

Technical Committee Meeting Minutes  
 TC 6.02 District Energy  
 Friday, 2021-06-25, Remote Zoom (Phoenix, AZ)

---

TC 6.02 District Energy – Meeting  
 Friday, 3:00 pm – 5:00 pm, Remote Zoom (Phoenix, AZ)

Voting Committee Members:

<b>Name</b>	<b>Position</b>	<b>Voting Status</b>	<b>Present</b>
<i>Ms. Jessica Mangler</i>	<i>Chair</i>	<i>Voting</i>	<i>Yes</i>
<i>Mr. Daniel Pyewell</i>	<i>Vice Chair / Webmaster</i>	<i>Voting</i>	<i>Yes</i>
<i>Mr. Michael Calabrese</i>	<i>Secretary</i>	<i>Voting</i>	<i>Yes</i>
Ms. Timothy Anderson	Program Subcommittee Chair	Voting	No
<i>Ms. Elizabeth (Betsy) Goll</i>	<i>Handbook Subcommittee Chair</i>	<i>Voting</i>	<i>Yes</i>
Mr. Mohamed Alagraa		Voting	No
<i>Mr. Steven Tredinnick</i>	<i>Outgoing Handbook Subcommittee Chair</i>	<i>Voting (Rolling off)</i>	<i>Yes</i>
Mr. Scott Murray		Voting (Rolling off)	Yes

8 Voting Members and 0 Non-Quorum Voting Members  
 Need minimum 5 Voting Members Present to meet Quorum

Non-Voting Members and Guest:

<b>Name</b>	<b>Position</b>	<b>Voting Status</b>	<b>Present</b>
Ms. Jay Eldridge	Research Subcommittee Chair	Non-Voting	No
Alec Cusick	Membership Subcommittee Chair	Non-Voting	No
Mr. Richard Sweetser	DOE Liaison	Non-Voting	Yes
Mr. John Andrepont	IDEA Liaison	Non-Voting	Yes
Mr. Dustin Meredith	TAC Chairperson	Non-Voting	No
Mr. Dawen Lu	Section Head	Non-Voting	No
Ms. Elizabeth Zakelj	Chapter Technology Transfer Chair	Non-Voting	No
Mr. Omar Abdelaziz	Research Liaison	Non-Voting	No
Mr. Craig Wray	Standard Liaison	Non-Voting	No
Mr. Steven Hammerling	Staff Liaison	Non-Voting	No
Bill Ryan		Non-Voting	Yes
Alan Neeely		Non-Voting	Yes
Gary Phetteplace		Non-Voting	Yes
Herve Nouanegue		Non-Voting	Yes
Jayson Bursill		Non-Voting	Yes
Wangda Zuo		Non-Voting	Yes
David Salego		Non-Voting	Yes
Brad Wong		Non-Voting	Yes
Dragos Paraschiv		Non-Voting	Yes
Jiajun Francis L		Non-Voting	Yes
Drew Turner		Non-Voting	Yes
Art Giesler		Non-Voting	Yes
Mark Ridenour		Non-Voting	Yes
Dharam Punwani		Non-Voting	Yes

**1. The Chair (Jessica Mangler) Called to Order at 3:00 pm and discussed -**

Technical Committee (TC) 6.02 is concerned with district energy technology and integrated systems that provide one or more forms of thermal energy or a combination of thermal energy and electric power from a central plant(s) to meet the heating, cooling, or combined thermal energy and power needs of end-users in two or more structures. The TC collects and disseminates information on regional resource planning including the design, performance, economic analysis, operation and maintenance of central plants, distribution networks, and consumer limited to materials, construction methods, heat transfer, fluid flow, and measurement. The scope of the TC includes the development and assessment of associated technologies for energy use sections.

**2. ASHRAE Code of Ethics Commitment – Announced by TC Chair (Jessica Mangler)**

In this an all other ASHRAE meetings, we will act with honesty, fairness, courtesy, competence, integrity and respect for others, and we shall avoid all real or perceived conflicts of interest. (see full code of ethics: <https://www.ashrae.org/about-ashrae/ashrae-code-of-ethics>.)

**3. Introductions / Attendees**

- A. Name, company/location, & position on committee.
- B. Attendance was taken
- C. Review of Current Voting Members and TC officers, Quorum is met with 5 VMs present.
  - i. Ref. Manual of Procedures – 3.3.2 through 3.2.7
  - ii. Note that with our international voting member, it allows the TC to have one less individual to meet quorum.
- D. Recruiting of new members and officers for this technical committee (TC 6.02) were discussed.

**4. Meeting Minutes**

- A. January 11, 2021, Virtual Winter meeting
  - i. Steve Tredinnick noted a missing word in the document body. The word “industry” will be added.
  - ii. Motion by Steve Tredinnick, 2<sup>nd</sup> by Daniel Pyewell. All in favor, chair (Jessica Mangler) abstains.

**5. Chair’s Overview and Report**

- A. TC Breakfast Report – video recorded presentation
- B. The membership roster has been updated. Please review your information for accuracy.
- C. The chair provided an update on the TC mergers. The TC ReOrg Committee identified several mergers. Voting will be required annually
- D. A Decarbonization task Force has been formed. <https://www.ashrae.org/about/news/2021/ashrae-forms-task-force-for-building-decarbonization>
  - i. Steve Tredinnick will be contacting the working group(s) for involvement.
- E. Chair will be rolling off one year early. Daniel Pyewell, the vice chair will become the Chair.
  - i. Jason Bursill will be the Webmaster
  - ii. The TC is actively seeking a Vice-Chair. For any interest, please reach out to Daniel Pyewell.

**6. Sub-Committee Reports:**

- A. Handbook: Betsy Goll (Subcommittee Chair)
  - i. Chapters 12 and 15 were released in the last Application Handbook “District Heating and Cooling” and “High and Low-Temperature Heating” without updates in printed version. The online version contains updates.
  - ii. Betsy attended the handbook meeting on June 2<sup>nd</sup>, 2021. The 2024 online version, for editing, has not been posted yet in the authoring portal.
- B. Membership: Alec Cusick (Membership Subcommittee Chair)

- i. The Chair discussed the current roster status. Steve Tredinnick and Scott Murray will be rolling off.
  - ii. Gary Phetteplace and Bill Ryan have expressed an interest in becoming a VM. Chair to follow up.
- C. Programs: Tim Anderson (Subcommittee Chair)
- i. Chair not present, updates provided by TC Chair.
  - ii. Submitted forum "District Energy and Ground Source Heat Pumps; a Path to Decarbonization" (31233). The forum didn't make the cut. We will continue to pursue.
  - iii. Steve Tredinnick and Gary Phetteplace seminar submission made the cut. Considerations for District Energy Systems Utilizing Geothermal Heat Pumps is seminar 35. This is a recording available to all conference attendees.
  - iv. The Chair tried to get some speakers for a steam training workshop. Was not able to get much interest and withdrew the submission. Travel restrictions and uncertainty seemed to be the issue. At the time, we were talking about being in Phoenix, but should be for colder climate, like Toronto
  - v. Future program submission for Las Vegas may include:
    - (1) There's another campus turned over to a heat pump system in south Minnesota. Another steam plant retired. If there is another example to add, this could make a good seminar.
    - (2) Open to other suggestions. Solar farms and district energy; is there a place for this combination?
    - (3) Deadline is August 1, 2021
- D. Standards: (No Subcommittee Chair)
- i. No active standards are associated with this TC 6.2.
- E. Webmaster: Daniel Pyewell (Subcommittee Chair)
- i. Website is up to date.
  - ii. Jayson Bursill will be assuming the webmaster role.
  - iii. It was noted by Art Giesler that the TC should post a note on the website that the updates to the paper handbook chapters 12 and 15 were not published in the last print edition, and refer to the online version instead.
- F. Research: Jay Eldridge (Subcommittee Chair)
- i. None, Chair not present
  - ii. It was noted that there will be a back-up of priorities for research approval due to current lack of funding (due to Pandemic's influence on conference income for ASHRAE).

## 7. Visitors and Liaison Reports/Information from other Committee Representatives

### A. DOE: Richard Sweetser

- i. The current political administration will be funding projects focusing on non-carbon, such as natural gas.
- ii. The CHP program will continue to be funded.
- iii. The current political administration has removed any District Energy funded research from the proposed budget provided to Congress.
- iv. Renewable natural gases are applicable but California vehicular demand creates supply issues.
- v. Hydrogen is viable, blue or green.
  - (1) Grey Hydrogen is made by steam reforming of natural gas.
  - (2) Blue hydrogen is made by steam reforming of natural gas, but the CO<sub>2</sub> is captured and then stored.
  - (3) Green Hydrogen is made from things like wind and solar, converted to Hydrogen through electrolysis.
- vi. The DOE research funded a mixed fuel, CHP plant in St. Paul for a district energy plant.
- vii. Individual state hurdles may differ. Example- New York, has a moratorium on natural gas connections.
- viii. The DOE stance is – properly applied CHP is currently the most efficient way to generate electricity. That is typically natural gas. However, fuel can vary such as landfill or digester gas.
- ix. CHP packagers are using hydrogen blends, 5% to 40%. 2G has 5 models available up to 40% blend. GE Jenbacher can utilize a blend; Solar turbines can use a blend up to 20%.
- x. DOE has a carbon capture program.

### B. IDEA: John Andrepost

- i. See attached report, dated 2021-06-07. This report will be posted on the website.
- ii. This document lists the upcoming IDEA conference dates.

### C. ANSI/CSA/IGSHPA C448 Standard (Jessica Mangler, Lisa Meline, Steve Tredinnick, Gary Phetteplace)

- i. Serving on committee for updated standard of ANSI/CSA C448.1-16 (Design and installation of ground source heat pump systems for commercial and institutional buildings)
- ii. Adding District Energy Section.
- iii. Meeting about once a month.
- iv. Let the Chair know if you are interested in reviewing drafts copies of the standard and providing comments.

### D. Other TCs

- i. 6.1 – Hydronic & Steam Heating Equipment and Systems
  - (1) Jessica Mangler will be Vice Chair and the TC met last week.
  - (2) No Update
- ii. 6.5 – Radiant Heating & Cooling
  - (a) No Update
- iii. 6.6 – Service Water Heating
  - (1) No Update
- iv. 6.7 – Solar and Other Renewable Energies
  - (1) No Update
- v. 6.8 - Geothermal Heat Pump & Energy Recovery Applications
  - (1) NYSERDA & ASHRAE are developing a series of webinars for heat pumps and energy recovery district ... @1:08.
- vi. 6.10 – Fuels and Combustion
  - (1) No Update

### E. Others

- i. Handbook (?) Not Present
- ii. Research (Stefan Elbel) Not Present
- iii. TAC Chairman (Dustin Meredith) Not Present

- iv. TAC Section Head (Dawen Lu) Not Present
- v. Staff (Steven Hammerling) Not Present
- vi. Publications

(1) Publications Committee respectfully requests your input on possible topics, authors and reviewers for future ASHRAE Journal articles. It is our goal to enhance ASHRAE Journal's reputation as the preeminent publication in our industry. Each of you are most in tune with what our members are looking for to further their knowledge base. With this in mind, if you could respond with a topic or two with suggested authors and reviewers it would be greatly appreciated.

(2) Adeeba Mehboob, ASHRAE Publications Committee Vice Chair 2020-2021  
[adeeba.mehboob@icloud.com](mailto:adeeba.mehboob@icloud.com)

F. Standard 90.1 (Dan Pyewell)

(1) An addendum is being proposed establishing performance criteria for energy storage and for energy credits.

(2) The requirements are being reviewed and developed. Incentivized use of energy storage with energy credits.

**8. Old Business-**

A. None

**9. New Business**

A. Contact TC Chair (Jessica Mangler) or TC Vice-Chair (Daniel Pyewell) if you're interested in serving any positions on this TC.

- i. Seeking a Standards Committee Chair
- ii. Seeking a Vice Chair

**10. Items to discuss at the next conference, Winter 2022.**

A. Annual review and vote on status of TC 6.02

**11. Meeting Adjourned at 4:14 pm.**

A. Announcement by TC Chair (Jessica Mangler) to close this session.

Submitted by,  
Michael Calabrese  
TC 6.02 Secretary  
2021-06-25

**Subcommittee Meetings - Day, Date, Times, & Location Prior to TC 6.02 Meeting:**

TC 6.02 Handbook - Friday, 2:00 pm – 3:00 pm, Remote Zoom

TC 6.02 Program - Friday, 2:00 pm – 3:00 pm, Remote Zoom

TC 6.02 Research - Friday, 2:00 pm – 3:00 pm, Remote Zoom

**Agenda: TC 6.2 District Energy  
Virtual Summer Conference (June 25, 2021)**

<https://tc0602.ashraetcs.org/>

**TC 6.2 Main Committee Meeting**

Friday, June 25<sup>th</sup>

2021 4:00 pm – 5:00 pm EST/ 1-2pm PST

Zoom Information:

- <https://ashrae-org.zoom.us/j/92251473630?pwd=Z0FibENVejVXckhHRDNIYmIKOUlhUT09>
- Meeting ID: 922 5147 3630
- Passcode: 804998

**TC 6.2 Programs, Research, Handbook**

Friday, June 25<sup>th</sup>, 2021 2:00 pm – 4:00 pm EST/ 11-1pm PST

Zoom Information:

- <https://ashrae-org.zoom.us/j/92251473630?pwd=Z0FibENVejVXckhHRDNIYmIKOUlhUT09>
- Meeting ID: 922 5147 3630
- Passcode: 804998

**Technical Committee Members**

8 Voting Members and 0 Non-Quorum Voting Members

Need minimum 5 Voting Members Present to meet Quorum

<b>Name</b>	<b>Position</b>	<b>Voting Status</b>
Ms. Jessica Mangler	Chair	Voting
Mr. Daniel Pyewell	Vice Chair / Webmaster	Voting
Mr. Michael Calabrese	Secretary	Voting
Ms. Timothy Anderson	Program Subcommittee Chair	Voting
Ms. Jay Eldridge	Research Subcommittee Chair	Non-Voting
Mr. Steven Tredinnick		Voting (rolling off)
Mr. Mohamed Alagraa		Voting
Ms. Elizabeth (Betsy) Goll	Handbook Subcommittee Chair	Voting
Mr. Scott Murray		Voting (rolling off)
Mr. Richard Sweetser	DOE Liaison	Non-Voting
Mr. John Andrepont	IDEA Liaison	Non-Voting
Mr. Dustin Meredith	TAC Chairperson	Non-Voting
Mr. Dawen Lu	Section Head	Non-Voting
Ms. Elizabeth Zakelj	Chapter Technology Transfer Chair	Non-Voting
Mr. Omar Abdelaziz	Research Liaison	Non-Voting
Mr. Craig Wray	Standard Liaison	Non-Voting
Mr. Steven Hammerling	Staff Liaison	Non-Voting

1. Call to Order: (TC Chair- Jessica Mangler)
  - a. Technical Committee 6.2 is concerned with district energy technology and integrated systems that provide one or more forms of thermal energy or a combination of thermal energy and electric power from a central plant(s) to meet the heating, cooling, or combined thermal energy and power needs of end-users in two or more structures. The TC collects and disseminates information on regional resource planning including the design, performance, economic analysis, operation and maintenance of central plants, distribution networks, and consumer limited to materials, construction methods, heat transfer, fluid flow, and measurement. The scope of the TC includes the development and assessment of associated technologies for energy use sections.
2. ASHRAE Code of Ethics Commitment – (TC Chair – Jessica Mangler)
  - a. In this and all other ASHRAE meetings, we will act with honesty, fairness, courtesy, competence, integrity and respect for others, and we shall avoid all real or perceived conflicts of interests. (See full Code of Ethics: <https://www.ashrae.org/about-ashrae/ashrae-code-of-ethics>.)
3. Introduction / Attendance - (TC Chair – Jessica Mangler)
  - a. Please state your name, company/location, & position on committee.
  - b. Secretary for the meeting (Michael Calabrese) to take attendance, via the membership roster.
  - c. Members & Guests Introductions and Sign In
  - d. Establish a Quorum, Review of Current Voting Members and TC 6.2 Officers (Ref. Manual of Procedures – 3.2.2, 2.13, 2.14 & 2.15)
  - e. Discuss recruiting new members and officers for this Technical Committee (TC 6.02)
4. Approval of Minutes from 11<sup>th</sup> January 2021 virtual meeting (TC 6.02 Secretary – Michael Calabrese)
5. Chair’s Report (Jessica Mangler)
  - a. TC Breakfast Report (watched recording)
  - b. Roster has been updated. Please double-check your information is correct.
  - c. New TAC Motion Form
  - d. TC ReOrg Committee
    - i. “Massive” reorganization is not being pursued right now.
      - So far, TAC has approved numerous TC mergers – 3.2 & 3.3, 8.10 & 8.12, 9.4 & 9.8, 7.3 & 7.8, 10.1 & 10.3, 10.2, 10.5 & 10.8.
      - More being considered
      - Annual reaffirmation process now being enforced
    - ii.
  - e. Decarbonization Task Force
    - i. <https://www.ashrae.org/about/news/2021/ashrae-forms-task-force-for-building-decarbonization>

- Strategic Plan extended for 1 more year, through 2025
- 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.
- Values – Excellence, Commitment, Integrity, Collaboration, Volunteerism, Diversity



f.

6. New Incoming Chair: Daniel Pyewell

- a. Contact Jessica and Daniel if you're interested in serving as Vice Chair.
- b. Contact Jessica and Daniel if you're interested in serving as Webmaster.

7. Sub-Committee Reports:

a. Handbook: Elizabeth Goll (Chair)

- i. Chapter 12
- ii. Chapter 15
- iii. District Cooling Guide

b. Membership: Alex Cusick (Chair)

- i. Status of Voting Members?
- ii. New Members?

c. Program: Tim Anderson (Chair)

- i. *Submitted forum "District Energy and Ground Source Heat Pumps; a Path to Decarbonization" (31233). The forum didn't make the cut.*
- ii. *Steve and Gary's seminar submission made the cut. Considerations for District Energy Systems Utilizing Geothermal Heat Pumps is seminar 35.*
- iii. *I tried to get some speakers for a steam training workshop. Was not able to get much interest and withdrew the submission. Travel restrictions and uncertainty seemed to me the issue. At the time, we were talking about being in Phoenix.*
- iv. *Future program submission for Las Vegas may include:*
  1. *There's another campus turned over to a heat pump system in south Minnesota. Another steam plant retired. If there is another example to add, this could make a good seminar.*
  2. *Open to other suggestions. Solar farms and district energy; is there a place for this combination?*

d. Standards: Open

e. Webmaster: Dan Pyewell (Chair)

f. Research: Jay Eldridge (Chair)

8. Visitors & Liaison Reports/Information from other Committee Representatives

a. DOE- Richard Sweetser

b. IDEA- John Andrepont- see attached report.

c. ANSI/CSA/IGSHPA C448 Standard (Jessica Mangler, Lisa Meline, Steve Tredinnick, Gary Phetteplace)

- i. Serving on committee for updated standard of ANSI/CSA C448.1-16 (Design and installation of ground source heat pump systems for commercial and institutional buildings)
- ii. Adding District Energy Section.

- iii. Meeting about once a month.
- iv. Let us know if you're interested in reviewing drafts copies of the standard and providing comments.
- d. Other TCs
  - i. 6.1 – Hydronic & Steam Heating Equipment and Systems
  - ii. 6.5 – Radiant Heating & Cooling
  - iii. 6.6 – Service Water Heating
  - iv. 6.7 – Solar and Other Renewable Energies
  - v. 6.8 - Geothermal Heat Pump & Energy Recovery Applications
    - 1. NYSERDA & ASHRAE
  - vi. 6.10 – Fuels and Combustion
- e. Handbook (?)
- f. Research (Stefan Elbel)
- g. TAC Chairman (Dustin Meredith)
- h. TAC Section Head (Dawen Lu)
- i. Staff (Steven Hammerling)
- j. Publications
  - i. Publications Committee respectfully requests your input on possible topics, authors and reviewers for future ASHRAE Journal articles. It is our goal to enhance ASHRAE Journal's reputation is the preeminent publication in our industry. Each of you are most in tune with what our members are looking for to further their knowledge base. With this in mind, if you could respond with a topic or two with suggested authors and reviewers it would be greatly appreciated.
  - ii. Adeeba Mehboob
    - 1. ASHRAE Publications Committee Vice Chair 2020-2021
    - 2. [adeeba.mehboob@icloud.com](mailto:adeeba.mehboob@icloud.com)

9. Old Business

10. New Business

- a. Contact Jessica & Daniel if you're interested in serving any positions on this TC?
- b. Standards Subcommittee Chair?
- c. Anything else?

11. Items to discuss at Winter 2022 Meeting (Las Vegas)

- a. Annual review and vote on status of TC 6.2
- b. Anything else?

12. Thank you serving on TC 6.02 and volunteering for ASHRAE!

13. Adjourn

June 7, 2021

## **IDEA Liaison Report to ASHRAE TC 6.2 and TC 1.10**

Prepared by: John Andrepont (+1-630-369-4832 [home] / [CoolSolutionsCo@aol.com](mailto: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:

- 34<sup>th</sup> Annual Campus Energy Conference, Workshops & Trade Show  
February 16-19, 2021 – virtual conference
- 112<sup>th</sup> Annual Conference & Trade Show  
September 27-30, 2021 – Austin, Texas (hybrid, on-site and virtual conference)
- 35<sup>th</sup> Annual Campus Energy Conference, Workshops & Trade Show  
February 15-18, 2022 – Boston, Massachusetts
- 113<sup>th</sup> Annual Conference & Trade Show  
June 5-9, 2022 – Toronto, Ontario, Canada

For further information on IDEA, contact:

Rob Thornton, President  
IDEA  
1800 West Park Drive, Suite 350  
Westborough, Massachusetts 01581

tel: 508-366-9339

fax: 508-366-0019

e-mail: [rob.idea@districtenergy.org](mailto:rob.idea@districtenergy.org)

website: [www.districtenergy.org](http://www.districtenergy.org)