

This paper addresses problems in calculating primary energy discovered during an analysis of the 40 scenarios of world primary energy demand prepared by working group III of the Intergovernmental Panel on Climate Change (IPCC). Problems in calculating primary energy arise because of: inconsistent use of efficiency of conversion values for calculating primary energy from final energy; unsubstantiated low values for nuclear primary energy; omission of the problems caused by the characteristics of wind and solar primary energy and limits to hydropower; inclusion of overestimated electricity in final energy; and inconsistent use of the various scales for measuring primary energy. The primary energy given misrepresents the final energy that is the basis of each scenario. Consequently, the anthropogenic emissions derived from the primary energy are also misrepresented, thereby possibly causing problems with the results of climate models that use these emissions. It is recommended that the IPCC scenarios are reviewed and the questions raised in this paper resolved during construction of the next set of scenarios currently being considered.