



Quarterly Technology Area Report (Q3 2023)



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Portfolio Information

A summary of the number of project submissions the program has received between July 2023 and September 2023 (Q3), 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 current Whole Building, Process Loads, Lighting, and Water Heating TPMs were published on December 15, 2022 and the 2023 HVAC and Plug Load TPMs were published on July 1, 2023.

Overall, during Q3, the team saw a decrease in project submissions from Q2 (20 submissions in Q3 versus 30 submissions in Q2). 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.

Table 1: Project Submission Status Summary by Technology Area

Technology Areas	Number of Projects at Project Stage					Projects Deferred	Project Submissions	Q3 vs Cumulative (C)
	Completed	Reporting	Implementation	Project Planning	Scanning & Screening			
Whole Building	0	4	4	0	4	0	3	Q3
	1	8	4	3	4	0	48	C
HVAC	0	7	7	1	4	0	5	Q3
	2	10	11	10	5	3	55	C
Water Heating	0	3	1	1	1	1	4	Q3
	1	4	6	2	1	1	20	C
Process Loads	0	2	4	2	3	0	8	Q3
	1	5	5	6	5	1	40	C
Plug Loads and Appliances	0	0	1	0	0	0	0	Q3
	0	1	1	1	0	1	11	C
Lighting	0	0	0	0	0	0	0	Q3
	0	0	0	1	0	0	2	C
Total	0	16	17	4	12	1	20	Q3
	7	28	27	23	15	6	176	C

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

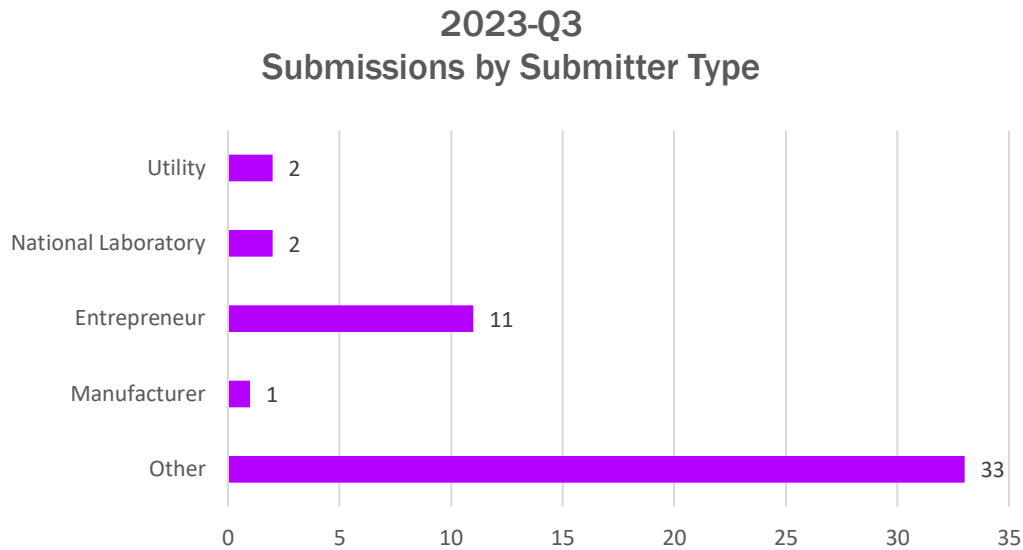


Figure 1: Program participant type

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.¹

Table 2: Submissions Selected in Q3 by Project Type

Technology Area	Count of Projects by Project Type	
	TDR	TSR
Whole Building	0	0
HVAC	0	1
Water Heating	0	1
Process Loads	0	2
Plugs & Appliances	0	0

¹ Project type definitions can be found [here](#).

Technology Area	Count of Projects by Project Type	
Lighting	0	0
Total	0	4

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: one TDR and one TSR have already been completed for the year 2023. As the figure shows, CalNEXT has enough projects planned for 2023 to meet the goal. As more projects progress through the program in 2023, the program anticipates the gap closing. When projects are completed, final project reports can be accessed [here](#).

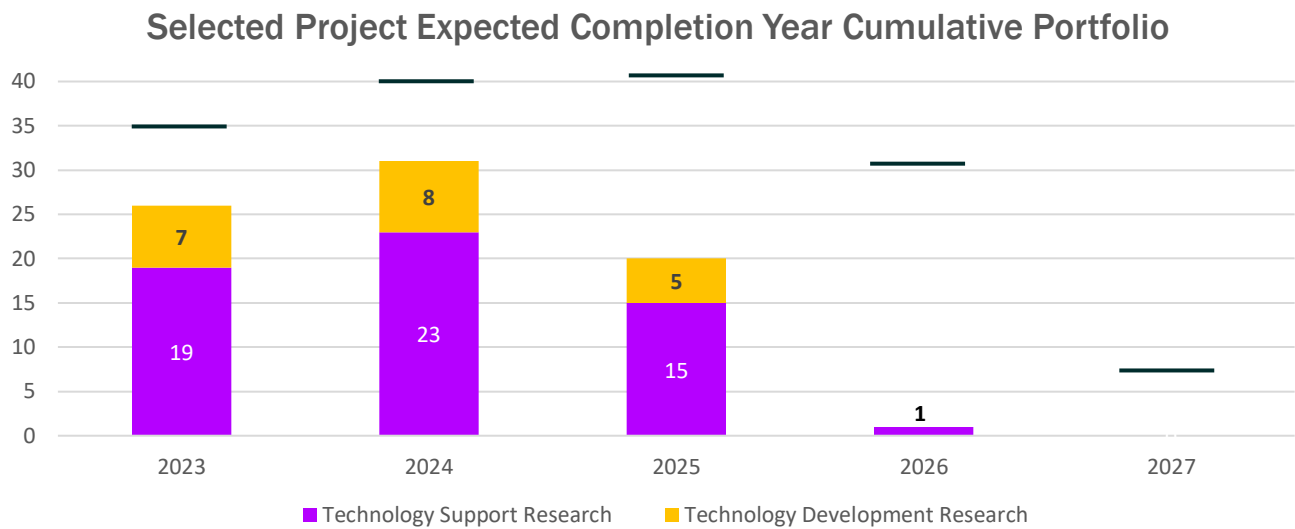


Figure 2: Selected project expected completion year (target number reflected as line)

Table 3 illustrates that by the end of Q3, all the projects for CalNEXT’s committed project goals, save for two focused pilots, have been selected and a portion have been actualized.

Table 3: Progress on 2023 Committed Research Project Portfolio

Research Type	2023 Target	Planned	Needed*	Percent Actualized
TDR	8	8	0	63%
TSR	32	33	0	49%
Focused Pilot	3	3	0	0%
Total	43	43	1	51%

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

Technology Area Information

Table 4 identifies attributes associated with each of the selected projects from Q3. This includes which TPM technology area and with which subcategory the project aligns, as well as whether the project submission included information about energy efficiency (EE) benefits, disadvantaged communities (DAC) and/or hard-to-reach (HTR) customer benefits, decarbonization (decarb) benefits, and load shifting.

Table 4: Q3 Selected Projects by TPM Subcategory and Attributes

TPM	Submission Name	TPM Subcategory	EE Benefit	DAC/HTR Benefit	Decarb Benefit	Load Shifting
HVAC	PG&E HVAC Tool Validation	Heat Pump Market Development	X	-	-	-
Water Heating	Multifamily Central HPWH Field Study	Residential Duty Water Heaters	X	X	X	-
Process Loads	Craft Brewery Industrial Heat Pump Screening Tool	Pumping Systems	X	-	-	-
	Industrial Microwave Technologies Market Study	Food Processing	X	X	-	-

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

Table 5: Projects Benefiting DAC and HTR Customers

Project Type	Project Name
TSR	<ul style="list-style-type: none"> • 120V Induction Stoves with Battery Back-Up • All-Electric Commercial Kitchen Electrical Requirements Study • Comfort Impacts of Partial Coverage ASHPs – TRC • Commercial and MF CO2 based Heat Pump Water Heater Field Demonstration – AESC • Commercial Kitchen Hot Water System Design Guide – TRC • Compressed Air End-Use Air Management System – AESC • Double Duct Packaged Terminal Heat Pump Field Demonstration - ASK Energy • Emergency Replacement Heat Pump Water Heater Market Study • HVAC Capacity Controller • HVAC Thermal Energy Storage System (TESS) • Increasing Heat Pump Water Heater Deployment • Integrated HVAC RTU Remote Monitoring Systems • Lab Research of Electric Conveyor Ovens • Low-Income Multifamily Housing Characteristics Study • Market Study of Household Electric Infrastructure Upgrade Alternatives for Electrification • Master Mixing Valve Field Study • Multifamily In-Unit Heat Pumps • Overcoming Key Barriers to Electrification of Foodservice Hot Water in California • Packaged Central CO2 HPWH • Residential Housing Characteristics Study • Restaurant Field Monitoring • Smart Controls for Data-Driven Indoor Agriculture Field Evaluation • Variable Refrigerant Flow (VRF) Refrigerant Management Market Assessment • Wastewater Treatment SB1383 Compliance Characterization
TDR	<ul style="list-style-type: none"> • Advanced Multifamily EV Load Management System • Aerosol Sealing of Existing Attics and Crawlspace • Enhanced Normalized Metered Energy Consumption Analysis with Rapid Interventions • Hybrid RTU • Market Potential for Heat Pump Assisted Hot Water Systems in Food Service Facilities • Mobile and Manufactured Housing Market Characterization Study • Residential Multi-Function Heat Pump: Laboratory Testing - UC Davis WCEC • Residential Multi-Function Heat Pumps: Heat Exchanger Improvement - UC Davis • Residential Multi-Function Heat Pumps: Project Search* • Solar Assisted HVAC Market Study

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](#).