MAINE CLIMATE COUNCIL
Science and Technical Subcommittee
(STS)
6th Meeting – March 11, 2020
1 - 4 PM
Marquardt Building Room 118
32 Blossom Lane, Augusta, Maine

AGENDA

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Enclosure: ERG Data Tracking Spreadsheet

Members In-Attendance:
Ivan Fernandez
Steve Dickson
Brad Lyon
Sean Birkel
Susan Elias
Pam Lombard
Jonathan Rubin
Susan Arnold
Sally Stockwell
Rick Wahle
Brian Beal
Bob Marvinney
Amanda Cross
Linda Bacon (new STS member)
Call in
Nicole Price
Alex Contosta
Adam Daigneault
Glenn Koehler
Joe Salisbury
Peter Slovinsky
Aaron Weiskittel
Jessica Waller, DMR
Rebecca Peters, DMR

Support Staff: Cassaundra (Cassy) Rose, Nathan Robbins, Tom Downs
Consulting Team: ERG Doug Lyons, Charles Goodhue; Synapse (call-in) - Steve Letendre and Eliza Berry
**Welcome and Introductions**

- Roll call
- Bob thanked ERG for attending and turned over for their presentation

**Eastern Research Group (ERG) Presentation and Discussion**

- They are working to make collaboration with the STS and working groups as effective and smooth as possible.
- Anticipate STS will be very involved with ERG on economic analysis. This will be underlying to cost-benefit component.
- Please see presentation slides provided by ERG to the STS for more detailed information.

**Summarizing:**

- Roles and staff leads at ERG: (from slides)
  - Charles Goodhue; Charles.Goodhue@erg.com
    - Lead for economic analysis, overall project manager
  - Eliza Berry; Eliza.Berry@erg.com
    - Implement vulnerability analysis, support econ analysis
  - Arleen O'Donnell; Arleen.ODonnell@erg.com
    - Adaptation lead
  - Doug Lyons; Douglas.Lyons@erg.com
    - Support adaptation and economic analysis work
  - Steve Letendre; sletendre@synapse-energy.com
    - Mitigation modeling lead

- ERG will provide economic analysis to inform strategy prioritization process
- There is additional information to consider for costs, and so informs decision making but doesn’t make the actual decisions. Will look at an economic impact (e.g. to job, wages, etc.), as well as a cost-benefit (e.g. willingness to pay, net benefit, return on investment, $cost/metric ton CO\textsubscript{2}e, qualitative).
  - Qualitative data can be collected for example through exchange with working groups, STS, Council, and additional expert input or available literature. There is a considerable depth that this could take in terms of gathering data; however, tend to focus on areas where the value can be found across major questions the Council and its members will need answer.
  - Overall, can accompany reporting on the degree of confidence and other caveats with the analysis.
  - Two primary goals are to help the council develop and review strategies. There will be a need to some extent to focus on the strategies that are being prioritized over the total number of recommendations being discussed.

- ERG Timeline (from slides)
  - Adaptation
    - 3/14: Vulnerability maps (draft)
    - Early April: Vulnerability maps (final)
• April-May: Coordinate with WGs to provide ballpark costs/benefits; feasibility of monetizing
• 5/31: Cost of doing nothing (draft)
• 6/30: Cost of doing nothing (final)
• July-Sept: Benefits of adaptation strategies

▲ Mitigation
• 3/13: Inputs, assumptions, outputs
• 3/31: Baseline emissions (draft)
• 4/30: Baseline emissions (final)
• 5/31: Strategy analysis (draft)
• 6/30: Strategy analysis (final)

o Discussion on some of the requests from STS
  ▲ Have a data tracker
  • Data: ERG is looking for input on this – what data ERG has and is looking for
  ▲ ERG and Co-chairs to facilitate an exchange on the data tracking tool. ERG to draft MEMO on what they have done to gather data, what they have, and send to STS for review and contributions by members
  ▲ STS members can also proactively be in touch on best available data
  ▲ STS members can also proactively be in touch with working groups on draft recommendations

o Decision points across all climate hazards - what does STS advise?
  ▲ RCPs to map are 2.6, 4.5, 6.0, 8.5?
  • STS had discussion on this in past with no final determination yet. Most RCPs stay close together roughly until 2050 and then begin to diverge. While 8.5 is often called “Business As Usual”, some recent research shows that it may over-project certain factors, notably the use of coal. Nevertheless, there was no objection to the inclusion of that scenario, but rather the terminology we use. UMaine Climate Change Institute can be available to discuss in greater detail.
  • The sense of the group was that overall it would be good to consider all four of the RCPs if possible (2.6, 4.5, 6.0, 8.5). To what extent can we model all of these and have the data to do so? In ideal scenario could pursue all, but adjust as needed when data are not available, and therefore ERG would model with best they have along with input with STS and others on adequacies/inadequacies of the approach. The limitations and assumptions would be included in the reporting, and in many cases these would be qualitative.
  • There is also a need to report this information to general audiences, and ERG has some expertise and plans to develop materials on this.

■ Planning horizon is 2030, 2050, 2070, 2100?
• 2030 and 2050 seem appropriate for alignment with timeframe of the GHG reduction goals. To note, there may be little deviation between the scenarios in 2030, it may not be very relevant to analyze to this near-term deadline but should do so aligns with policy/legislative directive.
What is the longer-term timeline to consider though? 2100 is most consistent with other reporting and so may make most sense as opposed to 2070 that may be interesting but more unique and less uniform.

- E.g. Sea level rise – STS recommends consider and commit to manage approach – 1.2/1.6’ scenario for 2050, and 3.9’ scenario for 2100 data are available on MGS developed layers
- ERG can follow up with SLR subgroup on a set of scenarios that also correspond to the MGS data that is available.
  - Moving forward on economic analysis, it may make sense to look at different scenarios for different infrastructure.

- ID spatial data for climate projections
- There is a lot of the state that has existing LiDAR to use

Data for vulnerability maps (next 3 weeks)
- E.g. extent of flooding, size of various industries at risk (can use to determine costs of inaction, for example if change to industry is % less/more than current)
- Assumptions for degree of climate change across natural hazards (temp, precipitation, sea level rise, etc.)
- For economy data may need to use some more regional numbers in terms of what the timeframe is for analysis is (e.g. Bureau of Economic Analysis – using tools like REMI and IMPLAN)
- As an example, in terms of impacts to wildlife will look at strategies the working groups are discussing, and then determine the value those strategies will bring (e.g. impact to a specific species, and in turn to economy/sectors)
- For land use sector will be looking at sequestration in terms of meeting the net carbon 2045 goal
  - For adaptation will work closely with NWL WG on their strategies
- For blue carbon will also be looking at sequestration
  - ERG to follow up with Nicole on blue carbon link and social carbon
- Can investigate social cost of carbon in terms of a sensitivity analysis
  - ERG will be producing a memo to detail the social cost of carbon issue more – e.g. in addition to what cost is carbon trading at in a market to inform cost-benefit, social cost will focus on benefits (and in aggregate globally) to what actions in Maine mean to global community and if others take similar actions what that could achieve.
- Analysis will include more direct benefits (for example in State of Maine or to a specific sector, group, etc.) and co-benefits (for example in a broader geographic region/global, and to cross-sector, groups, etc.)
- Need to do a first level of analysis
  - June/July can likely dig in a bit deeper
- March 31 draft list of strategies from the working groups to ERG
  - ERG will use these strategies, in an initial prioritized form, to evaluate
  - Working with working groups in April and May on fine tuning the strategies
- Synapse to do strategy analysis – have specific models for a few sectors (energy and transportation specific)
  - Will be looking for consensus on assumptions
  - Will be providing a slide deck on the models that they will use, the assumptions included, and are looking for feedback.
- Biomass can be analyzed in each of the energy sectors

STS Discussion on Sea Level Rise Projections Discussion

- Areas where STS is asked to make policy recommendations. Some of these we have available data for and can meet, and others we could address in a more qualitative analysis to look at general trends occurring in areas of the state and categories (e.g. coastal erosion). Examples - Sea level rise, Storm surge, Riverine flooding, Erosion
- Please reference slides from this meeting for greater detail. Presentation and discussion:
- Several flooding types are covered in the phase I report and all pose impacts to state resources and communities. Important to note that we continue to see the inundation extent and levels projected in the future from sea level rise already today but in the form of higher water levels during storm events from storm surges. We are already seeing an increase in nuisance ‘sunny day’ flooding. Or in other words, flood risk ‘of the future’ exists now. Acceleration curve is increasing in Maine and globally.
- Historic rates of sea level rise are detailed in the report and trend is that there is an uptick in recent years in the rate of change. There are also anomalies, like in 2010 and 2011, 2019 (highest, second highest, and third highest accordingly)
- Commit to manage for 4’, plan for a higher scenario.
  - Could also tie to the criticality of the infrastructure as a risk-based/risk-tolerance. Focus in phase I report is on 50/50 probability.
  - Also consider that sea level rise is a longer-term risk that does not show signs of going down, will continue to rise.
  - Currently in context of RCPs, looks like for our timeline we are locked into 4.5 at minimum. 4’ by 2100 tracks with RCP 4.5.
- Storm surge – in terms of modeling damage impacts, may make most sense to look at 1% storm on top of a high tide event.
  - If we then add this event on top of a sea level rise could look at superstorm water level of the future
- Suggest that members look at the reference materials/reporting for greater information
- Can we associate the RCPs with the SLR scenarios? Yes, they currently are informed by likely and very likely ranges under RCP 4.5 and RCP 8.5.
  - STS may want to include the RCPs next to the SLR scenarios.
- In terms of impacts and change in coastal environments, need to consider how ecosystems will be able to migrate and what net change to habitats will be, such as net gain/loss of intertidal (e.g. mudflat). This will also be dependent on development in upland and ability of systems to migrate. There is a marsh migration study that looked at changes as well – it did not account for sedimentation rates but based on elevation.
  - Sedimentation is an area where further study is needed – in terms of mudflats, marshes, bluffs, etc.
MGS has looked at sedimentation rate currently compared to SLR. Currently, the accretion rate in marshes is close to keeping up with rate of SLR, but SLR rate does appear to be headed in direction that will outpace marsh accretion rate.

- Coast and Marine WG, Bev Johnson may be able to help inform, along with Kristen Puryear
- Have looked at undeveloped block analysis within these coastal areas.
  - In terms of inland areas, there is not currently comparable data. Cannot use FIRMs to do this adequately.
    - This is another area where STS is asked to advise on, but data are not currently available.
  - STS could focus on coast now, and then riverine at another time. Could focus on high priority areas and then expand statewide?
  - Has there been modelling to look at changes in salinity? Not yet in Maine. There is modelling that is available, but this is not something that has been done to date.
  - Also, cannot forecast erosion and STS is asked to look at this. There is no sediment budget information.
  - Island Institute has done a project assessing economic impact on homes as a result of rising sea levels.
    - Susan Arnold and ERG to be in touch

Senator Collins office
- If there is a request for additional flood mapping, for example, a recommendation from STS/MCC could be informative to appropriations and would be most helpful if specific funding sources are identified to use and if any additional bolstering is needed to those funding sources.

Phase II Report - Structure of reporting, Report outline, Report timeline

- Revised draft report outline was sent to STS yesterday for their review
- Includes major categories and sub-topics with members associated with each section
  - This is an opportunity to look at overall structure and to some extent what should change, without needing/wanting to change greatly.
- STS is tasked to develop the phase II report over the next several months and be assembled in a working fashion by June 1. Next Maine Climate Council meeting is June 17. But STS won’t have as prominent of a role on the June agenda as they did in the January meeting.
- Report will be a separate document than the Maine Climate Action Plan in December.
  - Cassy is going to lead an effort to capture the major findings of the phase II report, potentially in a more narrative fashion, still in development and will work closely with all members. This will be included in the 2020 CAP.
- Regarding information needs:
  - There are things we don’t know and should work to identify what those are and what resources might be needed to acquire – costs, time, etc.
- The April and May meetings will both take place via Zoom due to the evolving situation with COVID-19 and current public health guidance.
The May meeting will prioritize the discussion of draft these information with opportunities for aggregation and refinement. Can also prioritize at this meeting. Also should consider the resources to needed to pursue priority needs.

Potential GHG Subgroup Discussion

- Not possible in this timeframe to do an LCA type of analysis
- Could start a subgroup on this to start to identify needs
- Some members and agencies have expressed previous interest

MCC Updates and WG Public Meetings / Wrap Up and Planning

- Most working groups are now starting to discuss draft strategies
- Most have broken into subgroups and are diving deeper on specific aspects of the overarching group scope of work
- June 17 Maine Climate Council meeting where the working groups will present their draft strategies. Each group is asked to develop and present on only a few strategies each.
- There is discussion to include greater depth of recommendations and discussion on them in appendices
- GOPIF is monitoring the coronavirus vigilantly and is preparing to potentially move to virtual meetings if need be.
  - This also pertains to the stakeholder and general public meetings.
    - Natural and Working Lands already has meetings scheduled for next month in Presque Isle and Freeport
    - The general public meetings are being scheduled for late March into early April
    - There will be a Youth event likely in Orono, possibly on a Saturday, could be a lunch meeting
- There will be a calendar that is coming together to track this and make available online
- Ivan and Cassy were to present on a panel at the Maine Science Festival but the festival has been cancelled due to COVID-19.
- Bob and Cassy were putting together two panels for the ME Sustainability and Water Conference but that has also been cancelled.
- Working with CBI and they continue to help on facilitation and overall process