DTU CONF.EU
ENGINEERING SCIENCE & SUSTAINABLE URBAN DEVELOPMENT

International Congress on Engineering Science and Sustainable Urban Development
Denmark – Copenhagen
September, 2018

Approach to Sustainable Energy and Environment Regarding Sustainable Energy Buildings

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Abstract

Nowadays it is clear that buildings use high level of energy and as a matter of fact, they play a great role in producing carbon emissions. The growing trend in building energy consumption will continue during the coming years due to the expansion of built area and associated energy needs, as long as resource and environmental exhaustion or economic recession allows it. It's been measured that in developed countries about 20-40% of total energy will consume by buildings and it's interesting that it is even higher than industry and transportation in united states of America and EU. So without paying attention to buildings, it seems that sustainable development strategies won't be practicable. To achieving this, there is growing interest in ZEBs (zero energy buildings) in recent years and many countries employs these buildings for their future building energy targets and also as an alternative way to face depletion of energy resources and deterioration of the environment.

Private initiative together with government intervention through the promotion of energy efficiency, new technologies for energy production, limiting energy consumption and raising social awareness on the rational use of energy and employing ZEBs or other technologies which makes buildings more environment friendly, will be essential to make possible a sustainable energy future.

Key words: Sustainable, Energy, Building, Environment, HVAC, Green.

1. Introduction

Its clear for us that with rapidly growing energy consumption of humanity, there will be concerns over supply difficulties, and also environmental problems such as depletion of ozone layer, global warming, climate changes and many other negative impacts. It has been shown that about 49% growth in energy consumption and 43% growth in CO2 emissions which it really worrying. The architecture, engineering and construction (AEC) industry has been criticised as a major carbon emitter and a relatively unregulated discipline in terms of control and management of carbon emissions.[1][2] hence, Zero energy buildings (ZEBs)) are described as buildings that have zero