Quarterly Technology Area Report (Q2 2025)

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Portfolio Information

A summary of the number of project submissions the program has received between April and June 2025 (Q2), and what project stage and technology area each submission represents can be found in Table 1 below. Also illustrated are the program cumulative totals in each category since the program began in May 2022. Please see the program **Technology Priority Maps** (TPMs) to learn more about the technology areas. The latest HVAC, Water Heating, and Whole Buildings TPMs were published on September 1, 2024, with the Lighting, Plug Loads and Appliances and Process Loads TPMs published on December 9th and the Portfolio Enhancements TPM published on December 27th. During Q2, the team received 47 new project submissions[1].

Table 1: Project Submission Status Summary by Technology Area

Technology Areas	Q2 vs Cumulative (C)	Number of Projects at Project Stage					Projects Deferred*	Project Submissions
		Completed	Reporting	Implementation	Project Planning	Scanning & Screening		
Whole Building	Q2	2	1	1	0	1	6	9
	C	19	5	10	0	3	12	92
HVAC	Q2	5	3	2	0	0	6	7
	C	22	16	11	2	6	12	120
Water Heating	Q2	1	2	2	1	0	3	4
	C	13	4	8	2	0	11	58
Process Loads	Q2	2	2	3	7	1	6	18
	C	18	6	13	7	2	16	109
Lighting, Plug Loads and Appliances**	Q2	1	1	1	2	0	2	5
	C	4	3	9	5	1	6	44
Portfolio Enhancement	Q2	0	0	0	1	1	2	4
	C	0	0	0	4	1	3	10
Total	Q2	11	9	6	11	3	25	47
	C	76	34	41	20	13	60	433

*The "deferred" project classification means these projects will not move forward at this time but will be revisited intermittently to reassess if they meet future program needs and priorities.
**The TPM formerly known as Plug Loads and Appliances now encompasses Lighting, as reflected in its new name. All Lighting projects in flight have been reclassified under the Lighting, Plug Loads, and Appliances TPM

[1] 2 existing projects were split into 2 projects, totaling 4, which were treated as 4 new submissions.

Figure 1 gives a breakdown of where this quarter's project submissions came from, classified by submitter type.

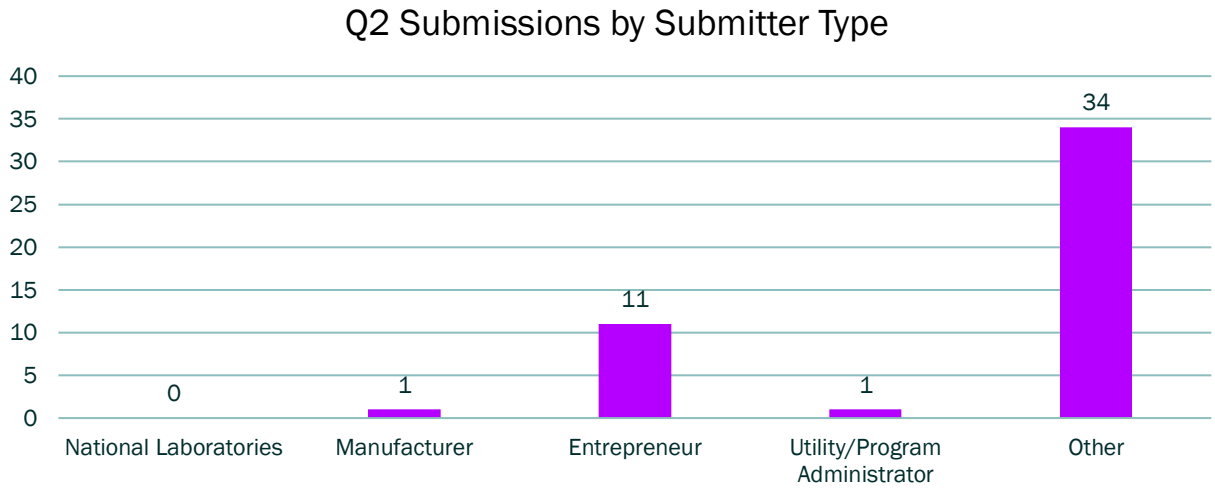

Figure 1: Program participant type

A summary of the number of projects that were selected to move forward, organized by TPM technology area, can be found in
Table 2. Included in this table are the count of projects for this quarter, broken out between technology development research (TDR) and technology support research (TSR) projects.[2]

Table 2: Submissions Selected in Q2 by Project Type[3]

Technology Area	Count of Projects by Project Type	
	TDR	TSR
Whole Building	0	0
HVAC	0	0
Water Heating	1	0
Process Loads	0	7
Lighting, Plug Loads & Appliances	0	2
Portfolio Enhancement	0	1
Total	1	10

[2] Project type definitions can be found here.

[3] 2 existing projects were split this quarter, resulting in 4 selected projects that were unscored. Instead, their adoption was agreed upon by partners in an internal poll.

Figure 2 displays a pipeline of projects that CalNEXT expects to be completed in each year of the program based on projects that have been selected for the program portfolio. This figure includes any projects that have been completed. As the figure shows, the program has completed 2 TSRs for the year already. The program still needs to identify 2 TDRs and 5 TSRs to be committed in 2025 to meet 2025 targets in Table 3.

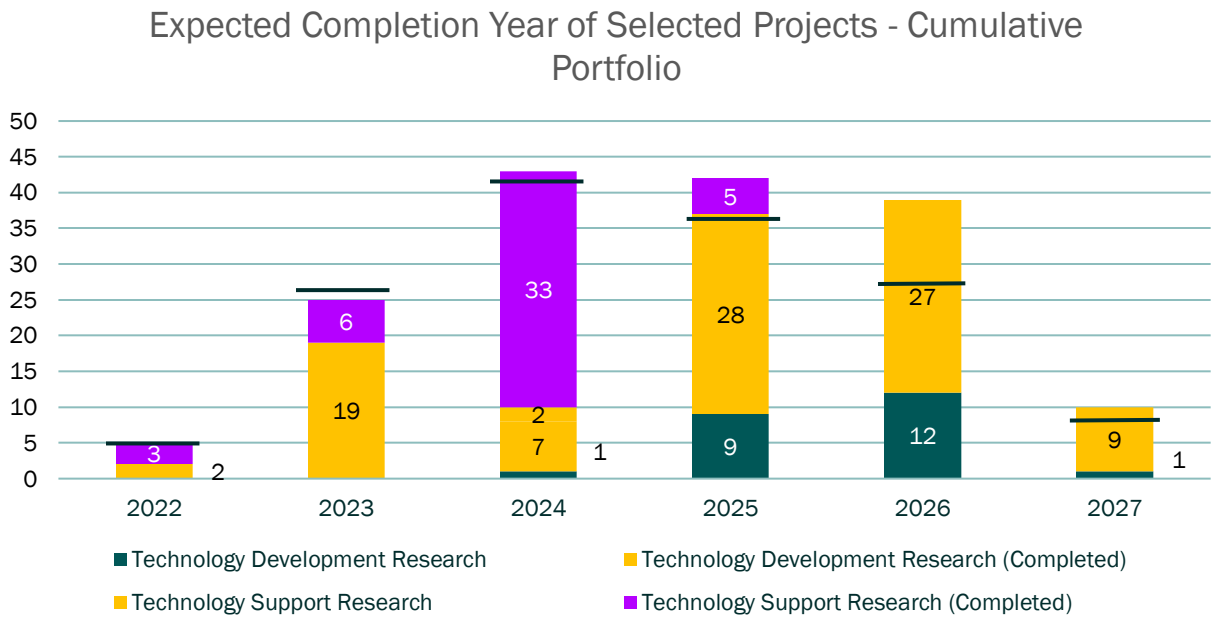

Figure 2: Selected project expected completion year (target number reflected as line)

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Table 3 illustrates the results of the 2025 committed project goals.

Table 3: Results of 2025 Committed Research Project Portfolio

Research Type	2025 Target	Planned	Actualized	Percent Actualized
TDR	10	10	5	50%
TSR	32	32	18	56%
Focused Pilot	3	0	0	0%
Total	45	42	23	55%

*Projects are selected from both program partner and public submission.

Technology Area Information

Table 4 characterizes attributes associated with each of the selected projects from Q2. Attributes include TPM technology area and subcategory, and if the project is expected to have energy efficiency (EE) benefits, disadvantaged communities (DAC) and/or hard-to-reach (HTR) customer benefits, decarbonization (decarb) benefits, and/or load shifting.

Table 4: Q2 Selected Projects by TPM Subcategory and Attributes

TPM	Submission Name	TPM Subcategory	EE Benefit	DAC/HTR Benefit	Decarb Benefit	Load Shifting
Lighting, Plug Loads and Appliances	Developing a 120V Induction Range Without Battery Backup for California Markets	Decarbonizing Household Appliances	X	X	X	-
	Efficiency and Load Flexibility Impacts of Smart Single-Unit Combination Laundry Appliances	Decarbonizing Household Appliances	X	X	-	-
Process Loads	Performance Validation of Electric Ovens for the Food Service Sector[4]	Commercial Kitchen Decarbonization	X	X	X	-
	Datacenter Liquid Cooling Case Study[5]	Data Centers & Enterprise Computing Technology	X	-	X	-
	Datacenter Liquid Cooling Lab Evaluation[6]	Data Centers & Enterprise Computing Technology	X	-	X	-

[4] This project was split from an existing project in the portfolio

[5] This project was split from an existing project in the portfolio

[6] This project was split from an existing project in the portfolio

TPM	Submission Name	TPM Subcategory	EE Benefit	DAC/HTR Benefit	Decarb Benefit	Load Shifting
Process Loads	Energy and Economic Evaluation of Conveyor Charbroilers[7]	Commercial Kitchen Decarbonization	X	X	-	-
	Field Assessment evaluating energy use and adoption barriers for R-454C compared to R-404A and or CO_2 systems in supermarkets	Refrigeration - Commercial	X	X	X	-
	Industrial Process Water Heat Pump	Process Heating Technology	X	-	X	-
	Evaporative Cooler for Air-Cooled Chillers	Data Centers & Enterprise Computing Technology	X	-	X	-
Water Heating	PCM Thermal Storage Applications in Residential Water Heating	Unitary Electric Water Heaters and Single-Family Systems	X	-	X	X
Portfolio Enhancement	Rural-DAC-HTR Electrification Enablement Roadmap	Time of Use and the Value of Load Flexibility	X	X	-	-

Table 5: TDR Projects Benefiting DAC and HTR Customers

Project Name	Status
Advanced Multifamily EV Load Management System	Completed
Aerosol Sealing of Existing Attics and Crawlspaces	Completed

[7] This project was split from an existing project in the portfolio

Project Name	Status
California Multifamily Split HPWH Market Study	Completed
Field Demonstration of Atmospheric Storage Central Heat Pump Water Heater	Completed
Hybrid Heat Pump and Indirect Evaporative Cooling Packaged Unit	In-Progress
Market Potential for Heat Pump Assisted Hot Water Systems in Food Service Facilities	Completed
Mobile and Manufactured Housing Market Characterization Study	Completed
Residential Multi-Function Heat Pump: Laboratory Testing	Completed
Residential Multi-Function Heat Pumps: Heat Exchanger Improvement	Completed
Residential Multi-Function Heat Pumps: Project Search	Completed
Solar Assisted HVAC Market Study	Completed

Table 6: TSR Projects Benefiting DAC and HTR Customers

Project Name	Status
120V Induction Stoves with Battery Back-Up	Completed
All-Electric Commercial Kitchen Electrical Requirements Study	Completed
Central Heat Pump Water Heating Control Optimization	In-Progress
CO2 Chiller for Agricultural Sector	In-Progress
Comfort Impacts of Partial Coverage ASHPs	In-Progress
Commercial and MF CO2 based Heat Pump Water Heater Field Demonstration	Completed

Project Name	Status
Commercial Kitchen Hot Water System Design Guide	Completed
Compressed Air End-Use Air Management System	In-Progress
Double Duct Packaged Terminal Heat Pump Field Demonstration	In-Progress
Electric Infrastructure Upgrades Alternatives Study for Manufactured Housing	In-Progress
Emergency Replacement Heat Pump Water Heater Market Study	Completed
Enhanced Normalized Metered Energy Consumption Analysis with Rapid Interventions	In-Progress
Field Demonstration of Mobile Home Electrification	In-Progress
Harvesting Mid-size Industrial BRO Savings	In-Progress
HVAC Capacity Controller	Completed
HVAC Thermal Energy Storage System (TESS)	Completed
Increasing Heat Pump Water Heater Deployment	Completed
Integrated HVAC RTU Remote Monitoring Systems	In-Progress
Low-Income Multifamily Housing Characteristics Study	Completed
Market Study of Household Electric Infrastructure Upgrade Alternatives for Electrification	In-Progress
Master Mixing Valve Field Study	Completed
Multifamily In-Unit Heat Pumps	Completed
Overcoming Key Barriers to Electrification of Foodservice Hot Water in California	In-Progress
Packaged Central CO2 Heat Pump Water Heater Multifamily Demonstration	In-Progress
Refrigeration Capacity Load Matching	In-Progress
Residential Housing Characteristics Study	Completed

Project Name	Status
Restaurant Field Monitoring	In-Progress
Return-to-primary Central HPWH System Field Demonstration	In-Progress
Variable Refrigerant Flow (VRF) Refrigerant Management Market Assessment	Completed
Wastewater Treatment SB1383 Compliance Characterization	Completed

Table 5 and 6 above include the projects from the program lifetime, broken down between TDR and TSR, that have been identified as benefiting DAC and HTR customers.

The goal of publishing this report is to provide transparency into the CalNEXT portfolio and summarize the program's key focus areas. Future quarterly reports will be updated to show the progress being made from quarter to quarter. Updates to TPMs or the program priorities and future requests for information will be published on the CalNEXT website.