	0
Measured				ESS Output 2-7pm		4000
Calculated				Total Grid Charge		250
				kWh for Alt 2		3750
				kWh for Alt 3		250

Interval data is collected from meters at both the PV and ESS terminals

Grid-sourced and green energy is tallied

Appropriate compensation is applied to each

Source: Borrego Solar

Other Considerations

- ❖ Due to cost of metering would not want to require multiple meter configuration for small systems (residential, possibly small commercial)
- ❖ Creates more overhead for utilities in billing
- ❖ Device level and/or third party metering should be allowed
- ❖ Can be used to choose VDER tariff or Load reduction for a DER output (Policy decision, but technically feasible)
- ❖ Metering can apply to both AC and DC coupled systems

Key Use Cases

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- ❖ BTM Solar + Storage - Alt 2 capacity for PV-sourced energy during summer and flexibility to use grid-sourced energy to manage demand or provide services (i.e. demand response)

Discussion