Thinking Ahead for Multifamily Development

September 30, 2025

Panel Members

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High Level Trends and Drivers

PARK DISTRICT PHASE 2

PROGRAM

- 285 RES. UNITS
- 15k s.f. COMMERCIAL
- 20k s.f. CIVIC

GOALS

- LOW CARBON FOOTPRINT
- ENERGY EFFICIENT
- INNOVATIVE
- RESILIANT

Energy Performance

- Energy Codes
- Building Performance Standards
- Decarbonization
- Voluntary Programs

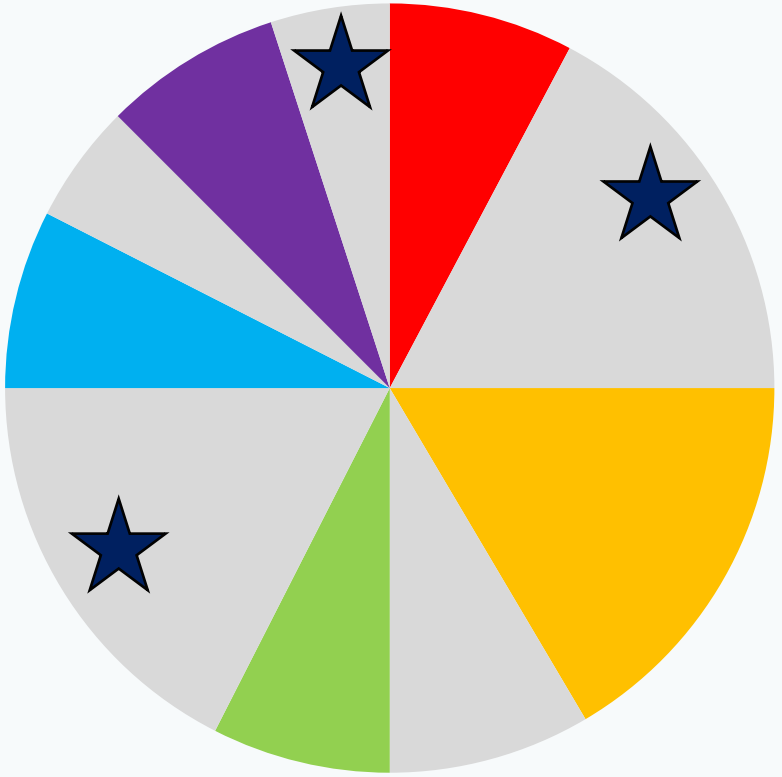
Energy improvement in multifamily; focused on 'house' savings

Typical 2012 Code Mid-Rise

DHW
Apartment Non-heat
Common Non-heat
Apartment Heat
Common Heat

EUI = 36kBtu/SF/yr

2021 Code Mid-Rise with Heat Pumps



EUI = 20kBtu/SF/yr

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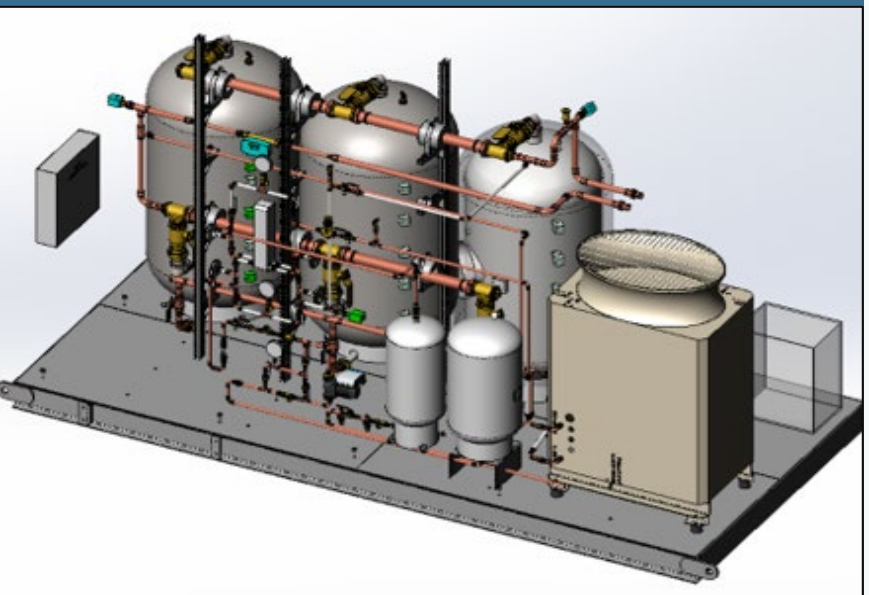
Building Performance Standards for Multifamily

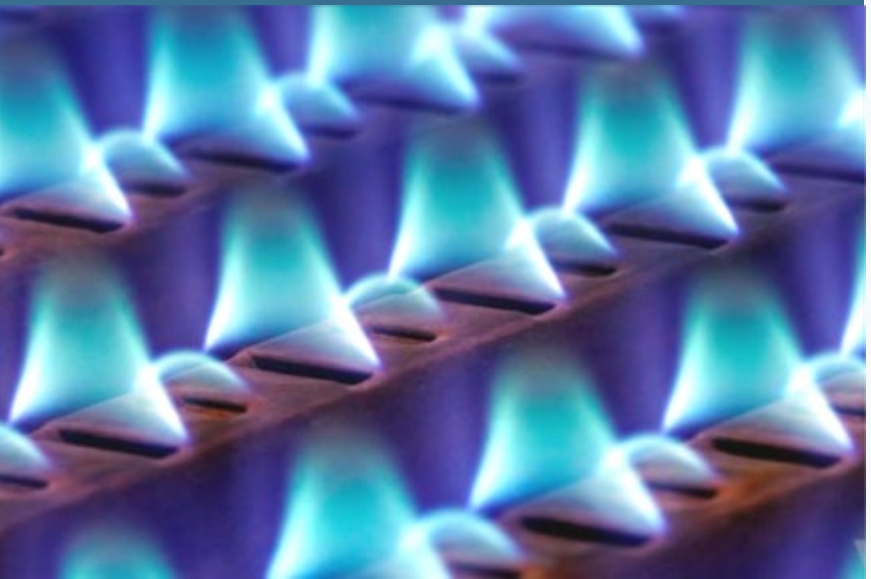
Aspect	WA CBPS	Seattle BEPS
MF Buildings	Tier 2: Over 20,000 sf	Over 20,000 sf
Performance Metric	Energy (EUI); more stringent for more recent buildings	Carbon Emissions (GHGI)
Timing	July 1, 2027	MF by size from 2030
Performance Ratcheting	Anticipated in 5 yr cycles	5 yr cycles, significant ratcheting each cycle
Reporting Requirements	Energy management plan, O&M plan, Non-compliance mitigation plan if not meeting EUI targets	Follow existing Seattle benchmarking requirements
Non-compliance	$5,000+$1/SF/yr	Low Income: $7,000+$2.50/SF Market Rate: $15,000+$7.50/SF

New Technologies



- Heat Pumps
  - (Heating, Cooling, DHW)
- Hydronic Heating
- Integrated Electric Vehicles
- On-Site Energy Generation and Storage

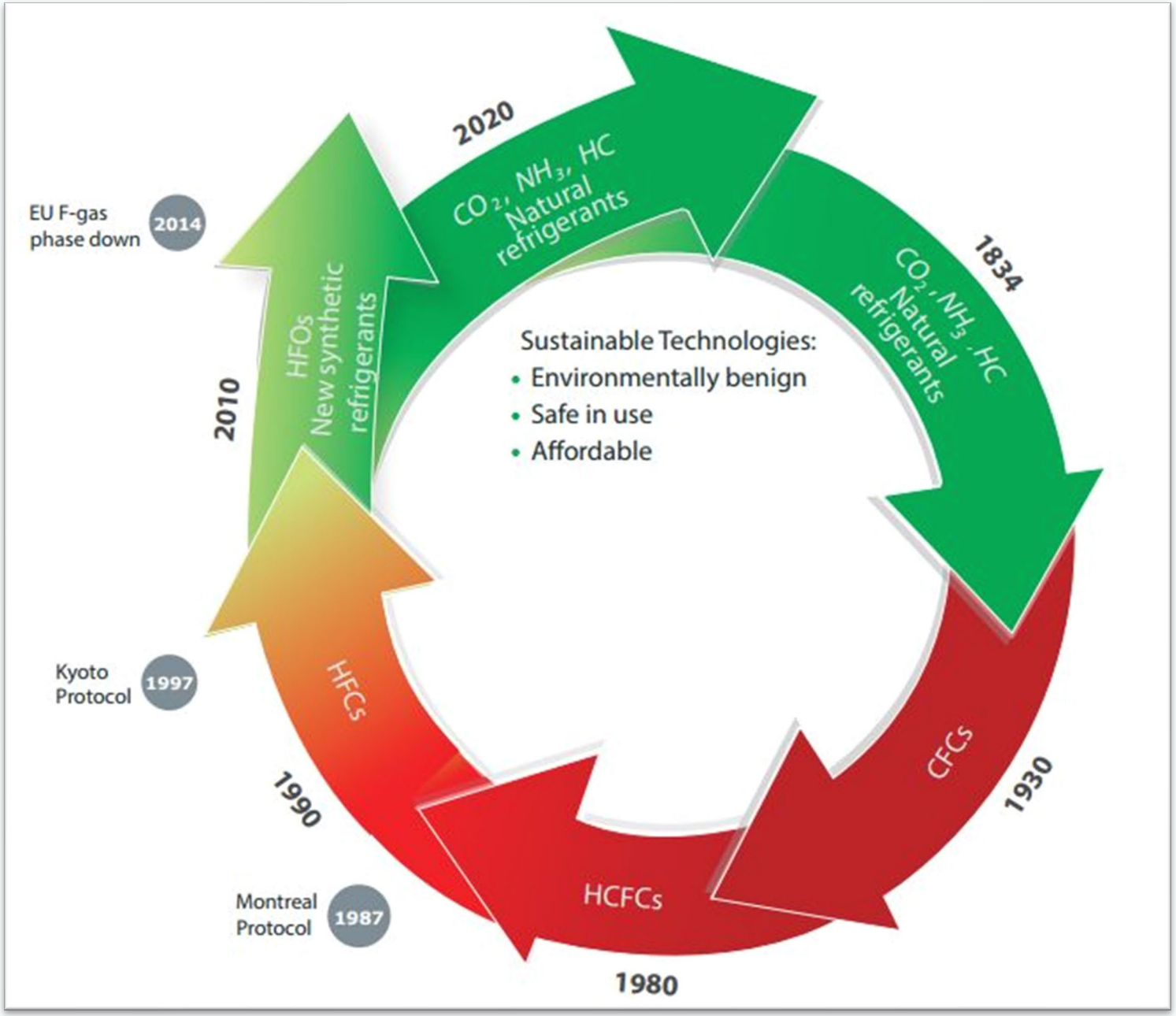
Building Decarbonization



- BEPS and Code metrics
- Heating/DHW Appliances
- Refrigerant
- Cooking Appliances
- Grid Supplies

Refrigerant Transition

+ **Replacement Equipment and New Equipment will use <750 GWP Refrigerant**
+ **Obsolescence of existing equipment (incentive for early adoption)**
+ **Limit distribution on site**

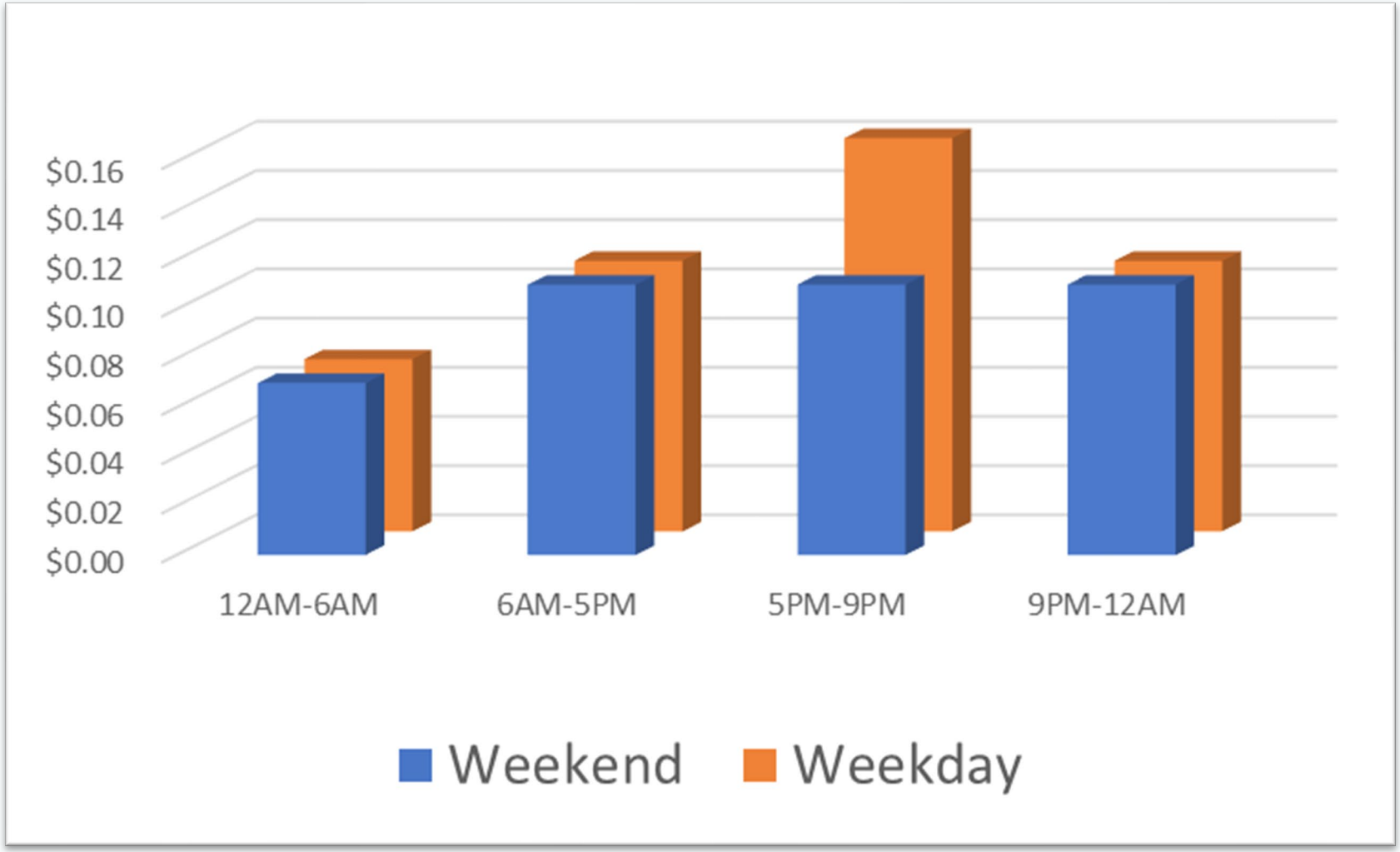


Grid Integration

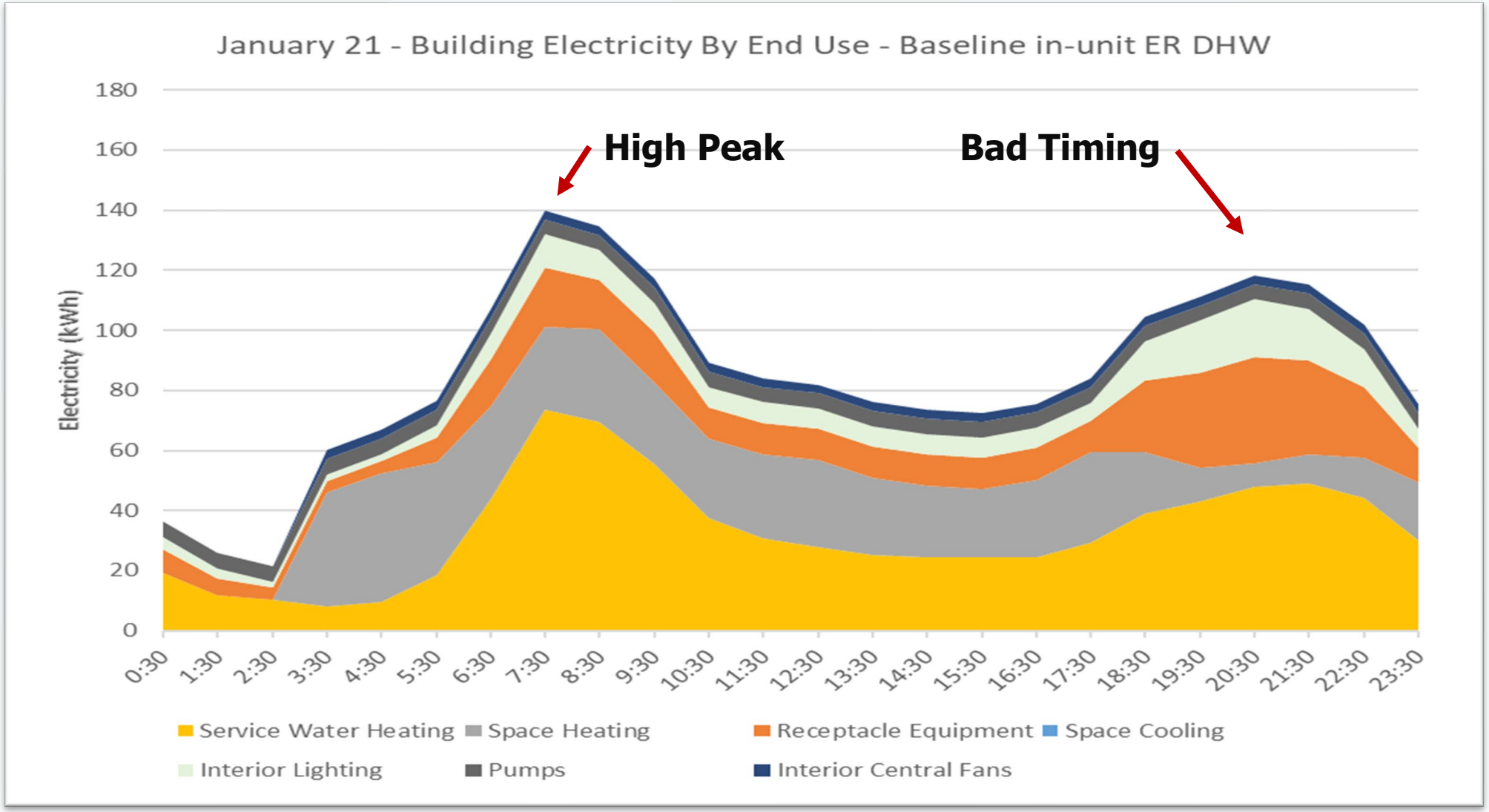
- Supply Constraints
- Time of Use Pricing
- Demand Charges
- Demand Response
- Load Shape Management
- Renewable Integration/Self Utilization

Time of Use Rates

Significant incentive for the ability to manage building energy use patterns

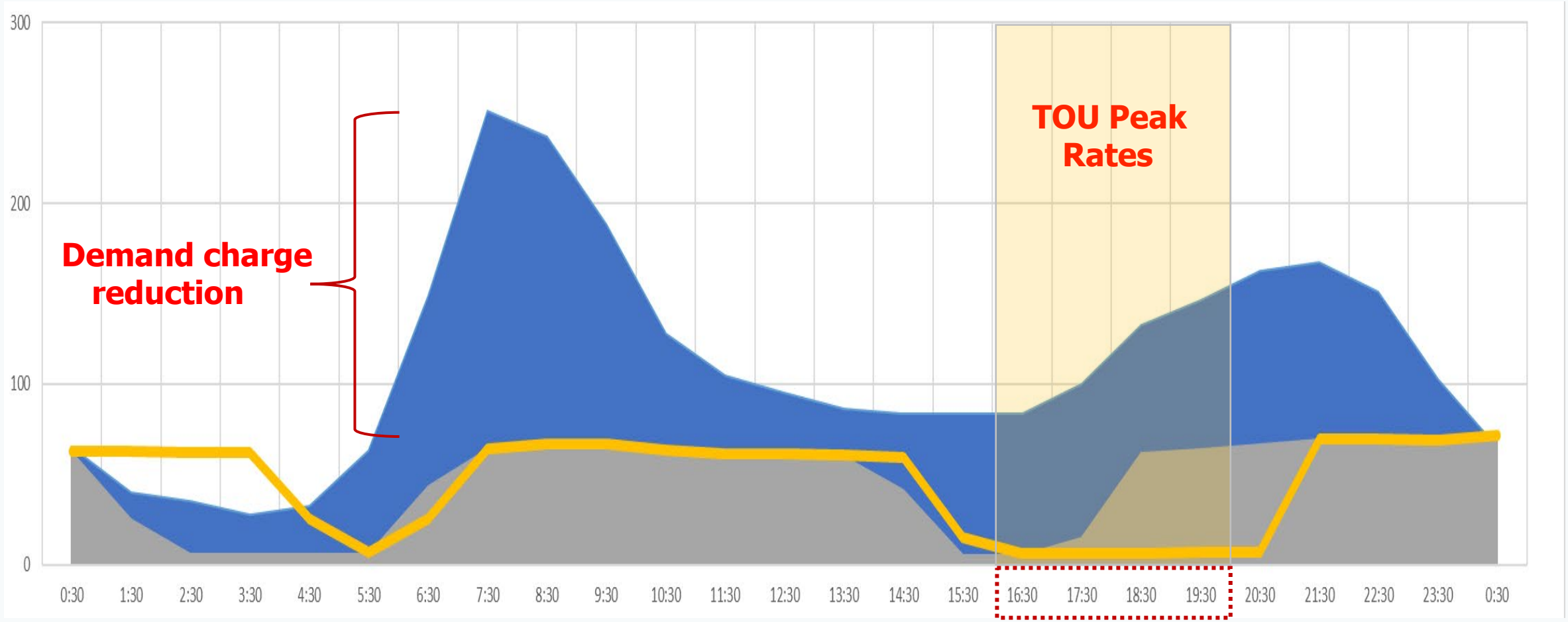


Multifamily End Use Load Shape



Modified MF Load Shape w/ CHPWH and load management (White Center)

One technology delivers 17% total building energy savings and 40%-60% peak demand reduction



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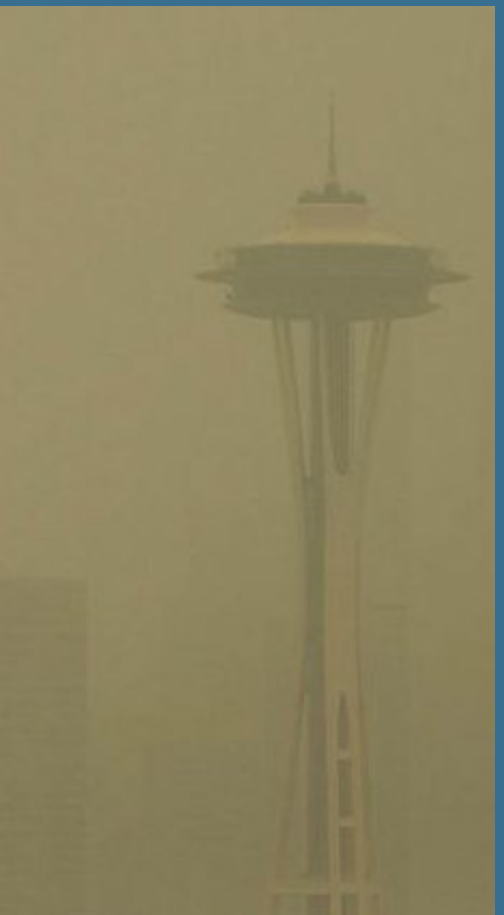
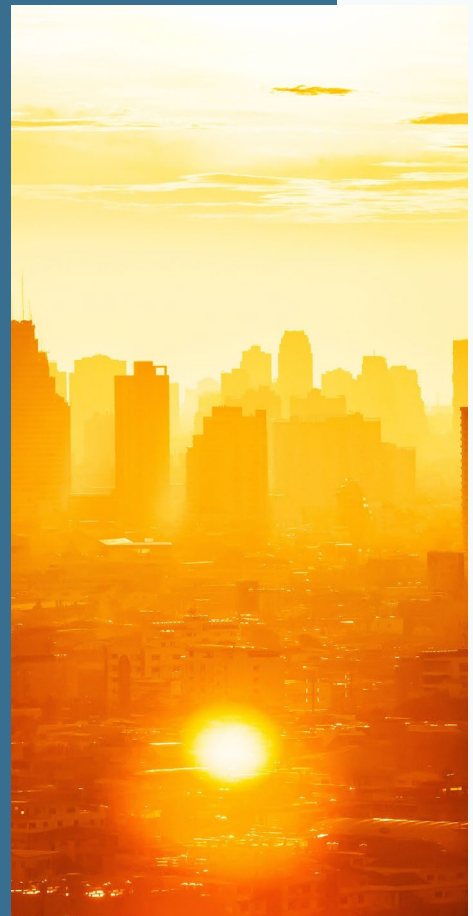
Bayview Tower

An innovative skid-mounted CHPWH system brings high-efficiency and grid flexibility to existing affordable housing.

Electrify Buildings
+ Design for Off
+ When Matters

Resiliency





Grid Management is Changing the Game

"We were 30 minutes away from rolling brown-outs in the PNW"

-8/14/2023

"Tempers Flare as Millions in CA Endure Power Outages from PG&E"

LA Times 10/10/19

Bomb cyclone shows cracks in Washington state's electrical gric

High-voltage transmission lines run along SR 20, the North Cascades Hwy, on Friday, January, 12, 2024. The Skagit River Hydroelectric Project consists of a series of dams and hydroelectric power-generating stations that run along the Skagit River.

Park District Resiliency Strategies

BASE SYSTEMS

- HP HEATING COOLING
- HP CENTRAL HOT WATER
- LARGE PV ARRAY
- EV CHARGING
- ERV'S w/FILTRATION

FUTURE SYSTEMS

- BATTERY BACK-UP
- EV MICROGRID BACK-UP
- POWER - PLACE OF REFUGE
- ELEVATOR CONTROL STRATEGY

Materials and Occupant Health

- Indoor Air Quality
- Habitability
- Material Toxicity
- Environmental Impacts

Steps to Healthier Materials in Affordable Housing:

1. Remember why
2. Vet materials early
3. Reduce and simplify material selection
4. Know where to spend your energy
5. Begin with the Healthy Material Matrix
6. Be an advocate

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Affordable Housing Healthy Material Specification

Edition 2 - March 2025

The following table lists healthy material recommendations for affordable housing in consideration of ESDS and Enterprise requirements.

Editors: Gladys Ly-Au Young, Megan Liu, Erika Shreder, Rebecca Stamm
Reviewed by: Susan Puri, Hannah Ray

Legend: *(habitablefuture.org/our-solutions/product-guidance/)*

- Best in Class
- Better

Preferred; fewer chemicals of concern or less hazardous chemicals throughout the product lifecycle.

- Good

Can use but still opportunities for improvement.

- Reduce

Phase out or reduce amount used.

- Eliminate
- Worst in Class

Avoid; most chemicals of concern or chemicals with the highest hazards used throughout the product lifecycle.

CSI Division	Material	Chemical(s) of Concern	Cost Impact	Recommendations	Product Name*	Products meet Enterprise Green Communities Criteria 6.4	ESDS v4.0		Color rankings from Habitable Informed Product Guidance - For Recommendations
							6.01a Mandatory	6.01b Optional	
06 00 00 Composites	Composite wood	*Formaldehyde causes cancer, eye, nose, and throat irritation, and difficulty breathing.*	$	*Specify "No Added Formaldehyde" (NAF) products.*	• *NAF products* • *Seal w/ AFM Safe Seal Plywood/OSB sealer*	✓	*Formaldehyde - comply w/ CARB Ph2 and/or TSCA Title IV*	*Only use NAF or Ultra low Emitting Formaldehyde (ULEF)*	*No Added Formaldehyde (NAF)*
07 13 00 Sheet Waterproofing	Thermoplastic Membrane Roofing	*PVC production and disposal create known human carcinogens; PVC may contain hormone-disrupting plasticizers (phthalates).*	$$	*Specify TPO or EPDM membrane roofing.*	• *GAF Everguard Extreme TPO, Everguard TPO* • *Carlisle/Versico-Syntec Sure-Weld Fleeceback, Sure-Weld TPO, EPDM roofing*	*Phthalates are listed as a chemical of concern.*			*TPO Membrane Roofing* *EPDM Membrane Roofing*
07 21 00 Thermal Insulation	Batt insulation	*Formaldehyde causes cancer, eye, nose, and throat irritation, and difficulty breathing.*	$	*Choose fiberglass batt insulation; if using mineral wool batt insulation, specify "formaldehyde-free".*	• *Knauf Ecobatt, Glass Mineral Wool products* • *Owens Corning Thermafiber FF Miberal Wool products* • *Rockwool AFB EVO, Stone Wool products*	✓			*Unfaced fiberglass, sheep's wool, wood fiber, and formaldehyde-free mineral wool* *Cotton batts, cellulose batts, kraft-faced fiberglass*
	Rigid board insulation	*Halogenated flame retardants (HFRs) are persistent, bioaccumulative, and toxic.*	$	*Specify products with no halogenated flame retardants (HFRs).*	• *GAF Energyguard NH Barrier Polyiso Insulation* • *Rockwool Stone Wool* • *Carlisle/Versico-Syntec SecurShield NH, SecurShield HD NH, SecurShield HD Plus NH, SecuShield HD Composite NH*	✓	*No halogenated flame retardants (HFRs)*		*Expanded cork board* *Wood fiber board, unfaced formaldehyde-free fiberglass board, unfaced formaldehyde-free mineral wool board* *Halogen-free polyisocyanurate board, standard unfaced mineral wool board, standard unfaced fiberglass board*

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White Center HUB (Hope Unity Belonging)

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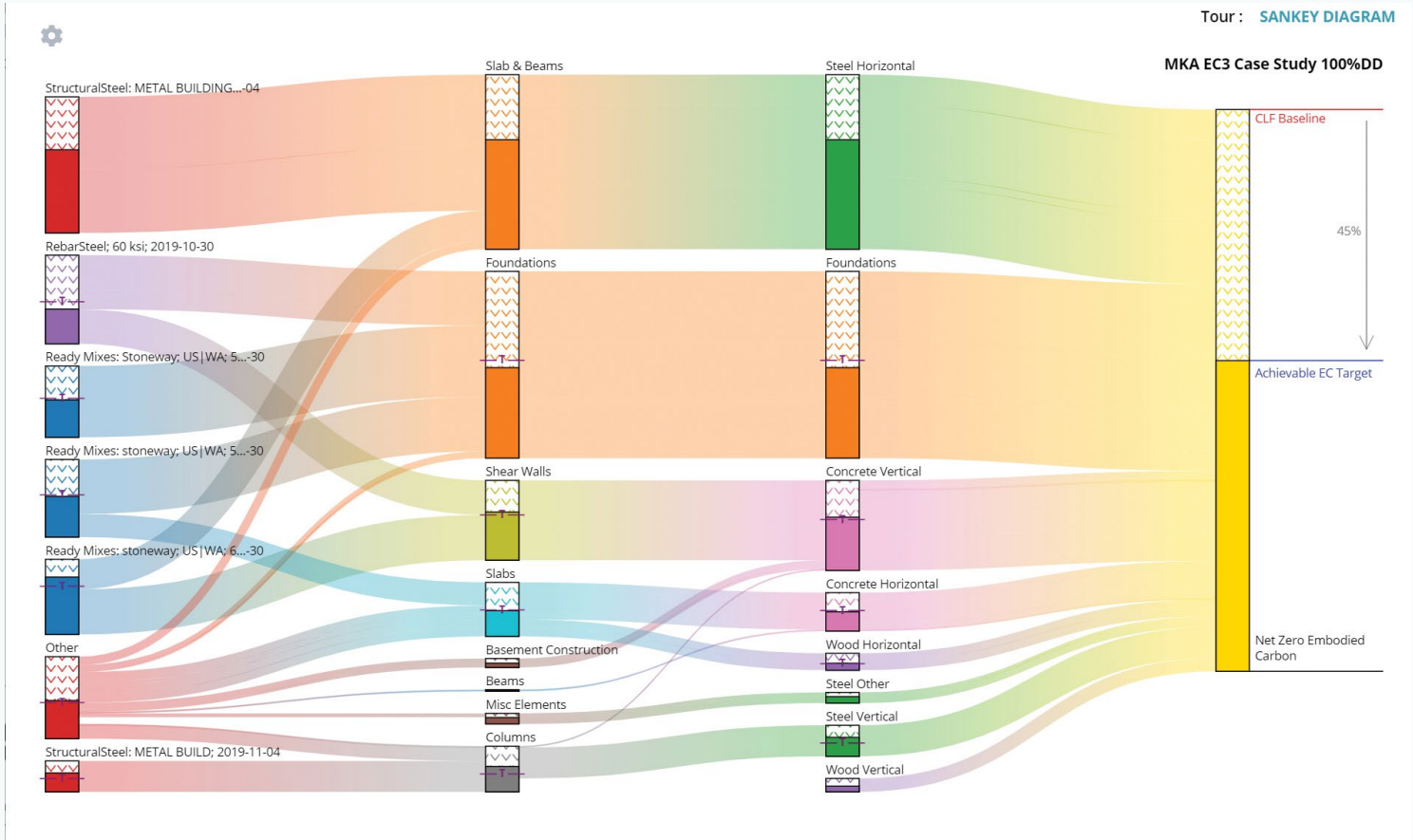
Embodied Carbon

- Climate Impact of Design and Construction
- Near-Term Impact



Lifestyle and Affordability

- Work From Home
- SF Affordability
- Family-Friendly
- Elder Housing

Design Response

Goals and Priorities

- Decarbonization
- Energy Performance
- Resiliency
- Occupant Health
- Equity
- Lifestyle Choices
- Grid Integration

Park District, GGLO, EHA

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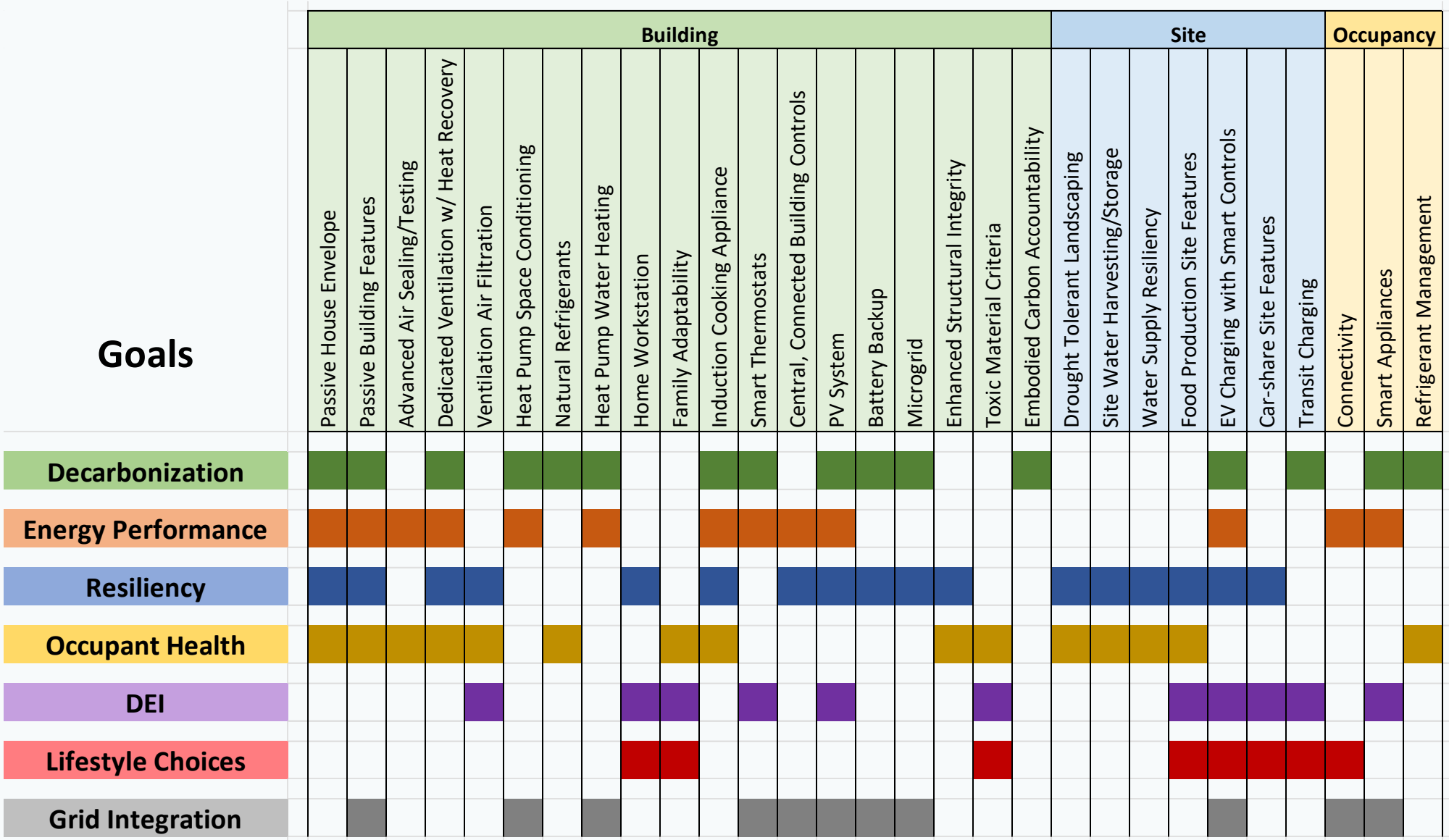
Multifamily – design response



Market implications for buildings

+ Continued efficiency improvements, with load shape/shift focus and flexible loads
+ Actual performance outcome and focus on operation
+ Carbon metric and electrification
+ Refrigerant transition
+ On-site renewables and storage support self-utilization
+ EV deployment, becoming building integrated
+ Resiliency aligned with health and survivability
+ Designs support lifestyle changes, health, and equity

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Join a Group Training Cohort

Learn about Seattle Building Emissions Performance Standard and receive free technical support!

Enroll in a multifamily group training*:

- **Virtual multifamily cohort starts October 22**
- **In-person cohort (all buildings) October 28 & 29**

Join an information session to learn more:

- October 1 at 11am
- October 7 at 1pm

https://www.seattlebuildingsaccelerator.com/events

*Program is available to multifamily and commercial buildings over 20,000 square feet in the City of Seattle. Affordable multifamily housing providers receive priority enrollment.

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