



1791 Tullie Circle, N.E./Atlanta, GA 30329

404-636-8400

DRAFT

TC/TG/MTG/TRG MINUTES COVER SHEET

(Minutes of all Meetings are to be distributed to all persons listed below within 60 days following the meeting.)

TC/TG/MTG/TRG No. TC 1.10 DATE 15 January 2019

TC/TG/MTG/TRG TITLE Combined Heat and Power Systems

DATE OF MEETING 15 January 2019 LOCATION Atlanta, GA

MEMBERS PRESENT	YEAR APPTD	MEMBERS ABSENT	YEAR APPTD	EX-OFFICIO MEMBERS AND ADDITIONAL ATTENDANCE
Gearoid Foley	2015	Birol Kilkis (non quorum)		Ryan Lime (CM)
Blake Ellis	2015	Rich Sweetser	2016	Ryan Parker (PCM)
Geoff Bares	2016			John Karakash (G)
Dragos Paraschiv	2016			Steve Milgrim (G)
Farzin Rad	2016			Ian Spanswick (CM)
John Molnar	2018			David Dvorak(CM)
Tim Wagner	2016			Dharam Punwani (CM)
				Dave Autrey (G)
				Amit Vatsa (CM)

DISTRIBUTION: All Members of TC/TG/MTG/TRG plus the following:

TAC Section Head: Amir Jokar	SH1@ashrae.net
Christopher G Phelan, CTTC Research Liaison Shinsuke Kato, PhD, Research Liaison Florentino Roson Rodriguez, PE, Handbook Liaison Rick M Heiden, Standard Liaison	CTTC1@ashrae.net RL1@ashrae.net HBS5@ashrae.net SL1@ashrae.net
Mike Vaughn, Manager Of Research & Technical Services	MORTS@ashrae.net

Note: These draft minutes have not been approved and not the official, approved record until approved by the TC.

DRAFT
ASHRAE TC 1.10 COMMITTEE MINUTES
Atlanta, GA
January 15, 2019

The TC 1.10 meeting was called to order by the Chair, Dragos Paraschiv, at 2:32 PM.

1. Chair welcomed all members and acknowledged the guests.
2. Self-introductions were made by all present. TC 1.10 currently has nine (9) quorum Voting Members of which six (6) were present. Hence, a quorum was established.
3. Secretary Geoff Bares read the TC 1.10 mission statement:

Mission Statement: *TC 1.10 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 power electrical/mechanical and cooling/heating thermal energy and are known as cogeneration systems; trigeneration systems; and combined cooling heating and power systems."*

4. Chair Dragos Paraschiv read the ASHRAE Code of Ethics. The full code can be read at:

<https://www.ashrae.org/about/governance/code-of-ethics>

5. Copies of the draft minutes of the meeting held in Houston, TX were distributed electronically prior to the meeting.

MOTION – Tim Wagner made a motion and Farzin Rad seconded to approve the minutes of the Houston Meeting with minor revisions. The motion was approved. **(6-0-0, CV)**

6. **Subcommittee Reports**

- a. **Programs:** Rich Sweetser (subcommittee chair) not in attendance. Gearoid Foley spoke for Programs on his behalf.

Atlanta (Winter 2019) Program:

TC 1.10 sponsored a seminar presented Tuesday: Seminar 58: *Not your Father's Onsite Energy Generation System: Lessons Learned from 135 Years Applying Combined Heat and Power Systems (CHP)*

There were 3 speakers and 90-95 attendees. The content was well received.

Kansas City (Annual 2019) Program:

No real good fit for CHP content in tracks available. No proposal was suggested for a TC 1.10 sponsored program.

Orlando (Winter 2020) Program:

The program tracks for Orlando were discussed and the committee intends to submit a program in *Track 4: Cutting Edge Technologies* or possibly *Track 5: High Efficiency Design & Operation*. Will formulate and vote on submission in Kansas City.

Conference paper submittals are encouraged. Deadline is March 18.

7. Section 1 head Amir Jokar provided a brief report. Roster update to be submitted online. Activity forms are to be submitted using the new version. Comments to the proposed TC reorganization should be encouraged from all members, including those not present. The Chair is asked to consolidate data from members and submit to the cognizant staff.

b. Research: Farzin Rad (subcommittee chair)

Dragos Paraschiv updated the committee on the progress of PMS-1762: Update of the Combustion Turbine Inlet Cooling (CTIC) Design Guide. The PMS is made up of Jay Eldridge (from TC 6.2), Geoff Bares (from TC 6.9) and Dragos from TC 1.10. Dharam Puwani is the Principal Investigator. The PMS met with the contractor prior to this TC 1.10 meeting and discussed comments to the first draft of the document. No cost extension has been granted by ASHRAE to June 30, 2019.

The subcommittee chair is soliciting new research ideas from membership. They are encouraged to contact him with potential topics for development.

Section 8.3 had proposed a research topic with the potential to be co-sponsored by TC 1.10. The status of this effort is unknown.

A new process is being launched for technical publication updates, called PTAR (Publication Topic Acceptance Request). This is a parallel track to the RTAR process to streamline approval of special publication projects.

Special Publication made the TC aware of Fuel Cell Applications, published in 2002. It is attributed to the TC and ASHRAE Publications asked us to consider a revision. Amit Vatsa offered a couple case studies on fuel cell installations (San Diego and Hawaii). Technology acceptance/deployment has been much slower than anticipated when publication was originally written. Consider merging with related topics (e.g. flow batteries) or rolling into another publication? Scope is very narrow, and update may not be worth the effort. Will respond to Pubs that we are going to review and make recommendation in Kansas City.

c. Handbook: Dr. Tim Wagner (subcommittee chair)

Tim mentioned that this committee is responsible for Chapters 7 and 8 of the HVAC Systems and Equipment Volume (last published in 2016). Chapter 7 is titled “*Combined Heat and Power Systems*” and Chapter 8 is titled “*Combustion Turbine Inlet Cooling*”. Both chapters are to be updated for the 2020 Handbook. Revisions should be completed in the near future, so they can be voted on in the 2019 Annual Meeting in Kansas City. Edits are due for final submission July 1.

- **Chapter 7:** Changes noted so far: Has considered rolling in CHP Design Guide content into handbook chapter. Upon further reflection, will keep the content separate but will add references in handbook chapter to more detailed information available in the CHP Design Guide. Data on the efficiencies of reciprocating engines and various design arrangements is believed to be outdated. Rich, Gearoid & Amit will assist on obtaining new recip engine manufacturer data. Will have draft completed by June 1st.
- **Chapter 8:** Minor edits proposed at the last meeting will be table until the next handbook cycle, when the CTIC Design Guide will be available to read a more thorough revision. Discuss changes to electronic version after Design Guide revision is complete and submit for online handbook. Ian Spanswick and Ryan Lime volunteered to assist with this effort. A CTIC Design tool was to be appended to electronic version of the handbook but has not been included. Geoff will work to get this included in this handbook revision cycle.

d. Membership: Dragos (subcommittee chair)

Roster updates will be submitted today.

Gearoid, Tim, Blake rolling off after Kansas City.

Dharam will become a voting member next year, bringing out voting member tally to 7+1 non-quorum.

Dragos will remain the chair, Blake Ellis will remain the vice-chair and Geoff Bares will remain the Secretary and Webmaster. Farzin Rad will remain the Research Subcommittee chair. David will be the Standards Subcommittee chair.

17 PCMs currently on roster. Generally will convert them to CMs unless otherwise notified. CMs removed whose email addresses are no longer valid. 109 members in all (PCMs, CMs, VMs).

e. Web Site: Geoff Bares (webmaster)

Blake reported that the TC 1.10 website was updated prior to the meeting. Agenda and minutes posted, meeting locations updated. Events, links, record of presentations.

f. Honors & Awards: Annette Dwyer (subcommittee chair), Blake Ellis reporting

There were two TC 1.10 members that received awards at the plenary on Saturday:

- Dharam Punwani was named an ASHRAE Fellow.
- Pat Graef received the ASHRAE Distinguished Public Service Award.

Members were encouraged to self-nominate for Distinguished Service and Exceptional Service awards, and to look to committee for assistance applying for other awards.

g. Standards

David Kalensky provided an update of SPC 204 (MOT for micro CHP – 50kW and under). Committee leadership has been reorganized. A draft is expected to be voted out of committee next week. It will go out for public review after this time (spring) and TC 1.10 members will be notified. Anticipate seeing final document in KC.

8. Chairman's Overview and Report: Dragos

Dragos attended the Chair's Breakfast on Sunday. Discussed statistics of programs for Atlanta. Conference paper sessions have a very high acceptance rate. TBD if high quality or low bar for acceptance. Roster updates going online. Trying to work out last glitches. New Manual of Procedures (MOP) for ASHRAE committees.

A new TC was formed: TC 2.10 – Resilience and Security. The topic of TC reorganization was introduced to tech chairs (to be continued in New Business).

9. Old Business:

During the meeting in Chicago the TC voted to change the title and mission statement of the TC. Upon submitting the changes to the Technical Activities Committee (TAC) for approval, they made two changes:

1. The title of the TC was recently changed to: *Combined Heat and Power Systems*. Old title (Cogeneration) did show up in the ATL program, but otherwise the update has been complete.
2. The mission statement of the TC was officially changed to:

"TC 1.10 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 power electrical/mechanical and cooling/heating thermal energy and are known as cogeneration systems; trigeneration systems; and combined cooling heating and power systems."

CHP Courses: Geoff spoke to Lucas about the state of the CHP short course. He feels that it is in relatively good shape but could be updated in terms of cost and rate information. Lucas is willing to update the course materials with help from the TC and is also willing to present the course. Geoff will reach out to our

Professional Development liaison about ASHRAE interest and obtaining source materials for editing. Gearoid and Dragos have volunteered to assist in this effort.

10. **New Business:**

IDEA Update: The IDEA Liaison report was discussed. See Attachment 1 to this document for the report prepared by John Andrepont. Will post dates to website.

DOE Update: Richard Sweetser was not present; no DOE report provided.

TC Restructuring: ASHRAE wishes to reformulate TCs, generally reorganizing them into larger groups. ASHRAE has solicited feedback from all members concerning the advantages and disadvantages of such a reorganization. Feedback forms to be sent out to individuals and collected by end of month. TWG Reorganization working group spearheading effort. It was noted that TC 1.10 has relevant experience, stemming from the merger of this TC with CTIC. It was a concerted effort required over a couple years; we do not expect such a large effort to occur swiftly.

John Karakash made a brief announcement concerning a technology demonstration trip to Austria and Germany to showcase a bio-thermal fueled CHP system now online.

Next Meeting: In Kansas City at the Summer meeting on Tuesday June 25th. The PMS will meet at 12:30pm, the subcommittees at 1:30pm and the main TC meeting from 2:30pm – 4:00pm.

Adjourn

MOTION – John Molnar moved and Tim Wagner seconded that the meeting be adjourned. The motion was approved (**6-0-0, CNV**).

Meeting adjourned at 4:00pm.

Minutes prepared and respectfully submitted by Geoff Bares, TC 1.10 Secretary.

January 9, 2019

IDEA Liaison Report to ASHRAE TC 6.2 and TC 1.10

Prepared by: John Andrepont (+1-630-353-9690 / CoolSolutionsCo@aol.com)

The International District Energy Association (IDEA) is an industry association of >2,300 members. The membership includes: District Energy (Thermal) 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; plus Government, Student, and other Personal members.

IDEA publishes a quarterly magazine, entitled *District Energy*.

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.

Upcoming IDEA conferences include:

- 32nd Annual Campus Energy Conference, Workshops & Trade Show
February 25-March 1, 2019 – New Orleans, Louisiana
- 110th Annual Conference & Trade Show
June 24-27, 2019 – Pittsburgh, Pennsylvania
- 33rd Annual Campus Energy Conference, Workshops & Trade Show
February 10-14, 2020 – Denver, Colorado
- 111th Annual Conference & Trade Show
June 22-25, 2020 – Washington, D.C.
- 34th Annual Campus Energy Conference, Workshops & Trade Show
February 16-19, 2021 – San Francisco, CA

For further information on IDEA, contact:

Rob Thornton, President
IDEA
24 Lyman Street, Suite 230
Westborough, Massachusetts 01581

tel: 508-366-9339
fax: 508-366-0019
e-mail: rob.idea@districtenergy.org
website: www.districtenergy.org