

Energy Security, Innovation & Sustainability Initiative
Progressive Dialogue Series

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Progressive Dialogue II:
Demand Drivers for Sustainable Energy Solutions



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The 100 Watt Light Bulb Analogy.

We need to consume approximately 2,000 kilocalories per day to sustain our lives. This rate of energy consumption is equivalent to keeping one 100 watt light bulb continuously lit.

In the United States, each of us consumes energy at a rate of 101 light bulbs. When corrected for the energy embodied in the negative national trade balance, our rate of energy consumption increases to 109 light bulbs.

In comparison, 70 percent of the world's population—including China—uses less than 10 light bulbs per person; 40 percent of the world's population—including India—uses four or less. In this low-consumption end, there is a strong correlation between energy consumption and quality of life indicators such as life expectancy, infant mortality rate and education. In this context, it is unreasonable to expect countries, like China, to lower their economic growth rate.

Many countries with higher quality of life indicators than the United States consume fewer than 55 light bulbs per person—less than half the energy we consume; these include: Israel, Hong Kong, Denmark, Austria, Switzerland, Italy, France, Sweden, Ireland, Spain, New Zealand, Taiwan, Finland, South Korea, United Kingdom and Japan. In fact, we can sustain exceptional quality of life with about 30 light bulbs per person with today's technology.

A 25 percent reduction in carbon-based energy consumption in America would be equivalent to the sum of its oil imports. While this reduction still keeps us at a high 80 light bulbs per person rate of consumption, the positive implications are far reaching—from international relations to climate effects. These observations suggest that U.S. competitiveness today is not limited by lack of energy but by our attitudes and our choices.

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