Connecticut Department of Energy and Environmental Protection
GC3 Meeting

February 26, 2018
2:00 — 4:00 p.m.
Agenda

2:00  Welcome & Announcements
  Rob Klee, GC3 Chair, Commissioner of DEEP

2:05  Overview of CES and Legislative Proposals
  Mary Sotos, Deputy Commissioner of Energy, DEEP

2:25  Statement of Principles Discussion
  Rob Klee, Commissioner of DEEP, GC3 Chair

2:50  Framework and Timeline for Final Report
  Keri Enright-Kato, DEEP

3:00  Near-term Opportunities and Mid-term GHG Reduction
  Policy Discussion
  Rob Klee, Commissioner of DEEP, GC3 Chair

3:30  Public Comments
2018 Comprehensive Energy Strategy and Legislative Proposals
Over **90 percent** of Connecticut’s GHG emissions are related to energy usage.

The 2018 CES sets forth bold but achievable steps to meet GHG reduction goals, while containing costs to ratepayers.

The CES, along with the work of CIRCA and the GC3, form the foundation for two Governor’s proposals this session, one focused on **planning and resiliency**, and the other focused on **Connecticut’s energy future**.
1. Ensure sustainable and equitable **funding for energy efficiency**.

2. Advance **market transformation** of the energy efficiency industry.

3. *Grow and sustain* renewable and zero-carbon generation in the state and region.

4. Expand deployment of all cost-effective distributed generation (“behind the meter”) in a sustainable manner.
5. Continue to improve *grid reliability and resiliency* through state and regional efforts.

6. Reduce transportation greenhouse gas emissions by accelerating the adoption of *low- and zero-emission vehicles* and strengthening alternative-fueling infrastructure.

7. Increase *mobility, connectivity, and accessibility* by advancing smart-growth, mixed-use transit-oriented development, and innovative transportation partnerships.

8. Modernize the grid.
Ensure sustainable and equitable funding for energy efficiency

- Implement sustainable funding for energy efficiency
- Find equitable solutions for oil and propane conservation
- Reduce the energy burden of low-income households
- Address health and safety barriers to further unlock efficiency and create healthier homes
- Catalyze the competitiveness of Connecticut’s businesses with increased energy productivity
✔ Integrate energy efficiency with real estate market forces.

✔ Develop a sustainable workforce to meet industry demand

✔ Standardize efficiency with energy performance codes, standards, and certifications

✔ Transition to cleaner thermal fuels and technologies
Context: How We Currently Heat our Homes

**Connecticut**
- Natural Gas, 48%
- Fuel Oil, 43%
- Electricity, 16%
- LPG, 4%
- Other, 4%

**United States**
- Natural Gas, 48%
- Electricity, 38%
- Fuel Oil, 5%
- LPG, 5%
- Other, 4%

Grow and sustain renewable and zero-carbon generation

- Increase the Renewable Portfolio Standard to 40% by 2030
- Use existing procurement authority for regional nuclear and hydropower resources
- Continue procuring grid scale renewables based on needs determined in the Integrated Resources Plan in a cost-effective and environmentally-sustainable manner
- Phase down biomass and landfill gas RECs in Connecticut’s Class I RPS
Declining Cost of Clean Energy Programs, Behind the Meter and Grid Side (nominal dollars, 2012-2016)

*Average cost for RSIP was levelized over 20 years for Purchased Residential PV systems and not leased systems.
Expand cost-effective distributed generation

Net Metering

SHREC

LREC/ZREC

Virtual Net Metering

[Diagram showing solar panels and energy flow]
Increase Access, Reduce Costs

- Grandfather existing distributed generation systems
- Determine total authorized utility spending for all distributed generation tariffs
- Designate consumer categories within the spending cap
- Hold semi-annual competitive solicitations for Low and Zero Emission Tariff categories
- Integrate a statewide shared clean energy program into the new LREC/ZREC auctions
- Enhance transparency of voluntary renewable energy products
- Establish renewable generation rates for residential customers
Improve Grid Reliability and Resiliency

- Support ISO NE improving regional winter natural gas generation fuel security and reliability

- Continue to deploy community microgrids to support statewide resiliency goals in strategic locations and support the Energy Assurance Plan.

- Ensure coastal resiliency of substations and other critical grid infrastructure to support DEEP’s flood management goals.
Current Consumption and Emissions Trends

Energy Consumption by Sector

- Electric Power, 39%
- Transportation, 28%
- Residential, 15%
- Commercial, 8%
- Industrial, 10%

GHG Emissions by Sector

- Transportation, 36%
- Electric Power, 22%
- Industrial, 10%
- Residential, 17%
- Commercial, 8%
- Waste, 6%
- Agriculture, 1%
# ZEVs needed for a 45% GHG reduction by 2030

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<thead>
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<th>2020</th>
<th>2030</th>
<th>2050</th>
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<tbody>
<tr>
<td>45% below 2001 by 2030</td>
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<tr>
<td># of ZEVs</td>
<td>70,000</td>
<td>750,000</td>
<td>2,600,000</td>
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<td>% of Fleet</td>
<td>3%</td>
<td>32%</td>
<td>95%</td>
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Note: numbers are approximate based on modeling assumptions
ZEVs, Infrastructure and Transportation Planning

- Develop an EV Roadmap, that includes a review of sustainable incentive funding models and, in collaboration with PURA, examines the appropriate regulatory framework for EV deployment in CT.

- Increase EV uptake through consumer education and new fleet purchasing models.

- Facilitate state and regional transportation planning that improves system efficiency and reduces vehicle miles traveled.
Modernize the Grid

- Initiate grid modernization proceedings
- Integrate efficiency, storage and renewables to manage peak demand
- Ensure interoperability of demand response communications between buildings and the grid
- Apply best practices from the federal Grid Modernization Lab Initiative
“We have to lower carbon emissions everywhere. We have to once again make Connecticut a national leader in green energy.”

-Governor Malloy, State of the State Address, Feb. 7., 2018

- 45% GHG Reduction by 2030
- 40% Class I RPS by 2030
- Science-based climate resiliency planning
- Cost effective distributed generation programs
- Commitment to Energy Efficiency and the CT Green Bank
Statement of Principles
Agreed Upon Themes

• Modernize and transform the building, electric, and transportation sectors.

• Largest and least cost reduction measures that are proven and scalable.

• Co-benefits such as improved health, economic development, energy security and independence, and quality of life.

• Fairness, equity, justice, and intergenerational costs.

• Engagement
  • all levels of government, private sector, individual citizens, civic organizations, religious groups, non-governmental organizations, and other members of civil society

• Maximize synergies between mitigation and adaptation measures

• Regular review process
Discussion

• Achieving steep reductions within a short timeframe

• Negative and positive impacts of measures
  ❖ Direct economic costs to families and businesses (increase electricity and fuel costs)
  ❖ Economic growth/job creation
  ❖ Health
  ❖ Equity and fairness (race, class, geographic, generational)
  ❖ Cost of inaction
Framework and Timeline for Final Report
The 2030 Climate Framework should signal government, the private sector, non-governmental organizations, and individuals to implement actions that align with the recommended sector specific GHG reductions targets and strategies.

**Government**
- General Assembly
- State Agencies
- Municipalities
- RCOGs

**Private Sector**
- Businesses
  - Facility & Fleet Planning
  - Products & Services

**Non-governmental organizations**
- Higher Education
- Advocacy Organizations
- Religious Groups
- Labor Unions

**Individuals**
- Product Purchases
- Transportation Choices
- Investments (financial and physical assets)
2030 Climate Framework

• Develop a 2030 climate framework to achieve a 45% reduction in GHG emissions. The framework will coordinate and leverage existing and ongoing efforts and identify a suite of new policy options to accomplish the State’s climate goals.

• The framework will ensure the state is on a sustainable path to achieve its 2050 vision of reducing GHG emissions 80% below 2001 levels.

• The framework emphasizes that there is no single solution but rather a balanced mix of strategies that lead to meaningful emission reductions and which provide the greatest level of certainty in meeting the state’s GHG reduction targets.

• The framework will include sector specific targets and a suite of policy options to meet the state’s 2030 mid-term target.
2030 Climate Framework

**Electric Sector** [X% carbon reduction/tons of CO₂e reduced]
High Level Recommendation: Zero-carbon electricity generation and electric energy efficiency
- Suite of Policy Options

**Building Sector** [X% carbon reduction/tons of CO₂e reduced]
High Level Recommendation: Thermal energy efficiency and strategic electrification
- Suite of Policy Options

**Transportation Sector** [X% carbon reduction/tons of CO₂e reduced]
High Level Recommendation: Transportation electrification, low-carbon fuels, and VMT reductions
- Suite of Policy Options
March 14th
• GC3 meeting to continue discussing sector policy options and sector emission reduction targets

April/May Stakeholder Meeting
• Transportation sector

May/June Stakeholder Meeting
• Building and Electric Sectors

June
• GC3 meeting to finalize sector targets and suite of policy options

June – July
• Draft report

August
• Release final report
Near-term Opportunities and Mid-term GHG Reduction Policy Discussion
GC3 Near-term Opportunities

Transportation Climate Initiative

• 11 Northeast and Mid-Atlantic states and the District of Columbia have been working together since 2015 to explore regional policies to improve transportation systems and reduce carbon emissions and other pollutants from the transportation sector, which accounts for the largest share of regional carbon emissions.

• In November 2017 a bipartisan group of seven states and the District of Columbia announced plans to further explore regional policy solutions by engaging with communities and businesses to discuss the opportunities and benefits that could be achieved from coordinated state action.

• States have committed to hosting listening sessions to help states understand the public’s vision, ideas, and solutions and to collect input on preferred policy options to develop a low-carbon transportation system.

CTRides Commuter Challenge (May 2018)

• A month-long competition during May will encourage employers and individuals to compete for recognition and prizes for reducing the most number of private vehicles used for commuting in order to reduce miles traveled and auto emissions. Employers will compete in the following categories:
  • Total of all trips taken by employees with other than single occupant vehicles (SOV)
  • Number of employees who begin taking non-SOV trips during May
  • Participation rate
  • Team spirit

• Interest by GC3 members to commit their organization to participate in the competition?
  • Commitment to actively promote the use of choice commuting modes to their employees through internal communications, marketing and in-house events using the support and resources of CTRide
Policies for Consideration

• Questions or clarification on the policy list and descriptions provided?
  - Federal, current state, potential new policies and programs.

• Additional ideas?

• Further resources?
## Transportation Sector Policies

<table>
<thead>
<tr>
<th>Current Programs &amp; Policies</th>
<th>Programs &amp; Policies for Consideration</th>
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<tbody>
<tr>
<td>Federal tax incentive for ZEV purchase</td>
<td>Increased Taxes or Price Floors on Gasoline and Diesel</td>
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<td>Federal Renewable Fuel Standard Program</td>
<td>Vehicle Miles Travel Tax</td>
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<td>Federal Corporate Average Fuel Economy (CAFE) Standards</td>
<td>LEV/ZEV access to HOV Lanes, Free Parking, and Reduced Property Tax</td>
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<td>International ZEV Alliance</td>
<td>Congestion Pricing/Tolls</td>
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<tr>
<td>ZEV Memorandum of Understanding</td>
<td>Lead by Example: A Standard for the State’s Fleet for the Purchase of LEV/ZEVs</td>
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<td>California LEV/ZEV Standards</td>
<td>Time-of-use Rate for EV Charging</td>
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<td>Connecticut Hydrogen and Electric Automobile Purchase Rebate</td>
<td>Further Development of the Complete Streets Program and Multi-Mobility</td>
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<td>Reduced Registration Fees for Electric Vehicles</td>
<td>Improve the Existing Car Sharing Service into LEV and ZEV</td>
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<td>Auto Insurance Discounts</td>
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<td>Let’s Go CT</td>
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<td>CTfastrak</td>
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<td>Complete Streets</td>
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<td>HOV lanes</td>
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# Example Electric Sector Policies

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<tr>
<th>Current Programs &amp; Policies</th>
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<tbody>
<tr>
<td>Federal tax incentive for RE</td>
<td>Clean Energy Standards</td>
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<tr>
<td>Regional Greenhouse Gas Initiative (RGGI)</td>
<td>GHG Emissions Reporting Program</td>
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<tr>
<td>Renewable Portfolio Standard (RPS)</td>
<td>Voluntary Purchases of Clean Energy</td>
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<td>State Procurements for Grid-Scale Renewables</td>
<td>Grid Modernization Technology Deployment</td>
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<td>Net Metering/Virtual Net Metering</td>
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<tr>
<td>Low-Carbon and Zero-Carbon Renewable Energy Credits (LREC/ZREC)</td>
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<td>Residential Solar Investment Program (RSIP)</td>
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<td>Community Solar</td>
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# Building Sector Policies

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<th>Current Programs &amp; Policies</th>
<th>Programs &amp; Policies for Consideration</th>
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<tr>
<td>Federal Building Benchmarking Programs</td>
<td>Replace Electric Resistance Heaters with Efficient Heat Pump Technologies</td>
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<tr>
<td>Energy Efficiency Improvements - Financed Through Incentives from CT Energy Efficiency Fund and CT Green Bank</td>
<td>Establish a Residential Property Assessed Clean Energy Program</td>
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<tr>
<td>Commercial Property Assessed Clean Energy Program</td>
<td>Expansion of Building Energy Use Benchmarking Program to Municipalities and Private Sector</td>
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<tr>
<td>State Building Code Based on 2012 International Code Council Standards</td>
<td>Thermal Renewable Energy Credit Program (T-REC)</td>
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Economy-wide Approaches

Currently there are no federal or state comprehensive policies that aim to reduce greenhouse gas emissions across all sectors. Two such policies that are worth considering, and are implemented in other jurisdiction in include:

- Carbon tax
- Cap-and-trade/invest
Public Comments