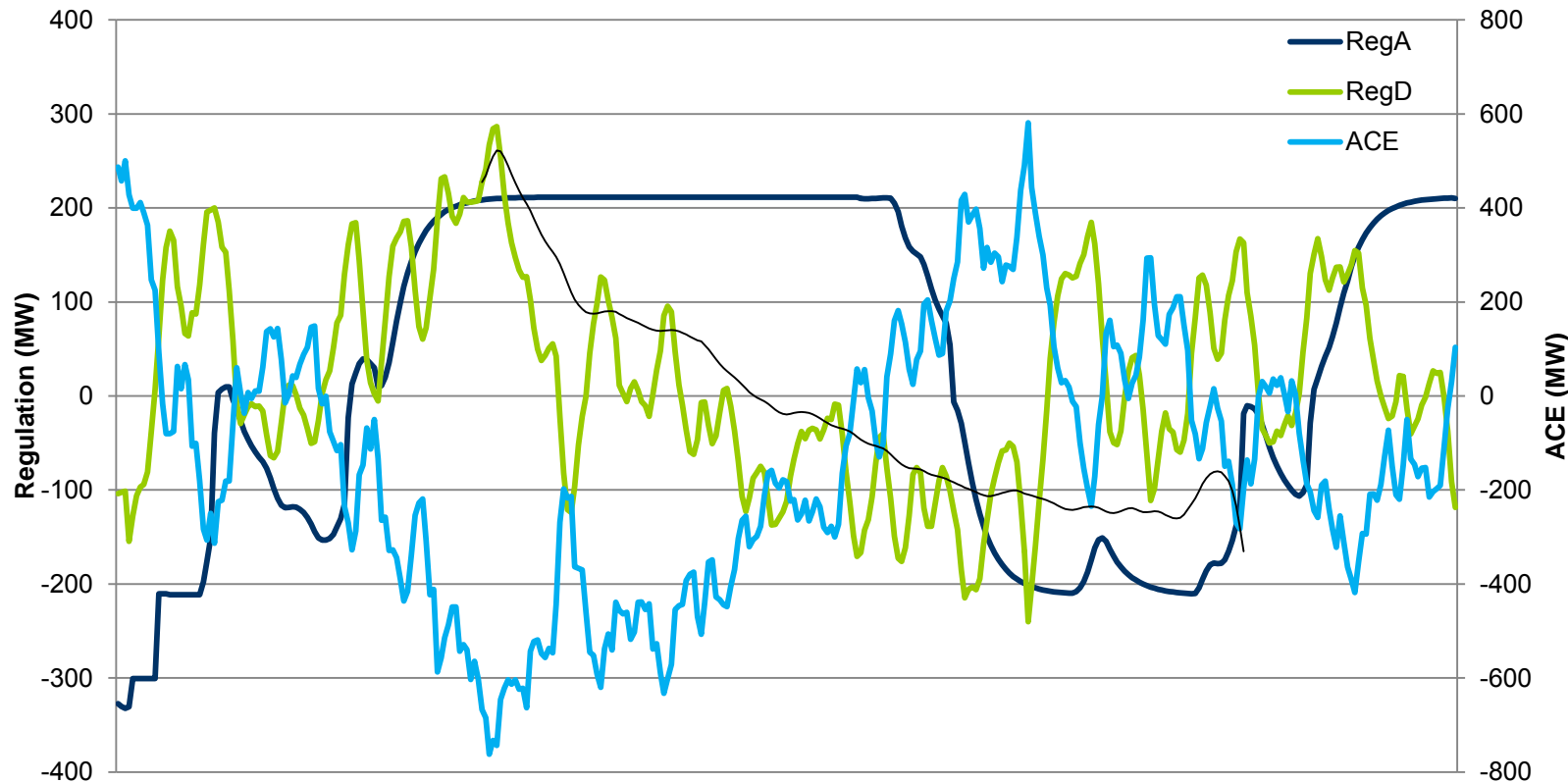


Regulation Problem Statement Issue Charge Options

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Operating Committee
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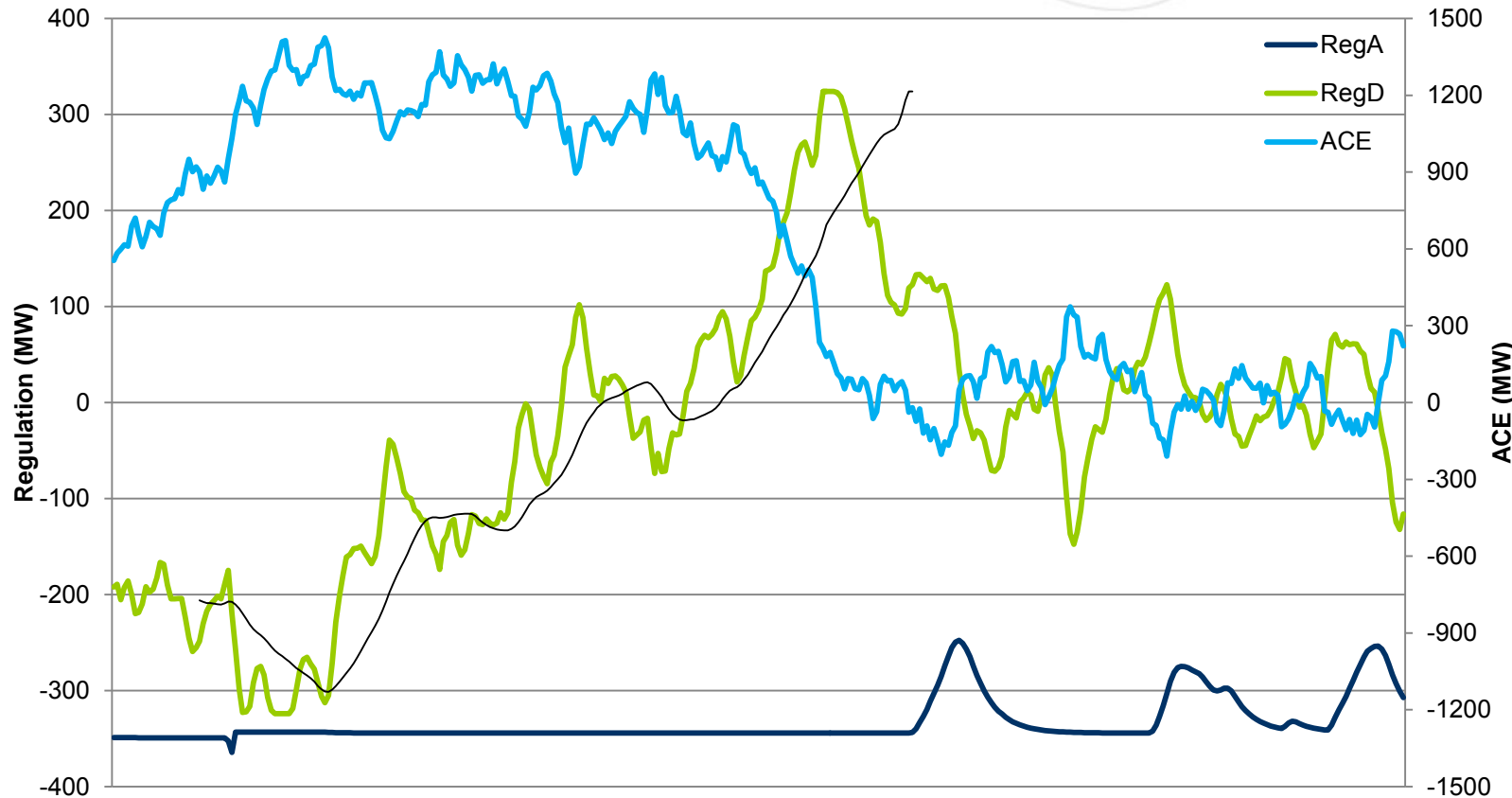
Reliability challenges to managing system control can occur during times when there is a large percentage of RegD MWs providing regulation. This issue is caused by the RegD control signal moving in the opposite control direction than desired by dispatch



Example 1:

- ACE is low (-760 to -200)
- RegA is in full raise (~210MW)
- RegD is dropping off (~286MW to ~-170MW)
- RegD % 75

Reliability challenges to managing system control can occur during times when there is a large percentage of RegD MWs providing regulation. This issue is caused by the RegD control signal moving in the opposite control direction than desired by dispatch



Example 2:

- ACE is high (-1425 to -690)
- RegA is in full lower (~340MW)
- RegD is ramping up
- (~-320MW to ~320MW)
- RegD % 45

- (1) – Do Nothing
- (2) – RegD Operational Issue Solution
- (3) – RegD Operational Issue Solution + Market Design
- (4) – Full Regulation Market Review

- Leave Regulation Market as-is
 - Do not address Regulation Problem Statement or any other raised topics
- Estimated Timeline: 0 months
- Benefits – Regulation Market status quo; No stakeholder work needed
- Risks - Reliability challenges will still exist when large amount of RegD MWs are providing regulation; possibility for reliability risk to increase with additional RegD MW qualification

- Address Regulation Problem statement ONLY
 - RegD Operational Issue Solution
 - Worked at the OC
- Minimum necessary updates to address problem statement
 - Possible solution may include: Benefits Factor Curve, Regulation Requirement, Signal Tuning (Solution Matrix)
 - Out of scope: Market Compensation
- Estimated Timeline: 5-6 months
- Benefits – Reliability issues will be addressed; short timeline to address issue; Limited stakeholder process
- Risks – Some market issues (regulation market optimization) will not be addressed; Solution to problem *might* be a “band aid”

(3) – RegD Operational Issue Solution + Market Design

- Address Regulation Problem Statement as PHASE 1 and address additional Market Design topics as PHASE 2
- Phase 1 will be implementing Option (2)
 - Worked at OC
- Phase 2 will include one or more of the remaining:
 - Benefits Factor Curve, RegB, Performance Scoring, Testing Requirements, KEMA evaluation, Compensation
 - Worked at MRC (concurrent with Phase 1); Requires additional problem statement
- Estimated Timeline:
 - Phase 1: 5-6 months; Phase 2: 8-12 months
- Benefits – Reliability issue addressed; More optimized Regulation market; phased approach allows for operations issue to be worked at OC and reliability issue to be addressed first; Phase 1 and 2 can be worked in parallel
- Risks - Market/Operations impact/changes (phase 1 minimal, potential for phase 2 to have large impact); Possible lengthy stakeholder process for phase 2

- Open up all components of Regulation and PBR
 - Address current Regulation Problems statement AND other regulation market components that were raised
- Includes Redesign/Evaluation of:
 - Benefits Factor Curve, RegB, Performance Scoring, Testing Requirements, KEMA evaluation, Compensation
- Worked at MRC (likely new Sr. Task Force); Would require new problem statement; Reliability problem addressed first
 - Estimated Timeline: 1 - 1.5 years
- Benefits – Reliability issue addressed first; More optimized Regulation market; Same stakeholder group addressing all issues
- Risks – Lengthy stakeholder process; Issues worked serially; Large impact to Regulation market

- PJM recommends Option 2
 - Would also support Option 3
- IMM supports Options 3 or 4