

# Modeling Renewable Energy Technologies in IAMs for Mitigating Future Climate Change

CCI/IA  
Snowmass

August 2009



# Motivations...

- Goal: Bring together energy economic modelers and IAM modelers to discuss the state of the art and research area needs for improving the representation of RE technologies for climate modeling.
- State of Modeling & Knowledge
- Create global community of EE/RE modeling experts & link with IAM community

# Draft Multiyear Concept

- 2009:
  - Present state of art for RE and EE modeling and impact of capturing the techno-economic characteristics in IAMs via a case study. Case study will be of the U.S..
  - Discuss improvements to approach and layout plan for global effort (regionally based?) to apply best in class approach.
  - Identify research teams for each region and coordination plan
- 2010
  - Review case study results from other regions for enhanced energy economic modeling . Complete 25% of regions.
    - Publish Initial case study results
  - Review IAM results with improved RE/EE results
- 2011
  - Complete 50% of regions for enhanced RE/EE modeling
    - Publish Special Journal of results
  - Complete integration of techno-econ characteristics in IAMs
  - Review initial comparative IAM results
- 2012-2013
  - Complete 100% of regions and comparative assessments of IAM scenarios with updated RE tech-economic characterization.
    - Publish comparative results from multiple IAMs with updated RE characterizations.
  - Recommend path forward for next phase of work.

# A few takeaways from yesterday...

- Technology potential presents no meaningful limit on RE contributions, but...it's a competitive world...
- Time and place matter, including climate feedback
- “It’s the system stupid”
  - Spatial and technology interactions
  - Details can matter. E.g., Time, Space, Reliability, Carbon price, Flexibility...
- In stabilization, business models will be fundamentally different than today
- Handoffs between tech detail and aggregated/IAMs is a fundamental change in the way we operate (a good one?!!)