



# Zero Energy Buildings as an Approach for Sustainable Urban Communities in the Egyptian Desert

## BACKGROUND

The topic of Zero Energy Buildings has been received increasing recent years as a new approach to sustainable communities. ZEBs concept provides many solutions for preserving energy by using renewable energy instead of fossil fuels and energy efficient systems. ZEBs goal is achieving the annual balance between building energy demands and renewable systems production, whether renewable resources are on-site or off-site.

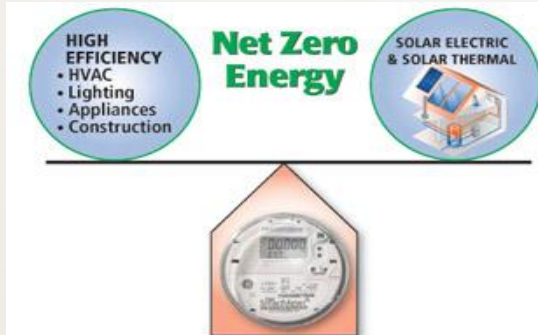


Figure 1: Net Zero Energy balance concept.

Despite ZEB environmental and economic benefits, Egypt is still far from adopting this new type of buildings. Financial, technical and cultural barriers that are hindering the progress toward ZEBs approach.

Zero energy buildings design strategies are varied according to climate classification. Thus, building environmental systems can be determined whether the passive systems or active systems.

Therefore, research problem focuses on determining the characteristics of ZEBs which are suitable for the hot-arid climate and the most effectiveness passive and active systems that can be applied in the ZEBs design.

## Research Aim

- To develop specific measurements for ZEBs design strategies at hot-arid climate by identifying, mapping and comparing the performance and effectiveness of the passive and active systems that are used in similar projects around the world.
- To study the applicability of these standards on a community scale, so as to be the nucleus of a new zero energy urban communities in the Egyptian desert.

## Research Methodology

