

## Meeting Minutes

January 15, 2025

### **GWAC Members**

Ron Bernstein, GWAC Chair and President,  
RBCG, LLC

Kay Aikin, Founder, CPO, Dynamic  
Grid/Introspective Systems

Andrew Bordine, Sr. Practice Manager, Grid  
Automation, Actalent

Shawn Chandler, Director, Guidehouse

Marc Costa, Dir. Policy Planning, the Energy  
Coalition

David Forfia, Principal Consultant, Utilicast

Lorenzo Kristov, Principal, Electric System  
Policy, Structure, Market Design

Mark Ortiz, Lead Architect, Dist. Energy Sys.,  
Schneider Electric

Farrokh Rahimi, Executive Vice President, Open  
Access Technology International, Inc.

Aaron Snyder, Dir. of Grid Technology  
Consulting, EnerNex

Leonard Tillman, Partner, Balch & Bingham, LLP

### **GWAC Associates & Emeritus**

Mark Knight, GWAC Emeritus, 1898 & Company

Jeff Morris GWAC Associate, Schneider Electric

Ken Wacks, GWAC Emeritus

Ron Melton, PNNL GWAC Emeritus

### **GWAC Guest Speaker**

Blake Ellis, ASHRAE

### **GWAC Friends**

Larisa Dobriansky, General Microgrids, Inc.

Nicholas Domich, Pacific Gas & Electric Co.

Peter Fitzgerald, INS Engineering

Don Hammerstrom, PNNL

Yashar Kenarangui, Xcel Energy

James Orenstein, Trinity River Community Solar

Jeremy Roberts, Green Button

Julie Stroba, INS Engineering

### **PNNL Support**

Jaime Kolln, PNNL GWAC Administrator

Susie McGuire, GWAC Coordinator

## Meeting Minutes

January 15, 2025

Ken Wacks noted that in other online meetings that he attends the rule has been that humans should be attending. Others on the call agreed with this position including Chair Ron Bernstein. Jaime will add this to the GWAC Bylaws, and it will go to a vote by the Council.

**Action: add to the bylaws that attendees should be human and not AI bots.**



## Recording Notice

To assist with the preparation of accurate notes, the discussions at this meeting are being recorded. The recording will not be used for any other purpose than preparing meeting notes.

Jaime Kolln reviewed the fact that the GWAC meetings are recorded to benefit the preparation of meeting minutes and to capture presenter recordings if they choose to allow them to be published on the GWAC website.

Hani Alarian, CAISO, said it is his first invite to attend a GWAC meeting. Jaime noted that he is now considered a GWAC Friend and will be invited to future meetings.

Nicholas Domich, invited by Shawn Chandler, was also attending for the first time. He is with PG&E. He works in the utility partnership division. He works in Utility Partnerships which essentially is aligning the internal people towards a common goal and also aligning with external contacts on potential projects, products and solutions and working towards resolving common industry problems and challenges.

## Meeting Minutes

January 15, 2025

Jamie Kolln opened the meeting.

Jamie reviewed the purpose of recording the meeting for note taking purposes and for speaker video preparation with appropriate permissions.

Ron Bernstein suggested holding off on approval of the December 2024 meeting minutes until the February meeting to give more time for reviewing them.



### Conferences and Events

Date	Event	Location	Attend	Speaker	Topic
Oct. 16, 2024	Smart Energy Consumer Collaborative	Reston, VA	Ken Wacks, Jeremy Roberts		
Oct. 21 – 23, 2025	V2G Business, Policy, and Technology Forum	Detroit, MI	Jaime Kolln, James Mater		Addressing Challenges, Achieving the Potential of V2G
Jan. 21 – 23, 2025	IEEE PES Grid Edge Technologies Conf	San Diego, CA	Kay Aikin, Jaime Kolln, Farrokh Rahimi, Shawn Chandler		Shawn will give a talk on 5G and 5G communication
Feb. 10 – 12, 2025	AHR Expo and ASHRAE Winter Conf	Orlando FL	Ron Bernstein	Ron Bernstein	Grid Arch/Future States GWAC/DLC Mixer proposed
Mar. 24 - 27, 2025	DistribuTECH	Dallas, TX	Forfia, Rahimi, Jaime Kolln		
Mar. 26, 2025	Smart Energy Summit	Dallas, TX	Ken Wacks		Co-located with DTECH
April 14 – 17, 2025	IEEE Energy & Policy Forum	Washington DC (?)			Formerly ISGt
July 27 – 31, 2025	IEEE PES General Meeting	Austin, TX	Farrokh Rahimi, Jaime Kolln		
Sept. 8-11, 2025	RE+	Las Vegas, NV	Jaime Kolln		GWAC Tutorial on Monday, Sept. 8

Jaime Kolln reviewed the Conference and Events list and noted that the IEEE PES Grid Edge meeting is next week. Kay will not be able to attend. Shawn Chandler will attend and is giving a talk on 5G and 6G communication to implement distributed energy resources for utilities. It will also go over interoperability architecture using block chain.

Jaime mentioned that the AHR Expo will be the week of Feb. 11

DTech will be the week of March 24 in Dallas, TX. GWAC attendees include Jaime Kolln, David Forfia, and possibly Mark Knight.

Ken noted that the Smart Energy Summit is part of DTech, and the agenda will be released soon.

The first Energy & Policy Forum, formerly ISGT, will be held April 14 – 17 2025 in Washington DC.

## Meeting Minutes

January 15, 2025

Kay Aikin is hoping to get to attend the IEEE General Meeting. The RE+ Microgrid meeting will be in New Orleans week before DTECH; Kay will attend it. Kay will also attend the NARUC winter meeting.

Kay added that Microgrid Knowledge meeting will be held April 15 – 17, 2025 in Dallas, TX.

Yash Kenarangui is attending Grid Edge and also DTech in Dallas

Lorenzo Kristov will be a panel participant at the IEEE PES General Meeting in July

Jeff Morris noted the dates of the NARUC Winter and Summer meetings.

Kay is planning to attend the IEEE Energy & Policy in DC

Jeremy Roberts noted that the Smart Energy Consumer Collaborative – Consumer Symposium and also the Green Button Alliance Annual Meeting (open to the public and free to attend) will both be co-located with DistribuTech 2025.

[RE+ Microgrids Home - RE+ Events](#)

[DISTRIBUTECH International 2025 - Green Button Alliance](#)

<https://smartenergycc.org/>



### GWAC Accomplishments

- 2024 – [Future Electric Power Industry and Grids – Now What Again is Our Destination?](#) (NEW)
- 2024 – [A Practical Introduction to Common Grid Architecture Techniques](#) (NEW)
- 2023 – Current GWAC [Speaker Video Presentations](#)
- 2015-2022 – [Annual Transactive Energy Systems Conference](#) (since 2019, IEEE PES partnership event)
- 2022 – [Blog Post #5 – Decarbonization efforts of three Northern California CCA's](#) - Bahadur
- 2022 – [Blog Post #4 - Decarbonization of the Electric Grid](#) – Bernstein
- 2022 – [Blog Post #3 - Energy Equity in Decarbonization](#) - Negash
- 2022 – [Blog Post #2 - Grid Infrastructure Challenges In A Decarbonized World](#) – Aikin
- 2021 – [Blog Post #1 - Decarbonization – The Pattern that Has Emerged](#) - McCafferty, McCormick, Forfia
- 2020 – [Transactive Energy FAQ](#)
- 2020 – [Smart Buildings as a Transactive Energy Hub](#)
- 2020 – [Decision Maker's Interoperability Checklist v.1.6](#)
- 2020 – [Reliability and Resilience Considerations for TE Systems](#)
- 2019 - [GridWise® Transactive Energy Framework V1.1](#)
- 2018 - [TE Systems Research, Development and Deployment Roadmap](#)
- 2016 - [TE Decision Makers Checklist](#)



GWAC YouTube Channel



## Meeting Minutes

January 15, 2025



### Action Items

- Send speaker ideas to Jaime Kolln and Ron Bernstein and copy Susie McGuire.
  - **Add an “About the Council” slide to template**
  - Make slide deck templates available to GWAC members.
- Website updates
  - Continue to add video presentations including speakers to GWAC database bureau post on the website.
  - Feedback requested on format, etc.
  - GWAC and Emeritus GWAC to review their bios from the website and update if needed.
- GWAC call for candidates
  - Jaime will be contacting GWAC members with expiring terms.

Jaime Kolln encouraged GWAC members who present on GWAC at various events to use the updated GWAC PowerPoint template with the embedded “About the Council” videos produced by PNNL Communications. They are available on Teams or ask Jaime or Susie and they will send the slide template to you.

2025 Call for Candidates update—

Jaime has talked with the 23/24 class of GWAC to see who wants to stay on.

Jaime introduced today’s guest speaker Blake Ellis with ASHRAE. His talk will be on building decarbonization.

Ron Bernstein asked listeners to hold questions to the end of the talk

## Meeting Minutes

January 15, 2025



**Guest Speaker :**

**Blake Ellis, PE, FASHRAE, CDP**

Bio: Blake Ellis is a Principal with Burns & McDonnell in the OnSite Energy & Power Group, where he spearheads district energy projects. Blake is deeply involved with ASHRAE, currently serving in numerous capacities such as on the Board of Directors, Vice Chair of the Center of Excellence for Building Decarbonization (CEBD), Vice Chair of Standard Project Committee 150-2019R, Board Ex Officio (ExO) to the Publications Committee, and as a member of the Publications and Education Council. Beyond ASHRAE, Blake is also active with the International District Energy Association (IDEA). Blake holds a Bachelor's degree in Mechanical Engineering and a Master's of Business Administration from the University of Minnesota. He is recognized as an ASHRAE Fellow, an ASHRAE Certified Decarbonization Professional, a LEED Accredited Professional, and a Professional Engineer registered in fifteen states, the District of Columbia, and Puerto Rico.

**Abstract:**ASHRAE is actively leading efforts to decarbonize the building sector through its Center of Excellence for Building Decarbonization (CEBD). This presentation will provide information about these efforts, including key initiatives that include developing strategic partnerships, providing technical resources, and advocating for policies that promote energy efficiency and greenhouse gas emission reductions. ASHRAE also offers educational programs, certifications, and awards to support and recognize decarbonization efforts globally.

Blake is a principal with Burns & McDonnell

The slide features the ASHRAE logo on the left, followed by the title "Decarbonizing the Built Environment" in large white text. Below this is "ASHRAE's Strategic Approach" in a slightly smaller font, and "January 15, 2025" at the bottom. At the very bottom, there is a list of credentials for Blake Ellis, PE, CDP, FASHRAE, including his role as Vice Chair of the ASHRAE Center of Excellence for Building Decarbonization and Principal at Burns & McDonnell, with the company logo.

## Meeting Minutes

January 15, 2025

Blake Ellis is on the Board of ASHRAE – and the Center of Excellence for Decarbonization.

ASHRAE is a professional organization of over 50K members in 130 countries with 200 local chapters

ASHRAE is involved with creating standards and guidelines in the build environment. Membership is a variety of stakeholders from the build community.



### MISSION

To serve humanity by advancing the arts and sciences of heating, ventilation, air conditioning, refrigeration and their allied fields.

### VISION

A healthy and sustainable built environment for all.



Meeting Minutes

January 15, 2025

## ASHRAE's position...

*Eliminating GHG emissions from the built environment is essential to address climate change*



## Task Force for Building Decarbonization (TFBD)

(2021 to 2024)

During COVID ASHRAE included preventing the spread of diseases through buildings in their R&D.



## Meeting Minutes

January 15, 2025



## Meeting Minutes

January 15, 2025

# TFBD Objectives

- ✓ Expedite the delivery of technical resources that help design engineers deliver and operate low-carbon buildings
- ✓ Coordinate joint building decarbonization initiatives with other organizations deemed beneficial to ASHRAE's building decarbonization work
- ✓ Project and publicize ASHRAE's decarbonization work globally to establish ASHRAE's leadership position, in partnership with the Society marketing team

## ASHRAE's Position Document on Building Decarbonization

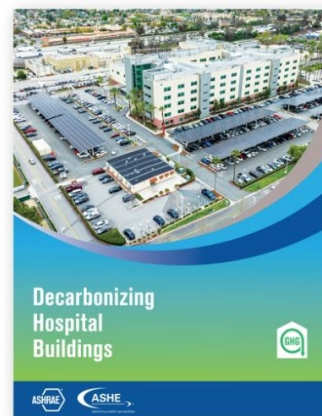
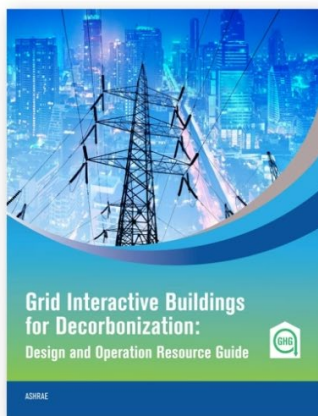
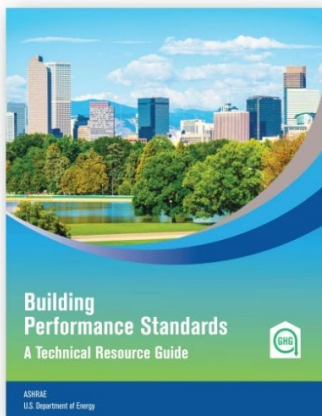
- Provides the basis for ASHRAE's work
- Created in 2022, reaffirmed in 2024
- Contains many items including:
  - ASHRAE's Position that eliminating GHG emissions from the built environment is essential to address climate change
  - ASHRAE's 2030 and 2050 Goals
- Available
  - [In English](#)
  - [En Español](#)
  - [Em Português](#)



Meeting Minutes

January 15, 2025

Technical Guides

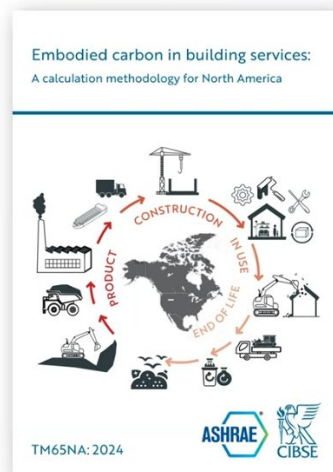


<https://www.ashrae.org/about/cebd-technical-resources>



He also referenced other guides in partnership with other organizations such as this one is on heat pumps dev with NREL:

Technical Guides



<https://www.ashrae.org/about/cebd-technical-resources>



Meeting Minutes

January 15, 2025

STANDARDS

KNOWLEDGE  
RESOURCE  
HUB



STANDARDS

ASHRAE Standards Addressing Decarbonization

	ASHRAE Standard	Topic				
		Energy Efficiency	Operational Carbon Emissions	Embodied Carbon Emissions	Refrigerant Emissions	Renewables
New Construction	<b>ANSI/ASHRAE/IES Standard 90.1-2022, Energy Standard for Sites and Buildings Except Low-Rise Residential Buildings</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>			<input checked="" type="checkbox"/>
	<b>ANSI/ASHRAE/IES Standard 90.2-2018, Energy-Efficient Design of Low-Rise Residential Buildings</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>			<input checked="" type="checkbox"/>
	<b>ANSI/ASHRAE Standard 90.4-2022, Energy Standard for Data Centers</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>			
	<b>International Green Construction Code® and ANSI/ASHRAE/ICC/USGBC/IES Standard 189.1-2023, Standard for the Design of High-Performance Green Buildings Except Low-Rise Residential Buildings</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
	<b>ANSI/ASHRAE/ASHE Standard 189.3-2021, Construction, and Operation of Sustainable High-Performance Health Care Facilities</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	<b>Proposed ASHRAE Standard 227P, Passive Building Design Standard</b>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	

Legend:

- Included in standard
- Carbon calculation methodology included in standard
- Under consideration for inclusion in next update of standard
- Included in proposed standard
- Under consideration for inclusion in the proposed standard

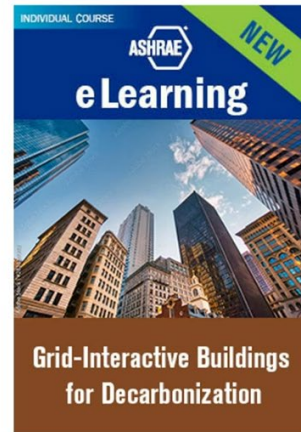
Note: Energy efficiency directly contributes to operational GHG emission reductions.

## Meeting Minutes

January 15, 2025

### Educational Courses

- Developing Courses to enhance the published guides
  - eLearning & In person
  - **Available Now:** eLearning for [Grid-Interactive Buildings](#)
  - eLearning is Module Based
  - Future Courses
    - Decarbonizing Building Thermal Systems
    - Decarbonizing Hospital Buildings
    - Whole Life Carbon Guide



### Decarbonization Specialty Conferences



**International Building  
Decarbonization 2022  
Conference**  
Athens, Greece

This meeting was the first of its kind, registration was very high, so they have created more specialty conferences.

Meeting Minutes

January 15, 2025

## Decarbonization Specialty Conferences



**International Building Decarbonization 2022 Conference**  
Athens, Greece

**2023 Decarbonization Conference for the Built Environment**  
Washington, DC



**International Building Decarbonization Conference 2024**  
Madrid, Spain

**2024 ASHRAE Decarbonization Conference: Decarbonizing Existing Tall Buildings**  
New York, NY



- Focused on Strategies and Solutions for Scaling Up Building Decarbonization
- Even Larger Venue
- Expected to Sell Out

Sign up [here](#)

### 2025 ASHRAE Building Decarbonization Conference

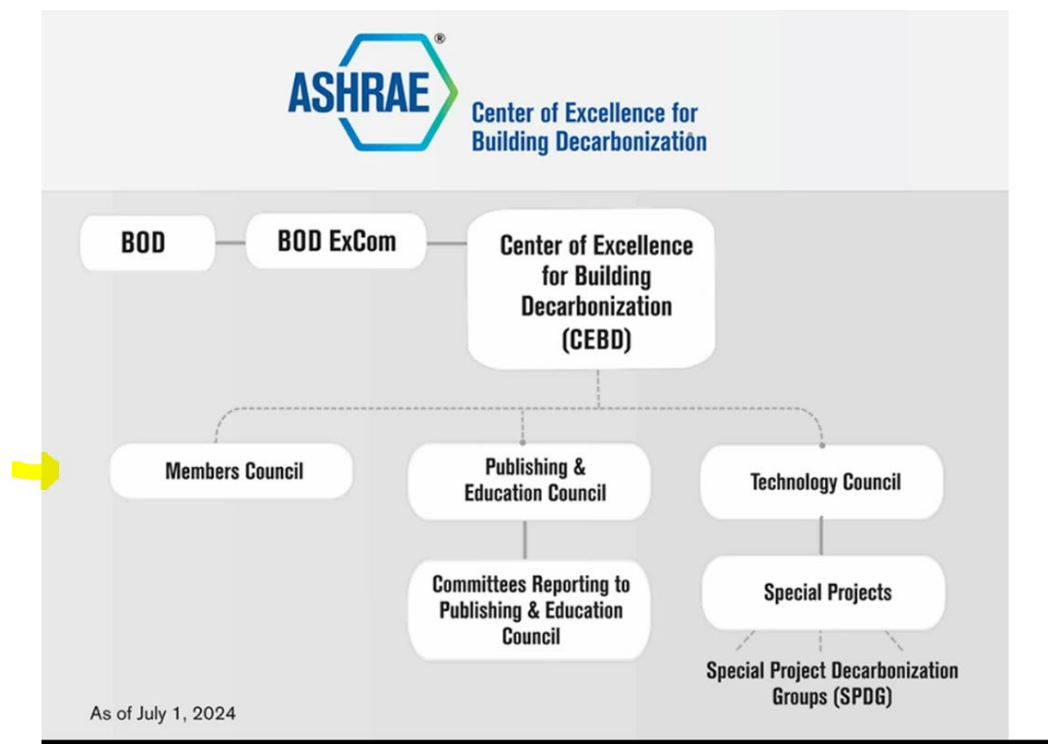
October 22-24, 2025 | Chicago, IL

The next one is scheduled to be in Chicago (above)

## Meeting Minutes

January 15, 2025

URL: <https://www.ashrae.org/conferences/topical-conferences/2025-ashrae-building-decarbonization-conference>



## Meeting Minutes

January 15, 2025

### Primary Responsibilities

- **Strategy.** Provide strategic direction for ASHRAE building decarbonization activities and work with the Planning Committee to incorporate appropriate goals into the Society strategic plan.
  - ASHRAE’s building decarbonization strategy will be updated annually to keep up with the rapid pace of change in this area.
  - Develop, lead, and/or participate in strategic initiatives, generally with partner organizations, that accelerate and advance building decarbonization globally.
- **Thought Leadership.** Monitor future issues and trends and publicize ASHRAE’s decarbonization work globally to establish ASHRAE’s leadership position, in partnership with Marketing.

More work from various councils within ASHRAE

### Supporting Activities

- These operational activities will be led by one or more relevant councils, committees, or Decarbonization Task Groups (DTGs) across the global ASHRAE organization. The Center will support these activities. ASHRAE staff will coordinate these activities, with further assistance provided by CEBD members as needed.
  - **Technical Resources**
  - **Technical Review**
  - **Standards Coordination**
  - **Training Development**
  - **Resource Internationalization**
  - **Member Engagement**
  - **Development**



Meeting Minutes

January 15, 2025

# 2024 TFB/CEBD Spring Planning Meeting

May 17-18, 2024  
Chicago



At this meeting ideas were presented for what will have impact, based on ASHRAE values.

Here are what were chosen with 1 to 7 prioritized

## CEBD Future Projects List (as of May 2024)

- Evaluating Global ASHRAE Member Needs for Building Decarbonization Education
- Refrigerant Emissions Management, Tracking and Compliance
- Harmonizing Global Decarbonization Standards for Streamlined Compliance
- Streamlined, Flexible International Building Code Framework
- Optimizing PCR Protocols for Enhanced EPD Precision in HVAC&R Manufacturing
- Update HVAC Equipment Service Life Data
- Standardizing Whole Life Carbon Calculations for Building Systems
- Whole-Life Carbon Options Tool
- Strategic Assessment of Embodied and Operational Carbon Trade-Offs
- Updating Heat Pump Testing Requirements
- A1-A3 Foundational Embodied Carbon Quantification for MEP Systems
- Heat Pump Sizing Guide: Enhanced for Defrost Efficiency and Decarbonization
- Decarbonization Framework for Data Centers
- Decarbonizing District Energy Systems Guide
- Decarbonizing Single-Family Homes: A Guide for Sustainable Retrofits
- Building Circular Economy Practices for GHG Reduction
- Expanding Decarbonization to Unconventional GHG Emission Sources
- Decarbonization Strategies for Supermarket Industry Archetypes

40% of CO2 emissions are from buildings.

## Meeting Minutes

January 15, 2025

The world is building the sq ft equivalent of another New York, New York every 30 days.

### CEBD Proposed Project

<b>Title:</b>	<b>Streamlined, Flexible International Building Code Framework</b>
<b>Scope:</b>	For all new buildings to be zero emissions ready by 2030, all countries must implement national building codes, along with enabling policies and programs, that will drive the market towards deep energy efficiency, net zero emissions, building electrification, low-GWP refrigerants, renewables integration, and demand flexibility. Eighty-two percent of the population growth through 2030 is expected in emerging economies, where many countries lack mandatory energy codes. This project seeks to develop a flexible building code framework with specific countries to streamline the development and adoption of consensus-based national/subnational model building codes, supporting tools, and training.
<b>Collaborators:</b>	US DOE, US State Department, PNNL, IEA, ICC, WRI, WBCSD, Climate Group, C40, WorldGBC, UNEP, GlobalABC, Australia, Canada, Germany, Namibia, Ghana, Colombia, Kenya, Vietnam
<b>Timeline:</b>	2024-2025

Blake noted 4 ASHRAE handbooks available.

In the building code framework Chapter 38 explains the life of standard appliances.

### CEBD Proposed Project

<b>Title:</b>	<b>Update HVAC Equipment Service Life Data</b>
<b>Scope:</b>	The project will update ASHRAE's equipment service life tables from 1978 and 2005 data. Determining the useful life of equipment is important to understand the embodied carbon impact of equipment replacement over a building's lifetime and in developing building decarbonization roadmaps. The source of equipment service life is Chapter 38 of the ASHRAE HVAC Applications Handbook. In 1978, ASHRAE published research project RP-186, which contained service life data for HVAC equipment. In 2005, research project TRP-1237 gathered updated data on equipment, but not as comprehensive as RP-186. Both data sets need updating due to new manufacturing processes and equipment categories.
<b>Collaborators:</b>	AHRI
<b>Timeline:</b>	2024-2026

Updated

## Meeting Minutes

January 15, 2025

### CEBD Future Projects List (as of Jan 2025)

1. Evaluating Global ASHRAE Member Needs for Building Decarbonization Education
2. Refrigerant Emissions Management, Tracking and Compliance
- Addressed by SSPC 90.1-Energy Standard for Buildings Except Low-Rise Residential Buildings*
4. Streamlined, Flexible International Building Code Framework
- Addressed by SPC 244P – Sustainability Assessment for Mechanical, Electrical, and Plumbing Products*
6. Update HVAC Equipment Service Life Data
7. Standardizing Whole Life Carbon Calculations for Building Systems
8. Whole-Life Carbon Options Tool
9. Strategic Assessment of Embodied and Operational Carbon Trade-Offs
10. Updating Heat Pump Testing Requirements
11. A1-A3 Foundational Embodied Carbon Quantification for MEP Systems
12. Heat Pump Sizing Guide: Enhanced for Defrost Efficiency and Decarbonization
13. Decarbonization Framework for Data Centers
14. Decarbonizing District Energy Systems Guide
15. Decarbonizing Single-Family Homes: A Guide for Sustainable Retrofits
16. Building Circular Economy Practices for GHG Reduction
17. Expanding Decarbonization to Unconventional GHG Emission Sources
18. Decarbonization Strategies for Supermarket Industry Archetypes



Most of these projects are moving forward. Future funding for the others will be discussed at the meeting in Orlando next month.

# 7 changed to:

6. Update HVAC Equipment Service Life Data
7. Whole Building MEP Benchmarking Data Research
8. Whole-Life Carbon Options Tool
9. Strategic Assessment of Embodied and Operational Carbon Trade-Offs

He noted that supermarkets and hospitals are very energy intensive.

## Meeting Minutes

January 15, 2025

## Awards

- Eunice Foote Decarbonization Award
  - This award recognizes a member who works to reduce carbon emissions in the built environment.
- Decarbonization Challenge Fund
  - A year-long competitive grant (\$1,000 - \$10,000) program to implement decarbonization projects within ASHRAE chapters.

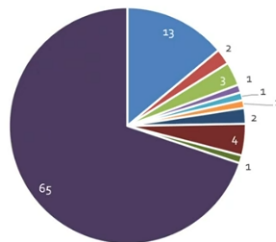


Paul Torcellini, NREL  
2024 Eunice Foote Award Winner

ASHRAE offers recognition awards and challenge funds.

## Certifications

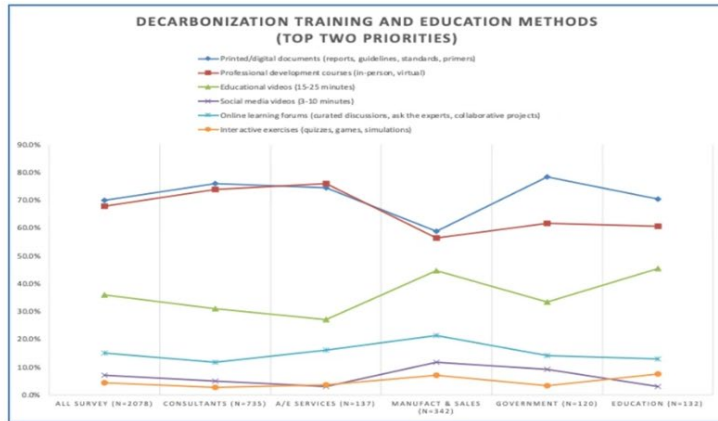
- Certified Decarbonization Professional
  - New ASHRAE Certification
  - First group of CDPs announced in September 2024
    - 93 CDPs
    - 10 Countries
      - 65 in the United States
      - 13 in Canada
      - 4 in the United Arab Emirates
      - 3 in India
      - 2 in Hong Kong and Thailand
      - 1 in Lebanon, Saudi Arabia, Singapore, and United Kingdom



Meeting Minutes

January 15, 2025

ASHRAE Member Satisfaction Survey  
Decarbonization Training & Education Priorities



1. Printed / Digital Documents

- Reports, Guidelines, Standards, Primers

2. Prof Development Courses

- In-Person, Virtual

3. Educational Videos

- 15-25 min

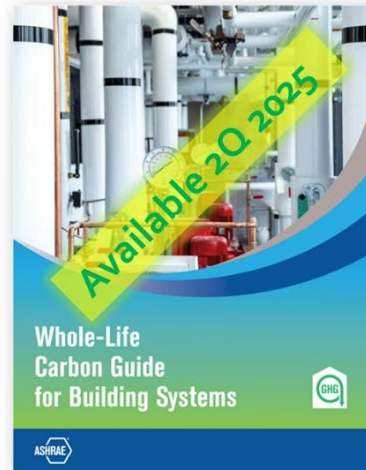
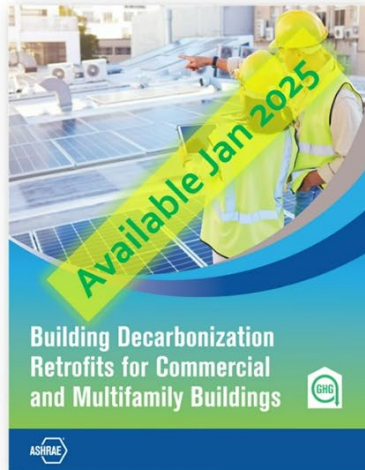


Publications that are coming soon

Meeting Minutes

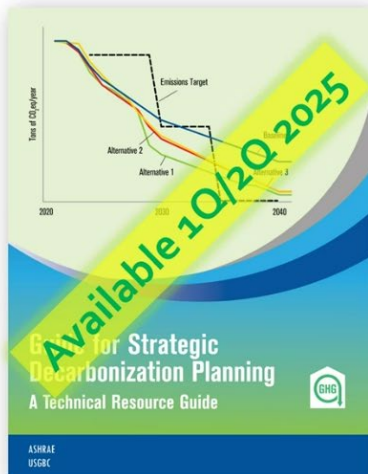
January 15, 2025

## Technical Guides



<https://www.ashrae.org/about/cebd-technical-resources>

## Technical Guides



<https://www.ashrae.org/about/cebd-technical-resources>

## Meeting Minutes

January 15, 2025

### 45-Minute Chapter Presentations + Video



Local chapter work highlighted in videos at the ASHRAE website

### Other Resources

- Evaluation of ASHRAE Member Needs for Building Decarbonization Education
  - Final data gathering at the 2025 ASHRAE Winter Conference
  - Training and Education Committee reviewing initial results
- Future Courses & Educational Programs
  - Existing eLearning remains underway: ***Decarbonizing Building Thermal Systems, Decarbonizing Hospital Buildings, Whole Life Carbon Guide for Building Systems***
  - Additional funding is being requested at the 2025 ASHRAE Winter Conference
  - Exact priorities to be determined shortly

## Meeting Minutes

January 15, 2025

### Next Round of CEBD Projects

1. Whole-Life Carbon Options Tool
2. Strategic Assessment of Embodied and Operational Carbon Trade-Offs
3. Updating Heat Pump Testing Requirements
4. A1-A3 Foundation Quantification
5. Heat Pump System Defrost Efficiency
6. Decarbonization Data Centers
7. Decarbonization District Energy Systems
8. Single-Family Homes: A
9. Retrofits
10. Economy Practices for
11. Decarbonization Strategies for Supermarket Industry Archetypes

Plus, other projects to be determined in the CEBD's next Strategic Planning Session

### Strategic Partnerships

- Streamlined Flexible Codes
  - MOU with IEA presented at COP 29
  - Presented in UK, Sudan, Ghana
  - Flexible Code Framework for Indonesia
    - Net Zero World is funded by DOE
    - Piloted in 2025 by Berkley Lab funding
- United States White House
  - A3 refrigerants
- International Energy Agency (IEA)
- Française de Normalisation (AFNOR)
- Department of Energy (DOE)
- Air Conditioning, Heating and Refrigeration Institute (AHRI)
  - PCR Standard Coordination
  - CEBD Liaison
- United States Green Building Council (USGBC)
- Chartered Institute of Building Services Engineers (CIBSE)
- Others?



## Meeting Minutes

January 15, 2025

### ASHRAE's Strategic Approach

- Decarbonization is becoming infused into the organization
- We want to provide solid technical information to the market
- We want to work with other organizations to maximize impact
- We need to continually adapt as needs change

Being able to pivot as trends change is important.

Kay asked about Heat pumps and pushback (Mitsubishi mentioned). Blake mentioned the Heat Pumps/cold climate about to be published and also the Retrofit guide for existing buildings.

He addressed renovation for a building may be best to keep the old boiler for the last 20% (?) so you don't have to redo the electric service.

If people put a heat pump in Alaska, they need to do it right, there is a way to do that. But you have to do it right.

Kay said you have to tighten up the building in the renovation –

Jaime thanked Blake and asked him to check the questions in Chat.

Call for Candidates is closing Jan 17

We have some great candidates that we will review.

Class of 24-25 – we need 2 volunteers for review committee

## Meeting Minutes

January 15, 2025



### AHR Expo



**GWAC Presents: Impacts of Building Decarbonization & Electrification on the US Power Grid**

Hosted by GridWise™ Architecture Council (GWAC)

**Monday, February 10, 2025, at 4:30 PM - 6:00 PM**  
**Room W312AB**

This seminar will provide the audience with a comprehensive understanding of the US power grid architecture principles & how the changes in the built environment are impacting grid services. We will discuss the impacts of decarbonization and electrification on the grid and the impacts of growth of distributed energy resources (solar, wind, micro and nano grids). Attendees will learn from experts in the design and implementation of smart building management systems that have the ability to directly integrate with grid services, incentives, and AI applications.

Registration is free at AHR

Jaime commented that the title is in line with Blake's PowerPoint today

Ron Bernstein noted that he will give a talk at AHR and at ASHRAE as well as contributing to the GWAC panel.

For anyone going to AHR let Ron know and he will send information about meeting up with the GWAC team for the meeting with DLC and ASHRAE associates.

## Meeting Minutes

January 15, 2025

**GRIDWISE** Architecture Council

### RE+ 2025

- Next event is in Las Vegas, September 8-11
  - Discussing Monday F2F and GWAC/SEPA Tutorial with Aaron Smallwood
    - Followed by a GWAC + SEPA Mixer!!!???



Jaime reviewed the plans far for RE+ in September 2025.

The GWAC will present a Monday morning tutorial and possibly an informal dinner (no host) that evening.

Some early planning discussions with Aaron Smallwood are underway.

Ron Bernstein suggested that anyone planning to attend should book their hotel now to be able to stay at the host hotel.

## Meeting Minutes

January 15, 2025



### GWAC Face to Face Meeting Schedule

- Las Vegas, @ RE+ the morning of September 8<sup>th</sup>
- April? (14<sup>th</sup> – 17<sup>th</sup> IEEE Energy and Policy Forum, DC)
- PNNL?
- NARUC Meeting schedule

An April meeting would have badging requirements



### “Next Big Thing” / “Back from the Future”

- Originally presented at AHR Expo
- Ron Ambrosio and Rahul Bahadur are leading a committee to develop a webinar on "The Next Big Thing"
  - Rahul Bahadur and Ron Ambrosio Updates
- Next Steps
  - Development of a concise slide deck
  - Draft presentation will be reviewed by GWAC
  - Web Page with details including GWAC activities



Ron Ambrosio said that there have been no changes since December, he and Rahul are working on the final edits from feedback.

## Meeting Minutes

January 15, 2025

Marc Costa said that regarding Regulatory paper, more meetings are scheduled, they are moving into content from structure. They had a good call this month. Peter Fitzgerald joined the group this month. The meeting was very good with any questions and discussions.

Shawn Chandler said that he wants to join the Regulators meeting.



### Applying Grid Architecture Concepts to Bridge Back from the Future Grid

Building on the previous GridWise Architecture Council work products, this document attempts to provide a roadmap for operators, planners, developers, integrators, and policy makers as guidance to develop interoperable systems that will architect the grid of the future as described in the future states. This paper will include discussions of motivating participation of customer owned assets and opportunities for avoided costs by working toward a long-term vision rather than only short-term needs. This document will be completed in FY25.

- Committee : **Mark Paterson**, Marc Costa, Ron Ambrosio, David Forfia, Kay Aikin, Lorenzo Kristov, Farrokh Rahimi, Aaron Snyder,
- 2:00 PM PT/ 5:00 PM ET Thursday 2 times 1<sup>st</sup> and 3<sup>rd</sup> Thursday of the month

Kay said this group will have a meeting near the end of January.

Kay just finished a 32-page draft over the holidays. She met with Mark Paterson. Mark will review the paper and provide feedback in a week and then it will go to the entire team for review. Jaime had set up a meeting today, but Kay said that they were hoping to hold the meeting in week of Jan. 30.

## Meeting Minutes

January 15, 2025



### **Grid Architecture Concept Model for Transportation Electrification**

Analyze various visions of the electrification of fossil fuel-based systems and identify areas where GWAC concepts could provide architectural value to bridge and coordinate between customer and grid objectives. Electrification will introduce dependencies such as those seen in the transportation sector due to electrification. Grid Architecture will be used to describe the touchpoints (for example through sector coupling) that will require collaboration. GMLC reference cases will be included. This activity will take place in FY24 and be completed FY25.

- 15-20 page whitepaper
- Committee: Jaime Kolln, Ron Cunningham, Farrokh Rahimi, Mark Ortiz, David Forfia, Aaron Snyder, Lorenzo Kristov, Bhaskar Mitra, Paul DeMartini
- 1:00 PM PT/ 4:00 PM ET, 2<sup>nd</sup> and 4<sup>th</sup> Tuesday of the month

## Meeting Minutes

January 15, 2025



### Liaison Reports

- NIST – David Wollman
  - Green Button – Jeremy Roberts
  - EPRI – Sean Crimmins
  - IEEE PES – Farrokh Rahimi, Mark Siira – SC21, IEEE 2030 Update
  - ASHRAE, DLC (Design Lights Consortium) – Ron Bernstein
  - ISO/IEC, IREC – Ken Wacks
  - SEPA – Aaron Smallwood
  - NARUC – Jeff Morris
- *Are there other organizations we should be hearing from?*

Jeremy Roberts - Green Button. Jeremy said that at the end of March there will be a general Green button meeting, and he invited all interested participants from GWAC to attend.

They are finishing big things in New York such as IDER – Integrated Energy Data Resource – in phase 2. It is Green Button for every utility in the state of New York.

They are doing a SYMPOSIUM on the 24<sup>th</sup> of March at DTech. Jaime asked for the panel title. Jeremy will email Jaime when he has it and GWAC can help publicize it.

Jaime saw a post by Chris about Green Button and AI by a consumer – on Linked In.

Jereme said a lot of information is out on GitHub – people sharing codes for their own use.

Chris Irwin is speaking at the next Green Button meeting

Sean Crimmins not on the call today.

Farrokh Rahimi – IEEE: The Grid Edge Conference is next week. Farrokh will not be participating in the Energy Policy forum in Washington DC.

## Meeting Minutes

January 15, 2025

The IEEE PES General Meeting will be held the week of July 27 in Austin, TX. Several from GWAC will attend and they will be holding panel sessions, demos, and presentations. IEEE PES has representatives in block chain communities. He and Ron Melton participate on that committee.

Shawn Chandler added that the blockchain standard will be released in the next couple months. It has gone through a final review.

David Forfia said he appreciated Shawn's work on this new standard.

Ron B. suggested that Shawn's work on the block chain standard be considered as a future GWAC topic with Shawn as the presenter.

Ron B. had no ASHRAE updates.

Ken Wacks ISO/IEC: Ken noted that a number of standards have been published recently with two on cyber security and privacy. They have expanded IT standards on privacy to include devices in the home that could impact occupants privacy.

They have published the second edition Energy Management Framework standard that he was the lead author on. It has been vetted by the members of the committee and the nationals of the world that review our standards.

They are also in the process of writing a standard that I had previously authored on appliance safety. It should be finished late this year or early next year.

They are making plans for a spring meeting starting April 7 on Zoom as a virtual meeting and probably a follow-on meeting in June. If anyone would like to participate, please contact Ken for more information.

The annual face to face meeting will likely be held in September or October of this year in Ireland.

IREC – Ken Wacks. Ken said that the Interstate Energy Renewable Committee will hold their 80<sup>th</sup> meeting held since they started in 2020. The topic this week will be on integrated buildings in Canada, addressing energy and environmental challenges through technological innovation and sustainable practices.

The meeting will be this Friday, and it is open to anyone who is interested. Just contact Ken Wacks to get connected.

The meeting this Friday features two presenters. One will be David Katz who is the board chair of the Ontario Sustainable Energy Association.

Also presenting will be Andrew Shi, a student at Dartmouth College in Hanover, New Hampshire where he is studying environmental science with a focused on sustainable energy.

Ken said if you search on IREC CGE and you will see the page and you can sign yourself up to attend.



## Meeting Minutes

January 15, 2025

Ron Bernstein – ASHRAE. Ron said he has been working with a group on a method for modelling buildings and developing a semantic interoperability standard. It's a subset of the back net committee, the 135-member committee which is a subset of TC1.4 It has to do with Control theory and applications. The activities of yesterday's meeting has created interest at the ISO level to adopt the ASHRAE 223P as an international ISO standard. He described it as "semantic interoperability S223P.

Ron said this would be a tool that would traverse a building automation or building management system database and use back net IP to find things needed and perform modelling diagnostics or energy configuration as needed. It would also help with commissioning. It is more than a paper. It is a GitHub based project. It may eventually have a validation, credentialing or certification program on top of it.

Ron replied to Jaime that it is primarily focused in the buildings area but the modelling aspect would allow for connections to anything. S223P comes as a replacement for brick and haystack or brick and brick. It can meet S223P by adopting some minor changes.

### **New Business**

Nicholas Domich from PGE introduced himself. He has been attending a few GWAC meetings at the invitation of Shawn Chandler. Nicholas said his focus is dealing with large loads and capacity strategy from the perspective of utility partnerships.

He is focused on large load and capacity strategy. Key drivers is large load applications for AI and Cloud computing and using our existing infrastructure. They are using a conditions-based approach.

Jaime invited Nicholas to Join the Regulators meeting as well as any other work groups that he is interested in.

## Meeting Minutes

January 15, 2025



### Upcoming GWAC Meetings

Date	Topic or Speaker	Format	Other
January 15th, 2025	Monthly GWAC	Virtual	Teams
February 10 <sup>th</sup> –11 <sup>th</sup> , 2025	GWAC Tutorial at AHR Expo in Orlando FL; 4:30pm – 6:00pm, Room W312AB		
February 19 <sup>th</sup> , 2025	Monthly GWAC	Virtual	Teams
March 19 <sup>th</sup> , 2025	Monthly GWAC	Virtual	Teams
April 16 <sup>th</sup> , 2025?	Monthly GWAC	Virtual?	Teams

Ron Bernstein asked if there were ideas for future GWAC meeting guest speakers. He added that has someone in mind from the Design Lights Consortium on the topic of energy efficiency incentives.

Ron B. asked about workforce development, he said there is a team at PNNL has a team that is doing it, building a workforce for energy efficiency.

Nicholas noted resource constraints, and a lack of quality candidates for the workforce. He said that for Southern California it will be a challenge getting supplies and infrastructure restored. Getting things like transformers, bushings. A deeper dive on maintenance, digital twin for forecast and predictability maybe needed. We want to expedite the return of infrastructure and this ties in with workforce development.

Ron Bernstein adjourned the meeting.

## Meeting Minutes

January 15, 2025



### Adjourn



Next GWAC Virtual Meeting: February 19, 2025

<https://gridwiseac.org/>