
Governor's Council on Climate Change (GC3)

MEETING MINUTES

Meeting Date: June 13, 2017
Meeting Time: 10:00 — 12:00 p.m.
Meeting Location: CT DEEP,
Gina McCarthy Auditorium,
79 Elm Street, 5th Floor, Hartford

ATTENDANCE

Council Member	Title	Organization	Present
George Bradner (on behalf of Commissioner Wade)	Property and Casualty Director	Department of Insurance	Y
Kate Boucher (on behalf of Chair Dykes)	Staff Attorney	Public Utilities Regulatory Authority	Y
Melody Currey	Commissioner	Department of Administrative Services	N
Garrett Eucalitto	Undersec. For Trans. Policy & Planning	Office of Policy and Management	N
Bryan Garcia	President and Chief Executive Officer	Connecticut Green Bank	Y
T.J. Hanson	Product Director	Thule, Inc.	Y
John Humphries	Organizer	CT Round Table for Climate & Jobs	Y
Rob Klee (chair)	Commissioner	Department of Energy & Environmental Protection	Y
David Kooris	Director of Rebuild by Design and National Disaster Resilience	Department of Housing	N
James O'Donnell	Executive Director	Connecticut Institute for Resilience and Climate Adaptation	N
James Redeker	Commissioner	Department of Transportation	Y
Patrick Brown (on behalf of David Robinson)		The Hartford	Y
Catherine Smith	Commissioner	Department of Economic & Community Development	Y
Lynn Stoddard	Director	Institute for Sustainable Energy	N
Don Strait	Director	Connecticut Fund for the Environment	Y

Associated Staff	Title	Organization	Present
Eric Annes	Analyst	DEEP Office of Supply	Y
Tracy Babbidge	Chief	Bureau of Energy & Technology Policy, DEEP	Y
Keri Enright-Kato	Director	DEEP Office of Climate Change, Technology & Research	Y
Stanley McMillen	Consultant		Y
Paul Miller	Deputy Director & Chief Scientist	Northeast States for Coordinated Air Use Management	Y
Jason Rudokas	Policy Analyst	Northeast States for Coordinated Air Use Management	Y
Mary Sotos	Deputy Commissioner	Bureau of Energy & Technology Policy, DEEP	Y

AGENDA & NOTES

Welcome and Announcements

Rob Klee

- CT has joined US Climate Alliance with other states/cities/corporations.
 - CT will continue to show leadership absent federal action
 - Collectively states will achieve a 26-28 percent reduction by 2025
 - This includes accelerating new and existing policies to increase reductions at local levels

Overview of stakeholder engagement event held on May 17, 2017

John Humphries & David Kooris

- Three locations were available for stakeholders to attend - Hartford/Stamford/New Haven
- There were approximately 90 people across all three sites
 - Half of the attendees were new stakeholders who had not previously participated
- Agenda focused on transportation
- Notes are being compiled and a summary will be sent out soon

Review electric sector scenarios

Jason Rudokas

- Review scenarios from May 5, 2016 ADM meeting
 - Scenario 1: Solar dominates zero carbon electricity
 - Scenario 2: Even split between wind and solar
 - Scenario 3: Even split between wind and solar with expanded energy efficiency

- Review regional nature of grid and the consumption-based accounting approach vs. generation-based accounting
- Review decarbonization of regional grid over past 14 years which is primarily due to availability and low cost of natural gas and energy conservation
 - 19 million metric ton decline from 2000-2014 – fuel switching from coal and oil to natural gas and energy conservation
 - A total of 43.5 percent reduction from 2000 levels
- Electric sector is 18-20% of CT's economy wide emissions, but as you electrify other end uses you need to decarbonize further to drive additional reductions

A review of policies and programs to decarbonize the electric sector

Eric Annes, Office of Supply, CT DEEP

- Overview of state policies to decarbonize the electric sector
 - CT has the highest electric costs in lower 48 states
 - Electric Demand Reductions
 - Energy efficiency standards
 - Demand-side energy efficiency programs
 - Smart meters, time-of-use rates
 - Incentives and finance mechanisms for energy efficiency
 - Zero and low-carbon technology deployment
 - RPS – 20 percent class I resources through 2020
 - State procurement and long-term contracts for renewable energy
 - Residential solar incentive such as net metering
 - LREC/ZREC
 - Emission limits and market based mechanisms
 - Performance standards
 - Cap and trade – CT participates in the Regional Greenhouse Gas Initiative (RGGI), the country's first cap and trade emission reduction program for the electric power sector
 - Carbon price
 - Review of current CT legislation to deploy renewables (see slide 15)
 - It was noted that, in addition to the legislation outlined on the slide, the recently passed PA 17-144 includes authorization to purchase up to 3% of load from offshore wind resources.
 - PA 15-107/13-303 procurements will be filed at PURA soon
 - This included a large scale three state RFP
 - Small scale CT only RFP
 - Shared Clean Energy Facility pilot program underway
 - Review behind the meter and grid side annual installation from 2013-2021 (slide 17)
 - Behind the meter and Green Bank SHREC/RSIP programs are shown mostly in 2016-2018

- Recent procurements will appear in 2019 and 2020
 - Review resource cost comparison graph (slide 18)
 - Graph demonstrates large scale procurements of renewable costs have come down over time – from 17.02 down to 8.48 cents per MWh
 - Net-metering programs are higher in cost and have remained fairly constant at 22 – 25 cents per MWh
 - RGGI
 - Achieved a 45 percent reduction in RGGI states power sector since 2005 even as economies have grown.
- Review Integrated Markets and Public Policy (IMAPP) process and relevance to GC3 deliberations.
 - New England electric grid is a deregulated system where the marginal cost is the only factor considered
 - Natural gas units are the cheapest resource and are thus the primary source of electricity generation in New England
 - Generally, there should not be market interference to favor one resource over another and the IMAPP process is looking at the how the competitive market can accommodate states to meet state policy objectives which include carbon reduction goals
 - IMAPP has four objectives :
 - Competitive capacity pricing
 - Accommodate entry of subsidized resources
 - Avoid cost shifting (between states)
 - Sustainable market-based approach that minimizes administrative mechanisms and works with existing framework

Electric Sector Policy Discussion

- John Humphries, Lynn Stoddard, and Don Strait review list of policy recommendations
 - Need to recommend aggressive policies to ensure meeting short and long-term climate goals
 - Ramp up energy efficiency
 - RPS Policy: CT can and should be a leader and extend RPS beyond 2020, 3% annual increase of Class I.
 - Aggressive procurement of offshore wind
 - Full-scale shared solar program

GC3 Discussion:

- If we increase RPS, should we consider other carbon-free resources? Nuclear, large-scale hydro?
 - NY and VT include nuclear and large hydro in RPS
 - Worthy of further discussion, but important to ensure a ramp-up of other renewables
 - Important to find a good fit for various technologies, E.g. Fuel cells in emergency centers and opportunity to utilize waste heat.
- Need to consider transmission costs, long term investments, and role of battery storage.
- Need to be prepared for when we lose nuclear in that we have enough other carbon-free resources
- MA currently has a large scale hydro and offshore wind RFP out for a long-term procurement

- There might be an opportunity to increase RPS and reduce policy exposure by reducing Alternative Compliance Payment (ACP)
- Need to consider baseload versus intermittent generation when replacing a resource like nuclear (baseload) with renewables (intermittent)
- Does increasing the RPS actually build new renewable generation?
 - Evidence to suggest the RPS alone does not build new renewables, but rather long-term contracts do.
- Can we regionalize the cost of maintaining nuclear so CT isn't paying for all of it?
- What are the opportunities for offshore wind?
 - NY and MA currently have the authority to purchase
 - Offshore wind is extremely expensive – 25 cents per MWh or more range
 - These costs will come down as more is deployed, might want to consider waiting until prices drop
- Must keep in mind the cost of inaction – cost of adaptation
- Increase energy efficiency to reduce the amount of energy needed
- Suggestion for alternative assumptions for energy efficiency projections
 - Escalate energy efficiency, don't model it tapering off out to 2050
 - Are there limits to efficiency? E.g. what additional gains exist beyond LED?
 - Model a more aggressive approach to energy efficiency than current investment of approximately \$240 million
 - Could procure energy efficiency through a competitive process instead of utilizing the system benefit charge to pay for more.
 - NESCAUM will adjust modeling assumptions based on direction from GC3

Projected GC3 Timeline

Keri Enright-Kato

- June 20, 2017 ADM meeting
- GC3 meetings through summer into fall
- September mid-term target
- February 2018 – finalize reduction strategy for 2018 Legislative Session

Public comments

Ray Albrecht, National Biodiesel Board

- Restack the generation sources in order of carbon intensity
- Need to electrify thermal technology – look to European approach of hybrid heat pump plus and minus use when effective (not in coldest weather). Smart systems to track winter peak – pure electric is not the way to go
- Carbon intensity during peak times – need to clean up peaking units – reduce gas demand. Switch to renewable fuels
- How to incentivize? Clean Energy States Alliance webinars – clean peak standard
- Real-time RECs to go along with time-of-use rates
- Biodiesel can be used as a power generation source – NextEra/FPL generation - unsubsidized \$3/gal = .14/kWh in combined cycle plant. Raw cost is coming down - +/- .09/kWh

- RPS program – need to look at real-time incentivizing instead of annualized numbers
- Congrats for joining US Climate Alliance.
- Energy efficiency: look at VT RPS: generation and renewable thermal

Henry Pietras, Brookfield CT Energy Committee

- Cost of inaction – cost of short-term and long term consequences to air, water, soil etc. American Academy of Arts and Science paper on total cost – 2006 data

Henry Link, Hartford

- Shared solar – implemented by 2019? Full amount that was approved? 6MW under statute
- Microgrid program: third round, applications are being reviewed – rolling admissions
- How to account for in-state vs. regional system in ISO-NE
- CES: Draft out for public comment in early July. 60 day comment period

Peter Millman, Mansfield Sustainability Committee

- Value of Solar study needed
- Low price of natural gas is artificial – doesn't take into account the externalities
- GC3 should make a recommendation on carbon pricing

NOTE: Slides are available on GC3 web page: www.ct.gov/deep/gc3