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Rate Forecast Model Overview

- Demand forecast
- NAMGas
- PLEXOS
- Carbon Allowance Price Forecast
- Cost of Generation Model

Actual utility electric rate history

Scenarios of annual average rate by sector and planning area

Sector Energy Forecast Models

- Self-Generation Forecast
- Fuel Price Forecast
- Transportation Demand Forecast

- Utility Revenue Requirement Projections
- Utility Revenue Allocation Factors
- CPUC/LSE Ratemaking Activity
Scenario Assumptions

- **Mid Case**
  - Mid demand, natural gas, and carbon allowance prices
  - Utility projections for distribution and transmission revenue requirements
- **High Demand / Low Rates**
  - Low natural gas and carbon prices
  - Higher sales to recover transmission and distribution and other relatively fixed costs
  - Less investment in distribution infrastructure
- **Low Demand/ High Rates**
  - High natural gas and carbon prices
  - Lower demand means fixed costs per kwh of sales are higher
  - More growth in distribution investment
Fuel and Purchased Power

- Wholesale electricity market price is applied to natural gas and generic market purchases
  - Preliminary NAMgas hub price scenarios
  - Declining implied heat rate trend from PLEXOS
  - Carbon Credit Allowance price forecast based on 2018 CARB regulations
- Utility-reported costs for utility-owned resources and existing contracts for existing non-gas-fired resources
  - Utility-submitted IEPR forms will include current and projected energy and capacity resource mix by fuel type and associated procurement cost.
- Staff Cost of Generation model estimates for new renewable resource costs
Natural Gas Price Scenarios
SoCal Gas Hub Prices

PG&E hub prices are ~ 8% lower; SDG&E prices are ~1% higher

Source: Energy Commission Staff NAMGas Model 2019 IEPR Preliminary Results
Wholesale Energy Price Scenarios

- Actual CAISO Energy Price
- Low
- Mid
- High
- 2017 IEPR Mid Case

Price per MWh (2018$)

2014 2016 2018 2020 2022 2024 2026 2028 2030
Carbon Allowance Price

Low Price escalates at the Auction Reserve Price growth rate formula.
High Price assumes prices reach the Tier 2 Price in 2030 ($100 nominal).
Mid Price assumes prices reach the Tier 1 price in 2030 ($78 nominal).
Renewable Resource Purchase Price

Price per MWH (2018$)

2017 IEPR Wind 100 MW
2019 IEPR Wind 100 MW
2017 IEPR Solar PV Single Axis 100 MW
2019 IEPR Solar PV Single Axis 100 MW

Source: Energy Commission Staff Cost of Generation Model
Non-Procurement Revenue Requirements

- Utility-projected revenue requirements to 2030 from IEPR demand forms for IOUs and larger public utilities
  - Distribution
  - Transmission
  - Energy Efficiency and other programs
  - New items requested include electrification investment and programs, and catastrophic events
- Staff review of pending rate applications, advice letters, and CAISO transmission studies
- Preliminary rates will use staff updates to 2017 IEPR submittals,
- Revised rates will use 2019 IEPR submittals, due in June.
Distribution Revenue Requirement Scenarios

- IOU forecast, as adjusted, for Mid case
- High and Low scenarios reflect range of possible investment for grid modernization, electrification, and distributed resource integration.
- Scenarios will be reevaluated for revised rate forecast.

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<th>High</th>
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<tr>
<td>PG&amp;E</td>
<td>1.6%</td>
<td>1.3%</td>
<td>2.1%</td>
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<tr>
<td>SCE</td>
<td>2.4%</td>
<td>1.9%</td>
<td>3.0%</td>
</tr>
<tr>
<td>SDG&amp;E</td>
<td>-0.1%</td>
<td>-0.4%</td>
<td>0.3%</td>
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In the Low Demand Scenario with greater distribution system investment and declining demand, inflation-adjusted distribution rates increase an average of about 2% annually in SDG&E, and 4% in SCE and PG&E.