

Sustainable Energy Systems for Indoor Growing & Greenhouses



Hosted by Jenbacher, Clarke Energy and DTE Energy, this workshop is targeted to owners and developers of Michigan indoor grow facilities and greenhouses. Presenters will discuss low cost, sustainable energy systems focusing on natural gas Combined Heat and Power (CHP) systems for both on grid and off grid power, heating, cooling and dehumidification with operational costs well below conventional grid electric systems. Clarke Energy is the regional expert in greenhouse CHP systems using the Jenbacher reciprocating engine, common in the greenhouse industry. We will start with

a CHP 101 followed by a discussion of the energy loads and system sizing for indoor grow operations.

We will present case studies of existing systems, project development, and offer resources to help your business or future project. We will also present on lighting technologies, terminology, including the state of the art LED grow systems.



When: Friday May 17, (noon to 5 PM)

Where: Frederick Meijer Gardens
Hauenstein and Pfeiffer Rooms
1000 East Beltline Ave NE, Grand Rapids, Michigan

Who: Michigan indoor grow facility owners and developers, glass house facility owners and developers (both large and small).

Fee: no cost (lunch provided)

Registration: www.eventbright.com

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Agenda

- 11:00 AM Workshop registration and networking
- 12:00 noon Welcome and opening remarks. Lunch is served
- 12:30 PM CHP 101, greenhouse / growroom energy modeling and system sizing, Jim Leidel
- 1:15 PM Greenhouse / growroom CHP system development and case studies, Chris Hayton
- 2:30 PM State of the art lighting technologies for agricultural applications, Stevan Bratic
- 3:15 PM End of presentations. Networking and social time with scotch & whiskey tasting.
All attendees are welcome tour the Meijer Gardens & Sculpture Park until 5 PM
- 5:00 PM Meijer Gardens closes.



Door prizes!! Including FLIR Thermal Imaging Camera mobile phone attachment



SPEAKERS

James Leidel of DTE Energy has been involved in various energy industries since his graduation from Purdue University (BSME) and U-M (MSME). He worked 10 years in various positions with Barber-Colman and DTE, followed by 10 years as Energy Manager for Oakland University Facilities. In 2011, James created the Clean Energy Research Center within the School of Engineering and at OU, and became the director. At OU, James helped develop five power projects totaling over 8.3 MW, encompassing solar, gas turbines and reciprocating peakers. James also provided studies for other institutions on CHP, utility scale solar and wind power. He taught environmental science and engineering courses at OU and developed a clean energy curriculum. James returned to DTE Energy in 2017 to support the DTE Gas commercial / industrial group with a focus on CHP systems.

Chris Hayton of Clarke Energy USA is responsible for the development and growth of Clarke Energy's US business activities and support of associated Innio Jenbacher Distribution Agreement, with a focus on on-site generation, combined heat and power, Micro-grid solutions and other allied and emerging technologies. Hayton has extensive experience of utilizing on site Combined Heat & Power systems to support a wide range of horticultural and associated grower facilities. He completed his first "Green house CHP" in 1989 and has continued to work in the sector, both in Europe and the US to the present day"



Stevan Bratic of Bratic Enterprises is actively involved with cannabis related projects from the design development of the grow process and environment to the occupancy and/or production. Stevan has fifteen years of experience in purchasing, operations and sales in the automotive manufacturing environment with Tier 1 supply base and OEM capacity. Stevan took his knowledge from the automotive and expanded his experiences by starting Bratic Enterprises in 2000 within the LED industry for the automotive. Over time, Stevan evolved the company into the commercial and industrial lighting markets, building LED circuit boards and sustained growth into the Horticultural and Cannabis markets with LED Grow lights. Additionally, sustainable Micro-Grid solutions were added to the portfolio. Stevan's goal is to offer the best in class energy efficient and sustainable solutions at the most competitive prices.

Contact: James Leidel, james.leidel@dteenergy.com
mobile 248.765.2027

