

DOCKETED

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Projection Tool to Support Contingency Mitigation Decisions

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Scope

- Purpose
- Methods and Assumptions
- Baseline Results
- Sensitivities
- Scenarios
- Findings and Conclusions for Modeling

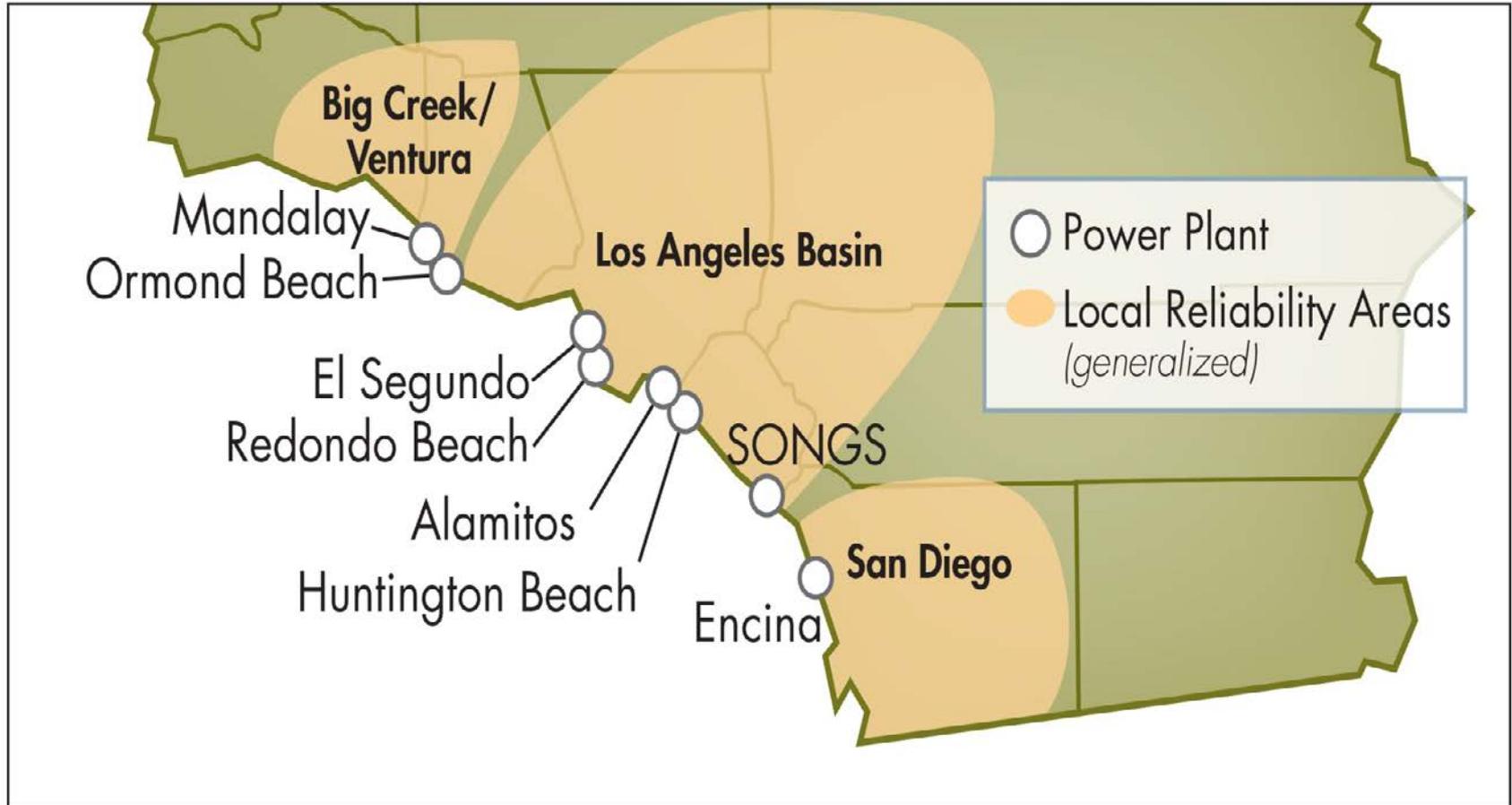


LCAAT Purpose

- LCAAT = Local Capacity Annual Assessment Tool
- Develop annual projections of resources versus local capacity requirements for Southern California
- Provide an analytic basis for understanding the timing and nature of a shortfall in any local capacity area and/or subarea in Southern California
- Issues surfaced by LCAAT, confirmed by a power flow study, could lead to a recommendation to trigger mitigation measures or other actions



SoCal Local Reliability Areas





METHOD & ASSUMPTIONS



Method

- Spreadsheet tool for easy use/modification
- Baseline input assumptions drawn from those already developed for 2014 LTPP and for 2015/16 TPP
- Create methods and supplemental inputs to enable geographic tagging by local areas/subareas
- Create logic to modify initial LCR study results
- Produce tabulations of resources vs requirements by local area/subarea
- Update inputs comprehensively annually and selectively as needed



Method, cont'd

- Advantages of Simplified Tool
 - Much easier to assemble data and assess a new set of assumptions
 - Reduced effort per run allows many more runs
- Disadvantages of Simplified Tool
 - Loss of accuracy compared to in depth methods
 - Greater loss of accuracy when contingencies create voltage instability concerns
 - Concerns may be larger for smaller subareas
 - Requires update when new in depth results arise



Overview of Assumptions

- Base Demand – CEC 2014 IEPR Update
 - Demand-side adjustments
 - Additional AAEE (savings beyond base forecast)
 - IOU PPAs – Preferred EE, BTM Storage, BTM DG
- Local Capacity Requirement Values - CAISO 2016, 2020, 2021, 2025 Local Capacity Studies
 - Transmission adjustments based on CAISO published studies and response to CEC questions
 - Demand-side adjustments = assumed 1-for-1 impact on LCR requirements



Overview of Assumptions (cont.)

- Resources
 - 2015 Net Qualifying Capacity (NQC) List
 - IOU PPAs
 - 2015/2016 TPP RPS Portfolio – Trajectory
- Retirements
 - SWRCB OTC compliance dates
 - Some aged-based retirements
 - Contract-based extensions to aged-based retirements



Local Capacity Requirements

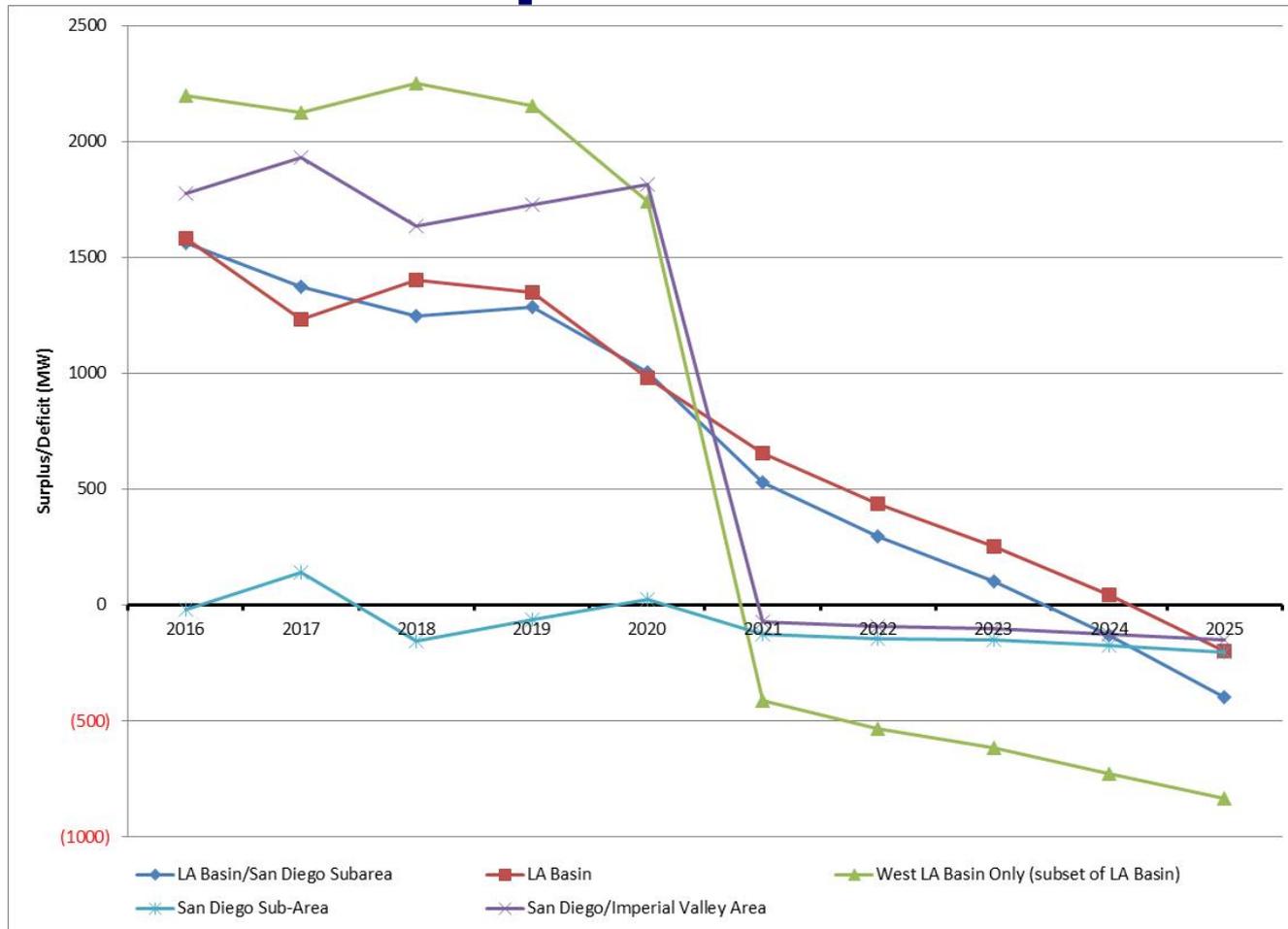
- CAISO Studies Provide Base LCR Values
 - 2016 and 2020 Local Capacity reports
 - 2021 and 2025 results from studies within the 2015/16 TPP
- Base LCR Requirements Modified by:
 - Load modifiers (EE, BTM DG, BTM storage)
 - Transmission system upgrades not included within the assumptions for the study of a specific year



BASELINE RESULTS



Baseline Surplus/Deficit Results





Baseline Results Observations

- Surpluses exist in most areas through 2020.
- OTC retirements at the end of 2020 reduce the surplus and result in resource deficits beginning in 2021 in West LA subarea that grow through 2025.
- San Diego subarea has small deficits in most years of the study period.



SENSITIVITY RESULTS



Sensitivity Study

- Baseline assumptions are carefully prepared, but most are subject to uncertainty
- Ease of use of LCAAT allows assessments of uncertainty too resource intensive to be used with other assessment tools
- Sensitivity study:
 - Considers the plausible range of alternative assumptions around the baseline
 - Analyzes impact on surplus/deficits by local area



10 Variables Assessed

1. 2015 IEPR Demand Forecast
2. Higher Demand Growth than CEC Forecast
3. AAEE Savings Reduced by Recent EM&V
4. Mid-AAEE Savings Projections
5. Transition of CHP QFs to wholesale gen.
6. Demand Response – Full Capability
7. Demand Response – Moderate Capability



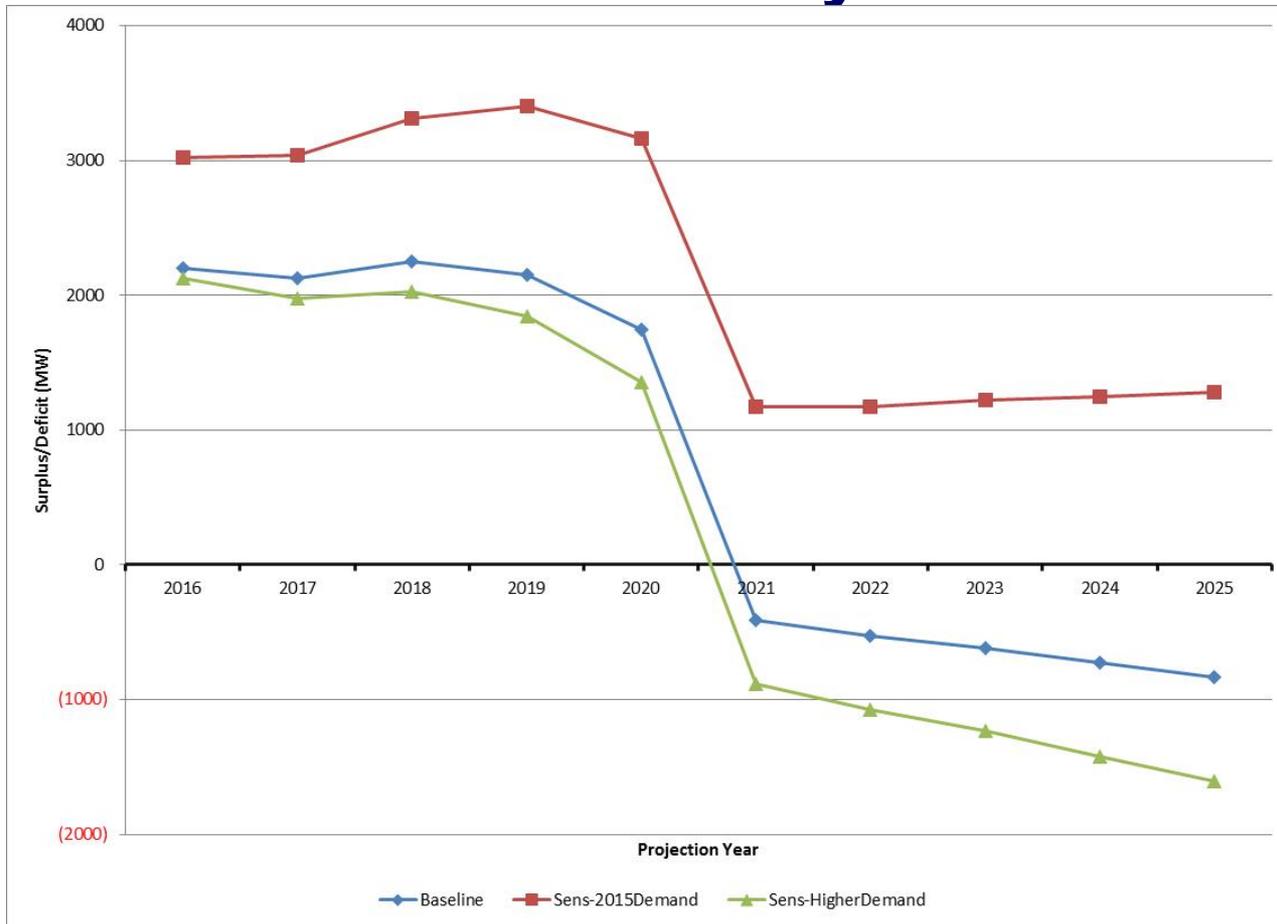
10 Sensitivities (cont.)

8. Storage High – Satisfies CPUC D.13-10-040
9. Storage Moderate – Mid Way between Baseline Storage and High Storage
10. Peak Hour Shift



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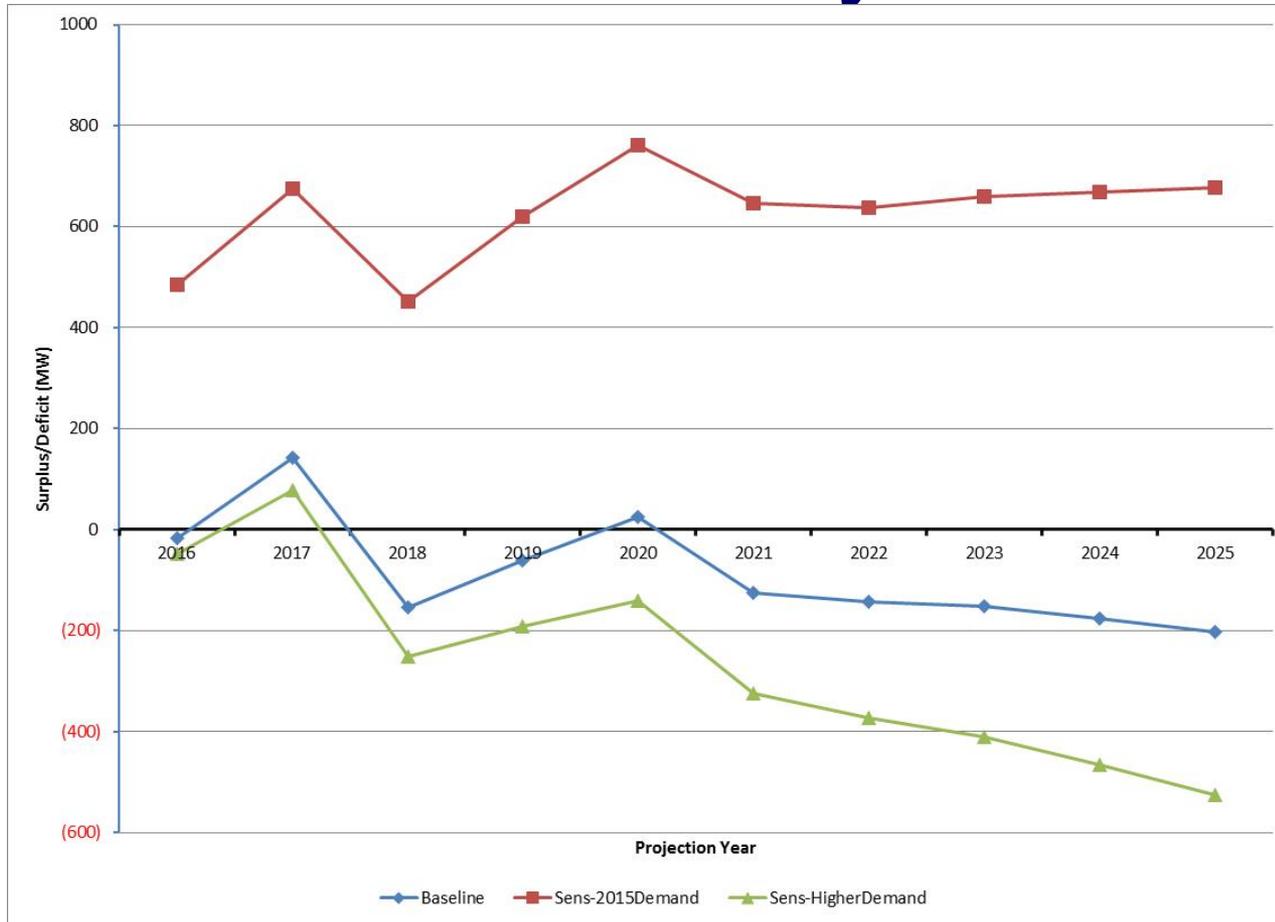
W LA Basin Subarea Selected Sensitivity Results





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San Diego Subarea Selected Sensitivity Results





SCENARIO RESULTS

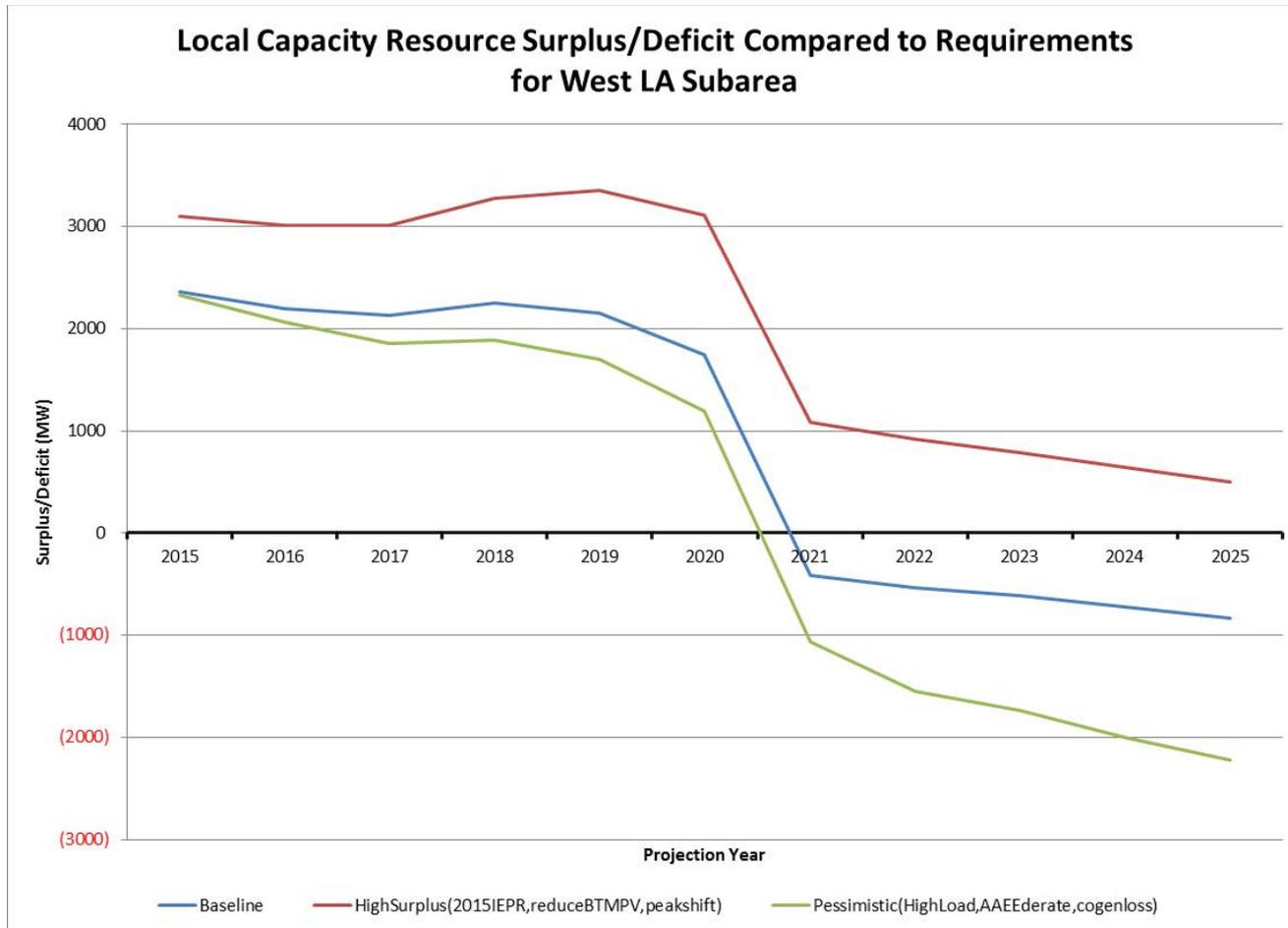


Scenario Development

- Unlike sensitivity study of single variable change in assumptions, scenarios examine multiple changes
- Alternative scenarios were developed:
 - **High Surplus** – 2015 IEPR load forecast, reduce behind the meter PV, peak hour shift
 - **Pessimistic** – high load, partial AAEE savings, cogeneration loss

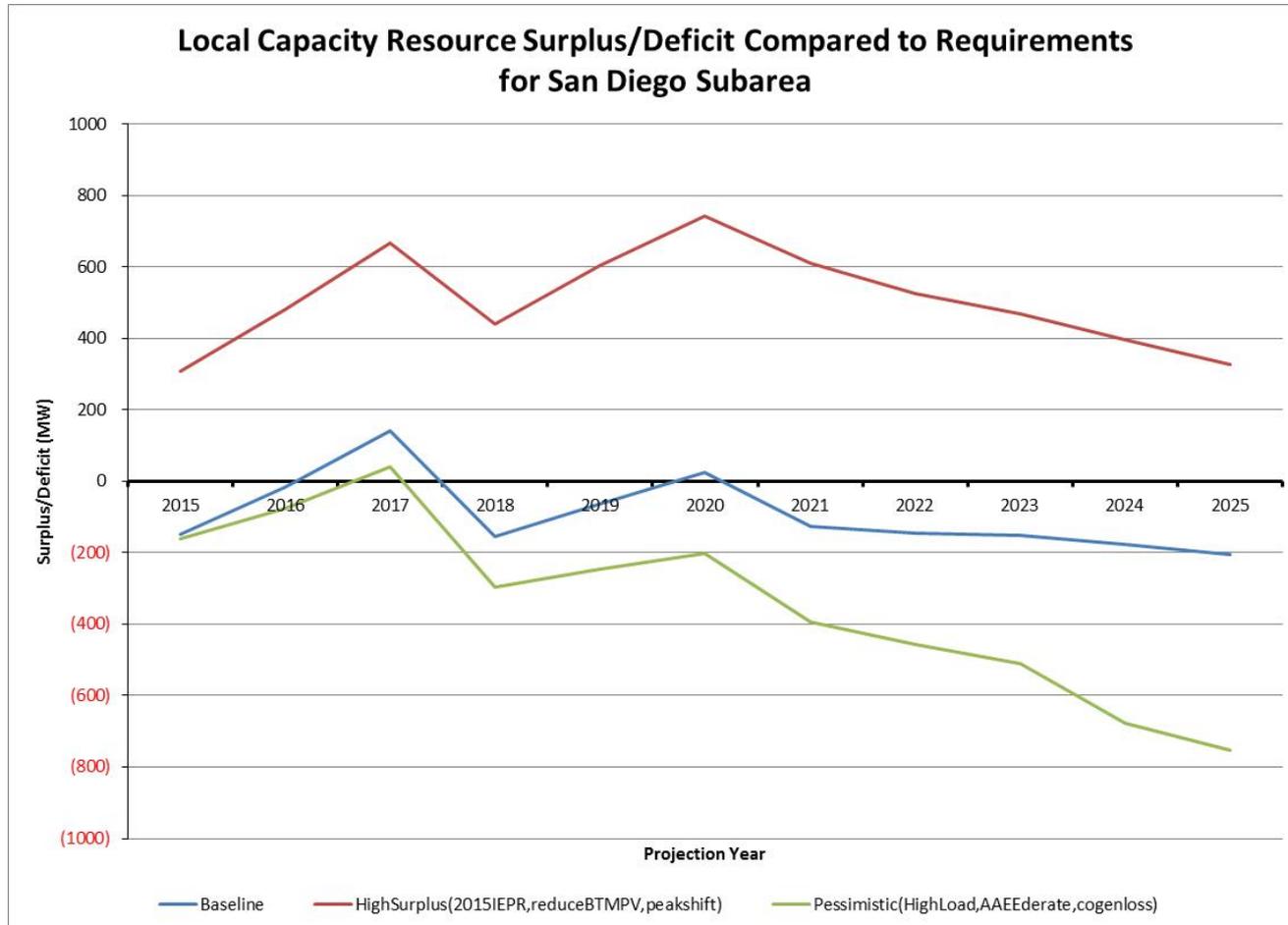


Surplus/Deficit: West LA Basin





Surplus/Deficit: SD Subarea





Baseline vs. Scenarios

- Some scenarios follow the same shape as the baseline pattern while other scenarios may induce a change
- West LA Basin subarea has a shape dominated by large loss of fossil OTC on or before 12/31/2020.
- San Diego subarea has a different shape since its OTC capacity loss is in 12/31/2017.
- Scenarios have a quite wide range.



FINDINGS AND CONCLUSIONS



Conclusions

- Baseline results for key years are consistent with ISO power flow study results.
- LCAAT reveals 2021-2025 deficits for W LA Basin after OTC retirements.
- LCAAT shows San Diego subarea has deficits in most years of the study period.
- Alternative assumptions can eliminate deficits or increase surpluses.



Findings

- The ISO should study year 2018 and continue to study 2021 using its standard power flow and stability modeling techniques.
- The CPUC should:
 - Review surplus/deficit of local capacity requirements for 2021 to 2026 in West LA subarea and San Diego subarea to determine whether sufficient procurement authorization has been granted or implemented
 - Release 2013-2015 evaluated energy efficiency savings estimates savings as soon as possible, and devise a realistic range of EE projections
 - Evaluate impacts of peak shift on capacity ratings



QUESTIONS?