CCBF workshop 2

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Engagement Best Practices

This call is being recorded for informational purposes and will be available on the CAISO website. Any related transcriptions should not be reprinted without the ISO's permission.

Today's meeting is designed to encourage open dialogue and diverse perspective. Your participation is valued.

Please engage in a respectful and professional manner.

Please keep comments brief and avoid repeating points already made so we can manage time and ensure everyone has an opportunity to participate.

You can access Closed Captioning and the Transparency Viewer using the controls located at the bottom of the Webex screen.

Instructions for Raising Your Hand to Ask a Question

If you are connected to audio through your computer or used the ‘call me’ option, select the raise hand icon located on the bottom of your screen.

If you are connected on the phone line only and not the Webex dial *3 to be added to the raise hand queue.

Please remember to state your name and affiliation before making your comment.

You may also send question via chat to all panelists.

If you need technical assistance during the meeting, please send a chat to the event producer at Intellor Events.

Today's Agenda

Time	Topic	Presenter
9:00am – 11:00am	Welcome and introductions • CCDEBE Policy Summary • Market Power Fundamentals • Implementing Concepts with the DCPA • Examples Next Steps	Yelena Kopylov-Alford Sylvie Spewak and Daniel Johnson Yelena Kopylov-Alford

Policy-at-a-glance

Support market-based commitment cost bids in the market to the extent that there is sufficient competition, balanced with mitigation, by implementing:

1. A local market power mitigation test for commitment costs that tests binding and some non-binding constraints

2. Phased in commitment cost caps for competitive conditions (300%) and uncompetitive conditions (110%)

CCBF workshops

- **Workshop 1** (*March 2026*): Why implement a market power test for commitment cost offers?
  - The static cap on commitment costs limits competitive market-based offers
- **Workshop 2** (*today*): What are the policy choices fundamental to the CCDEBE market power test for commitment cost offers?
  - Identify, and get comment on, policy choices valuable to the design

Policy choices for testing commitment cost offers for market power exercise

- *Under what conditions would an inflated commitment cost offer pose the greatest risk to market efficiency?*

- *Where and when uncompetitive conditions are identified, what are the criteria for mitigating a commitment cost offer?*

Conditions

- Test commitment decisions for structural competitiveness using a three pivotal supplier test specific for commitment cost mitigation
  - Test a wider set of constraints relevant for capturing the ‘lumpy’ nature of min load commitments
  - Account for unloaded transmission capacity in demand for counterflow
  - Consider resources that could have been committed in supply of counterflow
  - Include both net buyers and net sellers as potentially pivotal suppliers

Criteria

- Identify commitment cost offers for mitigation when energy offers are identified for mitigation at binding constraints

- Identify commitment cost offers for mitigation using a separate commitment cost test that identifies commitments net effective at relieving constraints

  – When a commitment is necessary, an inflated commitment cost offer directly affects BCR

- Mitigate identified commitment cost offers by assessing conduct against the resource's commitment cost reference level

MARKET POWER FUNDAMENTALS

General principles for designing and implementing a market power test

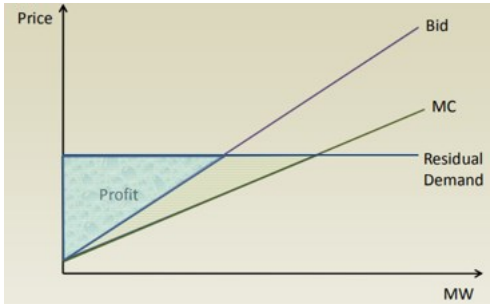
- Identify conditions that pose the greatest risk and make sure we can successfully test for market power in those conditions
  - Account for specific characteristics of the market
  - Account for implementation complexity

- Apply protections for conditions we don't test for
  - Reference levels protect against type I error
  - A circuit breaker protects against type II error

	Competitive	Uncompetitive
Subject to mitigation	**Type I error** (α): probability of triggering mitigation in competitive conditions	$(1-\beta)$ = probability of accurately identifying market power
No mitigation	(1- α) = probability of accurately identifying competitive conditions	**Type II error** (β) = probability of failing to mitigate in uncompetitive conditions

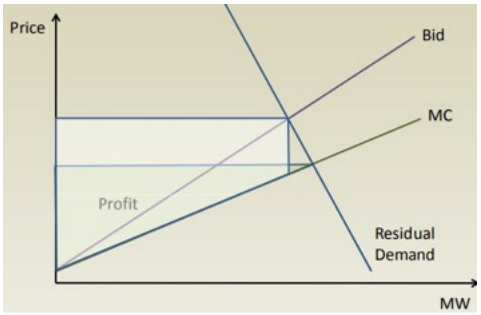
Key concept in market power theory: residual demand curves

- Residual demand curves illustrate the quantity demanded from a specific supplier considering the supply of other market participants
  - Shows how the market price changes if a supplier withholds output
  - Directly characterizes the ability to alter market prices



Perfectly elastic residual demand curve

- Supplier cannot alter the market price
- Suppliers' capacity is perfectly substitutable



Relatively inelastic residual demand curve

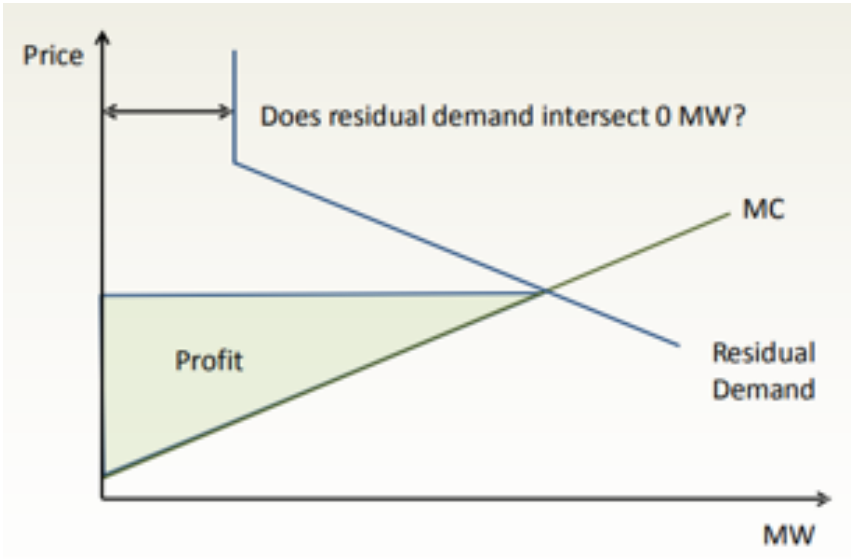
- Supplier can profitably alter the market price by withholding
- Withholding can result in large changes in price

Key concept in market power theory: Pivotal suppliers

- A supplier is pivotal if, when the supplier withholds its full capacity, load cannot be met

- This type of market power is different from relatively inelastic residual demand
  - No risk of getting priced out
  - Impact of economic withholding is not tempered by competition when a constraint binds (no substitution effects)

Pivotal suppliers' residual demand = Load – Flow Limit



A pivotal supplier faces some MWs of perfectly inelastic residual demand when a constraint binds

IMPLEMENTING CONCEPTS WITH THE DCPA

Conditions for energy offer mitigation

- The dynamic competitive path assessment (DCPA) tests for structural competitiveness by identifying pivotal suppliers, using a three pivotal supplier test, where and when ability to withhold is most likely being exercised
  - Being pivotal is not a sufficient condition for mitigating energy offers; the DCPA does not mitigate pivotal suppliers at non-binding constraints
  - Binding constraints indicate limited competition and higher risk of impact to market prices

Criteria for energy offer mitigation

- The residual supply index (RSI) identifies constraints as uncompetitive when suppliers are pivotal to the constraint, and energy offers are evaluated for economic withholding
  - Result of the RSI informs mitigation criteria by identifying the non-competitive congestion, and the DCPA calculates the competitive LMP at each location
  - Conduct is assessed by comparing a resource's offer to their cost-based reference level and the competitive LMP

The residual supply index (RSI)

- The RSI is the ratio of supply of counterflow (SCF)– with withholdable capacity from pivotal suppliers removed– to the demand for counterflow (DCF) at a constraint (k)

$$RSI_k = \frac{SCF_k^{PPS} + SCF_k^{FS}}{DCF_k}$$

- SCF includes
  - Available capacity from fringe suppliers (FS), and
  - Non-withholdable capacity from potentially pivotal suppliers (PPS)

The residual supply index (RSI)

RSI < 1	Constraint is considered un-competitive	SCF < DCF	Without supply from the PPS, there's not enough supply to meet demand
RSI > 1	Constraint is considered competitive	SCF > DCF	Without supply from the PPS, there is sufficient supply to meet demand

Identifying pivotal suppliers

- Demand for counterflow is the quantity needed to ensure transmission security

Demand for counterflow = Load – Flow Limit

- When a constraint binds, pivotal suppliers would face some perfectly inelastic residual demand

- Demand for counterflow is the MWs of perfectly inelastic residual demand facing potentially pivotal suppliers of counterflow to that constraint

Calculating demand for counterflow at binding constraints

- The RSI defines demand for counterflow (DCF) as the sum of MWs cleared on a constraint
  - where a resource's DCF contribution is -min(0, SF)*EN or DOT

DCF = MWs cleared providing counterflow to the constraint (DOT)

- Today, the DCPA only does the RSI calculation at binding constraints where:

Flow Limit – Flow = 0

Calculating demand for counterflow at any flowgate

Equation (1): Demand for counterflow = Load – Flow Limit

Equation (2): Load = DOT + observed flow on the transmission line

– *Substituting load in equation 1 with equation 2 and re-arrange:*

Demand for counterflow = DOT – (Flow Limit – Flow)

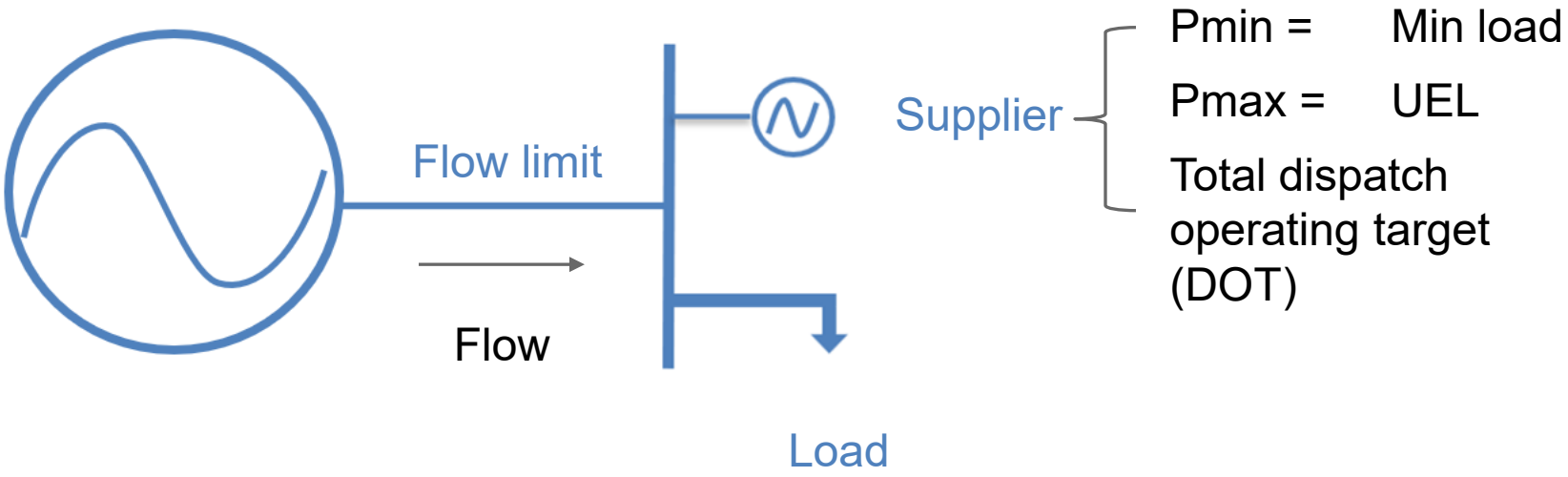
- When we test a binding constraint, Flow Limit – Flow = 0
- When we test a non-binding constraint, Flow Limit – Flow = unloaded capacity on the transmission line

EXAMPLES

Overview

- **Examples 1-4** illustrate foundational concepts relevant to commitment cost mitigation policy using existing policy for energy mitigation
  - DCF equation accounting for unloaded capacity at binding constraints
  - Mitigate in conditions when pivotal suppliers' ability to withhold is likely being exercised
- **Example 5** shows why testing a wider range of constraints is necessary for commitment cost mitigation
- **Examples 6-8** illustrate mitigation criteria for commitment cost offers

Set Up

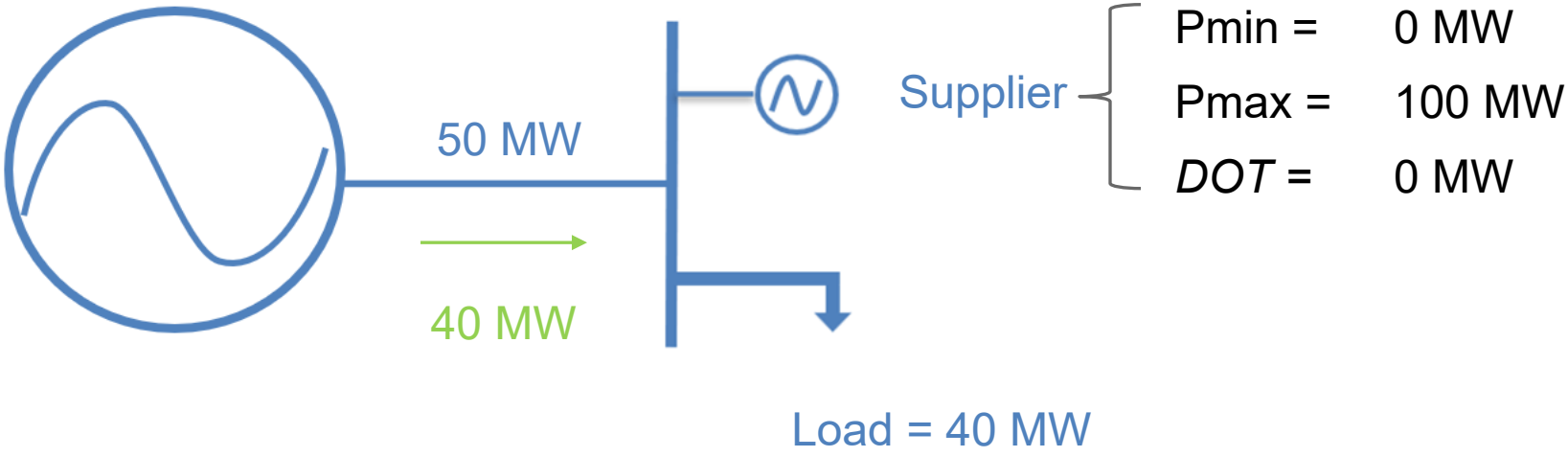


Assumptions/simplifications:

- Each example illustrates the observed outcome of an MPM pass using unmitigated supplier submitted offers for commitment costs and energy

- Single supplier simplifies evaluation of structural competitiveness (the DCPA uses three pivotal supplier test)

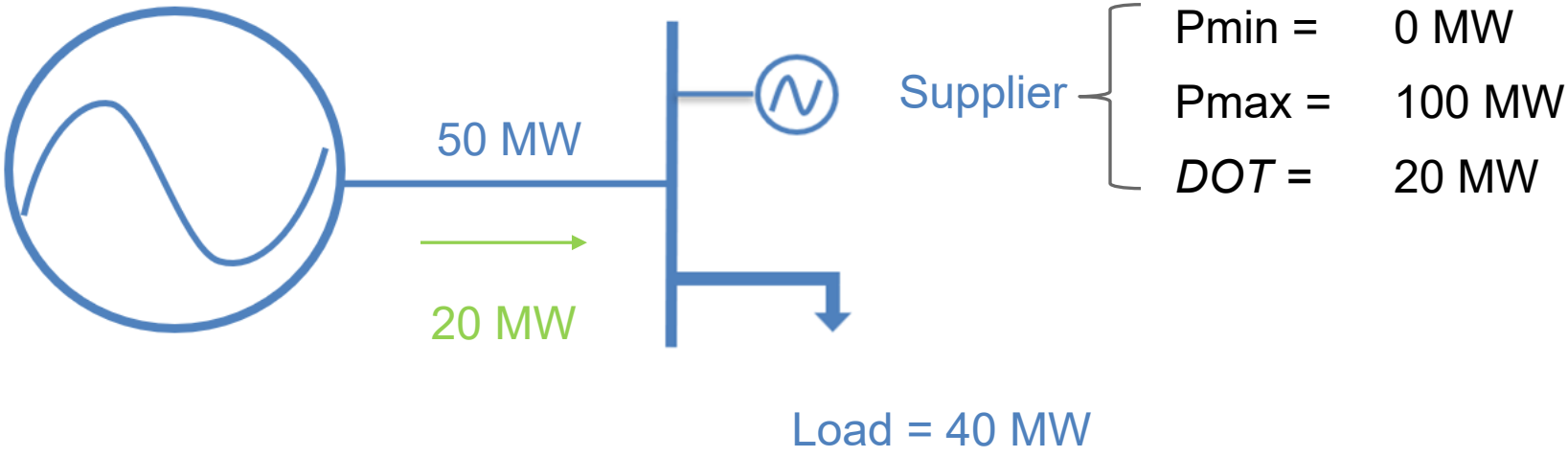
Example 1



- When load = 40 MW, every MW the supplier offers could be displaced by flow over the transmission line
- This supplier faces no residual demand when load = 40 MW

Load (40 MW) – Flow Limit (50 MW) = Demand for Counterflow (-10 MW)

Example 2



- Residual demand not change at a different DOT

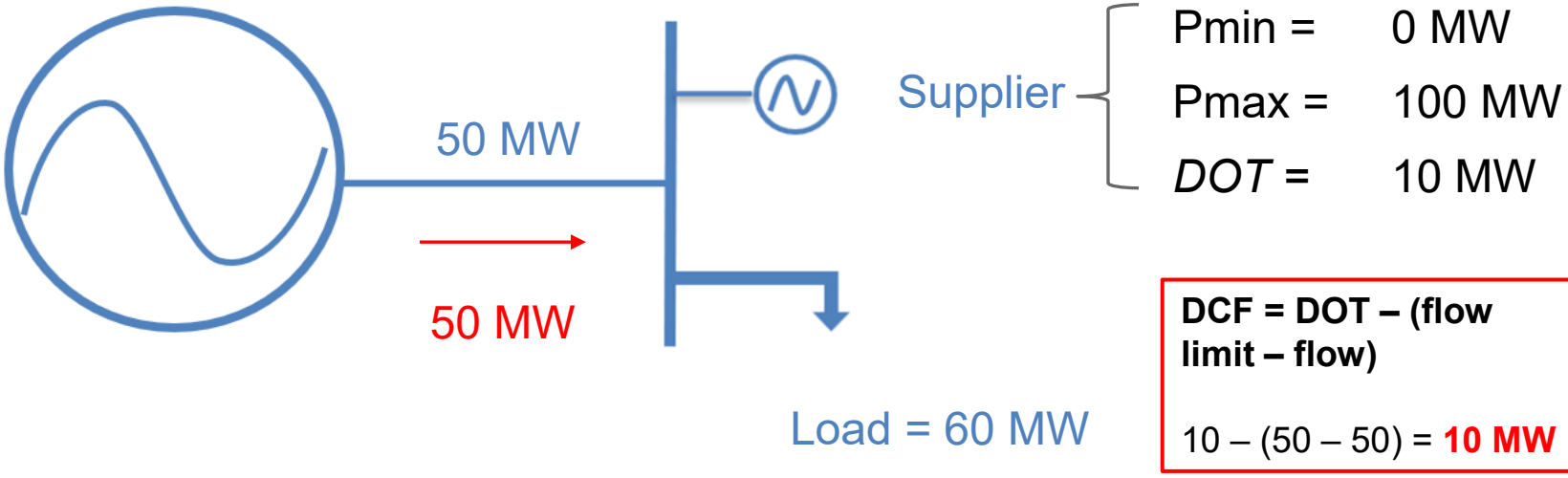
Load (40 MW) – Flow Limit (50 MW) =
Demand for Counterflow (-10 MW)

Key takeaways

- Demand for counterflow depends on Load and Flow Limit
  - When Load < / = Flow Limit, every MW the supplier offers could be displaced by competition

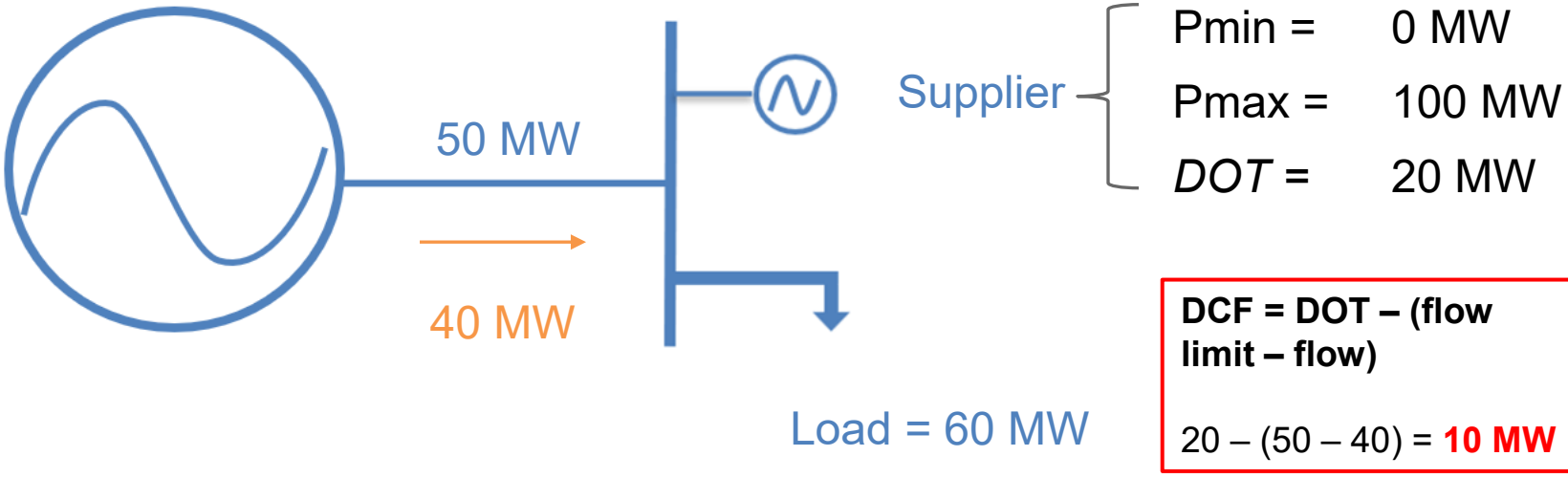
- When load is less than the flow limit, it's possible that this supplier has market power but *it is not pivotal*
  - The supplier could profit by economic withholding but also risks being completely priced out
  - Competition disciplines the impact of economic withholding

Example 3



- When load > 50 MW, the supplier faces some MWs perfectly inelastic residual demand; this supplier must be dispatched to meet load
- Demand for counterflow on this constraint is 10 MW; this is 10MW of residual demand that cannot be served through the transmission line
- Without substitution effects, economic withholding will directly impact market prices and supplier's profitability

Example 4



- This supplier faces the same structural conditions as example 3; 10MW of residual demand cannot be served by flow over the line
- While the supplier has the ability and incentive to exercise market power, behavior appears relatively competitive in this market pass

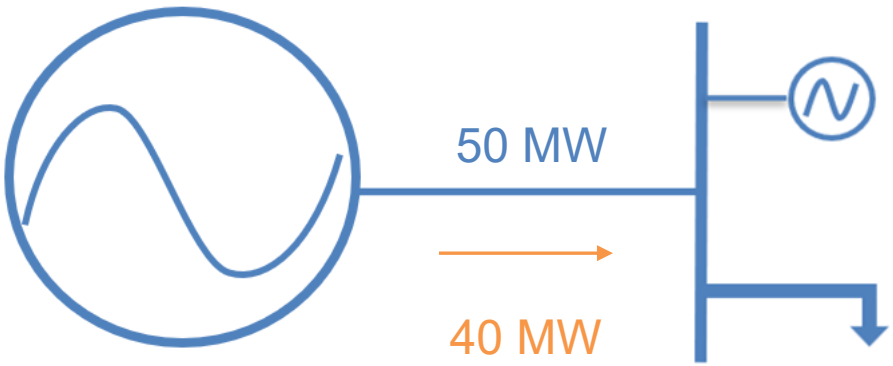
Conditions for energy mitigation

- Structural competitiveness does not depend on whether a constraint binds but on the physical location of supply and demand on the transmission network (Load and Flow Limit)

- Being pivotal is not a sufficient condition for mitigating energy offers
  - A binding constraint indicates a particular opportunity for pivotal suppliers to impact LMPs
  - The shadow price at uncompetitive binding constraints facilitates an approximation of uncompetitive LMP impacts

- The ISO's MPM test for energy offers only triggers mitigation when suppliers are pivotal to binding constraints

Example 5



Supplier

Pmin =	20 MW
Pmax =	100 MW
DOT =	20 MW

Load = 60 MW

DCF = DOT – (flow limit – flow)

20 – (50 – 40) = **10 MW**

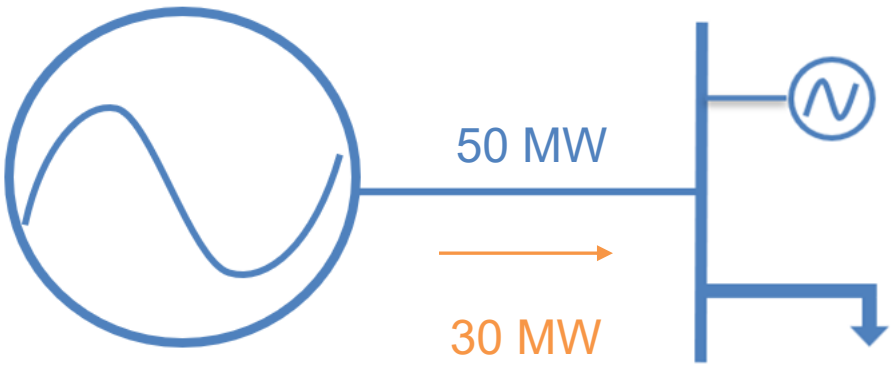
- This supplier faces the same structural conditions as example 3 and 4; 10MW of residual demand cannot be served through the transmission line
- This supplier has a min load of 20 MW and cannot withhold to just 10 MW; commitment relieves the constraint

Key takeaways

- Because of the 'lumpy' nature of commitments, a different set of constraints are relevant for commitment cost mitigation than for energy

- Committing a resource at min load can relieve the constraint
  - A non-binding constraint **does not** indicate that a constraint is structurally competitive for commitment decisions
  - When a commitment is necessary, an inflated offer would impact BCR

Example 6



Supplier

Pmin = 20 MW

Pmax = 100 MW

DOT = 30 MW

Load = 60 MW

DCF^{CC} = DOT – (flow limit – flow)

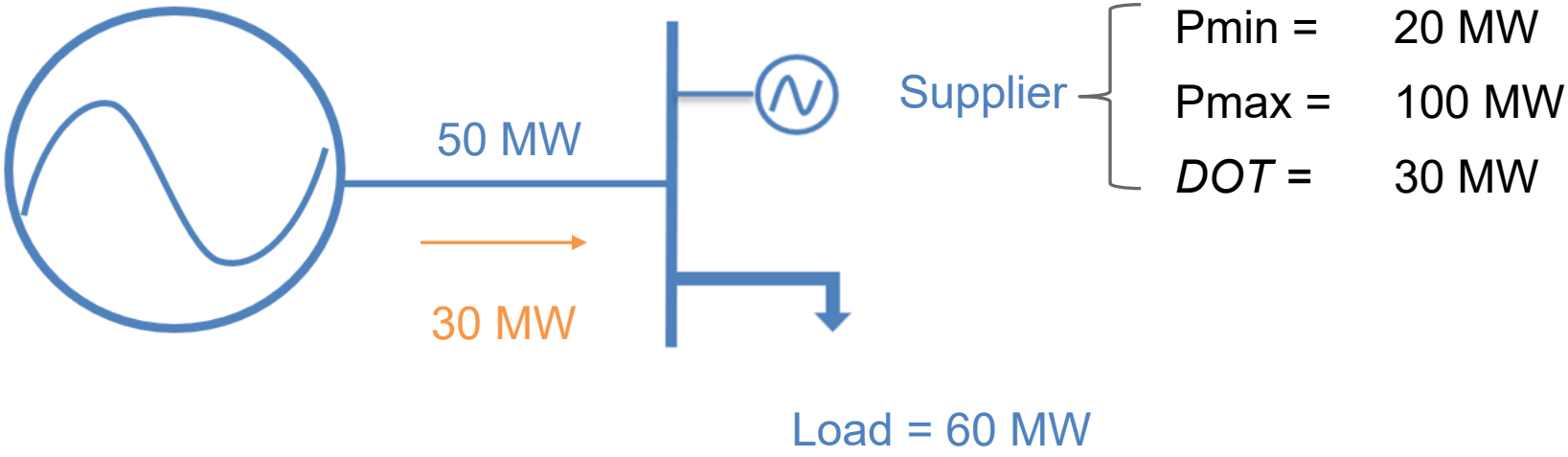
30 – (50 – 30) = **10 MW**

- Offline, the supplier faces different structural conditions than it does once it's committed and online

DCF^{EN} = (DOT – committed capacity) – (flow limit – flow)

(30 – 20) – (50 – 30) **< 0**

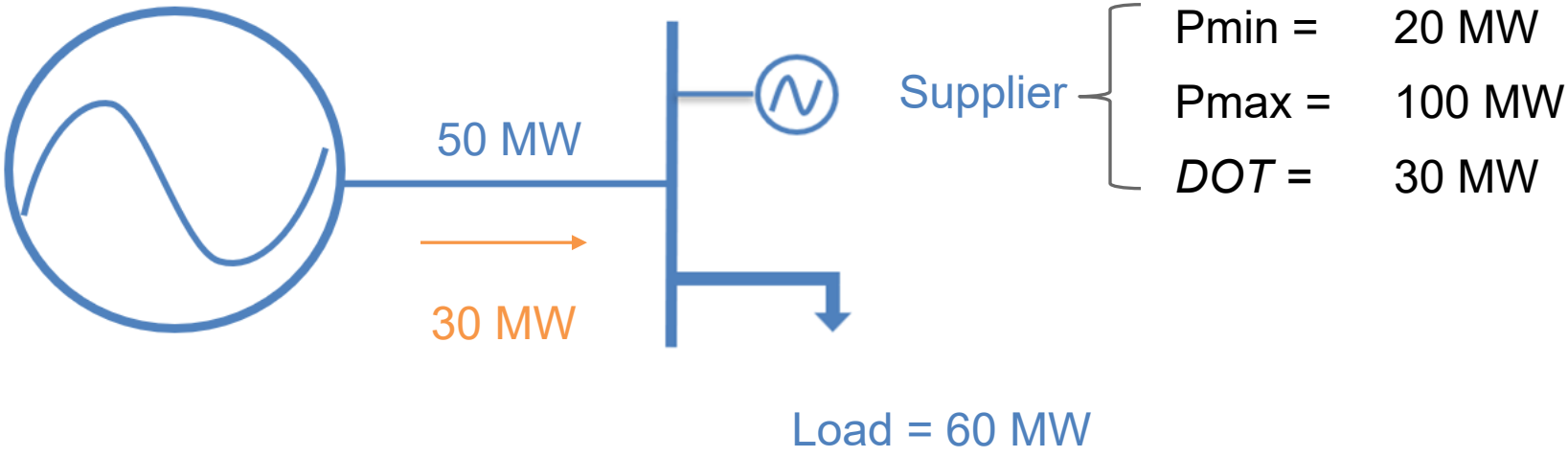
Example 6



What's the demand for counterflow when the supplier is offline?

- Before the commitment decision is made, **DCF = 10MW**; we need at least 10 MW supply of counterflow to meet DCF
- The supplier must be committed to meet load because the constraint would bind at 50 MW

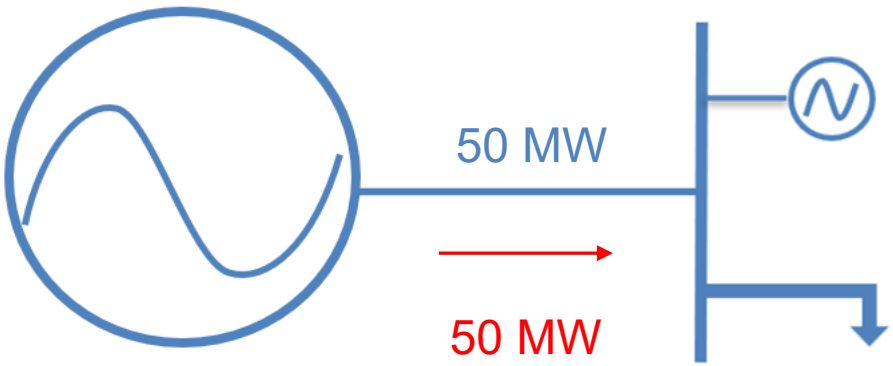
Example 6



What's the demand for counterflow once the supplier is committed?

- Once the Supplier is committed to min load, load can be met by flow over the line; (Load – Min load) – Flow Limit < 50 MW
- The supplier's incremental energy is not essential for meeting load *once it has been committed*
- ***DCF = - 10 < 0;*** this flowgate is competitive with respect to incremental energy

Example 7



Supplier

Pmin =	5 MW
Pmax =	100 MW
DOT =	10 MW

DCF^{CC} = DOT – (flow limit – flow)

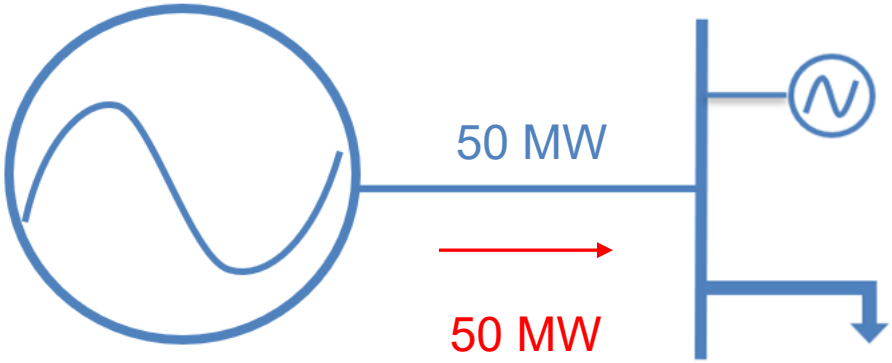
10 – (50 – 50) = **10 MW**

- Offline, the supplier faces the same conditions as in previous examples at DCF = 10 MW
- When operating at min load, we still need 5 MW from the incremental energy bid range to meet load

DCF^{EN} = (DOT – committed capacity) – (flow limit – flow)

(10 – 5) – (50 – 50) = **5 MW**

Example 8



$Supplier_{PPS}$
Pmin = 10 MW
Pmax = 100 MW
DOT = 15 MW

$Supplier_{FS}$
Pmin = 0 MW
Pmax = 25 MW
DOT = 15 MW

Load = 80 MW

DOT = 30 MW

- We need 30 MW total from PPS + FS to meet load without violating the constraint

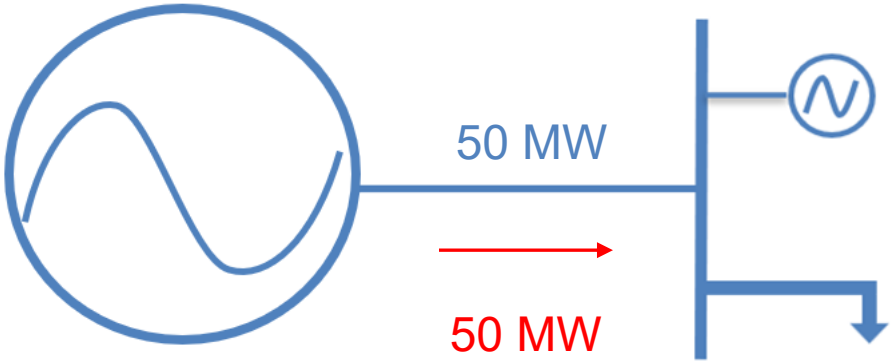
DCF^{CC} = DOT – (flow limit – flow)

30 – (50 – 50) = **30 MW**

DCF^{EN} = (DOT – committed capacity) – (flow limit – flow)

(30 – 10) – (50 – 50) **< 0**

Example 8



$Supplier_{PPS}$
Pmin = 10 MW
Pmax = 100 MW
DOT = 15 MW

$Supplier_{FS}$
Pmin = 0 MW
Pmax = 25 MW
DOT = 15 MW

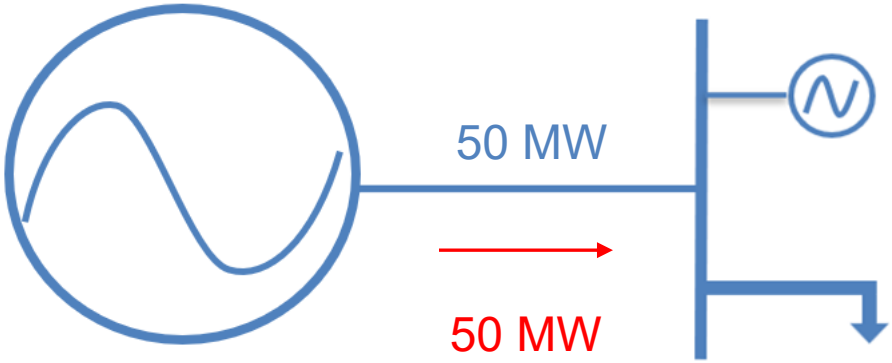
Load = 80 MW

DOT = 30 MW

What is demand for counterflow when PPS is offline?

- We need at least 30 MW aggregate supply (PPS + FS) to be available SCF
- Available capacity from the FS (25 MW) is insufficient to meet DCF
  - PPS must be committed to meet load, and the commitment cost offer of the PPS should be mitigated

Example 8



$Supplier_{PPS}$
Pmin = 10 MW
Pmax = 100 MW
DOT = 15 MW

$Supplier_{FS}$
Pmin = 0 MW
Pmax = 25 MW
DOT = 15 MW

Load = 80 MW

DOT = 30 MW

What is the demand for counterflow once the PPS is committed?

- Once the PPS is committed to min load, the DCF changes; we need 20 MW incremental capacity from PPS + FS
- The FS can meet the 20 MW DCF, and the PPS is not essential for meeting load *once it's been committed*

Key takeaways

- Consider substitutes that can start-up to meet load in residual demand for commitment decisions

- Consider commitment decisions as a given in residual demand for incremental energy
  - Committed capacity effectively reduces demand for incremental supply
  - This approach is consistent with how the DCPA is implemented today

Key takeaways

- Using the same mitigation criteria for both commitment decisions and incremental energy could materially impact energy mitigation

- For binding constraints:

  – Using commitment cost criteria to mitigate energy could over-mitigate energy compared to today

  – Using energy criteria to mitigate commitment costs could under-mitigate commitments

Mitigation criteria

CCDEBE identified and proposed separate tests for energy and commitment cost market power:

Flowgate tested	Energy RSI	Commitment criteria
Non-binding constraint	N/A (example 4)	Conditions could be structurally uncompetitive for commitments (examples 5, 6)
Binding constraint	Uncompetitive	Assume conditions are also structurally uncompetitive for commitments (example 7)
Binding constraint	Competitive	Conditions could be structurally uncompetitive for commitments (example 8)

Next Steps

- Comments are due by end of day July 6, 2026 using the commenting tool on the initiative webpage: https://stakeholdercenter.caiso.com/StakeholderInitiatives/Commitment-Cost-Bidding-Flexibility

- Questions? Email isostakeholderaffairs@caiso.com

This Week at the ISO – 6/15/26

Stakeholder Meetings-*For an overarching view of where each initiative is in the development process, view the Policy Initiatives Timeline.*
All public stakeholder meetings are also listed on the CAISO Calendar

- Monday, June 15 – Extended Day-Ahead Market (EDAM) Intertie Modeling and Scheduling
  - 1:00pm – 4:00pm PT (link)
- Tuesday, June 16 – Technical User Group
  - 10:00am – 11:00am PT (link – developer account required)
- Tuesday, June 16 – WEM Regional Issues Forum
  - 12:00pm – 3:30pm PT (this meeting will be held in New Mexico in a hybrid format)
- Wednesday, June 17 – WEM Governing Body General Session (shown in Mountain Time)
  - 8:30am – 12:00pm MT (link)
- Wednesday, June 17 – Settlement User Group
  - 10:00am – 11:00am PT (link)
- Thursday, June 18 – Commitment Cost Bidding Flexibility
  - 9:00am – 11:00am PT (link)
- Thursday, June 18 – Demand and Distributed Energy Market Integration
  - 1:00pm – 4:00pm PT (hybrid meeting : Webex link ; In Person Registration link)

Comment Submission Deadlines

- Tuesday, June 16 - BPM Proposed Revision Requests (PRR) 1669-1675, 1677-1679
- Tuesday, June 16 - Congestion Revenue Rights Enhancements
- Thursday, June 18 - 2026 Variable Operations and Maintenance (VOM) Cost Review

This Week at the ISO continued

DAME/EDAM Resources

FAQ & Training:

- EDAM FAQ Guide - Designed to address general EDAM related questions
- EDAM Training Resources - A comprehensive set of EDAM training materials is available, offered in both instructor-led and computer-based training (CBT) formats. These resources include courses covering:
  - Bids and Base Schedule
  - EDAM Bidding Basic Concepts
  - Scheduling Infrastructure Business Rules (SIBR)
  - EDAM Scheduling Coordinator responsibilities
  - Intertie Scheduling
- EDAM Business Requirements Specifications - Describes EDAM's business processes and the associated business requirements.
- DAME Business Requirements Specifications - Describes DAME's business processes and the associated business requirements.
- EDAM Scheduling Coordinator Decision Matrix

Settlements:

- Settlements BPM Walkthrough

BPMs:

- Extended Day-Ahead Market BPM
- Market Instruments BPM
- Reliability Requirements BPM
- Market Operations BPM
- BPM Change Management Process (PRRs)

EDAM Stakeholder Initiative:

- Meeting materials and recordings can be accessed through the stakeholder initiative page here.

This Week at the ISO continued

Market Simulations

Please refer to our Release Schedule for the most recent updates of initiatives scheduled for MAP- and Production- stage market sims

- None Scheduled this week

Presentations and recordings of the Parallel Operations Meeting are posted here.

To participate in the DAME and EDAM Implementation pre-Market Simulation meeting series, please follow these steps:

Submit a CIDI Request:

- Log in to the CAISO Customer Inquiry, Dispute, and Information (CIDI) system.
- Create a new request with the 'Functional Environment' set to "Market Simulation."
- In the request, specify your intent to participate in the DAME & EDAM Market Simulation.
- Include the following information:
  - Market Simulation initiative(s) you will participate in.
  - Any specific resources or systems you plan to test.
  - Contact names and email addresses for coordination.

Email Option:

- If you do not have access to CIDI, you may send an email to marketsim@caiso.com with the subject line "DAME & EDAM Market Simulation Registration."

Business Practice Manual (BPM) Updates

- The status of all PRRs and updated BPMs in the BPM Library are published on the BPM Change Management Website.
- *Please note: The California ISO has updated how participants access call-in information for Business Practice Manual (BPM) Change Management meetings. Going forward, registration is required to receive Webex and audio participation details. Previously, meeting links were posted directly on the event calendar. This change allows us to collect participant contact information to support future outreach, communication, and process improvement efforts.*

Energy Matters blog provides timely insights into ISO grid and market operations as well as other industry-related news.

https://www.caiso.com/about/news/energy-matters-blog

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Announcing the launch of a new publication series:

Western Energy Markets Observations

This new periodical offers concise and accessible insights into notable developments across the western power markets. Read the first issue for highlights on market performance during the first weeks of Extended Day-Ahead Market (EDAM) operations.

The document will be posted on the EDAM Overview page of WesternEnergyMarkets.com website.

REGISTRATION IS OPEN

2026 STAKEHOLDER SYMPOSIUM

Welcome reception - Oct. 5
at Kimpton Sawyer Hotel, Sacramento, CA

Symposium program - Oct. 6
SAFE Credit Union Convention Center
Sacramento, CA

Visit: https://www.caiso.com/meetings-events/events/stakeholder-symposium

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