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Quarterly Technology Area Report (Q1 2023)

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Portfolio Information

A summary of the number of project submissions the program has received between January 2023 and March 2023, 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, this quarter saw an increase of project submissions from last quarter (**48** in Q1 compared to **27** in Q4). 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	Quarter 1 (Q1) vs (C)umulative
		Completed	Reporting	Implementation	Project Planning	Scanning & Screening			
Technology Areas	Whole Building	0	1	4	5	1	3	12	Q1
		1	1	8	7	1	6	38	C
	HVAC	0	2	3	2	6	1	11	Q1
		2	2	6	6	6	3	36	C
	Water Heating	0	2	3	1	2	0	3	Q1
		1	2	6	1	2	1	15	C
	Process Loads	0	2	0	2	9	2	14	Q1
		1	2	1	3	9	2	28	C
	Plug Loads and Appliances	0	1	0	0	0	3	5	Q1
		0	1	0	2	0	4	11	C
	Lighting	0	0	0	0	0	0	0	Q1
		0	0	0	0	0	0	0	C
	Total	0	8	10	10	18	9	45	Q1
		5	8	21	19	18	16	128	C

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

Submissions by Submitter Type: Q1 2023

National Labs — 0
Entrepreneur — 10
Manufacturer — 8
Utility/Program Administrator — 7
Other — 35
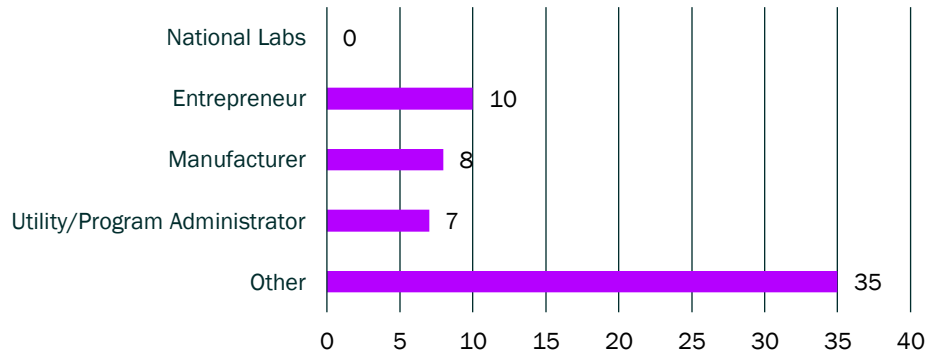
(x-axis: 0, 5, 10, 15, 20, 25, 30, 35, 40)

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 Q1 by Project Type

Technology Area	Count of Projects by Project Type	
	TDR	TSR
Whole Building	1	4
HVAC	0	2
Water Heating	0	1
Process Loads	0	2
Plugs & Appliances	0	0
Lighting	0	0
Total	1	9

[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. 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.

Selected Project Expected Completion Year
Cumulative Portfolio

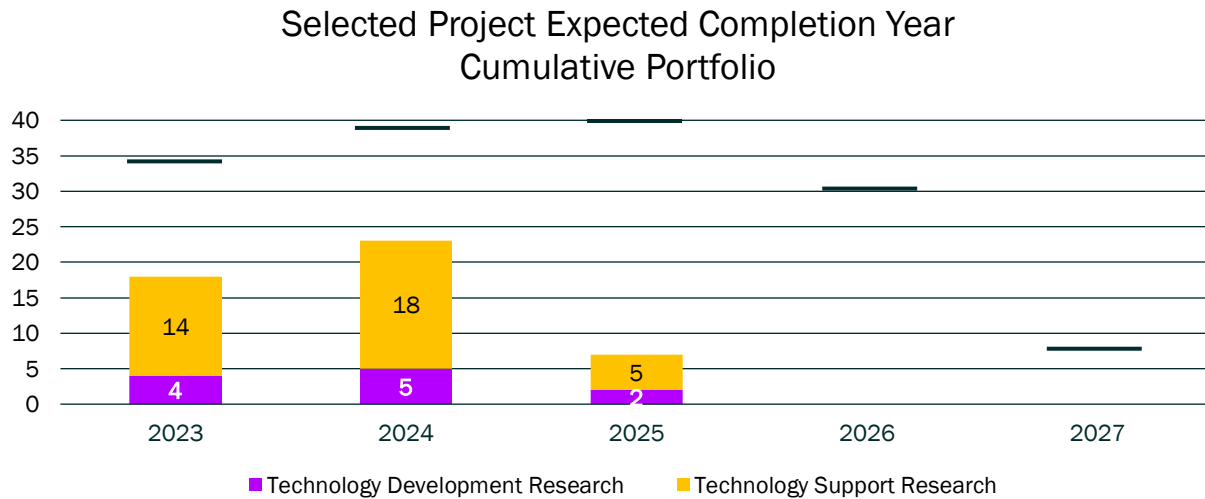Legend: ■ Technology Development Research ■ Technology Support Research

Figure 2: Selected Project Expected Completion Year (Target # Reflected as Line)

Table 3 illustrates that at the beginning of Q1 2023, CalNEXT selected 10 of the 43 (20.9 percent) of the target number of committed research projects for 2023.

Table 3: Progress on 2023 Committed Research Project Portfolio

Research Type	2023 Target	Planned	Needed*	% Actualized
TDR	8	3	5	0%
TSR	32	15	17	0%
Focused Pilot	3	1	2	0%
Total	43	19	24	0%

*Projects will be selected from program partner and public submission

Technology Area Information

Table 4 includes various attributes associated with each of the selected projects from Q1. This includes which TPM technology area and subcategory the project aligns with as well as whether the project submission included information about energy efficiency (EE) benefits, disadvantaged communities (DAC) and/or hard-to-reach (HTR) benefits, decarbonization 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	AMI Intelligence Connected Building Energy Modeling	Operational Performance	X	X		
	Commercial Windows Market Study	Envelope	X	X		
	Manufactured Housing Electrification Measure Development Support	Design and Construction	X	X	X	
	Mobile and Manufactured Housing Market Characterization Study	Electrical Infrastructure	X	X		
	Residential Electrical Service Upgrade Decision Tool	Electrical Infrastructure	X	X		
HVAC	Occupant-Centric Micro-Zone Control for Commercial Buildings	Scalable HVAC Controls Deployment	X			X
	Ultra-Low GWP Space Conditioning Heat Pumps for Commercial Buildings	Hybrid or Fully Compressor-less HVAC	X		X	
Water Heating	Emergency Replacement Heat Pump Water Heater Market Study	Residential-Duty Water Heaters	X	X	X	

TPM	Submission Name	TPM Subcategory	EE Benefit	DAC/HTR Benefit	Decarb Benefit	Load Shifting
Process Loads	Onsite Wastewater Treatment and Process Water Recycling Systems for Ag Dairy Farms	Water Systems	X	X	X	X
	Program Gap Analysis for Wineries	Advanced Motors	X		X	
Plug Loads & Appliances	N/A	N/A				
Lighting	N/A	N/A				

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

Table 5: Projects Benefiting Disadvantaged Communities & Hard-to-Reach Customers

Project Type	Project Name
TSR	- 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	- Advanced Multifamily EV Load Management System - Aerosol Sealing of Existing Attics and Crawlspaces - 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 Program priorities and future requests for information (RFIs) will be published on the **CalNEXT website**.