



UAA Professional Development Seminar Series

Seasonal Solar Thermal Storage

Presented by Philip Hayes, Alyeska Pipeline

Diurnal solar thermal systems are a mature technology and often leave an abundant supply of surplus energy once needs are met. Seasonal Thermal Energy Storage Systems are an active area of research for bridging the gap between solar supply and demand. Currently, such systems are not recommended for residential applications, especially in cold climate zones. However, recent research shows that with the right equipment, a properly designed system is financially advantageous and could significantly reduce the costs of a home's heating bills. The presentation will provide an overview of industry design guidelines and how they can be improved to address cold climates. Additionally, solar thermal collector equipment and storage methods will be discussed, focusing on methods that are most applicable to residential applications. Lastly, an overview of the current state of research into the topic will be presented

Philip Hayes, P.E. completed his master's degree in Mechanical Engineering at the University of Alaska Anchorage in 2017. He researched Seasonal Thermal Energy Storage Systems in residential applications for his thesis, *Modeling and Experimental Verification of Seasonal Solar Thermal Energy Sand-Bed Storage*. He currently works full time in Anchorage, Alaska and continues to research the topic of Seasonal Thermal Energy Storage.

Friday, September 13, 2019

11:45 am-12:45 pm

UAA College of Engineering, EIB 211