

Technical Committee Meeting Minutes
Technical Committee, TC 6.4 Combined Heat & Power Systems
Tuesday, February 3, 2026: 2:30 PM - 4:00 PM PST

Location: Caesars Palace, Room: Tuscany Boardroom (PS)
Meeting Format: Hybrid

Chairs and Voting Members:

Position	Term	Name	Voting Status	Present
Chair	06/30/2026	Michael Calabrese	Non-VM	Yes
Vice Chair	06/30/2029	Praveen Cheekatamarla	VM	No
Secretary	06/30/2026	Kathryn Hinkelman	VM	Yes
Program Subcommittee Chair	06/30/2027	Mahabir Bhandari	Non-VM	No
Handbook Subcommittee Chair	06/30/2028	Alok Kumar	VM	Yes
Standards Subcommittee Chair	06/30/2027	Dragos Paraschiv	Non-VM	Yes
Research Subcommittee Chair	06/30/2027	Farzin M Rad	Non-VM	Yes
Membership Subcommittee Chair	6/30/2030	Geoffrey Bares	VM	Yes
Webmaster	6/30/2028	Joel Deddens	VM	Yes
Member	06/30/2027	Zhiming Gao	VM	No
Member	06/30/2026	William A Ryan	VM	Yes
Member	06/30/2026	Vikas Patnaik	VM	Yes

Guest Attendees: Complete attendance list in Appendix A.

Position	Name	Present
TAC Section 6 Head	Eric Berg	Yes
IDEA Liaison	John Andrepont	Yes
TC 8.3 Liaison	William A Ryan	Yes

MINUTES

1. Welcome & Introductions – TC Chair (Michael Calabrese) hosted the hybrid meeting
 - a. The Chair (Michael Calabrese) Called to Order at 5:30 pm.
 - b. Name, organization, and positions on committee. Roll call.
 - c. Quorum has been established with 6 voting members present.

2. Updates from TAC (Eric Berg)
 - a. Rosters need be updated with Pro CMs updated to CMs by March 6, 2026.
 - b. TC Activity Form should be completed tonight.
 - c. Procedurally, the TC needs to annually reaffirm to continue, combine, or disband. This needs to be on record. (See discussion and motion in *New Business* below.)
 - d. For Standards, the standard number needs to be referenced when updating.
 - e. All subcommittee meetings are to be fully virtual for Austin and all following.

3. The Chair (Kathryn Hinkelman) discussed the Purpose Statement
TC 6.4 is concerned with combined heat and power (CHP) systems, their cycles and components including heat recovery, combustion turbine inlet cooling (CTIC), energy conversion and system integration. The systems provide both electrical/mechanical power and cooling/heating thermal energy and are also known as cogeneration systems; trigeneration systems; and combined cooling heating and power systems.

4. Meeting Minutes from the 2025 (Phoenix) Summer Conference
 - a. Copies of the draft minutes of the Phoenix meeting were distributed to the members.
 - b. **MOTION** to approve the Summer 2025 meeting minutes. Motion by Joel Deddens, second by Bill Ryan, all Yea, no Nay. **Motion passed unanimously, 6-0-0-CNV.**

5. Subcommittee Reports
 - a. Program: Reported by Michael Calabrese (Chair) and Bill Ryan (Member)
 - i. Mahabir was unable to attend due to federal participations restrictions. The chair will compile information on the report and provide a supplement to this meeting, posted on the website.
 - ii. The Chair reviewed program topics for the Austin Conference and key participation deadlines, including debate proposals, conference papers, presentations, and workshops.
 - iii. Program Inquiry on Outdoor Contaminants: John Ramkey (Research Chair for TC 2.4) raised interest in a future winter program on outdoor contaminants, including SCRs (ammonia, etc.). Participation was requested from individuals with air contaminant expertise.
 - iv. Proposed Seminar on Thermal Energy Storage (TES):
 1. John Andrepont (TC 6.9) proposed a seminar featuring TES projects at Austin Energy and UT Austin with co-sponsorship by TC 6.2 and TC 6.4, noting UT Austin’s large CHP installation.
 2. **MOTION** to co-sponsor the “TES at Austin Area Facilities” seminar (lead: TC 6.9; co-sponsor: TC 6.2). Motion by Geoff Bares, second by Joel Deddens, all Yea, no Nay. **Motion passed unanimously, 6-0-0-CNV.**

- v. TC 8.3 Program Updates (Bill Ryan):
 1. Attendance at the seminar on Barriers and Opportunities for Heat Pumps was well attended in Vegas, co-sponsored by TC 6.4.
 2. TC 8.3 is asking TC 6.4 to co-sponsor their Track 8 seminar on Decarbonization Through Thermally Driven Heat Pumps.
 3. TC 8.3 also expressed willingness to co-sponsor any TC 6.4 programs for Austin.
 4. **MOTION** to co-sponsor the TC 8.3 seminar. Motion by Bill Ryan, second by Alok Kumar, all Yea, no Nay. **Motion passed unanimously, 6-0-0-CNV.**
 - vi. Co-Sponsorship Proposal for Austin Area Tour:
 1. TCs 6.2 and 6.9 discussed organizing a technical tour and asked TC 6.4 to co-sponsor.
 2. Austin Energy typically limits downtown plant tours to ~10 participants; larger tours (40-50 people) have occurred in the past.
 3. Austin Energy is not CHP-based, though some satellite locations may have CHP; UT Austin is fully CHP, generating 100% of its own power.
 4. **MOTION** to co-sponsor the tour (lead: TC 6.9; co-sponsor: TC 6.2). Motion by Bill Ryan, second by Joel Deddens, all Yea, no Nay. **Motion passed unanimously, 6-0-0-CNV.**
- b. Research: Farzin Rad (Subcommittee Chair)
- i. RAC Meeting Update:
 1. Reviewed the March 16 RTAR deadline (four submission cycles per year).
 2. Jin Wen and Matt Mullen serve as liaisons to TC 6.4.
 3. There are 46 active ASHRAE research projects.
 4. Research Advisory Panel is requesting TC input to improve engagement.
 5. Research Promotion Campaign raised \$2.7M.
 6. FY 2025/2026 research budget: \$0.42M.
 7. Three RTARs and three work statements were processed (zero previous year).
 8. Potential for six new research projects (funding cap \$350k; \$500k with special approval).
 9. Online RTAR submission portal is now available.
 10. Service to ASHRAE Research Award activity was noted.
 - ii. TC 6.4 Research Activities:
 1. No active RTARs at present.
 2. In development: Micro-CHP with chiller integration for small data centers.
 3. Farzin is drafting internally and will circulate a revised version.
 4. Farzin requested additional research topic ideas from committee members.
 5. Fuel Cell in Buildings Design Guide Update: Previous publication (originally sponsored by TC 6.4) missed prior submission windows. The intent is to submit a revised publication topic to ASHRAE Research after this meeting.
- c. Handbook: Alok Kumar (Subcommittee Chair)
- i. Chapter 7 on CHP Systems:
 1. Markups have been received and names will be proposed for access to the authoring portal. Comments will be added to the portal.
 2. Target schedule: March for internal review and vote on revisions. June for completion of edits.
 - ii. Chapter 8 on Combustion Turbine Inlet Cooling (CTIC):
 1. Markups were received from Dharam Punwani.

2. The draft will be circulated to the full committee for review (not yet distributed) for comments and edits.
 3. It was noted that Chapter 8 contains more comments than Chapter 7.
 - iii. Alok reached out to TC 9.2 (Nuclear Facilities); they may propose edits including a new section on CHP with nuclear systems. Others have also been identified to look at the chapter.
- d. Standards: Dragos Paraschiv (Subcommittee Chair)
- i. Standards Committee Meeting Update:
 1. ASHRAE currently has 104 standards posted for public review with hundreds of comments.
 2. 85 addenda and 18 new standards/guidelines have been published. Standards such as 62.1, 62.2, and 90.4 were among those updated.
 3. ASHRAE is examining consolidation of standards by scope/purpose. SBC 204 (CHP oversight) is placed in Category A (Heating, Cooling, Capacity, Efficiency, Pressure Drop) and Scope 3 (Systems).
 4. It was noted that these are wide categories that will require careful attention to standardize consistently.
 5. Final process and implications will be discussed further at the Austin meeting.
 - ii. SBC 204 on Methods of Testing Micro-CHP Devices:
 1. Activity is limited pending establishment of a digital collaboration platform.
 2. Because Basecamp is not suitable, Dragos is evaluating OneHub. Further information including access will be shared with TC once resolved.
 3. Membership updates: The current roster includes 8 members. Individuals interested in membership should complete the online SPC 204 application (deadline Feb.–Mar. 6). Note that only one member per organization permitted.
 4. Outstanding comments will be addressed from prior publication.
 5. Michael Patton offered to assist with SPC 204.
- e. Membership: Geoff Bares (Subcommittee Chair)
- i. Michael (Chair) encouraged recruitment of co-chairs for all subcommittees.
 - ii. Local Chapter Speaker Outreach:
 1. Joel is seeking volunteers to present on CHP topics to local ASHRAE chapters (virtual or in person). No specific credentials required, but eligibility is determined by CTTC chairs.
 2. Updated ASHRAE short course on cogeneration is in second review; led by Bill & Ryan McElhouse. Expected to be offered in Chicago (6-hour course).
 3. Slides may be available for chapter presentations with ASHRAE approval. However, all short course content ownership is owned by ASHRAE. Materials cannot be distributed outside the approved format.
 - iii. Membership Development and Partnerships:
 1. Geoff encouraged strengthening ties with adjacent industry groups (e.g., TC 6.9 with energy service providers). The CHP sector could benefit in similar ways.
 2. A discussion was held on engaging the US CHP Alliance, which represents owners/operators and major suppliers (e.g., Caterpillar, turbine manufacturers).
 - a. Potential involvement in federal policy and production tax credit advocacy.
 - b. Gearoid (board member) offered to bring TC 6.4 interest to the Alliance.
 - c. Suggestion for coordination with ASHRAE Society Government Affairs.

- iv. Impact of National Lab Restrictions:
 1. The Chair raised concerns on the ongoing challenges with federal research personnel participation and called for a discussion to plan the path forward.
 2. Jim Freihaut (guest) noted DOE reorganizations have halted certain onsite energy research and contracts, delaying and inhibiting national lab engagement.
 3. University partners have temporarily absorbed some projects, but future grant status remains uncertain.

- f. TC Website: Joel Deddens (Webmaster)
 - i. ASHRAE website link issues for the TC have been resolved; all TC 6.4 links now function correctly (except a legacy TC 1.10 link, which remains broken).
 - ii. Draft minutes, agendas, and approved minutes are posted and current.
 - iii. Basecamp site invitations will be issued later this month. These are expected to improve coordination and documentation.

- g. Honors & Awards: Geoffrey Bares (Subcommittee Chair)
 - i. No TC 6.4 members received awards this cycle; Geoff encouraged increased participation.
 - ii. Most common ASHRAE awards for TC members include Distinguished Service (15 points required) and Exceptional Service (45 points required). Both self-nomination.
 - iii. High Tower Award:
 1. Nominated (not self-applied) for exceptional contributions over a 5-year period.
 2. Committee aims to identify a candidate by the Austin meeting to allow time for nomination preparation.
 3. Dragos Paraschiv was proposed as a strong candidate pending an updated bio.
 4. Geoff and Michael offered to help with nomination packages for those interested.

6. Old Business (Chair)

No updates on old business.

7. New Business (All)

- a. IDEA Liaison Update: John Andrepont
 - i. The International District Energy Association (IDEA) is an industry association of over 500 organizations and ~3,000 members. The membership includes: District Energy Utilities; Physical Plant and Utilities Personnel from University, Medical, and other District Energy Facilities; Equipment Manufacturer/Suppliers; Service Providers to the Industry; other District Heating & Cooling Associations; and Government, Student, and other Personal members.
 - ii. IDEA publishes a quarterly magazine, entitled *District Energy*.
 - iii. IDEA has two major conferences each year (one focused on campus District Energy systems and one focused on commercial thermal utility District Energy systems), as well as smaller workshops on subjects such as marketing and thermal distribution, plus occasional regionally focused or technology-focused conferences. Each major conference also focuses on integrating Combined Heat & Power (CHP) and Thermal Energy Storage (TES) with District Energy.
 - iv. Upcoming IDEA conferences include:
 1. 39th Annual Campus Energy Conference, Workshops & Trade Show, February 17-20, 2026 – National Harbor, MD (Washington DC area)

2. 117th Annual Conference, Workshops & Trade Show, June 23-26, 2026 – Ottawa, Ontario, Canada
 3. 40th Annual Campus Energy Conference, Workshops & Trade Show, February 16-19, 2027 – San Diego, CA
 4. 118th Annual Conference, Workshops & Trade Show, Summer 2026 (dates/location TBD)
 5. 41st Annual Campus Energy Conference, Workshops & Trade Show, February 21-24, 2028 – Aurora, CO
- v. For further information on IDEA, contact: Rob Thornton, President, IDEA; 1800 West Park Drive, Suite 350, Westborough, MA 01581. Tel: 508-366-9339. Fax: 508-366-0019. E-mail: rob.idea@districtenergy.org. Website: www.districtenergy.org
- b. TC 6.4 Continuation: Open discussion
- i. Several VMs voiced interest for TC 6.4 to remain as TC for the upcoming year.
 - ii. This TC recently changed from 1.10 to 6.4 to align with similarly positioned TCs (6.2 on district energy and 6.9 on thermal storage). This accomplishment indicates a strong decision to remain as a TC.
 - iii. The website fixes and effort through this transition have been significant. The momentum established should be continued.
 - iv. It was not many years ago that this TC (combined heat and power) absorbed the turbine inlet cooling committee.
 - v. **MOTION** to continue as a committee under TC 6.4. Motion by Geoff Bares, second by Bill Ryan, all Yea, no Nay. **Motion passed unanimously, 6-0-0-CNV.**
- c. Upcoming Meetings: Michael Calabrese (Chair)
- i. ASHRAE society will not support subcommittee meetings in person. The chair requested input from members on preferred days of the week.
 - ii. Dates to avoid include June 23-26 (IDEA annual) and June 15-17 (energy storage).
 - iii. The plan is to select a date in early/mid-May, most likely on a Friday afternoon.
 - iv. The chair will prepare the subcommittee meeting following this conference.
 - v. The next meeting is the annual meeting (Austin). It was noted that the annual is not as well attended as winter conferences. If any VMs are planning to join remotely, the chair requests an email notification in advance.

8. Adjourn

- a. Announcement by TC Chair (Michael Calabrese) to close this session at 4:00 pm.
- b. **MOTION** by Geoff Bares, second by Joel Deddens, all Yea, no Nay. **Motion passed unanimously, 6-0-0-CNV.**

Submitted by
Kathryn Hinkelman, Ph.D.
Secretary, TC 6.4.

TC 6.4 COMBINED HEAT AND POWER SYSTEMS

2026 ASHRAE Winter Meeting; Las Vegas, NV

TC Website: <https://tpc.ashrae.org/?cmtKey=54cc808d-d44e-40ae-aa06-0b83279413a3>

Subcommittee Meeting

Handbook, Program, Research, Membership Subcommittee

Friday, January 16, 2025: 1:00 PM-2:30 PM Eastern; Virtual

TC 6.4 Committee Meeting

Tuesday, February 3, 2026: 2:30 PM-4:00 PM

Caesars Palace, Tuscany Boardroom (PS)

[Join the meeting now](#)

Meeting ID: 285 836 459 288 3

Passcode: BB6VP2rg





















AGENDA












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|---|------------------------------|
| 1. Welcome | Chair, Michael Calabrese |
| 2. Roll Call / Introductions | Chair / All |
| 3. Introduction of ASHRAE Liaisons on Arrival | Chair |
| 4. Establishment of Quorum | Secretary, Kathryn Hinkelman |
| 5. TC6.4 Purpose Statement | Secretary |
| 6. Minutes of the 2025 Summer Meeting (Phoenix) | Secretary |
| 7. Updates | Chair |
| 7. Subcommittee Reports | |
| a. Program | Mahabir Bhandari, Mike Huylo |
| b. Research | Farzin Rad |
| c. Handbook | Alok Kumar |
| d. Standards | Dragos Paraschiv |
| e. Membership | Geoff Bares, Joel Deddens |
| f. TC Website | Joel Deddens |
| g. Honors & Awards | Geoff Bares |
| 8. Old Business | Chair |
| 9. New Business | All |
| 10. Next Subcommittee and Committee Meetings | Chair |
| 11. Adjourn | All |

Purpose Statement:

“TC 6.4 is concerned with combined heat and power (CHP) systems, their cycles and components including heat recovery, combustion turbine inlet cooling (CTIC), energy conversion and system integration. The systems provide both electrical/mechanical power and cooling/heating thermal energy and are also known as cogeneration systems; trigeneration systems; and combined cooling heating and power systems.”

Remote Attendees:

	Kathryn Hinkelman (she/her)	
	Alok Kumar (Unverified)	
	Anand (Unverified)	
	Calabrese, Mich... (External) Organizer	
	Christopher Wag... (External)	
	David Bowman (External)	
	Dharam Punwani (External)	
	Huylo, Michael (Unverified)	
	Joel Deddens (Unverified)	
	John Andrepont (Unverified)	

	Ryan, Bill (Unverified)	
	John Hess (Unverified)	
	Dragos Paraschiv (External)	
	Gearoid (Unverified)	
	Geoff Bares (External)	
	Vlad Goldenberg (Unverified)	