



Queue Management

Ryan Cox, Associate Queue Management Specialist

March 11, 2020

Agenda

- Contract Implementation
- Affected Systems
- Modifications
 - Commercial Viability
 - Energy Storage
 - The Batch MMA Process
- Suspensions
- Repowering and Limited Operation Studies
- COM vs COD

Queue Management Overview

- Part of Infrastructure Contracts and Management
 - Regulatory Contracts
 - Contract Negotiators
- Project management responsibility after Generator Interconnection Agreement (GIA) execution
- Coordination with New Resource Implementation (NRI)



Contract Implementation

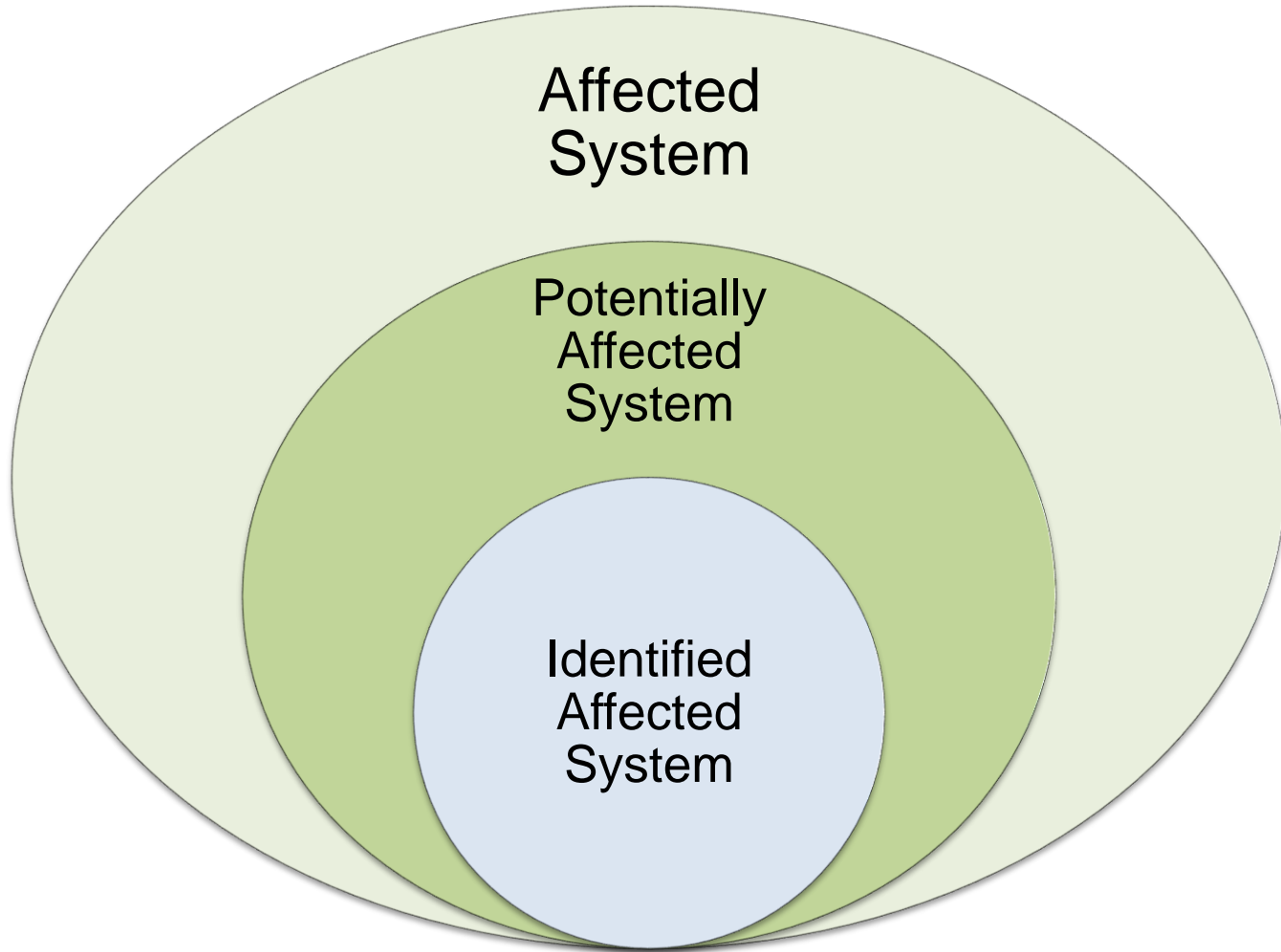
GIA Milestone tracking

- Interconnection Customers must meet the project milestones in their GIA to be in good standing
 - Deliverability may not be reserved for projects not in good standing
- Interconnection Customers provide quarterly project progress reports to Queue Management after the GIA is effective

Contract Implementation cont.

- Prior to Initial Synchronization and COD Queue Management verifies GIA obligations have been met
 - Upgrades
 - Inverters
 - Affected Systems
 - Asynchronous Obligations
 - MW values in GIA, PGA, and Master File
 - WECC Path Rating and Progress Report Policies and Procedures
- Upon verification, Queue Management provides approval in the New Resource Implementation (NRI) process

Affected Systems



Affected System Process

Potentially Affected System

- CAISO invites Potentially Affected Systems to scoping meeting and Phase I results meeting
- Must identify as Identified Affected Systems within 60 calendar days of notification from the CAISO after initial Interconnection Financial Security has been posted.

Identified Affected system

- CAISO will notify Interconnection Customer of their Identified Affected Systems
- Interconnection Customer to affirmatively contact the Identified Affected System operators and make reasonable efforts to address system impacts

Impacts Resolved

- Impacts must be resolved no later than six months prior to the generating unit's Initial Synchronization Date

Upcoming Affected System Outreach

- **Cluster 12**

- The CAISO will reach out to Potentially Affected Systems after projects post Initial Financial Security (May 2020)
- Potentially Affected Systems must identify themselves as Identified Affected Systems within 60 days of CAISO notification
- CAISO will notify Interconnection Customers of their Identified Affected Systems (August 2020)

Modifications to Interconnection Requests

Before Phase II Results Meeting Minutes are published

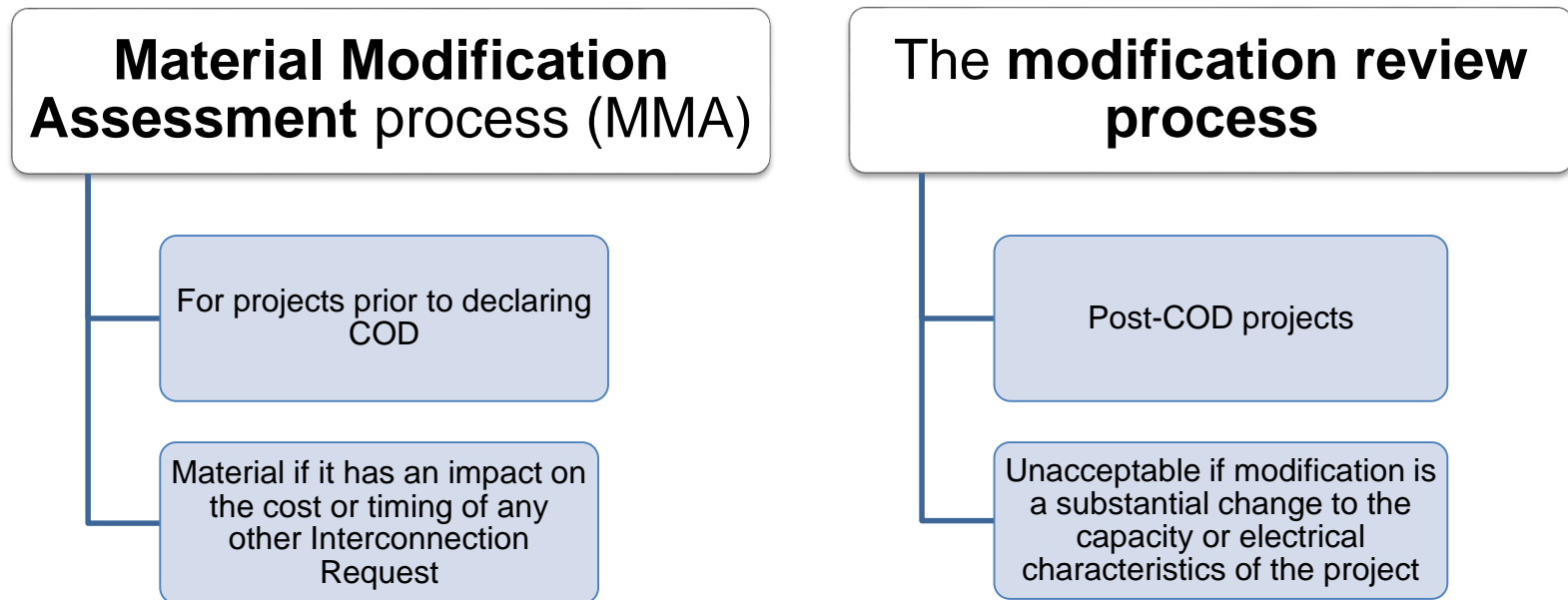
- Certain changes are allowed without a Material Modification Assessment (MMA) between Phase I and Phase II
- Modification requests are processed by your Interconnection Specialist

After Phase II Results Meeting Minutes are published

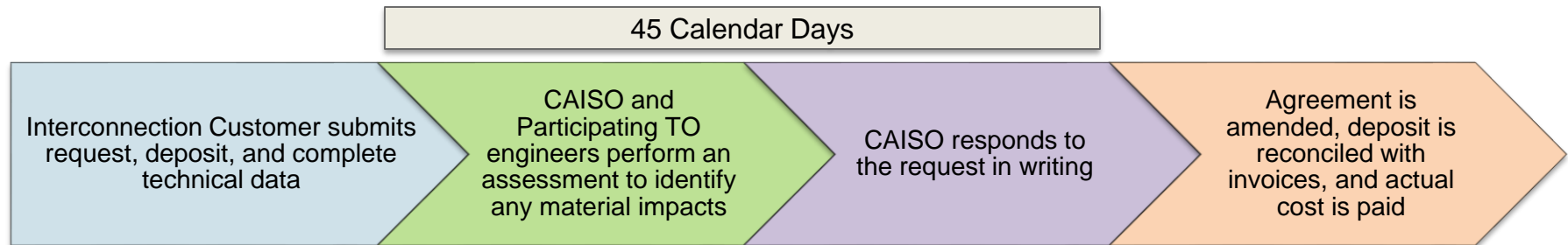
- Any modifications require MMA
- Modification requests are processed by QueueManagement@caiso.com

Modification Review Process

- Two very similar processes for modification requests



Modification Review Process cont.



- Submit request with justification in writing to QueueManagement@caiso.com
- Modifications requiring technical data take more time for technical data validation
- The deposit amount is \$10,000
 - Interconnection Customer will be charged actual costs incurred by the CAISO and Participating TO, and remaining deposit, if any, is returned

Modifications Subject to Commercial Viability

- Projects requesting to extend their Commercial Operation Date (COD) beyond 7 years or modifications to projects that have already exceeded the 7 years are subject to Commercial Viability Criteria
 - Criteria includes permitting, power purchase agreement status, site exclusivity, and GIA in good standing
- Failure to meet criteria results in conversion to Energy Only deliverability status
- Limited exemption for no power purchase agreement
 - One year delay for conversion to Energy Only
- Energy Only conversion will result in a reduction to cost responsibility only if assigned upgrades are eliminated

Modifications Subject to Commercial Viability cont.

- Criteria can not be met with balance sheet financing
- Power purchase agreement must reflect the point of interconnection, capacity, fuel type, technology, and site location of project
- Fuel type modifications after the 7 year timeline are prohibited
 - Modifications to add energy storage are not considered fuel-type modifications

Modifications to Add Energy Storage

- Customers may request to add energy storage to their Interconnection Request or operating Generating Facility
 - Energy storage addition does not alter the approved Net-to-Grid MW capacity
 - If a project is wholly replaced or increasing the Net-to-Grid MW then a new Interconnection Request is required
 - If an energy storage modification request is denied, the CAISO will work with the Interconnection Customer to identify how much energy storage might be acceptable
- If an existing Generating Facility that has added energy storage is retiring, an assessment will determine if the energy storage can continue to operate

Technical Bulletin for Hybrid Energy Storage

- On October 19, 2016, the CAISO posted a technical bulletin for “Implementation of Hybrid Energy Storage Generating Facilities”
- Covers master file modeling, metering and telemetry, interconnection, and resource ID selection
- <https://www.caiso.com/Documents/TechnicalBulletin-ImplementationofHybridEnergyStorageGeneratingFacilities.pdf>

Hybrid Resources Initiative

- The CAISO started an initiative for Hybrid Resources in 2019 and we are hoping to have the second revised straw proposal will published in April
- Proposes modifications to implementation of hybrid and co-located resources
- <http://www.caiso.com/StakeholderProcesses/Hybrid-resources>

Deliverability Transfers

- Customers may request to transfer deliverability to energy storage additions or other generating units located at the same point of interconnection
- The deliverability transfer cannot result in a deliverability amount that exceeds the existing deliverability associated with the projects
- To request a deliverability transfer, send the Deliverability Transfer Request form to QueueManagement@caiso.com either as its own request or as part of an MMA
- <http://www.caiso.com/Documents/DeliverabilityTransferRequestForm.docx>

The Batch MMA Process

- The CAISO allowed a one time opportunity for projects to add energy storage and retain deliverability under the prior deliverability methodology
- There are 87 MMAs in the batch MMA process
 - Requests include more than 10,000 MW of energy storage additions
 - Generally process 75 MMAs per year
- The batch MMA process should be completed by late April 2020

Suspension

- LGIAs include suspension rights for a period of up to 3 years
- Suspension notifications should be sent to QueueManagement@caiso.com and the PTO
- Notifications should include the effective date of the suspension and good faith estimate of how long a suspension will last
- A material modification assessment will be required if milestone dates are changing
 - If material impacts can be mitigated the suspension can be approved
- Suspension does not apply to shared upgrades financial obligations

Repowering Requests

- Repowering is for existing generating facilities, including QFs, that wish to make changes that are not substantial
 - Facilities who propose substantial changes must enter Generation Interconnection and Deliverability Allocation Procedures (GIDAP)
 - Substantiality is determined based on impact of changed electrical characteristics as outlined in the Generator Management BPM
- Must utilize the same fuel source and point of interconnection
 - Energy storage can be considered the same fuel source
 - May require a facilities study with the Participating TO
- Repowering Affidavit to QueueManagement@caiso.com initiates the request
 - Information provided in the affidavit is subject to audit by the CAISO
- Study deposit is \$50,000

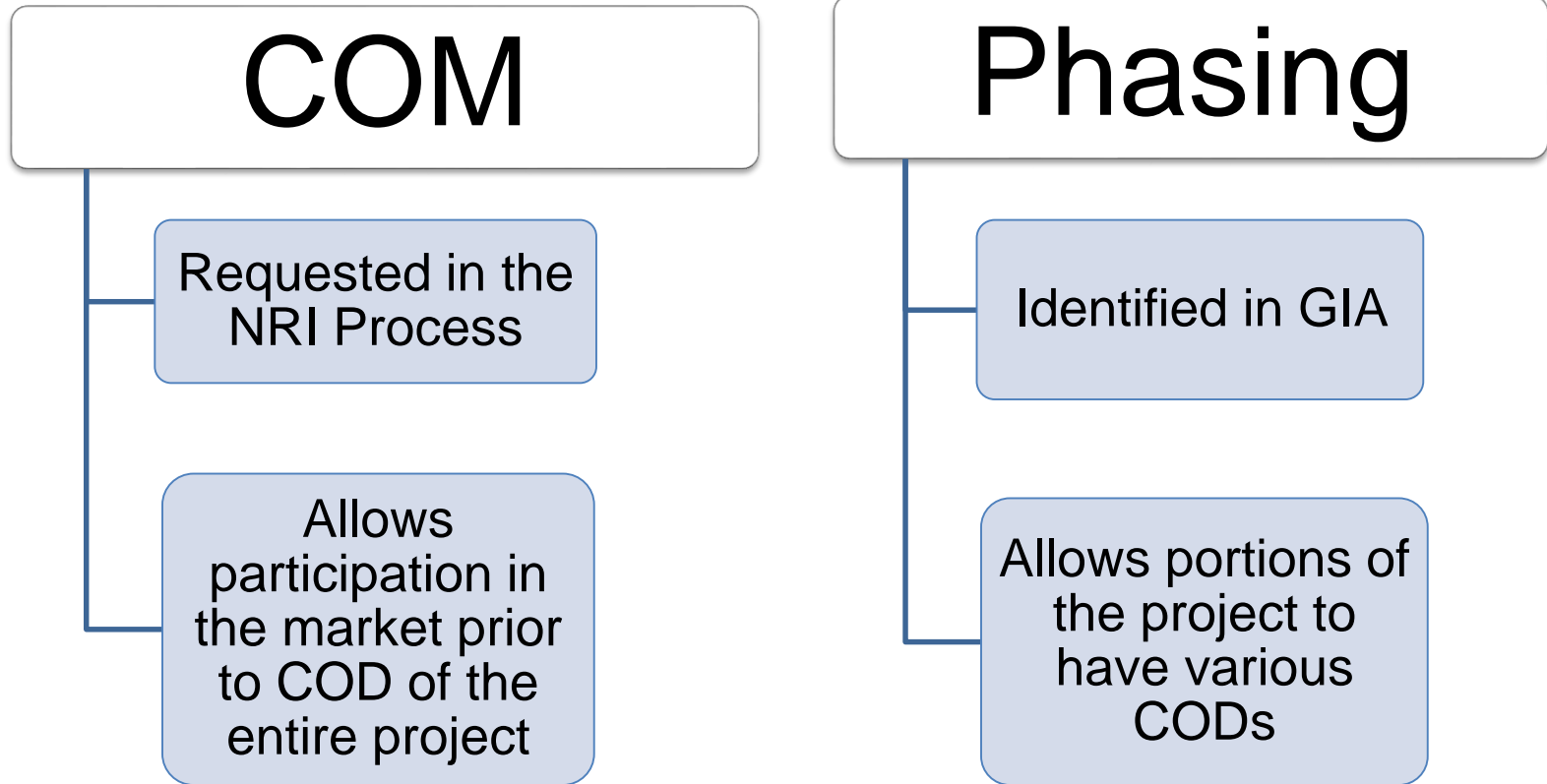
Limited Operation Studies

- All reliability network upgrades and pre-cursor transmission projects must be in-service prior to initial synchronization date
- Limited Operation Studies
 - Can be used to evaluate if system can support early, energy-only interconnection before network upgrades and interconnection facilities are complete
 - The study is paid for by the Interconnection Customer
 - Only within 5 months of Initial Synchronization
 - Submit request to QueueManagement@caiso.com
 - Results of the study determine the operating capability of the project

Commercial Operation for Markets (COM)

- Block implementation in advance of COD of the project
- CAISO acknowledges wind and solar block construction and ability to energize
- Portion of project is allowed to bid into CAISO markets while remaining portion is testing or under construction
- Resource adequacy eligibility requirements
 - Qualifying capacity must be obtained from the CA Public Utilities Commission
 - Obligated to meet all tariff and resource adequacy requirements (bid, penalty, etc.)
 - Reliability network upgrades must be completed

COM versus Phasing



Resources

- Hybrid Resource Stakeholder Initiative
<http://www.caiso.com/StakeholderProcesses/Hybrid-resources>
- Technical Bulletin: Implementation of Hybrid Energy Storage Generating Facilities
<http://www.caiso.com/market/Pages/ReportsBulletins/Default.aspx>
- Potentially Affected System Contact List
http://www.caiso.com/Documents/GeneratorInterconnectionProcedures_AffectedSystemsContactList.xls
- Repowering Affidavit Template
http://www.caiso.com/Documents/RepoweringAffidavitTemplate_20141002.doc
- Quarterly Status Report Template
<http://www.caiso.com/Documents/QueueManagementQuarterlyStatusReportTemplate.docx>
- MMA and Deliverability Transfer Documents
<http://www.caiso.com/planning/Pages/GeneratorInterconnection/InterconnectionRequest/Default.aspx>
- Opportunities for Adding Storage Presentations
Nov 4, 2019: <http://www.caiso.com/Documents/Presentation-OpportunitiesforAddingStorageatExistingorNewGenerationSites-Nov4-2019.pdf#search=opportunities%20for%20adding%20storage>
Oct 10, 2019: <http://www.caiso.com/Documents/Presentation-OpportunitiesforAddingStorageatExistingorNewGenerationSites.pdf#search=opportunities%20for%20adding%20storage>

Questions?

Thank you!

- If you have any further questions on the content in this presentation, please send them to

QueueManagement@caiso.com