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Let G be a finite, undirected, and simple graph. If $\{v_1, \dots, v_n\}$ is the set of vertices of G , then the *adjacency matrix* $A(G) = [a_{ij}]$ is an n -by- n matrix where $a_{ij} = 1$ if v_i and v_j are adjacent and $a_{ij} = 0$ otherwise. The *energy* of a graph, $E(G)$, is defined as the sum of the absolute values of eigenvalues of $A(G)$. The concept of energy originates in chemistry and was first defined by I. Gutman in 1978. It has been generalized recently as follows: For a graph G on n vertices, let M be a matrix associated with G . Let μ_1, \dots, μ_n be the eigenvalues of M and let $\bar{\mu}$ be the average of μ_1, \dots, μ_n . The more general *M -energy of G* is then defined as:

$$E_M(G) = \sum_{i=1}^n |\mu_i - \bar{\mu}|.$$

In this talk we present our results on graph energy when M is the Laplacian matrix, the signless Laplacian matrix, or the distance matrix. In particular we give bounds for energy of different graph classes and study the effect of edge deletion. (Received July 22, 2009)