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Efficiency-Based Model for Solar Urban Planning

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Abstract : Today it is widely understood that global energy consumption patterns are directly related to the ongoing urban expansion and development process. This expansion is based on the natural growth of human activities and has left most urban areas totally dependent on fossil fuel derived external energy inputs. This status-quo of production, transportation, storage and consumption of energy has become inefficient and is set to become even more so when the continuous increases in energy demand are factored in. The territorial management of land use and related activities is a central component in the search for more efficient models of energy use, models that can meet current and future regional, national and European goals. In this paper, a methodology is developed and discussed with the aim of improving energy efficiency at the municipal level. The development of this methodology is based on the monitoring of energy consumption and its use patterns resulting from the natural dynamism of human activities in the territory and can be utilized to assess sustainability at the local scale. A set of parameters and indicators are defined with the objective of constructing a systemic model based on the optimization, adaptation and innovation of the current energy framework and the associated energy consumption patterns. The use of the model will enable local governments to strike the necessary balance between human activities, economic development, and the local and global environment while safeguarding fairness in the energy sector.

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