EXHIBIT 1

PacifiCorp 2022 All-Source Request for Proposals

Energy Storage Discussion

January 28, 2022





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Logistics

- Conference Date and Time
  - January 28, 2022
  - 1:00 – 2:30 PM (Pacific Time)
  - 2:00 – 3:30 PM (Mountain Time)

- Location
  - Microsoft Teams meeting
    Join on your computer or mobile app
    Click here to join the meeting

  - Or call in (audio only)
    Phone Number: (563) 275-5003 or 563-275-5003
    Phone Conference ID: 546 163 320#

- Purpose and Scope
  - Discuss PacifiCorp's position to limit 2022AS RFP collocated battery energy storage responses to AC-coupled systems.

Agenda

- AC:DC Primer
  - AC:DC Ratios: Design and clipping
  - Perceived Design Advantages and Disadvantages (Developer/Owner Perspective)
  - AC:DC and Metering – CAISO Requirements
  - Solar and Storage Metering – Illustrative Examples
- Metering Considerations
- Conclusion
- Questions and Answers

AC:DC Primer

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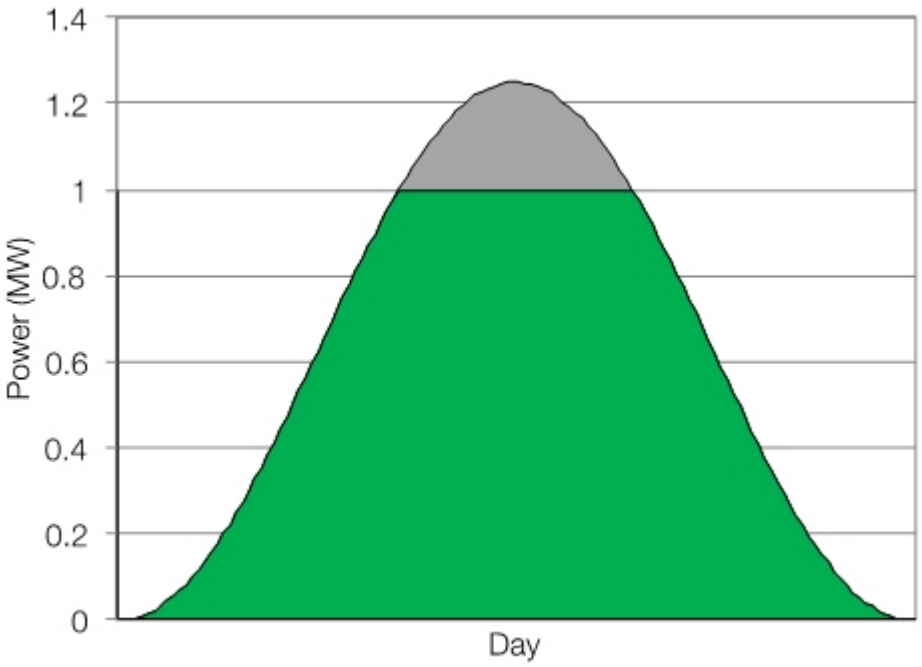
Solar Generation and DC:AC Ratio



Because solar modules are relatively inexpensive, the DC:AC ratio for standalone solar facilities is often between 1.20 and 1.40.

- Standalone storage is often designed so that the sum of the solar modules (MW DC) exceeds the inverter capacity (MW AC).
- Solar generation is capped off (or clipped) at the inverter nameplate capacity, which often aligns with the LGIA capacity limit.
- Developers design their systems to maximize the cost-benefit trade off in determining their preferred DC:AC ratio.
- Individual developers design and price their preferred designs based on an overall lowest cost of energy (LCOE) determination, which takes into account the cost of modules, structures, inverters, labor, interconnection, and the expected revenue from expected net output.

Solar + Storage: Developer/Owner Design Considerations

	Perceived Advantages	Perceived Disadvantages
AC Coupled System	- Easier to retrofit to existing solar projects - Incrementally scalable - Can provide other ancillary services if designed as centralized system[1]	- Requires dedicated inverters and balance of system equipment - Does not capture excess PV energy (DC clipping energy)
DC Coupled System	- Cost savings by sharing inverters and BOS components with PV system - Efficiency can be equivalent to AC coupled system - Captures excess PV energy (DC clipping energy)	- Usually requires DC-DC converter between batteries and inverter DC bus - May have limitations on providing other ancillary services (limited value stacking) if designed as decentralized system[1] - Augmentation can be more difficult - Not ideal for adding to existing PV systems

- PacifiCorp priorities highlighted in yellow.
- 2020AS RFP Final Shortlist Bidders agreed to transition from DC-side systems to AC-side system

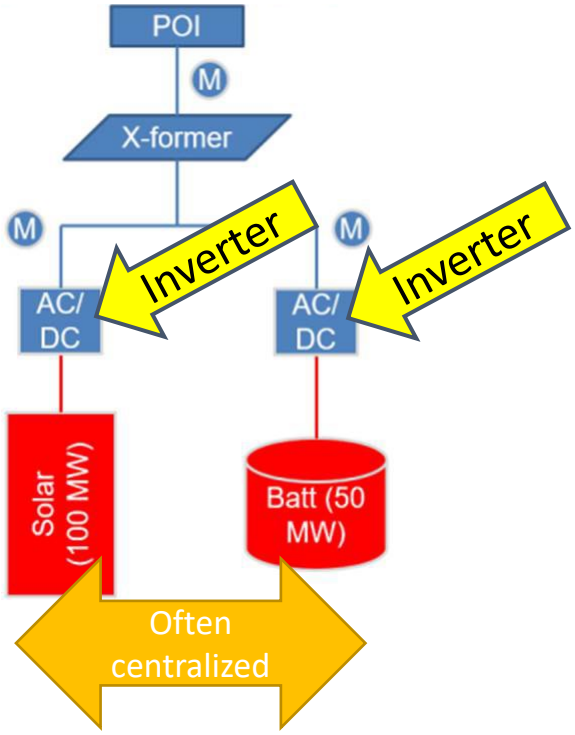
[1] Updated following workshop to clarify questions posed during workshop. More information provided in the Q&A document.

AC:DC Metering - CAISO Requirements

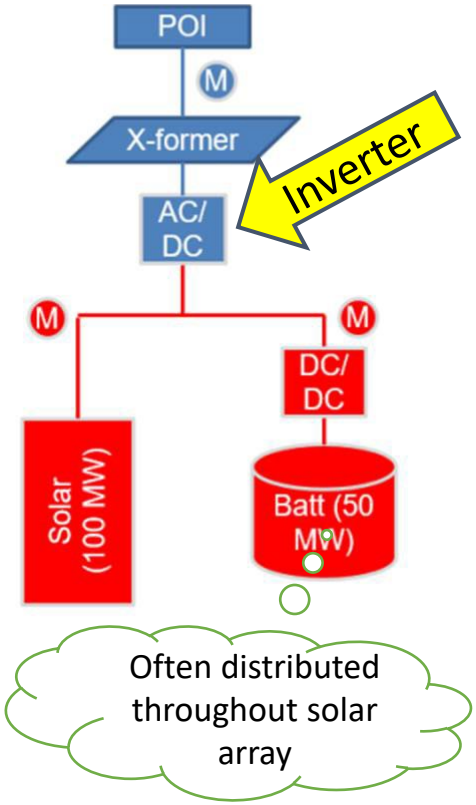
M	AC-Meter
M	DC-Meter

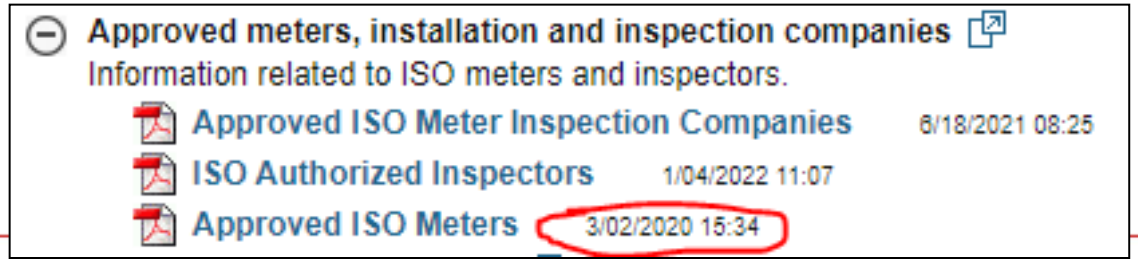
- The following CAISO document outlines the requirement to meter the different generator types separately (10/16/20):
  RevisedFinalProposal-HybridResources.pdf (caiso.com)
- Page 13 states CAISO "is working with vendors and market participants to identify a DC settlement quality meter data that can be used for this purpose, with a goal of having such a meter identified at or around the time that this policy is implemented."
- CAISO's approved meter list has not been updated since 03/02/2020:
  http://www.caiso.com/participate/Pages/MeteringTelemetry/Default.aspx

AC-Metering Diagram:



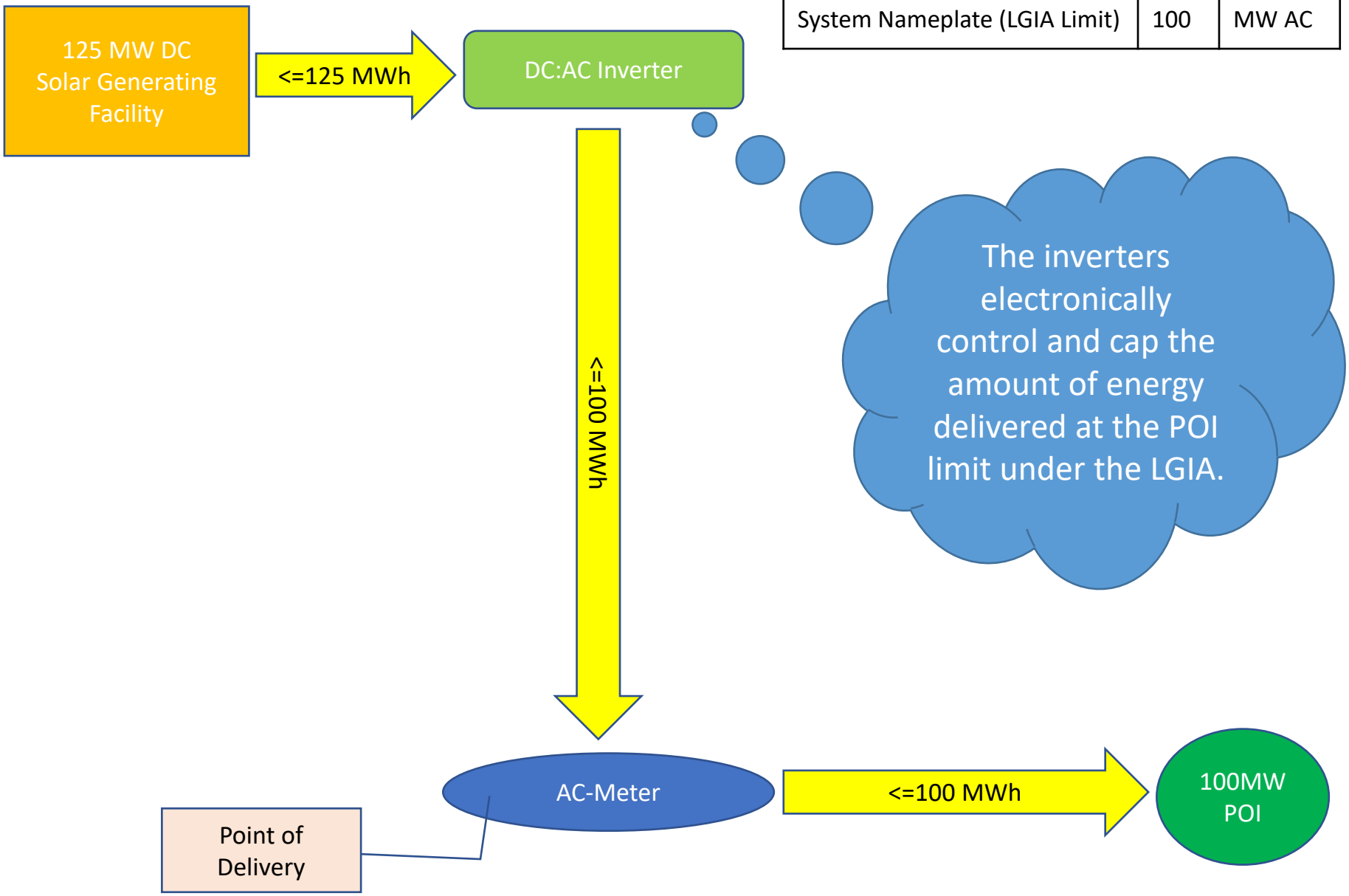
DC-Metering Diagram:





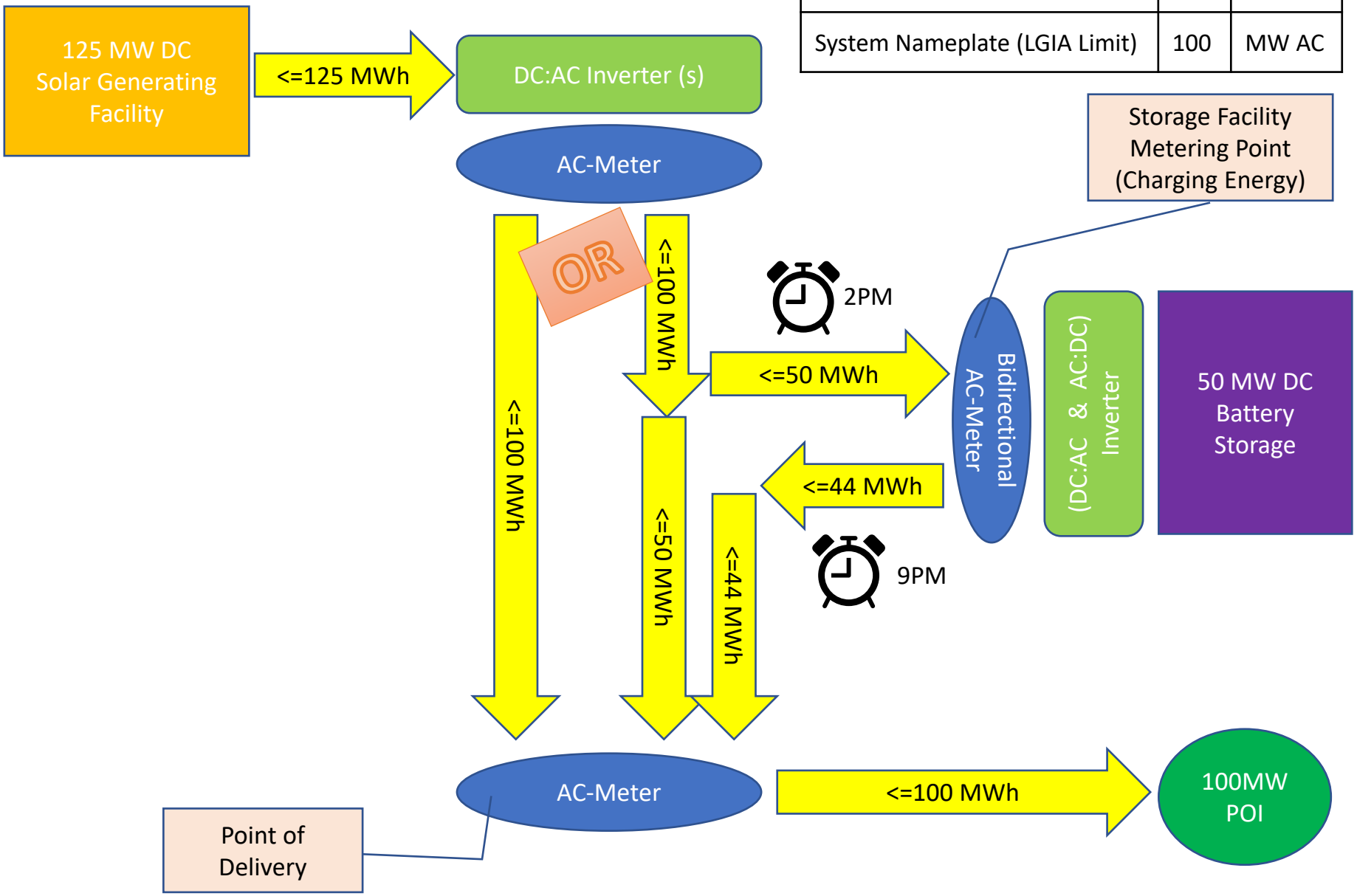
Example 1: Standalone Solar

Solar Modules	125	MW DC
System Nameplate (LGIA Limit)	100	MW AC



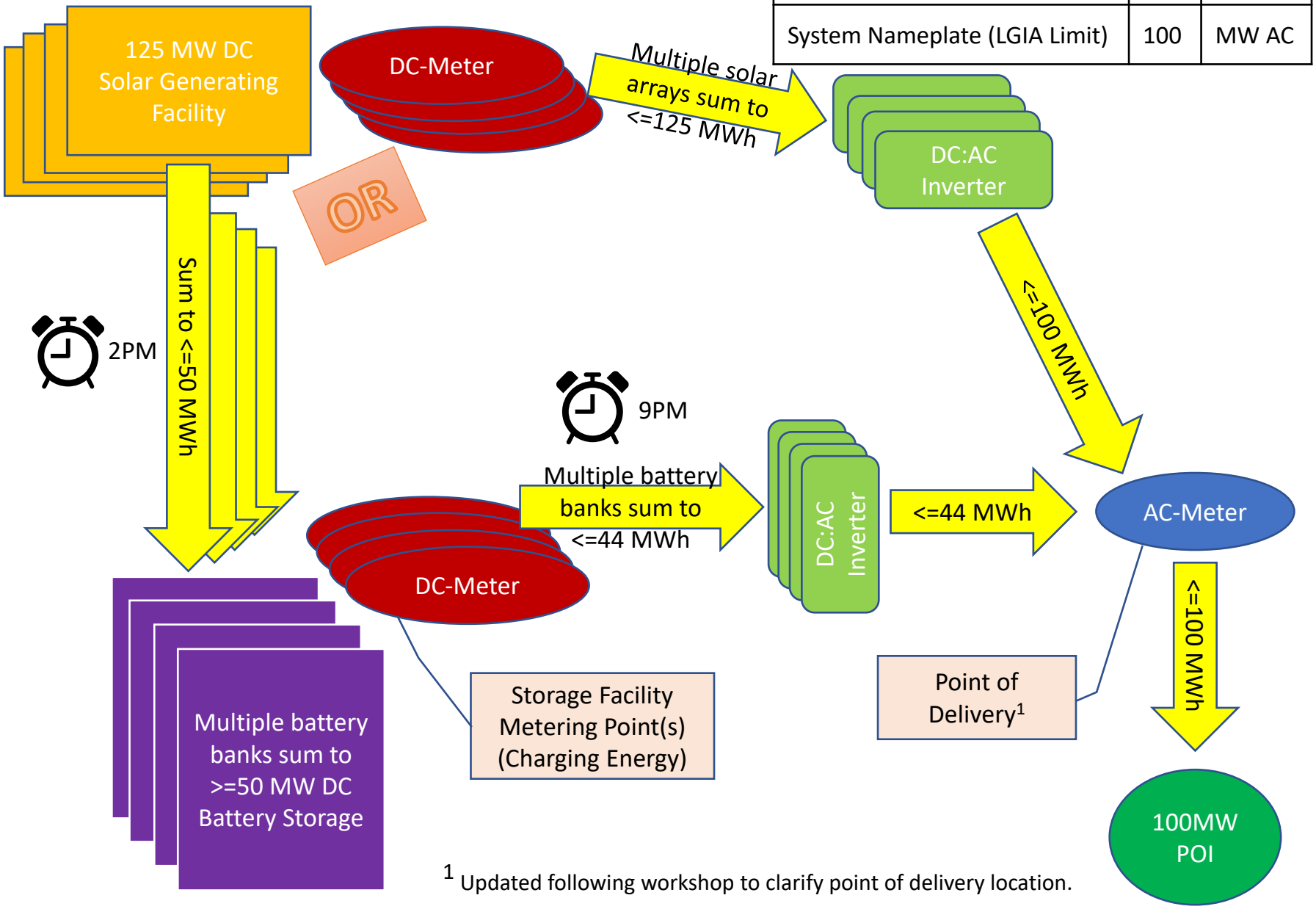
Example 2: Co-located Energy Storage (AC-side)

Solar Modules	125	MW DC
Battery Capacity	50	MW DC
System Nameplate (LGIA Limit)	100	MW AC



Example 3: Co-located Energy Storage (DC-side)

Solar Modules	125	MW DC
Battery Capacity	50	MW DC
System Nameplate (LGIA Limit)	100	MW AC



[1] Updated following workshop to clarify point of delivery location.

Metering Considerations

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DC Metering Standards

- American National Standard for Electricity Meters for the Measurement of DC Energy (ANSI C12.32) was approved in March 2021
- CAISO requires the DC meter to be 0.2% accurate and capable of storing 5-minute load profile data, which would be interrogated by MV90 for settlement data. The meter will also need to provide SCADA outputs in some form (ex: DNP, KYZ, mA)
- No known CAISO approved ANSI C12-32 compliant DC meters
- No known manufacturer of ANSI C12-32 compliant DC meters
- No known manufacturer of test equipment for ANSI C12-32 compliant DC meters
- PacifiCorp is in contact with other utilities and meter manufacturers to monitor industry equipment, practices and standards development for ANSI C12-32 DC metering.
- Metering for DC-coupled generation is more complex than AC-coupled generation

Metering Complexity for DC-coupled Sites

- Each inverter would require 2 DC metering points (1 for solar, 1 for battery)
  - A site with 200 inverters would require 400 DC meters
- DC coupled projects requiring 100 or more metering points would be common
- In contrast, AC-coupled projects rarely require more than 10 metering points to meter solar and battery separately

Conclusion

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PacifiCorp prefers AC-coupled Energy Storage Systems for the Following Reasons:

- AC-coupled designs often have centralized located batteries~~Batteries are centrally located~~[1];
- There are readily available American National Standards Institute (ANSI)-approved, revenue-grade bi-directional meters available to measure the renewable energy in and out of the battery, which are currently compliant with CAISO requirements;
- As energy is charged and discharged, it is relatively easy to calculate the battery losses (round trip efficiency);
- More streamlined dispatch in that there are typically fewer SCADA and metering points for an AC-coupled system than for a DC-coupled system;
- More simplistic design for future grid charging;
- PacifiCorp has received competitive AC-coupled bids as part of the 2020AS RFP and bidders have been willing to design, offer and price AC-coupled systems; and
- PacifiCorp's valuation models and proforma contracts have been designed and drafted in consideration of AC-coupled systems; there is exposure risk to PacifiCorp customers that DC-coupled systems may result in more ~~expensive energy~~ potential performance risk[1] due to inability to efficiently dispatch energy and complexity of monitoring round trip efficiency losses.

[1] Updated following workshop to clarify questions posed during workshop. More information provided in the Q&A document.

PacifiCorp Prefers AC-coupled Co-Located Storage Systems for the Following Reasons (continued):

- PacifiCorp is concerned DC-coupled systems create unnecessary risk for customers for a number of reasons.
  - If DC-meters are not available by the proposed interconnection date, commercial operations (on-line date) will be delayed.
  - In consideration of the number of DC-meters that would be required, we are concerned about:
    - Excessive cost of meter maintenance.
    - Risks associated with meter inaccuracy and excessive round trip efficiency losses.
    - Challenges to dispatch due to distributed solar and excessive SCADA points.
  - Inability to use for ancillary services if batteries are not centralized and using sufficient communications standards to follow 4-second Automatic Generation Control (AGC) signal.[1]
  - Future challenges to add grid charging capability.
  - Future challenges to augmentation required to maintain energy storage capacity rating.

[1] Updated following workshop to clarify questions posed during workshop. More information provided in the Q&A document.

Supplemental Slides

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Commonly Used Energy Storage Acronyms

- Power Capacity (MW)
- Energy Capacity (MWh)
- Energy Management System (EMS)
- Energy Storage System (ESS)
- Battery Energy Storage System (BESS)
- Battery Management System (BMS)
- Battery Control System (BCS)
- Power Conversion System (PCS)
- Round-trip efficiency (RTE)