MUAs & Station Power

Multiple-Use Application and Station Power Workshop

June 2, 2017

CESA
CALIFORNIA ENERGY STORAGE ALLIANCE

Key CESA Principles for energy storage MUAs

Promote participation and efficiency from MUAs

- Keep options open but safeguard against potential bad actors
- Don't discriminate against MUAs – many current system resources fail to deliver services on occasion

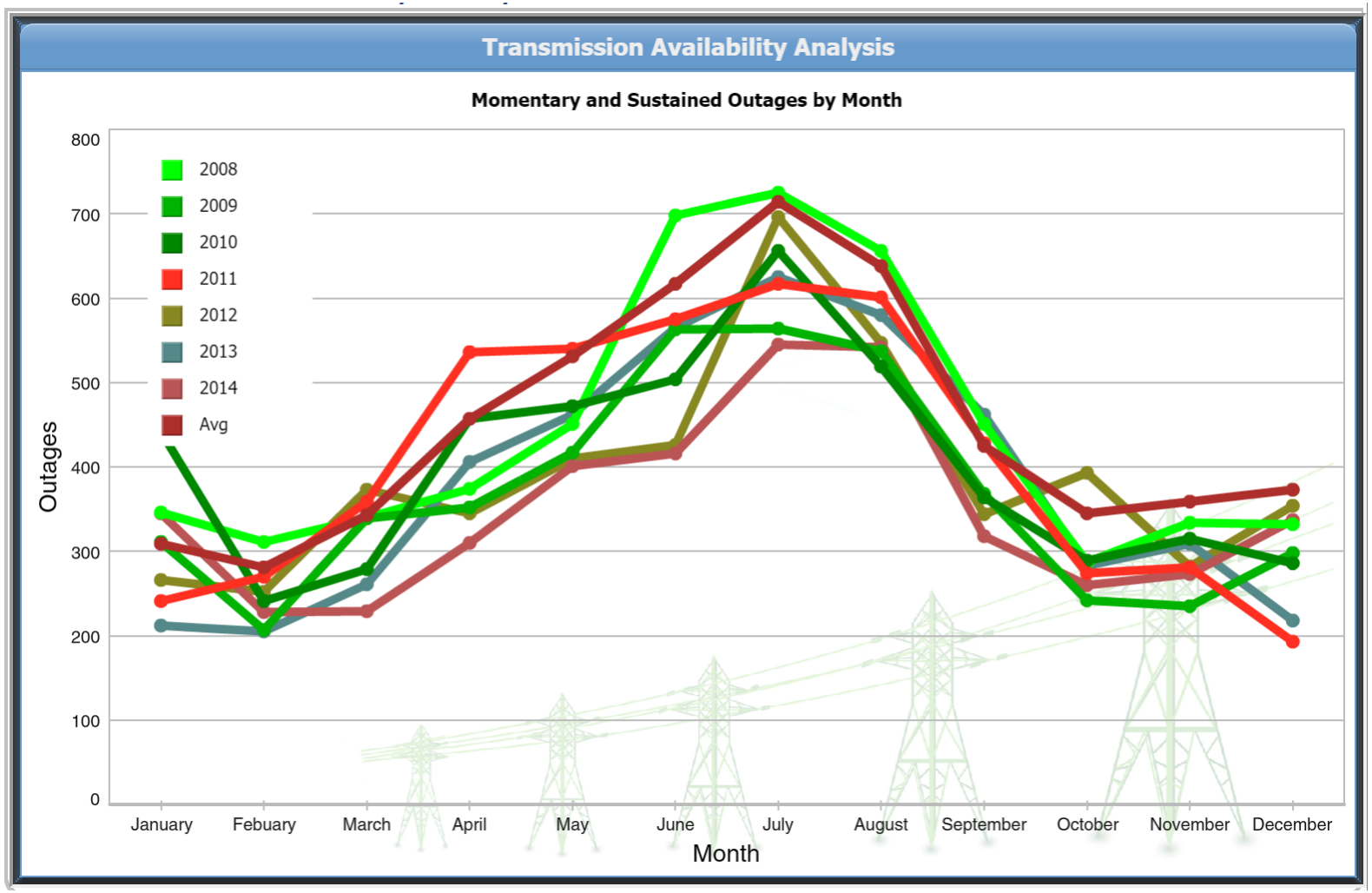
Maintain integrity for wholesale/retail and NEM accounting

- Many performance measurement systems should be allowed: meters, estimation, baselines
- Additional settlement/IT systems potentially needed in some applications

Market signals, operating needs, and price consequences should drive MUA behavior

- CPUC can direct and oversee the utility's development of signals
- No direct signals currently for Transmission or Distribution resource 'failure', e.g. a 'forced outage'
- RA, Wholesale Market, and Customer domain DO have signals, e.g. consequences reasonably clear if a service isn't delivered, directing behaviors appropriately

Example: Transmission Wires Can Be Unavailable Too



Source: NERC. http://www.nerc.com/pa/RAPA/tads/Pages/TransmissionAvailabilityAnalysis.aspx

MUA Authorization Framework

(Example Only)

All MUAs presumed workable, but 'checks' of the MUA may reveal where additional regulatory or other consideration is needed.

MUA	Check #1: Performance measurement approach should be sufficient and preserve NEM and wholesale/retail integrity, within reason.	Check #2: Ensure station power rules are appropriately reflected	Check#3: Non-discriminatory Market/price signals in place to direct behaviors.	Check #4: Consider any needs for additional operating criteria, unmanageable reliability concerns, or IT, accounting and settlement solutions.	Final Assessment
Example MUA #1	✓	✓	✓	✓	✓
Example MUA #2	✓	✓	?	✓	Action may be needed

MUA and Station Power Background

- CPUC deferred final action on MUAs and Station Power for BTM configurations
- CESA reviewing BTM performance measurement configurations for "checks" #1 and #2
  - Simplest to base assessments off of metering, but baselines or estimation/sampling could replace metering needs
- Key distinction for MUA is whether BTM storage is exporting or not
  - Not exporting – typically fewer issues
  - Exporting – more scrutiny needed
- Approach - bookends
  - Assume operations for MUA – review for if 'checks' are met.
  - Consider 'Bad Actor' scenario – potential for a bad actor shouldn't *prima facie* preclude a MUA

BTM Energy Storage in Wholesale Market

Desired outcomes:

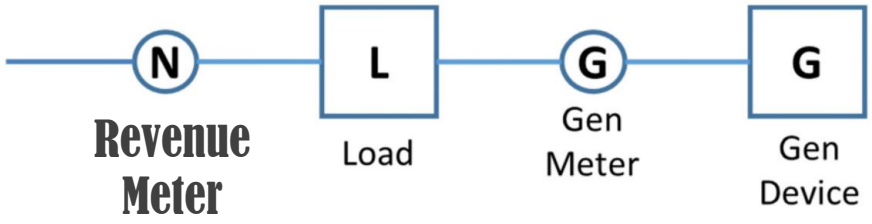
- All retail load consumption is at retail rate
- Auxiliary loads or generation services should be settled at the wholesale energy price
- Station power loads are retail but subject to permitted netting rules
- Track charging and discharge for wholesale services where applicable

Illustrative Scenarios

- Scenario 1 – 2-4pm charge/4-6pm discharge *(Good actor)*
- Scenario 2 – 2-4pm charge then self consumption *(Bad actor)*
- Scenario 3 – Split discharge *(Combination)*

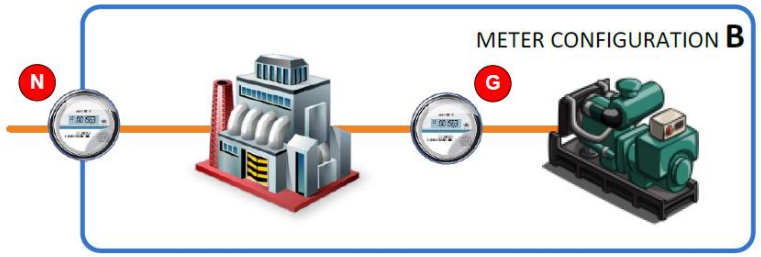
Configuration #1 – *approved today (MGO)*

Last in first out (LIFO) accounting



Source: ESDER ER16-1735

or



Scenario 1	2pm	3pm	4pm	5pm	6pm
Meter N	10	10	-10	-10	5
Meter G	10	10	-10	-10	0
Load	0	0	0	0	5
Wholesale	10	10	-10	-10	0
Retail (N-W)	0	0	0	0	5

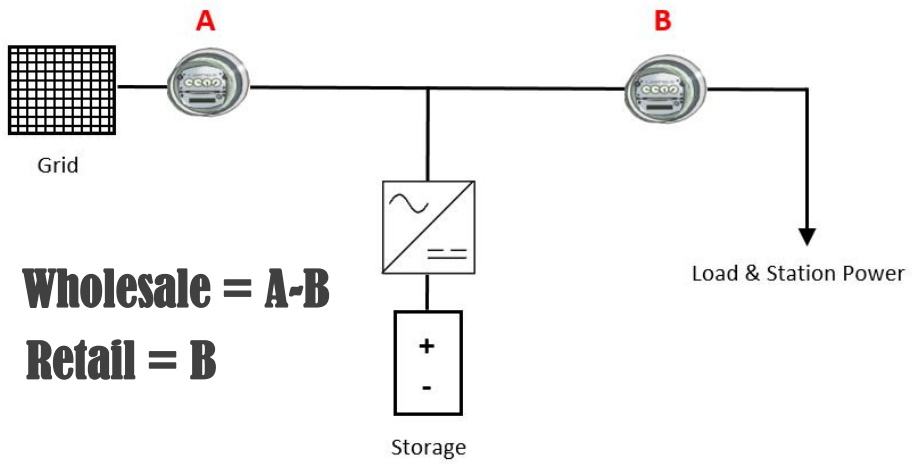
Scenario 2	2pm	3pm	4pm	5pm	6pm
Meter N	15	15	0	0	5
Meter G	10	10	-10	-10	0
Load	5	5	10	10	5
Wholesale	0	0	0	0	0
Retail (N-W)	15	15	0	0	5

Scenario 3	2pm	3pm	4pm	5pm	6pm
Meter N	15	15	-5	-5	5
Meter G	10	10	-10	-10	0
Load	5	5	5	5	5
Wholesale	0	10	-5	-5	0
Retail (N-W)	15	5	0	0	5

Slide courtesy of STEM

Configuration #2

	Scenario 1	Charge/Discharge (Good Actor)			
	Meter A	Meter B	A-B=Wholesale	B= Retail	
Time interval 1	10	0	10	0	Pay 10kWh at wholesale rate
Time interval 2	-9	0	-9	0	Earn 9kWh at wholesale rate
	Scenario 2	Default on Discharge (Bad Actor)			
	Meter A	Meter B	A-B=Wholesale	B= Retail	
Time interval 1	10	0	10	0	Pay 10kWh at wholesale rate
Time interval 2	0	9	-9	9	Earn 9kWh at wholesale rate but pay for all 9kWh consumed at retail rate*
	Scenario 3	Split Discharge (Combo)			
	Meter A	Meter B	A-B=Wholesale	B= Retail	
Time interval 1	20	0	20	0	Pay 20kWh at wholesale rate
Time interval 2	-9	9	-18	9	Earn 18kWh at wholesale rate but pay for all 9kWh consumed at retail rate*



Wholesale = A-B

Retail = B

* May need to adopt highest TOU price if it can't be distinguished when retail energy was charged.

Key Takeaways

- Goal and purpose of MUAs is to better utilize resources, create efficiencies, provide benefits, and support reliability or other grid needs
- So long as key criteria are addressed, e.g. the 'checks', MUAs should be allowed
  - Presumably unreasonable to disadvantage MUAs through unique restrictions that may not apply to others solutions
- Storage OIR is proper vehicle to direct select changes, within reason, needed for storage deployments like MUAs
- Marketizing key services through price or contractual signals is effective and efficient
  - Examples include LCR contracts, wholesale market 'no-pay' approaches, etc.
- Performance management configurations can address key 'integrity' concerns of wholesale/retail and NEM accounting

Thank You!

Questions?

Alex Morris
Director of Policy & Regulatory Affairs
California Energy Storage Alliance (CESA)
amorris@storagealliance.org
www.storagealliance.org

Stephen Sproul
Project Manager, CESA
ssproul@storagealliance.org
www.storagealliance.org