



## Quarterly Technology Area Report



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## Portfolio Information

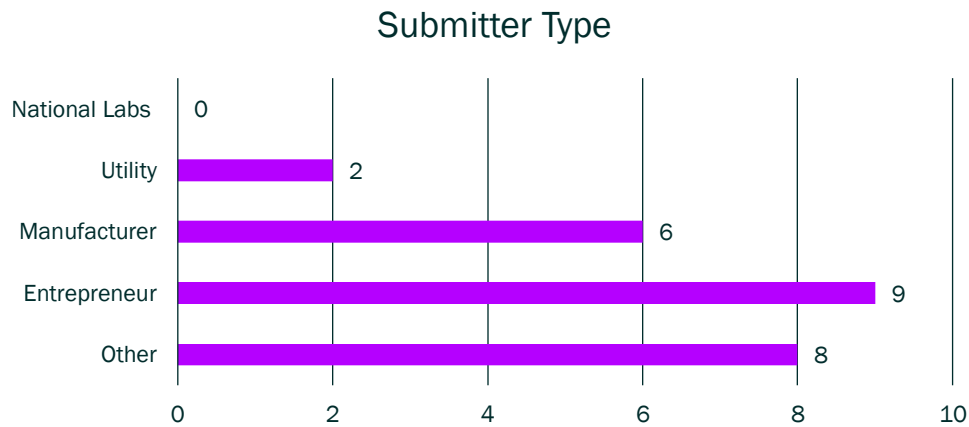
A summary of the number of project submissions the program has received between October 2022 and December 2022, and what project stage and Technology Area each submission represents can be found in Table 1 below. Also illustrated are the program cumulative totals in each category, since the program began in May 2022. Please see the program [Technology Priority Maps](#) (TPMs) to learn more about the technology areas. As a note, this will be the last quarter screened using the 2020 TPMs; the new 2022 TPMs were published on December 15, 2022.

Overall, this quarter saw a decrease in submissions from last quarter, with 24 in Q4 versus 32 in Q3. Process Loads experienced the only increase in submissions, from five submissions to seven. The acceptance rate of projects has remained consistent from previous quarters, averaging around 50 percent per category. 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 4 (Q4) vs (C)umulative
		Completed	Reporting	Implementation	Project Planning	Scanning & Screening			
Technology Areas	Whole Building	1	0	0	2	0	1	5	Q4
		1	0	4	3	4	3	26	C
	HVAC	2	0	0	3	5	1	7	Q4
		2	0	7	4	0	2	27	C
	Water Heating	1	0	0	1	1	0	2	Q4
		1	0	7	0	0	1	11	C
	Process Loads	1	0	0	2	5	0	7	Q4
		1	1	3	0	0	0	15	C
	Plug Loads and Appliances	0	0	0	2	0	1	3	Q4
		0	0	0	0	0	1	6	C
	Lighting	0	0	0	0	0	0	0	Q4
		0	0	0	0	0	0	0	C
	Total	5	0	0	10	15	2	24	Q4
		5	1	21	12	0	7	71	C

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



**Figure 1: Program Participant Type**

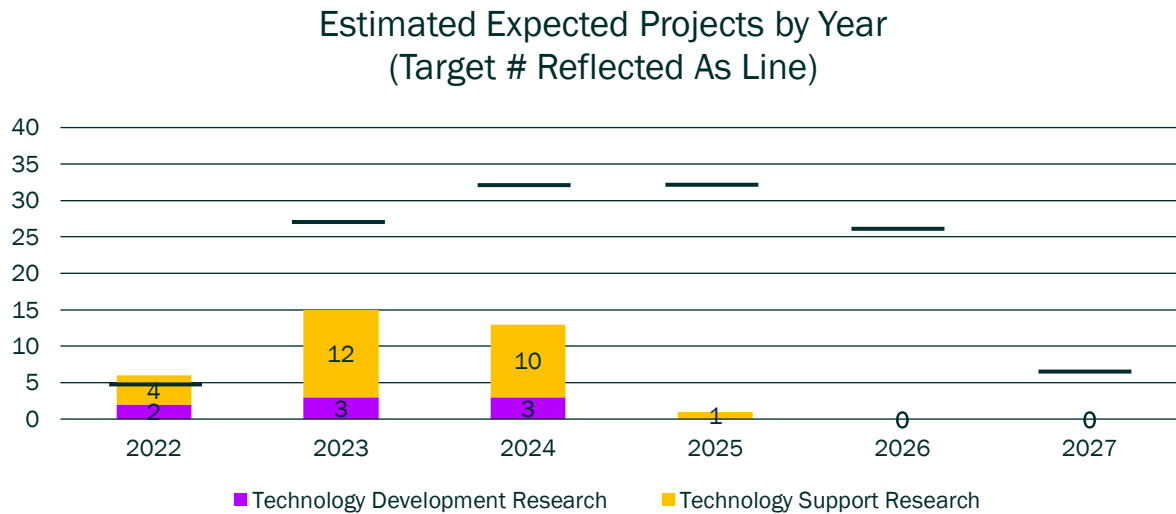
A summary of the number of projects that were selected to move forward, organized by TPM technology area can be found in Table 2. Included in this table are the count of projects for this quarter, broken out between technology development research (TDR) and technology support research (TSR) projects.<sup>1</sup> No projects in the Water Heating or Lighting categories were selected but three categories saw three projects each selected: Whole Buildings, HVAC, and Process Loads.

**Table 2: Submissions Selected in Q4 by Project Type**

Technology Area	Count of Projects by Project Type	
	TDR	TSR*
Whole Building	2	1
HVAC	1	2
Water Heating	0	0
Process Loads	0	3
Plugs & Appliances	0	2
Lighting	0	0
<b>Total</b>	<b>3</b>	<b>8</b>

<sup>1</sup> 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 funnel through the program and work towards completion in 2023 the anticipation is to close the gap. When projects are completed, Final Project Reports can be accessed [here](#).



**Figure 2: Selected Project Expected Completion Year (Cumulative Portfolio)**

Table 3 illustrates that at the beginning of Q1 2023, CalNEXT selected 9 of the 43 (20.9 percent) of the target number of committed research projects for 2023. These selected projects are not yet committed as they are pending Program Administrator approval, but greater attention is being paid to deliverable deadlines and there is a substantial amount of time left in the year to meet the remainder of the goal of 43 total committed research projects. These numbers will be updated in subsequent technology area reports.

**Table 3: Progress on 2023 Committed Research Project Portfolio**

Research Type	2023 Target	Planned	Needed*	%Actualized
TDR	8	2	6	0%
TSR	32	7	25	0%
Focused Pilot	3	3	3	0%
<b>Total</b>	<b>43</b>	<b>12</b>	<b>34</b>	<b>0%</b>

\*Projects will be selected from Program Partner and Public Submission

## Technology Area Information

Table 4 includes the various attributes associated with each of the selected projects from Q4. 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: Q4 Selected Projects by TPM Subcategory and Attributes**

TPM	Submission Name	TPM Subcategory	EE Benefit	DAC/HTR Benefit	Decarb Benefit	Load Shifting
Whole Building	Residential Multi-Function Heat Pump: Laboratory Testing	Integrated Systems	X	X		
	Residential Multi-Function Heat Pumps: Heat Exchanger Improvement	Integrated Systems	X	X		
	PoE Microgrids for Commercial Buildings	Electrical Infrastructure	X		X	
HVAC	Compressor-less Liquid Desiccant Air Conditioning	Hybrid or Fully Compressor-less HVAC	X	X		
	Comfort Impacts of Partial Coverage ASHPs	High-Efficiency Heat Pumps for Space Heating and Cooling	X	X	X	
	HVAC Thermal Energy Storage System (TESS)	Hybrid or Fully Compressor-less HVAC	X		X	X
Water Heating	N/A	N/A				
Process Loads	eTemp Food Simulating Sensor Medium for Commercial Refrigeration	Refrigeration: Commercial	X			
	Overcoming Barriers to Electrification of Foodservice HW	Food Processing	X		X	

TPM	Submission Name	TPM Subcategory	EE Benefit	DAC/HTR Benefit	Decarb Benefit	Load Shifting
Process Loads	Wastewater Treatment Biosolids Management Technology Demonstration	Water Systems	X		X	
Plug Loads & Appliances	120V Induction Stoves with Battery Back-Up	Decarbonizing Household Appliances	X	X	X	
	Benchtop Efficiency Measurements for Residential mesh Networking Equipment	Home Entertainment, Networking, Office, and Security Equipment	X			
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
TDR	<ul style="list-style-type: none"> <li>• All-Electric Commercial Kitchen Electrical Requirements Study</li> <li>• Low-Income Multifamily Housing Characteristics Study</li> <li>• Multifamily In-Unit Heat Pumps</li> <li>• Packaged Central CO2 HPWH</li> <li>• Residential Housing Characteristics Study</li> <li>• Variable Refrigerant Flow (VRF) Refrigerant Management Market Assessment</li> <li>• Wastewater Treatment SB1383 Compliance Characterization</li> </ul>
TSR	<ul style="list-style-type: none"> <li>• Advanced Multifamily EV Load Management System</li> <li>• Hybrid RTU</li> <li>• Market Potential for Heat Pump Assisted Hot Water Systems in Food Service Facilities</li> <li>• Residential Multi-Function Heat Pumps: Project Search*</li> <li>• Solar Assisted HVAC Market Study</li> </ul>

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](#).