#	**Efstratios Varvagiannis** Dipl. Mechanical Engineer	
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Presentation title:	**HYBUILD: Integration of Energy Storage Systems in a Heat Pump**	

The overall objective of the HYBUILD project is the development of two innovative compact hybrid electrical/thermal storage systems for stand-alone and district connected buildings. The two concepts will be developed for ensuring comfort conditions in residential buildings located in two different climates: one for Mediterranean climate, where cooling season operation is particularly critical, and another one for Continental climate, where criticalities mainly concern the heating season operation. Both systems will be able to efficiently cover also heating and cooling demand respectively.

The aforementioned systems aim to enhance the penetration of renewables in the building sector, by efficiently converting solar energy to electricity (via photovoltaics) and heat (via a DC driven heat pump) and storing the produced energy either in batteries (as electricity) or in high density latent thermal storage modules (based on PCMs). Especially for the Mediterranean concept, solar thermal collectors will drive a two bed sorption chiller, providing an extra storage module or increasing the electricity-to-heat conversion efficiency.

CV:	

He studied Mechanical Engineering at the National Technical University of Athens (NTUA) and graduated with grade 8.95/10 (**Diploma Thesis:** "*Experimental and theoretical investigation for the automatic control of a waste heat recovery ORC.*" Grade 10/10). Currently he is attending the Master's Degree program "Automation Systems" at the NTUA. Simultaneously he is working as a research assistant in the Laboratory of Steam Boilers and Thermal Plants (LSBTP) of NTUA since March 2017. He has been involved in the following research projects:

1. **Marine ORC:** experimental investigation of a small scale ORC driven by waste heat from marine engines
2. **BioTric:** design of a small scale ORC tri-generation plant
3. **HYBUILD:** Highly efficient hybrid storage solutions for power and heat in residential buildings and district areas, balancing the supply and demand conditions

His responsibilities involve the development of dynamic and off design simulation models, as well as the organization and set up of experiments (including data logging and automation solutions) of ORC and VCC systems and relevant equipment. His research interests additionally include energy simulations of buildings and design and modeling of HVAC systems.

He is fluent in the English language (having a C2 certificate), while he is skilled in computer technology, having knowledge of several programming languages (including C, C++, Python and Visual Basic) and engineering programs (Dymola, TRNSYS, Matlab/Simulink, Labview, Autocad and Inventor), computer networking and basic Linux server development and maintenance. From September 2017 he is the main responsible of the LSBTP's computer network and web sites.

He has coauthored a number of scientific publications in journals and conferences.