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Developing Heat-Power Efficiency Criteria for Characterization of Technosphere Structural Elements

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Abstract : This paper refers to the analysis of the characteristics of industrial and lifestyle facilities heat- energy objects as a part of the thermal envelope of Earth's surface for inclusion in any database of economic forecasting. The idealized model of the Earth's surface is discussed. This model gives the opportunity to obtain the energy equivalent for each element of terrain and world ocean. Energy efficiency criterion of comfortable human existence is introduced. Dynamics of changes of this criterion offers the possibility to simulate the possible technogenic catastrophes with a spontaneous industrial development of the certain Earth areas. Calculated model with the confirmed forecast of the Gulf Stream freezing in the Polar Regions in 2011 due to the heat-energy balance disturbance for the oceanic subsurface oil polluted layer is given. Two opposing trends of human development under the limited and unlimited amount of heat-energy resources are analyzed.

Keywords : Earth's surface, heat-energy consumption, energy criteria, technogenic catastrophes
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