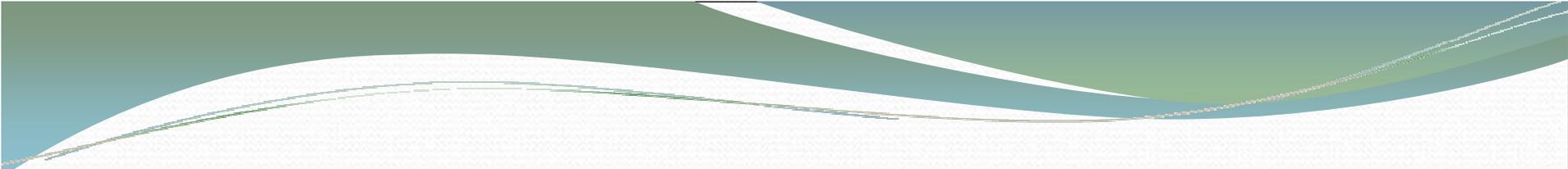


ENERGY SECTOR

Game Changers



Technology Game Changer Barriers

- Many technologies are capable of significant deployment as “Game Changers” (energy efficiency, CH&P, renewables, solar, water / space heating).
- Need to build off of what we know works.
- Primary impediment to commercial deployment is lack of value for reducing carbon dioxide.
- Technologies on a Longer Time Horizon will also require clear economic signals.
- There are additional regulatory and institutional barriers to advanced technology deployment which will need to be addressed (ex. long-term energy efficiency credit, nuclear storage, sequestration liability, etc.).

Policy-Game Changers

- **Early Action Credits.**

- Significant potential for investment in Energy Sector.
- Problem is lack of a carbon value is chilling early investment in technology.
- Value of early action needs to be quantified.
- Center program to value early action. (Improvised Jazz, not Beethoven's 9th.)

- **Interaction of Offsets / Reduction and Market Mechanism / Allocation.**

- Address the issue of using valuation to force technology.

- **Long-Term Renewable Plans**

- Support competitive Renewable Resource Zones providing master planning for areas with high renewable development potential.
- Long-term transmission planning to serve renewable zones.
- Coordinate state / federal policy – (ex. BLM Leases).

Technology-Game Changers

- **Storage for Integration of Renewables.**

- Storage to better integrate wind and solar resources with peak.
- Storage as a market for plug-in hybrid electric vehicles.
- Technology deployable within 1-5 years.

- **Carbon Capture**

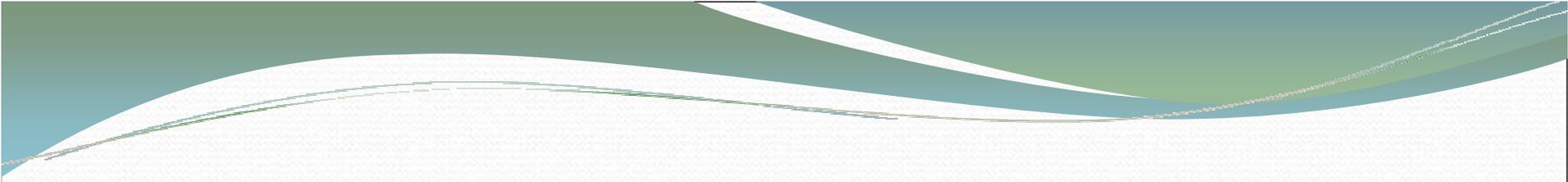
- Several technologies to capture carbon either pre-combustion or post combustion.
- Projects are in the planning stage.

- **Carbon Sequestering**

- Terrestrial sequestration of carbon by photosynthesis or other natural processes.
- Geological stores carbon in geological formations.
 - Oil / Gas Fields - CO₂ used for enhanced oil / gas recovery or storage.
 - Saline formation - significant potential with broader geographic dispersion .
 - Basalt - Pilot project in Washington State.

Technology-Game Changers (con't)

- **CARBON MANAGEMENT** – Carbon capture from power plant emissions converted to algae for biofuel (APS Project).
- **Status.**
- West CARB - Rosetta Project is injecting CO₂ into depleted gas wells.
- West CARB also has terrestrial sequestration project in Shasta County.
- There is a significant need for more research on these technologies.
- Funding is inadequate.
- Technology deployable in a 10-year time frame.



PLANNING FOR FUTURE GAME CHANGERS

- Recalibrate current policies / subsidies – consider linking individual program objectives into a set of carbon reduction objectives.
- Support Demonstration Finance – Fund “First Megawatt” installations that prove technical feasibility and enable financing to energies technologies.
- Manage Innovation – Create a statewide nonprofit organization of support innovation and incubation efforts.

CONCLUSION

- Energy Sector conducted four (4) meetings (over 24 hours) and collected extensive materials on technology to reduce Global Climate Change Gases.
- Technological, financial, institutional and regulatory barriers have been identified which will need to be addressed by appropriate entities.