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NOTICE OF TECHNICAL EVENING PRESENTATION Wednesday, October 20th, 2021, 7:00 – 9:00 pm PDT

Please join the meeting from the link below.

CEP Webinar via Microsoft Teams

https://bit.ly/CEP_October_Webinar

Preliminary Assessment of the Application of OTEC in the Caribbean isle of Tobago

Speaker:

Dr. Solange Kelly

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Abstract

The University of Trinidad and Tobago continues its commitment to engage in innovative, marketable and value-added research covering current and emerging Renewable Energy (RE) technologies. This drive to explore various RE technologies has led us to the northeast coast of the island of Tobago, where lies an ocean full of thermal energy potential.

The Ocean is the largest collector of solar radiation. The deepwater means of harnessing the solar energy absorbed into the ocean and converting it to electricity is called Ocean Thermal Energy Conversion (OTEC).

Ocean Thermal Energy Conversion (OTEC) requires as a rule of thumb a 20°C thermal difference between intake points for optimal energy production. OTEC is rendered economically viable when such temperature difference is achieved at a depth of 1000 m or less from the surface of the ocean. OTEC is also considered economically viable to generate electricity where the temperature difference is maintained or increases throughout the year. Such requirements render OTEC a feasible option for Tobago, where stable temperature conditions can be met year-round.

Lastly, the cost of implementing an OTEC system is greatly affected by the distance of the deepwater region from the coast. With the 1000 m deep water being located just 8km from the coast, the application of OTEC technology in Tobago appears to be a feasible alternative energy option.



Biography

Dr. Kelly has over twenty years of postgraduate research and industrial experience in process systems optimization, exergy analysis, and the harnessing of energy from MSW and the Ocean. She worked as a Research Assistant at the University of the West Indies (UWI) for two years where she conducted research work in the area of exergy analysis of absorption chillers and power plant systems. She was also a Research Assistant at the Technical University of Berlin where she conducted research work in the optimization of thermal (power plant) systems using exergoeconomics with emphasis on splitting the exergy destruction into its endogenous and exogenous parts. In 2006, she was awarded the "Best Student Paper" award by the Advanced Energy Systems Division of the ASME for her work on splitting exergy destruction into its endogenous and exogenous parts

Dr. Kelly is currently an Associate Professor at the University of Trinidad and Tobago (UTT) where she heads the Utilities Engineering Unit. Her current research work focuses on the

areas of Process System Optimization and the Conversion of Ocean Thermal Energy and Waste to useful energy, for the purpose of carbon footprint reduction.

Related publications on OTEC/Waste to Energy and CO2 reduction

- Kelly, S. (2019 November). Opportunity Analysis for OTEC: Tobago, Caribbean Marine Energy Technology Forum, St. George's, Grenada
- Brian Aufderheide, Ejae John, Solange Kelly (2015 December) Capturing CO₂, Producing a Biofuel, and Improving Efficiency of a Combined Cycle Power Plant. APETT Chemical Engineering Newsletter, issue 2
- K. Singh, S. Kelly, (2010) Modeling of an Integrated Plasma Gasification Combined Cycle (IPGCC) Waste to Energy (WTE) Power Plant Using APEN_PLUS presented at 17th CAS General Meeting, Antigua and Barbuda, November 13th 2010
- N. Thomas, S. Kelly (2010) A Preliminary Inventory Assessment Study of Specific E-Waste Components in Trinidad and Tobago presented at 17th CAS General Meeting, Antigua and Barbuda, November 13th 2010
- Kamel Singh, Solange O. Kelly and Musti K.S. Sastry (2009). Municipal Solid Waste to Energy: An Economic and Environmental Assessment for Application in Trinidad and Tobago. The Journal of the Association of Professional Engineers of Trinidad and Tobago. Vol.38, No.1, October 2009

Ongoing RE Research Work

- 2021- Present The Potential of Harvesting Tidal and Current Energy in Trinidad and Tobago
- 2020- Present : A Technical Assessment of Ocean Thermal Energy Conversion (OTEC) in Barbados and Tobago

No Registration is Required:

This event is provided **free of charge** and welcomes all interested **members and guests**.