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SCE Potential Load Growth Areas

May 16 CEC IEPR Commissioner Workshop

Hongyan Sheng

Agenda

- Types of future new load growth SCE anticipates
- SCE Countdown 2045 Analysis
  - Electricity demand from **hydrogen** production
  - **Industrial electrification**
- Empirical data & customer insights from **data center** projects
- Long-term planning impact from emerging load growth

Emerging Load Growth from SCE Perspective

Examples of emerging load growth topics		Currently Captured?

Hydrogen Electrolysis	• Hydrogen Demand
	  • Hydrogen demand is estimated based on state-wide GHG modeling process
	• Grid Impact
	  • Currently assume a low percentage of hydrogen used in 2045 is produced in CA and grid-tied.
		Yes, modeled at CA level through SCE Countdown to 2045 analysis

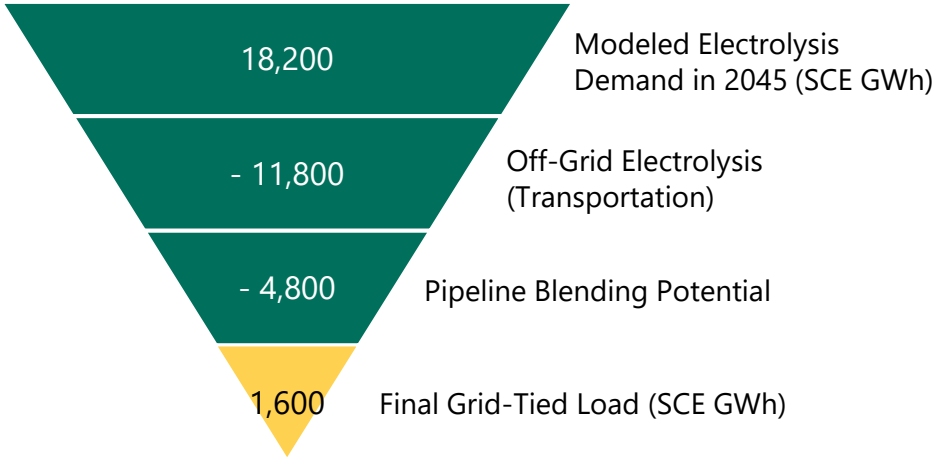
Industrial Electrification	• Electrification Demand
	  • Industrial electrification demand is estimated based on state-wide GHG modeling process
	• Sectors Impacted
	  • Processes such as heat and transport identified as highest opportunity for electrification
		Yes, modeled at CA level through SCE Countdown to 2045 analysis

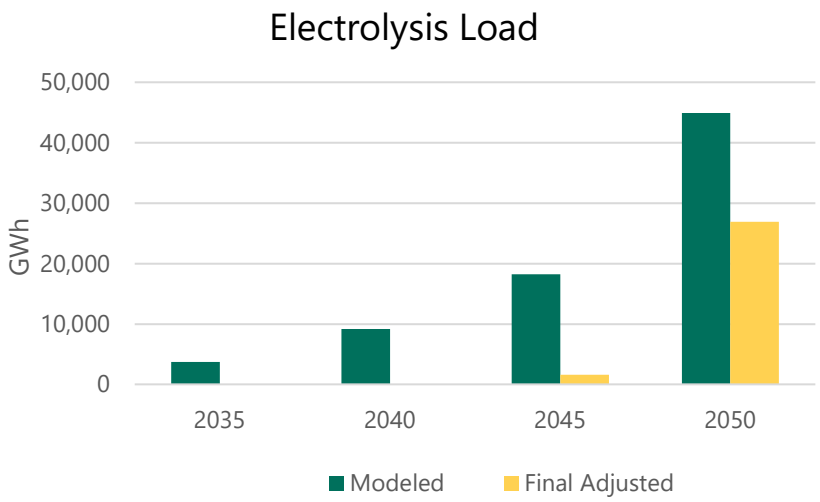
Data Centers	• Existing data center customer load reflected in the current load forecast • To be considered: local known load growth projects, planned projects, opportunity projects from customer engagement, and future AI-driven load growth	Yes, but limited to existing customer load impact
Other Areas:	• Agricultural Electrification, Carbon Capture Processes, Shipping & Aviation, Advanced Water Treatment, Renewable Fuel Production, Offroad and Port Transportation Electrification	No except for offroad and port electrification

Hydrogen Electrolysis

Current assumptions

Our demand forecast assumes Hydrogen demand increasing significantly post-2035. However, we assume only ~10% of hydrogen production to meet that demand will be in-state & grid-tied.





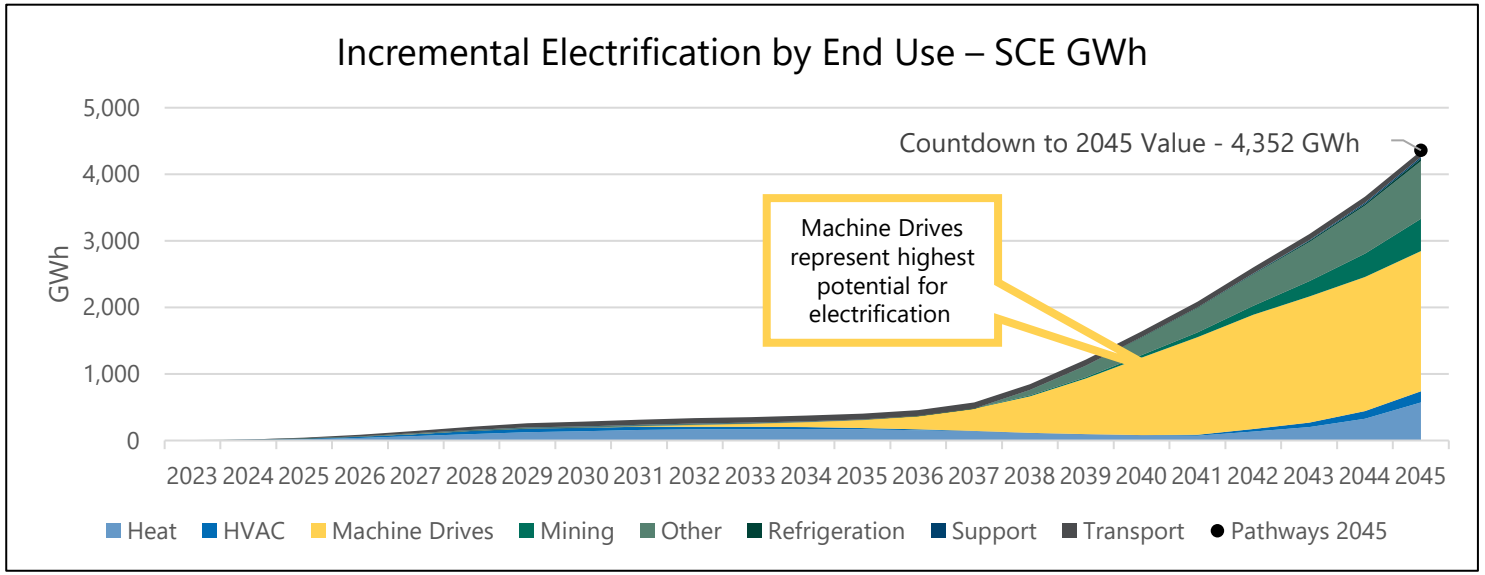
TAKEAWAY

Currently mixed signals on how much hydrogen electrolysis will occur in California and how much would be grid-tied. That said, SCE's current forecasts are conservative and may underestimate load growth from hydrogen production.

Industrial Electrification

Current assumptions

Our demand forecast is determined using GHG modeling resource optimization. Future electrification potential is based on end-uses with highest feasibility to switch to electricity as fuel source.



Near-Term Annual Growth Rate (through 2035)	2%

Long-Term Annual Growth Rate (2035+)	10%

TAKEAWAY

With continuous declines in industrial sales SCE experienced in recent years, it is challenging to forecast future industrial load growth without additional insights. SCE's current sales forecast reflects more than 5% of total load growth from industrial electrification between 2035 and 2040.

Data Centers

SCE Customer Projects, Engagement, and Insights

Existing customer requested local load growth projects

- 100 MW+ Expected over next 5 years (max impact could be > 500 MW)
- Treated as incremental to IEPR forecast for distribution system planning
- To be reflected in SCE's system load forecast

Planning projects under SCE's MOS study

- Multiple projects with sizes greater than 50 MW
- May include expansion of existing data centers
- May require sub-trans and transmission upgrades
- Long-lead development time

"Hyper-Scale" data centers

- Large sizes > 100 MW projects possible over next few years
- Requiring transmission upgrade
- Long-lead development time

Artificial Intelligence driven data centers

- Actively looking
- Moderate size

TAKEAWAY

SCE could experience more uptick in data center load growth. The smaller size but high-confidence load growth projects could easily pop up and add up in total to create more significant impact and challenges on our grid planning. There is increasing risk to customers if our grid is not built up to meet their demand timely.

Long-term Planning Implication from Emerging Load Growth

- **Incorporate** future likely emerging load growth impact **into** state's long-term **demand scenario forecast well in advance**
  - Reflect likely technology/project impact ("the earlier the better")
  - Continue to identify and share new data sources
- Support shift to allow for "**proactive planning**" and "pending loads"
  - A new concept within planning introduced in the CPUC's High DER staff proposal is "pending load" – based on where adoption will occur without firm known load requests
  - New emerging load can be **large locational demand seeking quick service**, and the uncertainty of location creates challenge in grid planning
- **Active customer engagement**
  - Agencies (e.g. CEC) and utilities can encourage customers, going through its programs to engage with the utilities early in the process, and to allow sufficient consideration for those instances when the utility will require additional time to upgrade the grid in response to the customers' request
- **Accelerate** planning development
  - **Reform** current **permitting/licensing** process