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# Committee for Energy Efficiency and Sustainability (CEES)

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## Committee Meeting Agenda

Wednesday, March 10, 2021

7:00pm to 8:30pm

GoToMeeting Video Stream

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## Agenda

Item	Agenda	Start Time
1	Call to Order: Welcome Anna!	7:00 pm
2	Approval of February 10, 2021 Minutes	7:05 pm
3	Carbon Fee and Dividend Presentation: Marcia Harrington, Citizens Climate Lobby	7:05 pm
4	LED Streetlight Product Evaluation	7:25 pm
5	Ongoing Project/Policy Update(s): Community Solar, EV, etc.	8:00 pm
6	Adjourn	8:30 pm

## Strategic Priorities & Outcomes / Next Steps (Previously Identified)

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## Materials

2.10.21 Meeting Minutes

Carbon Fee and Dividend  
Presentation Materials

LED Streetlight Product Evaluation

## Board Members

Toby Ahrens, Chair

David Ertz

Kurt Adams

David Craig

Mike Sears

Chuck Parker

Scott Sherriff

Peter Fromuth

Bill Dunn

Anna Siegel, Student Liaison

## Staff

Scott LaFlamme,

*Economic Development Director*

Nat Tupper,

*Town Manager*



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# Committee for Energy Efficiency and Sustainability (CEES)

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## Committee Meeting Minutes

Wednesday, February 10, 2021

7:00pm to 8:30pm

GoToMeeting Video Stream

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### Approval of November 9, 2020 Meeting Minutes

Chair, Toby Ahrens, brought the February 10, 2021 CEES meeting to order at 7:00pm. Peter Fromuth moved to approve the February 10, 2021 meeting as presented. Scott Sherriff seconded the motion. The motioned carried unanimously.

T. Ahrens begin the meeting by mentioning that Margaret Downing had stepped away from the committee.

### Strategic Planning Exercise

T. Ahrens introduced guest speakers from Yarmouth High School's Green Voices Society. The students presented the committee with a proposal to enact a community climate emergency resolution.

Zoe Siegel, of GVS, was hopeful for constructive feedback prior to a formal presentation to the Town Council. She provided the group with background on the Green Voices Society and their efforts at Yarmouth High School. Z. Siegel and Jack Vigue presented their findings and the impacts of climate change on Yarmouth and coastal Maine. If passed, the resolution would require the following within 60 days of approval:

- The Town Council would establish an emergency task force comprised of Town staff, residents, and students,
- Allocate 1% of the annual budget to climate change efforts; and to
- Commit to eliminating greenhouse gas emissions, town-wide, by 2030

Several Committee members had questions. P. Fromuth asked about ways that middle school students could work with the GVS to further climate change initiatives. D. Craig also asked the group of students how CEES could best support their work. Z. Siegel responded that an endorsement from CEES would be extremely helpful prior to their presentation to the Town Council. T. Ahrens suggested that the action items in the resolution were aggressive. He wondered what other communities were doing to ensure progress.

Based on the discussion and insight, members of the GVS planned to revise their presentation.

### GPCOG Local Climate Action Planning

### Board Members Present

Toby Ahrens  
Chuck Parker  
Scott Sherriff  
David Ertz  
David Craig  
Mike Sears  
Peter Fromuth  
Bill Dunn  
April Humphrey, Town Council

### Staff

Scott LaFlamme,  
*Economic Development Director*

### Members of the Public

Mia Ginsberg  
Jack Vigue  
Zoe Siegel  
Camden Olsen  
Chris Hill  
Sara Mills-Knapp  
Marcia Harrington



The Committee was joined by Sarah Mills-Knapp, Sustainability Program Manager with the Greater Portland Council of Governments (GPCOG). Sarah provided the committee with an overview of her responsibilities and available programming to member communities.

On the heels of the State's recently completed climate action plan, GPCOG has established technical assistance programming to help communities install local climate action planning efforts. Portland and South Portland have provided successful models for other communities to adopt. GPCOG offers two tiers of program assistance. The first tier focuses on establishing a framework for a local climate action plan, based on baseline emissions totals and community vulnerabilities. Those benefits are included in the Town's membership to GPCOG. For an additional \$1.50 per capita (roughly \$13,000), GPCOG would provide a more thorough analysis and facilitated public engagement process.

Committee members discussed several potential spinoffs from this type of program. A. Humphrey asked whether regional shared sustainability coordinators could be possible through GPCOG. The group also discussed how this type of program could impact their recently established list of policy priorities.

### Policy Priority Update

- EV Infrastructure: P. Fromuth and S. Sherriff provided the group with an update on their work to obtain level 2 charging stations and potential EV alternatives for municipal vehicles
- Stormwater Management: D. Craig reported that he discussed stormwater management fees with Steve Johnson, Town Engineer. Steve said that currently only three municipalities have stormwater management fees. D. Craig reported that he would continue looking into potential models.
- Broadband Expansion: S. LaFlamme reported that he was in discussions with Town Council members on what Council subcommittee was best suited to explore municipal broadband expansion.
- Trees: T. Ahrens and P. Fromuth provided an update on YCS's efforts to obtain a tree street grant.
- Royal River Improvements: M. Sears has looked into fish habitat along the Royal River. He suspects that interim measures could be taken at the fishway to improve the existing ecosystem prior to a potential dam removal.

### Project Update

- D. Ertz reported that a proposal is in front of the Town Council to authorize funds for a wetland delineation survey and study for the Sligo Road/CMP property. RFP submissions for the project were due February 19<sup>th</sup>.
- S. LaFlamme reported that he was working with EDAB to use TIF funds to upgrade LED lighting fixtures in the Village to more decorative alternatives.

T. Ahrens adjourned at 8:52pm upon mutual consent.



# CARBON FEE & DIVIDEND



**Citizens' Climate** Lobby

Yarmouth Committee for Energy  
Efficiency & Sustainability (CEES)

Presented by  
CCL MidCoast Maine Chapter  
*Marcia Harrington, Dodie Jones &  
Michael Jones*

# AGENDA

- Prologue
- Urgency of Addressing Climate Change (1 slide)
- Carbon Fee & Dividend
  - How it works
  - Why it's effective
  - Best overall single policy
- Supporters
- Importance of Town Resolutions
- Questions



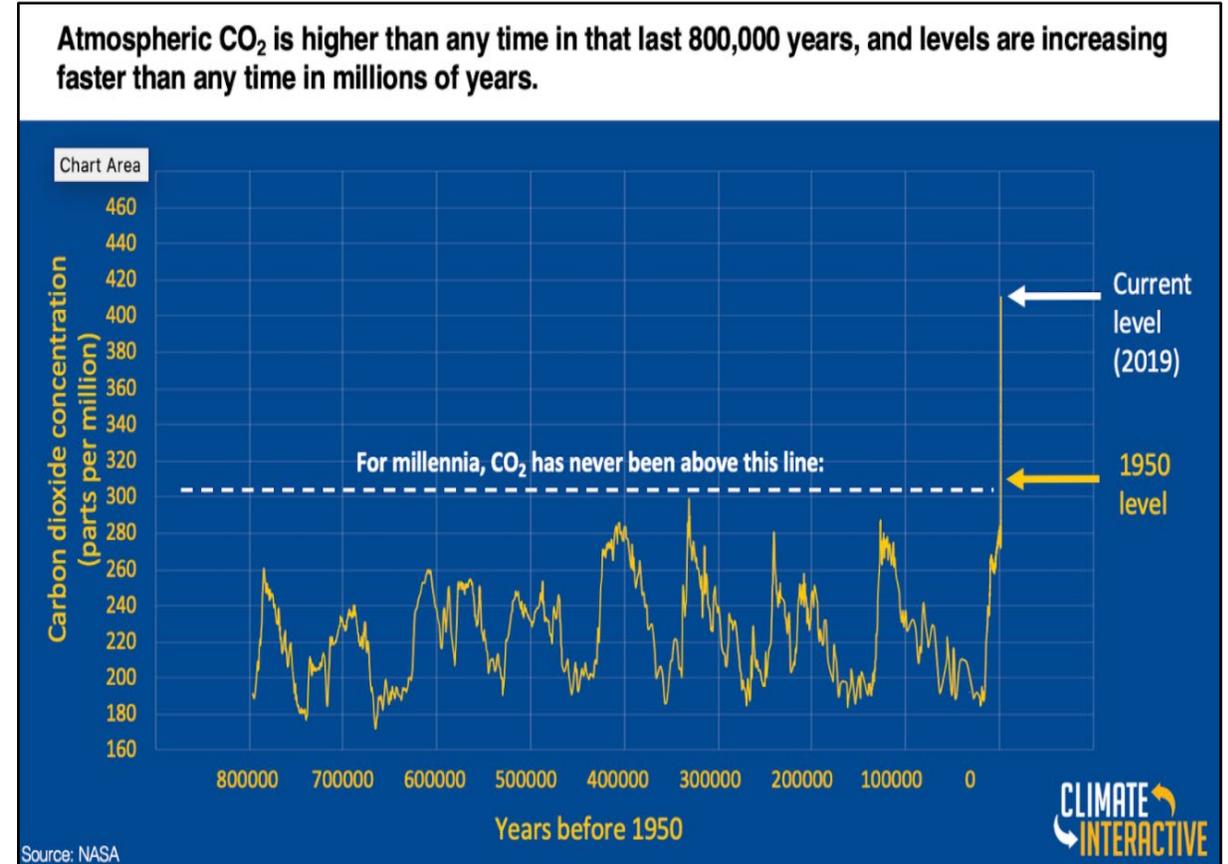
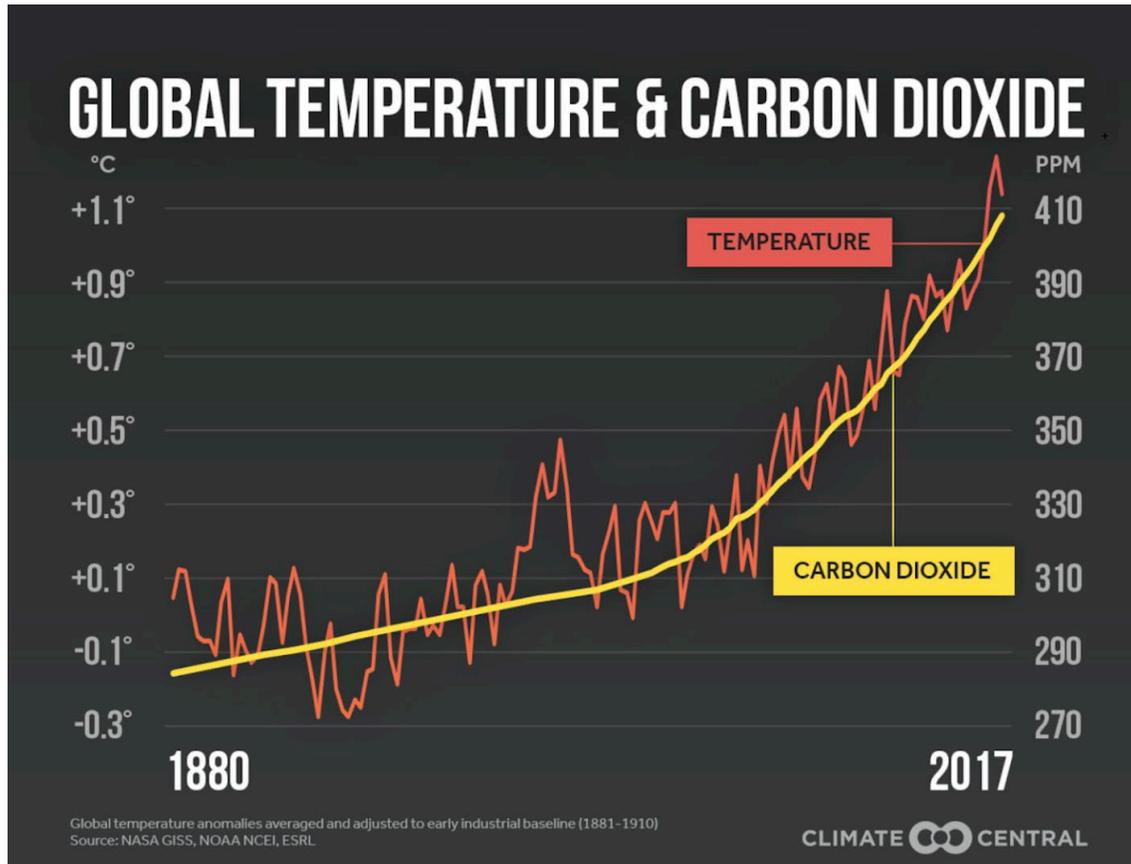
# Prologue: Bill Gate's hamburger

Hey, when you're going to zero, you don't get to skip anything.



# Urgency of addressing climate change

- Global temperatures have been steadily rising (2020 was 2<sup>nd</sup> hottest)
- Clear correlation with CO<sub>2</sub> in atmosphere



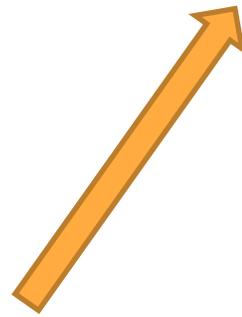
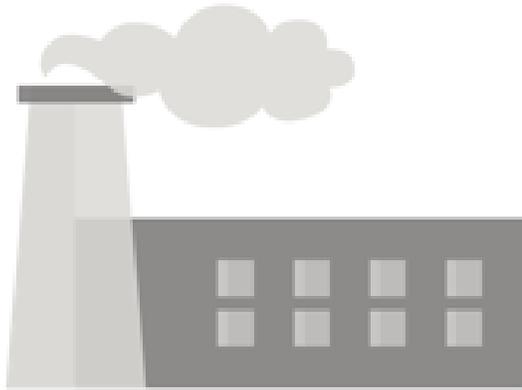
**Carbon fee & dividend**

*or*

**Energy Innovation &  
Carbon Dividend Act**

**(HR 763)**

# How it Works



Fee is passed on to businesses and households

- Price of dirty energy, fossil fuel-based products goes up (Ex. Gas, air travel, Fiji bottled water)



- Non-fossil fuel products become relatively cheaper (Ex. Electric cars, bus and train travel, local tap water)



Charge a fee on fossil fuels at the source

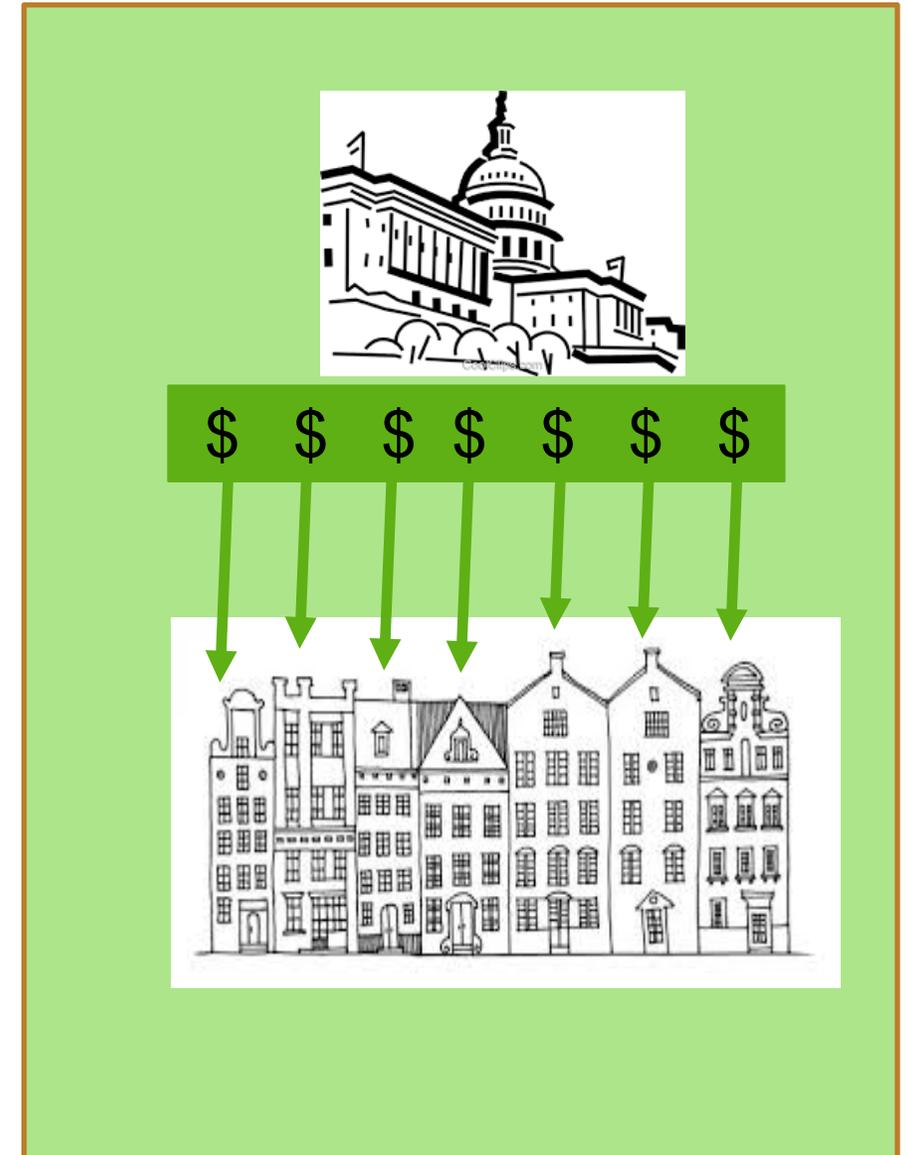
(mine, well, or port)

Fee on carbon is collected by government, then paid out equally to ALL U.S. households as a monthly carbon dividend

- People who use less energy than the average person stand to make money



= About **\$367.50**  
per month



# Why It's Effective

A predictable, rising carbon fee encourages...

- Businesses and households will buy greener goods and conserve energy
- Businesses and households will make long-term investments in energy saving
- Innovators will discover energy saving technologies



# Best Overall Single Policy

## 1. It will reduce emissions, no question!

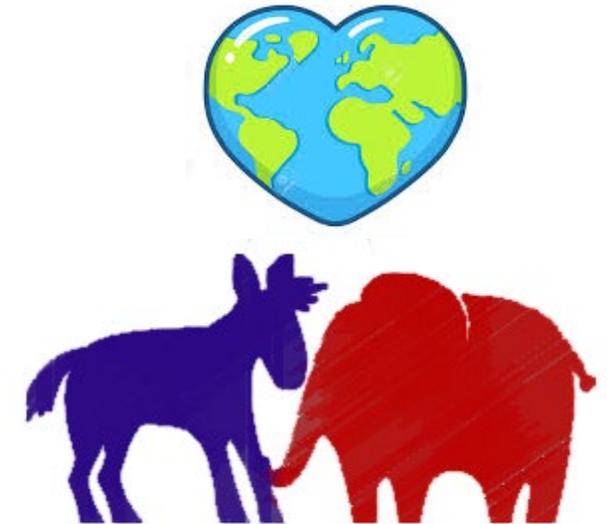
- ❖ Proven track record -- has been implemented in ~60 jurisdictions globally
- ❖ Wealth of scientific and economic studies predict 40% emissions reduction after 12 years

## 2. Achieves decarbonization in cheapest, most efficient way because of market incentives

- ❖ Other policies—such as renewable subsidies and efficiency standards—cost more
- ❖ It's fair across approaches: renewables vs conservation vs carbon capture

# Why It Is Best Single Policy

3. **Dividend protects the most vulnerable**—lowest 60% of earners come out ahead
4. Policy of carbon price **will facilitate international cooperation**
5. Policy should be **broadly popular**, not only to progressives (i.e. equity) and conservatives (i.e. market incentives, minimal role of gov't) but also with people who will get monthly dividends



# Supporters, *new support added every day!*



Climate scientists James Hansen, Katharine Hayhoe, and many more

The National Academies of Sciences (NAS)



3500 U.S. Economists

4 former Federal Reserve Chairs

28 Nobel Laureates

86 members of U.S. House of Rep's

The members of CCL's 486 chapters



# Supporters, cont.

## Municipalities

- Portland, Bangor, Brunswick, Arrowsic, Fairfield, Harpswell, Orono, Hampden, Vinalhaven
- Chicago, Dallas, Kansas City, Oakland (CA), Philadelphia, St Petersburg, Tucson, etc.

## Environmental Organizations

Maine Conservation Voters, The Nature Conservancy, Climate Leadership Council, Students for Carbon Dividends

## Business

- US Business Roundtable; \*US Chamber of Commerce *is open to a carbon tax, 1/21/2021*
- RevisionEnergy, Solar Energy Assoc of ME, CEI, Atlantic Salmon Federation

## Support Carbon pricing (generally):

IMF, World Bank, IPCC, the Pope, US Conference of Catholic Bishops

# Importance of town resolutions

- With legislation before U.S. Congress, this is single most impactful climate action your town can take
- Important to show groundswell of support.
- Educates citizens.
- Endorsements: Portland, Bangor, Brunswick, Arrowsic, Fairfield, Orono, Harpswell, Hampden, Vinalhaven
- On warrant for 10 other towns



# Questions

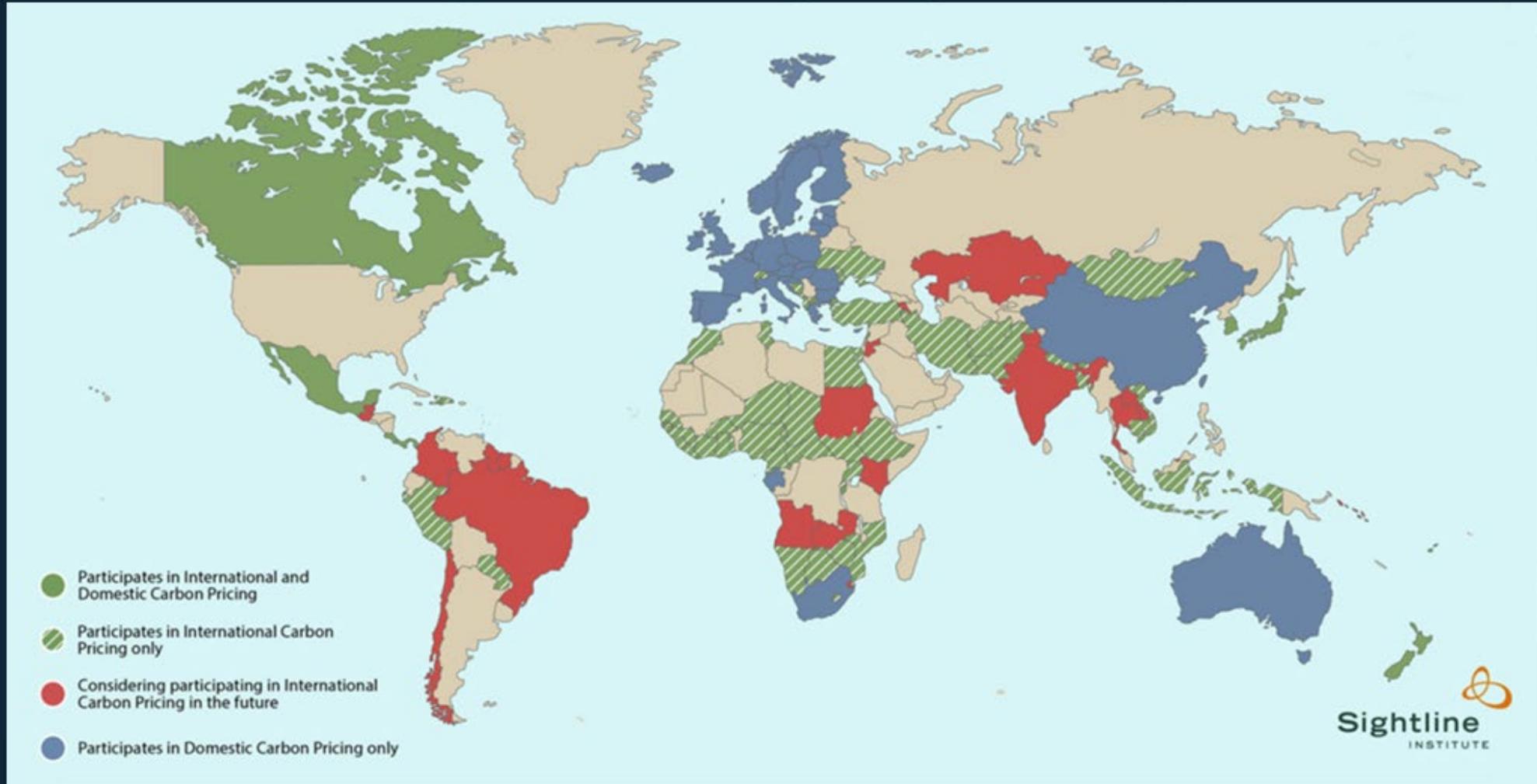


# Other Policies Generally Cost More

<u>Policy</u>	<u>Cost of reducing 1 ton CO2</u>
Reforestation	\$1-\$10
<b>CARBON FEE &amp; DIVIDEND</b>	<b>\$15</b>
Wind energy subsidies	\$2-\$260
CAFÉ standards	\$48-\$310
Renewable fuel subsidies	\$100
Solar panel subsidies	\$140-\$2,100
Biodiesel	150-\$250
Weatherization assistance	\$350
Vehicle electric battery subsidy	\$350-\$640

# Carbon Pricing around the World

As countries prepare to meet Paris climate goals, more than 100 are using or considering using a carbon price.



Source: World Bank and IETA INDC Tracker

**DRAFT**

**Resolved, that Yarmouth encourages the U.S. Congress to initiate a  
revenue-neutral fee on Carbon Fuels.**

**WHEREAS**, Maine recognizes that the health of our citizens is dependent on the high quality of our air, water, and natural resources and that the health of much of the state's economy, including agriculture, forestry, fishing, and tourism are favored by a stable climate; and

**WHEREAS**, the University of Maine's Climate Change Institute agrees with the consensus of climate scientists worldwide that climate is changing rapidly and that changes are associated with increased concentrations of pollutant emissions of carbon dioxide (CO<sub>2</sub>) and other greenhouse gases, derived principally from the burning of the carbon fuels (coal, oil, and natural gas); and

**WHEREAS**, the State has pursued efforts through the Regional Greenhouse Gas Initiative to reduce the burning of carbon fuels for energy generation, and most recently by following the Maine Climate Council's recommendations across the State's economy, with the intent of meeting goals set in law to reduce emissions 45% below 1990 levels by 2030, and 80% by 2050; and

**WHEREAS**, the State is responsible for only 0.3% of the nation's emissions, it is vitally important to enact national and international control; and

**WHEREAS**, a steadily rising price on carbon fuels is widely accepted by economists as being the most effective means to achieve emissions-reduction goals; and that a revenue-neutral Carbon Fee and Dividend system (including a pollution fee levied at the wellhead, coal mine or port of entry, with all revenues returned equally to citizens and legal residents as a dividend) would leverage market forces encouraging investments in energy efficiency and alternate, energy sources by both industry and consumers. Carbon fee & dividend aims to **a)** reduce US CO<sub>2</sub>-equivalent emissions by 90% of 2016 levels by 2050, **b)** be fair to all segments of our population, and **c)** encourage similar actions by other nations.

**NOW, THEREFORE BE IT RESOLVED** that Yarmouth supports the enactment of a **national revenue-neutral Carbon Fee and Dividend system**, that includes **a)** a steadily rising pollution fee, levied as far upstream in the economy as possible, that starts low and increases steadily and predictably to achieve the goal of reducing carbon dioxide emissions in the United States by 90% of 2016 levels by 2050; **b)** all net revenues returned equally to citizens and legal residents as a dividend, and **c)** carbon-content-based tariffs for imports from, and rebates for exports to, nations that have not taken similar actions.



# Product Evaluation Report

## Yarmouth, ME

29<sup>th</sup> of January 2021



**REALTERM**  
ENERGY

# Product Evaluation Report

We have prepared this report and evaluation to summarize our findings and present recommendations to upgrade the lighting assets in the Town of Yarmouth, Maine. In the following sections, you will find information on:

- 1) RFP details and the list of received bids,
- 2) Evaluation procedure,
- 3) Detailed bid evaluation, and
- 4) RealTerm Energy's recommended LED fixture selections.

## *Next steps*

With your approval of our recommendations, the next step is to continue working on the Design Phase of this project. Please confirm the selected options from the list shown on page 5.

If you have any questions, please do not hesitate to contact the Project Lead:

**Nadera Nawabi**

Email: [nnawabi@realtermenergy.com](mailto:nnawabi@realtermenergy.com)

T. (410) 934-1740 EXT. 0148

## Evaluation Procedure

In this procurement process, suppliers were invited to bid on the Town of Yarmouth’s fixture replacement. **2** RFQs were submitted through BuildingConnected (an online bidding platform). **7** complete bids were received from the following:

Supplier	Bid	Manufacturer(s)
<b>Fred Davis</b>	<b>1</b>	Leotek, King Luminaire, Lumecon
<b>Gilman Electrical Supply</b>	<b>2</b>	AEL, Holophane
<b>Graybar Electric</b>	<b>3</b>	Cooper Lighting
	<b>4</b>	Current by GE
<b>Lumecon</b>	<b>5</b>	Lumecon
<b>Speclines</b>	<b>6</b>	Leotek, King Luminaire, Lumecon
<b>Wesco</b>	<b>7</b>	Cooper Lighting

Fred Davis’ bid package was identical to Speclines’ bid package. Graybar’s Cooper bid package was identical to Wesco’s bid package. However, since Fred Davis’ and Graybar’s bids were more expensive than Speclines and Wesco respectively, they were not considered in the evaluation.

The received bids were evaluated through a three-stage process outlined below:

### Stage 1 – Minimum Requirements Review

A pass/fail stage through which any supplier/manufacture that does not meet the following minimum requirements is eliminated:

- 1) Fixtures are assembled in North America.
- 2) Surge Protection with IEEE/ANSI minimum requirements.
- 3) Dimmable Driver.
- 4) Equipped with 7-Pin Photocontrol Receptacle, allowing for future smart control compatibility.
- 5) Minimum 10 years warranty.

### Stage 2 – Fixture Evaluation

All fixtures that meet the above requirements are then evaluated based on four main criteria:

#### A) Lumens Per Watt Per Dollar

Lumens per watt is a metric used to measure the efficiency of a fixture. This is essentially the amount of light produced per unit of power. We add the price component to this criterion to additionally compare the value received per dollar basis.

**B) Fixture Price**

The price to purchase the fixtures.

**C) Ten Year Operation Costs**

The cost of operating the fixtures for ten years based on information supplied by the current utility tariff. This also plays a factor in the estimated rebates or incentives, if applicable.

**D) Photometric Efficiency**

Fixtures produced by different manufacturers tend to greatly differ when it comes to their lumen outputs. This criterion factors in how efficient each fixture is based on the lumens it emits into the environment per watt of consumable energy.

**E) Aesthetics**

A judgement of how much the proposed fixture corresponds with the Municipality’s current aesthetic for any given fixture. This criterion considers not only the fixture’s visual similarity to its replacement, but also its material, construction, and durability.

*Stage 3 – Fixture Ranking*

In this stage the fixtures are ranked based on a weighted system. A maximum weight or score is assigned to each of the criteria above based on their relative importance. The weights are initially assigned by RTE; however, the weighting system can be customized based on individual need and the importance of criteria. For example, RTE defaults the highest weighting being placed on the projected 10-year operating costs, due to the long life and long-term impact of the fixtures. These suggested coefficients can be revised at your request.

The sum and default distribution of the scored categories is equal to 100 potential points, as shown in the following table.

**For Cobraheads:**

Lumen/Watt/\$	Fixture Cost	10-Year Operation	Photometrics	Total Possible Score
5 points	30 points	45 points	20 points	100 points

**For Decoratives:**

Lumen/Watt/\$	Fixture Cost	10-Year Operation	Photometrics	Aesthetics	Total Possible Score
5 points	30 points	45 points	10 points	10 points	100 points

Cobrahead Ranking

Cobrahead fixtures are evaluated and ranked collectively. In other words, when comparing any attribute such as the **Fixture Price**, the cost to purchase all the cobraheads from one manufacturer vs another is

compared. Similarly, the total 10-year operational cost, photometrics and lumens per watt per dollar are evaluated.

For instance, if the **Fixture Price** criterion is given a weight of 30, the manufacturer with the most **cost-effective** fixtures overall will obtain a score of 30. The remaining manufacturers will be scored relative to the most effective fixtures as shown in the table below

	Manufacturer 1	Manufacturer 2	Manufacturer 3
<b>Total Fixture Price</b>	\$ 415,421.00	\$ 499,806.00	\$ 570,455.00
<b>Fixture Price Score</b>	30	24.9	21.8



*Please note the above table is for illustration purposes only*

### Decorative Ranking

Each type of decorative fixtures is evaluated and ranked separately. For instance, floodlights submitted by all manufacturers are compared to each other based on the criteria listed above. If the Fixture Price criterion is given a weight of 30, the most cost-effective floodlight will obtain a score of 30 as shown in the table below.

	Floodlight 1	Floodlight 2	Floodlight 3
<b>Total Fixture Price</b>	\$ 10,000.00	\$ 15,000.00	\$ 20,000.00
<b>Fixture Price Score</b>	30	20	15



*Please note the above table is for illustration purposes only*

Once all the fixtures are ranked, the manufacturer with the highest average score based on the inventory (Cobrahead and decoratives) is highlighted.

## Overall Results

The brands that were evaluated include:

1. Leotek,
2. AEL/Holophane (Acuity Brands),
3. Cooper Lighting,
4. Current by GE,
5. Lumecon, and
6. King Luminaire.

Below is the summary of RTE’s evaluation, including all the criteria explained above. RTE’s recommended option is highlighted, with **green** being the first-place choice and **yellow** as second choice.

Fixture Type	Cobrahead Score	Decorative Score	Total Score
<b>Gilman</b> (AEL/Holophane)	65.2	<b>16.1</b>	81.3
<b>Graybar</b> (Current by GE)	<b>70.1</b>	<b>15.7</b>	<b>85.8</b>
<b>Lumecon</b>	42.2	11.5	53.7
<b>Speclines</b> (Leotek, King Luminaire, Lumecon)	63.3	11.8	75.1
<b>Wesco</b> (Cooper Lighting)	<b>71.4</b>	15.2	<b>86.5</b>

\*The scores are adjusted to account for the percentage of Cobrahead/decorative fixtures in the inventory. For example, AEL (as shown on page 8) scored 78.8 when compared to other Cobrahead fixtures. However, Cobrahead fixtures account for 82.7% of the inventory. As a result, the actual AEL Cobrahead score is  $78.8 \times 0.827 = 65.2$ . The same applies to decorative fixtures.

Cooper Lighting scored higher in 10-year operational costs and fixture prices for Cobraheads. For decoratives, Acuity scored highest in completeness of the (the most versatile offerings), price and aesthetics. The client can select whichever manufacturers they prefer for each fixture type; if they wish to move forward with a uniform approach, then Cooper Lighting supplied by Wesco would be the recommended option. The final selection is left entirely up to the Town. Specification sheets can be provided for reference if requested.

Additionally, the Town of Yarmouth has requested to be provided with a list of potential decorative fixtures that can be installed in the place of Cobraheads. See page 12 for options.

The following section will present the scoring breakdown for each Cobrahead decorative fixture, as well as their estimated costs. Note that all pricing is approximate and are for evaluation purposes only.

# Material Break-Down

Detailed Options and Scoring

### Cobraheads

Supplier - Manufacturer	Image	Total Price (\$)	Average Lumen Per Watt Per Dollar Score	Total Fixture Cost Score	10 YR Operations Cost Score	Photometric Performance Score	Total Score
Gilman - Acuity		\$51,643	4.7	29.4	36.7	8.0	78.8
Graybar - GE		\$50,594	4.9	30.0	43.5	6.4	84.8
Lumecon		\$139,236	2.2	10.9	17.9	20.0	51.0
Speclines - Leotek		\$64,050	4.2	23.7	41.7	7.0	76.5
Wesco - Cooper		\$52,458	5.0	28.9	45.0	7.3	86.3

**Note:** The *Total Price* amount is estimated based on assumed original and replacement wattages and are thus for **evaluation purposes only**. This amount is subjected to change and should in no way be considered as a definitive amount for the project. The actual amount will be provided in the following IGA report once photometric designs are complete.

### Decorative – Bell Downlights

QTY # 2	Gilman - Acuity	Graybar - GE	Lumecon	Speclines - King/Lumecon	Wesco - Cooper
		<i>No bid</i>	<i>No bid</i>		
<b>Total Price</b>	<b>\$1,693.60</b>			<b>\$2,968.00</b>	<b>\$1,740.00</b>
Average Lumen/Watt/\$ Score	5.0			2.7	3.8
Total Fixture Cost Score	30.0			17.1	29.2
10 YR Operations Score	36.7			45.0	32.7
Lumens/Watt Score	10.0			9.3	7.8
Aesthetics Score	8.0			10.0	6.0
<b>Total Weight</b>	<b>89.7</b>			<b>84.1</b>	<b>79.6</b>

**Note 1:** The *Total Price* amount is estimated based on assumed original and replacement wattages and are thus for **evaluation purposes only**. This amount is subjected to change and should in no way be considered as a definitive amount for the project. The actual amount will be provided in the following IGA report once photometric designs are complete.

**Note 2:** Dollar amounts do **not** include prices for arms nor fitters. Mounting requirements will be evaluated on a case-by-case basis during the design phase and prices will be reflected in the IGA report as needed.

**Note 3:** All fixtures will be ordered in the BLACK color, unless otherwise stated.

### Decorative – Lantern Post Top

QTY # 95	Gilman - Acuity	Graybar - GE	Lumecon	Speclines - King/Lumecon	Wesco - Cooper
					
<b>Total Price</b>	<b>\$26,781.45</b>	<b>\$25,650.00</b>	<b>\$62,225.00</b>	<b>\$62,225.00</b>	<b>\$29,117.50</b>
Average Lumen/Watt/\$ Score	5.0	4.8	2.8	2.8	4.6
Total Fixture Cost Score	28.7	30.0	12.4	12.4	26.4
10 YR Operations Score	45.0	39.9	39.0	39.0	43.9
Lumens/Watt Score	7.8	7.9	10.0	10.0	7.9
Aesthetics Score	8.0	10.0	2.0	2.0	6.0
<b>Total Weight</b>	<b>94.6</b>	<b>92.6</b>	<b>66.1</b>	<b>66.1</b>	<b>88.8</b>

**Note 1:** The *Total Price* amount is estimated based on assumed original and replacement wattages and are thus for **evaluation purposes only**. This amount is subjected to change and should in no way be considered as a definitive amount for the project. The actual amount will be provided in the following IGA report once photometric designs are complete.

**Note 2:** Dollar amounts do **not** include prices for tenon adaptors. Tenon requirements will be evaluated on a case-by-case basis during the design phase and prices will be reflected in the IGA report as needed.

**Note 3:** All fixtures will be ordered in the BLACK color, unless otherwise stated.

### Floodlight

QTY # 6	Gilman - Acuity	Graybar - GE	Lumecon	Speclines - King/Lumecon	Wesco - Cooper
					
<b>Total Price</b>	<b>\$1,375.53</b>	<b>\$1,071.00</b>	<b>\$804.00</b>	<b>\$804.00</b>	<b>\$1,111.95</b>
Average Lumen/Watt/\$ Score	2.2	3.9	5.0	5.0	3.1
Total Fixture Cost Score	17.5	22.5	30.0	30.0	21.7
10 YR Operations Score	36.0	42.2	45.0	45.0	31.8
Lumens/Watt Score	7.3	10.0	9.6	9.6	8.2
Aesthetics Score	10.0	10.0	6.0	6.0	6.0
<b>Total Weight</b>	<b>73.1</b>	<b>88.6</b>	<b>95.6</b>	<b>95.6</b>	<b>70.8</b>

**Note 1:** The *Total Price* amount is estimated based on assumed original and replacement wattages and are thus for **evaluation purposes only**. This amount is subjected to change and should in no way be considered as a definitive amount for the project. The actual amount will be provided in the following IGA report once photometric designs are complete.

**Note 2:** All fixtures will be ordered in the GREY color, unless otherwise stated.

### Cobrahead to Decorative Options

Should the Town wish to convert some of their Cobraheads to Decorative fixtures in areas of interest, the following table below summarizes some potential decorative options. Note that the decorative fixtures below would be installed on existing Cobrahead davit arms, unless otherwise specified by the Town.

The price difference between Cobrahead fixtures and decorative fixtures is very noticeable, due to their aesthetic features and generally lower efficiencies. For 120 Cobrahead fixtures at a rough estimate of \$150/fixture, the Town can expect roughly \$18,000 of material cost. On the other hand, even with the most economical decorative option (Lumecon at ~\$39,000), the price difference will exceed, at minimum, \$20,000 between the Cobrahead and decorative fixtures.

QTY # 120	Graybar - Acuity Option 1	Graybar - Acuity Option 2	Lumecon	Speclines - King/Lumecon	Wesco - Cooper
					
<b>Total Price</b>	<b>\$144,765.60</b>	<b>\$114,510.00</b>	<b>\$38,760.00</b>	<b>\$178,080.00</b>	<b>\$40,440.00</b>
Average Lumen/Watt/\$ Score	1.1	1.4	5.0	0.9	4.6
Total Fixture Cost Score	8.0	10.2	30.0	6.5	28.8
10 YR Operations Score	35.3	35.3	22.5	45.0	33.3
Lumens/Watt Score	8.5	8.3	10.0	8.0	9.6
Aesthetics Score	8.0	8.0	4.0	10.0	4.0
<b>Total Weight</b>	<b>61.0</b>	<b>63.2</b>	<b>71.5</b>	<b>70.4</b>	<b>80.3</b>

**Note 1:** The above prices are for a quantity of 120 decorative fixtures. For the unit price, simply divide the Total Price by 120.

**Note 2:** The *Total Price* amount is estimated based on assumed original and replacement wattages and are thus for **evaluation purposes only**. This amount is subjected to change and should in no way be considered as a definitive amount for the project. The actual amount will be provided in the following IGA report once photometric designs are complete.

**Note 3:** Dollar amounts do **not** include prices for fitters. Fitter requirements will be evaluated on a case-by-case basis during the design phase and prices will be reflected in the IGA report as needed.

**Note 4:** The fixture color will need to be confirmed by the Town prior to the IGA.