Resting Energy Expenditure (REE) is a measure of the calories (energy) burned to maintain bodily functions in the alert, resting (physically inactive) state. A closely related concept is Basal Metabolic Rate (BMR) which is the REE measured upon awakening after an overnight fast. Typically, the BMR is measured in a research setting in a metabolic unit whereas measuring REE is more feasible in the outpatient setting.

Both REE and BMR can be measured directly using indirect calorimetry or estimated from standard predictive equations. Indirect calorimetry determines the amount of oxygen (O2) consumed and carbon dioxide (CO2) produced using controlled analytic methods. The results will indicate the number of total calories expended per unit time and the RQ (respiratory quotient), which is in indication of the predominant type of substrate oxidized (fat or carbohydrate). Many equations have been developed and validated against indirect calorimetry to estimate either REE or BMR based on easy-to-measure clinical factors such as height, weight, age, sex, lean body mass, and fat mass in varying combinations. The Harris-Benedict equation is the most widely used equation of this type in dietetic practice.

Harris J, Benedict F. A biometric study of basal metabolism in man. Washington D.C. Carnegie Institute of Washington. 1919.