CECAC PROGRAM ROADMAP UPDATE

10/03/19

SAN JOSE CLEAN ENERGY

A Program of the City of San José

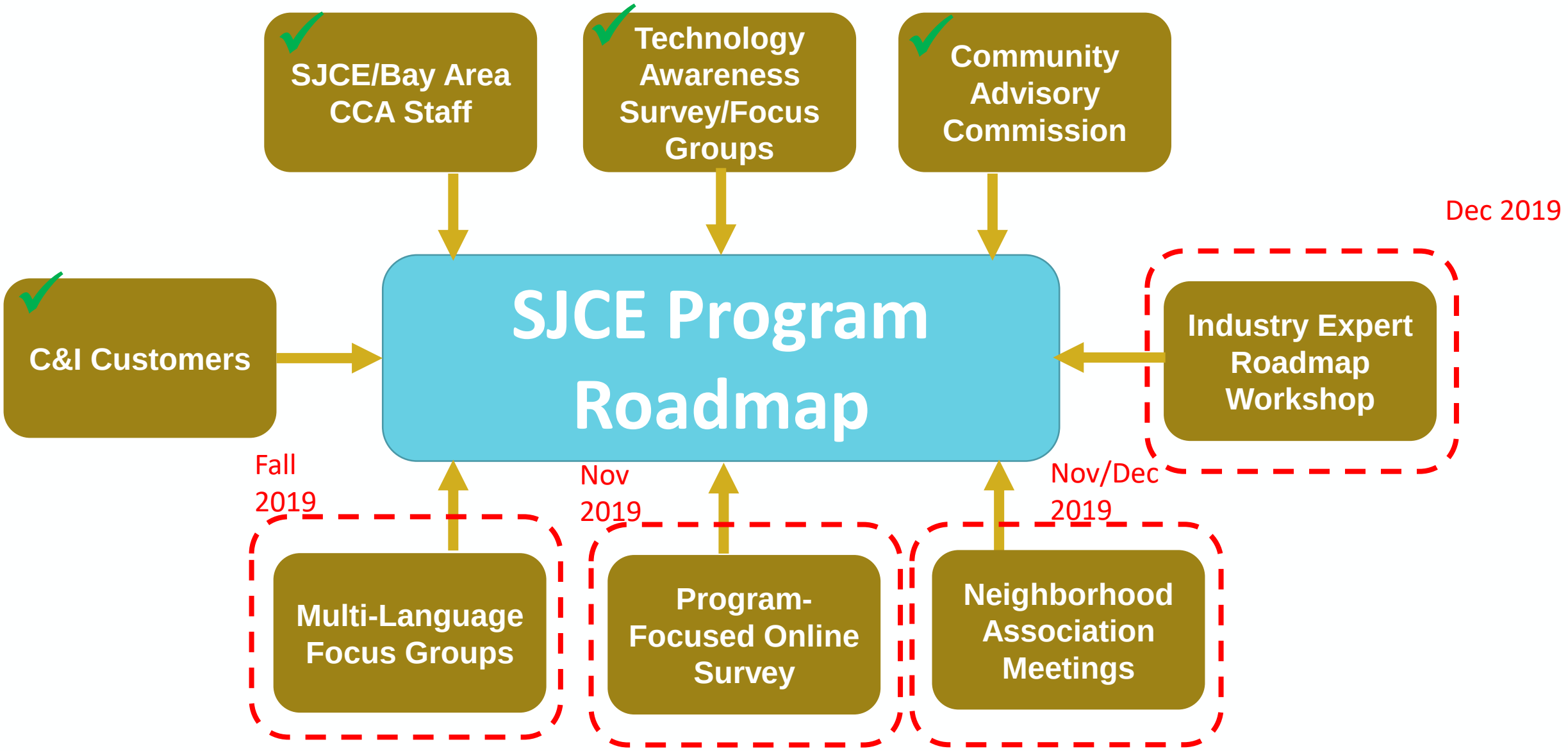
AGENDA

- Community Outreach
- Programmatic Sectors
- Program Selection Process
- Program Roadmap
- Program Scoring
- Upcoming Milestones

PROCESS THUS FAR

COMMUNITY OUTREACH

ROADMAP INPUT PROCESS



PROGRAMMATIC SECTORS

PROGRAMMATIC SECTORS

- Vehicle Electrification
- Building Electrification
- Distributed Energy Resources-Grid Integration
- Rates
- Energy Efficiency

PROGRAM SELECTION PROCESS

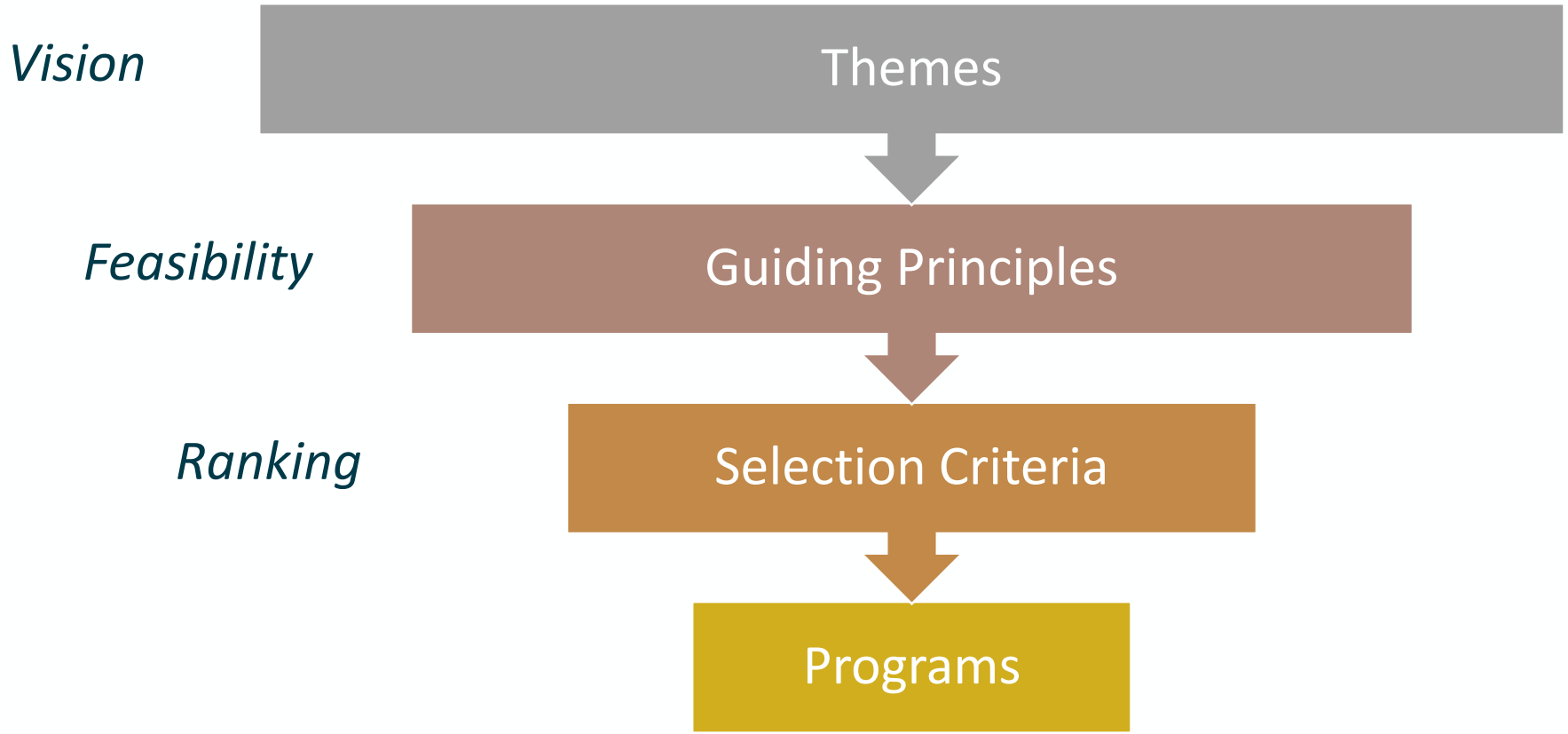
ROADMAP PHILOSOPHY

Momentum Driven

Iterative

Communication of values, principles

SJCE PROGRAM FILTERING PROCESS



SJCE PROGRAMMATIC IDENTITY - VISION

Themes

Clean Energy Equity/Electrify San Jose

- “Programs that match the diversity of our community”
- “Programs for All for a Healthier, Cleaner Future”
- Everyone **benefits**

PROGRAM GUIDING PRINCIPLES- FEASIBILITY

Guiding Principles

- Maximize greenhouse gas reduction opportunities
- Align with Climate Smart San José
- Promote equity, affordability and support disadvantaged communities
- Produce customer and community benefits
- Maintain or improve the financial stability of SJCE

PROGRAM SELECTION CRITERIA- RANKING

Selection Criteria

PROGRAM SELECTION GROUPS

Selection Criteria

Greenhouse Gas Emissions Reductions

- Programs focused on reducing GHG's and that are aligned with Climate Smart

Equity

- Programs where equity is a lead objective

Load Shaping

- Programs that shape, shave, or shift SJCE's electrical load

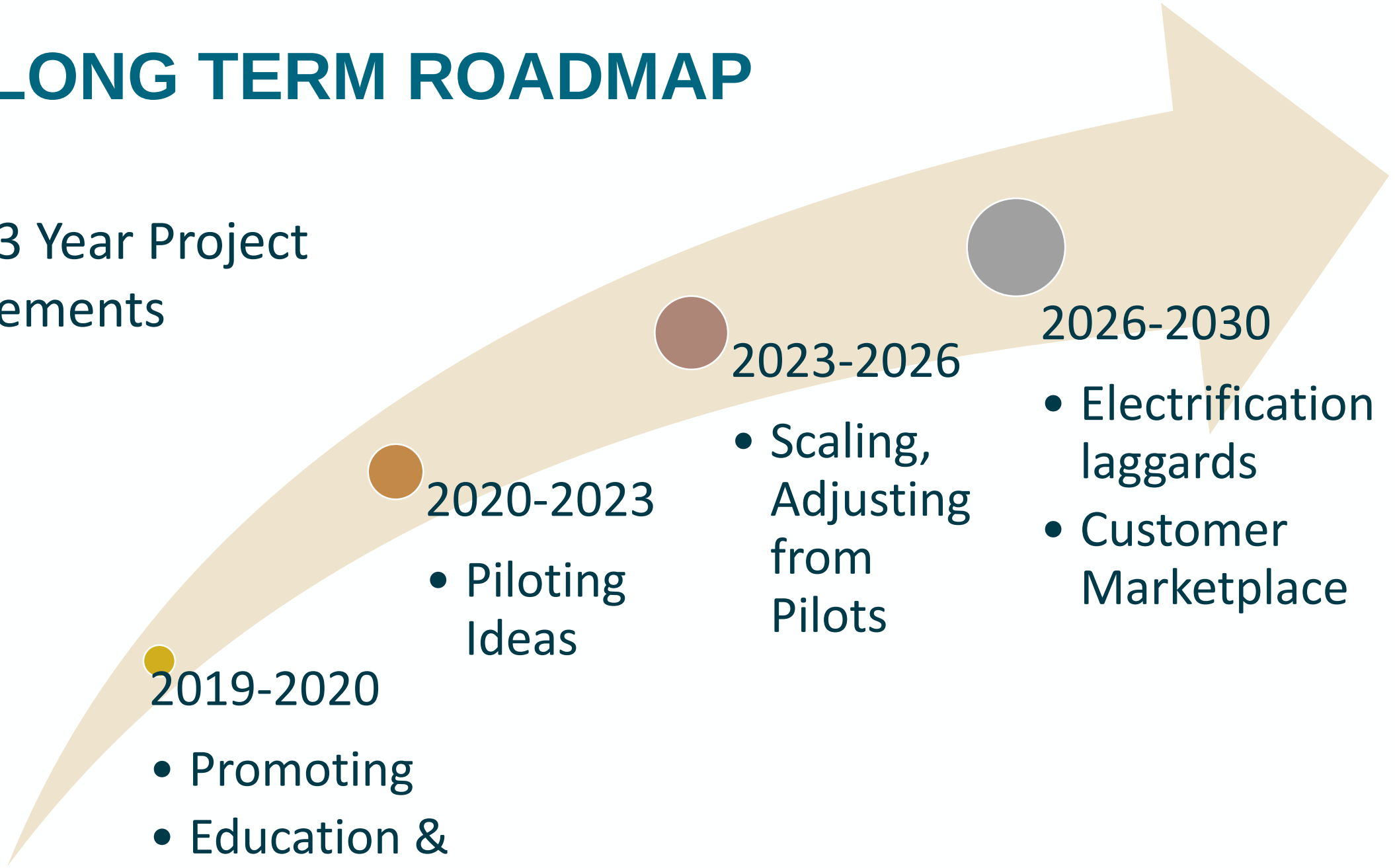
CRITERIA SCORING METHODOLOGY

Criteria	Description	○ Implies..	● Implies..
Emissions Impact	GHG emissions reduction potential both in aggregate and per unit	Zero to minimal CO2e emissions reduced	Highest levels of aggregate or per unit CO2e emissions reduced
Cost Effectiveness	Overall program cost, financial impact to SJCE, and $ spent per CO2e reduced	High program cost and/or high financial loss for SJCE and/or high $ per CO2e reduced	Low program cost and/or low financial loss for SJCE and/or low or negative $ per CO2e reduced
Equity	Portion of program reaching low income, disadvantaged communities	Program does not impact or touch residents living in low income and disadvantaged communities	Program primarily impacts or touches residents living in low income and disadvantaged communities
Customer, Community Benefits	Delivers benefits (lower air pollution) and/or value (saving money) to customers, community at large.	Potential increases costs and/or has little benefits to customers and community	Provides significant savings and/or health/environmental/lifestyle benefits
Risks	What is the risk in not doing it? What is the risk in doing it but not doing it right?	High impact if project executed poorly due to costs, # of customers touched or not done due to large emission reduction opportunity	Minimal impact if project does not go smoothly or is not done
Market Barriers	Addresses market barriers such as cost, awareness, regulation, or access	Does not address barriers to clean energy adoption	Addresses key barriers to adoption for program's clean energy sector

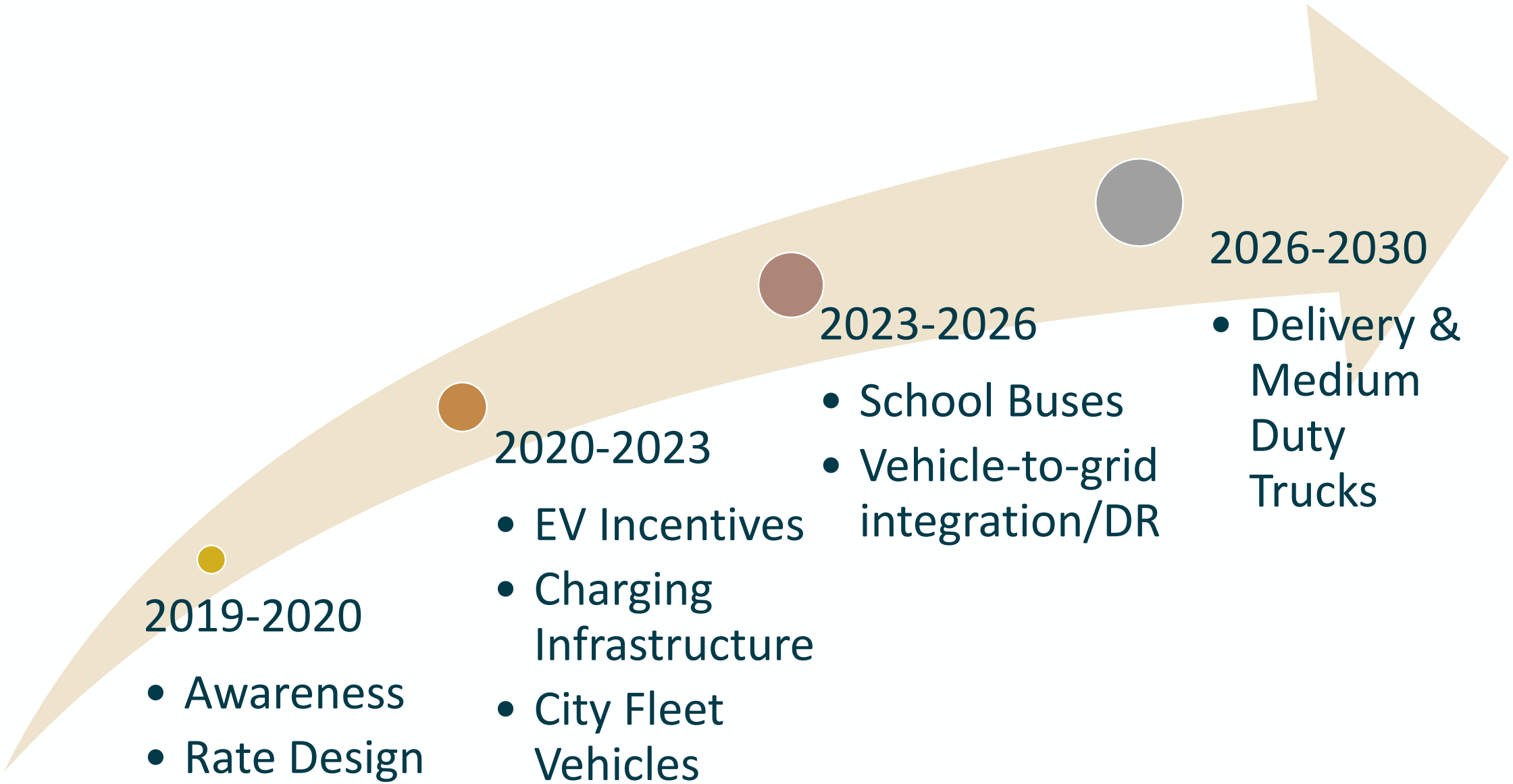
LONG TERM PROGRAM ROADMAP

LONG TERM ROADMAP

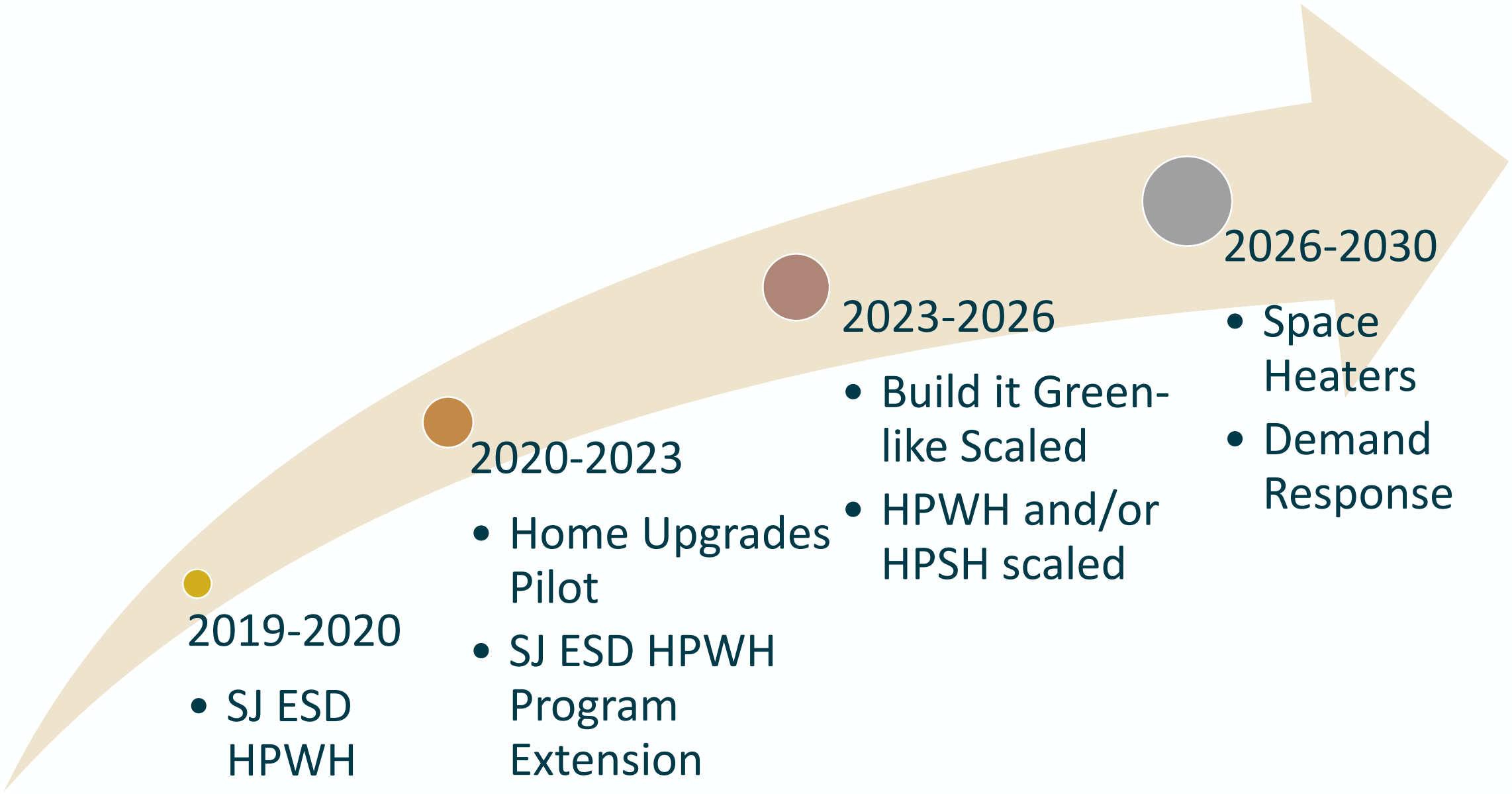
* 2-3 Year Project Increments



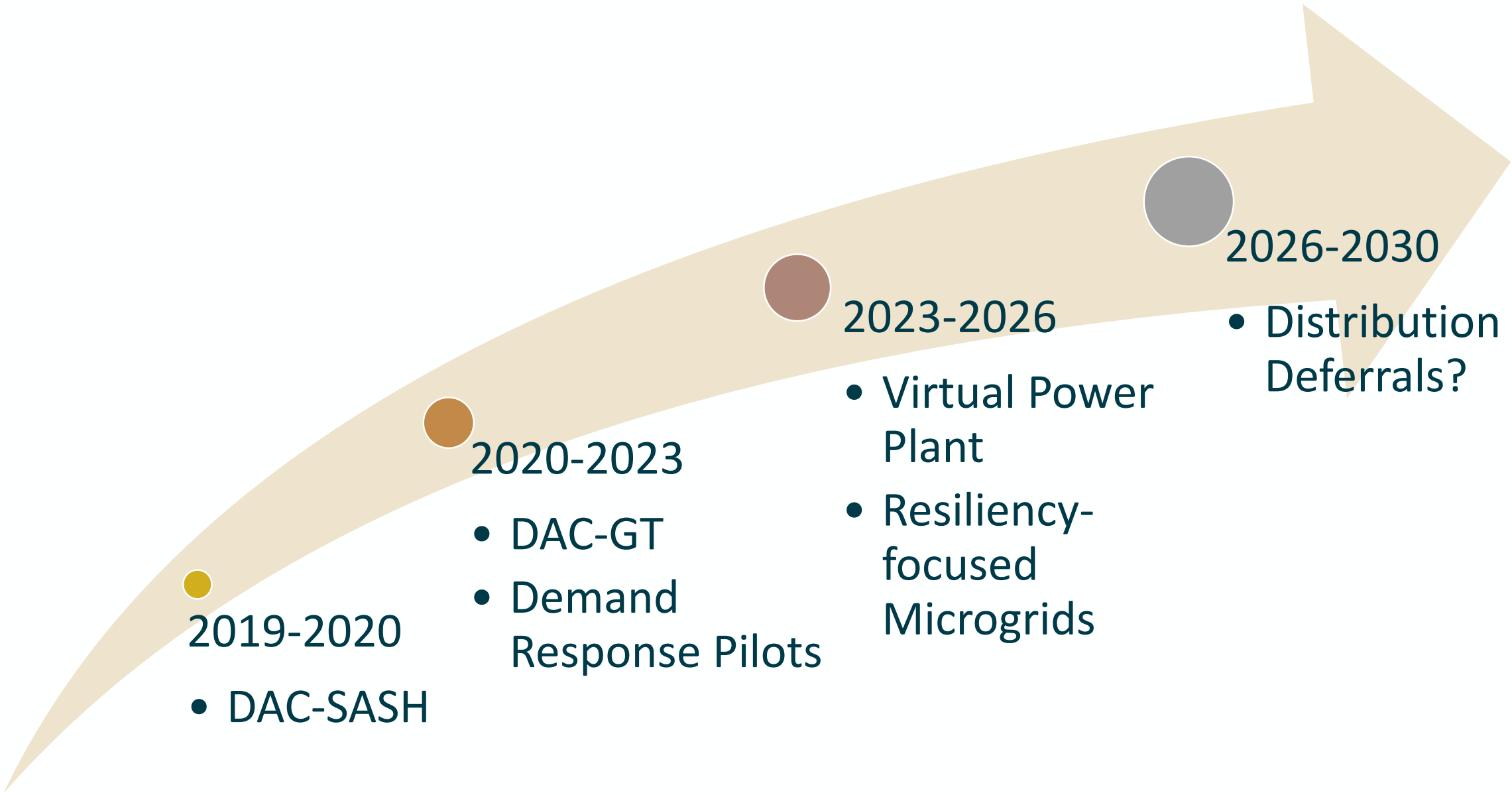
VEHICLE ELECTRIFICATION ROADMAP



BUILDING ELECTRIFICATION ROADMAP



DER/GRID INTEGRATION ROADMAP



PROGRAM SCORING

PROGRAMS SCORED THUS FAR

Vehicle Electrification	Building Electrification	DERs	Rates	Other
• EV Incentives • CALeVIP • Used EV Low Income Incentives • Ride and Drives • MUD Technical Assistance • SJ Fleet Electrification • Electric School Bus Vouchers	• HPWH Incentives • Critical Home Repair Adder • Build-it-Green (BIG) Pilot	• C&I Energy Storage • SASH in Low Income non-DACs • CPUC DAC-Green Tariff • Battery Storage Demand Response Pilot	• CARE+ Rates	• Landscaping Equipment Electrification Pilot • Campus/Park Commercial Lawn Mower Electrification • Disadvantaged Community Grants

PROGRAMS EVALUATED THUS FAR (NO SCORE)

Building Electrification	Distributed Energy Resources	Rates	Energy Efficiency	Other
• Heat Pump Space Heater Incentives	• Virtual Power Plants-DERs Grid Integration • Resiliency Focused Energy Storage	• EV Rates • HPWH Rates • C&I Green Tariff	• CPUC Elect to Administer-Apply to Administer	• Workforce Development • Youth Program Outreach

PROGRAM RANKING – EMISSIONS IMPACT

			Quantitative Impact		Community		Market		
Program Group	Program Sector	Program	Emissions Impact	Cost Effectiveness	Equity	Community, Customer Benefits	Risks	Market Barriers	Scoring
Emissions Impact	Vehicle Electrification	CALeVIP*							67%
Emissions Impact	Vehicle Electrification	School Bus Voucher							67%
Emissions Impact	Building Electrification	HPWH Incentive							67%
Emissions Impact	Vehicle Electrification	Dealer EV Incentives							67%
Emissions Impact	Vehicle Electrification	Ride and Drives							67%
Emissions Impact	Other	Campus/Park Commercial Lawn Mower Electrification							58%
Emissions Impact	Vehicle Electrification	MUD Technical Assistance							54%
Emissions Impact	Other	Landscaping Equipment Electrification Pilot							50%
Emissions Impact	Vehicle Electrification	City of San Jose Fleet Electrification							42%

*Uses existing program administration structure (cost effectiveness benefit)

PROGRAM RANKING – EQUITY

			Quantitative Impact		Community		Market		
Program Group	Program Sector	Program	Emissions Impact	Cost Effectiveness	Equity	Community, Customer Benefits	Risks	Market Barriers	Scoring
Equity	Other	Community Grants	◔	◕	●	●	◑	◕	71%
Equity	DERs	DAC-Green Tariff	◔	●	●	●	◑	◑	71%
Equity	Building Electrification	Build it Green Healthy Homes Pilot*	◔	◕	●	◑	◕	◕	67%
Equity	Vehicle Electrification	Low Income Used EV Program*	◑	◕	●	◑	◑	◕	67%
Equity	Building Electrification	Critical Home Repair Adder	◔	◑	●	◑	◕	◕	63%
Equity	Rates	CARE+ Rates	○	◔	●	●	◑	◔	50%
Equity	DERs	Single-Family Affordable Solar Home (SASH) in Low Income Non-DACs	◔	○	●	◕	◔	◑	46%

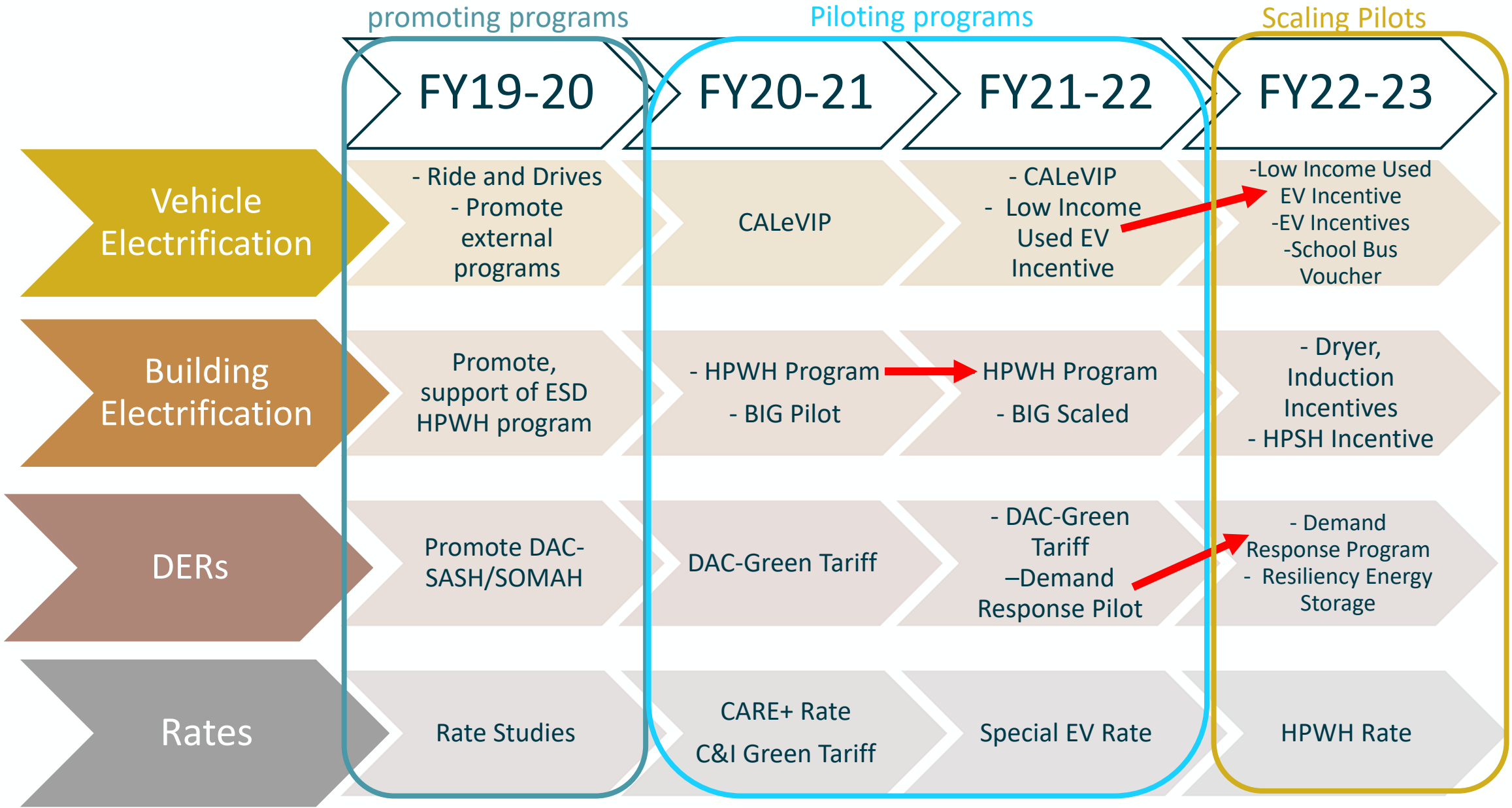
*Uses existing program administration structure (cost effectiveness benefit)

PROGRAM RANKING –LOAD SHAPING

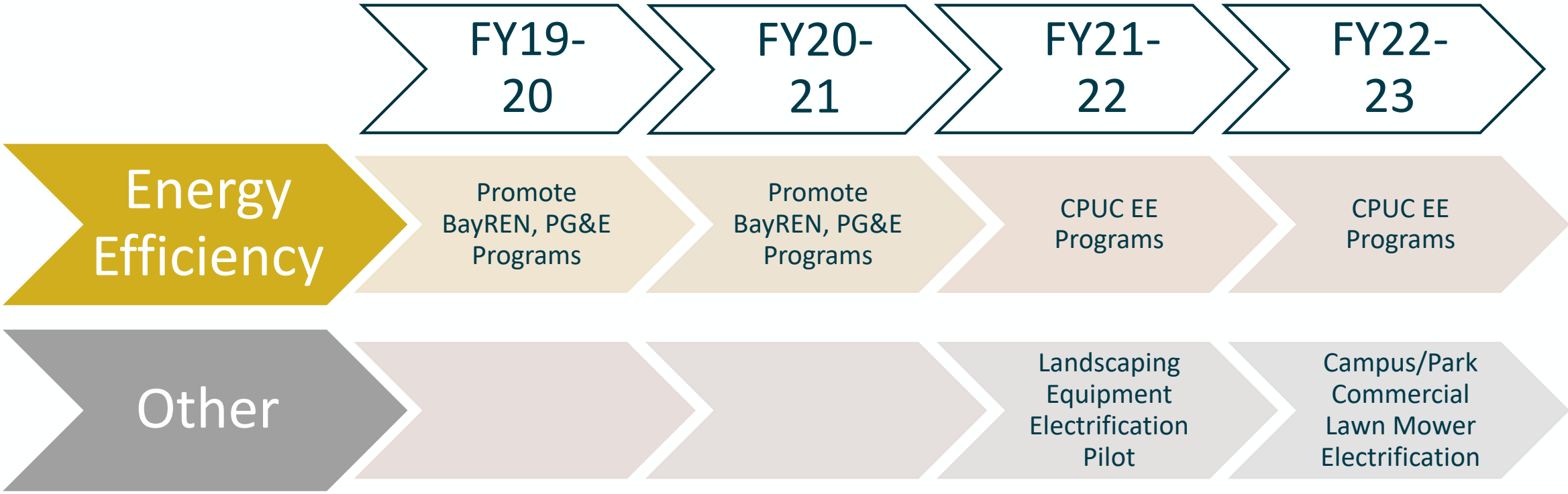
			Quantitative Impact		Community		Market		Scoring
Program Group	Program Sector	Program	Emissions Impact	Cost Effectiveness	Equity	Community, Customer Benefits	Risks	Market Barriers	
Load Shaping	DERs	Demand Response Pilot- Energy Procurement	◕	◕	○	◕	◕	◕	63%
Load Shaping	DERs	C&I Energy Storage Program	◔	○	○	◕	◑	◕	38%

4 YEAR PROGRAM ROADMAP

4 YEAR ROADMAP



4 YEAR ROADMAP



UPCOMING ROADMAP MILESTONES

- October 2019
  - CECAC Program Roadmap Update
- December 2019
  - RMI/WRI Industry Expert Roadmap Workshop
- January 2020
  - CECAC Program Roadmap Update
- February 2020
  - T&E Committee Program Roadmap Memo/Presentation
- Spring 2020
  - City Council Program Roadmap Memo/Presentation

THANK YOU!

PROGRAM DESCRIPTIONS

Program Sector	Program Title	Description
Vehicle Electrification	Dealer EV Incentives	Through select dealers, offer incentive to customers of $2,000 on top of negotiated discount from dealership. Incentive would flow through dealer and would be stackable with other rebates such as CVRP and CVAP.
Vehicle Electrification	Low Income Used EV Incentive	Based off PCE's program, working with third party to offer down payment incentive of $4,000 and financial mentoring for low income qualified residents to purchased a used EV
Vehicle Electrification	Ride and Drives	Host EV Ride and Drives in downtown San Jose, low income community, and corporate campus to educate, promote, and spur EV adoption
Vehicle Electrification	CALeVIP	CEC co-funded EV incentive program offering rebates for level 2 and DCFC installations.
Vehicle Electrification	MUD Technical Assistance	Offer free technical assessment for MUD property owners on upgrades, investments, and incentive opportunities to install EV charging stations.

PROGRAM DESCRIPTIONS

Program Sector	Program Title	Description
Vehicle Electrification	City of San Jose Fleet Electrification	Support Public Works's efforts to electrify 32 light duty vehicles with $10,000 of financial support per vehicle.
Vehicle Electrification	Electric School Bus Voucher	Offer incentive of $50,000 to San Jose School Districts towards purchase of each Electric Bus
Building Electrification	Heat Pump Water Heater Incentive	Mid-stream incentive of $1,200 towards purchase of single family heat pump water heater when transitioning from gas furnace heater.
Building Electrification	Critical Home Repair Adder	Supporting fund of $65,000 per year towards City of San Jose Housing Department's Critical Home Repair program to go towards electrifying water heater or upgrade to electrical panel in low income qualified homes
Building Electrification	Build it Green Pilot	Build it Green managed program leveraging multiple external fund streams for EE, Solar, and Home upgrades to include SJCE funds directed toward electrification in low income qualified homes. SJCE would allocated $175,000 for 1 year pilot

PROGRAM DESCRIPTIONS

Program Sector	Program Title	Description
Distributed Energy Resources	C&I Energy Storage	Negotiate and select preferential terms from Energy Storage firm to then offer to select C&I customers.
Distributed Energy Resources	Single-Family Affordable Solar Home (SASH) in Low Income Non-DACs	Offer similar incentive package as Grid Alternative managed DAC-SASH program to low income qualified San Jose residents not living in DAC as designated by CalEnviroScreen
Distributed Energy Resources	CPUC Disadvantaged Community (DAC)-Green Tariff Program	CPUC funded community solar program offering 20% discount to CARE customers on top of CARE discount. SJCE allocated 1.4 MW from CPUC.
Distributed Energy Resources	Battery Storage Demand Response Pilot	Based off EBCE pilot, work with battery storage aggregators (e.g. Sunrun), to schedule event to offset high wholesale market prices by procurement negotiated price from battery storage aggregators to discharge at set time
Distributed Energy Resources	Resiliency Focused Energy Storage	Energy Storage incentives or rebates for customers effected by Public Safety Power Shutdown events such as medical baseline customers or municipal critical facilities
Other	Campus/Park Commercial Lawn Mower Electrification	Incentive program to campuses and small landscaping business to electrify commercial sized lawn mowers. Offer rebate of $3,500 per electric lawn mower.

PROGRAM DESCRIPTIONS

Program Sector	Program Title	Description
Other	Community Grants	Grants of $12,500 each to community based organizations focused on serving underserved community members to promote clean energy, energy awareness, and energy bill understanding
Other	Landscaping Equipment Electrification Pilot	Single site incentive program to electrify landscaping equipment. Incentive will be through one lump sum covering suite of equipment such as lawn mowers and leaf blowers
Rates	CARE+ Rates	Increased discount to current CARE customers of 5%
Rates	EV Rates	Increased discount on current EV-2A rate
Rates	HPWH Rates	Design rate for single-family homes with Heat Pump Water Heater to incentivize day time charger of HPWH.
Rates	C&I Green Tariff	Also referred to as a “sleeved PPA” but is a special tariff for large commercial and industrial customer through fixed PPA price linking customer directly with renewable energy site. Provides customers with long term, fixed price along with access to Renewable Energy Certificates (RECs)

PROGRAM DESCRIPTIONS

Program Sector	Program Title	Description
Energy Efficiency	CPUC Elect to Administer EE Programs	CPUC Funded (from Public Purpose Program charge), budget based off portion of PG&E's regional program budget, programs must not conflict with IOU or BayREN's programs, 3 year program, must meet cost effectiveness test
Energy Efficiency	CPUC Apply to Administer EE Programs	CPUC Funded (from Public Purpose Program charge), budget based off cost savings, would largely replace IOU EE programs in San Jose, must meet cost effectiveness test, larger budget but administratively more burdensome

PROGRAM IDEAS - QUANTIFIED

Program	Net $ per MT CO2 reduced	Lifetime electrical load impact (MWh)	Lifetime Revenue Potential	Full Program Cost	Program Profit/(Loss)	Customers Impacted	Lifetime Carbon Reductions (MT of CO2e)	% CO2 reduced of CS Plan
HPWH Incentive	$19	$6,682_{10}$	$485,819	$610,500	($124,681)	400	6,480	N/A
EV Incentives	$24	$26,250_{10}$	$1,682,625	$2,282,500	($599,875)	1,000	25,360	1.62%
Ride and Drive Events	$31	978_{10}	$62,678	$90,000	($27,322)	50	1,000	0.06%
Campus Lawn Electrification	$113	808_{10}	$64,606	$365,750	($301,144)	2	2,654	N/A
Critical Repair Program Adder	$157	852_{10}	$61,942	$192,060	($130,118)	78	826	N/A
School Bus Voucher	$168	$4,234_{10}$	$338,688	$1,100,000	($761,312)	1	4,529	TBD
City Fleet Electrification	$195	$1,536_{10}$	$98,458	$336,000	($237,542)	1	1,217	0.10%

PROGRAM IDEAS - QUANTIFIED

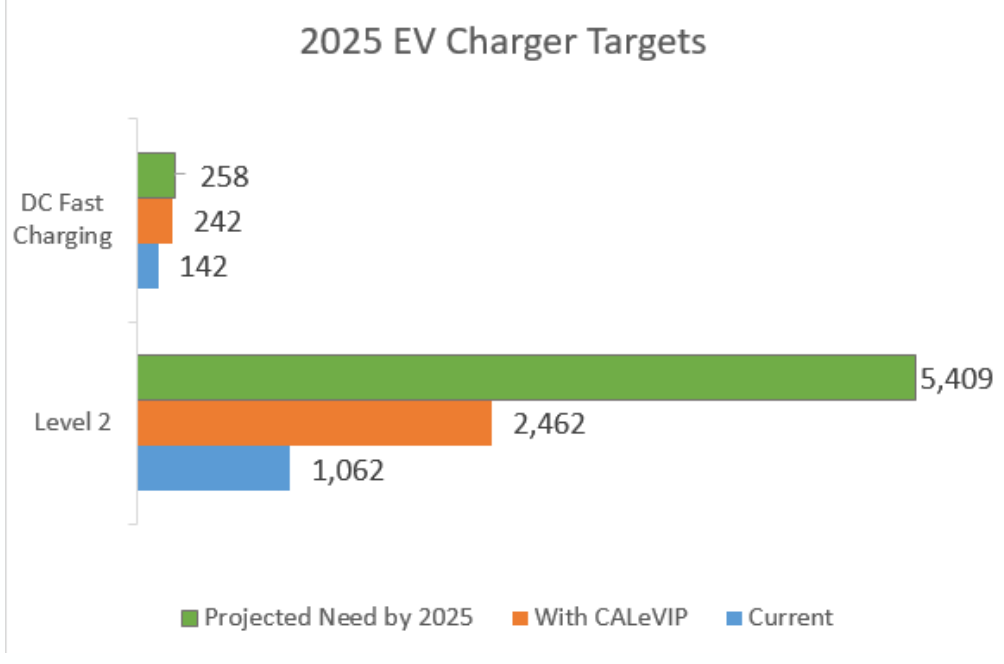
Program	Net $ per MT CO2 reduced	Lifetime electrical load impact (MWh)	Lifetime Revenue Potential	Full Program Cost	Program Profit/(Loss)	Customers Impacted	Lifetime Carbon Reductions (MT of CO2e)	% CO2 reduced of CS Plan
Keller Park Electrification Pilot	$313	191_{10}	$15,252	$60,000	($44,748)	1	143	N/A
Build it Green Pilot	$363	418_{10}	$30,364	$177,500	($147,136)	50	405	N/A
Low Income Used EV Program	$377	978_{5}	$62,678	$440,000	($377,322)	100	1000	0.06%

CALEVIP IMPACT

- EV Adoption

	Present	After CALeVIP	% Increase projected by 2023 supported by CALeVIP
Total Electric Vehicles	23,170	36,590	58%
Level 2 and DCFC chargers	1,204	2,704	125%
Energy used by EVs (GWh)	81	128	58%

- EV Charging Stations in San Jose



METRIC ASSUMPTIONS

Category	Metrics	PG&E	SMUD	EBCE	MBCP	CEC	Climate Smart	SEPA
Vehicle Electrification	MWh per EV per year	3.2		3.5	4.68[1]	3.97		3.5-4.35
	Emission Reductions per EV (Metric ton)	2.8		3.97	3.86		1.78	
	MWh per Electric Bus per year							7.2[2]
	Jobs Per EV Sold			0.04				
	Jobs per Level 2 Charger Installed			0.03	0.03			
HPWH	MWh per HPWH per year		1.86	1.13	1.39			
	Emissions Reductions per HPWH (MT)				1.8			
	Direct jobs per HPWH sold			0.03				
Solar PV	Direct Jobs per install per 5 kw system			0.04				
Battery Storage	Direct jobs per Battery install			0.83				

1: MBCP uses .4 kwh/mile, PG&E 0.28 kwh/mile 2: from Con Edison Paper

PROGRAM SELECTION PROCESS

PROGRAM SELECTION CRITERIA

Quantitative — Emissions Impact

- GHG emissions reduction potential

Quantitative — Cost Effectiveness

- Overall program cost, financial impact to SJCE, and $ spent per CO2e reduced

Community — Equity

- Portion of program reaching low income, disadvantaged communities

Community — Customer and Community Benefits, Value

- Delivers value (economic and non-economic) to customers and community at large.

Market — Risks

- What is the risk in not doing it? What is the risk in doing it but not doing it right?

Market — Market Barriers

- Spurs market transformation toward clean energy