

1. Brief CV



Dr Nikolaos Savvakis received his Diploma in Environmental Engineering, the MSc degree in Sanitary and Environmental Engineering and the PhD degree in Environmental Engineering at the Technical University of Crete (TUC), in 2010, 2014 and 2021, respectively. He has worked as a full-time research associate at the TUC, participating in research projects (Interreg Med, IEE, COST, H2020) on RES and saving of energy (2010 - today). In the period 2014 – 2017, he has also worked as adjunct teaching staff at the Hellenic Mediterranean University (HMU). His main scientific interests include Environmental impact assessment, Environmental Systems Management and Protection (Water management, Wastewater treatment, Air quality), Renewable energy sources (Solar energy, Biomass), Environmental and Energy Systems' modelling, Energy efficiency, Phase Change Material (PCM), Life Cycle Assessment.

2. Education

- **July 2021:** PhD in Environmental Engineering, School of Environmental Engineering, Technical University of Crete. Thesis title: "*Investigation, development and experimental evaluation of a thermal management technique for photovoltaics with the aim to enhance their energy efficiency and ecological footprint*".
- **February 2014:** MSc in Sanitary and Environmental Engineering, School of Environmental Engineering, Technical University of Crete. Thesis title: "*Performance assessment of a thin film photovoltaic system installed at the campus of the Technical University of Crete*".
- **June 2010:** Diploma in Environmental Engineering, School of Environmental Engineering, Technical University of Crete. Thesis title: "*Comparative evaluation of the thermal zones of buildings integrated with Phase Change Materials (PCM) into the structured environment*".

3. Teaching Experience

- "*Renewable Energy Sources*", Academic years: 2015-2016/ 8th semester, undergraduate program, School of Environmental Engineering, Technical University of Crete)
- "*Solar Energy Systems*", Academic years: 2014-2016/ 6th semester, undergraduate program, Department of Mechanical Engineering, THellenic Mediterranean University
- "*Photovoltaic and Wind Energy Systems*", Academic year: 2015-2016/ 5th semester, undergraduate program, Department of Electrical Engineering, Hellenic Mediterranean University
- "*Agricultural Waste Management*", Academic years: 2014-2015/ 5th semester, undergraduate program, Department of Agriculture, Hellenic Mediterranean University

- "Health and Safety at Work", Academic year: 2014-2016/ 7th semester, undergraduate program, Department of Mechanical Engineering, Hellenic Mediterranean University
- "Fluid Mechanics", Academic year: 2016-2017/ 3rd semester, undergraduate program, Department of Mechanical Engineering, Hellenic Mediterranean University

4. Research Projects – Grants

- COMPOSE: Rural COMMunities engaged with POSitive Energy, MED programme, 2016-2019 (*Participation in scientific research activities*)
- REScoop Plus: Harnessing power of European REScoops beyond RES production, Cooperatives mobilising EU Citizens to invest in Sustainable Energy, Horizon 2020, 2016-2019 (*Participation in scientific research activities*)
- HIT2GAP: Highly Innovative building control Tools Tackling the energy performance GAP, Horizon 2020, 2015-2019 (*Participation in scientific research activities*)
- NEZEH: Near Zero Energy Hotels, Project Coordinator, Intelligent Energy - Europe, 2013-2016 (*Participation in scientific research activities*)
- RECOIL: Promotion of used cooking oil recycling for sustainable (*Participation in scientific research activities*)

5. Research Interests

- Environmental impact assessment
- Environmental Systems Management and Protection (Water management, Wastewater treatment, Air quality)
- Environmental and Energy Systems' modelling
- Renewable energy sources (Solar energy, Biomass)
- Energy efficiency
- Smart materials applications (Phase Change Materials-PCMs)
- Life cycle assessment analysis (LCA)
- Industrial Ecology

6. Publications

In peer-reviewed scientific journals

- N. Savvakis, T. Tsoutsos, " Theoretical design and experimental evaluation of a PV+ PCM system in the Mediterranean climate ", Energy, 2021, vol. 220, 119690.
- N. Savvakis, E. Dialyna, T. Tsoutsos, "Investigation of the operational performance and efficiency of an alternative PV+PCM concept ", Solar Energy, Nov. 2020, vol. 211, pp. 1283-1300)
- N. Savvakis, S. Tournaki, D. Tarasi, N. Kallergis, T. Daras, T. Tsoutsos "Environmental effects from the use of traditional biomass for heating in rural

areas: a case study of Anogeia, Crete", *Environment, Development and Sustainability*, Jul. 2021, Springer.

- N. Sifakis, N. Savvakis, T. Daras, T. Tsoutsos, "Analysis of the Energy Consumption Behavior of European RES Cooperative Members", *Energies*, 2019, vol. 12, issue 6, 970.
- D. Hasapis, N. Savvakis, S. Psychis, T. Tsoutsos, N.P. Nikolaidis, "Design of large scale prosuming in Universities: The solar energy vision of the TUC campus", *Energy and Buildings*, 2017, vol.141, pp. 39-55.
- N. Savvakis, T. Tsoutsos, "Performance Assessment of a thin film PV system under actual Mediterranean climate conditions in the island of Crete", *Energy*, 2015, vol.19, part 2, pp. 1435-1455.
- H. Doukas, A. Papadopoulou, N. Savvakis, T. Tsoutsos, J. Psarras, "Assessing Energy Sustainability of Rural Communities using Principal Component Analysis", *Renewable and Sustainable Energy Reviews*, 2012, vol. 16, issue 4, pp. 1949-1957.
- N. Savvakis, S. Foteinis, T. Tsoutsos, "Evaluation of a PV+PCM system by means of ReCiPe based environmental indicators", *Journal of Cleaner Production* (under preparation).

In peer-reviewed conference proceedings

- N. Savvakis, S. Tournaki, N. Kallergis, T. Tsoutsos: "Assessment of wood biomass use in rural island communities (Case Study: Anogeia, Crete), 11th National Conference on Renewable Energy Sources, 14-16 March 2018, Thessaloniki, Greece.
- M.Giamalaki, N. Savvakis, S. Tournaki, T. Tsoutsos, A GIS-based Analytical Hierarchy Process Approach for the Sustainable Siting of Renewable Energy Installations: The Case Study of the Regional Unit of Rethymno, 3rd HAEE International Conference on "Energy Transition: European and Global Perspectives, May 3-5, 2018, Athens, Greece
- C. Akasiadis, N. Savvakis, M. Mamakos, T. Hoppe, F. Coenen, G. Chalkiadakis, T. Tsoutsos: "Analyzing statistically the energy consumption and production patterns of European REScoop members: Results from the H2020 project REScoop Plus", 9th International Exergy, Energy and Environment Symposium (IEES-9), May 14-17, 2017, Split, Croatia.
- N. Savvakis, T. Tsoutsos: "Phase change materials in Photovoltaics: Assessment of system performance under actual Mediterranean climate conditions", DEMSEE '16 - 11th International Conference on Deregulated Electricity Market Issues in Southeastern Europe, 22-23 September 2016, Heraklion, Greece.
- N. Savvakis, P. Kokkalis, T. Tsoutsos: "Preliminary performance assessment of a PV-PCM system under actual Mediterranean climate conditions", Workshop on "Technical and Economic Aspects of Renewable Energies 2016", July 4-7, 2016, Berlin, Germany.

- I. Kanakis, T. Tsoutsos, N. Savvakis: "Performance Analysis of Two Twins Grid Connected Thin Film PV Installations 2.18 kWp for the First Two (2) Years of their Operation in the Island of Crete and in Athens", 27th EU PVSEC, 25th of September 2012, Hamburg, Germany
- G. Kyriakarakos, G. Papadakis, T. Tsoutsos, N. Savvakis, I. Kanakis, B. Schwartz: "Can the Better Temperature Coefficient of Thin Film Modules Make Up for Their Lower Efficiency under Southern European Climatic Conditions?", 26th EU PVSEC, 5th-9th of September 2011, Hamburg, Germany.
- T. Tsoutsos, N. Savvakis, I. Kanakis, G. Papadakis, G. Kyriakarakos, B. Schwartz: "Temperature Effect on PV Performance Experimental Results from a 2.18 kWp Thin Film PV Systems", 26th EU PVSEC, 5-9 September 2011, Hamburg, Germany.

Book chapters

- G. Chalkiadakis, C. Akasiadis, N. Savvakis, T. Tsoutsos, T. Hoppe, F. Coenen, "Providing a Scientific Arm to Renewable Energy Cooperatives", in S. Nižetić & A. Papadopoulos (Eds), The Role of Exergy in Energy and the Environment, Green Energy and Technology, Springer, Cham, pp. 717-731. DOI: 10.1007/978-3-319-89845-2_51
- N. Savvakis, T. Tsoutsos, "Phase change materials in photovoltaics: The assessment of system performance in the present Mediterranean climate conditions" in F. Mavromatakis & K. Siderakis (Eds), Power Systems Energy Markets and Renewable Energy Sources in South-Eastern Europe, Trivent Publishing, 2016, vol. 3, ISBN 978-615-80340-7-4

7. Work Experience

- Self-employed Environmental Engineer; October 2011-Today; Main Tasks:
 - Technical Consulting
 - Development of projects related to environmental protection and management
 - Environmental Impact Assessment
 - Energy Efficiency in Building
 - Renewable Energy Sources
 - Environmental Management (Water resource management, Wastewater treatment, Air quality)
 - Industrial sites
- Apintech Ltd; September 2015 - May 2016; External Research Fellow/ Participation in scientific research activities for HIT2GAG project (H2020)

8. Contact

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