2016 OMS MISO Survey Results

Furthering our joint commitment to regional resource assessment and transparency in the MISO region, OMS and MISO are pleased to announce the results of the 2016 OMS MISO Survey

June 2016

OMS – MISO Survey Executive Summary

MISO Region is projected to have adequate resources to meet its Planning Reserve Requirement for 2017; additional action will be needed to ensure sufficient resources are available going forward

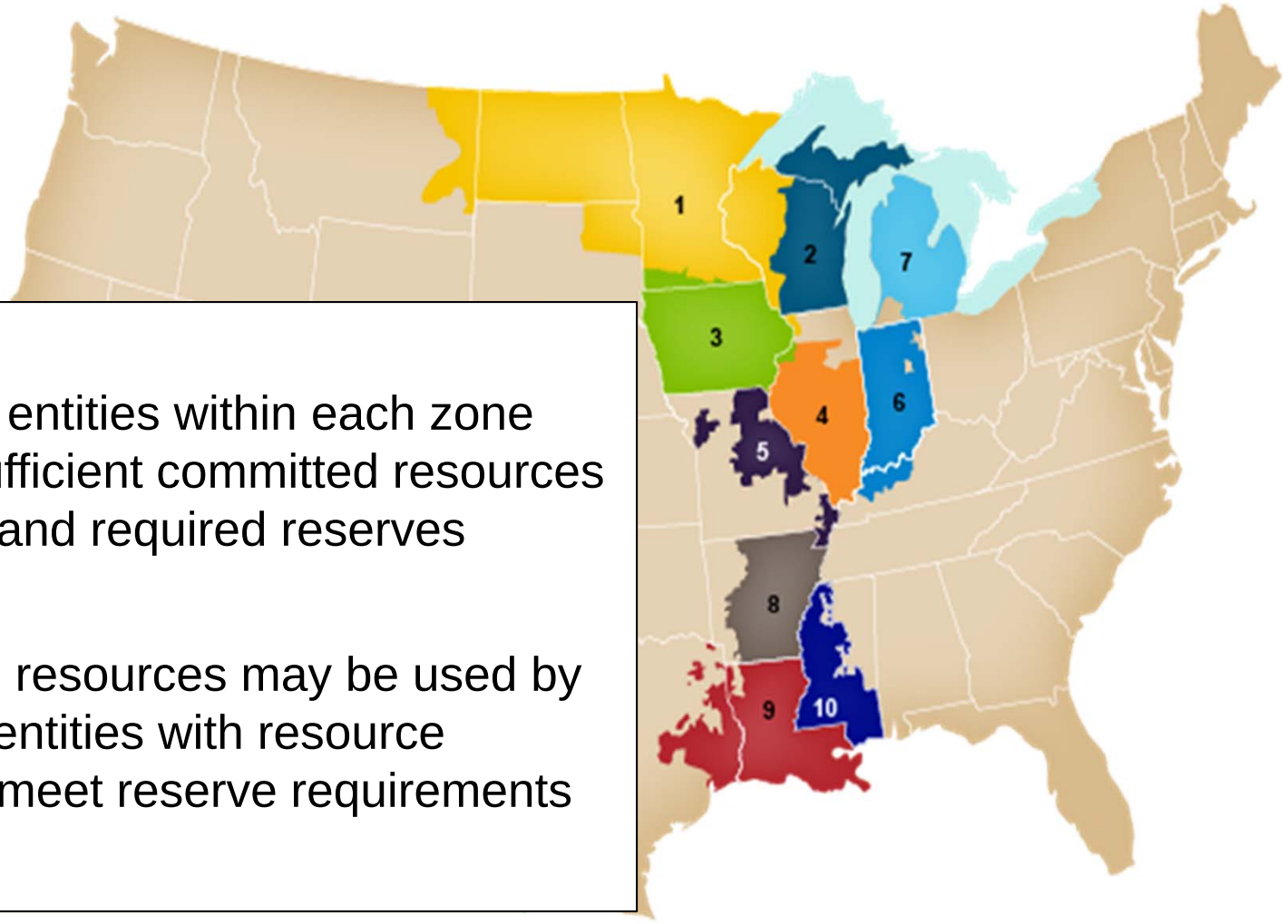
For 2017,

- The region has 2.7 GW (2.2%) in excess of the projected resource requirement
- Recent publicly announced retirements decrease this excess to 0.9 GW (0.7%)
- Several zones are below their resource requirement and will rely on imports
- Demand has shrunk due to reduced forecasts and point load reductions
- Supply has declined due to plant retirements in excess of new resource additions

Beyond 2017,

- Continued resource adequacy will depend on uncommitted resources or resources with potential retirements
- Continued commitment to firming up planned generation interconnections through the MISO process will also be required
- This outlook depends heavily on load projections; current forecasts of modest load growth are not in line with recent history of flat year-to-year loads

Understanding Resource Adequacy Requirements



- Load serving entities within each zone must have sufficient committed resources to meet load and required reserves
- Uncommitted resources may be used by load serving entities with resource shortages to meet reserve requirements

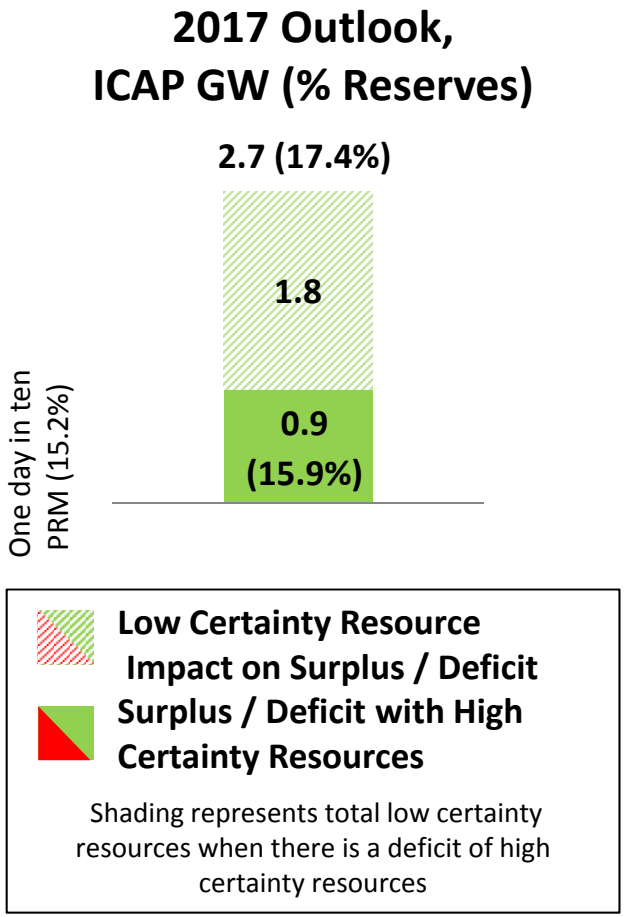
Understanding Resource Availability

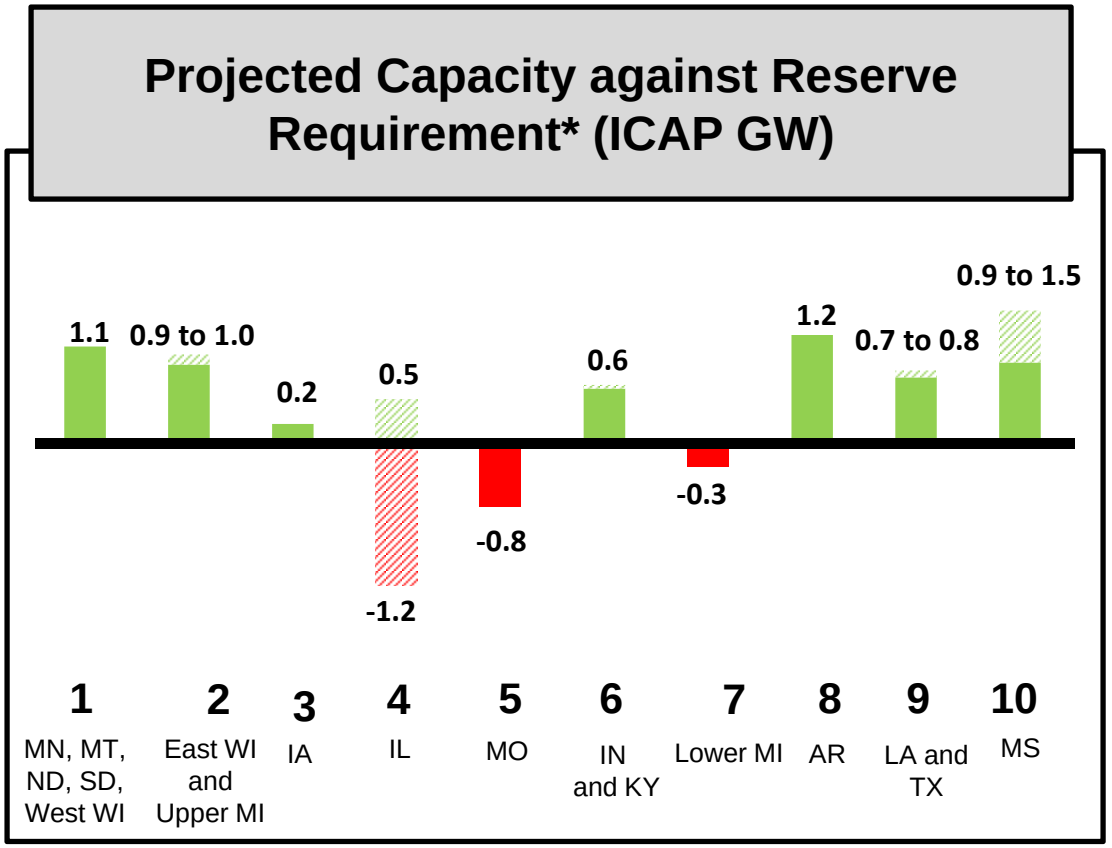
- **High Certainty Resources** are committed to serving MISO load
  - Resources within the rate base of MISO utilities
  - New generators with signed interconnection agreements
  - External resources with firm contracts to MISO load

- **Low Certainty Resources** may be available to serve MISO load but do not have any firm commitments to do so
  - Most of these resources are potential retirements or suspensions

- **Unavailable resources** are not included in the survey totals
  - Resources with firm commitments to non-MISO load
  - Units with finalized retirements or suspensions
  - Potential new generators without a signed Generator Interconnection Agreement

In 2017, modest excess capacity is projected to address zonal deficits



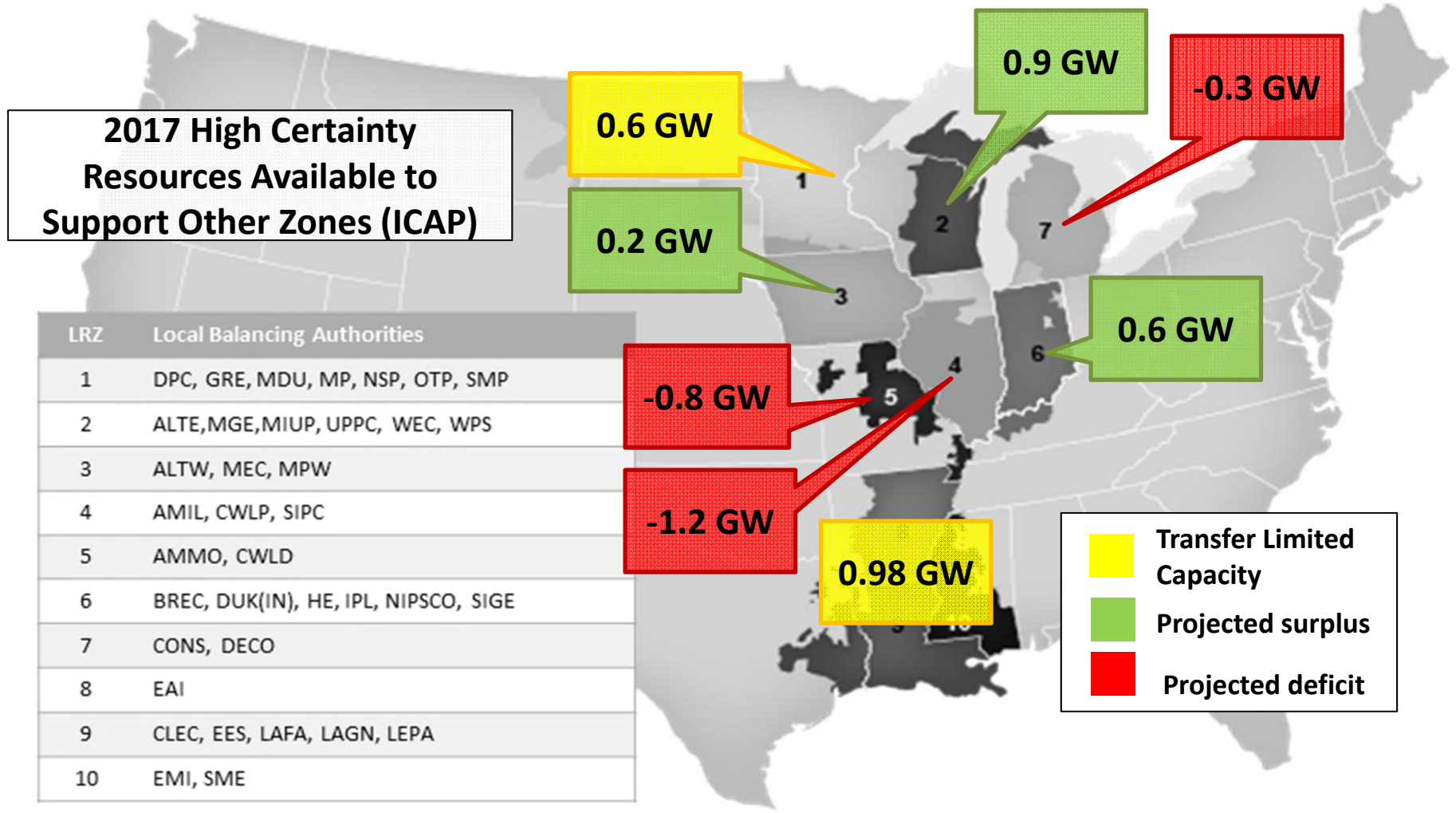


*Positions include reported inter-zonal transfers
Publicly announced potential retirements as of June 1, 2016 were included as low certainty resources
Exports from Zone 1 were limited by the zone's Capacity Export Limit to 0.6 GW
Exports from Zone 8, 9, and 10 were limited by the Subregional Power Balance Constraint to 0.98 GW

For 2017, all projected capacity is not available to serve load outside of its zone due to transfer limitations

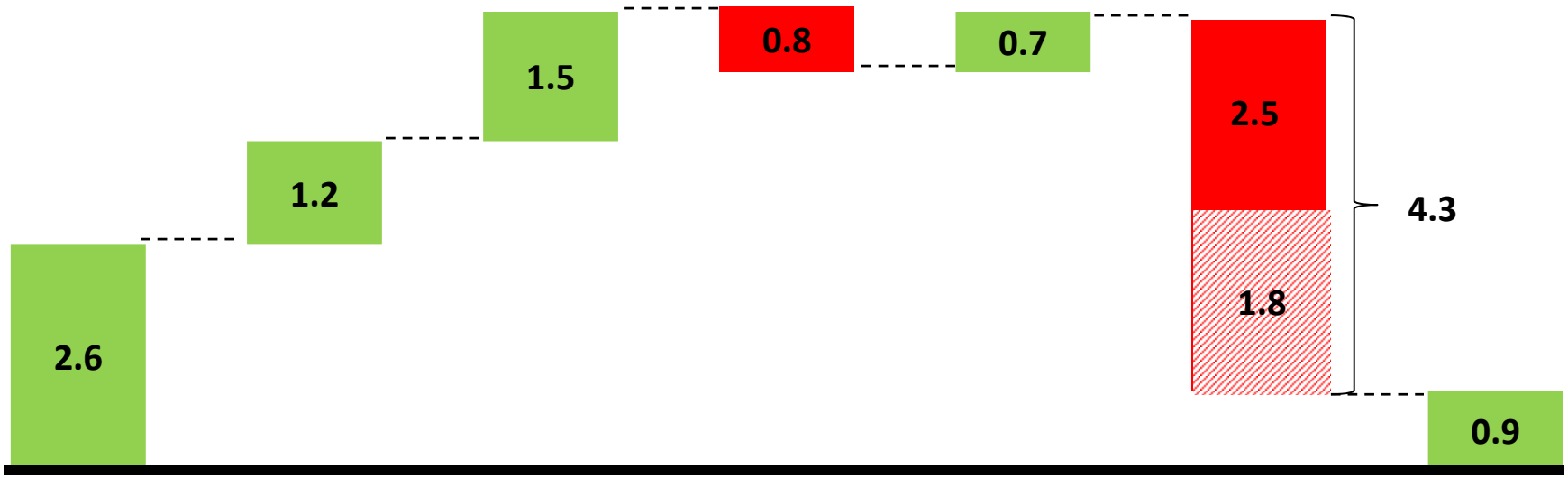
2017 High Certainty Resources Available to Support Other Zones (ICAP)

LRZ	Local Balancing Authorities
1	DPC, GRE, MDU, MP, NSP, OTP, SMP
2	ALTE,MGE,MIUP, UPPC, WEC, WPS
3	ALTW, MEC, MPW
4	AMIL, CWLP, SIPC
5	AMMO, CWLD
6	BREC, DUK(IN), HE, IPL, NIPSCO, SIGE
7	CONS, DECO
8	EAI
9	CLEC, EES, LAFA, LAGN, LEPA
10	EMI, SME



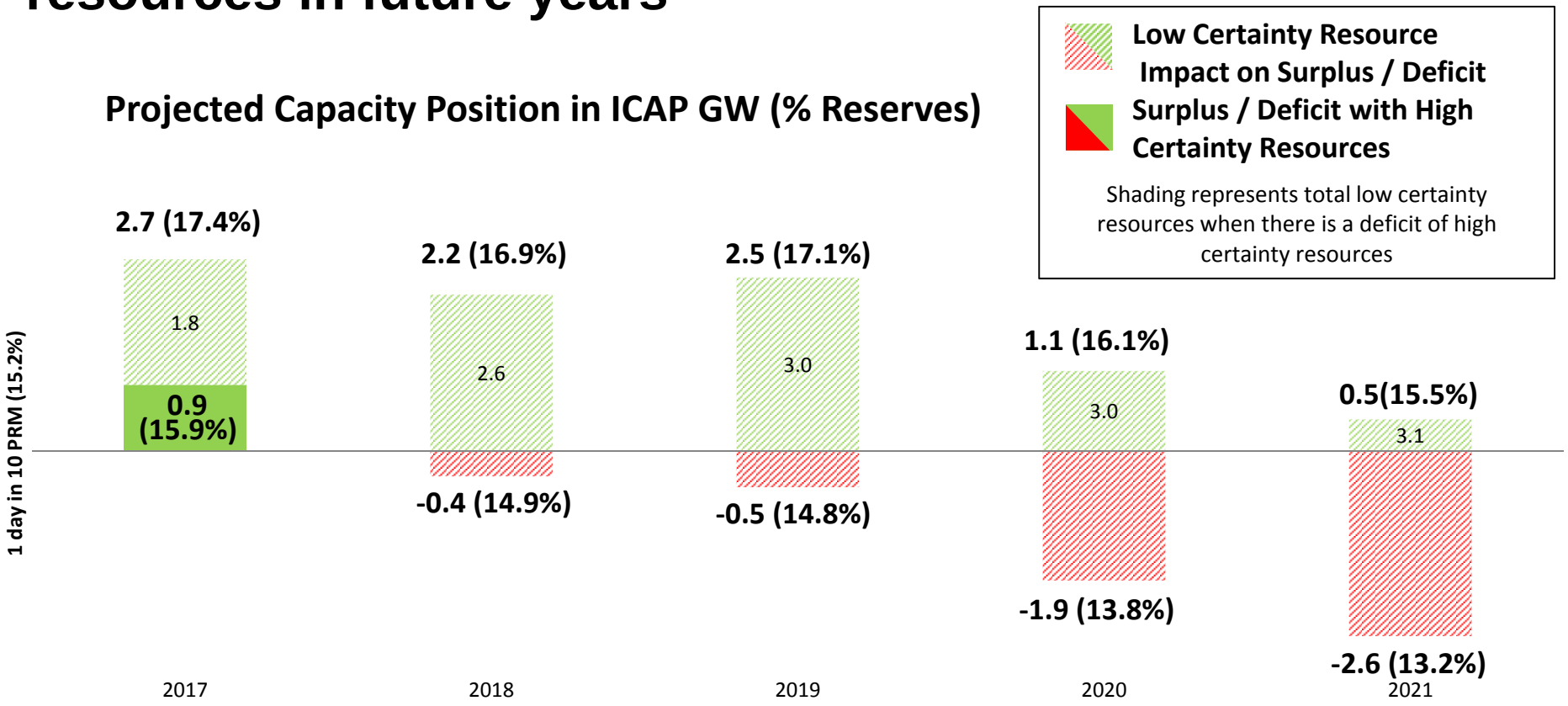
The 2017 results show the impacts of potential or actual generation retirements, as well as changes in load

2017 Outlook
Comparison of High Certainty Resources
In GW (ICAP)



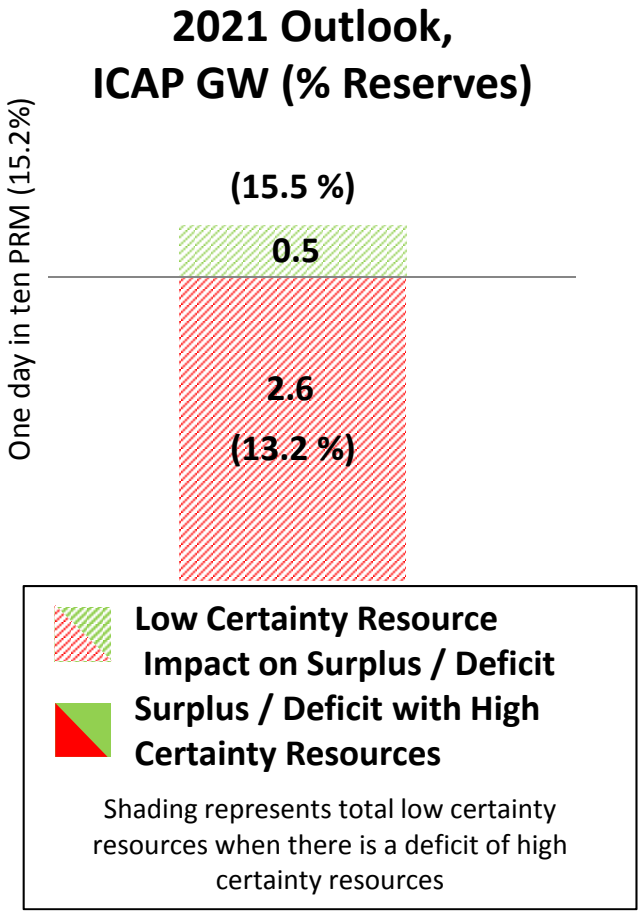
Forecasted Regional Surplus: 2015 OMS-MISO Survey	Point Load Reductions	Forecasted Load Reductions	Increase in Reserve Requirement (Average Forced Outage Rate Increase)	Increase In New Resources	Decrease in High Certainty Resources (Confirmed and potential retirements)	Forecasted Regional Surplus: 2016 OMS-MISO Survey

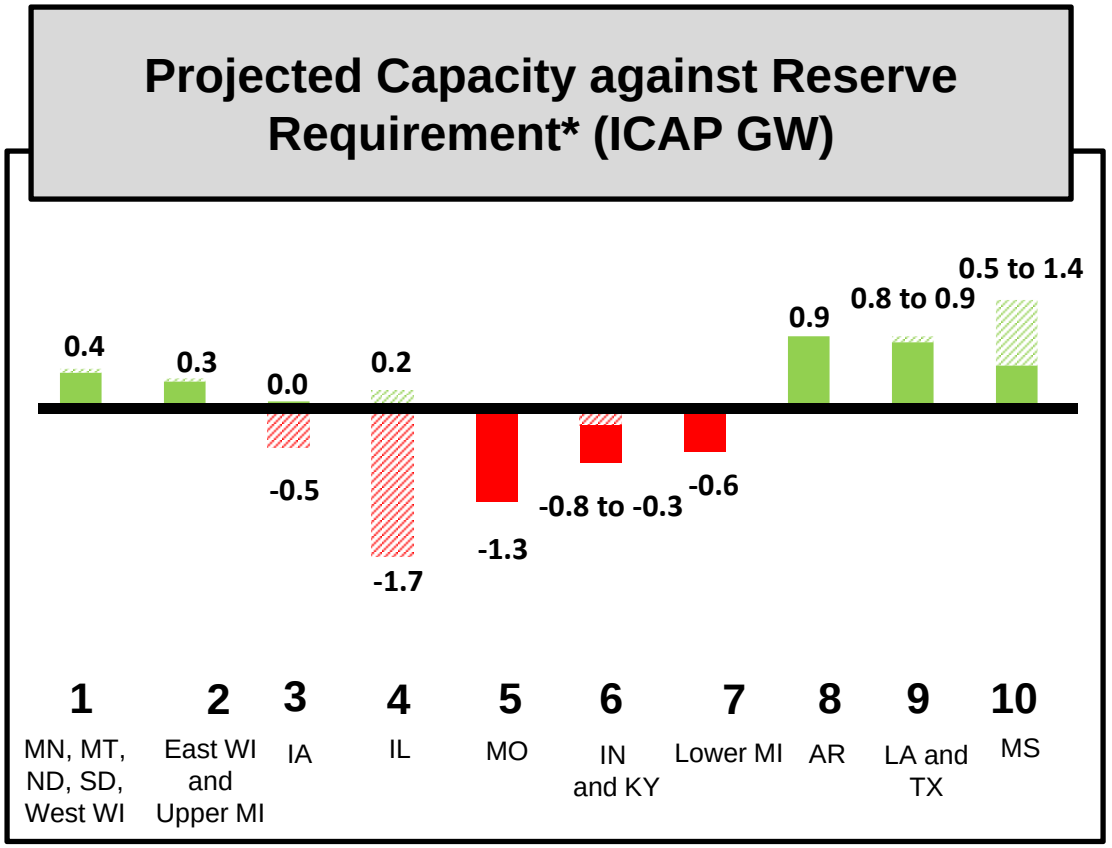
Action is required in the near term to ensure sufficient resources in future years



- Regional outlook includes projected constraints on capacity, including Capacity Export Limits and the Subregional Power Balancing Constraint
- Resources with publicly announced potential retirements or suspensions as of June 1, 2016 were counted as low certainty.
- These figures will change as future capacity plans are solidified by load serving entities and state commissions.

2021 Capacity Projections

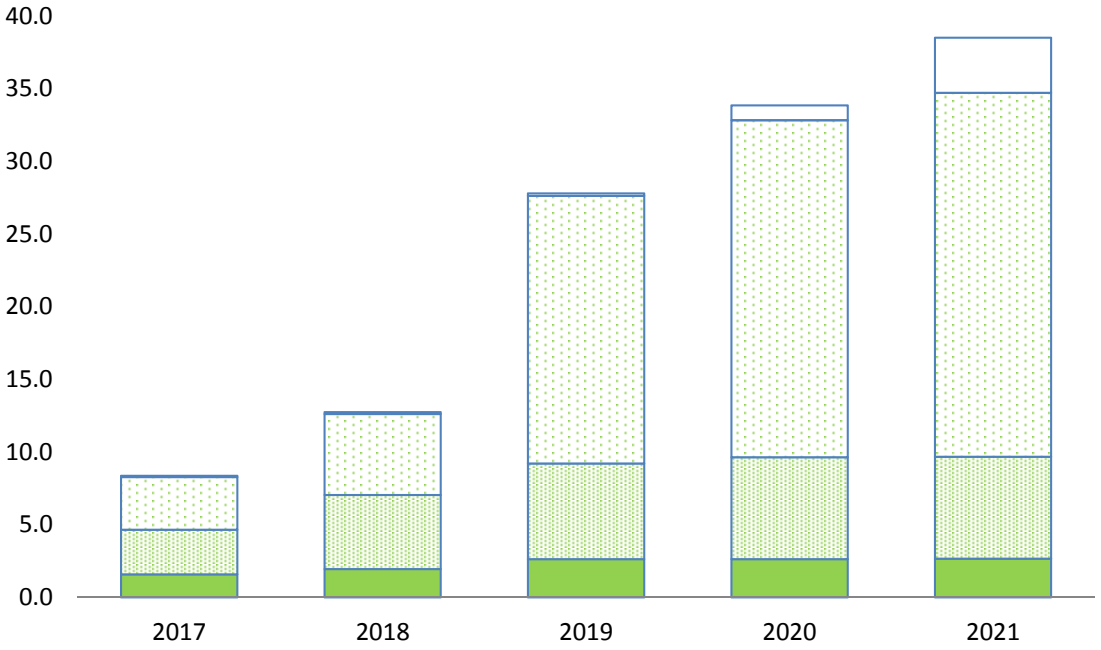




*Positions include reported inter-zonal transfers
Publicly announced potential retirements as of June 1, 2016 were included as low certainty resources
Exports from Zone 8, 9, and 10 were limited by the Subregional Power Balance Constraint to 1.5 GW

Continued commitment to firming up planned generation interconnections through the MISO process will be required

Potential Generation Additions, in GW*

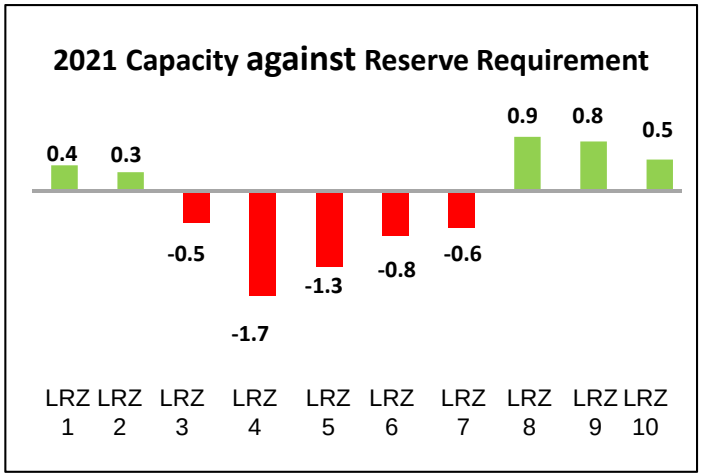


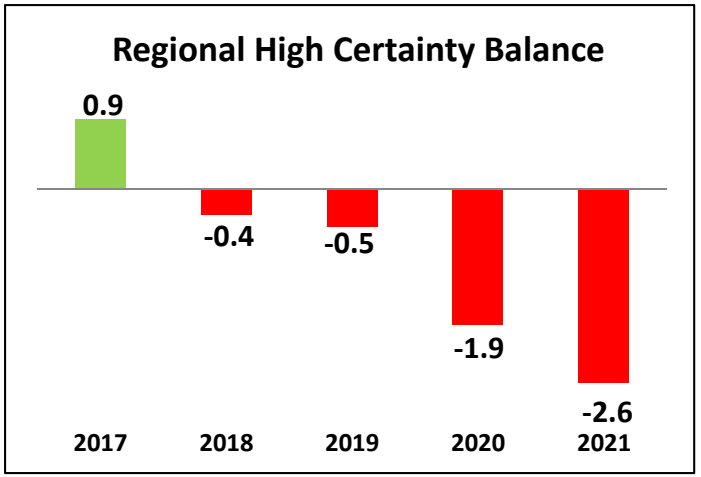
Not yet submitted (not included in available capacity)

Preliminary studies (not included in available capacity)

Final studies (not included in available capacity)

Signed agreements (included in available capacity)





* Wind and solar resources are represented at their expected capacity credit

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Appendix

Survey Improvements

- **Documentation and survey format**
  - Survey documentation created and reviewed with stakeholders
  - Improvements made to format of the survey requests and the resulting balance sheet to reduce the burden on respondents
- **Data collection**
  - Surveys sent to Load Serving Entities and Independent Power Producers
  - Load forecasts were aligned with the load submissions used in the most recent Planning Resource Auction
- **Post-Processing**
  - Separation of Zone 4 and Zone 5 results
  - Aligned survey results with publically announced potential suspensions and retirements