Briefing on western energy imbalance market and benefits: 15-minute day-ahead / base scheduling

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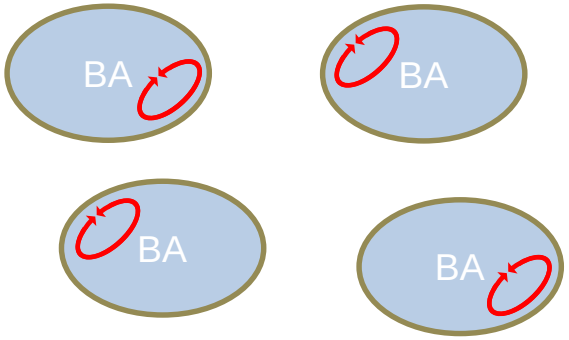
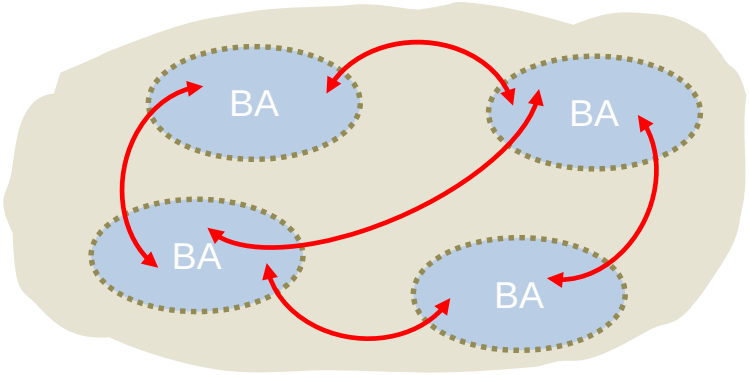
EIM economic benefits result from optimization of bids and transfer capability between areas

Prior to EIM:
Each BA must balance loads and resources w/in its borders.



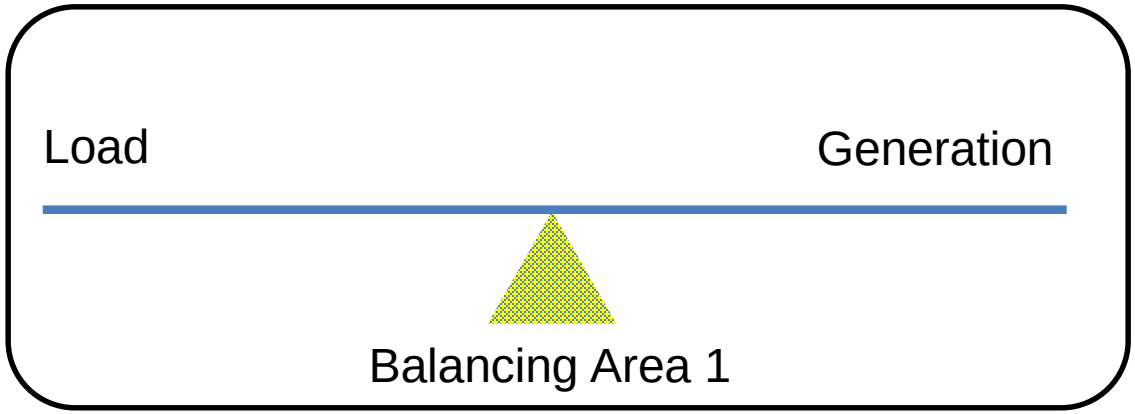
- Limited pool of balancing resources
- Inflexibility
- High levels of reserves
- Economic inefficiencies
- Increased costs to integrate wind/solar

In an EIM:
The market dispatches resources across BAs to balance energy



- Diversity of balancing resources
- Increased flexibility
- Decreased flexible reserves
- More economically efficient
- Decreased integration costs

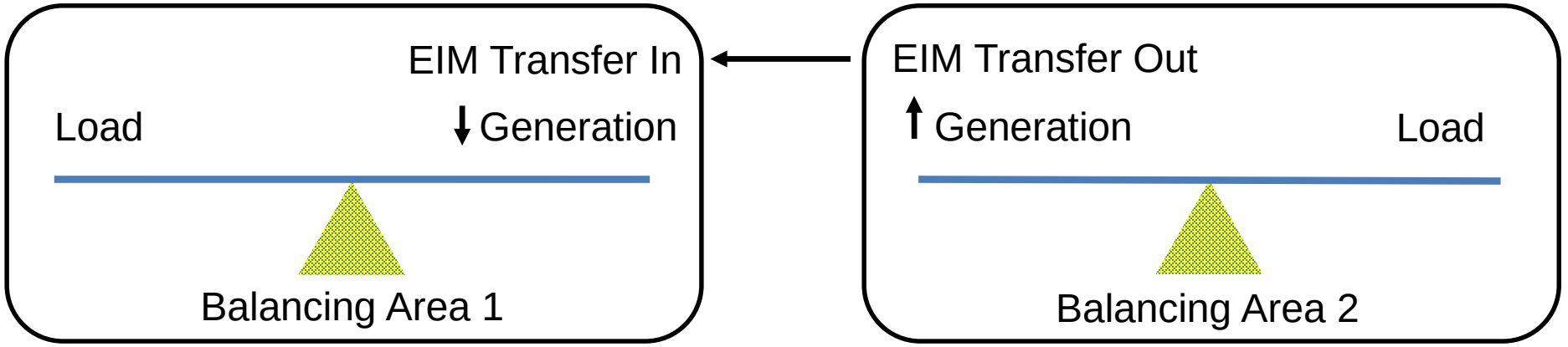
A balancing area with no transfer capability can still benefit from EIM automated optimal dispatch



- EIM benefits can occur due to fuel cost savings of more optimal dispatch compared to base schedules

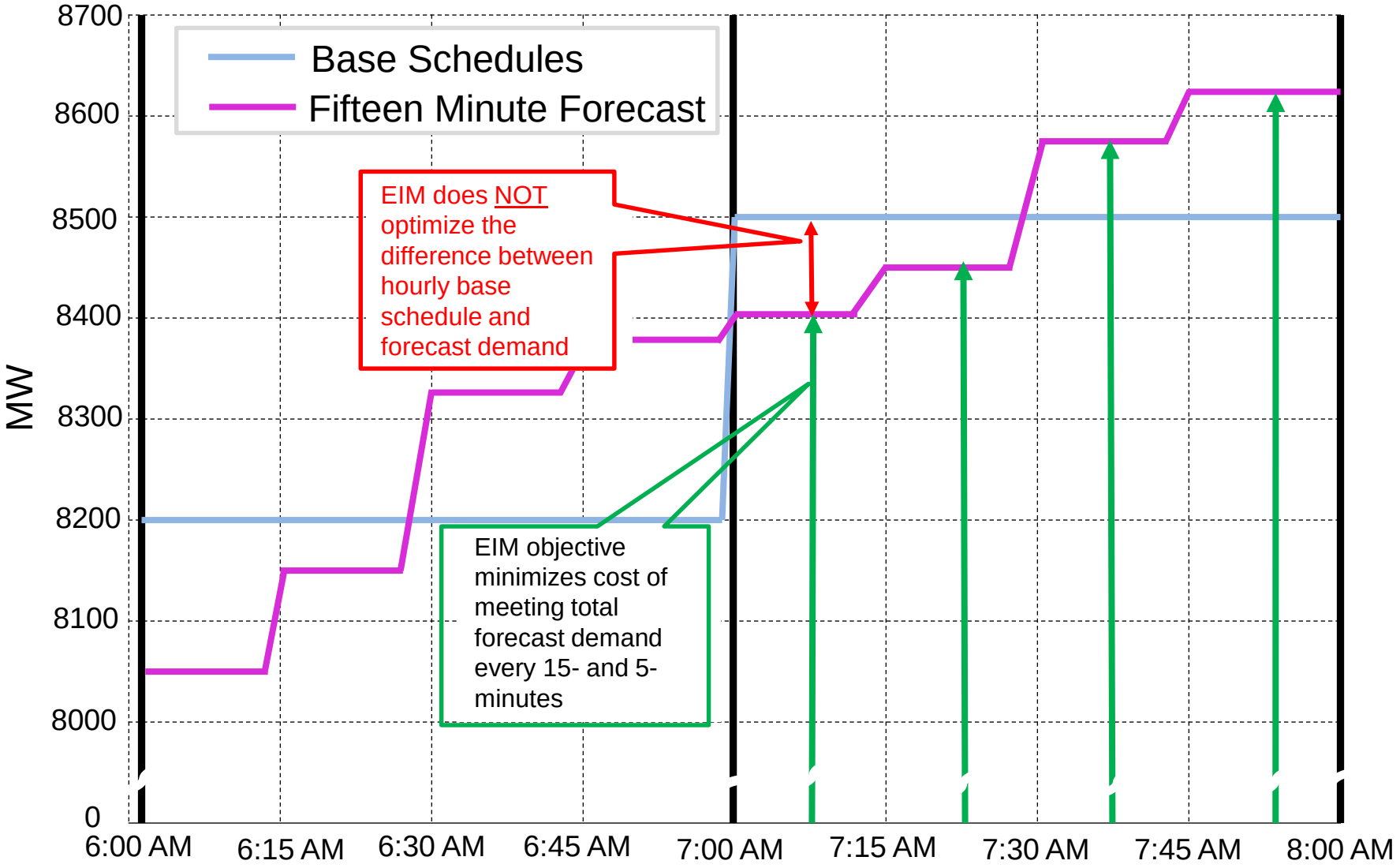
- Settlement of imbalance volumes between hourly base load and generation schedules and 15-minute schedules offset

Economic displacement between balancing areas provides EIM benefits to both balancing areas

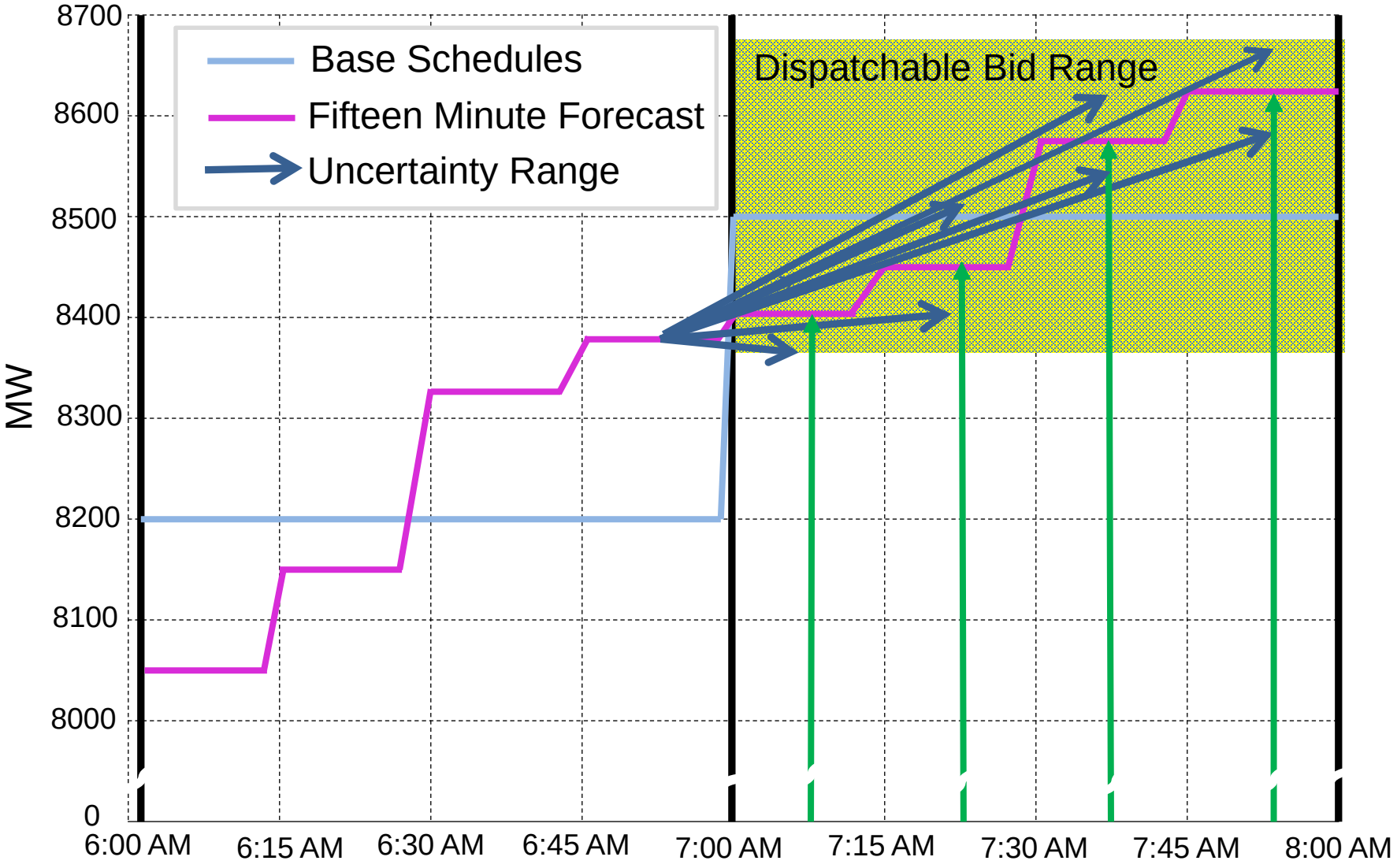


- Balancing Area 1 benefits from saving on generation cost due to access to lower cost supply from area 2
- Balancing Area 2 benefits from selling excess supply to area 1 by dispatching internal generation up

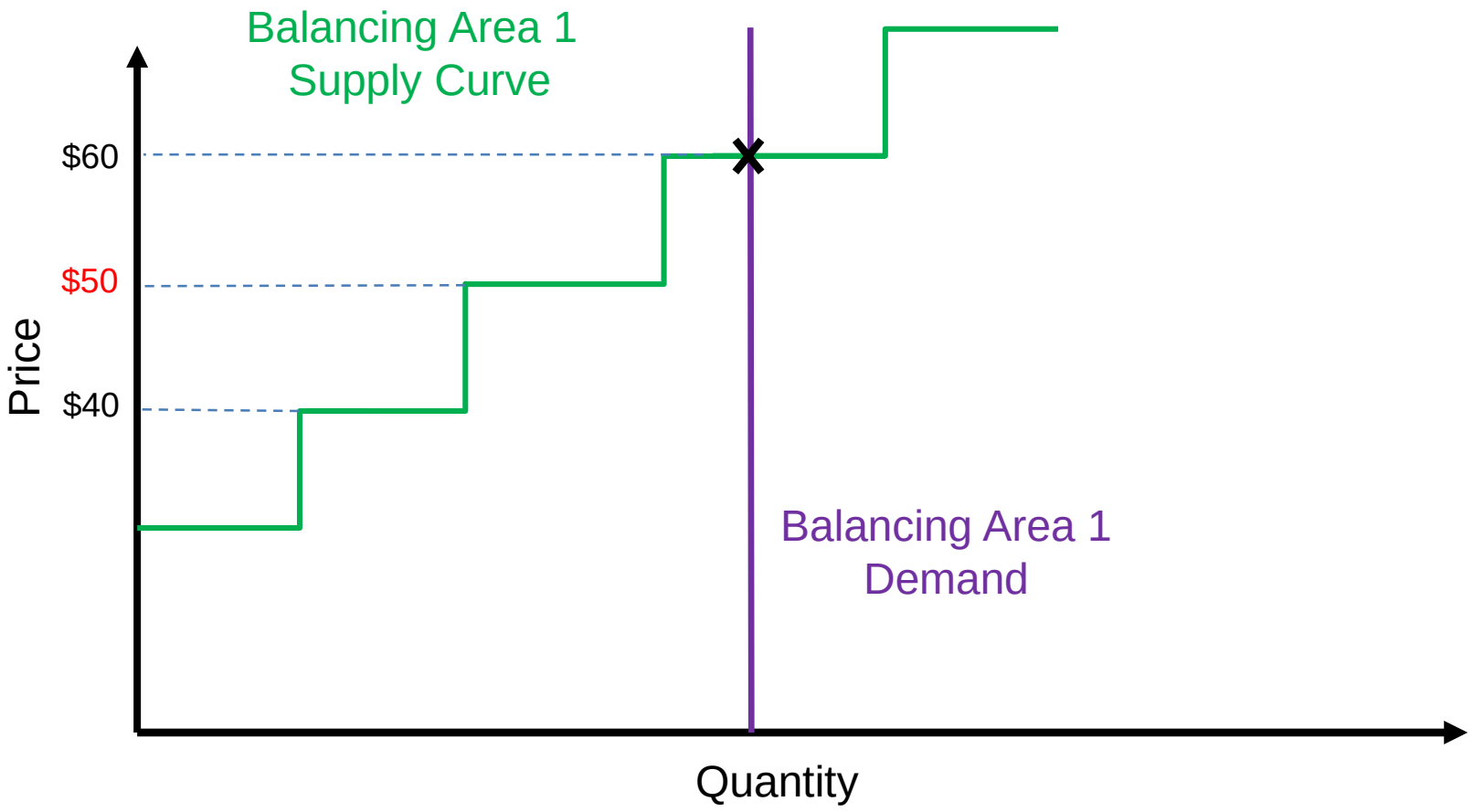
EIM optimization achieves benefits by minimizing cost of meeting forecast demand and flex requirements



Tests ensure balancing area has sufficient capacity and bid in capability to meet its forecast demand and uncertainty



Supply and ramp transfer provides benefits to both areas



$50 supply from balancing area 2 displaces $60 supply in balancing area 1

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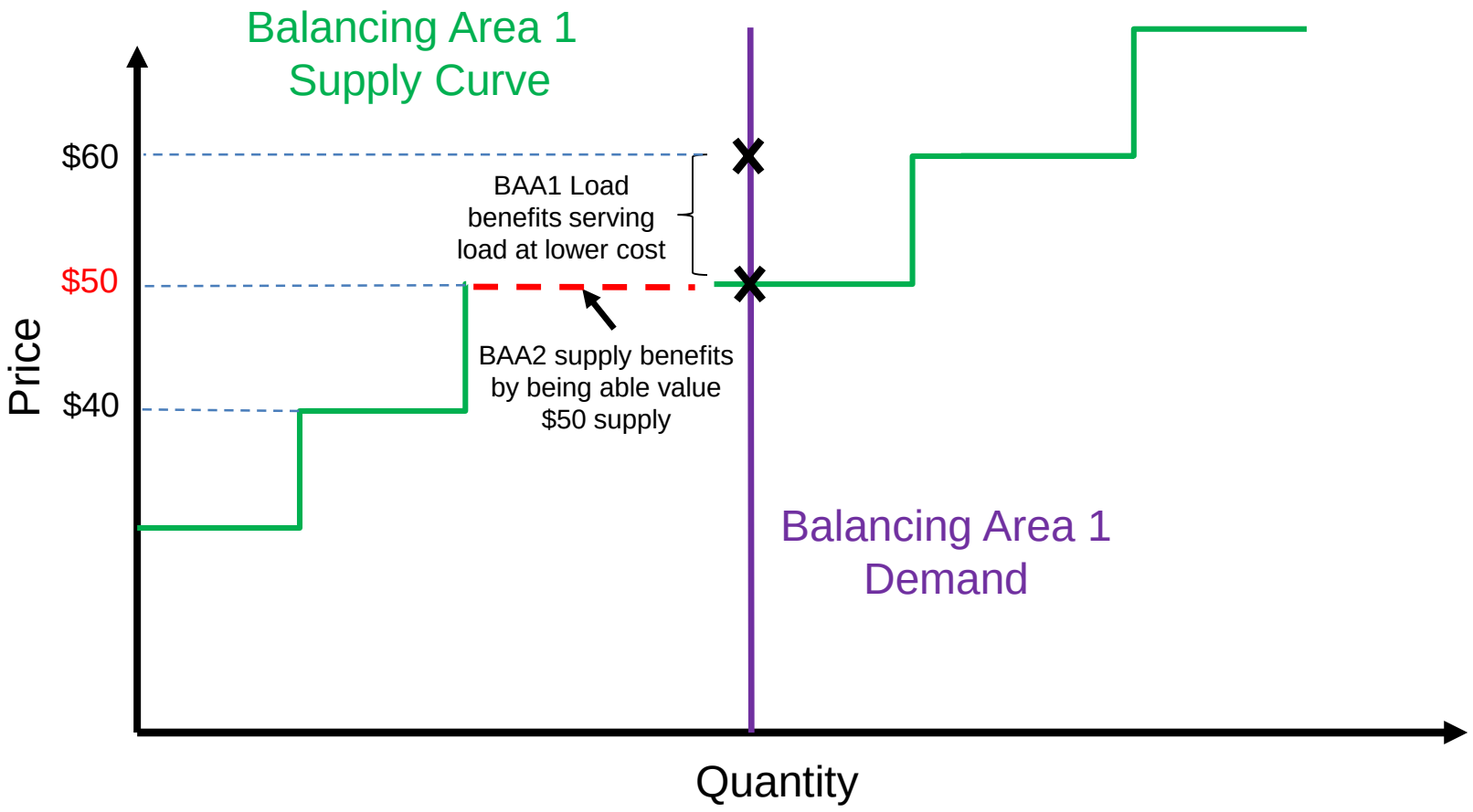
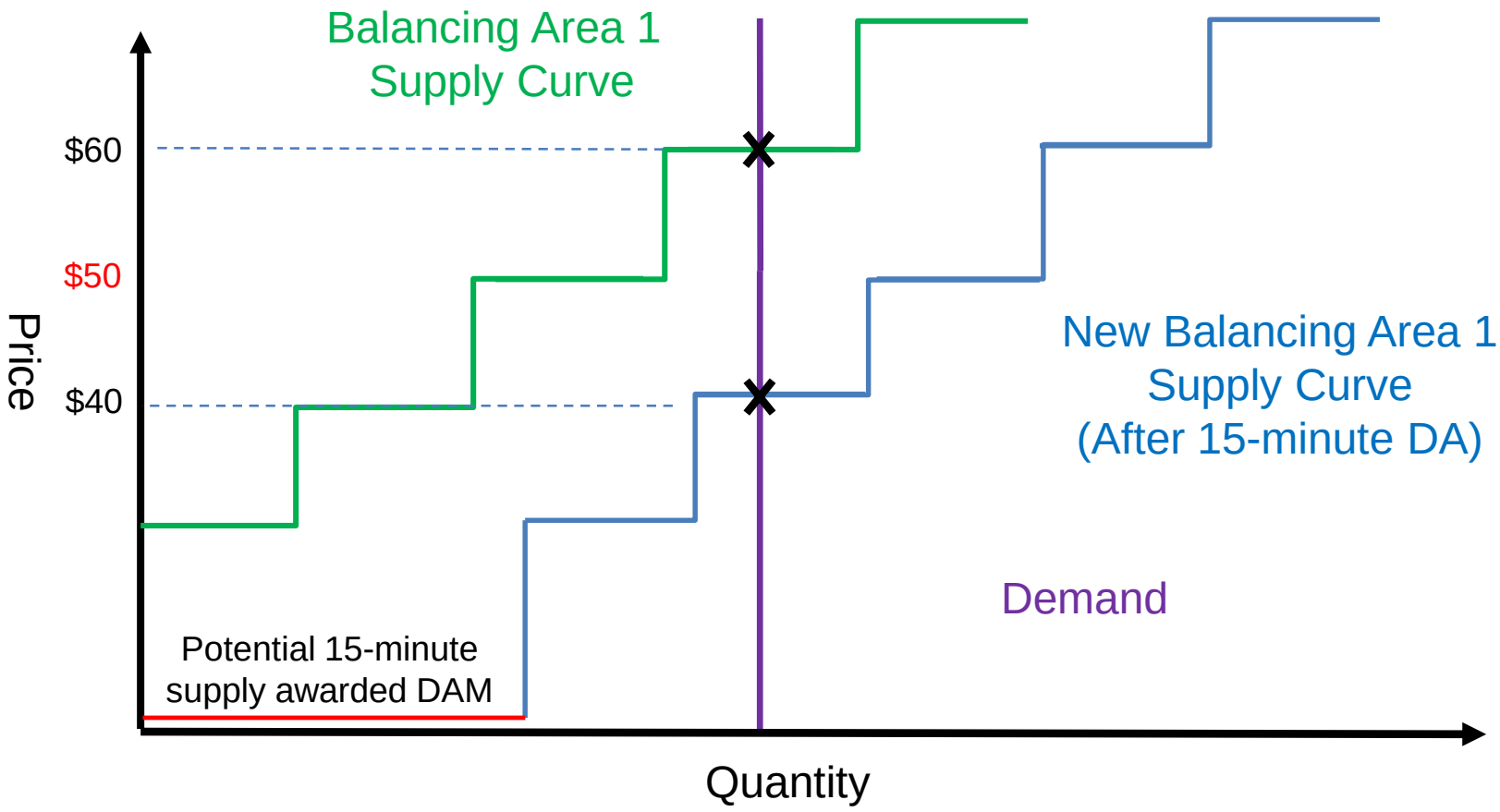


$50 supply from balancing area 2 displaces $60 supply in balancing area 1

Additional 15-minute supply and ramp scheduled day-ahead may shift supply curve and benefits for real-time



$40 supply from balancing area 1 is now able to service demand in area 2 by displacing $50 supply in balancing area 2

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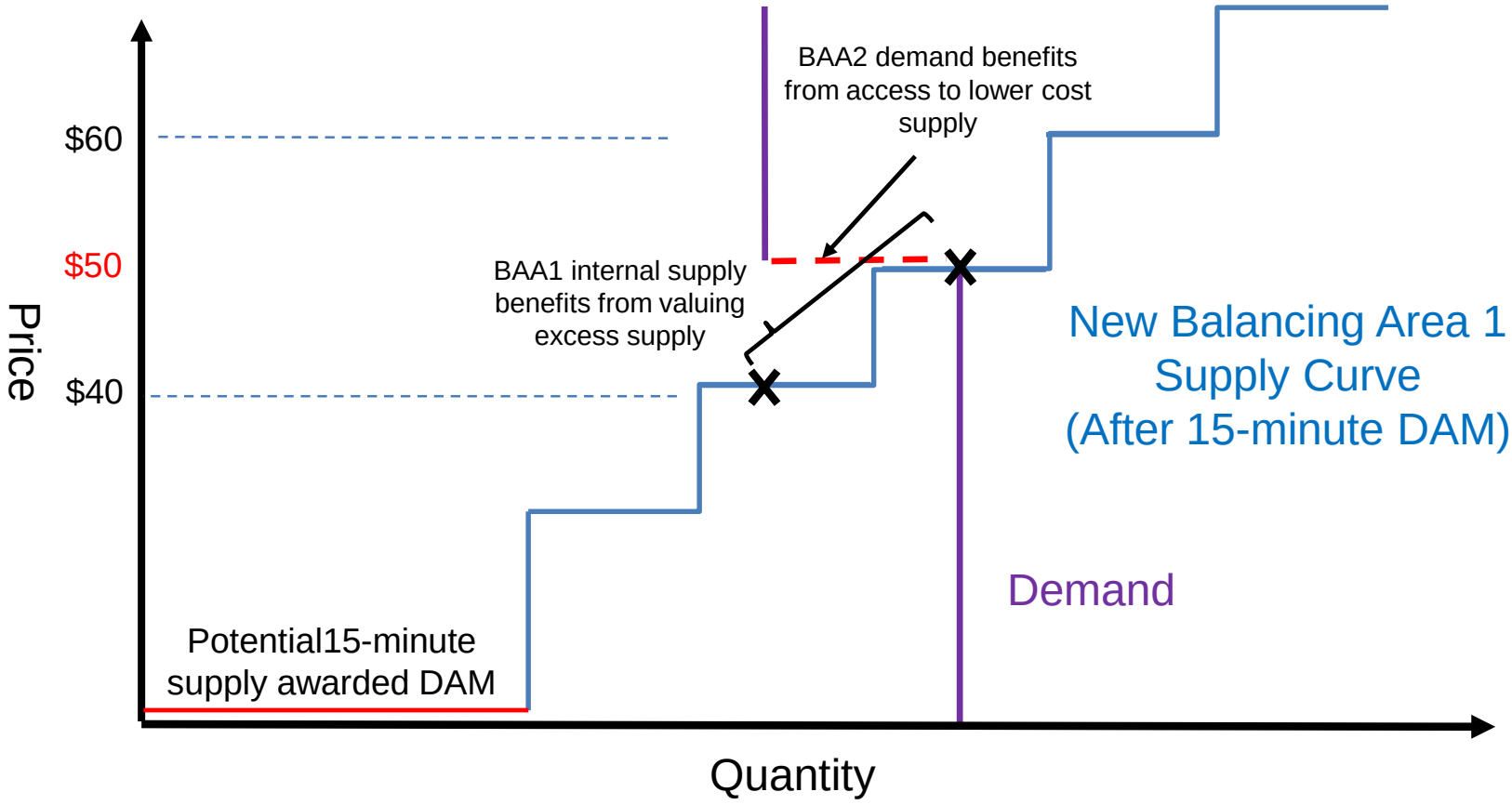

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Summary of effects on EIM benefits related to 15-minute day-ahead market and EIM base schedules

- 15-minute granularity does not change EIM benefit opportunity from economic displacement and transfers
- 15-minute granularity improves commitment and intra-hour ramp and thus increases ability to pass sufficiency tests
- Improved sufficiency test performance increases the opportunity for transfers and EIM benefits
- 15-minute DAM new opportunity for imports/exports that may shift real-time supply/demand curves and benefits