

International Brokerage Event
Brussels, 26-27/10/2017



Özyeğin University

Center for Energy, Environment and Economy



Cem Keskin

cem.keskin@ozyegin.edu.tr

Description of the Organization



OzU/CEEE focusses on **complex** nature of energy usage in buildings. The CEEE researchers develop **data driven, interactive and adaptable systems** and services for built environment where human **comfort and energy efficiency** are the two high priority objectives. The trans-disciplinary research conducted at CEEE towards high-performance buildings include the following three research areas on:

- Human-building interaction
- Cyber-physical systems
- Advance energy science for buildings

Ongoing EU Projects:

- **TRIBE:** "TRAlning Behaviours towards Energy efficiency: Play it!" (H2020/TRIBE:EE-11-2014)
- **NEED4B:** "New Energy Efficient Demonstration for Buildings" (EU-FP7)
- **BRICKER:** "Total Renovation Strategies for Energy Reduction in Public Building Stock" (EU-FP7)
- **Capacity Development For Future Builders** (EU & CFCU Co-funded/TR2013/0327.05.01-02)

Description of the research interest



**Prof. M. Pınar
Mengüç**
Director



**Yasemin
Somuncu**
Senior
Researcher



Cem Keskin
PhD. Candidate
Researcher



**Dr. Özlem Bahadır
Karaoğlu**
Senior Researcher

Advanced-Energy-Science
Visual-Comfort
Complexity-Science
Humna-Building-Interaction
Cyber-Physical-Systems
Energy-Efficiency
Thermal-Comfort
Thermoeconomical-Analysis



Dr. Azadeh Didari
Senior Researcher



Doğa Gizem Memiş
Researcher



**Dilek Murtezaoğlu
Saygı**
Admin. Team
Manager



Gülçin Mezireli
Project Financial
Consultant

Graduate Students

- Roxana Family, PhD. Candidate
- Cem Doğan Şahin, PhD. Student
- Layth Wahdah Ismael, PhD. Candidate
- Raaid Rashad Jassem Al Doury, PhD. Candidate
- Haydar Mohammad, PhD. Candidate
- Elif Gizem Tunçel, MSc Student
- Ebru Tatar, MSc Student

Research Infrastructure

- Campus wide energy automation system
- Expanded energy monitoring system for 17 zones in an academic building
- Maker Lab
- IoT Workshop
- Work stations for data analysis
- External GPUs for faster machine learning
- High performance computer

“Redefining Building Energy Efficiency in the Domain of Complex Socio-Technical Systems”

- **Objectives:**

- to discuss and re-define socially constructed and society shaping user behavior towards energy efficiency with the help of building physics and complex systems theory
- to use proven real data to leverage consumer awareness by means of persuasive technology, augmented reality, micro-gamification and bots
- to facilitate collective decisions/actions capability of citizens by social engagement for more energy-aware preference elicitation and more active energy oriented social communities

- **Expected results**

- increased human-society, human-entity and human-computer interaction in the domain of energy efficiency
- increased engagement of citizens with a better cyber-infrastructure of building energy management
- increased capacity of cooperation between consumers and companies for more cost-effective, comprehensive and complex solutions for energy efficiency
- higher human-centric innovation and open science capabilities of players in energy efficiency market

Consortium - profile of known partners



No	Partner Name	Type	Country	Role in the Project
01	Ford Otosan	Manufacturing Company	TUR	R&D on building energy technologies and demo-site provider
02				
03				
04				
05				

Consortium - required partners



No	Expertise	Type	Country	Role in the project
01	Complex Systems			Developing both theoretical and practical approaches to redefine energy efficiency as a complex socio-technical system
02	Systems engineering			Agent based modeling of user behaviour
03	Social Sciences			Research on social and individualistic aspects of energy consumption behavior
04	ICT			Deploying and managing infrastructure for information and communication (ICT) technologies
05	Computer Science			Developing persuasive technology solutions and human-computer interaction tools

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Center for Energy, Environment and Economy
Istanbul, Turkey
+90 535 2343469

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