Environmental Quality Commission

REGULAR MEETING MINUTES
Date: 8/18/2021
Time: 6:00 p.m.
Regular Meeting Location: Zoom.us/join – ID# 915 4675 0502

A. Call To Order

Chair Payne called the meeting to order at 6:06 p.m.

B. Roll Call

Present: Elkins, Evans (Vice Chair), Gaillard, Kabat, London, and Payne
Absent: Price
Staff: Rebecca Lucky- Sustainability Manager

C. Public Comment

None.

D. Regular Business

D1. Approve July 21 2021 minutes (Attachment)

Chair Payne introduced item.

- Peter Edmonds identified a mistake with the May 19, 2021 meeting minutes.

ACTION: Motion and second (Gaillard/ Elkins) to approve the July 21, 2021 meeting minutes with the modification on Page D1.1, to include correction of "coloration" to "negotiation," passed 6-0 (Price absent).

D2. Review and discuss cost effectiveness and policy options report to electrify existing buildings (climate action plan No. 1 strategy) (Staff Report #21-006-EQC)

Sustainability Manager introduced the item (Attachment).

TRC and DNV consultants made a presentation (Attachment).

The Environmental Quality Commission's (EQC) Building Decarbonization Subcommittee made a presentation (Attachment).

- Peter Edmonds spoke about the contractor's role in disposal of natural gas appliances, the environmental cost of removing the appliance, appliance recycling industry, and secondary market which could lessen the cost of removal/replacement which may encourage the transition to electric appliances and reduce demand for natural gas appliances.
- James Pistorino spoke in opposition of the accuracy of cost estimates in the draft report.
- Diane Bailey spoke in support for the subcommittee's recommendation.
- Karen Grove spoke in support for measures to reduce displacement of renters and implementation of climate action plan strategy no. 1.

- Rich Wipfler spoke in opposition of the infrastructure and space needed for heat pump water heaters.

ACTION: Motion and second (Elkins/ Evans) to recommend to the City Council the actions identified in the "Final Recommendation" section of EQC building decarbonization committee's memorandum on Page 4 and development of a long-term plan for the decarbonization of existing buildings to reach climate goals, passed 6-0 (Price absent).

ACTION: Motion and second (Gaillard/ Elkins) to forward the EQC's building decarbonization subcommittee memorandum to the City Council with edits to reflect the new August 18, 2021 draft TRC report addressing concerns as stated in the subcommittee memorandum, passed 6-0 (Price absent).

D3. Discuss annual Chair report and work plan presentation to City Council

Chair Payne announced Chair report to be heard at the August 31, 2021 City Council meeting.

The Commission provided the Chair with general guidance on reporting the EQC work plan and progress to the City Council.

E. Reports and Announcements

E1. Reports and Announcements from staff and commissioners

Sustainability Manager provided updates for upcoming September 15, 2021 Commission meeting topics:

- Climate action plan strategy no. 1 potential policy pathways (as identified by City Council at the August 31, 2021 meeting)
- Climate action plan strategy metrics
- Gas-powered leaf blowers, including Commissioner Elkins report

F. Adjournment

Chair Payne adjourned the meeting at 8:33 p.m.

Candise Almendral, Sustainability Contractor

These meetings were approved on September 22, 2021 by the Commission.

D2-STAFF PRESENTATION

REVIEW AND DISCUSS COST EFFECTIVENESS AND POLICY OPTIONS REPORT TO ELECTRIFY EXISTING BUILDINGS

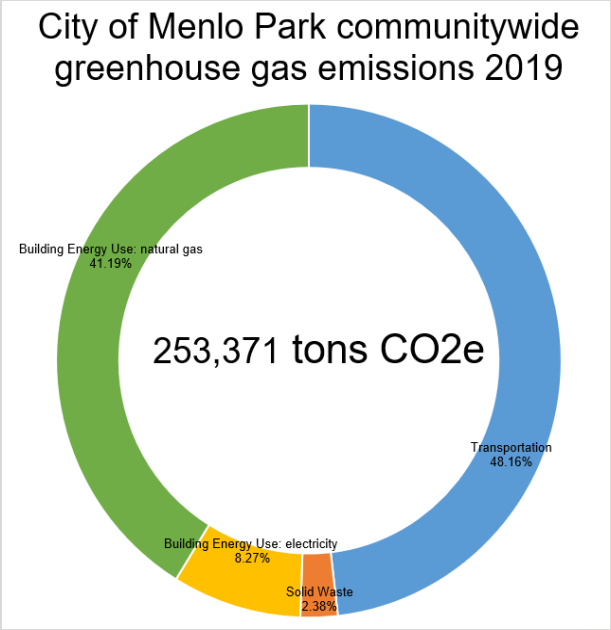
Rebecca Lucky, Sustainability Manager

AGENDA

- Process and Next Steps (Staff)
- Overview of the cost effectiveness analysis (TRC)
- Overview of potential policy and program pathways (Staff)
- Meeting the goal to convert 95% of existing buildings to electric by 2030 (DNV)

CLIMATE ACTION PLAN GOAL NO. 1

- Convert 95% of existing buildings (residential and commercial) to electric by 2030
- Helps city meet its carbon neutral goal by capitalizing on clean and fossil fuel free energy from Peninsula Clean Energy
- Menlo Park adopted electric requirements for new construction in 2020



CITY COUNCIL DIRECTION

- Prepare a cost effectiveness analysis and policy options to present to the City Council
- Requested feedback from the Environmental Quality Commission
- Working draft was provided to the EQC last month and reviewed concurrently with city staff
- Deferred further review of the analysis and policy options to the commission's building decarbonizaiton subcommittee

TIMELINE

- No final decision is being made regarding any policy or program at this meeting for the community
- **August 31**: City Council study session to present cost effectiveness analysis and receive direction on preparing a possible roadmap and timeline
- **September 15:** EQC meeting to finalize feedback/advice on policy roadmap and timeline
- **October 12:** City Council study session to review roadmap and timeline and provide further direction

THANK YOU

D2-CONSULTANT PRESENTATION

TRC

Existing Building Electrification Policy Options: Draft Analysis and Discussion

August 18, 2021

Prepared by Farhad Farahmand (TRC), Mayra Vega (TRC), and Blake Herrschaft (DNV), Douglas Kot (DNV) in partnership with City Staff and Peninsula Clean Energy

INTEGRATED
[RESILIENT]
SUSTAINABLE

Summary of Updates

- Updated cost-effectiveness for proposed measures as a result of updated utiltiy escalation rates
- Included a single family cost-savings graphic for all measures
- Included a burn-out ordinance
- Coming soon: incorporating the cost of climate change to a greater degree

Market Readiness

End Use	Technology Available?	Contractor Familiarity?	More Challenging Building Types
Space Heating	Yes, since 1950s	All	Labs, hospitals, Variable air volume (VAV) reheat systems in commercial office (typically >50 ft2 or more)
Water Heating	Yes, since 2010	Some	Labs, hospitals, hotels, large multi-family
Cooking	Yes, since 1950s, more so since 2010	All for residential, Some for commercial	Restaurants with limited site electrical capacity
Clothes Drying	Yes, since 1940s	All for most buildings, some for laundromats, etc.	Laundromats, hotels, hospitals
Pools	Yes, since 1990s	Some	Large commercial pools

BayREN contractor list available here
Clean Energy Connection list available here

Berkeley, Half Moon Bay, Palo Alto, San Francisco, and New York City are all working towards existing building electrification mandates

Local Jurisdiction Roles in Incentives and Financing

Lead Roles

- Developing incentive programs for constituents
  - Can fund via local taxes and fees (e.g., Utility User's Tax)
  - Can partner with other agencies (e.g., Bay Area Air Quality Management District).
- Municipal financing – electrifying public buildings through green bonds or local taxes

Advocacy Roles

- On-bill financing (utility customer loan) or *tariffed* on-bill financing (utility investment tied to utility meter)
- Sharing of resources enabling electrification
  - Partner incentives (Utilities, BayREN, PCE)
  - Electrification-as-a-service partnerships
  - Tax credits, deductions and rebates
  - Loan programs (i.e., California Hub for Energy Efficiency Financing)

Statewide Utility Cost Effectiveness: Methodology

- Lifecycle periods of 15 years (nonresidential) and 30 years (residential)
- Benefit metrics
  - On-bill – Peninsula Clean Energy utility rate schedules
  - Time Dependent Valuation - 'societal value or cost'
- Cost effectiveness measured in Benefit/Cost ratio and Net Present Value
- Three vintages: 80's, 90's, and 2000's

Sector	Prototypes
Residential	Single-family (2,700 ft2), Low-rise multifamily (8 DUs)
Nonresidential	Office (53,000 ft2), Retail (25,000 ft2), Warehouse (18,000 ft2), Quick Restaurant (2,500 ft2), Full Restaurant (5,000 ft2), High-Rise Multifamily (117 DUs), Small Hotel (41,000 ft2)

Can be used for Energy Commission approval of local energy conservation standards (PRC 25402.1(h)2), but the cost-effectiveness criteria is up to jurisdiction. This analysis largely follows the Statewide Utility Codes & Standards Program methodology.

Cost Effectiveness: Residential Results (Water Heating)

- The upfront cost to replace natural gas equipment with an electric heat pump water heater (HPWH) is higher
- HPWH increases utility bills nominally in the 1st year but saves an average of $6-$8/month over the life of the equipment compared to a gas water heater

	Monthly Bill Savings		30-Year On-Bill Savings (NPV)
	Year 1	30-Year Average	
HPWH	($1)	$6	($387) $1,859 with incentive

Cost Effectiveness: Residential Results (Space Heating)

- Standard efficiency HPSH increases utility bills by $22 - $31/month in the first year and $6/month over the life of the equipment
- High efficiency HPSH increases utility bills by $3 - $6/ month in the 1st year but saves an average of $7 -$18/month over the life of the equipment

	Monthly Bill Savings		30-Year On Bill Savings (NPV)
	Year 1	30-Year Average	
Standard efficiency HPSH	($26)	($6)	($2,555)
High efficiency HPSH	($5)	$11	($106) $1,016 with incentive

Cost Effectiveness: Residential Results (Cooking and Clothes Drying)

- Electric cooking ranges and electric clothes dryers are not cost-effective

	Monthly Bill Savings		30-Year On Bill Savings (NPV)
	Year 1	30-Year Average	
Electric Range/Oven	($5)	($3)	($1746)
Electric Dryer	($15)	($10)	($4058)

Cost Effectiveness: Nonresidential Results

Prototype	All-Electric (Code Minimum)	All-Electric + Efficiency	All-Electric + Solar PV
Retail	Not cost effective yet	On-Bill and TDV	On-Bill and TDV
Office	Not cost effective yet	Not cost effective yet	Not cost effective (maybe TDV with efficiency measures, not analyzed)
Quick-Service Restaurant	Not cost effective	Not cost effective yet	Not cost effective yet (includes battery)
Full-Service Restaurant	Not cost effective yet	Not cost effective	Not cost effective yet (includes battery)
Warehouse	Not cost effective yet	Not cost effective yet	On-bill
High-rise Multifamily	Not cost effective yet	Not analyzed	TDV
Small Hotel	On-Bill and TDV	Not analyzed	On-bill and TDV

Electrification For All

- Menlo Park contains 1,500 housing units with occupants that are below 30 percent of the area median income (AMI).
  - Mostly renters
  - 7-11% of income is spent on energy
- Equitable policy characteristics
  - Ensure access to incentives
  - Ensure bill reductions
  - Avoid increasing debt
  - Avoids "renovictions" that evict tenants when making building upgrades, or rent increases
- Partnering with local community-based organizations is critical to honest discussion and long-term commitment

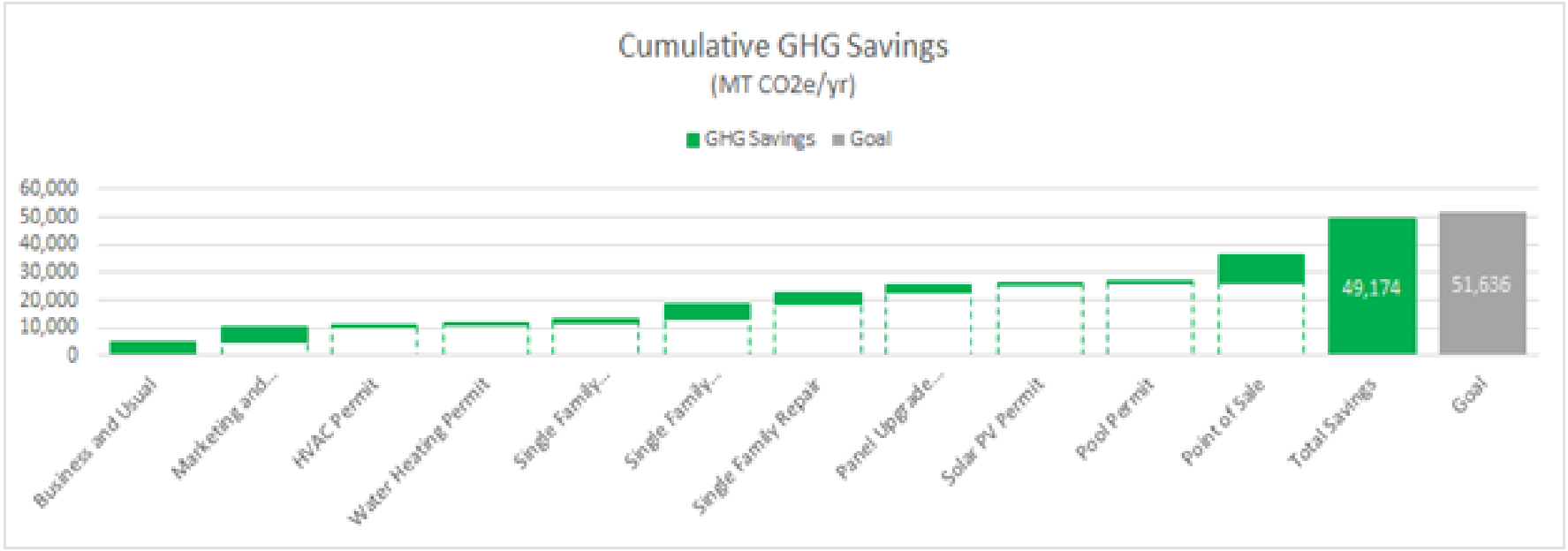
Rental Housing Performance Standards (RHPS), coupled with rental housing policies, could:
- reduce the energy cost burden on tenants,
- eliminate the split incentive, and
- support cities in meeting climate goals.

26 cities in CA have rental housing inspection policies

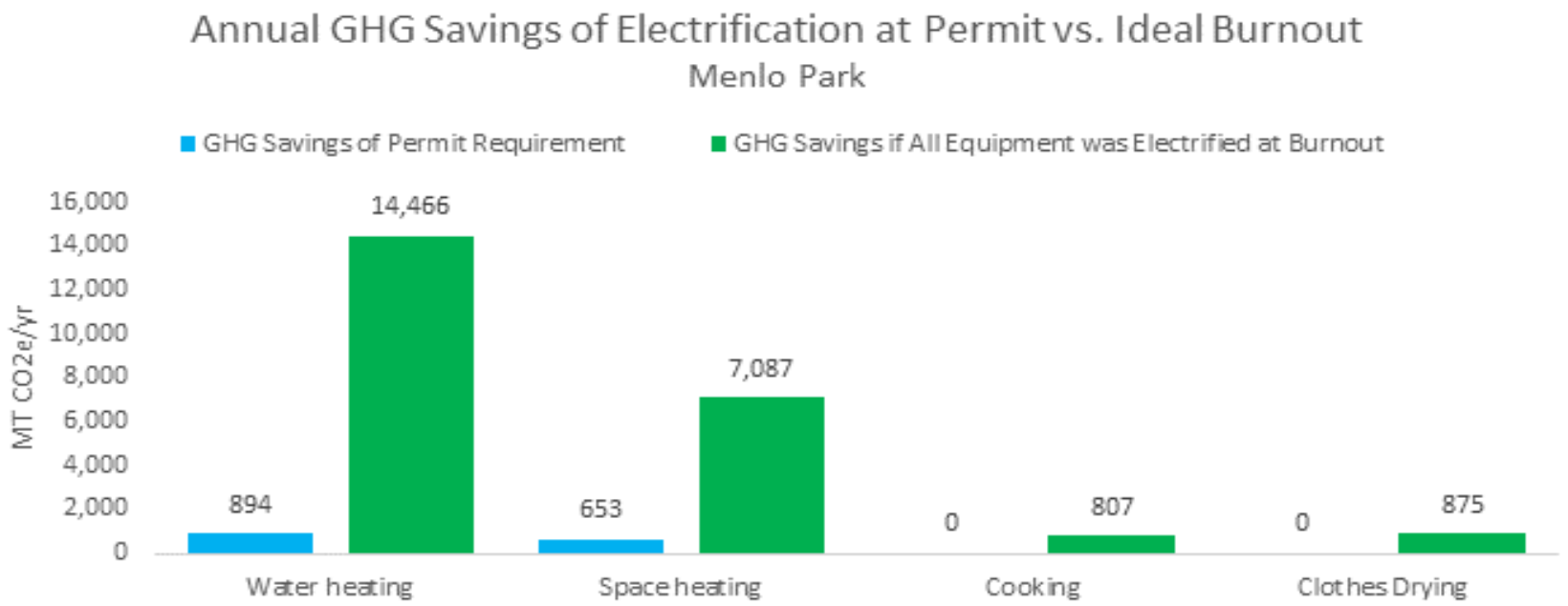
At least **6 cities outside CA** have RHPS with energy efficiency requirements.

Sources: LEAD Tool, StopWaste, Urban Sustainability Director's Network

Emissions Impacts



Emissions Impacts – Limitations of Eqpt Permits



Grid Reliability

FAQs

1. Can the grid handle the load increases?
2. Will it take longer to get utility service?
3. Will electrification reduce resilience?
4. What is going on with these fires?
5. If the grid isn't green, what's the point?

Can the Grid Handle Load Increases?

New Construction only accounts for *1% of building stock*. Yes, the grid can handle a 1% year-over-year increase

Service obligation – grid operators in CA are mandated to deliver the power you want.

Grid over-capacity is often over-stated. There are less than 13 calls in a given year to reduce load, typically closer to 1 than 13.

"PG&E fully expects to meet the needs that all-electric buildings will require" -Robert S. Kenney, Vice President, PG&E

"Electrification is lower-cost, lower-risk mitigation strategy" - CEC

Will Electrification Reduce Resilience?

Space Heating

Gas furnaces require electric fans, but fireplaces still work.

Water Heating

Gas water heaters require electronic ignition or pumps

Cooking

Will work without electricity

Clothes Drying

Electric motor runs tumbler

Policy Options Overview

#1: Public Engagement and Education

- Concierge assistance for residents toward financing, permit education
- Piloting projects in low-or-moderate income (LMI) communities
- Outreach and forums for residents and businesses

#2: Generate Funds for Financing

- Fees for building projects that generate greenhouse gases (GHGs)
- City reserves, American Rescue Plan funds, Utility User's Tax
- Partner with local lenders to provide streamlined financing options

#3 Time Certain Building Performance Standards

- Set a deadline for electrification (e.g., 2030)
- Require reporting and/or inspections

Policy Options Overview

#4: Permitting

- A: Heat pumps when installing air-conditioning
- B: Electric-ready at panel upgrade or solar PV install
- C: Heat pumps installed at voluntary heating, ventilation and air-conditioning (HVAC)/Domestic hot water (DHW) replacements
- D: Heat pumps installed in Additions to single family homes
- E: Heat pump pool heating for new pools
- F: Electric appliances in Alterations including HVAC/DHW
- G: Replace at End of Life

Policy Options Overview

#5: Time of Sale

- *Encourage* electrification at time of real estate sale or transfer through reduced taxes or rebates
- *Require* upgrades at time of sale, similar to Davis or San Francisco

Key Takeaways

There may be key steps before implementing a policy that include addressing equity, greater financial incentives, reducing life and safety risks of permit avoidance, and rental protections

The analysis reviews only heat pump technology which is the most efficient

There is long term cost effectiveness (TDV) for high efficiency heat pump space and water heating

Installing solar can protect against any increases in utility costs

A short, medium, and long term timeline and roadmap is likely needed

Building a Potential Roadmap

Each policy/program option could be evaluated with a set of criteria.

Ease of Implementation/ Process	Convenience	Equitable	Cost Effectiveness	Effectiveness
➉There is a low level of engagement necessary during the adoption process ➉Does not require long term-staff resources ➉Does not require coordination with other agencies.	➉Does not increase scope beyond the original plan ➉Does not increase project timeline or cause a physical impact to the property ➉Skilled workforce for the required upgrade is available.	➉Tenant protections exist ➉There are income-qualified exemptions, incentives, and financing available ➉There is community engagement on policy design and workforce development and training.	➉Demonstrates on-bill savings ➉Does not increase upfront costs ➉Incentive programs are available or forth-coming.	➉Is an enforceable mandate, ➉Transforms the market ➉Is scalable

Discussion

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BACKUP SLIDES

Cost Effectiveness: Residential Results

- Heat pumps are TDV cost effective using 2022 TDV
- Heat pumps are on-bill cost effective when paired with on-site solar photovoltaics (PV)

Measure	Vintage	Gross Measure Cost	PCE/ BayREN Incentive	Net Measure Cost	Year 1 Utility Cost Savings	No Incentive		With Incentive	
						On-Bill B/C Ratio	On-Bill NPV	On-Bill B/C Ratio	On-Bill NPV
SEER 21 Heat Pump at HVAC Replacement	Pre-1978	$3,749	$1,000	$2,749	-$30	0.19	-$3,290	0.26	-$2,168
	1978-1991				-$66	0	-$4,637	0	-$3,514
	1992-2010				-$67	0	-$4,820	0	-$3,697
NEEA Tier 3 HPWH at Replacement	Pre-1978	$2,775	$2,000	$775	$5	0.21	-$2,434	0.78	-$188
	1978-1991				-$6	0.13	-$2,702	0.46	-$456
	1992-2010				-$9	0.10	-$2,788	0.36	-$542

Policy Option Evaluation: Preliminary Results

						LEGEND		
						0	1-2	3
						🔴	🟠	🟢
Policy Option and Requirement		Ease of Implementation	Convenience	Equitable	Cost Effective	Effective	Total Score
Option 1: Public Engagement and Education		🟠	🟢	🔴	🔴	🟠	6
Option 2: Generate funds to Develop Additional Incentive and Financing Program Offerings		🟢	🟢	🟠	🟠	🟠	10
Option 3: Time Certain Building Performance Standards		🔴	🟠	🟠	🟠	🟠	5
Option 4: Permit Desk	Option 4A: Heat Pump at A/C Installation	🟢	🟠	🔴	🟠	🟢	9
	Option 4B: Electric Ready Due to PV Installation or Panel Upgrade	🟠	🟠	🔴	🟠	🟢	6
	Option 4C: Heat Pump Installed Upon Voluntary Replacement	🟠	🔴	🔴	🟠	🟠	4
	Option 4D: Heat Pump Installed During Additions to SF Buildings	🟠	🔴	🔴	🟠	🟠	4
	Option 4E: Heat Pump Pool Heater Installed for New Equipment	🟠	🟠	🔴	🟠	🟠	6
	Option 4F: Electric Appliances and EV Charging in Alterations to Residential Buildings	🟠	🟠	🔴	🟠	🟢	6
	Option 4G: Replacement at End of Life	🔴	🟠	🔴	🟠	🟠	4
Option 5: Electrification Ready at Time of Sale		🔴	🟠	🔴	🟠	🟢	6

Policy Option Evaluation: Key Takeaways

Highest ranking options

- **Option 2 Generate Funds**
  - Most convenient policy because it doesn't directly impact project work
  - Incentives available
  - Can be designed to generate and redistribute funds equitably
  - May be implemented by city staff relatively easily, or in partnership with utility
- **Option 4A Heat Pump at A/C installation**
  - Minimally intrusive
  - Does not add cost to a project where air-conditioning equipment is already being replaced

Lowest ranking options

- **Option 4C Heat Pump Installed Upon Voluntary Replacement**
- **Option 4D Heat Pump Installed During Additions to SF Buildings**
- **Option 4G Replace at End of Life**
- All of these options require
  - High level of engagement, and either new staff resources or coordination with outside agencies
  - They can all increase a project's scope of work, budget, and timeline
  - Incentives for panel upgrades, heat pump water heaters and heat pump space heaters are available but may not cover full upfront cost
- All are susceptible to permit dodging

Option 1: Marketing and Education

Trigger	Requirement	Logistical challenges
Council Action	Fund staff to develop and share educational materials and interactive tools covering ➢ Heat pump installation and design ➢ Incentive programs	➢ Staff resources ➢ Requires regular updating and coordination with other agencies

Option 2: Generate Funds

Trigger	Requirement	Logistical Challenges
Ballot Measure	Generate funds to: ➢ Incentivize the replacement of existing fossil gas equipment ➢ Support income-qualified projects Funds can be raised using: ➢ Utility User Tax increase similar to proposals by the City of Albany, CA and City of Berkeley. ➢ Carbon fee created and applied to building permits that include gas usage, similar to San Luis Obispo (proposed)	Requires voter approval

Option 3: Time Certain Building Performance Standards

Trigger	Requirement	Logistical Challenges
Council Action	Adopt policy requiring all appliances in all buildings (with some exceptions) to be all-electric by December 31, 2030. Couple with a Disclosure Program assessing the emissions intensity or presence of gas-fired appliances in all building types. Precedence from several cities relies on existing Rental Inspection policies for residential buildings, and Business license policies for commercial buildings.	No precedence in Menlo Park for rental inspections. No precedence for owner-occupied residences.

Option 4A – Heat Pump at A/C Installation

Trigger	Requirement	Upfront Incremental Costs (single family, no incentives)	Logistical challenges	Annual residential building stock impacts	Exceptions/Notes
Air-conditioning upgrade	Heat pump installed	➢ $0 typically ➢ $2,000 - $5,000 if original scope was only relocation.		1.4 percent	

Option 4B: Electric at PV Installation or Panel Upgrade

Trigger	Requirement	Upfront Incremental Costs (single family, no incentives)	Logistical challenges	Annual residential building stock impacts	Exceptions/Notes
Panel upgrade Solar PV upgrade	➢ Panel and breaker space for all-electric appliances and 240V electric vehicle (EV) charger ➢ 30A HPWH branch circuit	➢ $500 - $1,000 for panel ➢ $500 - $2,000 for circuit ➢ $1,000 - $3,000 total	➢ Physical space accommodation ➢ Adherence to zoning code (setbacks, noise)		➢ Exempt - Multifamily HW systems located in individual dwellings ➢ Included - Multifamily distribution panels

Option 4C: Heat Pump Installed Under Voluntary Replacement

Trigger	Requirement	Upfront Incremental Costs (single family, no incentives)	Logistical challenges	Annual building stock impacts	Exceptions/Notes
Voluntary replacement, or relocation of gas-fired appliances.	All-electric equipment installed (heat pumps for space- and water-heating)	➢ HVAC: $0 if replacing air-conditioning, $10,000 - $20,000 if no existing air-conditioning ➢ Water Heating: $4,000 - $6,000 if relocating before burnout ➢ $500 - $2,000 – for branch circuits to each appliance ➢ $2,000 - $4,000 for panel upgrade if necessary	➢ Addition of condensate drain for heat pumps ➢ Additional verification required for existing equipment type ➢ Need to avoid delays during emergency replacements	➢ 1.6 percent per year	Emergency repairs allow work to be completed prior to permit. May cause re-doing the work if not done to code.

Option 4D: Heat Pump Installed During Additions to SF Buildings

Trigger	Requirement	Upfront Incremental Costs (single family, no incentives)	Logistical challenges	Annual building stock impacts	Exceptions/Notes
Added conditioned space	Panel and breaker space for all-electric appliances and 240V EV charger	➢ $500 if panel upgrade is already in scope ➢ $3,000 - $5,000 if panel upgrade was not in scope		0.7 percent of existing single-family buildings	
	Replace existing space heating with heat pump	➢ $0 if replacing air-conditioning, ➢ $10,000 - $20,000 if no existing air-conditioning	➢ Physical space accommodation ➢ Adherence to zoning code (setbacks, noise)		➢ Exempt – no alterations to the existing heating system ➢ Multifamily buildings
	Replace existing water heater with heat pump	➢ $2,500 if replace on burnout ➢ $4,000 - $6,000 if relocating before burnout			➢ Exempt – no alterations to the existing water heater. A 240V, 30-amp circuit required instead. ➢ Multifamily buildings

Option 4E: Heat Pump Pool Heater for New Equipment

Trigger	Requirement	Upfront Incremental Costs (single family, no incentives)	Logistical challenges	Annual building stock impacts	Exceptions/Notes
New pool construction on a property with an existing building	Heat pump pool heater installed	➢ $500 if panel upgrade is already in scope ➢ $3,000 - $5,000 if panel upgrade was not in scope ➢ Heat pump: $1,000 - $1,500 more than a gas pool heater	Permit dodging	0.24% for single family	

Option 4F: Electric Appliances and EV Charging in Alterations to Residential Buildings

Trigger	Requirement	Upfront Incremental Costs (single family, no incentives)	Logistical challenges	Annual building stock impacts	Exceptions/Notes
Interior alterations	Panel and breaker space for all-electric appliances and EV charger (240V for single family, 120V for multifamily*)	➢ $500 if panel upgrade is already in scope ➢ $3,000 - $5,000 if panel upgrade was not in scope		➢ 2.5 percent of single-family homes ➢ 1.7 percent of multifamily dwellings	
	Replace existing space heating with heat pump	➢ $0 if replacing air-conditioning, ➢ $10,000 - $20,000 if no existing air-conditioning	➢ Physical space accommodation ➢ Adherence to zoning code (setbacks, noise) ➢ Permit dodging or avoided projects		➢ Exempt – no alterations to the existing heating system ➢ Exempt – Multifamily alterations to <50 percent of dwellings with central system
	Replace existing water heater with heat pump	➢ $2,500 if replace on burnout. ➢ $4,000 - $6,000 if relocating before burnout			➢ Exempt – no alterations to the existing water heater. A 240V, 30-amp circuit required instead. ➢ Exempt – Multifamily alterations to <50 percent of dwellings with central system

Option 4G: Replace at End of Life

Trigger	Requirement	Upfront Incremental Costs (single family, no incentives)	Logistical challenges	Annual building stock impacts	Exceptions/Notes
Equipment burnout	Replace existing space heating with heat pump	➢ $0 if replacing air-conditioning, ➢ $10,000 - $20,000 if no existing air-conditioning			Emergency replacements
	Replace existing water heater with heat pump	$2,500	➢ Physical space accommodation ➢ Adherence to zoning code (setbacks, noise) ➢ Permit dodging or avoided projects		

Option 5: Electrification Ready at Time of Sale

Trigger	Requirement	Upfront Incremental Costs (single family, no incentives)	Logistical challenges	Annual building stock impacts	Exceptions/Notes
Property Transfer	Upgrade branch circuits to cooking and laundry	➢ $500 - $2,000 per circuit	➢ Physical space accommodation ➢ Adherence to zoning code (setbacks, noise) ➢ May add significant electrical work - circuit reconfiguration or panel upgrade ($3,000 - $5,000)	4.3 percent	➢ Should be combined with time certain policy and incentives
	Replace existing space heating with heat pump	➢ $0 if replacing air-conditioning, ➢ $10,000 - $20,000 if no existing air-conditioning			
	Replace existing water heater with heat pump	➢ $4,000 - $6,000 if replacing before burnout			

Questions?

Analysis and Recommendations: Building Electrification in Menlo Park

EQC Building Decarbonization Subcommittee

August 18, 2021

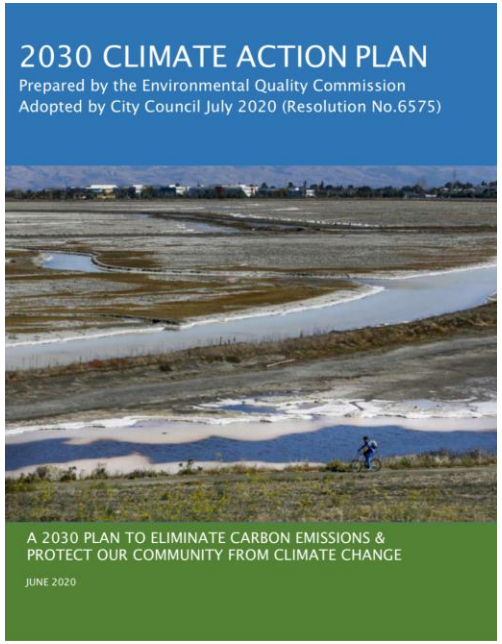
IPCC 6th Assessment

"Climate change widespread, rapid, and intensifying"

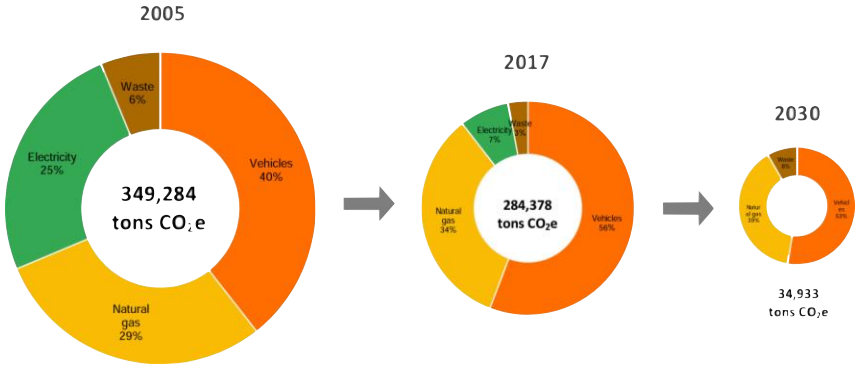
"…human actions still have the potential to determine the future course of climate"

"Stabilizing the climate will require strong, rapid, and sustained reductions in greenhouse gas emissions, and reaching net zero CO2 emissions. Limiting other greenhouse gases and air pollutants, **especially methane,** could have benefits both for health and the climate." — Panmao Zhai, IPCC Working Group I Co-Chair, August 9, 2021

Climate Action Plan



- Adopted by Menlo Park City Council in July 2020
- Sets a goal of 90% reduction in GHG by 2030 and elimination of the remaining 10% through direct carbon removal
- **Plan paired down due to pandemic budget cuts**



Menlo Park CAP 2020-21

#	Action	2030 GHG Reduction (tons/yr)
1	Explore policy/program options to convert 95% of existing buildings to all-electric by 2030	1) 86,465 OR 2) 51,636
2	Set citywide goals for increasing EVs and decreasing gasoline sales	7,120
3	Expand access to EV charging	7,370
4	Reduce vehicle miles traveled (VMT) by 25% or an amount recommended by the Complete Streets Commission	31,743
5	Eliminate the use of fossil fuels from municipal operations	879
6	Develop a climate adaptation plan to protect the community from sea level rise and flooding	0
		98,748

Not on track to meet goals

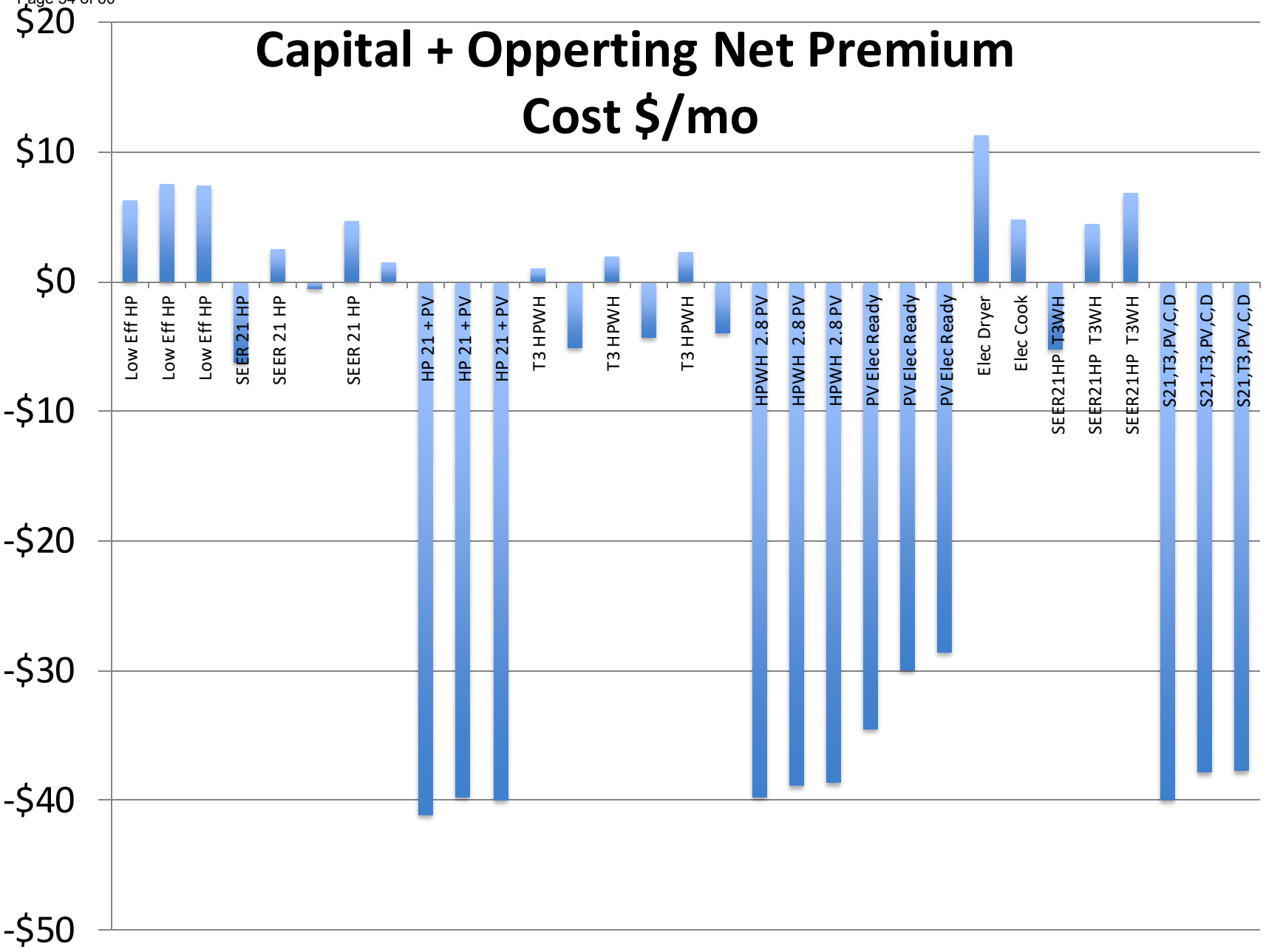
- Menlo Park is not currently on track to meet adopted climate goals
- Not on track for GHG cuts required for 1.5°C
- Not on track for GHG cuts required for 2.0°C
- Not on track to meet Paris Climate Agreement goals

Focus Tonight: CAP #1

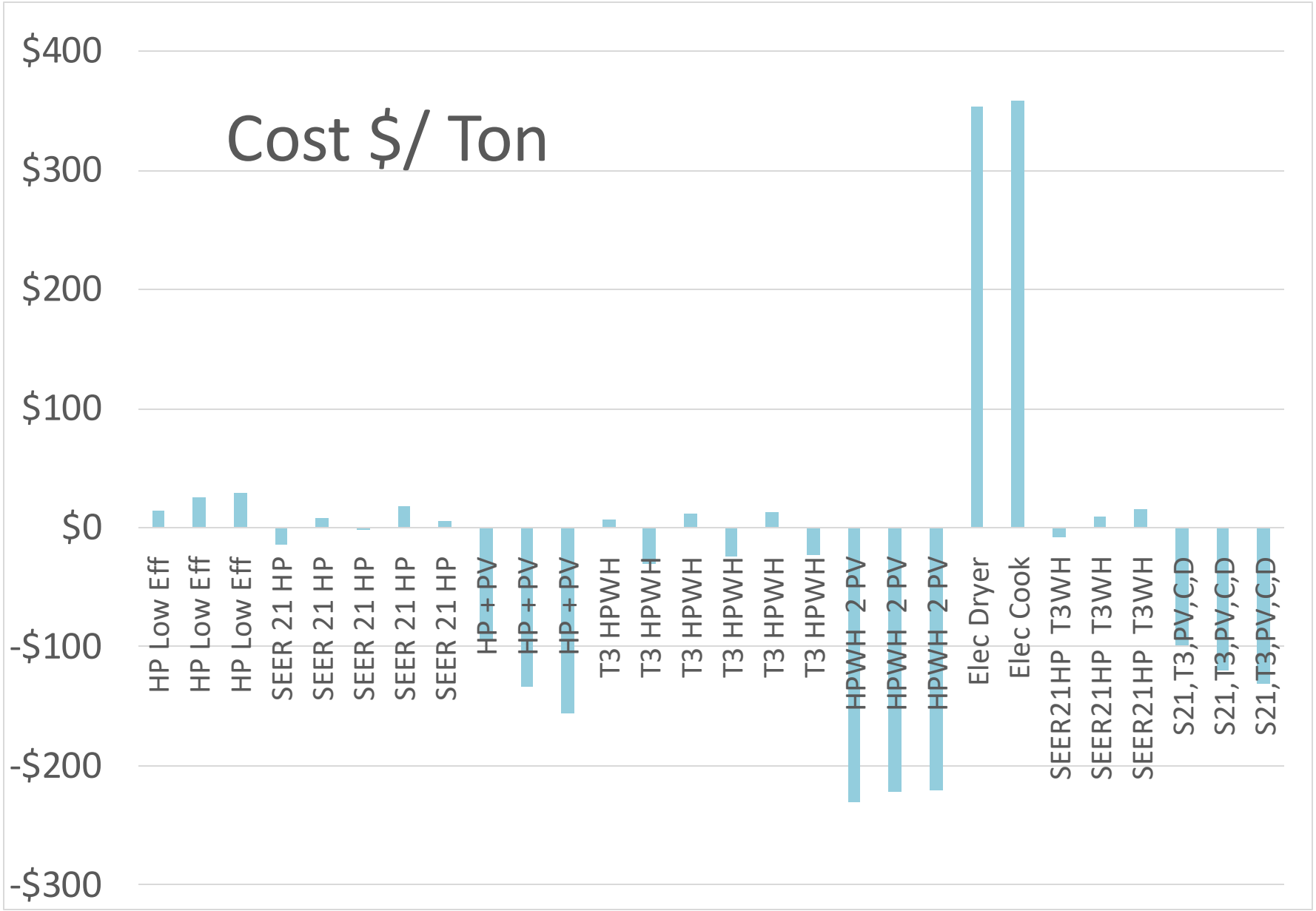
- CAP goals: reduce greenhouse gas emissions 90% by 2030
- CAP #1: Explore policy and program options to convert 95% of existing buildings to all-electric by 2030
- 41% of city emissions come from buildings

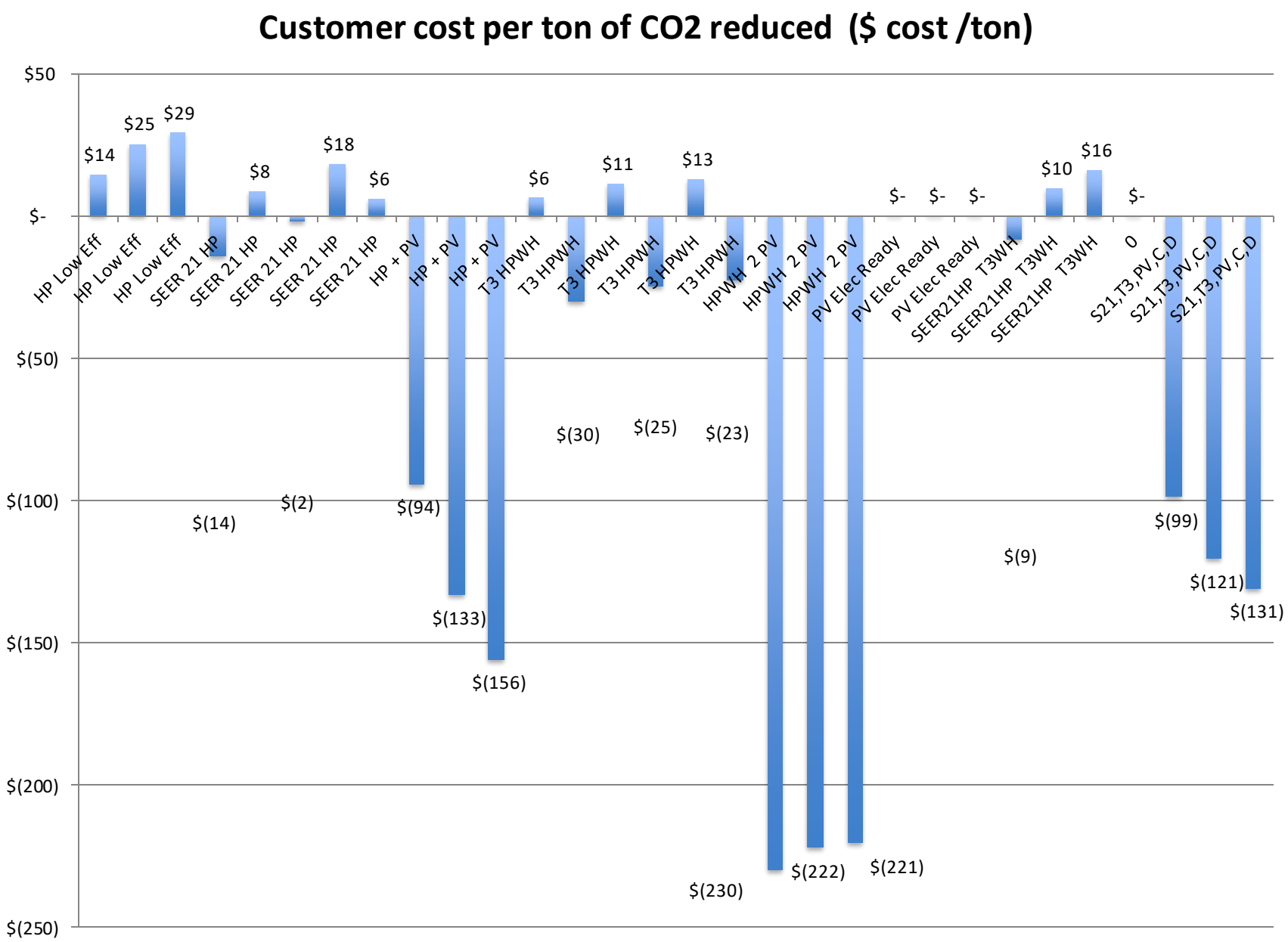
TRC's report is a work in progress

- Context
  - Americans are only slowly coming to grips with the need to fight climate change
  - Letting climate change happen will be very costly
  - Initial leadership is needed to start progress
  - The study shows that fighting climate change is affordable (about 1 latte per month)
  - The study shows a variety of approaches to electrifying buildings for climate progress


Capital + Opperting Net Premium Cost $/mo
$20
$10
$0
-$10
-$20
-$30
-$40
-$50
Low Eff HP
Low Eff HP
Low Eff HP
SEER 21 HP
SEER 21 HP
SEER 21 HP
HP 21 + PV
HP 21 + PV
HP 21 + PV
T3 HPWH
T3 HPWH
T3 HPWH
HPWH 2.8 PV
HPWH 2.8 PV
HPWH 2.8 PV
PV Elec Ready
PV Elec Ready
PV Elec Ready
Elec Dryer
Elec Cook
SEER21HP T3WH
SEER21HP T3WH
SEER21HP T3WH
S21,T3,PV,C,D
S21,T3,PV,C,D
S21,T3,PV,C,D

Consumer Cost per ton of CO2e




Customer cost per ton of CO2 reduced ($ cost /ton)
$50
$-
$(50)
$(100)
$(150)
$(200)
$(250)
$14
$25
$29
$8
$18
$6
$6
$11
$13
$-
$-
$-
$10
$16
$-
$(14)
$(2)
$(94)
$(133)
$(156)
$(30)
$(25)
$(23)
$(230)
$(222)
$(221)
$(9)
$(99)
$(121)
$(131)
HP Low Eff
HP Low Eff
HP Low Eff
SEER 21 HP
SEER 21 HP
SEER 21 HP
SEER 21 HP
SEER 21 HP
HP + PV
HP + PV
HP + PV
T3 HPWH
T3 HPWH
T3 HPWH
T3 HPWH
T3 HPWH
T3 HPWH
HPWH 2 PV
HPWH 2 PV
HPWH 2 PV
PV Elec Ready
PV Elec Ready
PV Elec Ready
SEER21HP T3WH
SEER21HP T3WH
SEER21HP T3WH
0
S21,T3,PV,C,D
S21,T3,PV,C,D
S21,T3,PV,C,D

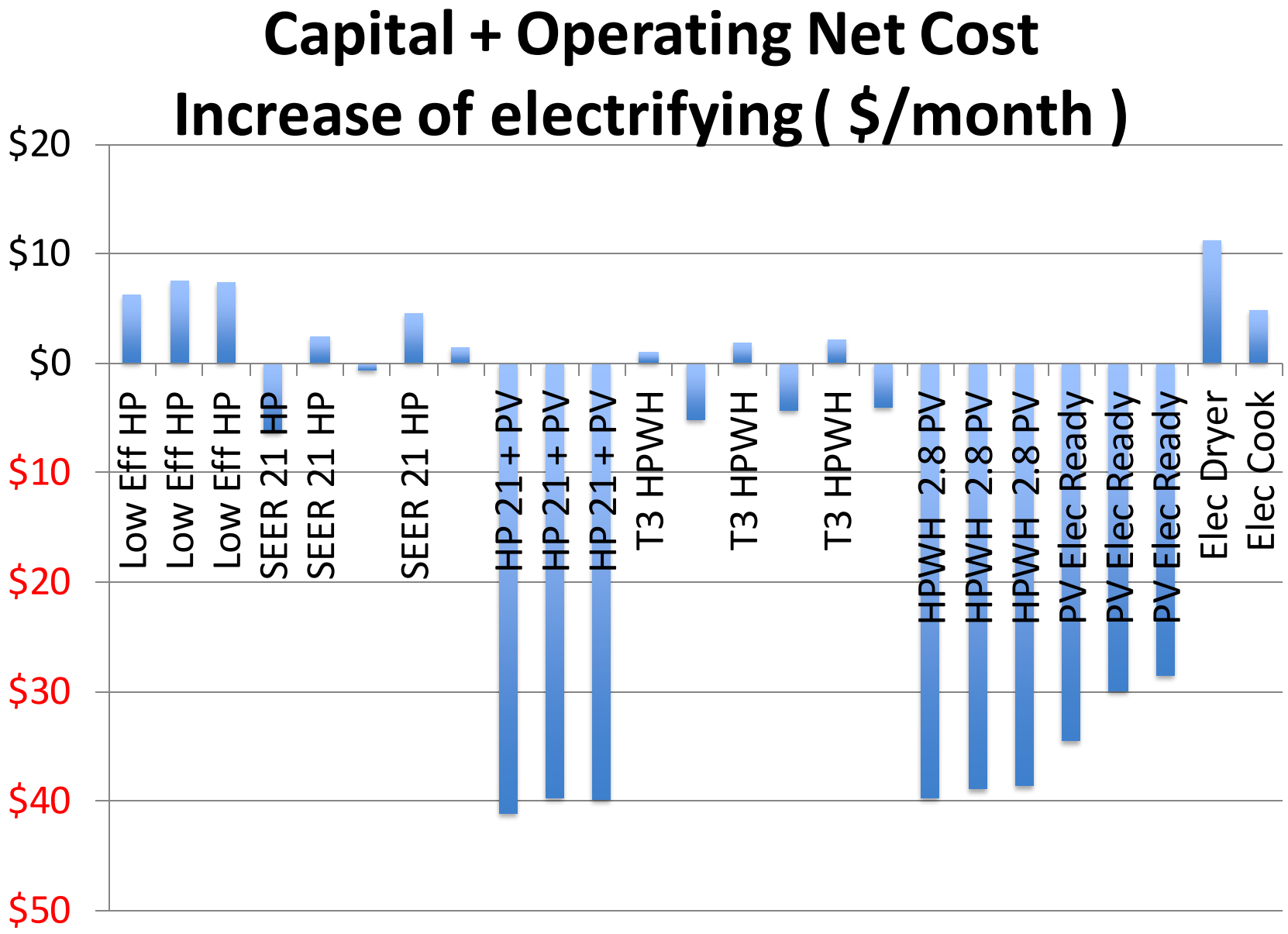
Possible Recommendations to Council

- Direct staff to draft a simple policy that prohibits the installation of new gas devices
- Provide a program to protect low-income households
- Provide technical support for those making the transition

Possible Recommendations to Council

- Remember it is a Climate Emergency
- Make the bold progress start now
- Pursue a decisive path toward climate safety
- Recruit added help as needed
- Have staff develop the plans and policy proposals to start the transition
- Streamline processes to accommodate emergency speed

- Backup slides


Capital + Operating Net Cost
Increase of electrifying ($/month)
$20
$10
$0
$10
$20
$30
$40
$50
Low Eff HP
Low Eff HP
Low Eff HP
SEER 21 HP
SEER 21 HP
SEER 21 HP
HP 21 + PV
HP 21 + PV
HP 21 + PV
T3 HPWH
T3 HPWH
T3 HPWH
HPWH 2.8 PV
HPWH 2.8 PV
HPWH 2.8 PV
PV Elec Ready
PV Elec Ready
PV Elec Ready
Elec Dryer
Elec Cook