

*5.92 Energy Environment and Society*  
*(a Project Based First Year Subject supported by the d'Arbeloff Program)*

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**Session 1.1. Introduction and Energy Basics**

- 1A. Introduction to subject and teaching team
  - 1B. *A priori* concept mapping
  - 1C. Survey of content and context: Structure, CI aspect, Overview of projects
- 2. General Energy Picture (JIS)
- 3. Simplified Energy Analysis (JWT)

**Readings and Assignments**

- 1. D. Nocera, "on the future of global energy", *Dædalus* (Fall 2006), p. 112 - 115
  - 2. Units & Conversions Fact Sheet
  - 3. R.H. Socolow and S.W. Pacala, "A Plan to Keep Carbon in Check" (*Scientific American* September 2006 pp. 50 – 59)
- 1. How do you measure energy – both as a (conserved) physical quantity and as an economic commodity? Suggest an apparatus and a measurement procedure that will allow you to determine:
    - (a) Heat ( $q$ )
    - (b) Mechanical work ( $w$ )
    - (c) Electrical work
    - (d) Household electric meter – how does it work?
    - (e) Radiant energy, e.g. solar radiation
  - 2. Refer to the Chevron ad which follows the Socolow and Pacala article, and answer the following questions:
    - (a) If the US spends \$ 1 million per minute on energy, what is the economic volume of the global energy industry?
    - (b) Why is Chevron running this ad?