Historical Behind-the-Meter Distributed Generation Insights

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List of Acronyms and Initialisms

BTM – Behind-the-meter

CAISO – California Independent System Operator

CPUC – California Public Utilities Commission

CY – Calendar Year

DIB – Data Integration Branch

DG – Distributed Generation

DGStats – California Distributed Generation Statistics

IOU – Investor-Owned Utility

HLM – Hourly Load Model

MW – Megawatt

MWh – Megawatt Hour

NBT – Net Billing Tariff

NEM – Net Energy Metering

PA – Planning Area

PG&E – Pacific Gas and Electric

POU – Publicly Owned Utility

PV – Photovoltaics

QFER – Quarterly Fuel & Energy Report

SCE – Southern California Edison

SDG&E – San Diego Gas & Electric

TPO – Third Party Owned

UDC – Utility Distribution Company

Relevance

- **Historical BTM PV capacity use cases:**
  - Used to calculate historical BTM PV Generation
    - Hourly Load Model (HLM)
    - Sector Models
- **Historical BTM PV & Storage adoption use cases:**
  - Input to dGen model
    - Historical deployments used to establish market saturation

Key Findings

- Share of TPO systems in IOU service territory has doubled since 2023
  - It remains at 50% of applications in 2024, 2025, and Q1 2026
- Application volume in IOU service territory for Q1 2026 is similar to Q1 2025
- Average monthly total BTM PV capacity requested in applications:
  - Q1 2025 - 163 MW AC
  - Q1 2026 - 147 MW AC
- California interconnected 2,000 MW of BTM PV and 1,600 MW of BTM storage in 2025
  - This represents an increase compared to 2024 levels of 1,700 MW BTM PV and 870 MW BTM storage

Historical BTM PV Adoption Trends

Historical BTM PV Methodology

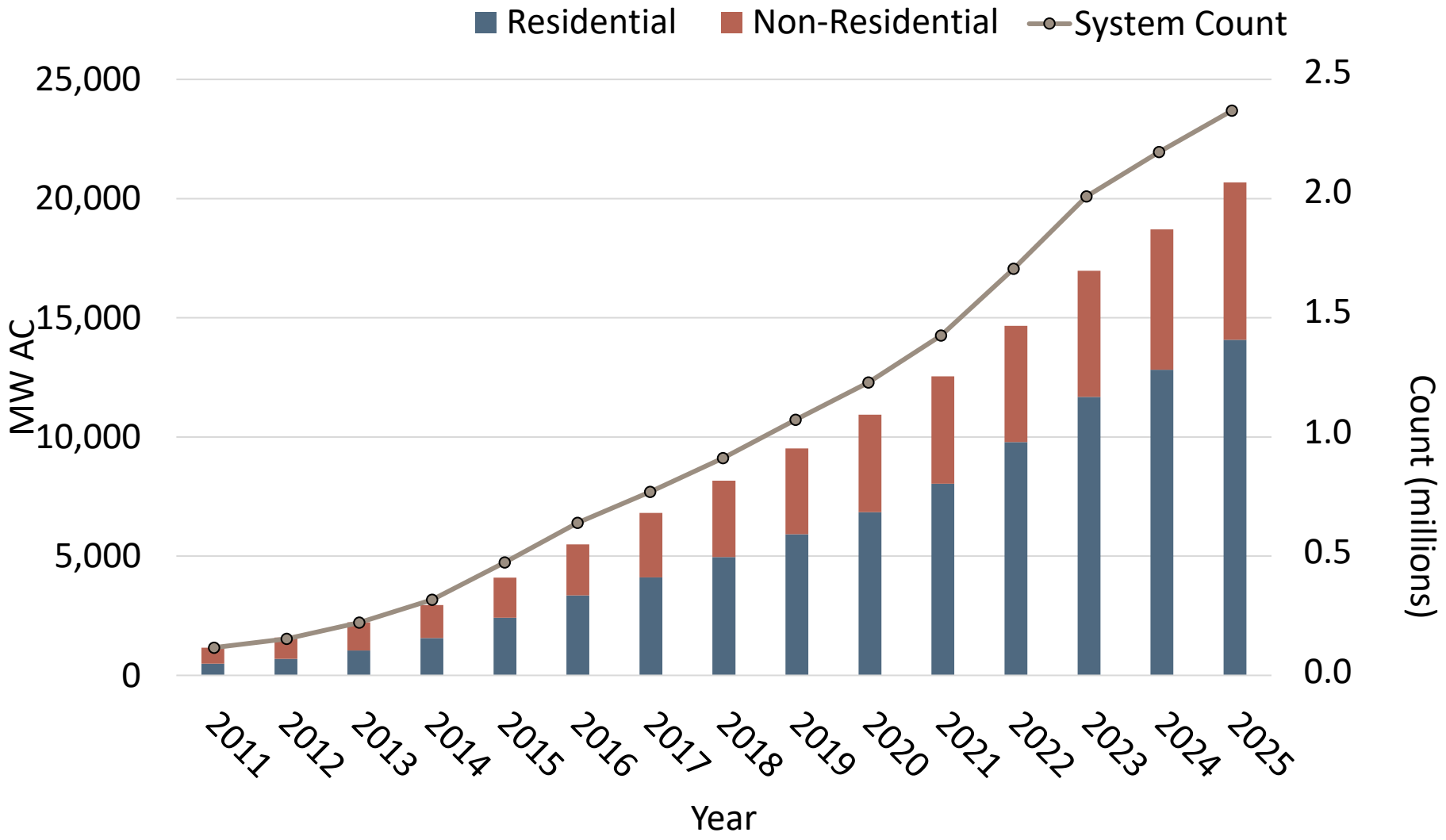
- Data from QFER form 1304b
  - Collected by CEC under Title 20 §1304(b)
  - Cleaned and aggregated using R
  - Quality controlled and compared against:
    - Previous forecast cycle estimates
    - CPUC's DGStats

Historical BTM PV Stats: Statewide

- Number of systems interconnected in 2025
  - Residential: 168,000
  - Non-residential: 4,600

2025 Cumulative BTM PV Stats

Year	MW	Count
2024	18,700	2,166,000
2025	20,700	2,339,000



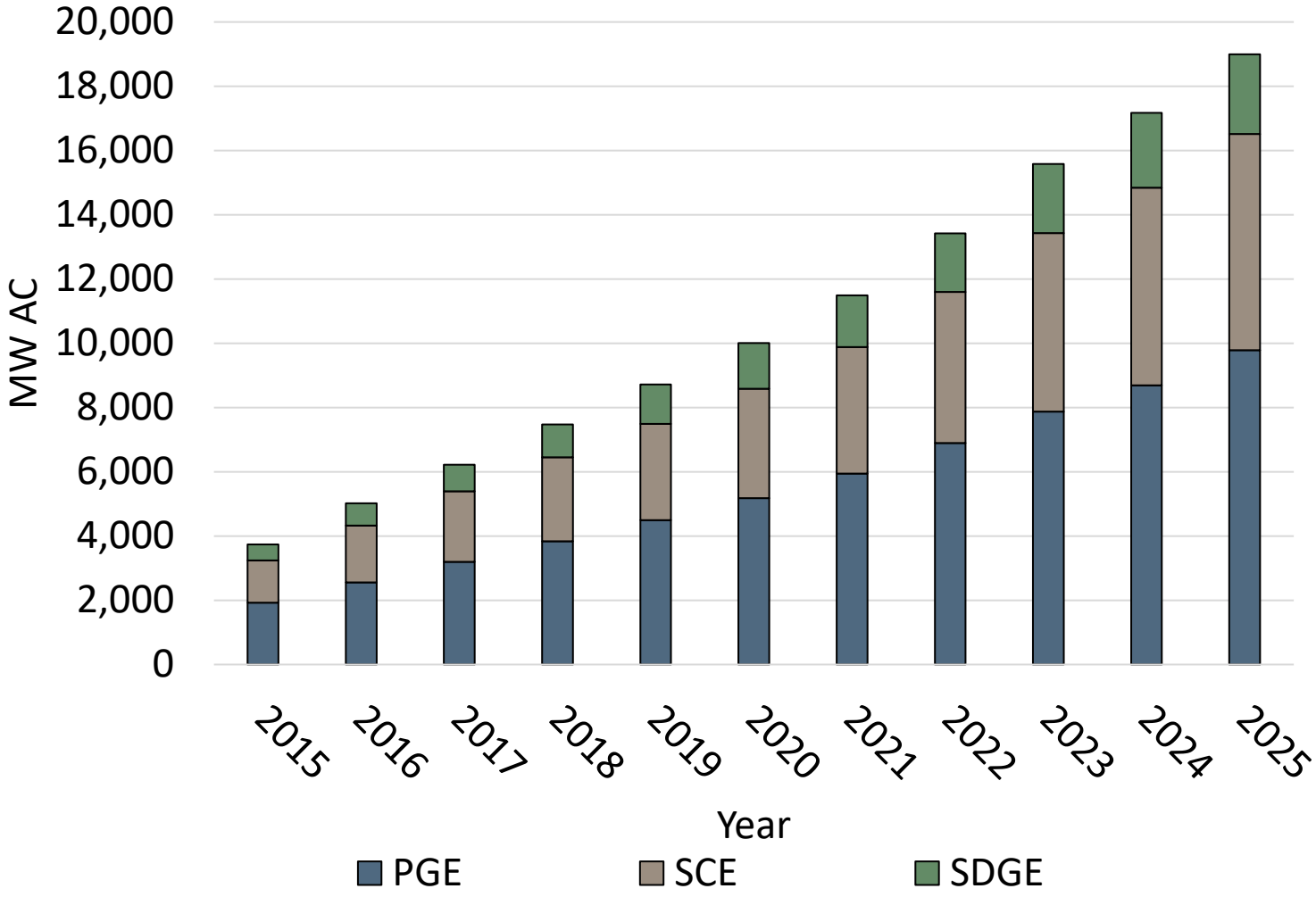
Source: CEC Staff analysis of Title 20 §1304(b) interconnection data

Historical BTM PV Stats: CAISO

- 1,800 MW of BTM PV capacity added in 2025

2025 Cumulative BTM PV Stats

Year	PG&E (MW)	SCE (MW)	SDG&E (MW)	CAISO (MW)
2015	1,900	1,300	500	3,700
2020	5,200	3,400	1,400	10,000
2025	9,800	6,700	2,500	19,000

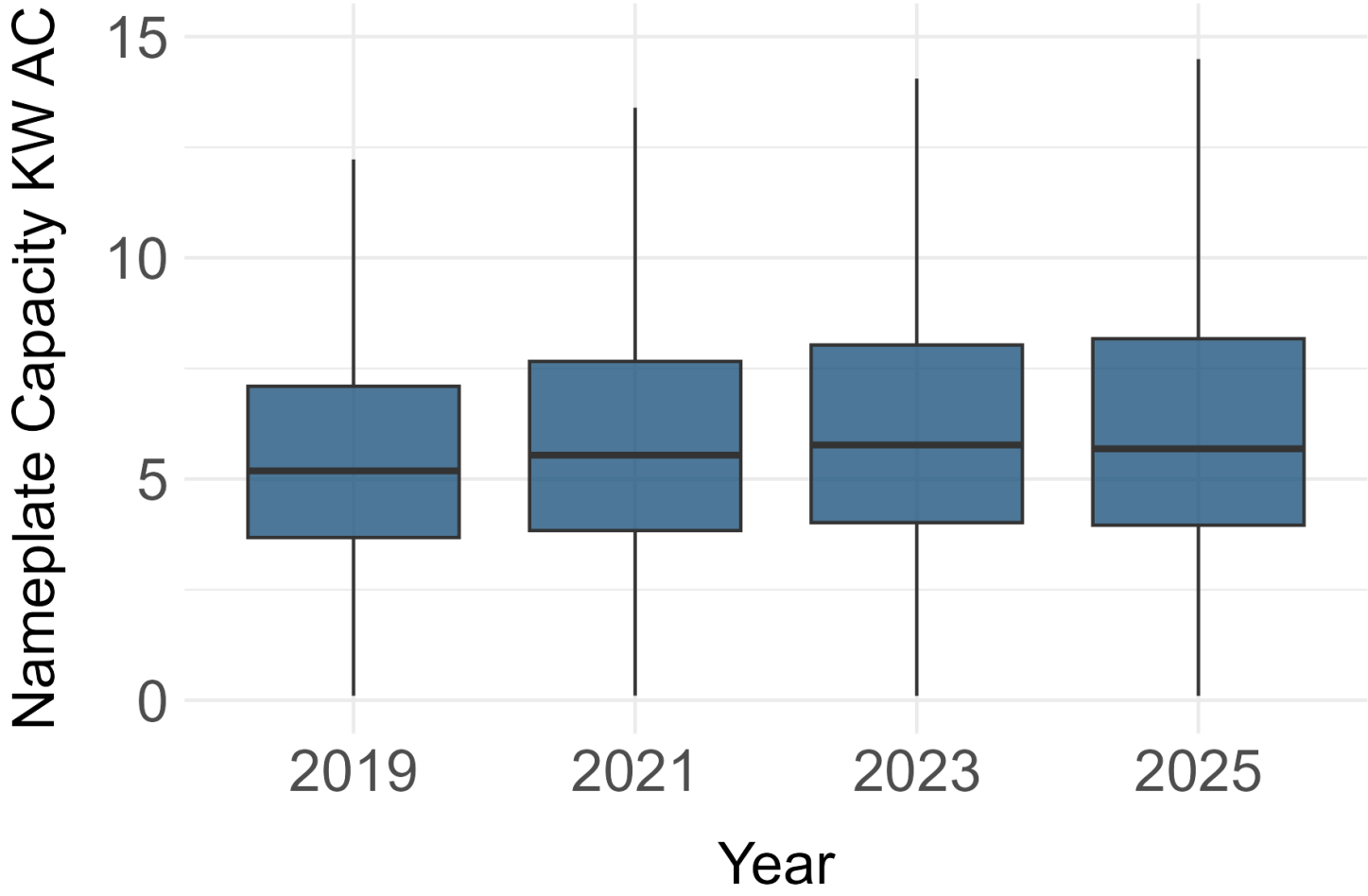


Source: CEC Staff analysis of Title 20 §1304(b) interconnection data

BTM Residential PV System Sizes

- Includes PG&E, SCE, SDG&E service territories
- PV Systems less than or equal to 15KW

Year	Median Nameplate Capacity kW (AC)
2019	5.2
2021	5.5
2023	5.8
2025	5.7



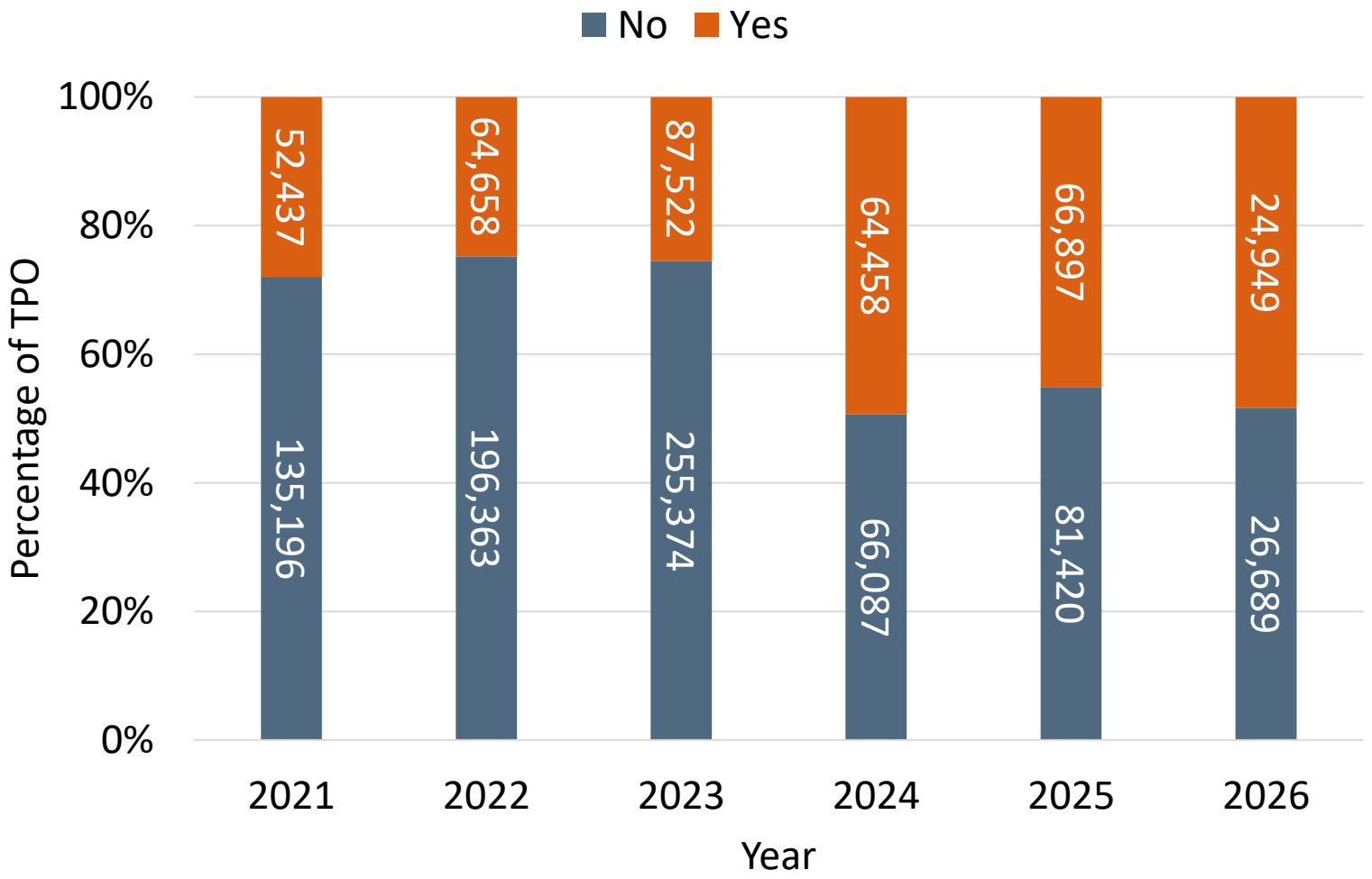
Source: CEC Staff analysis of DGStats interconnected and pending application data

Third Party Owned BTM Residential PV Systems

- 16% increase in share of TPO systems from 2021 to 2026
- Year shown is when the application was received
- Data current through May 2026

Total Applications by IOU Service Area

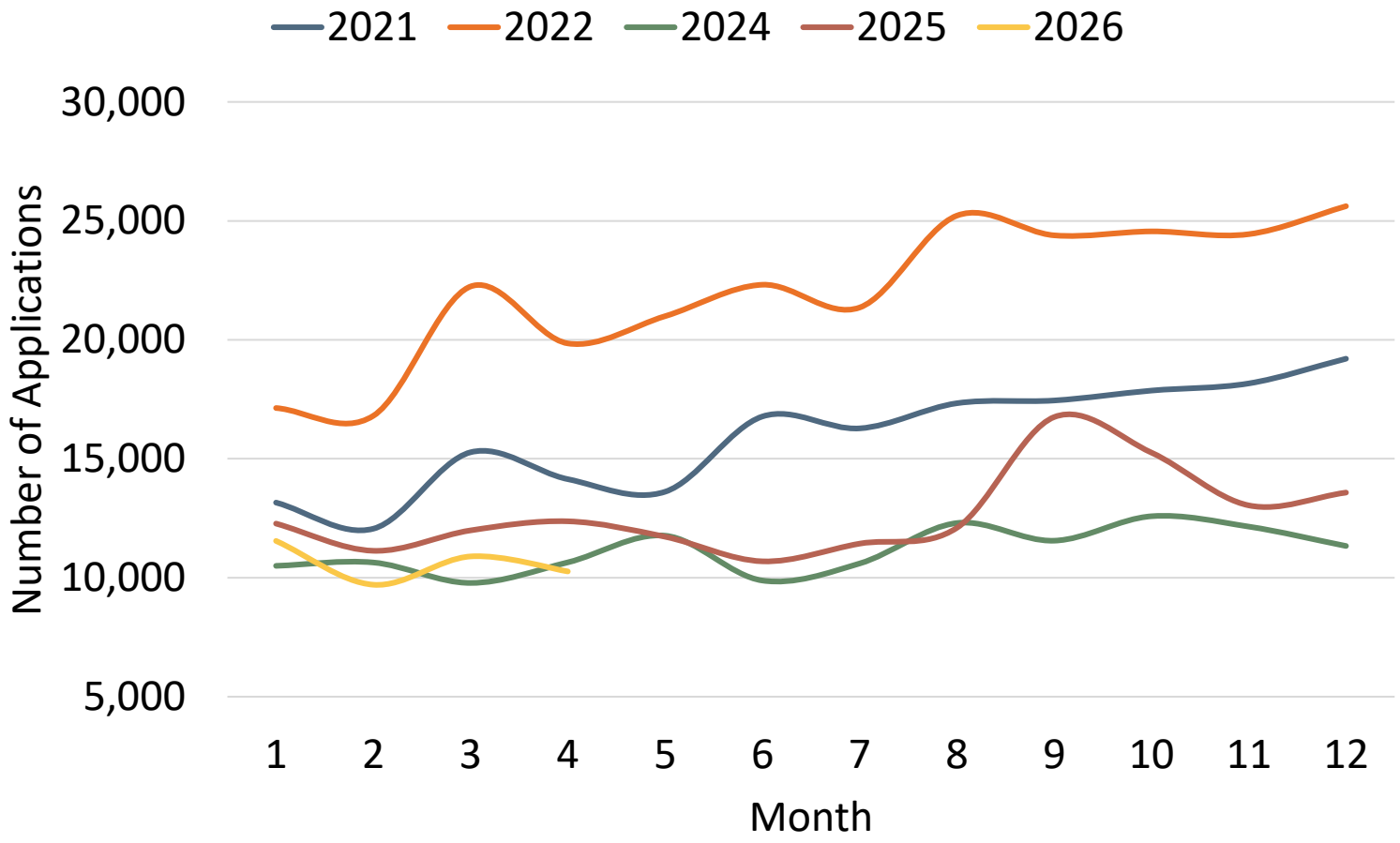
Year	PG&E	SCE	SDG&E
2023	146,000	142,500	55,000
2024	65,000	52,500	13,000
2025	71,500	63,000	14,000
2026	24,000	23,500	5,000



Source: CEC Staff analysis of DGStats interconnected and pending application data

Monthly PV Application Volume - IOUs

- Q1 2026 application volume consistent with levels seen in Q1 2024 & 2025
  - ~10,000 applications per month
- Includes PG&E, SCE, SDG&E service territories.
  - CY 2023 omitted



Source: CEC Staff analysis of DGStats interconnected and pending application data

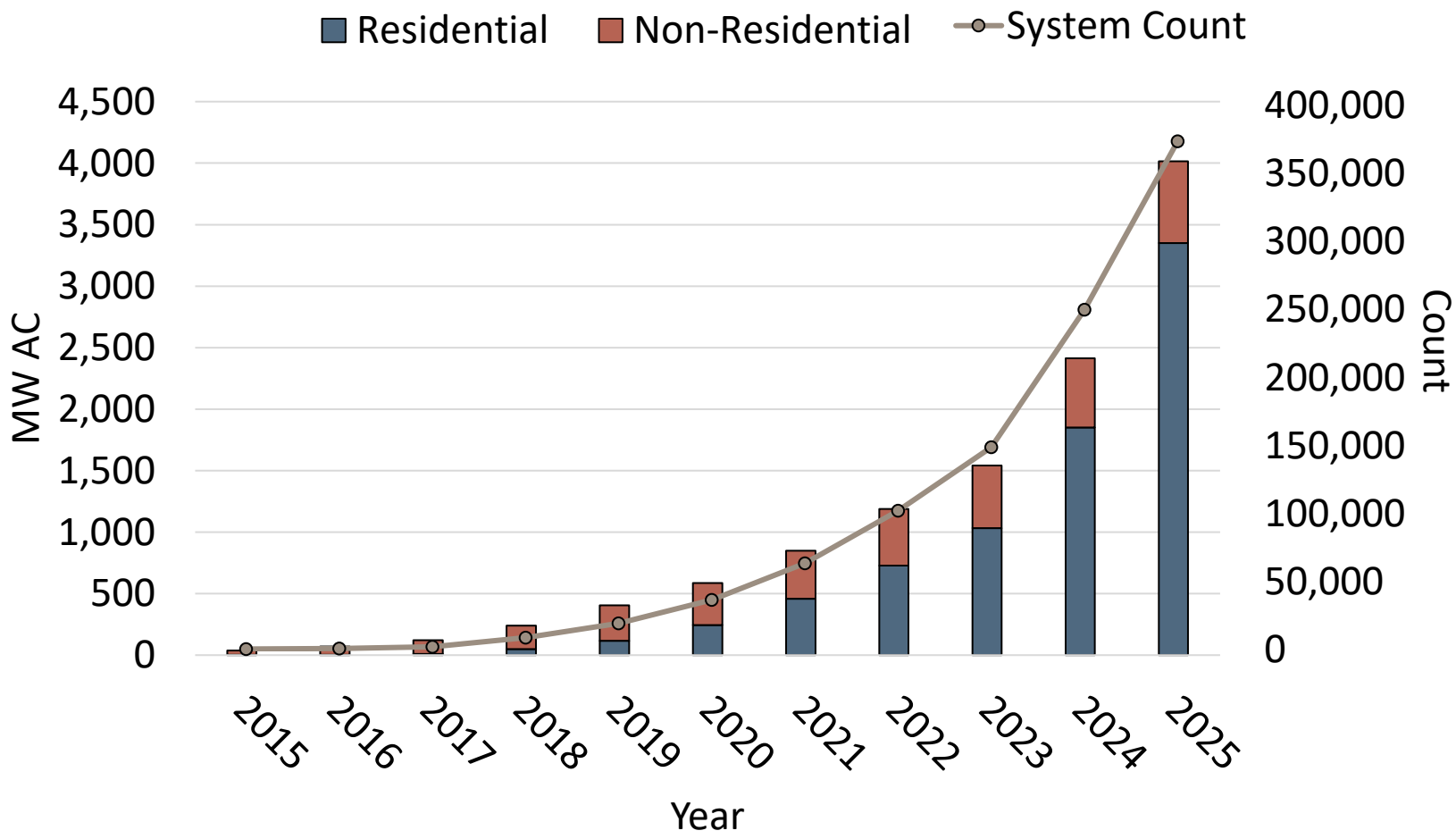
Historical BTM Storage Adoption Trends

Historical BTM Storage Stats: Statewide

- 1,600MW of capacity and 124,000 systems added in CY 2025
- 2,800MW of capacity and 270,00 systems added since 2022

2025 Cumulative BTM Storage Stats

Sector	MW	Count
Residential	3,350	368,000
Non-residential	665	5,500
Total	**4,015**	**373,500**

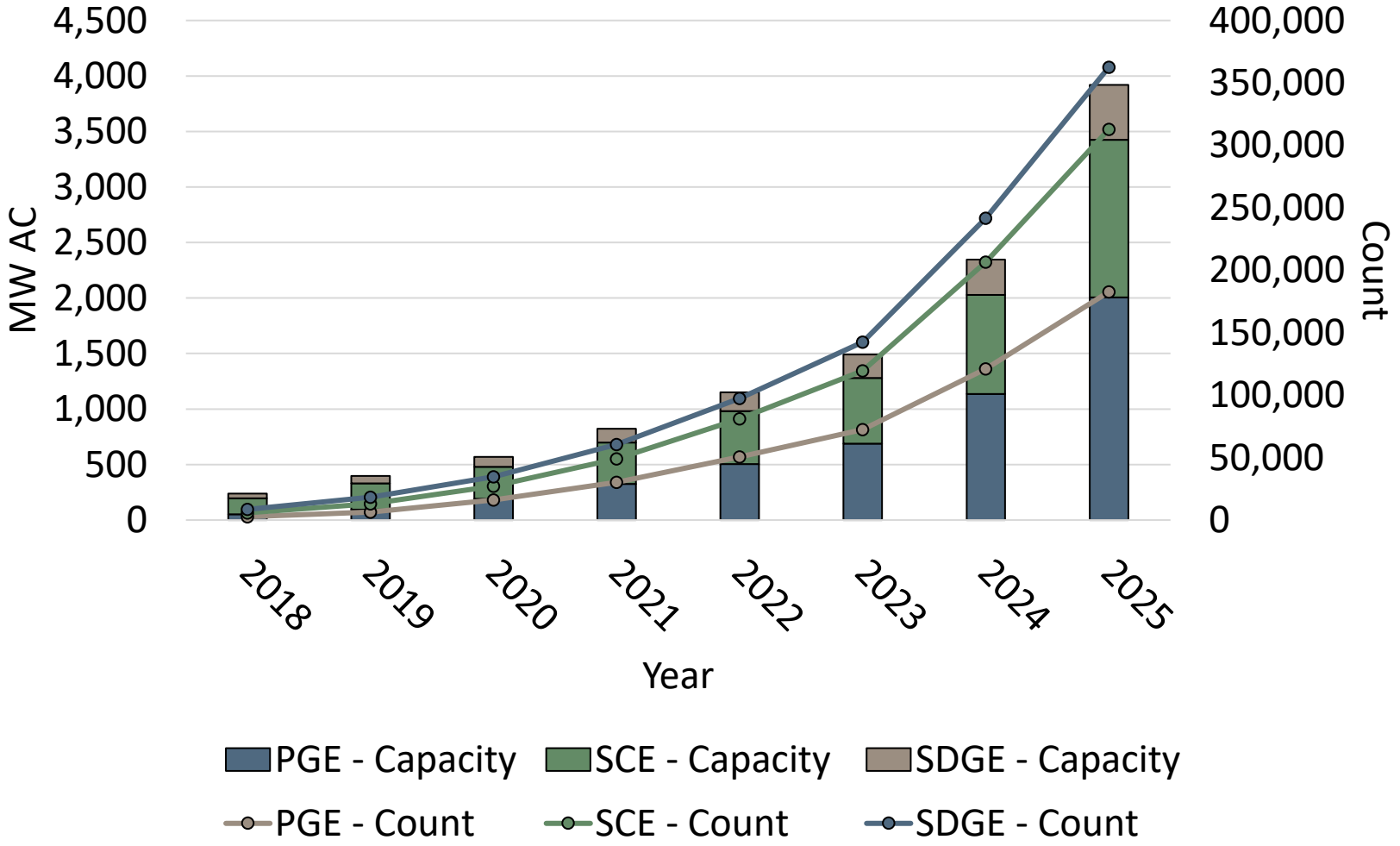


Source: CEC Staff analysis of Title 20 §1304(b) interconnection data

Historical BTM Storage Stats: CAISO

2025 Cumulative BTM Storage Stats

Planning Area	MW	Count
PG&E	2,000	183,000
SCE	1,400	130,000
SDG&E	500	50,000
Total	**3,900**	**363,000**



Source: CEC Staff analysis of Title 20 §1304(b) interconnection data

Thank You!

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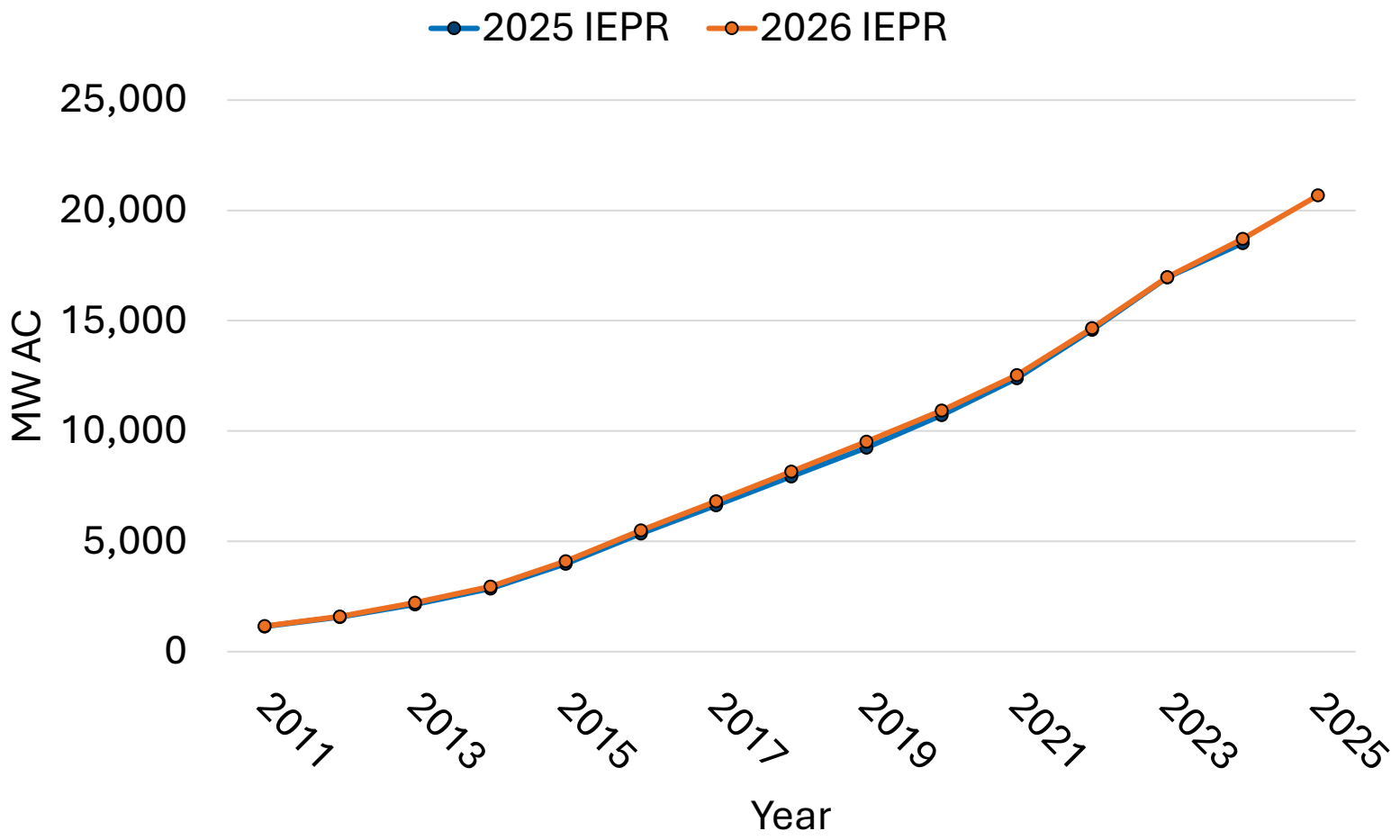
Appendix

Historical BTM PV Capacity: Statewide IEPR Comparison

Year	2025 IEPR (MW)	2026 IEPR (MW)
2019	9,250	9,500
2024	18,500	18,700

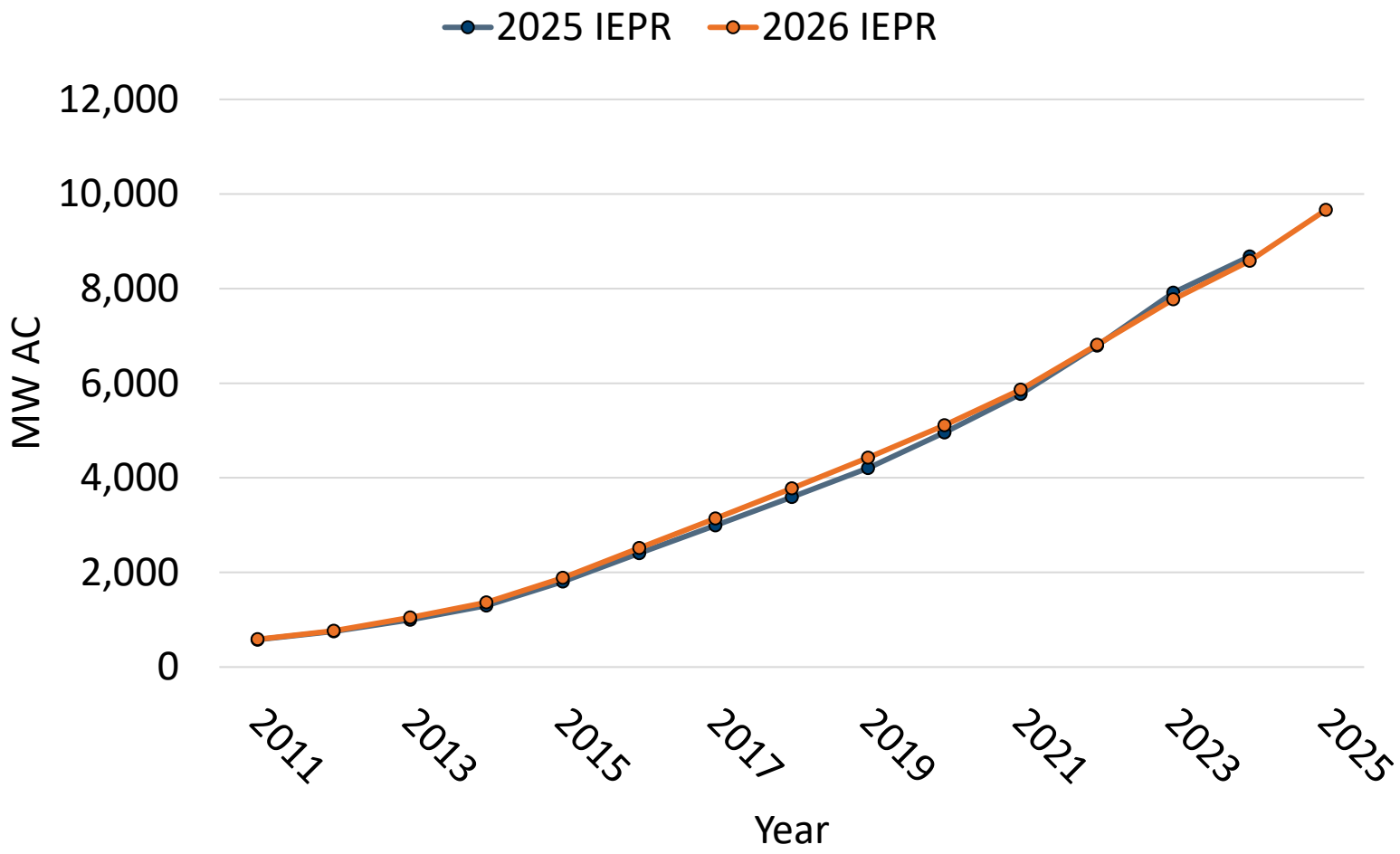


Source: CEC Staff analysis of Title 20 §1304(b) interconnection data

Historical BTM PV Capacity: PG&E Service Territory

- From 2025 IEPR to 2026 IEPR
  - 4% decrease in nonresidential capacity in 2024
  - Driven by improved data reporting

Year	2025 IEPR (MW)	2026 IEPR (MW)
2019	4,200	4,400
2024	8,700	8,600

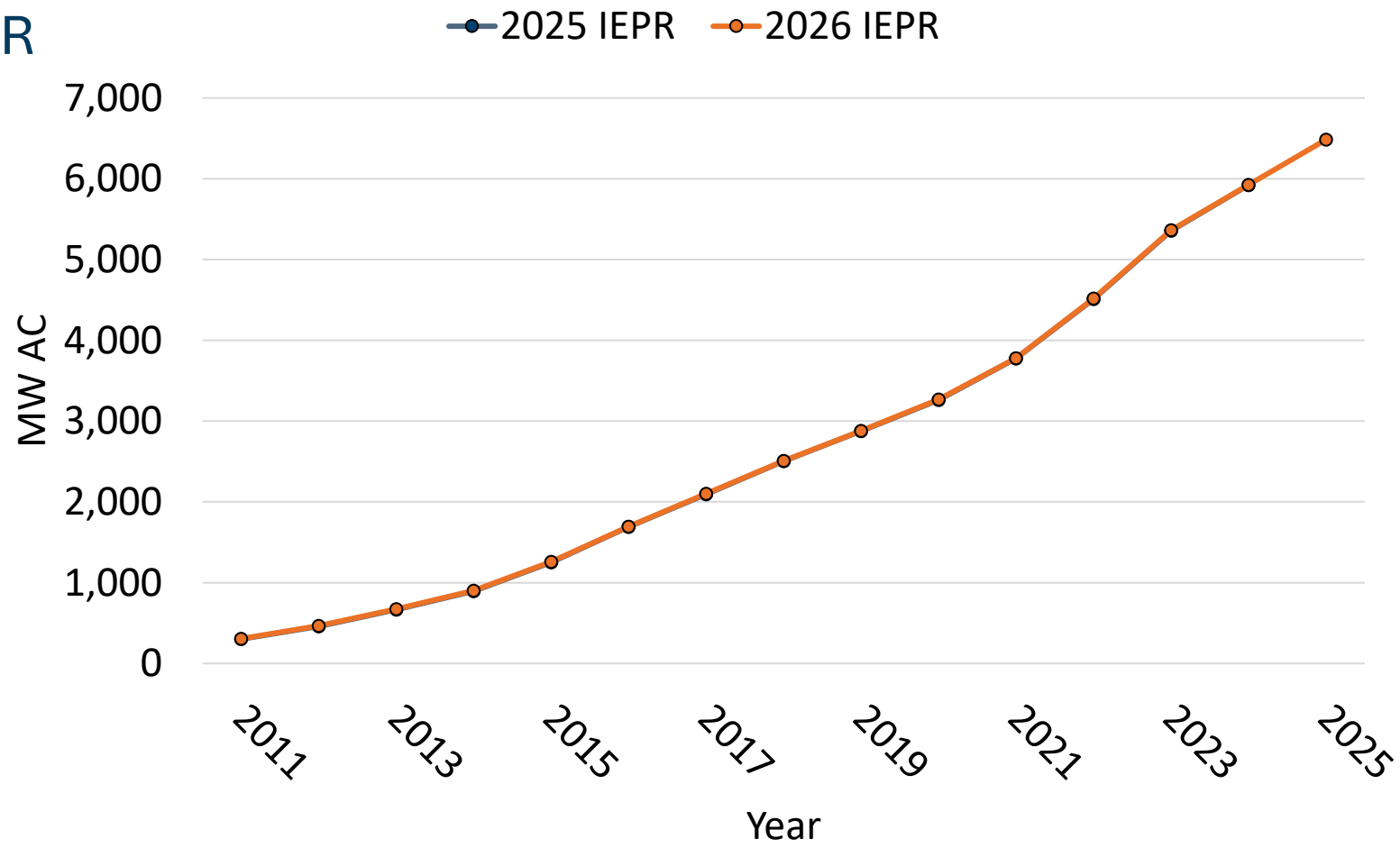


Source: CEC Staff analysis of Title 20 §1304(b) interconnection data

Historical BTM PV Capacity: SCE Service Territory

- From 2025 IEPR to 2026 IEPR
  - Negligible changes between CED vintages

Year	2025 IEPR (MW)	2026 IEPR (MW)
2019	2,900	2,900
2024	5,900	5,900

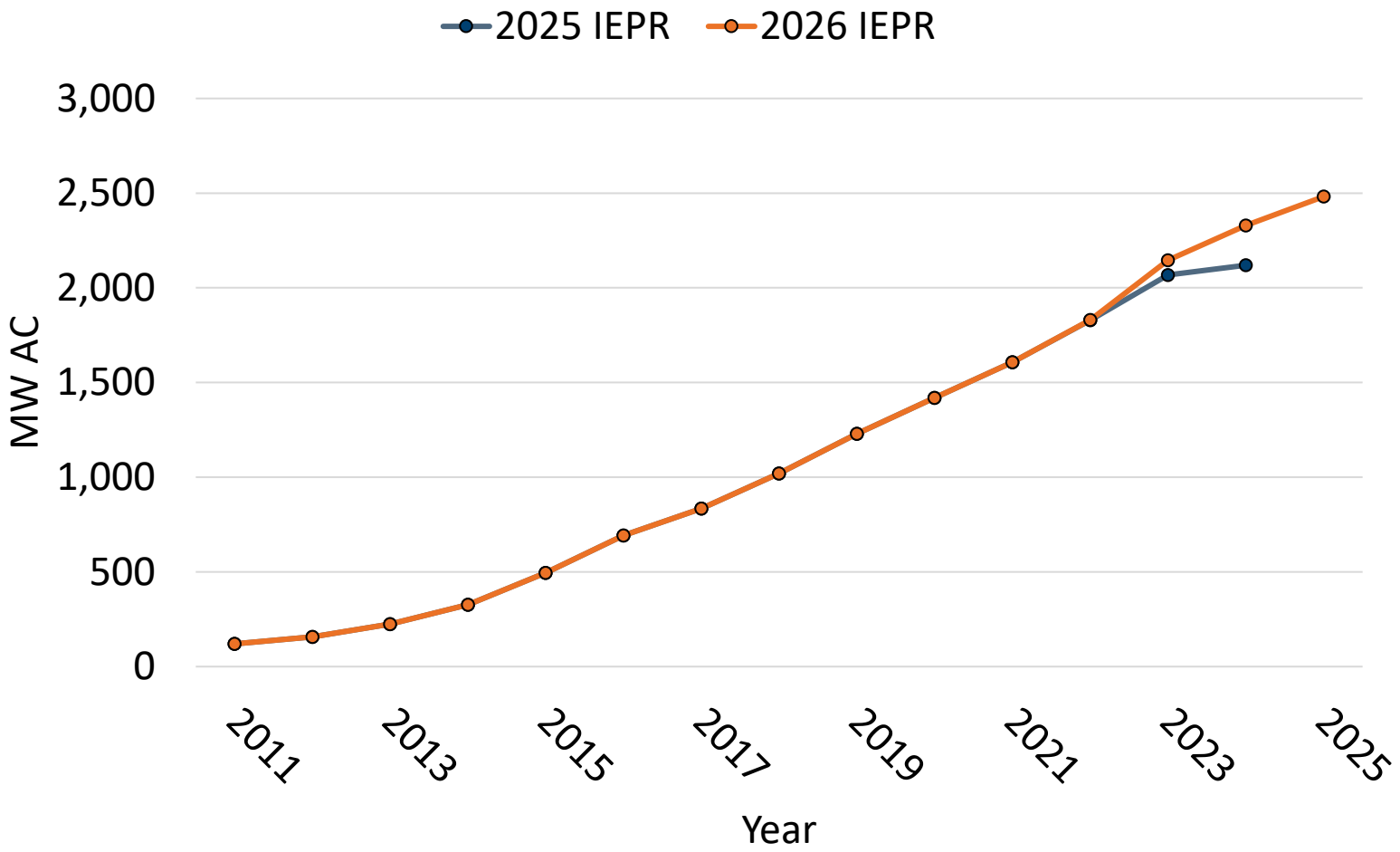


Source: CEC Staff analysis of Title 20 §1304(b) interconnection data

Historical BTM PV Capacity: SDG&E Service Territory

- From 2025 IEPR to 2026 IEPR
  - 10% increase in cumulative capacity by 2024
  - Driven by improved data reporting

Year	2025 IEPR (MW)	2026 IEPR (MW)
2019	1,200	1,200
2024	2,100	2,300



Source: CEC Staff analysis of Title 20 §1304(b) interconnection data