The Engineer’s Role in the Decision-Making Process

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August 7, 2009

Role of the Scientist/Engineer

- Decision makers are defined by society
  - Politicians make laws
  - Regulators make decisions that implement laws
  - Courts adjudicate

- Decisions are based on multiple considerations
  - Social goals
  - Science
  - Engineering realities
  - Political realities
Role of the Scientist/Engineer (cont.)

- Scientist/engineer’s role is to inform decision makers
  - “Honest broker”: provide an impartial evaluation of the technical information relevant to the decision
  - Decisions are always based on uncertainty
  - Scientists and engineers have a responsibility to acknowledge and display uncertainty
    - Ask the question “How does uncertainty affect the decision to be made?”
    - This responsibility is not always consistent with scientists’ desire to reduce uncertainty

Role of the Scientist/Engineer (cont.)

- Advocacy
  - Scientists unavoidably become advocates for or against specific options
    - Scientists are informed citizens with a strong personal stake in the outcome
  - To the extent possible, advocacy should be for the decision-making process itself
    - E.g., is the information sufficient and appropriate to inform the decision?
Role of the Scientist/Engineer (cont.)

• Integrity
  – Scientists should always challenge themselves and each other
    ✷ Is this the right information to inform the decision?
    ✷ How could what I don’t know affect the decision?
  – Basic rules of ethical and professional behavior always apply
    ✷ Trust is hard to gain and easy to lose