Kansas Energy and Environmental Policy Advisory Group (KEEP)

AFW Technical Work Group (TWG)

Meeting #5, February 26, 2009

Kansas Governor's Office

The Center for Climate Strategies

Welcome and Introductions

- KEEP TWG Members
- Kansas State Agencies
- Members of the Public
- Center for Climate Strategies

Agenda

1. Introductions
2. Meeting Purpose and Goals
3. Approval of Summary of Prior Call/ Meeting
4. Goals for AFW TWG Meeting #5
5. Results of KEEP Meeting #3
6. Presentation of Straw Proposal Process
7. Form Volunteer Sub-groups
8. Review Progress of KS Inventory and Forecast Updates
9. Review of Next Steps
10. Agenda, Date and Time for Next Meetings
11. Public Comments
12. Announcements
13. Adjourn

Goals for TWG Meeting #5

- Discuss results of KEEP Meeting #3
- Complete volunteer sub-groups and begin Straw Proposal process
- Review current status and any further changes needed to the Draft KS GHG Emissions Inventory and Forecast

Stepwise Planning Process

1. Get organized
2. Identify a full range of possible actions
3. Review and refine inventory & forecast of emissions
4. Identify initial priorities for analysis
5. Develop straw policy design proposals
6. Quantify initial GHG reductions and costs/savings
7. Fully develop policy option templates
8. Develop alternatives to address barriers as needed
9. Aggregate and integrate results
10. Finalize and report recommendations

KEEP Meeting #3

- KEEP approved priority options as recommended by AFW TWG.
- Considerations for the TWG:
  - Consider implications of recommendations on water use (likely a non-quantified cost/benefit).
  - AFW-2 presents farmers with opportunities to expand their income base and for industry to comply with regulations.

Policy Option Template

- Policy Description (Concept)
- Policy Design (Goals, Timing, Parties Involved)
- Implementation Methods
- Related Programs and Policies (BAU)
- Estimated GHG Savings and Costs Per MMtCO_2e
  - Data Sources, Methods and Assumptions
  - Key Uncertainties
- Additional (non-GHG) Benefits and Costs, as Needed
- Feasibility Issues, if Needed
- Status Of Group Approval
- Level of Group Support
- Barriers to Consensus, if any

Straw Proposal Process

- Policy Description – Brief description of policy option elements. Should not be more than one or two paragraphs in length. May be based on text from the "Brief Description for Catalog Actions" document.
- Policy Design – Quantitative goal in "everyday" metric (i.e. kWh produced, gallons produced, efficiency target, recycling rate).
  - Policy Planning Period: 2010 – 2025.
  - Incremental target year: 2015
- See Straw Proposal Template.
  - Available on the web

Policy Design Goals - Examples

- AFW-1
  - (From Arkansas) Increase the use of agricultural residues for electricity, steam, and heat generation to utilize 5% of available in-state agricultural residue biomass by 2015 and 10% of available biomass by 2025.
- AFW-2
  - (From Michigan) Achieve 10% use of renewable fuels with lower GHG emissions than petroleum-based fuels by 2012 and 25% by 2025

Policy Design Goals - Examples

- AFW-3
  - (From Iowa) By 2020, manage 75% of annual cropland with continuous no-till or low-till production practices.
- AFW-4
  - (From North Carolina) Capture 20% of available methane from confined animal operations by 2020 for use in energy projects. The policy is designed to apply to hog farms and dairies in the state.

Policy Design Goals - Examples

- AFW-5
  - (From Minnesota) Achieve “no net loss” of forestland or an increase in forest carbon stocks through local land-use planning, conservation easements, technical and financial assistance to family forest landowners, education, revised tax policy, and other appropriate mechanisms.
- AFW-6
  - (From Colorado) Implement controls or waste management options at municipal solid waste landfills such that 50% of the methane emissions that would be generated under business as usual conditions are avoided by 2020.

Sub-Group Volunteers

Revised Option #	Policy Option	Straw Proposal Volunteers
AFW-1	Expanded Utilization of Biomass Feedstocks for Electricity, Heat, or Steam Production	
AFW-2	In-State Liquid Biofuels Production	Adrian Polansky
AFW-3	Promotion of Agricultural Practices That Achieve GHG Benefits	Adrian Polansky, Steve Baccus
AFW-4	Manure Management and Waste Energy Utilization	
AFW-5	Forest and Rangeland Carbon Protection and Management	
AFW-6	Methane and Biogas Energy Programs	Charlie Sedlock

Next Steps

- Develop straw proposals for each priority policy recommendation

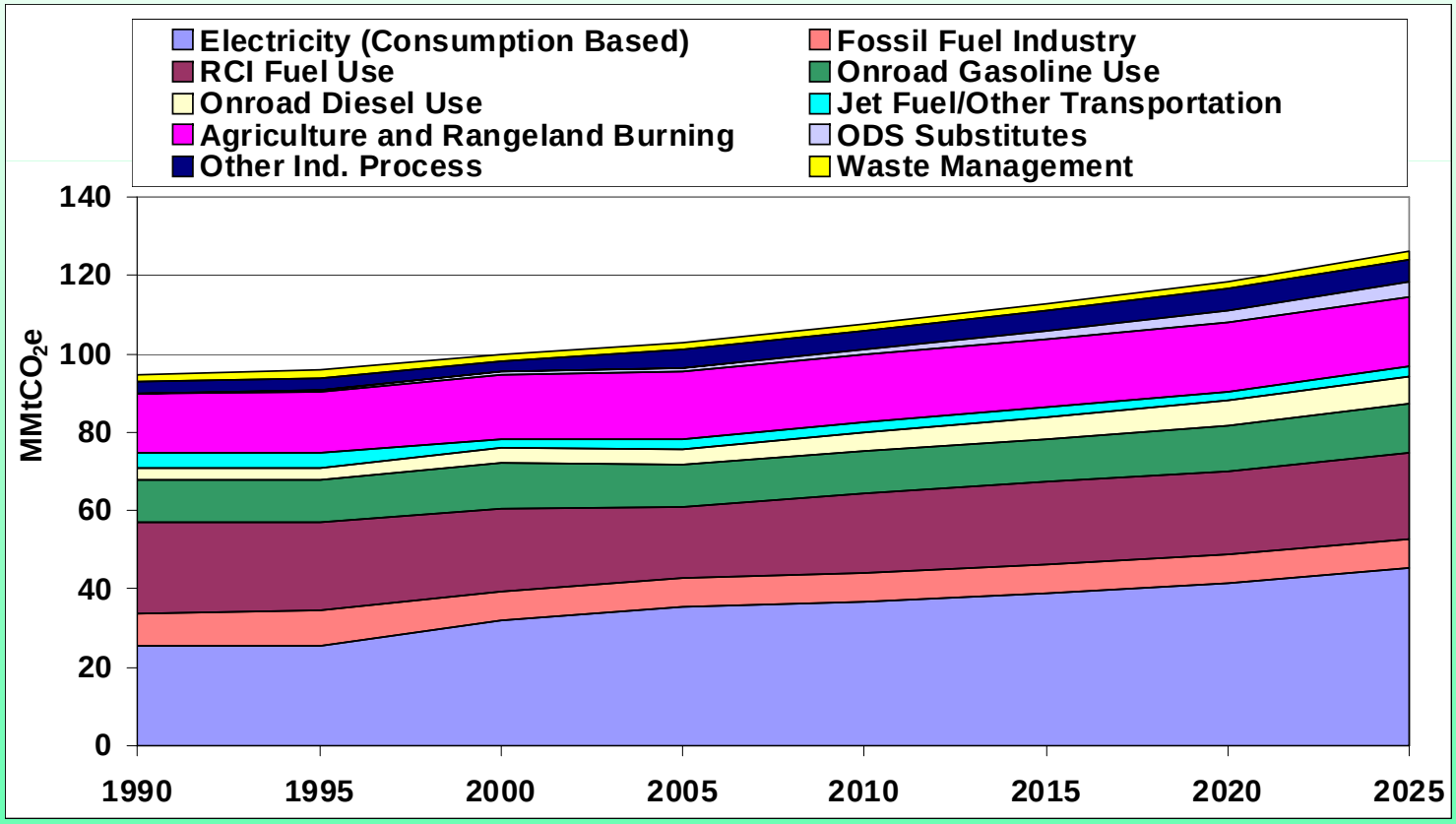
Kansas Draft GHG Emissions Inventory and Forecast

- Review I&F Information for TWG Sector
- Develop any Proposed Recommended Changes to the I&F
- CCS Review of Received Comments
  - Changes to Ag. Burning based on CENRAP Report (Posted online; sent to TWG on 11/14)
  - Forest Acreage – determined that current data is best suited for analysis
  - Soil N_2O emissions

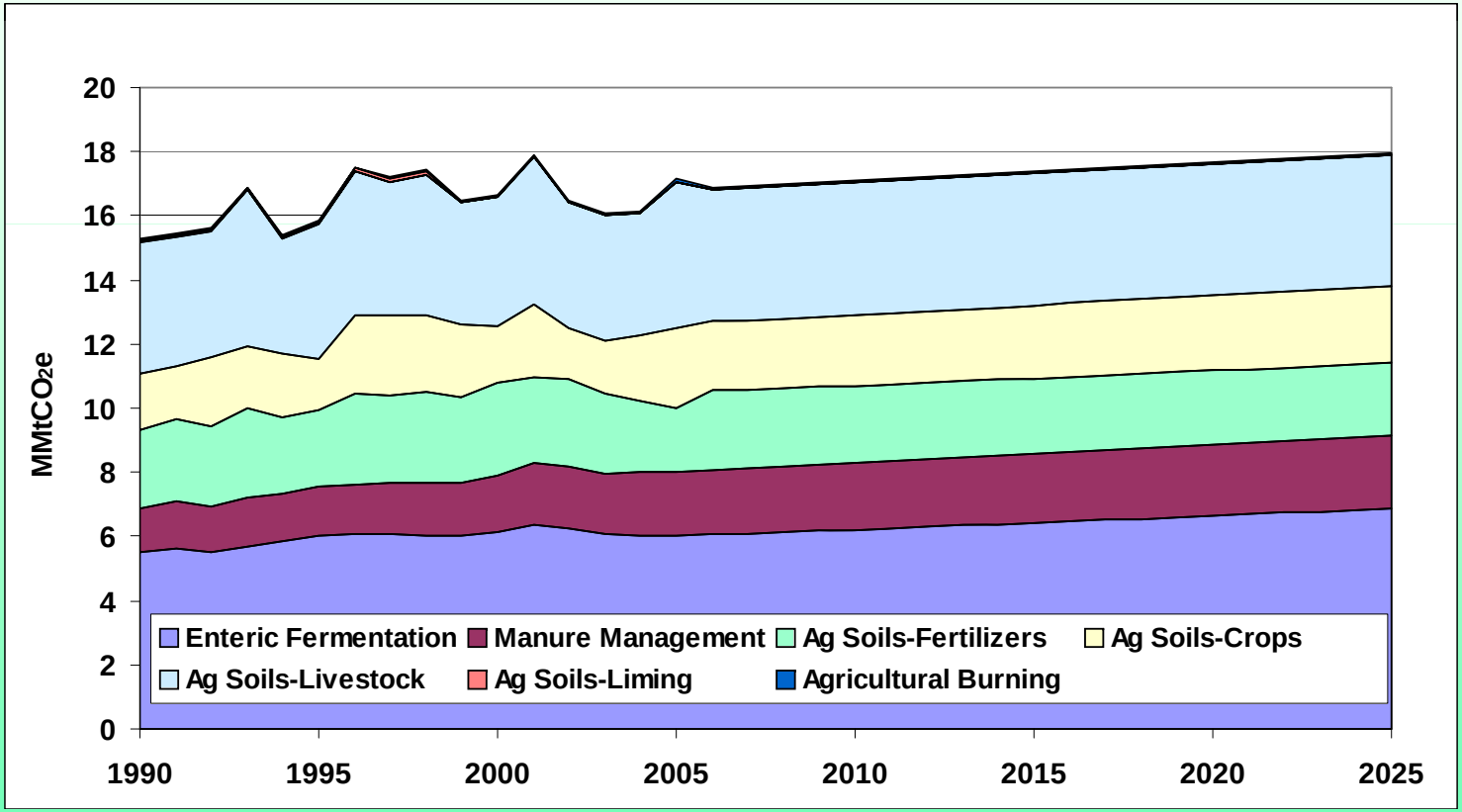
Kansas Draft GHG Emissions Inventory and Forecast

Kansas Gross GHG Emissions By Sector, 1990-2025

(Consumption Based)



Agriculture



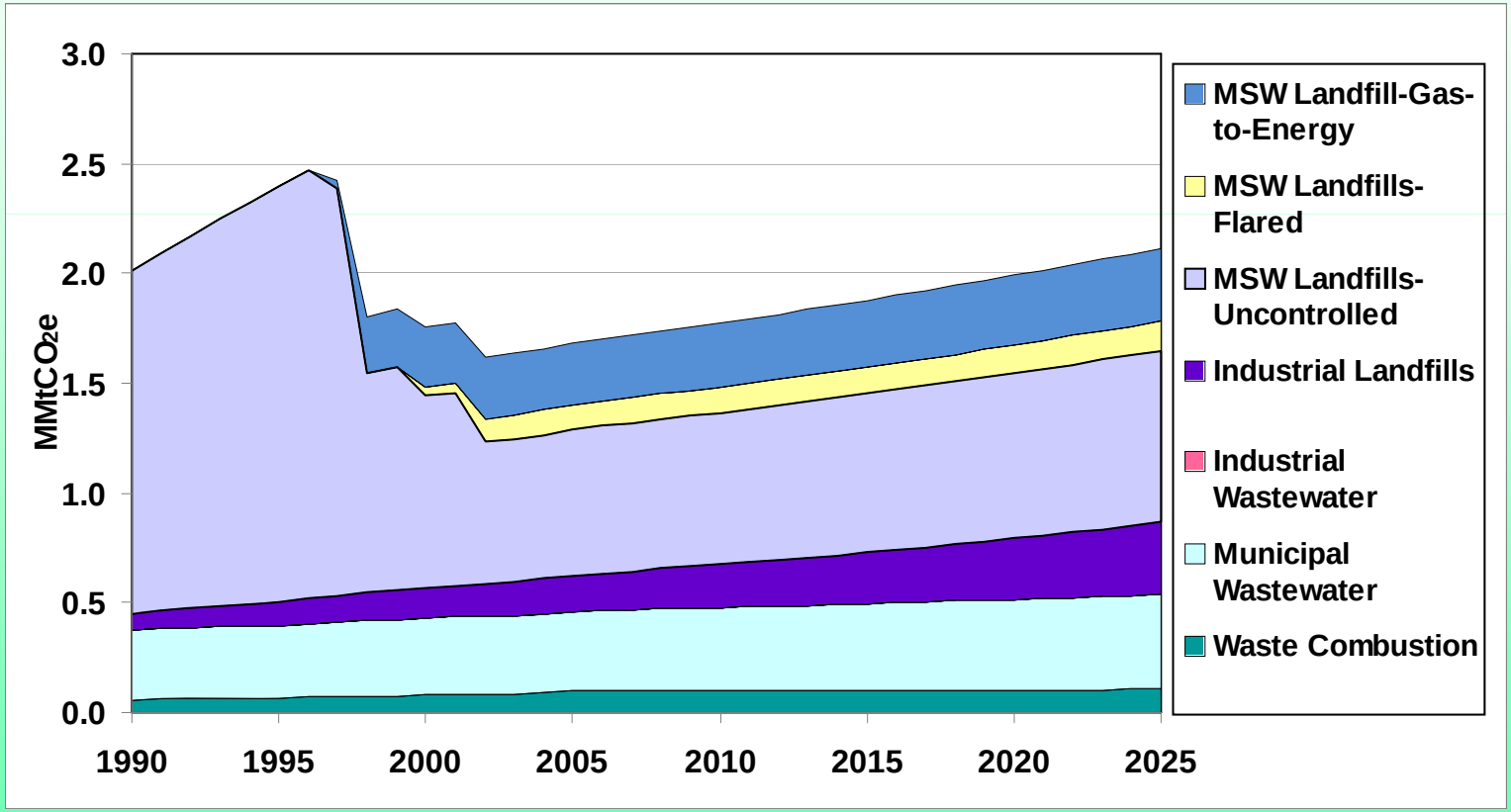
Agriculture

- Data Sources
  - Crop Production: U.S. Department of Agriculture (USDA) National Agriculture Statistical Service (NASS)
  - Livestock: USDA/NASS
  - Fertilizer: Fertilizer Institute
- Methods
  - Crops: SIT emission factors and crop production data
  - Livestock: SIT emission factors and livestock populations
  - Fertilizer: SIT fertilizer consumption
  - Dairy cattle population projections based on Food and Agricultural Policy Research Institute (FAPRI) report.
  - Sheep and Layer population projections use a negative growth factor to show population decline while maintaining positive population estimates
  - All other livestock projections estimated based on linear forecasts of 1990-2005 populations
  - Projections for other categories based on historical growth trends

Agriculture

- Key Assumptions
  - Future growth for agricultural soils will follow historical trends
  - Livestock population growth will follow historical trends
- Key Uncertainties
  - Manure management emission factors derived from limited data sets
  - Livestock numbers based on point estimates for each year to represent populations that fluctuate throughout the year
  - Projection assumptions

Waste Management



Waste Management

- Data Sources
  - SIT default used (population-based)
  - Kansas DHE provided data on landfill waste emplacement and landfill controls, waste incineration, rural county populations for estimating open residential burning, municipal wastewater treatment, and industrial wastewater
  - Open burning at rural county residential sites based on EPA's 2002 National Emissions Inventory estimate
  - SIT emissions factors and waste composition used
- Methods
  - SIT with data sources above
  - Application of emissions controls based on state-provided data
  - Growth based on historical emissions

Waste Management

- Key Assumptions
  - Growth Rates
    - Landfills – based on historic emissions growth after emissions controls were applied (2003-2005)
    - Industrial solid waste emissions – based on SIT default assumption of 7% of municipal solid waste (MSW) emissions
    - Industrial and Municipal wastewater – based on historic emissions growth (1990-2005)
- Key Uncertainties
  - Future controls applied to uncontrolled landfills
  - Industrial landfills – SIT default of 7% of municipal landfills
  - Emissions from facultative lagoons

Forestry and Land Use Emissions ($MMtCO_2e$)

KS Forest Pool	1981-1994 Flux ($MMtCO_2e$)	1994-2005 Flux ($MMtCO_2e$)
Live Tree	-3.32	-5.39
Understory	0.01	-0.23
Standing Dead	-0.09	-0.18
Down Dead	-0.19	-0.42
Forest Floor	-0.48	0.17
Soil Carbon	-3.00	-5.59
Harvested Wood Products	0.0	0.0
Totals	-7.09	-11.66
Totals (excluding soil carbon)	-4.10	-6.07

Forestry and Land Use Emissions ($MMtCO_2e$)

	1990	2000	2005	2010	2020	2025
Forested Landscape (excluding soil carbon)	-4.10	-6.07	-6.07	-6.07	-6.07	-6.07
Urban Forestry and Land Use	-2.33	-0.53	-0.56	-0.56	-0.56	-0.56
Rangeland Burning	0.68	0.68	0.68	0.68	0.68	0.68
Sector Total	**-5.75**	**-5.92**	**-5.95**	**-5.95**	**-5.95**	**-5.95**

Note: Urban Forestry and Land Use category consists of carbon storage in urban trees, N_2O from settlement soils, and carbon storage in landfilled yard trimmings and food scraps.

Forestry and Land Use Emissions ($MMtCO_2e$) – Updated to include N_2O Soil Emissions

Subsector	1990	2000	2005	2010	2020	2025
Forested Landscape (excluding soil carbon)	-4.1	-6.07	-6.07	-6.07	-6.07	-6.07
Rangeland Burning (CH_4 and N_2O)	0.68	0.68	0.68	0.68	0.68	0.68
Nitrous Oxide from Soils	0.26	0.32	0.36	0.36	0.36	0.36
Urban Forestry and Land Use	-2.33	-0.53	-0.56	-0.56	-0.56	-0.56
Total	**-5.49**	**-5.60**	**-5.59**	**-5.59**	**-5.59**	**-5.59**

Note: Urban Forestry and Land Use category consists of carbon storage in urban trees, N_2O from settlement soils, and carbon storage in landfilled yard trimmings and food scraps.

Forestry

- Data Sources
  - US Forest Service (USFS) Forest Inventory and Analysis (FIA) data for Kansas for 1981, 1994, and 2005
  - USFS also provides modeled estimates for harvested wood products
  - EPA SIT default data for urban forestry and land use
  - KDHE for rangeland burning activity data
- Methods
  - Forested Landscape: USFS Carbon Calculations Tool (CCT) to estimate carbon stocks and fluxes for 1990-2005
    - Carbon pool data for the 1981-1994 and 1994-2005 time periods were used to quantify carbon fluxes in Iowa
  - Urban Forestry and Land Use, Rangeland Wildfires: EPA SIT
  - Future projections were assumed to remain at 2005 levels

Forestry

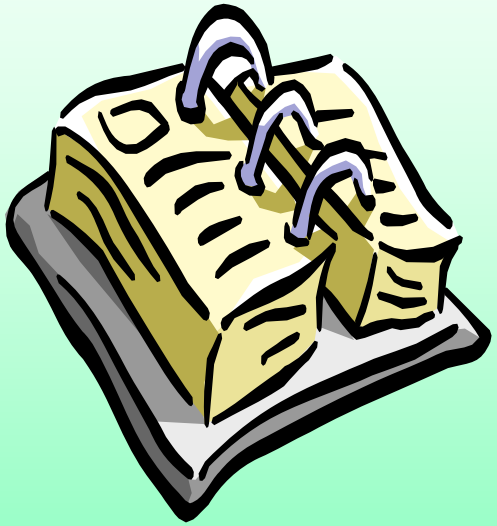
- Key Assumptions
  - 1990-2005 carbon stock change representative of current and historical conditions
  - No significant change in sequestration from 2006-2025
- Key Uncertainties
  - Effects of future development on forested acreage
  - Effects of near-term climate change on forest sequestration levels
  - Methodological differences in USFS FIA surveys
  - Urban forestry and land use emissions rely on national default data instead of state-specific data

Next Steps TWGs, KEEP

- TWG meeting before next KEEP meeting
  - Straw Proposal development
  - Review and comment on Draft KS GHG Emissions Inventory and Forecast
- KEEP Review and Approval of Straw Proposals from TWGs at Meeting #4

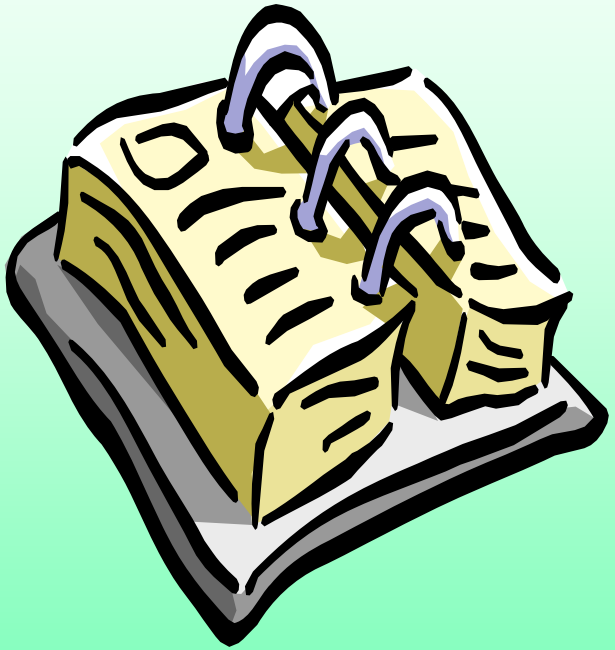
Next TWG Meeting

- Agenda:
  - Continue development of Straw Proposals
  - Review Changes to draft KS GHG Emissions Inventory and Forecast
- Time and Date- 8:30 – 10:00 AM CDT March 26, 2009.



Next KEEP Meeting

- Agenda:
  - Review and approve Straw Proposals
  - Review and Approve TWG suggested updates to the draft KS GHG Emissions Inventory and Forecast, if any
  - Prepare for next steps (quantification of recommendations)
- April 30, 2009, site TBA.



Timing – KEEP Meetings

Date	Action
May 20, 2008	1st KEEP meeting
August 5, 2008	2nd KEEP meeting
December 9, 2008	3rd KEEP meeting
April, 2009	4th KEEP meeting
August, 2009	5th KEEP meeting
November, 2009	6th KEEP meeting
January, 2010	Final Report due
Between KEEP Meetings	TWG conference calls and meetings

Public Input, Announcements

Adjourn