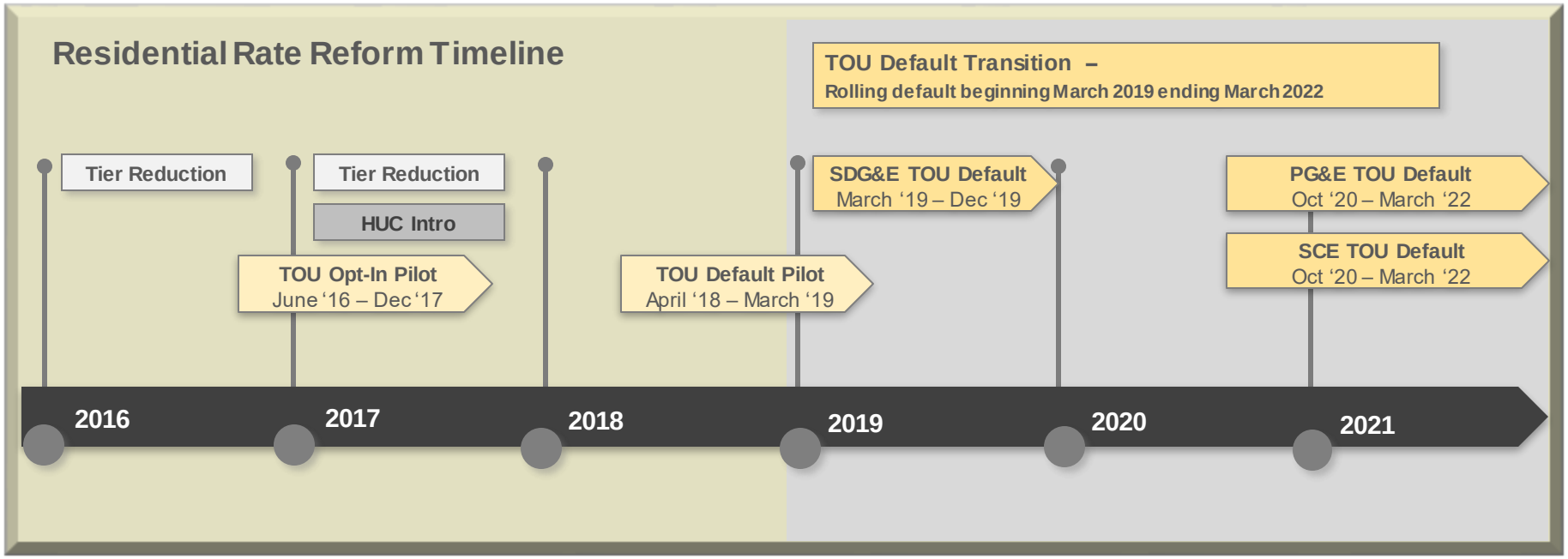
Overview of Recent Commission Efforts on Dynamic Rates & Load Management

CPUC Interest in Consolidating Advanced Rate Design and Demand Response Program Development

- The Commission has a long history of pursuing advanced rate offerings and evaluating demand management strategies through pricing design and supply side demand response programs.

Residential Rate Reform



Advanced Rate Design Forum (Dec. 2017)

- Dec. 2017, CPUC hosted a forum to discuss innovative rate design concepts.
- The 2-day forum included leading rate design experts, as well as representatives from the solar, storage, demand response, and electric vehicle industries.
- The forum featured panels on:
  - The use of Demand Charges for non-residential customers.
  - Alternative approaches to cost recovery of providing adequate generation, transmission, and distribution capacity to ensure reliable electric service.
  - Real Time Pricing (RTP) and other forms of dynamic rates.

PFR for Real Time Pricing (18.11.004)

- A Petition for Rulemaking (PFR) was filed in November 2018 by CALSSA, SEIA, Enel X, CESA, Engie, OhmConnect and Stem.
- The PFM requested CPUC to open a rulemaking to develop consistent and explicit policies on:
  - Demand Charge related reform across all utilities for non-residential rates
    - Prohibit use of Non-Coincidental Demand Charge .
    - Move from a monthly DC to other alternatives.
  - Real Time Pricing options
    - Utilities to offer Real Time Pricing Optional Rates to all customer classes
- In D.19.03.002, the Commission denied the PFR on procedural grounds but invited petitioners to raise the same issues in upcoming GRC proceedings.

LBNL Demand Response (DR) Potential Study

- The 2015 study estimated the potential size and cost of the available DR resource for California's 3 large IOUs.
- Key Findings in Phase 1 report (2016):
  - California could achieve approximately 6 GW of DR by 2025 at a levelized cost of less than $200/kW-year. (Medium DR scenario)
- Phase 2 report (2017): a new DR framework was created that groups DR services into 4 core categories pf: Shape, Shift, Shed, and Shimmy
- The Phase 3 report (2020)found:
  - Potential Shift resource could utilize much of the daily Variable Renewable Energy curtailment, and substantially reduce flexible generation needs, at a lower cost than BTM battery storage.
  - Readily accessible Shift resource will need to grow to support future grid needs.

Link to the Phase 1 Report
Link to the Phase 2 Report
Link to the Phase 3 Report

DR Load Shift Working Group

- On January 2019, PG&E, SCE and SDG&E filed the final report on the Load Shift Working Group (LSWG), including six proposals on how load shift could be designed, sourced, incentivized and evaluated:

1. Load shift Resource 2.0 : Builds on the CAISO's proxy demand resource load shift resource (PDR-LSR) product.
2. Critical Consumption Period: A retail load increase demand response product.
3. Market Informed Demand Automation Services (MIDAS): An automated smart device demand response product.
4. Pay for Load Shape (P4LS): A range of approaches that could be used to provide target load shapes, updated periodically based on evolving conditions on the grid.
5. The Market Integrated Distribution Service (MintDS) : Builds on LSR 2.0 but adapts the proposal in several keyways.
6. The Distribution Load Shape product : Resembles P4LS, but with a specific additional distribution service dimension.

- **Based on this assessment; the Working Group recommends California brings new focus to developing Load Shift as a resource.**

New Electric Vehicle (EV) Rates

The Commission has authorized EV rates to provide incentives for EV adoption:

- D.19.10.055: PG&E's Commercial Electric Vehicle Rate
  - A new commercial electric vehicle rate and the creation of a new class of customers choosing to take service on the rate.
  - Subscription charge metered in 10 kW increments for customers with a maximum demand of 100 kW, and in 50 kW increments for all other customers.
- D.20.12.023: SDG&E Rate for Electric Vehicle High Power Charging (EV-HP)
  - New rate for separately-metered electric vehicle charging loads with an aggregated maximum demand of 20 kW or greater, excluding single-family residential customers.
  - Subscription charge metered in 10 kW increments for customers with a maximum demand of 150 kW, and in 25 kW increments for all other customers.
- A. 20.10.11: PG&E's application for a real-time electric vehicle commercial rate (In Process)

SDG&E GRC 2

- **Workshop on "Demand Charges and Proposed Alternatives" in August 2019**
  1. To provide parties with an opportunity to evaluate existing (legacy) Demand Charge structures, and to present alternatives to SDG&E's current DC methodology.
  2. To discuss and establish consensus about the appropriate principles and objectives of demand charge methodology in light of Commission policy goals and an evolving grid.

- **Workshop on "Dynamic Rates and Real Time Pricing" in October 2019**
  1. Discuss existing dynamic rates and pilots offered by SDG&E and other jurisdictions.
  2. Provide parties an opportunity to share preliminary proposals regarding dynamic rate options.
  3. Explore implementation issues related to the feasibility and design of dynamic rates.
- Parties to the proceeding will make RTP proposals based on the Load Shift Working Group proposal.

CEC Rulemaking to Update Title 20 Load Management Standards (19-OIR-01)

- CEC proposal to modify load management standards (LMS) to attempt to reconcile these problems and lower CA's GHG emissions.
- Requires utilities to:
    1. Maintain accuracy of existing and future time-varying rates in publicly available and machine-readable MIDAS rate database
    2. Implement standard RIN access tool to support 3rd party automation services
    3. Develop locational retail electricity rates changing at least hourly (5, or 15 min preferable) to reflect marginal wholesale costs
    4. Integrate time-varying rates and automation technologies into existing customer education to reduce GHG emissions and lower utility bills

BACK UP Slides

LBNL Demand Response (DR) Potential Study-Phase 2

- Phase 2 report, published on March 2017, a new DR framework was created that groups DR services into 4 core categories:
  - **Shape**: Captures DR that reshapes customer load profiles through price response or on behavioral campaigns—"load-modifying DR"—with advance notice.
  - **Shift:** Represents DR that encourages the movement of energy consumption from times of high demand to times when there is a surplus of renewable generation. Shift could smooth net load ramps associated with daily patterns of solar energy generation.
  - **Shed:** Describes loads that can be curtailed to provide peak capacity and support the system in emergency or contingency events.
  - **Shimmy:** Involves using loads to dynamically adjust demand on the system to alleviate short-run ramps and disturbances at timescales ranging from seconds up to an hour.

Link to the Phase 2 Report

LBNL Demand Response (DR) Potential Study-Phase 3

- The Phase 3 report was published in July 2020, and found:
  - Potential Shift resource could utilize much of the daily Variable Renewable Energy curtailment, and substantially reduce flexible generation needs, at a lower cost than BTM battery storage.
  - Readily accessible Shift resource will need to grow to support future grid needs.
  - New loads from electrification are important potential sources of Shift, but their current enablement costs are prohibitive.
  - There are numerous pathways to expand the size of the Shift resource and lower its cost.

Link to the Phase 3 Report