

# Determinants of sustainable energy consumption in public buildings

Daiva Dumciuvienė  
Kaunas University of Technology  
Gedimino str. 50, 44239 Kaunas  
Lithuania  
+370 687 47066  
[daiva.dumciuviene@ktu.lt](mailto:daiva.dumciuviene@ktu.lt)

Akvilė Cibinskiene  
Kaunas University of Technology  
Gedimino str. 50, 44239 Kaunas  
Lithuania  
+370 687 77771  
[akvile.cibinskiene@ktu.lt](mailto:akvile.cibinskiene@ktu.lt)

Mark Melenhorst  
European Institute for Participatory Media  
Pariser Platz 6, 10117 Berlin  
Germany  
+49 30 200 761 95  
[m.melenhorst@eipcm.org](mailto:m.melenhorst@eipcm.org)

Jasminko Novak  
University of Applied Sciences Stralsund, IACS-Institute of  
Applied Computer Science; European Institute for  
Participatory Media  
Pariser Platz 6, 10117 Berlin  
Germany  
+49 30 200 761 94  
[j.novak@eipcm.org](mailto:j.novak@eipcm.org)

The purpose of this paper is to investigate which determinants are the most important for sustainable energy consumption in public buildings. Significant energy amount is used in public, commercial and office buildings and therefore they are important for energy saving (Nisiforou, Poullis & Charalambides, 2012, Xu, Maki, Chen, Dong, & Day, 2017, Toliás, Costanza, Rogers, Bedwell & Banks, 2015). Reviewed scientific papers on energy consumption in public buildings emphasize on appliances that are the most often used in that type of buildings. These appliances include: computers, printers, copy machines, lightning, air conditioners and heating. Human behaviour in terms of energy saving and decreasing levels of CO<sub>2</sub> emissions is important factor solving diminishing energy resources and environmental problems. Human behaviour in this area is not less important than use of new energy saving technologies.

A systematic literature review was conducted in order to find out the most important determinants for energy saving in public buildings. The determinants of sustainable energy consumption in public buildings were classified into three groups: psychological and social; socio-demographic and economic determinants; and contextual determinants. For the classification of determinants the integrative conceptualization of the various individual and situational factors that may influence household energy consumption and conservation was applied (Frederics, Stenner, Hobman, 2015). According the review of research papers, the most important determinants of energy consumption in public buildings in terms of their influence on energy saving were identified: attitudes, awareness, social norms, feedback (information), organizational encouragement and support. The results of this research will be used for further studies on how the amounts of energy consumed may be reduced in public buildings changing the human behaviour.

## Keywords

Sustainable energy consumption, energy saving, energy saving behavior, determinants, public buildings.