

# IMPACT OF CLOSING NAVAJO GENERATING STATION ON ARIZONA POWER MARKETS

**Prepared for:**  
**Arizona Corporation Commission**

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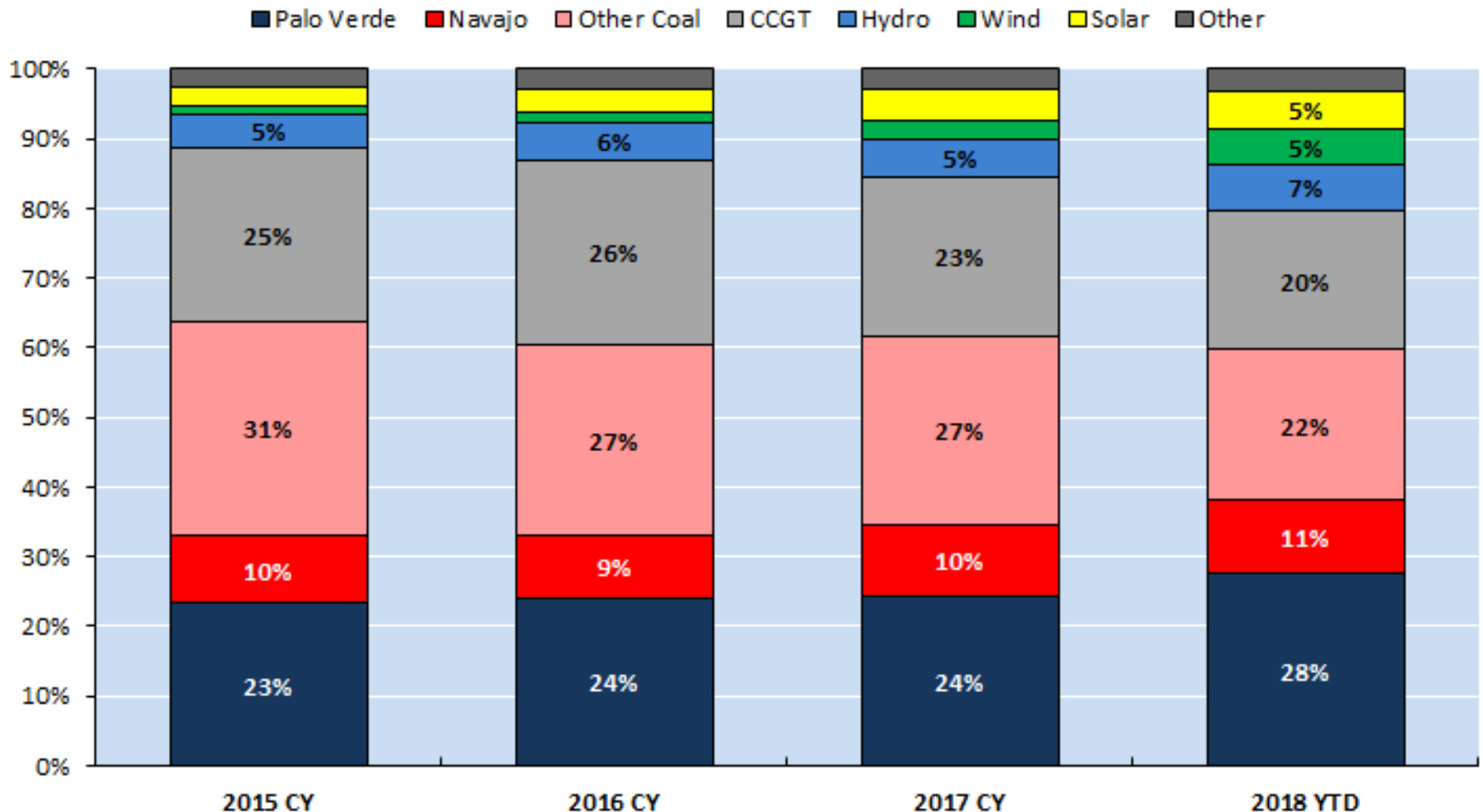
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# NAVAJO GENERATING STATION IS A VITAL PART OF ARIZONA POWER SUPPLY

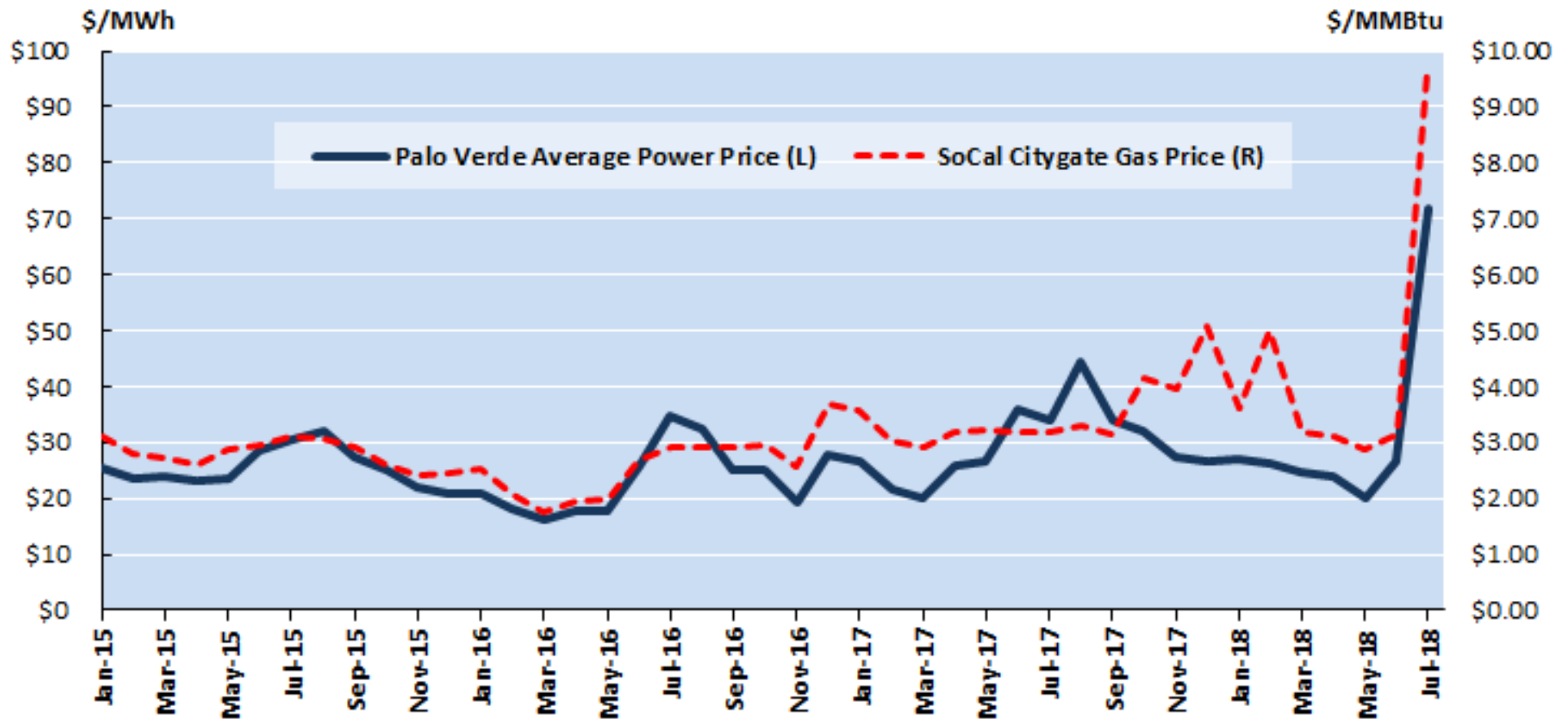
- NGS provides more than 10% of the total power supply in the Arizona – New Mexico power region – second largest source after Palo Verde nuclear plant



Source: DOE Energy Information Administration

## ARIZONA POWER PRICES ARE LINKED TO SOUTHERN CALIFORNIA GAS PRICES

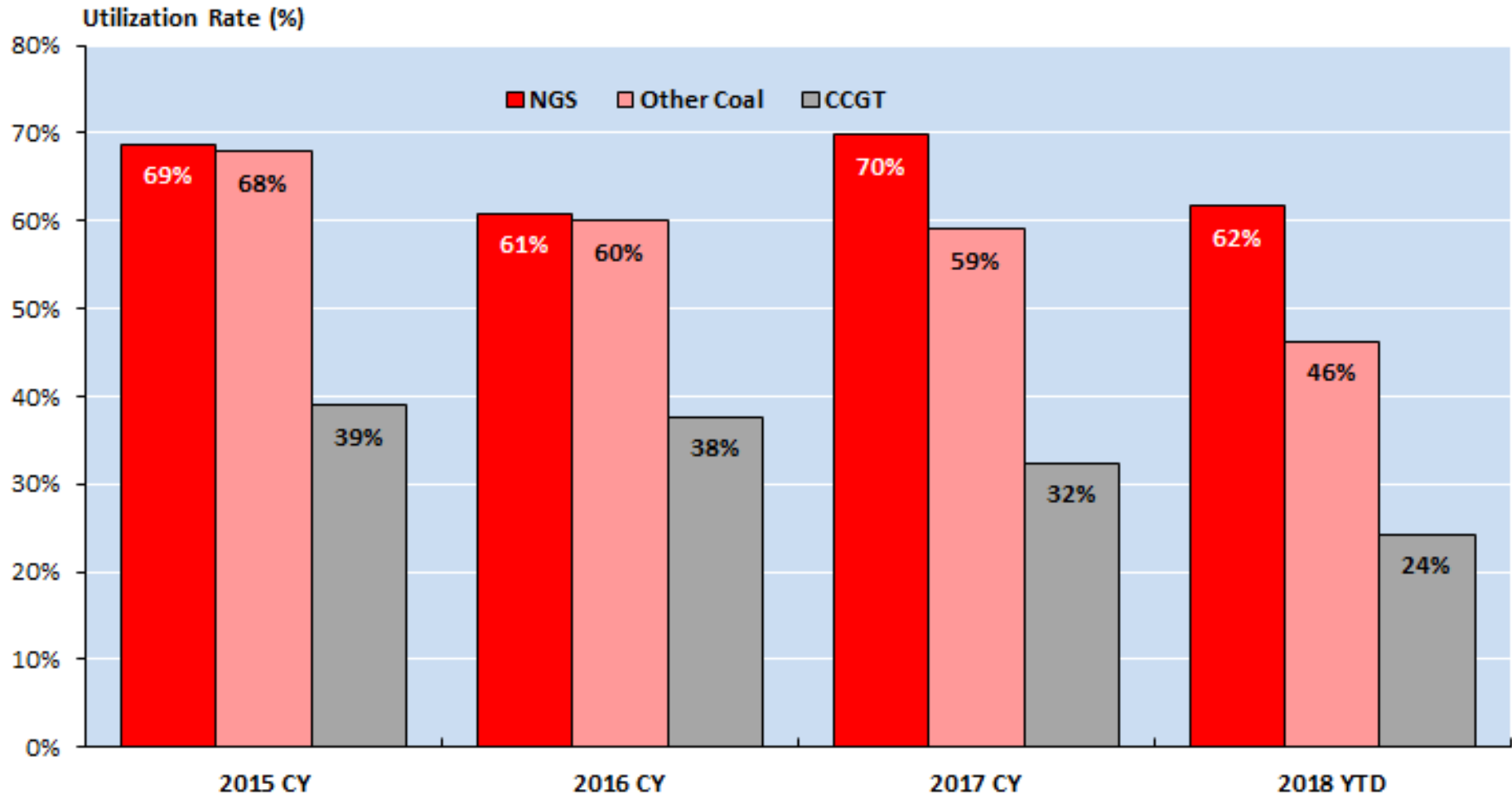
- Arizona and California power markets are connected by transmission and joint ownership
- California's dependence on natural gas for power generation sets its power market prices
- Shortages of gas supply in California have driven up power prices in Arizona



Source: The Intercontinental Exchange

## NGS IS RUN HARDER THAN OTHER GAS & COAL PLANTS IN AZ – NM

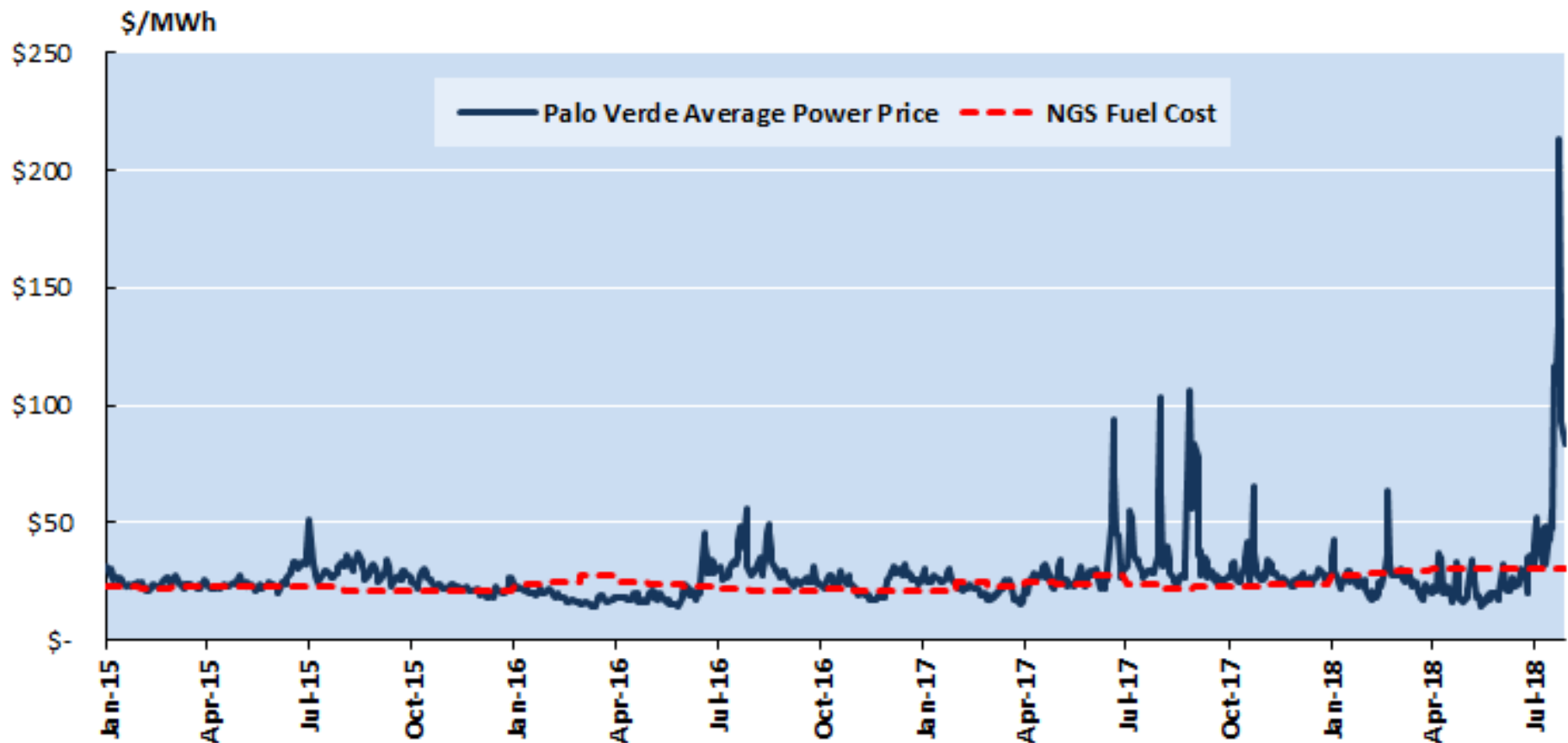
- Because Navajo plant has low fuel costs, it is dispatched at a higher capacity factor than other coal and natural gas combined cycle plants in Arizona & New Mexico



Source: DOE Energy Information Administration

## ARIZONA POWER PRICES ARE INCREASINGLY VOLATILE – NGS FUEL COST IS STABLE

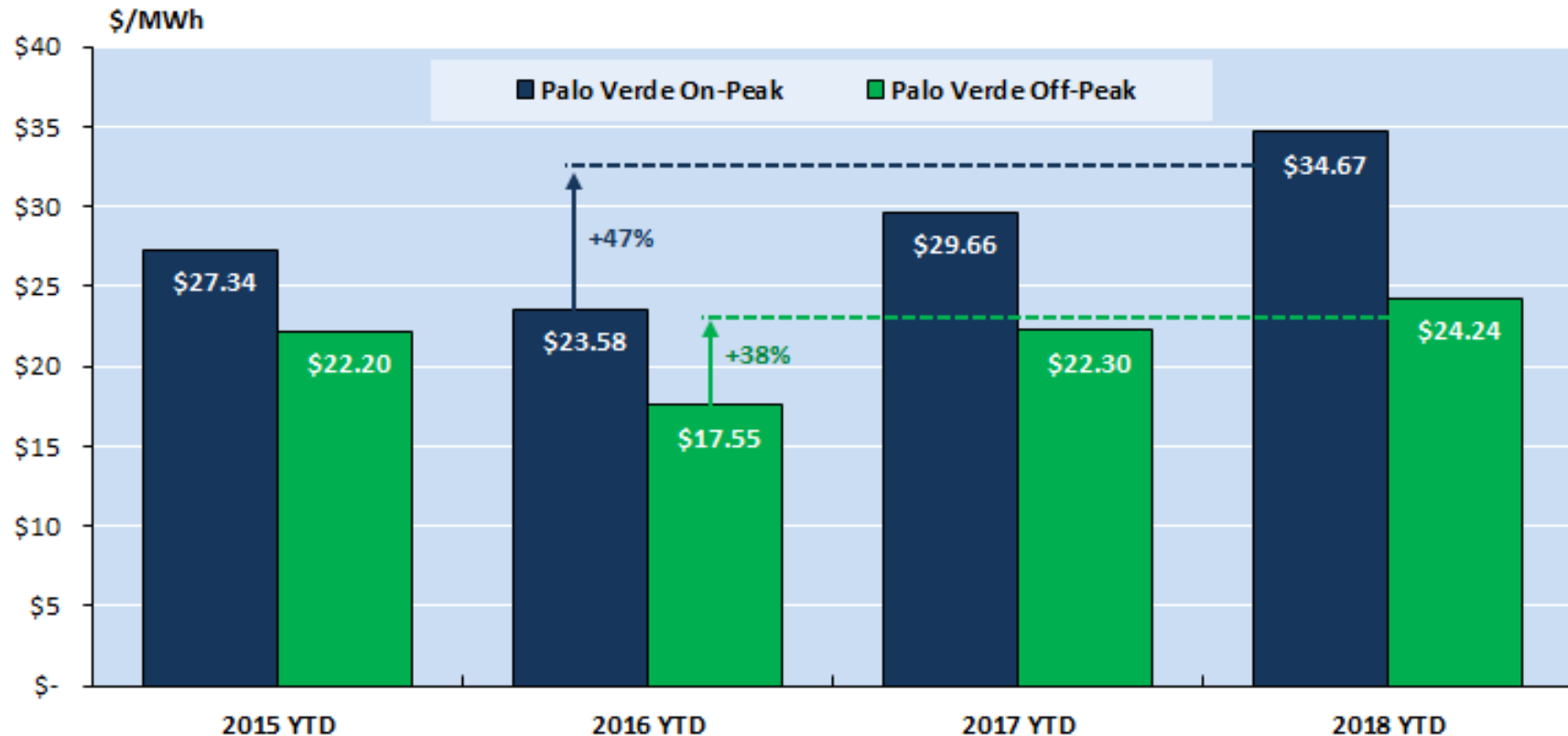
- California natural gas and power prices have become increasingly volatile due to shortages of natural gas and power generation, which drive Arizona power prices
- Fuel cost for Navajo Generating Station is stable – not driven by market changes
  - The historical cost for Navajo does not include the effect of cost improvements proposed by MRP



Source: DOE Energy Information Administration

## CAP “CASE STUDY” OF CLOSING NGS WAS BASED ON 2016 – AN UNUSUAL YEAR

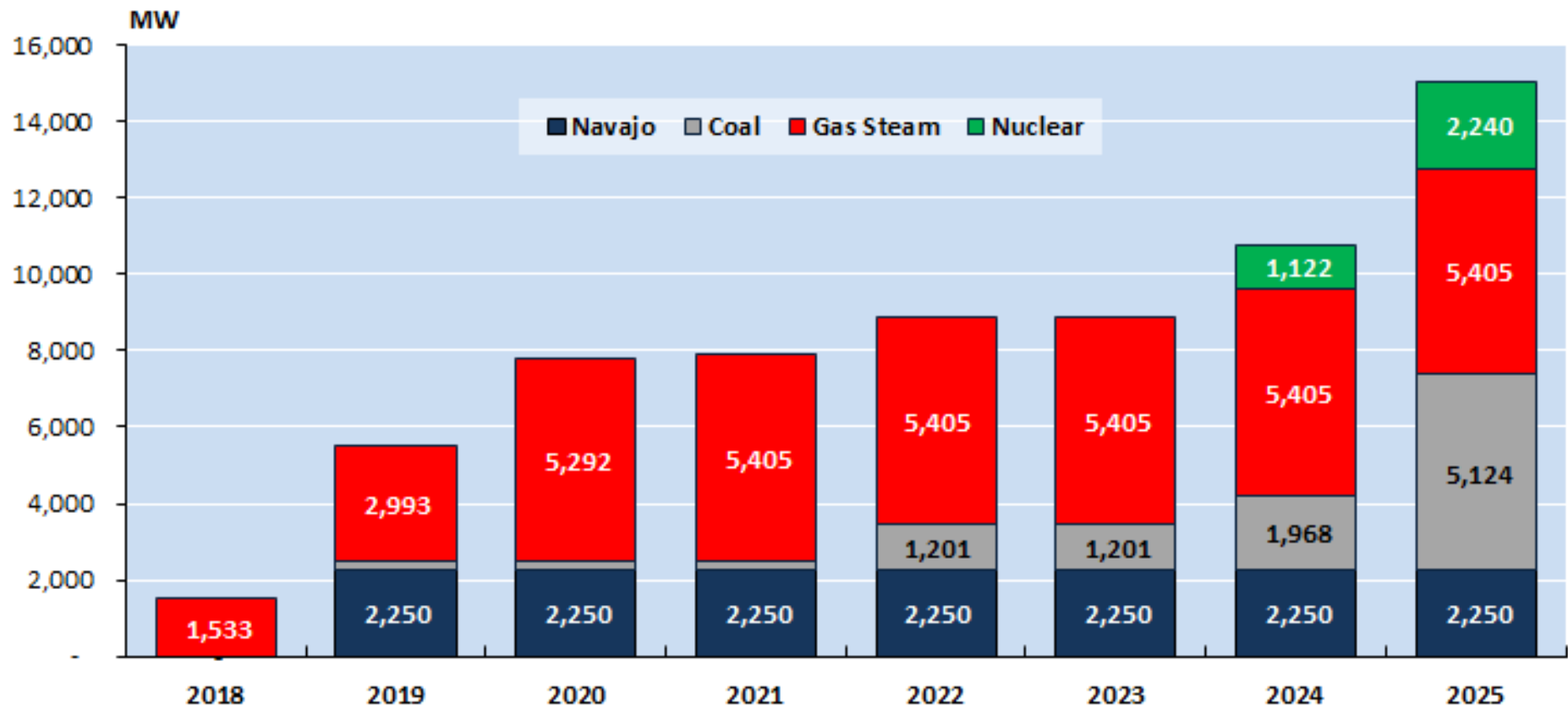
- In February 2017, CAP’s “2016 Case Study” estimated that it would have saved \$28.5 million if NGS had been closed and it purchased power from the market
- The “case study” used 2016 energy prices as representative of normal market conditions
- In 2016, Arizona power prices were unusually low because natural gas prices were at 20-year lows due to very mild winter weather in the Northeast – since then prices are 50% higher



Source: The Intercontinental Exchange

## THE SOUTHWEST HAS MANY OTHER ANNOUNCED PLANT RETIREMENTS

- 15,000 MW of coal, nuclear and gas plant retirements have been announced through 2025
- California is retiring Diablo Canyon nuclear, Intermountain coal, and over 5,000 MW of gas steam plants
- Any shortages in California power markets will affect Arizona power market prices



\*Southwest includes AZ, CA, CO, NM, NV & UT

## PREMATURE RETIREMENT OF THE NAVAJO PLANT IS A RISKY STRATEGY

- **Retiring the 2,250 MW Navajo plant is likely to increase power prices in Arizona**
  - Closing the second-largest plant in the region will reduce generating capacity and limit supply
- **Arizona will become even more dependent on natural gas**
  - Natural gas prices are volatile and are subject to factors outside of local control
  - Gas prices respond to demand outside of Arizona – winter in the Northeast and summer in California
  - Gas supply options are limited to 3 pipelines and are subject to disruptions – recent examples include
    - Pipeline maintenance on El Paso pipeline
    - Gas storage disruption at Aliso Canyon in California
- **Wholesale power market prices are already rising due to availability and cost of natural gas**
- **Retirement of Navajo will have a negative impact on the reliability and resiliency of the Arizona power grid**
  - Coal and natural gas generation are the only power sources which grid operators can use to respond to changes in the demand for electricity – solar and nuclear power run at capacity when available
  - Eliminating a large share of coal capacity will make the grid dependent on gas capacity for dispatchable power – subject to the availability of natural gas which may be limited in periods of peak demand
- **CAP's proposed strategy will depend heavily on purchased power from the wholesale market**
  - Most of the power currently supplied by Navajo will be replaced with market purchases in the future