CMFR Workshop, June 6-7, 2006

MFIX simulation of KBR commercial scale transport gasifier – solids volume fraction isosurfaces colored by oxygen mass fraction.
Vision

Ensure that by 2015 multiphase science based computer simulations play a significant role in the design, operation, and troubleshooting of multiphase flow devices in fossil fuel processing plants.
Workshop Objectives

• Discuss outstanding research problems in computational multiphase flow applicable to fossil fuel processing
• Develop an emerging technology roadmap for computational multiphase flow
• Develop the plans for a collaboratory based that roadmap
Workshop Outcome

- Emerging technology roadmap for computational multiphase flow
- Planning document for a Collaboratory on Multiphase Flow
Workshop Benefits

- **Main benefit**
  - Reduce the time to develop advanced fossil fuel technologies by using computational multiphase flow

- **Corollary benefits**
  - Improve the visibility of multiphase flow research
  - Influence future research solicitations
  - Promote collaborations among the participants
  - Technology transfer
  - Education and training
Technology Roadmap

- Identifies a *need or needs* to be fulfilled *(destination)*
- Establishes the baseline from which efforts will proceed *(starting point)*
- Provides guidance on the potential pathways and milestones along those pathways that could lead to fulfillment of the need *(routes to get from the start to the destination)*
Roadmapping process

- Phase I. Preliminary activity
  1. Satisfy essential conditions.
  2. Provide leadership/sponsorship.
  3. Define the scope and boundaries for the technology roadmap.

- Phase II. Development of the Technology Roadmap
  1. Identify the “product” that will be the focus of the roadmap.
  2. Identify the critical system requirements and their targets.
  3. Specify the major technology areas.
  4. Specify the technology drivers and their targets.
  5. Identify technology alternatives and their time lines.
  6. Recommend the technology alternatives that should be pursued.
  7. Create the technology roadmap report.

- Phase III. Follow-up activity
  1. Critique and validate the roadmap.
  2. Develop an implementation plan.
  3. Review and update.

Garcia and Bray 1997