

## TEG Staff Experience Matrix Relating to Energy Projects

 <p style="text-align: center;"><b>Project Description</b></p>	District Heating	District Cooling	Co-Generation	Biomass/Waste-to-Energy	Distribution Systems	Feasibility Study	Economic & Rate Study	Prelim. Design Plans & Specs	Final Design & Specs	Construction Coordination	Construction Management	Start-up & Perf. Testing	New Facility	Expansion/Retrofit Design	Air Quality/Operating Permits	Trouble Shooting/Design
<b>Akron Thermal LP; Akron, Ohio</b> Ongoing engineering support, dist. steam plant and distribution.	●	●	●	●	●		●	●	●	●	●			●	●	●
<b>Anaheim/Garden Grove DHC System Development</b> Anaheim, CA, - Thermal Ventures of Orange County Engineering design & support, DHC plant and distribution.	●	●			●	●	●	●		●	●		●			
<b>Baltimore Thermal; Baltimore, MD</b> District Heating Facility serving downtown Baltimore	●		●	●	●	●	●	●	●	●				●		●
<b>Bay County, Florida</b> 510 TPD waste-to-energy plant co-generation			●	●		●	●	●	●	●			●			
<b>Berea College; Berea, KY</b> 1,400 ton & 40 mmbtuh central plant w/10,600 trench-feet of CW & HW distribution system	●	●			●	●	●	●	●	●		●	●		●	
<b>Boston Thermal; Boston, MA</b> District Heating Facility serving downtown Boston	●		●		●	●	●	●	●	●				●		●
<b>Central Plants; Century City, CA</b> 15,000 tons, 220,000 lb./hr. central steam and chilled water plant-psi 750 deg. F steam.	●	●				●	●							●		●

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City of Hamilton, OH Municipal Power Plant, Modifications for Steam & CW Production	●	●	●		●	●	●	●					●	●		
City of Waukesha, WI Retrofit existing 350 TPD waste incinerator with heat recovery boilers. Air pollution control equipment.	●			●	●	●	●	●	●	●	●			●		
Cleveland Thermal; Cleveland, OH District Heating Facility serving downtown Cleveland	●	●		●	●	●	●	●	●	●				●		●
Colbert County, AL 300 TPD waste-to-energy	●		●	●	●	●	●						●			
County of Orange; Santa Ana, CA 6,000 ton, 150,000 lb./hr. central steam and chilled water plant	●	●			●	●	●									
Detroit Thermal; Detroit, MI Ongoing engineering support, district steam plant and distribution	●				●	●	●	●	●	●		●		●		●
Detroit Thermal; Detroit, MI Re-tube & controls retrofit for two 450,000 PPH boilers	●				●	●	●	●	●	●		●		●		
Detroit Thermal; Detroit, MI Design and provide Construction Administration 7,200' HP Steam Distribution system to GM	●				●	●	●	●	●	●		●		●		

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Dubuque, Iowa 250 TPD waste-to-energy	●			●	●	●	●									
Dutchess County, New York 600 TPD waste-to-energy plant, co-generation	●		●	●		●	●	●	●	●		●				
Energy Thermal, LLC; New Orleans, LA 3-40,000 lb/hr boiler plant; boiler draft control modifications	●					●		●	●	●		●		●		
Energy Thermal, LLC; New Orleans, LA 3-40,000 lb/hr boiler plant; feedwater pumps & controls upgrade	●					●		●	●	●		●		●		
Energy Thermal, LLC; New Orleans, LA 1,700 trench feet steam & condensate & 3,000 trench-feet chilled water distribution system expansion	●	●			●		●	●	●	●		●		●		
Energy Thermal, LLC; New Orleans, LA 200 trench feet steam, condensate & chilled water distribution system expansion for new customer connection of 35,000 pph steam and 2,400 tons cooling	●	●			●			●	●	●		●		●		
EnWave USA; New Orleans, LA - distribution system expansion to UMC 2,990 trench feet steam & condensate, 3,335 trench-feet chilled water & 2,725 trench feet hot water	●	●			●			●	●	●		●		●		

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EnWave USA; New Orleans, LA Energy Transfer Stations - UMC Multi-building Campus	●	●						●	●	●		●	●			
EnWave USA; New Orleans, LA 1.400 ton Heater/Chiller at UMC CUP							●	●	●			●	●			
Gallatin Thermal. LLC; Gallatin, TN Conversion of MSW to wood waste district energy system	●		●	●	●	●	●	●	●	●		●		●	●	●
General Services Administration; Washington, DC Upgrade of Cogen & Chilled Water system controls to optimize chiller plant operation with real-time energy costs & fuel switching.	●	●	●		●	●	●	●	●	●		●		●		
General Services Administration; Washington, DC 10.1 MW Cogen w/250,000 #/hr Steam and 17,000 ton Chilled Water Retro w/5,000 ft of new distribution piping serving National Mall south side.	●	●	●		●	●	●	●	●	●		●		●		
General Services Administration; Washington, DC 8.2 MW Cogen w/125,000 #/hr Steam and 10,800 ton Chilled Water w/5,200 ft of new distribution piping serving National Mall north side.	●	●	●		●	●	●						●	●	●	
General Services Administration; Washington, DC 2-400,000 #/hr Steam Boilers; economizer replacement, breeching redesign & precipitator removal	●						●	●	●					●		

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<b>Green Circle Growers; Oberlin, OH</b> 4.0 MW Cogen/50,000 #/hr Steam from Biomass gasifier w/4,500 ft of high-temperature hot water distribution & HW Storage	●		●	●	●		●	●	●				●		●	
<b>Harrisonburg VA Resource Recovery Facility;</b> 100 TPD WTE Facility with 3,000 ton, 70,000 lb./hr. DHC - Cogeneration Plant serving James Madison University	●	●	●	●	●	●	●	●	●	●	●	●		●		●
<b>Islip, New York</b> 600 TPD waste-to-energy plant, co-generation			●	●		●	●	●	●	●		●	●			
<b>Kingsville Thermal, LLC; Kingsville, Ontario CA</b> 10 MW Cogen/150,000 #/hr Steam from Biomass gasifier w/HP steam and high-temperature hot water distribution system	●		●	●	●	●	●	●	●	●	●	●	●			
<b>Kokomo, IN</b> 150 TPD waste-to-energy	●			●	●	●	●	●					●			
<b>Memphis, TN</b> 1,200 TPD waste-to-energy plant, co-generation	●	●	●	●	●	●	●	●					●			
<b>Medical University of SC; Charleston, SC</b> Due diligence and construction surveillance for financing agency for the central heating and cooling facility and energy distribution systems for a new hospital	●	●			●		●						●			

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Mid American Growers; Grandville, IL 2-800 HP Hot Water Boilers firing Biomass for greenhouses heat	●			●	●								●		●	
Nashville DES - Metro Government of Nashville, TN Project Contract Administrator for the EGF and EDS to 40 customers managing with annual budget in excess of \$23 million	●	●			●	●	●	●	●	●	●	●				●
Nashville DES - Metro Government of Nashville, TN Facility expansion to include CHP w/combustion turbine & HRSG including steam absorption chiller.	●	●	●			●	●	●								
Nashville DES - Metro Government of Nashville, TN New service line extension -1,600 trench feet steam, condensate & chilled water distribution system expansion for new customer connection of 54,400 pph steam and 5,820 tons cooling.	●	●			●	●	●	●	●	●	●	●	●			
Nashville DES - Metro Government of Nashville, TN New condensate line extension -800 trench feet					●	●	●	●	●	●	●	●	●			
Nashville DES - Metro Government of Nashville, TN Energy Generating Facility (EGF) re-configuration/modification to the CW distribution pumping system 60,000 gpm		●			●	●	●	●	●	●	●	●	●			
Nashville DES - Metro Government of Nashville, TN Replacement/rebuild concrete vaults for the underground steam distribution system					●	●	●	●	●	●	●	●	●			

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<b>Nashville DES - Metro Government of Nashville, TN</b> Restoration of underground tunnel system housing the steam and CW distribution system	●	●			●	●	●	●	●	●	●	●	●			
<b>Nashville Thermal Transfer; Nashville, TN</b> 800 TPD solid waste fueled district heating and cooling plant	●	●	●	●	●		●	●	●	●		●		●		●
<b>Nashville Electric Service; Nashville, TN</b> 1,200 TPD mass burn waste-to-energy plant, co-gen.	●	●	●	●	●	●	●	●					●			
<b>Ontario, Canada</b> Wood-fired gasifier-boiler capable of producing 52,000 pph of steam at 450 psig D&S, one 4 MWe condensing extraction steam turbine and corresponding steam distribution systems	●			●	●	●	●	●					●		●	
<b>National Gallery of Art; Washington, DC</b> GSA CHP CW expansion - 1,500 trench-feet of 24" chilled water distribution piping and building service connection		●			●	●	●	●						●		
<b>Nova Fuels, Inc., Indio, CA</b> 750 TPD Biomass to Ethanol			●	●				●					●			
<b>Okelika, AL</b> 300 TPD waste-to-energy	●			●	●	●	●						●			

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Paducah, KY 300 TPD waste-to-energy plant	●			●	●	●	●						●			
Philadelphia Thermal; Philadelphia, PA District Heating Facility serving downtown Philadelphia	●		●	●	●	●	●	●	●	●				●		●
Pittsburgh Thermal LP; Pittsburgh, PA Ongoing engineering support, dist. steam plant and distribution.	●	●			●	●	●	●	●	●	●			●	●	●
Queen Mary, Historic Ship/Hotel; Long Beach, CA Energy Consultant for Ship services, steam plant and distribution.	●	●			●	●		●	●	●				●		●
Redstone Arsenal; Huntsville, AL 75 TPD waste-to-energy plant A198	●			●	●	●		●	●	●		●	●			
Resource Authority in Sumner County, TN 200 TPD waste-to-energy co-generation plant and steam dist. system, 54,000 lb./hr. superheated steam 550 KW cogen @ 450 psig	●		●	●	●	●	●	●	●		●	●	●	●	●	●
NRG Energy Center; San Francisco, CA Ongoing engineering support, dist. steam plant and distribution.	●				●	●	●	●	●	●	●			●	●	●
San Juan, Puerto Rico 1200 TPD waste-to-energy plant, co-generation			●	●		●	●	●					●			

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Smithsonian Institution AIB & Castle; Washington, DC GSA CHP CW expansion - 1,500 trench-feet of chilled water distribution and building service connection		●			●	●	●	●	●	●		●		●		
St. Louis Thermal, St. Louis, MO District Heating Facility serving downtown St. Louis	●			●	●	●	●	●	●	●				●		●
Tuscaloosa, AL 300 TPD waste-to-energy plant	●			●	●		●	●	●	●				●	●	●
West Contra Costa County, CA 600 TPD waste-to-energy			●	●		●	●						●			
Western Kentucky University, Bowling Green, KY 3,600 Ton Chilled Water Plant Expansion		●				●	●	●	●	●		●		●		
Youngstown Thermal LP; Youngstown, OH New Cogen system, 15 mW combustion TG w/20 steam TG & host for EPRI AUSC ComTest.	●	●	●			●	●	●						●	●	
Youngstown Thermal LP; Youngstown, OH Ongoing engineering support, dist. steam plant and distribution.	●	●			●	●	●	●	●	●	●			●	●	●