

Abstract Submitted
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Sustainability and the Use of Non Renewable Resource, Australia as an Example ALBERT A. BARTLETT, University of Colorado at Boulder — A government minister in Australia writes that Australian coal will last “110 years at present rates of production.” (1) But production is growing 5% per year, so the life expectancy will be less than 110 y. Assume production follows a Gaussian Hubbert curve. We can construct a family of curves for the future path of $P(t)$ vs. t , each of which is consistent with the 110 y. This envelope of this family of curves divides the graph of $P(t)$ vs. t into allowed and forbidden areas. The curve with the current value of dP/dt is then the most probable future path of $P(t)$. The curve reaches a maximum and then rapidly declines to zero. Australia’s growing population and these Hubbert curves combine to indicate frightening non-sustainability. Sustainability requires a curve of $P(t)$ that declines exponentially with $k = (1/110)$ per y.(2)

(1) Ian Macfarlane, World Energy, V.8, 112-117, 2005

(2) A.A. Bartlett, Am.J.Phys., V.54, 398-402, 1986

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