

NEM Aggregation Tariff Overview

Harold Hirsch, Sr. Regulatory Analyst
Maggie Dimitrova, Expert Program Manager

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Agenda

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Eligibility

Interconnection

Billing

Other programs and tariffs

Resources

Q & A



NEM Aggregation Overview



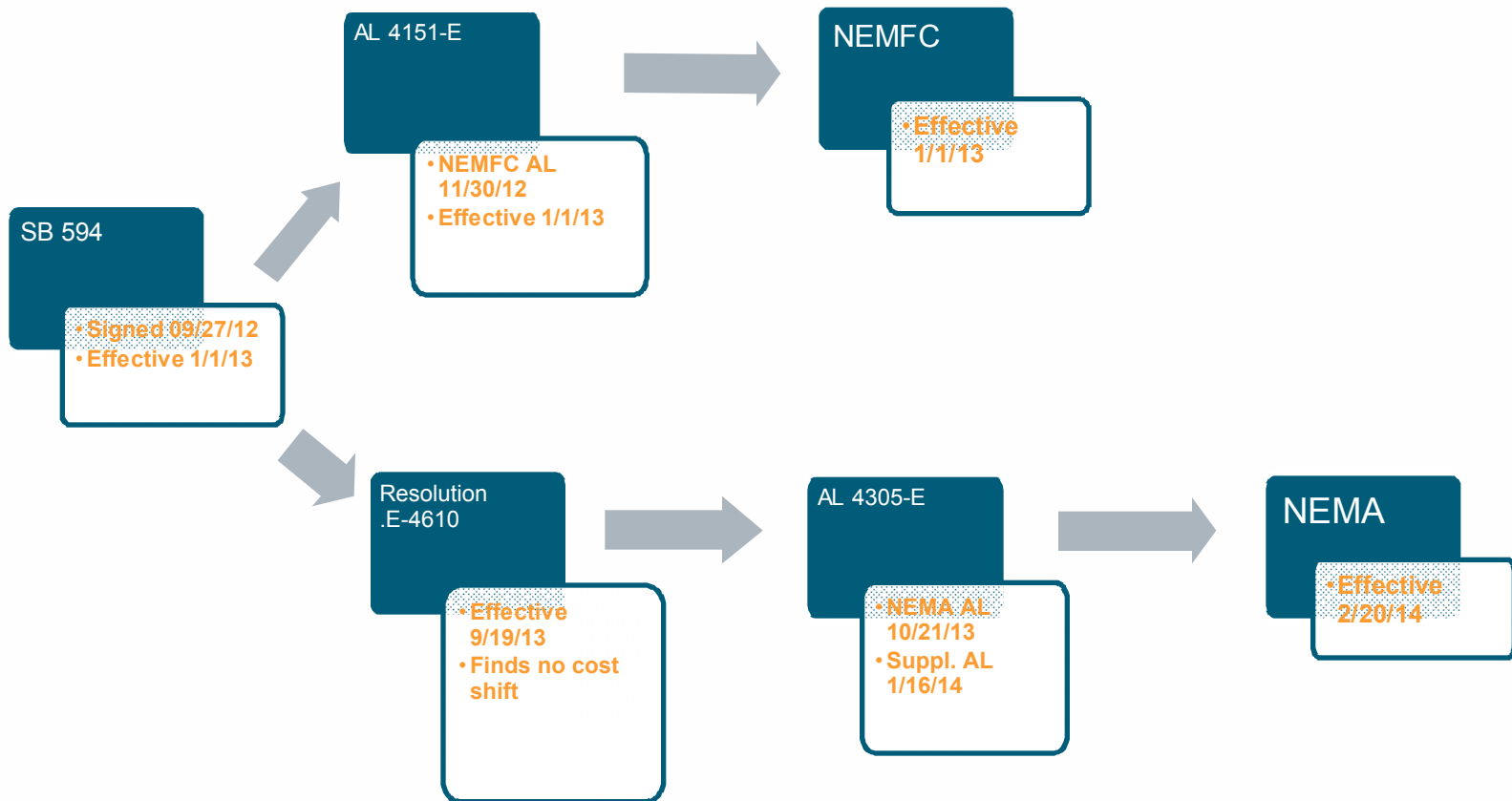
NEMA: Overview

SB 594 allowed a single customer with multiple meters on the same property, or on properties adjacent or contiguous to it, to meet their energy needs with a renewable generator sized to the aggregate load of all eligible meters under Net Energy Metering (NEM)

SB 594 led to the addition of NEMA (pronounced NEM "A") load aggregation provision in Rate Schedule NEM under Special Condition 8



NEMA: Timeline





NEMA: Definitions

Generating Account serves the renewable generator and may or may not have load other than that of the generator

- There can be only one Generating Account per Arrangement
- Multiple technologies can serve the Generating Account

Aggregated Account is any eligible load account elected by the customer for load aggregation

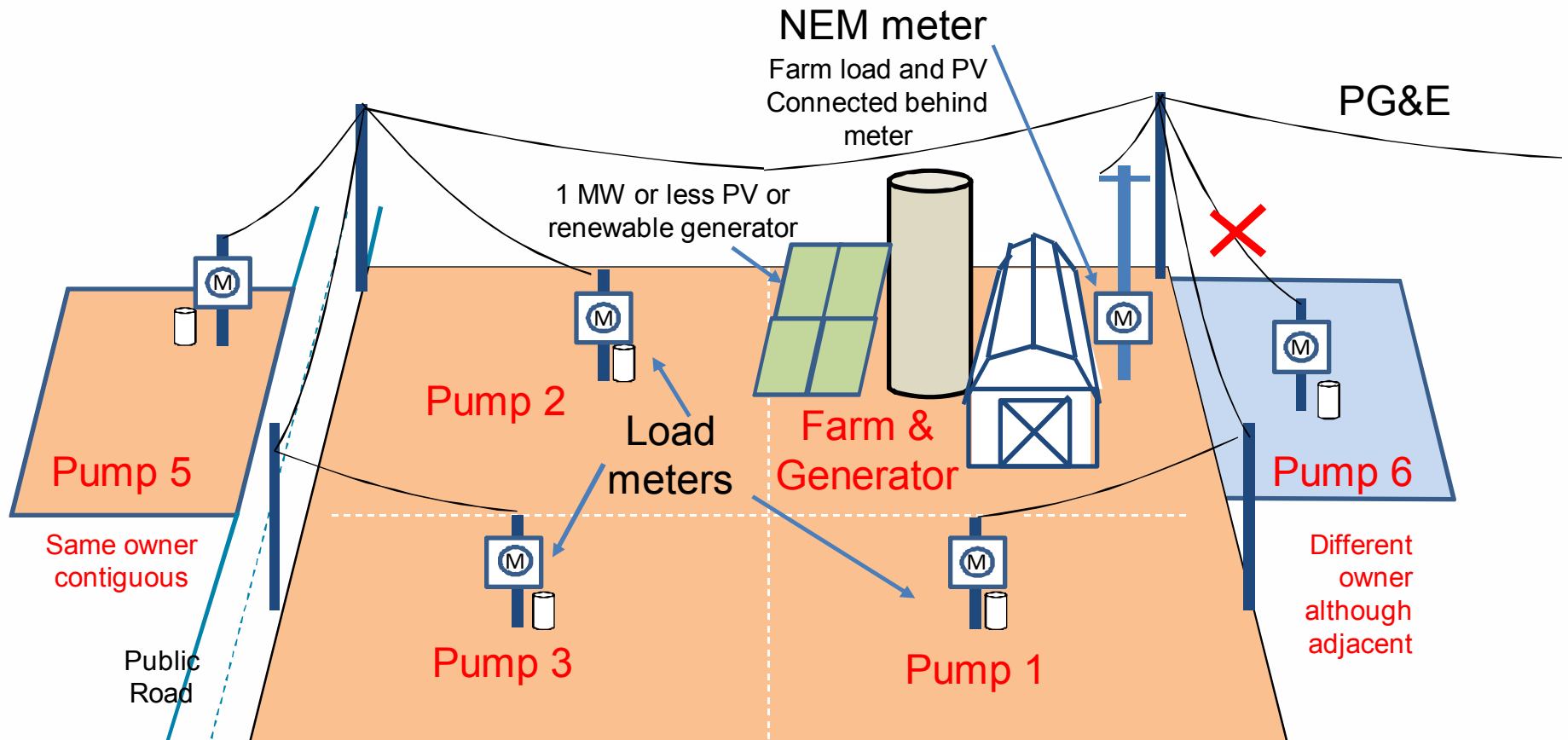
- Maybe a different rate class and under a different OAS

Arrangement includes all of the eligible Aggregated Accounts that would benefit from the renewable generator, including the Generating Account

- All accounts in the Arrangement are billed together under NEMA



NEMA: Big Picture

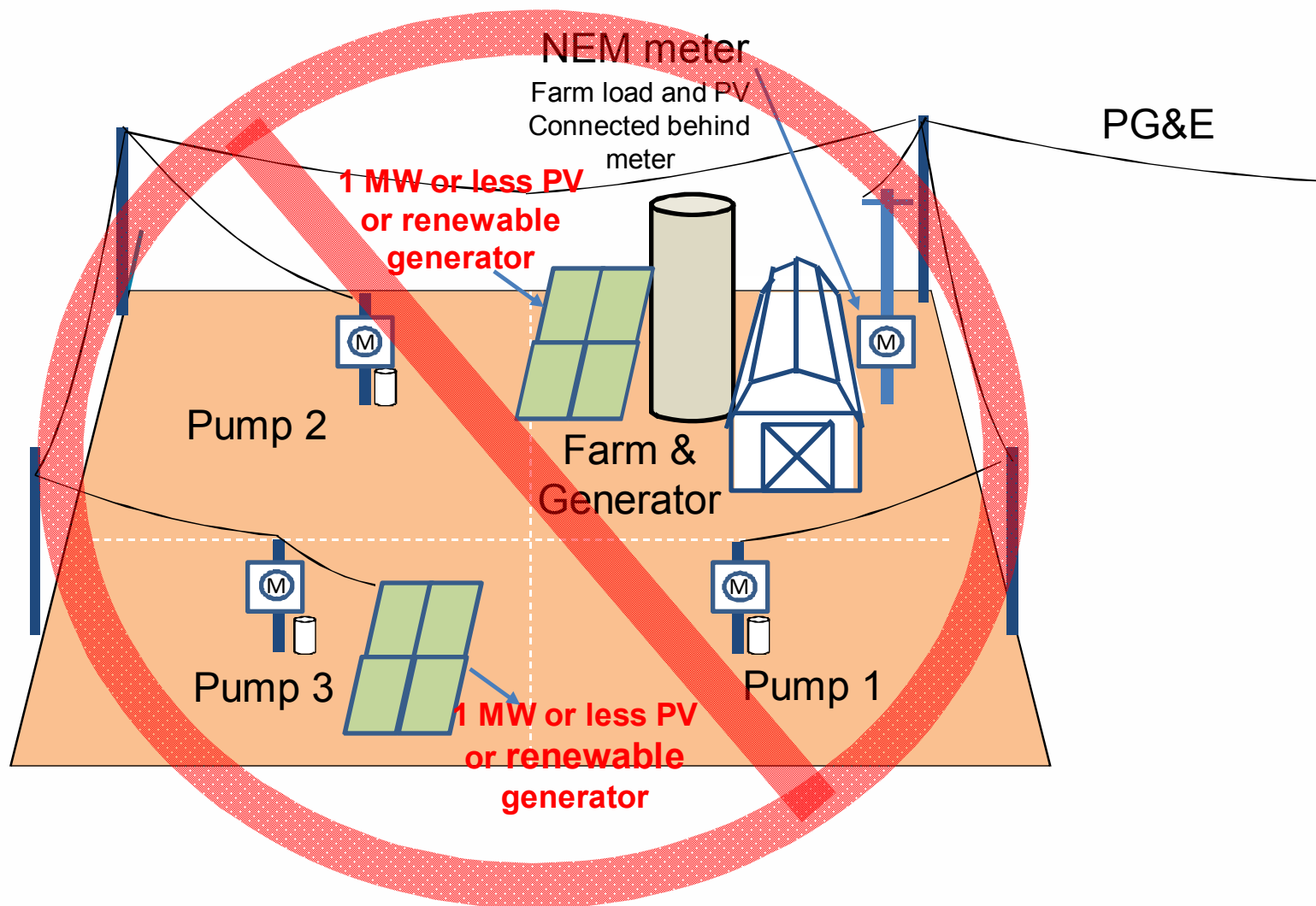


(A) Aggregated accounts are located on the property where the Eligible Renewable Electrical Generation Facility is located or on property adjacent or contiguous to that property as long as those properties are solely owned, leased, or rented by the Eligible Renewable Customer-Generator.

(F) For purposes of this paragraph, parcels that are divided by a street, highway, or public thoroughfare are considered contiguous, provided they are otherwise contiguous and under the same ownership.



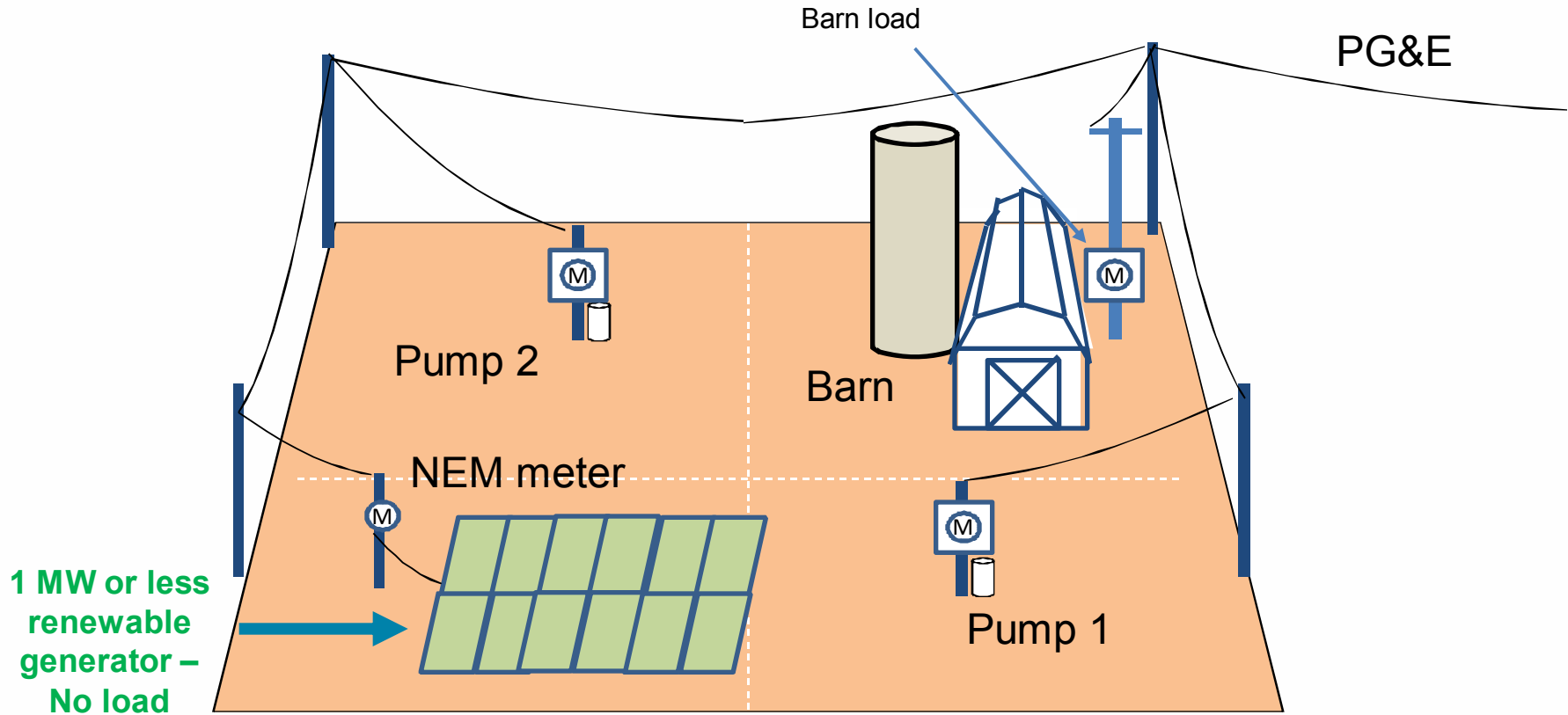
NEMA: Single Generating Account



An arrangement can only have one generating account. This would have to be split into two arrangements.



NEMA: Greenfield Generating Account



An arrangement can have the generating account as a no load account. This can also be done with a second service on a parcel where there is an existing load account. The generating account will need to be on a general service rate (e.g. A1, A6, A10, E19, E20)



NEMA Eligibility



NEMA: Technologies

Eligible renewable generators include...

- **Solar photovoltaic**
- **Solar thermal**
- **Biomass**
- **Wind**
- **Geothermal**
- **Fuel cells using renewable fuels**
- **Storage (batteries)**
- **Digester gas**
- **Municipal solid waste conversion**
- **Landfill gas**
- **Ocean wave, ocean thermal, tidal current**
- **Small hydroelectric generation**



NEMA: Eligibility Requirements

Size – up to 1 MW and sized to the aggregated total annual load (kWh) of the eligible accounts that are ...

Property – located on the property with the generator or properties adjacent or contiguous to it as long as ...

Ownership – all properties are solely owned, leased, or rented by the customer and...

Accounts – all accounts are under the same customer of record

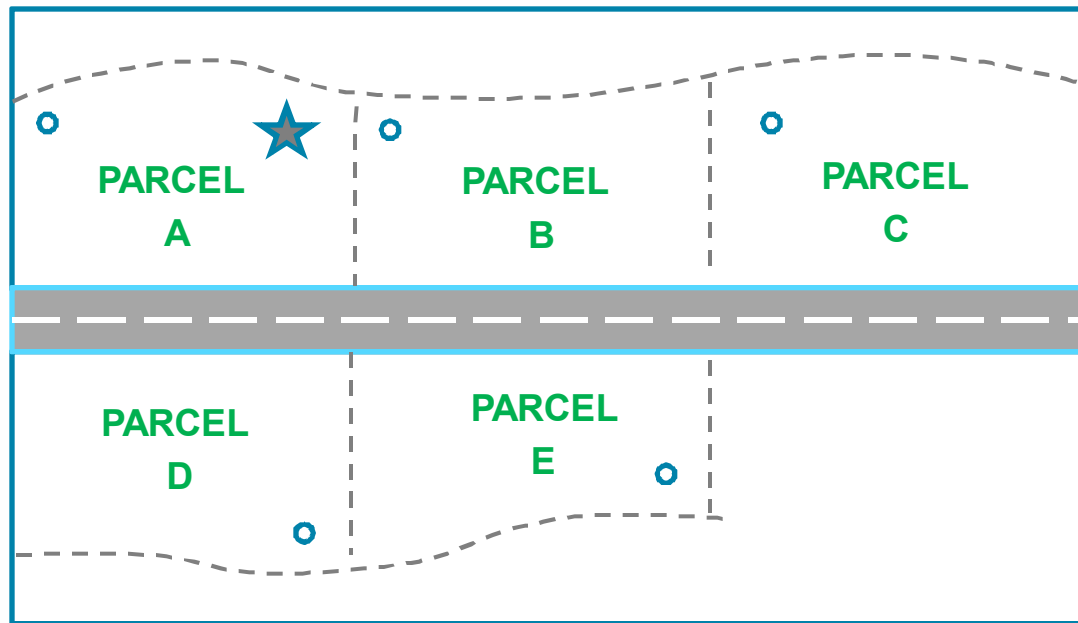


NEMA: Adjacent or Contiguous

Adjacent or contiguous under this tariff allows load aggregation for customer accounts that are located:

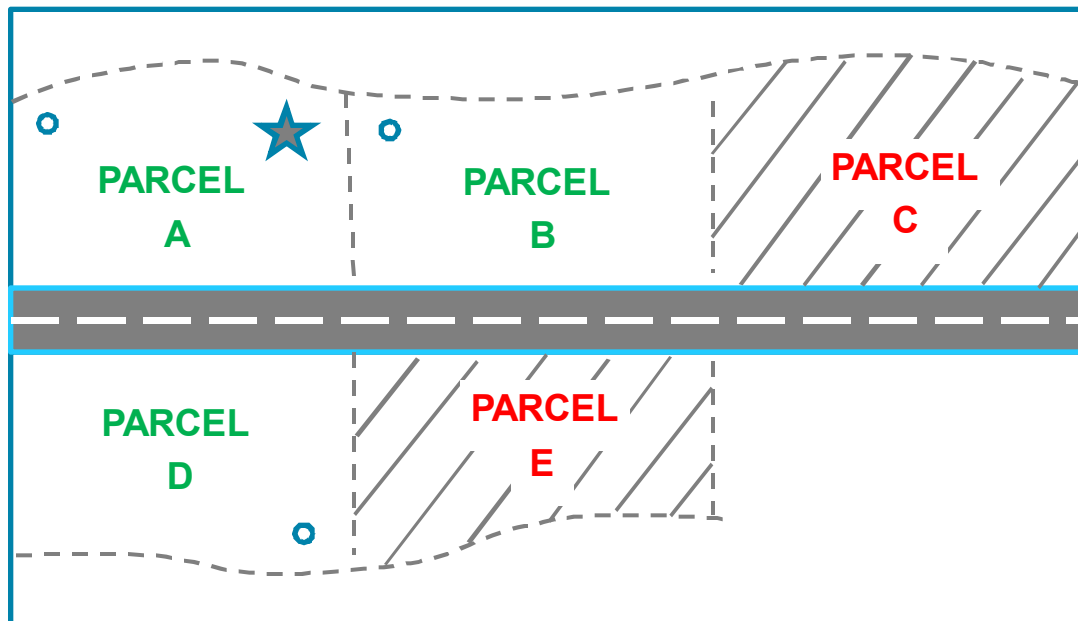
- On the property where the generator is located
- On a property touching the property with the generator
- On a property that is touching a property eligible to be in the aggregation arrangement
- On a property divided by a street, highway, or public thoroughfare are considered contiguous, provided they are otherwise contiguous
- ...where each property is under the same sole ownership or control







NEMA: Example 1



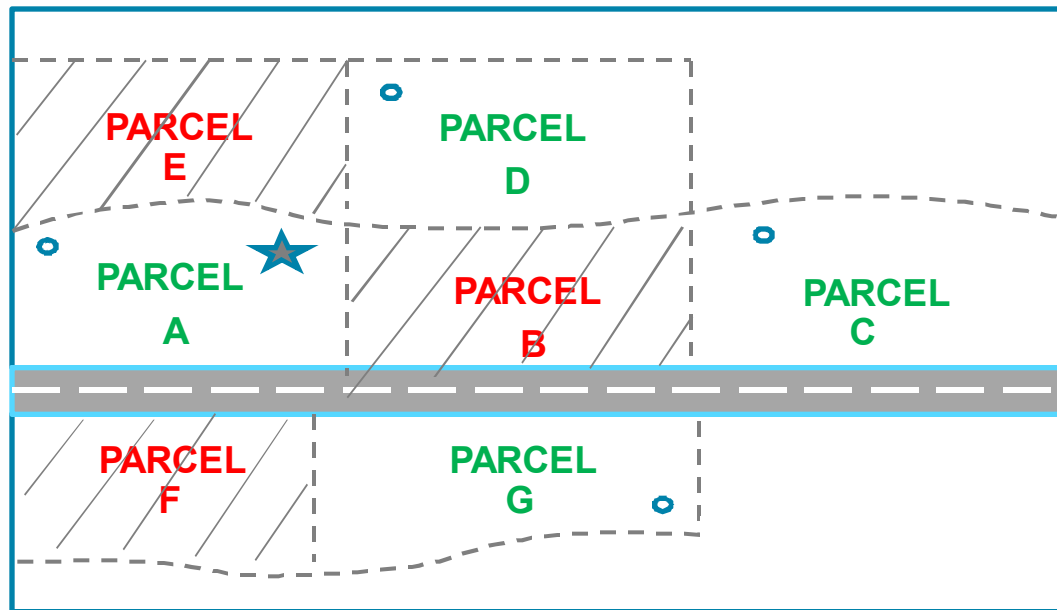
- ★ = Renewable Electrical Generation Facility
- = Meter
- = Solely Owned, Leased or Rented
- = Eligible Parcel
- ▨ = Not Solely Owned, Leased or Rented
- = Ineligible Parcel







NEMA: Example 2



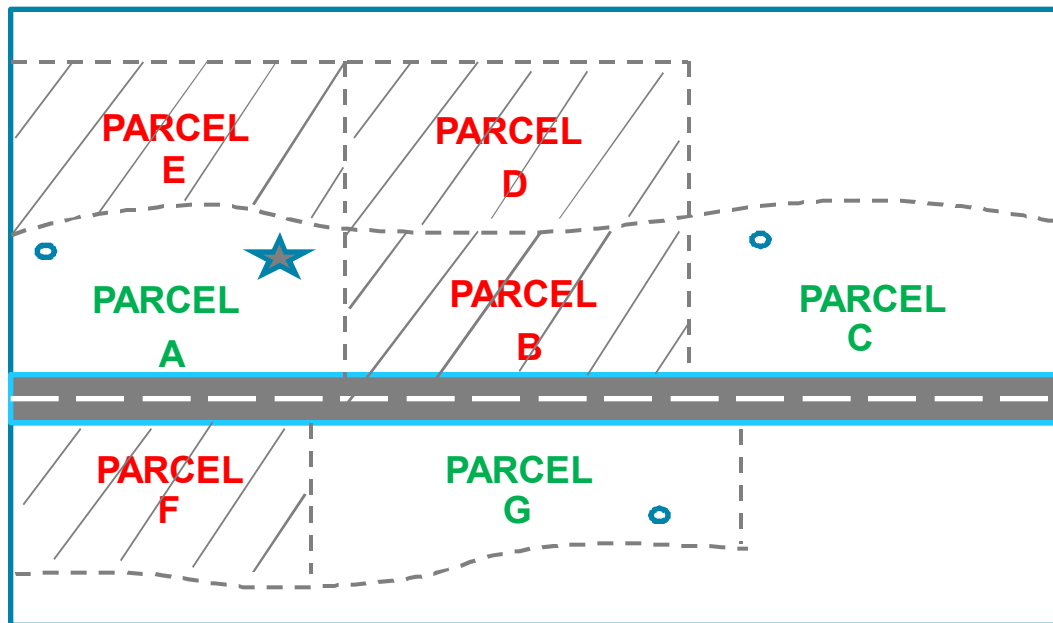
-  = Renewable Electrical Generation Facility
-  = Meter
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NEMA: Example 3



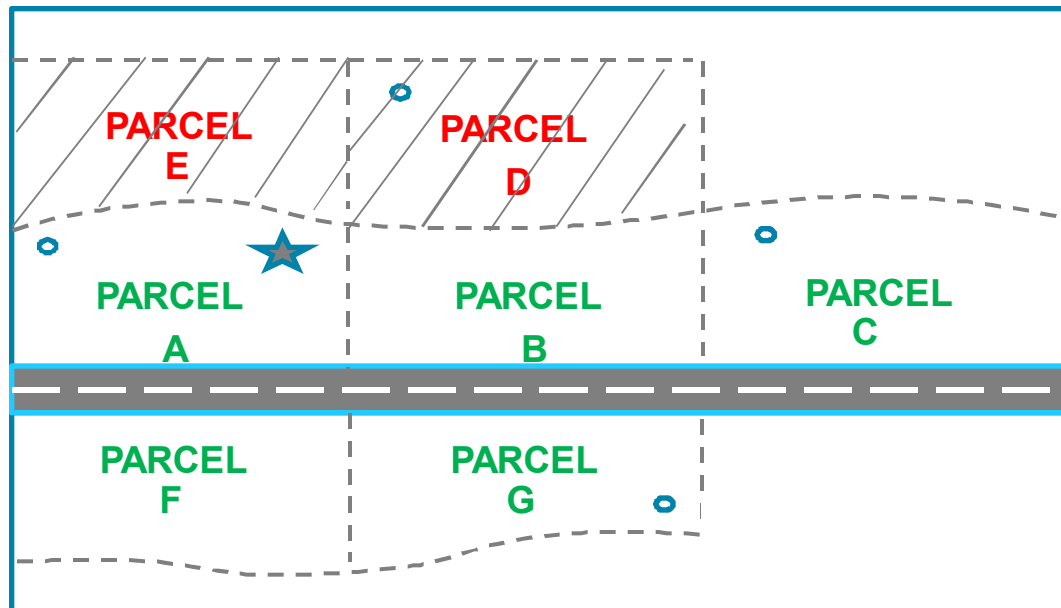
-  = Renewable Electrical Generation Facility
-  = Meter
-  = Solely Owned, Leased or Rented
-  = Eligible Parcel
-  = Not Solely Owned, Leased or Rented
-  = Ineligible Parcel







NEMA: Example 4



-  = Renewable Electrical Generation Facility
-  = Meter
-  = Solely Owned, Leased or Rented
-  = Eligible Parcel
-  = Not Solely Owned, Leased or Rented
-  = Ineligible Parcel

NEMA: Example 5



-  = Renewable Electrical Generation Facility
-  = Meter
-  = Solely Owned, Leased or Rented
-  = Eligible Parcel
-  = Not Solely Owned, Leased or Rented
-  = Ineligible Parcel



NEMA Interconnection



NEMA: Interconnection

NEMA generator must be approved for interconnection under the applicable guidelines of Rule 21 and the NEM tariff

Customers must supplement the appropriate NEM interconnection application with the “NEM LOAD AGGREGATION APPENDIX” (form 79-1153) and parcel maps

- NEMS (form 79-1151A)
- NEMEXP PV/Wind (form 79-978)
- NEMEXP Non-PV/Wind (form 79-1137) or
- NEMMT (form 79-1069)

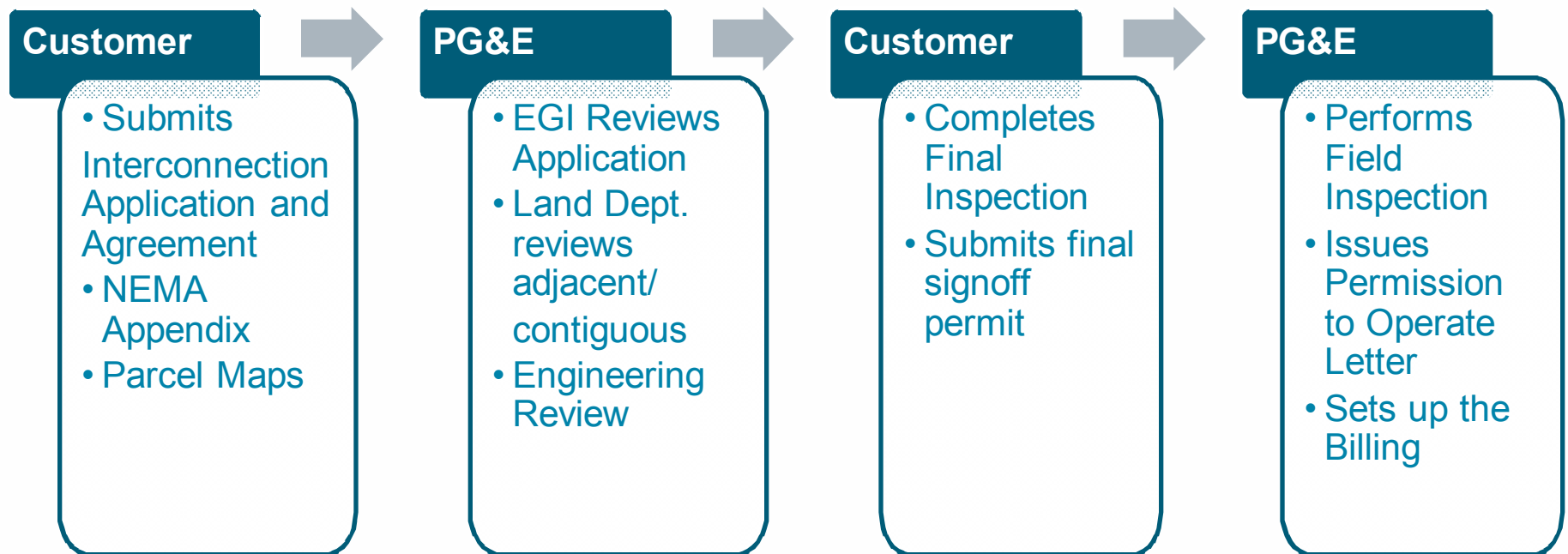


NEMA: How to Apply

Standard NEM (< 30 kW) – Please submit the completed “NEM Load Aggregation Appendix” and parcel maps along with the interconnection package to gen@pge.com.

Expanded NEM (30 kW – 1 MW) – Please submit the completed “NEM Load Aggregation Appendix” and parcel maps along with the interconnection application via the [online portal](#).

NEMA: Application Process





NEMA: Help with Submitting a Complete Application

NEM Load Aggregation Appendix

Identify the Generating Account and Aggregate Accounts.

List only current Service Agreement IDs

Select “Yes” or “No” for requesting Second Service for the Generator

Provide the Annual kWh Load, Total Annual kWh, and or Estimated Annual kWh Production

Make sure the form is signed and dated



NEMA: Help with Submitting a Complete Application

NEMA Spreadsheet

Identify the Generating Account and Aggregate Accounts.

List only current Service Agreement ID

Provide the existing electric rate schedule

Reference the service address as it appears on the PG&E Bill



Microsoft Excel
Worksheet



NEMA: Help with Submitting a Complete Application

Parcel Maps

Submit County's Parcel Map not hand drawn Parcel Map

Identify Meter Locations and Meter Number/s

Mark the Generating Account and Aggregate accounts.



Adobe Acrobat
Document



NEMA: Metering

Generating Account meter will measure excess kWh that is exported after on-site energy is netted

- Must be capable of separately measuring the kWh export to the smallest time interval used for billing for any of the Aggregated Accounts
- NGOM is allowed for no-load generator accounts
- Customers may request 2nd Service for such accounts subject to restrictions

Aggregated Account meter must be consistent with the otherwise applicable rate schedule (OAS) for that account

- The customer is responsible for all metering charges under the OAS



NEMA: Distribution Upgrades

NEMA generator is likely to be oversized compared to the directly connected load

Increase in export may trigger additional interconnection studies or supplemental reviews required under Rule 21 or additional distribution upgrades

As with regular NEM, PG&E pays for system upgrades required unless the NEMA customer is the only beneficiary of a required interconnection facility

Regular process under the Green Book and Distribution Handbook



NEMA Billing



NEMA: Billing Overview

The excess generation output (kWh) exported to the grid is allocated between the Aggregated Accounts and the Generating Account (if it has load) monthly

All participating accounts will have the same monthly billing cycle and will true-up 12 months after the interconnection approval date, or Anniversary thereof

... or true-up will occur the date an account is closed or switches electric service provider

NEMA customers are billed monthly

NEMA customers are exempt from standby charges and non-bypassable charges

The NEMA generator account is permanently ineligible for AB 920 Net Surplus Compensation



NEMA: Billing Methodology

Step 1

Establish Excess Monthly Generation: The generation of your system will first offset monthly usage, if any, on the Generating Account. After that, if there is net kWh exported to the grid over the billing month, it is allocated among all the Aggregated Accounts.



NEMA: Billing Methodology

Step 2

Dynamically Allocate Excess Monthly Generation: The excess monthly generation kWh is allocated according to a special formula to each of the Aggregated Accounts and the Generating Account.

The Allocation is not a fixed percentage but has a dynamic structure that changes percentages monthly to ensure that the excess generation (kWh) exported to the grid is better allocated among Aggregated Accounts and the Generating Account.

The allocation is tracked by 15 minute or hour interval and allocated accordingly.

$$\frac{\text{sum}(\text{generated kWh}) \times \text{sum}(\text{acct1 usage kWh})}{\text{[(sum (acct 1 usage kWh) + ... + sum(acct n usage kWh)]}} \times (\text{previous month's allocation}) \times \text{OAS rate}$$



NEMA: Billing Methodology

Step 3

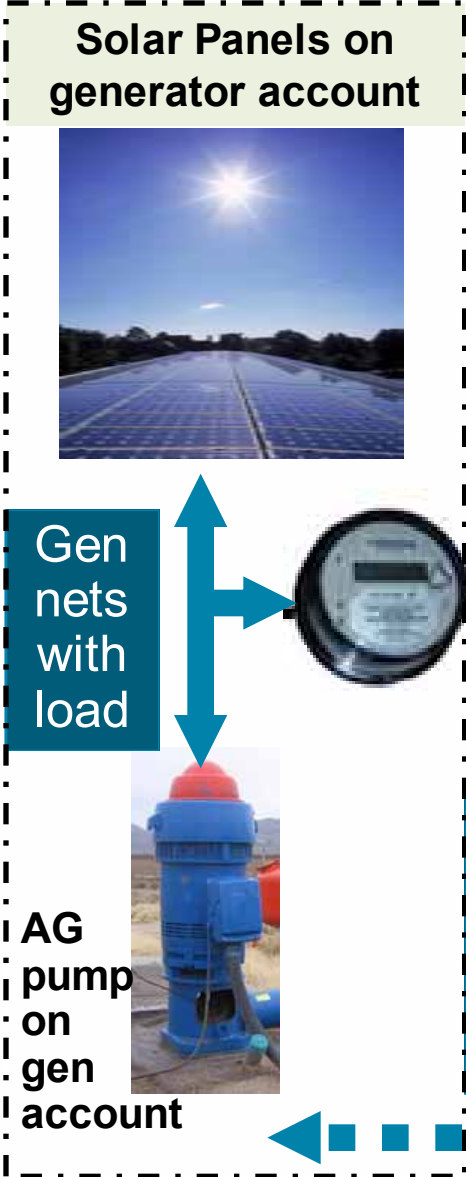
Net Allocation and Usage, and Value Net At Aggregated Account's Rate Schedule: For each Aggregated Account and the Generator Account, the kWh allocation is netted with the account's load.

If the account is on a time-of-use rate, the netting occurs within each time-of-use period for all the accounts on time-of-use rates. If the Aggregate Account is on a non-time-of-use rate (e.g., A1 or E1), it is valued at the fixed energy charge for that flat rate.

Once the netting occurs, each account is essentially treated like an individual NEM account. The net kWh is valued based on the time-of-use period it occurred and the otherwise applicable rate schedule (OAS) for the given account. (Only the net kWh for the Generating Account is valued at the Generating Account's rate schedule).



NEMA Load Aggregation Illustration



Exported kWh to PG&E (after serving on-site load) is recorded & allocated to load aggregation accounts

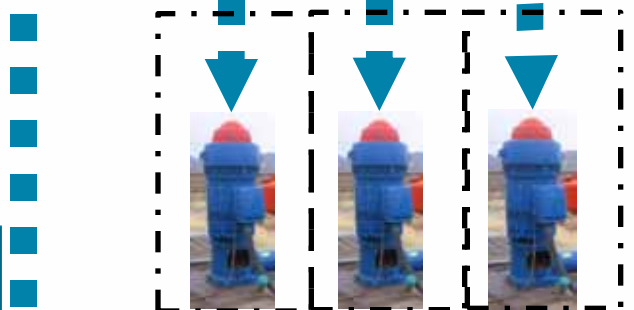
Exports to PG&E

Imports from PG&E

Imported kWh from PG&E is billed to generator account but... generator account may also receive allocated kWh offset

PG&E's ABS Billing System

The exported kWh allocation is performed DYNAMICALLY each month by PG&E's billing system based on each aggregated account's proportion of that month's cumulative aggregate load and cumulative generation since the beginning of the true-up



Load Aggregation Accounts
Allocated kWh nets with each load kWh to determine energy charges on account OAS



NEMA: Billing Costs

Customers are responsible for paying billing fees, which reflect the incremental billing cost for NEMA:

- Initial set-up - \$25 for each Aggregated Account and the Generating Account, capped at \$500 per Arrangement
- Monthly fees - \$5 for each Aggregated Accounts and the Generating Account

Service Charges will be reviewed in one year after program start and are may be revised at that time.



Other Programs and Tariffs



NEMA: Demand Response

Demand Response Programs – NEMA customers are eligible for the same demand response programs as NEM customers.

Program elements that are affected by a customer's load (e.g., eligibility, payments) will also exclude from consideration any impacts of the generation



NEMA: Incentive Programs

NEMA generator may receive an incentive as long as it meets the incentive program's eligibility requirements

SGIP - approved for incentive collections through the end of 2014 and administration of funds through 2015

- Incentives available for natural gas and CHP technologies
- Waitlist for renewable and emerging technologies
- www.pge.com/sgip

CSI – the program has successfully reached its adoption goals and is now closed

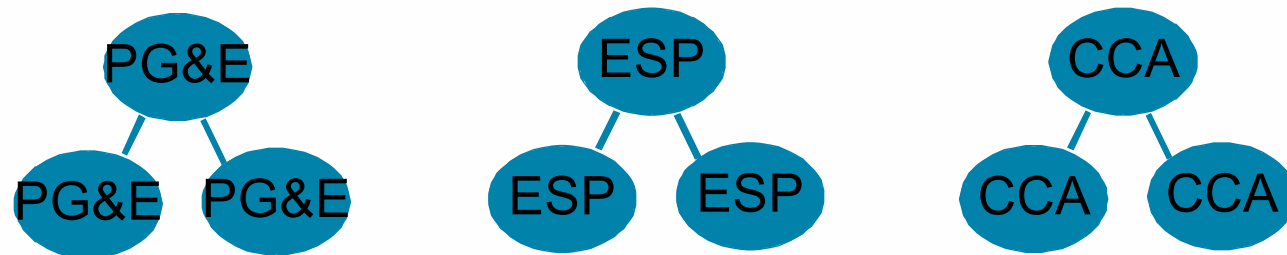
- www.pge.com/csi



NEMA: ESP/CCA Customers

Direct Access (DA) customers may qualify for NEMA only if their Energy Service Provider (ESP) or Community Choice Aggregator (CCA) tariffs permit NEM Load Aggregation

All accounts in the Arrangement must take service either only from PG&E, a single ESP, or a single CCA.

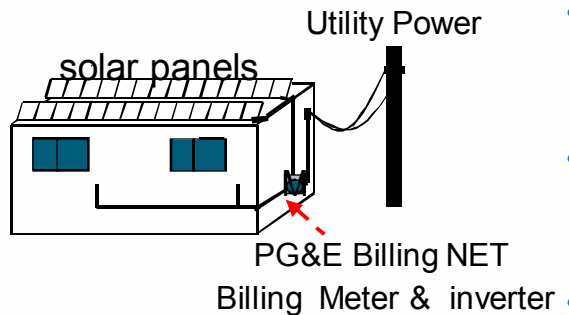


If PG&E is the billing agent and recovers the NEMA incremental billing costs from the customer's ESP and/or CCA, a mixture of ESPs may be permitted



NEMA: Other Tariffs

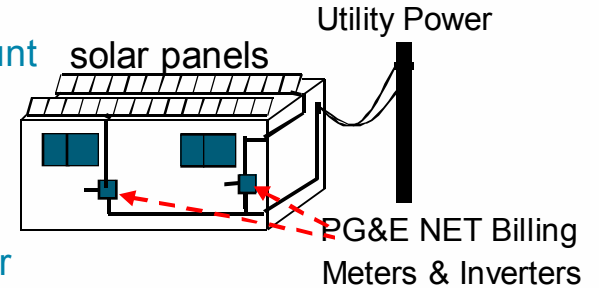
Master Metered NEM



- Central Gen on single MM account
- Must be an existing MM Account
- Must be billed in accordance with Rule 18

Individually Metered NEM

- Individual Gen for each account
- Each customer is a NEM account
- Each customer receives a bill
- More costly to install



- Single Gen Acct w/ or w/o load
- Credit allocated to load on same customer's owned, leased or rented adjacent & contiguous property
- Credit allocated in relation to monthly load

- Central Gen Acct w/ no load
- Many load-only individually meter benefiting accounts
- Credit allocated on each customer's bill
- All accts at a Single Service Delivery Point

Net Generation Output meter & Inverter

Utility Power

solar panels

PG&E Load account Billing Meters

NEMV – Virtual NEM

- Single Gen Acct w/ or w/o load
- Credit allocated to load on same customer's owned, leased or rented adjacent & contiguous property
- Credit allocated in relation to monthly load

Gen on Acct with or without Load with 2 channel Interval meter

Utility Power

solar panels

Aggregated load account(s) under same owner on contiguous or adjacent property

NEMA – Load Aggregation



Retail DG Options

	Technology	Configuration	Who	Gen Kw limit	Export	Standby	NBC	NSC
Rule 21	All	generator & load at single account	anyone	2 MW	uncompensated	Ask	Ask	non-eligible
NEM	Solar PV Wind RPS	generator and load at single account	anyone	1 MW total	sized to annual load at single account	exempt	on net usage only	eligible
NEMA	Solar PV Wind RPS	one generator account; many aggregated accounts	Same customer adjacent & contiguous parcel	1 MW total	sized to annual load of arrangement	Exempt	On net usage only	Non-eligible
NEMV	Solar PV Wind RPS	one generator account; many benefitting accounts	anyone	1 MW total	sized to annual load at service delivery point	exempt	on net usage only	eligible
NEMVMASH	Solar PV	one generator account; many benefitting accounts	low income MASH or NSHP participant	1 MW total	sized to annual load	exempt	on net usage only	eligible
NEMFC	Fuel cell w/non-renewable fuel	generator & load at one or more accounts	anyone	1 MW total	sized to annual load Can aggregate load	exempt	on net usage only	non-eligible
NEMBIO	biogas digester	**closed**	**closed**	1 MW total	sized to annual load	exempt	on net usage only	non-eligible
NEMMT	Combination of (a) 2 types of nem; or (b) nem & non-nem	generator & load at single account	anyone	Ask	Sized to annual load	NEM-portion exempt	NEM: on net usage	On retail NEM portion
RES-BCT*	RPS	generator account; many benefitting accounts in same city, county or district	Local Government, colleges	5 MW total/ gen acct	sized to annual load	Ask	Ask	non-eligible



NEMA: Resources

Tariff: http://www.pge.com/tariffs/tm2/pdf/ELEC_SCHEDS_NEM.pdf

NEMA Appendix:

http://www.pge.com/tariffs/tm2/pdf/ELEC_FORMS_79-1153.pdf

Standard NEM:

<http://www.pge.com/mybusiness/customerservice/nonpgeutility/generateownpower/netenergymetering/standardnem/>

Expanded NEM:

<http://www.pge.com/mybusiness/customerservice/nonpgeutility/generateownpower/netenergymetering/expandednem/>

NEMA Slides:

www.pge.com/solareducation



NEMA: Customer Support

General Support:

Solar Customer Service Center, 1-877-743-4112

Application Support:

Interconnection Inbox, gen@pge.com



NEMA: Q & A

