

**Title:** Energy and Cost Analysis of Cement Production using the Wet and Dry processes in Nigeria.

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**Abstract:** The study evaluates the energy consumption of both wet and dry processes cement manufacturing plant in Nigeria. Energy consumption data collected for the period 2003 to 2011 were used to estimate the energy consumption of the crushing, milling, agitation, burning, grinding and bagging operations. The total energy evaluation was based on the three primary energy sources which include electrical, combustion and human. The total estimated energy intensities were 6545 MJ/ton and 4197 MJ/ton for wet and dry processes respectively. The percentage consumption of energy in each operation is 93.68 and 90.34% (burning), 2.11 and 4.33% (milling), 0.43 and 0.67% (crushing), 1.39 and 0% (agitation), 2.12 and 3.90% (grinding), and 0.27 and 0.75% (bagging) of the total energy inputs for the wet and dry processes respectively. Furthermore, the average total energy cost of production showed that wet process is approximately 40% more cost intensive in cement production than the dry process while at the same time it is cost effective to run production on energy through gas powered plant than the national grid.