



Quarterly Technology Area Report (Q2 2023)



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Portfolio Information

A summary of the number of project submissions the program has received between April 2023 and June 2023 (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 2022 TPMs were published on December 15, 2022.

Overall, during Q2, the team saw a decrease in project submissions from Q1 (30 submissions in Q2 versus 48 submissions in Q1). The “deferred” project classification means these projects will not move forward at this time but will be revisited once a quarter to reassess if they meet future program needs and priorities.

Table 1: Project Submission Status Summary by Technology Area

		Number of Projects at Project Stage					Projects Deferred	Project Submissions	Q2 vs Cumulative (C)
		Completed	Reporting	Implementation	Project Planning	Scanning & Screening			
Technology Areas	Whole Building	0	2	0	3	0	4	7	Q2
		1	4	8	7	0	10	45	C
	HVAC	0	2	2	9	0	2	15	Q2
		2	3	12	16	0	7	50	C
	Water Heating	0	0	3	2	0	0	2	Q2
		1	1	6	2	0	1	16	C
	Process Loads	0	0	0	2	0	2	4	Q2
		1	3	1	3	0	2	33	C
	Plug Loads and Appliances	0	0	0	0	0	0	0	Q2
		0	1	0	2	0	4	11	C
	Lighting	0	0	0	1	1	0	2	Q2
		0	0	0	1	1	0	2	C
	Total	0	4	5	17	1	8	30	Q2
		7	12	27	31	1	29	157	C

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

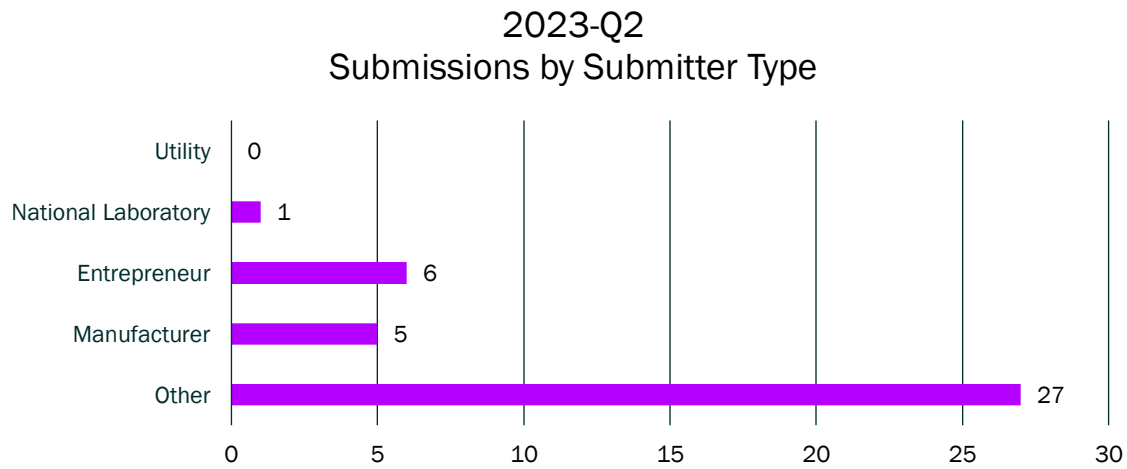


Figure 1: Program participant type

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 Q2 by Project Type

Technology Area	Count of Projects by Project Type	
	TDR	TSR
Whole Building	1	3
HVAC	1	12
Water Heating	0	2
Process Loads	0	6
Plugs & Appliances	0	0
Lighting	1	0
Total	3	23

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

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](#).

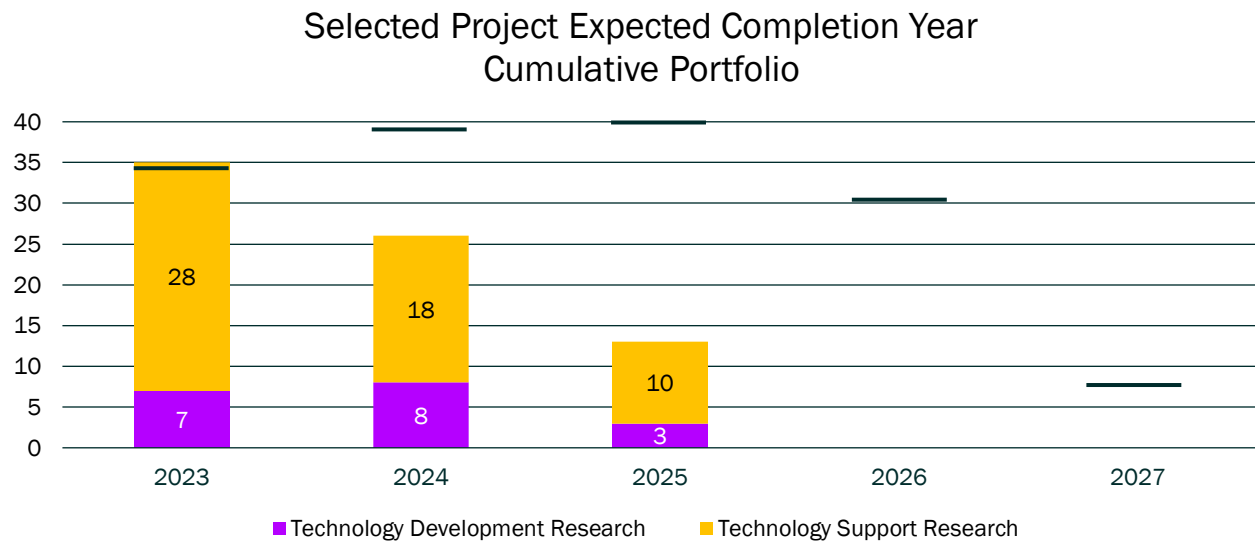


Figure 2: Selected project expected completion year (target number reflected as line)

Table 3 illustrates that by the end of Q2, 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	13%
TSR	32	36	0	22%
Focused Pilot	3	3	2	0%
Total	43	45	2	12%

*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 Q1. 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: Q1 Selected Projects by TPM Subcategory and Attributes

TPM	Submission Name	TPM Subcategory	EE Benefit	DAC/HTR Benefit	Decarb Benefit	Load Shifting
Whole Building	Enhanced Normalized Metered Energy Consumption Analysis with Rapid Interventions	Operational Performance	X	-	X	-
	Multi-Function Heat Pump (HP) - Lab Test Variable Speed	Integrated Systems	X	X	-	-
	Residential High Performance Windows Measure Package Development	Envelope	X	X	X	-
	Residential Smart Panel Field Demonstration	Electrical Infrastructure	X	-	-	X
HVAC	Central HVAC Advanced Electric Motor Field Test	Scalable HVAC Controls Deployment	X	-	-	-
	Commercial Air-to-Water HP (AWHP) Market Study	HVAC Design for Decarbonization	X	-	-	-
	Controllers for Variable Refrigerant Flow (VRF) Systems	Scalable HVAC Controls Deployment	X	-	X	-

TPM	Submission Name	TPM Subcategory	EE Benefit	DAC/HTR Benefit	Decarb Benefit	Load Shifting
	Emerging “Micro” Heat Pumps: Testing and Heating Performance Metrics	HP Market Development	X	X	-	-
HVAC	eTRM Adjustments for No-Cooling Baseline Options for Smart T-Stat Heat Pump HVAC Measures	HP Market Development	X	-	-	-
	HP Crankcase Heat Management	HP Market Development	X	X	-	-
	HP Rooftop Unit (RTU) Demonstration	HVAC Design for Decarbonization	X	X	X	-
	HVAC Capacity Controller	Scalable HVAC Controls Deployment	X	X	-	-
	Integrated HVAC RTU Remote Monitoring Systems	Scalable HVAC Controls Deployment	X	X	-	-
	Propane AWHP Market Study	High-Efficiency HVAC Heat Pumps	X	-	-	-
	HP Leasing Pilot and Market Characterization	HP Market Development	X	-	-	-
	Water-Cooled Chillers (WCC) Market Assessment & Performance Evaluation	HP Market Development	X	-	-	-
Water Heating	Commercial HP Water Heater (CHPWH) Unpressurized Storage Design Optimization	Alternative Design Strategies	X	X	-	-
	Residential HP Water Heater (HPWH) Market Study and Measure Gap Analysis	Grid Integration and Market Intervention	X	-	-	-

TPM	Submission Name	TPM Subcategory	EE Benefit	DAC/HTR Benefit	Decarb Benefit	Load Shifting
Process Loads	Electric Conveyor Ovens	Restaurant and Food Equipment	X	X	X	-
Process Loads	Field Assessment of Refrigerated Display Cases Air Curtain Guiding Vanes	Refrigeration, Commercial	X	X	-	-
	High-Efficiency Refrigerated Display Cases	Refrigeration, Commercial	X	X	-	-
	Industrial HP Market Study	Process heating Technologies	X	-	X	-
	Smart Controls for Data-Driven Indoor Agriculture Field Evaluation	Indoor Agriculture	X	X	X	-
	Wastewater Pump Measure Development	Water Systems	X	-	-	X
Lighting	Performance Assessment of Integrated Core Daylighting Technology	Connectivity, Controls, and Integration	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"> • All-Electric Commercial Kitchen Electrical Requirements Study • Low-Income Multifamily Housing Characteristics Study • Master Mixing Valve Field Study • Multifamily In-Unit Heat Pumps • Packaged Central CO2 HPWH • Residential Housing Characteristics Study • 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 • Hybrid RTU • Market Potential for Heat Pump Assisted Hot Water Systems in Food Service Facilities • 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](#).