



**TC/TG/TRG MINUTES COVER SHEET**

These draft minutes have not been approved and are not the official, approved record until approved by this Technical Committee. (Minutes of all TC/TG/TRG Meetings are to be distributed to all persons listed below within 60 days following the meeting.)

**TC/TG/TRG No.: TC 6.2**

**Date: January 25, 2016**

**TC/TG/TRG Title: District Energy**

**Date of Meeting: January 24, 2016**

**Location: Orlando, FL**

**Please note that Membership listed below and herein is effective at the commencement of this meeting and does not reflect updates and changes made during and subsequent to the meeting.**

**Voting is recorded in a format (In Favor – Against – Abstentions – Not Present). CV indicates that the Chair voted to break a tie. CNV indicates that Chair did not vote.**

<b>Members Present</b>	<b>Year Apptd</b>	<b>Members Absent</b>	<b>Year Apptd</b>	<b>Ex-officio Members &amp; Guests Corresponding Members</b>	<b>Year Apptd</b>
Gary Phetteplace		Chris Paraskevacos		Steve Tredinnick	
Drew Overmiller				Bryson Barzini	
Jay Eldridge				David Wade	
Steve Severini				Geoff Bares	
John Andrepont				Dharam Punwani	
Larry Markel				Rich Sweetser	
				Dragos Paraschiv	
				Eren Selcen	
				Tim Anderson	
				Jim Young	
				Art Giesler	
				Jessica Mangler	
				Alan Neely	
				Verle Williams	
				Wangda Zuo	
				<b>Guests</b>	
				Joana Melo	
				Brenna Manning	
				Dave Mason	
				Sen Huang	
				Joe Hofstetter	
				Wei Tian	
				Jim Hocter	



**ASHRAE** American Society of Heating, Refrigeration and Air-Conditioning Engineers, Inc.

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**Guests (cont'd)**

Dong He  
Edwin Hipolito  
Sen Huang  
John Molnar  
Ulf Johansson  
David Autrey

**DISTRIBUTION**

*All Members of TC/TG/TRG and guests plus the following:*

TAC Section Head:	Mark Hegberg
TAC Chair:	Eric Adams
Handbook Liaison:	Michael Patton
Journal/Insights Liaison:	
Standards Liaison:	Cyrus Nasser
RAC Research Liaison:	Harvey Sachs
Program Liaison:	
Special Publications Liaison:	
Chapter Tech Transfer	Maggie Moninski
ALI Liaison:	Cameron Labunski

**ADDITIONAL DISTRIBUTION**

ASHRAE Staff Liaison (Standards):	Michael Vaughn
ASHRAE Staff Liaison (Technical Services):	Michael Vaughn



**ACTIVITIES SHEET**  
**ASHRAE TC 6.2 DISTRICT ENERGY**  
**Sunday, January 24, 2016 Orlando, FL**

Chairman: Drew Overmiller  
Vice-Chair: (open)  
Secretary: Steve Severini

**TC 6.2 Meeting Schedule:**

<b>Location Past 3 Meetings</b>	<b>Location Next 3 Meetings</b>
Atlanta, GA June 2015	St. Louis, MO June 2016
Chicago, IL January 2015	Las Vegas, NV January 2017
Seattle, WA June 2014	Long Beach, CA June 2017

**TC 6.2 Sub-Committees:**

<b>Committee</b>	<b>Chair</b>
Handbook	Steve Tredinnick
Membership	John Andrepont
Program	Tim Anderson
Research	Jay Eldridge
Standards	(open)
ALI Coordinator	Chris Paraskevagos
Webmaster	Jessica Mangler

**Research Projects**

None current.

**Technical Papers From Sponsored Research:**

None current

**ACTIVITIES SHEET (Continued)**  
**ASHRAE TC 6.2 DISTRICT ENERGY**  
**Sunday, January 24, 2016 Orlando, FL**

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**TC 6.2 SPONSORED SEMINARS, FORUMS, AND WORKSHOPS** (Past three years and this meeting)

<b>Year</b>	<b>Location</b>	<b>Topic</b>
2013, January	Dallas	None
2013, June	Denver	<i>Seminars 19 and 27: The New ASHRAE District Heating and District Cooling Design Guides, Parts 1 and 2 (1267-RP).</i>
2014, January	New York	<i>Seminars 6, 16, and 17: Efficient Technologies That Are Also Economically Sustainable, Parts 1, 2 and 3: District Energy and Complementary Options. (co-sponsored with TC 1.10 Cogeneration Systems and TC 6.9 Thermal Storage)</i>
2014, June	Seattle	<i>Workshop 11: Achieving High Delta-T: Keys to High Performance District Energy Systems</i>
2015, January	Chicago	None
2015, June	Atlanta	None
2016, January	Orlando	<i>Seminar 47: The Campus Planning Question: To Centralize Energy or Decentralize?</i>

**TC 6.2 SPONSORED TECHNICAL PAPER SESSIONS AND CONFERENCE PAPER SESSIONS**

(Past three years and this meeting)

<b>Year</b>	<b>Location</b>	<b>Topic</b>
2013, January	Dallas	None
2013, June	Denver	None
2014, January	New York	None
2014, June	Seattle	<i>Technical Paper Session 5: Theoretical and Real World Application of Energy Saving Techniques (co-sponsored with TC 6.05 Radiant Heating and Cooling)</i>
2015, January	Chicago	None
2015, June	Atlanta	None
2016, Orlando	Orlando	None

**Journal Publications:** (Past three years)

1. Tredinnick, S., Wade, D., Phetteplace, G. July 2015. "District Energy Enters the 21<sup>st</sup> Century".

Minutes of Meeting of: TC 6.2 District Energy  
**Sunday, January 24, 2016 Orlando, FL**

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**1. Call to Order:**

Chair Drew Overmiller called the meeting to order at 3:00 PM. Drew welcomed all in attendance, and opened the meeting by stating the scope of TC 6.2 District Energy:

*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.*

An agenda was distributed and an attendance sheet was circulated and signed by attendees. See attached copies. The following voting member attendance and end of current term were noted:

Mr. Lawrence Markel	6/30/2019	<b>Present</b>
Mr. Jay Eldridge	6/30/2018	<b>Present</b>
Mr. Steve Severini	6/30/2017	<b>Present</b>
Mr. John Andrepont	6/30/2017	<b>Present</b>
Mr. Drew Overmiller	6/30/2017	<b>Present</b>
Mr. Christian Paraskevacos	6/30/2017	<b>Not Present</b>
Mr. Gary Phetteplace	6/30/2016	<b>Present</b>

With 6 of the 7 current voting members in attendance, Drew noted that a quorum is present.

Self-introductions by all attendees were made.

**2. Visitors & Reports/Information from other Committee Representatives:**

Drew gave the floor to any committee representatives. None were present.

**3. Approval of the Chicago January 2015 Meeting Minutes and Atlanta June 2015 Meeting Minutes:**

Chicago January 2015 meeting minutes – Steve Severini noted that minor corrections were made to the draft meeting minutes as suggested by the voting membership. John Andrepont moved to approve the minutes. Second by Alan Neely. The motion passed with a vote of 5-0-0-1 CNV.

Atlanta June 2015 meeting minutes – It was noted that several voting members were not present at the Atlanta meeting. Jay Eldridge moved to approve the minutes. Second by Larry Markel. The motion passed with a vote 3-0-2-1 CNV. Abstentions by John Andrepont and Gary Phetteplace due to being absent at the Atlanta June 2015 meeting.

#### **4. Announcements by Chair:**

Drew attended the Section 6 breakfast earlier this day and noted the following discussion items:

##### **A. Section 6 Breakfast:**

###### **i. Conferences & Expositions Committee**

###### **(1) 2016 St. Louis:**

- (a) Conference paper abstracts were due 9/14/15
- (b) Conference papers were due 1/4/16
- (c) Seminar, forum, and workshop proposals are due 2/8/16
- (d) Confex opens for presentation uploads is 5/6/16
- (e) All presentations due online 6/6/16

###### **(2) 2017 Las Vegas:**

- (a) Conference papers are due 7/6/16
- (b) Seminar, forum, and workshop proposals are due 8/8/16
- (c) Confex opens for presentation uploads is 12/2/16

###### **(3) Program Statistics for Orlando**

###### **(4) Invited Speakers (New for St. Louis)**

###### **(5) Potential Sources of Bias Disclosure (New for St. Louis)**

###### **(6) TC Opportunities**

###### **(7) Speaker Ratings**

###### **(8) Presentations**

###### **(9) CEC Call for Reviewers**

###### **ii. Publications Committee**

##### **B. TC Training**

###### **i. Website & Procedures**

###### **ii. Roster**

##### **C. MTG (Multidisciplinary Task Group)**

###### **i. Guidelines for Avoided Source Energy Consumption Due to Waste Heat Recovery and Heat Pump Technologies**

###### **(1) Gary Phetteplace**

###### **(2) David Wade – Alternate #1**

Drew stated that the Society made specific mention of their appreciation of TC 6.2 members volunteering and serving as reviewers for papers and participating in the MTG.

#### **5. Liaison Reports:**

A. ALI: Chris Paraskevakos was not present. No report.

B. DOE: Rich Sweetser reported that the DOE's current interest in district energy is focused on the micro-grid concept. He noted the DOE's involvement in Pittsburgh where plans are being made for district energy services (chilled water, hot water, steam) to now include electricity to create "energy districts" in the downtown area. He also noted that the concept of installing combined heat and power ("CHP") for enhancing reliability and resiliency continues to move forward.

C. IDEA: John Andrepont provided the following report.

- i. The International District Energy Association (IDEA) is an industry association of over 1,000 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.

- ii. IDEA has two major conferences each year (one focused on campus District Energy systems and one focused on thermal utility systems), as well as smaller workshops on subjects such as marketing and thermal distribution, plus occasional regional-focused conferences. Each major conference also focuses on integrating Combined Heat & Power (CHP) and Thermal Energy Storage (TES) with District Energy.
- iii. Upcoming IDEA conferences include:
  - 29th Annual Campus Energy Conference  
February 8-12, 2016 – Austin, Texas
  - 107th Annual District Energy/CHP Conference and Trade Show  
June 20-23, 2016 – St. Paul, Minnesota
  - 30th Annual Campus Energy Conference  
February 18-20, 2017 – Miami, Florida
  - 108th Annual District Energy/CHP Conference and Trade Show  
June 26-29, 2017 – Scottsdale, Arizona
- iv. 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](mailto:rob.idea@districtenergy.org)  
website: [www.districtenergy.org](http://www.districtenergy.org)

## 6. Sub-Committee Reports

### A. Handbook: Steve Tredinnick (Chair)

Steve reported that the District Energy chapter (Chapter 12) for the 2016 Systems and Equipment Handbook was approved by TC6.2 voting members and submitted in June 2015. He is expecting the galley proof at any time now. At this time, the only updates for the 2020 edition may be to include additional heat loss calculations from the District Energy design guides.

Steve will be continuing on as Handbook chair. In the earlier sub-committee meeting, Steve Severini and Tim Anderson volunteered to serve on this sub-committee.

### B. Membership: John Andrepont (Chair)

It was noted that we currently have 7 voting members, and following the June 2016 meeting, we will only have 6. It would be great to have at least 3 additional voting members. Any corresponding member is encouraged to become a voting member. Anyone interested should inform Drew Overmiller and provide their ASHRAE number in the correspondence.

C. Programs: Tim Anderson (Chair)

Orlando January 2016 (this meeting): we are sponsoring Seminar 47: The Campus Planning Question: to Centralize Energy or Decentralize?

St Louis June 2016 meeting: After discussion, John Andrepont made a motion that we propose a forum or workshop led by Tim Anderson for a "part 2" to the seminar being conducted in Orlando. The session would have preliminary title "Centralized or Decentralized Thermal Energy? The Great Debate Continues". The motion passed 5-0-0-1 CNV. It was also noted that the due date for submitting a proposal is just a few weeks away (February 8) and pulling a proposal together this quickly would be a challenge.

Las Vegas January 2017 meeting: There was more optimism that we could propose a session for the Las Vegas meeting for the "water-energy nexus" track, which has proposals due in August 2016. Preliminary working title is "Alternate Methods for Water Conservation in District Energy Systems". A potential co-sponsor is TC8.6, Cooling Towers and Evaporative Condensers. Tim Anderson will attend the TC8.6 meeting and request co-sponsorship. Drew Overmiller noted that RO systems are being used to increase cycles of concentration and thereby save water. David Wade noted that rainwater collection is used at Georgia Tech in Atlanta. John Andrepont noted that in the Middle East some localities are mandated to not use potable water in cooling towers. All of these are potential discussion items for this session. Larry Markel moved that we propose sponsoring a session. Second by John Andrepont. The vote passed 5-0-0-1 CNV.

D. Standards: no current chair. No discussion.

E. Webmaster: Jessica Mangler

Our website is current. Jessica Mangler asked that comments for website improvements be sent to her.

F. ALI Liaison: Chris Paraskevacos – not present  
No discussion.

G. Research: Jay Eldridge (Chair)

TC 1.10 Cogeneration Systems has requested that TC6.2 co-sponsor a Combustion Turbine Inlet Cooling Design Guide. An RTAR has been approved. The work statement is being prepared. Art Giesler noted that RAC (Research Administration Committee) insists that all co-sponsors be actively involved in the work.

Research ideas presented include: better tools to compare energy models; aids to achieving net zero; and actual vs. model comparisons. No action items were developed at this meeting.

**7. Old Business:**

None noted.

**8. New Business**

Drew again requested consideration of the Vice Chair position. Alan Neely volunteered. Drew will execute an emergency roster change, as requested by Society. Jessica Mangler



expressed interest in becoming a voting member. Dharam Punwani and Geoff Bares are also considering.

Steve Tredinnick noted that he and Rich Sweetsor are participating in SSPC 100, with the intention of emphasizing that the calculation procedure used in Standard 100 "Energy Efficiency in Existing Buildings" is flawed. As previously discussed in TC6.2 meetings, Standard 100 uses "site energy" which unfairly treats district energy systems. Steve noted an example where a building with a high-efficiency chiller in it can comply, but the same chiller installed across the street now causes the exact same building to fail. It was noted that the Oak Ridge National Laboratory has a method that has merit. Larry Markel stated that any method for evaluating building efficiency that results in a single number as the answer is inherently flawed, because there are too many variables involved.

**9. Meeting Adjournment:**

- John Andrepont moved for adjournment. Second by Jay Eldridge.
- The meeting was adjourned at 4:35 pm.

Submitted by,  
Steve Severini  
TC 6.2 Secretary  
March 23, 2016

TC 6.2 Main Committee Meeting  
Jan. 24, 2016 Orlando

3 pm

Attendees

VM = voting member CM = corresponding member

NAME	MEMBER/GUEST	EMAIL
Steve Severini	VM	sseverini@newcomb-boyd.com
Jim Young	CM	jyoung@itwinsulation.com
Mohd Ihsan	Guest	AQRAA@Hotmail.com
JOANA MELO	Guest	joanamel@psu.edu
Bryson Barzani	CM	bryson.barzani@paseeng.com
DRAGOS PARASCHIV	CM	dragos@paraschiv.com
Brenna manning	Guest	Brenna.manning@ircq.com
DAVE MASON	Guest	dave_mason@danfoss.com
Wei Tian	Guest	w.tian@umiami.edu
Jim Hector	Guest	James_hector@danfoss.com
Dong He	Guest	redflying@gmail.com
Edwin Hipolito	Guest	edwin_hipolito@danfoss.com
Sen Huang	Guest	S.huang@umiami.edu
Dharam Punwani	CM	dpunwani@avalonconsulting.com
RICH SWEETSER	CM	RSWEETSER@XENEXPARTNERS.COM
Gary Phetteplace	member	garyp@gwaresearch.com
John Andrepoint	VM	Cool Solutions Co@aol.com
Steve Tredinnick	CM	stredinnick@bunsmat.com
DAVID WADE	CM	dww@rdaeng.com
Larry Markel	VM	LAWRENCE.MARKE@CSRA.COM
Tim Anderson	Prog Chair	tanderson@applied-e-s.com
Alan Neely	CM	Alan_Neely@pqhcorning.com
Eren Selcen	CM	eren.selcen@houstextx.gov
JESSICA MANGLER	Web/CM	jmangler@rossbar.com
JAY ELDRIDGE	VM	JAY_Eldridge@DAIRIAPPLIED.COM

Name	Member/guest	Email
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Joe Hofstetter	Guest	jhofstetter@karpinski.eng.com
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ANT GIESLER	CM	ANT.GIESLER@ATT.NET
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Geoff Bares	CM	gbares@cbi.com
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Drew Overmiller	Chair	
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j.hofstetter@karpinski.com
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ANT.GIESLER@ATT.NET

Agenda: TC 6.2 District Energy  
**Sunday, January 24, 2016 Orlando, FL**

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**TC 6.2 District Energy**  
**Sunday, 3:00 pm – 5:00 pm, Conway Lake (L)**

Sponsoring Seminar 47: The Campus Planning Question: To Centralize Energy or Decentralize

**TC 6.2 Programs, Research, Handbook**  
**Sunday, 1:00 pm – 3:00 pm, Conway Lake (L)**

**Voting Committee Members**

Mr. Lawrence Markel	6/30/2019	Mr. Drew Overmiller	6/30/2017
Mr. Jay Eldridge	6/30/2018	Mr. Christian Paraskevacos	6/30/2017
Mr. Steve Severini	6/30/2017	Mr. Gary Phetteplace	6/30/2016
Mr. John Andrepont	6/30/2017		

**1. Call to Order:**

*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.*

A. Agenda & Attendance Handouts

B. Introductions

**2. Visitors & Reports/Information from other Committee Representatives**

**3. Approval of the Chicago January 2015 & Atlanta June 2015 Meeting Minutes**

**4. Announcements by Chair:**

A. Section 6 Breakfast:

i. Conferences & Expositions Committee

(1) 2016 St. Louis:

(a) Conference paper abstracts were due 9/14/15

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- (3) Program Statistics for Orlando
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- (5) Potential Sources of Bias Disclosure (New for St. Louis)
- (6) TC Opportunities
- (7) Speaker Ratings
- (8) Presentations
- (9) CEC Call for Reviewers

Name	Email	Paper #1	Paper #2	Paper #3
Eren Selcen	<a href="mailto:eren.selcen@houstontx.gov">eren.selcen@houstontx.gov</a>	Measurement & Verification of Efficiency Upgrades In Chilled Water Systems		
Rory Stegeman	<a href="mailto:RJSWOLF@hotmail.com">RJSWOLF@hotmail.com</a>	A Simulation-Based Study on Different Control Strategies for Variable Speed Pump in Distributed Ground Source Heat Pump Systems		
William Trefz	<a href="mailto:wtrefz@wtrefz.com">wtrefz@wtrefz.com</a>	Improving Variable Speed Pumping Control to Maximize Savings	Measurement and Verification of Efficiency Upgrades in Chilled Water Systems	
Bryson Borzini	<a href="mailto:bborzini@gmail.com">bborzini@gmail.com</a>	Improving Variable Speed Pumping Control to Maximize Savings	Measurement & Verification of Efficiency Upgrades In Chilled Water Systems	
Jim Kreutzmann	<a href="mailto:jkreutzm2@gmail.com">jkreutzm2@gmail.com</a>	A Simulation-Based Study on Different Control Strategies for Variable Speed Pump in Distributed Ground Source Heat Pump Systems	Improving Variable Speed Pumping Control to Maximize Savings	
Dragos Paraschiv	<a href="mailto:dragos@paraschiv.ca">dragos@paraschiv.ca</a>	Measurement & Verification of Efficiency Upgrades In Chilled Water Systems	Improving Variable Speed Pumping Control to Maximize Savings	A Simulation-Based Study on Different Control Strategies for Variable Speed Pump in Distributed Ground Source Heat Pump Systems
Hassan Ali Younes	<a href="mailto:hassan@griffin-consultants.com">hassan@griffin-consultants.com</a>	Improving Variable Speed Pumping Control to Maximize Savings	Measurement & Verification of Efficiency Upgrades In Chilled Water Systems	
Muhammad Ali	<a href="mailto:m.ali@consultant.com">m.ali@consultant.com</a>	A Simulation-Based Study on Different Control Strategies for Variable Speed Pump in Distributed Ground Source Heat Pump Systems	Improving Variable Speed Pumping Control to Maximize Savings	Measurement & Verification of Efficiency Upgrades In Chilled Water Systems

- ii. Publications Committee
- B. TC Training
  - i. Website & Procedures
  - ii. Roster
- C. MTG
  - i. Guidelines for Avoided Source Energy Consumption Due to Waste Heat Recovery and Heat Pump Technologies
    - (1) Gary Phetteplace
    - (2) David Wade – Alternate #1

**5. Liaison Reports:**

- A. ALI
  
- B. DOE
  
- C. IDEA

**6. Sub-Committee Reports:**

- A. Handbook: Steve Tredinnick (Chair)
  
- B. Membership: John Andrepont (Chair)
  
- C. Program: Tim Anderson (Chair)
  
- D. Standards: Open
  
- E. Webmaster: Jessica Mangler
  
- F. ALI Liaison: Chris Paraskevakos
  
- G. Research: Jay Eldridge (Chair)

**7. Old Business**

**8. New Business**

Vice Chair

**9. Meeting Adjournment**