

Energy Facility Siting Council

2020 Carbon Offset Rate
Advisory Committee
Meeting

Webex Meeting
May 13, 2020



Agenda

- **Introductions & Overview**
- **Review of Issues**
 - *Findings of Economic Achievability*
 - *Estimated Fiscal Impacts*
- **Public Comments**
- **Wrap Up and Next Steps**

Introductions

Introductions

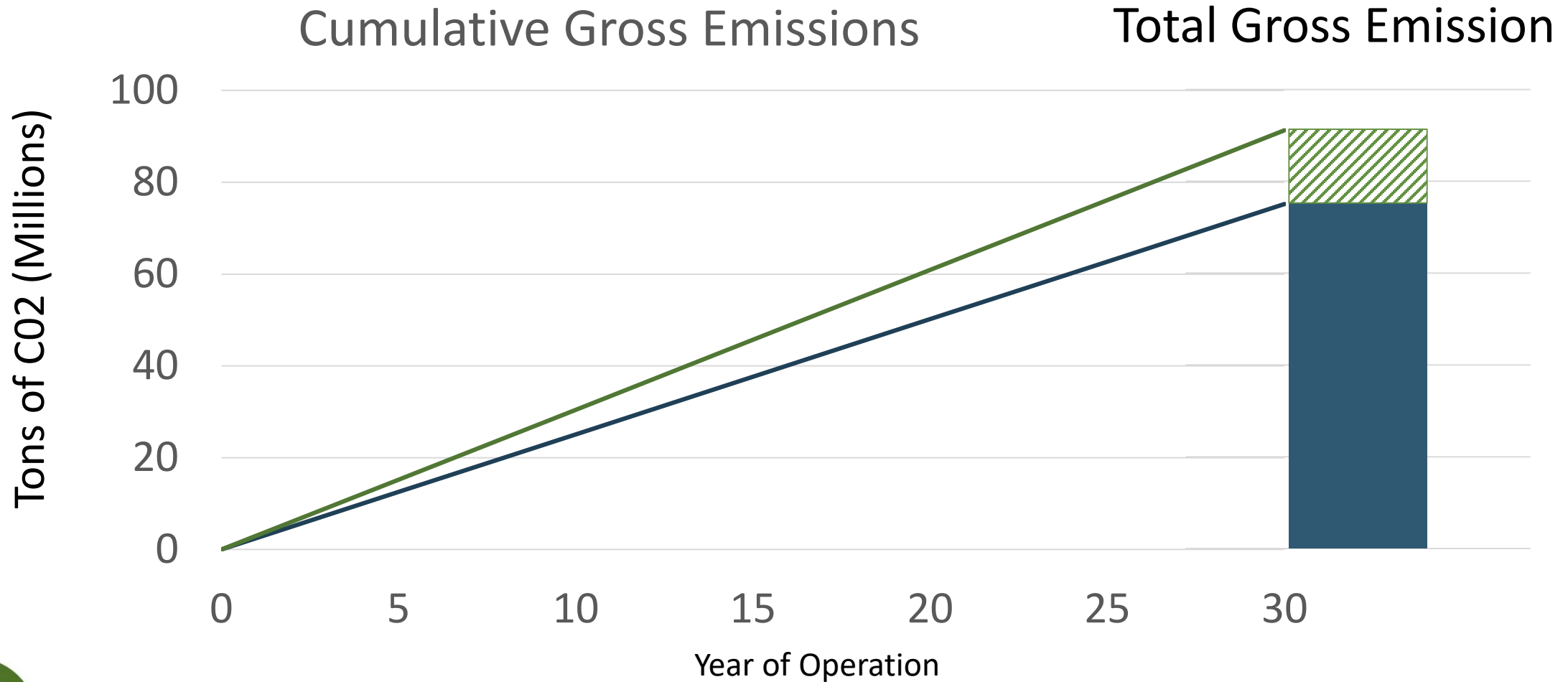
- Purpose of RAC is to obtain input from all stakeholders, consensus is not required.
- Please identify yourself when providing comment for the record.
- Please do not speak over other participants. If you wish to speak, rotate your tent card and wait to be recognized.
- An audio recording and notes of the meeting will be made available.

Overview

EFSC Carbon Standard

- To be issued a site certificate, applicants proposing to develop a carbon dioxide emitting energy facility must compliance with the applicable Carbon Dioxide Emissions Standard. To comply:
 - Net CO₂ emissions from a proposed fossil-fueled power plant may not exceed 0.614 lbs of CO₂/kilowatt hour (kWh) of net electric power output
 - Net CO₂ emissions from a proposed nongenerating energy facility (i.e. compressor station) may not exceed 0.459 lbs of CO₂/horse power hour (hp-h).

EFSC Carbon Standard (Example)



■ Cumulative Allowed Emissions

▨ Cumulative Excess Emissions

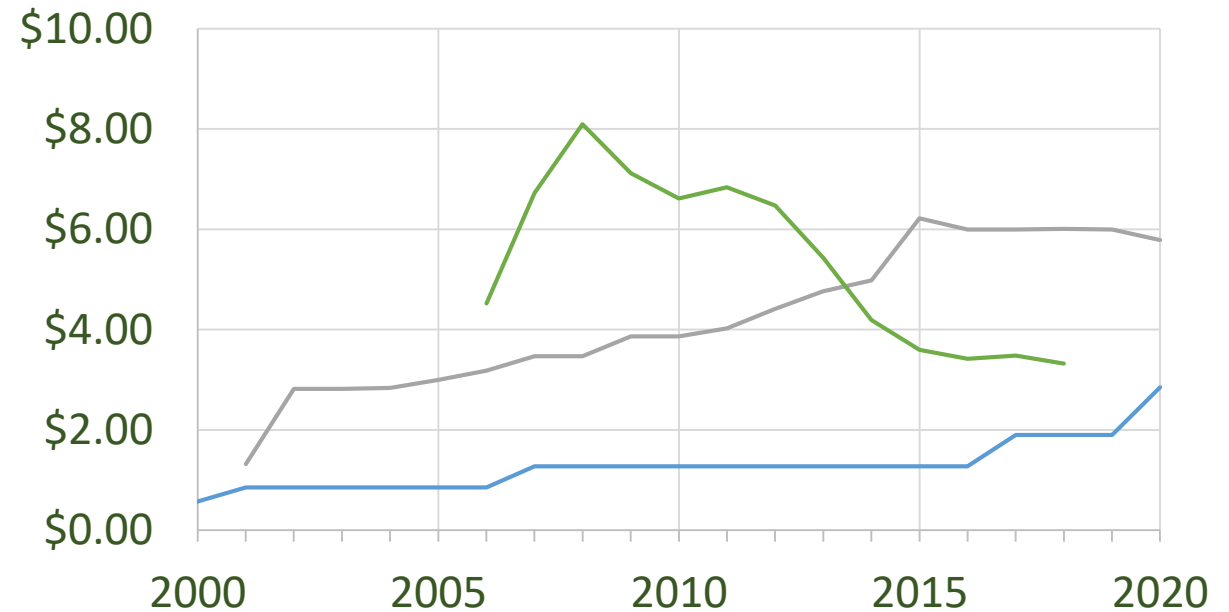
The Monetary Offset Rate

- Most applicants reduce net emissions through the “monetary pathway” by agreeing to provide funds to The Climate Trust (TCT) in “an amount deemed sufficient to produce any necessary reduction in greenhouse gas emissions.”
- The monetary pathway uses an assumed monetary offset rate to determine the amount of funds that is sufficient to produce the equivalent of a one ton reduction in carbon dioxide emissions.
- ORS 469.503(2)(c)(C) authorizes the Council to increase or decrease the monetary offset rate by up to 50 percent in any two year period.
- Any change in the rate must be based on:
 - Empirical evidence of the cost of offsets and
 - The council’s finding that the standard will be economically achievable.

Proposed Rate Increase

- More than two years have passed since the rate was last increased, rate may be changed by up to 50%.
- Empirical evidence shows that the current rate is approximately one-third of the actual cost of offsets negotiated by TCT.
- The Governor has issued Executive Order 20-04 directing state agencies to take actions to reduce and regulate greenhouse gas emissions.

Carbon Offset Rate, Prices & Costs 2000-2020
(\$/US Ton CO₂e)

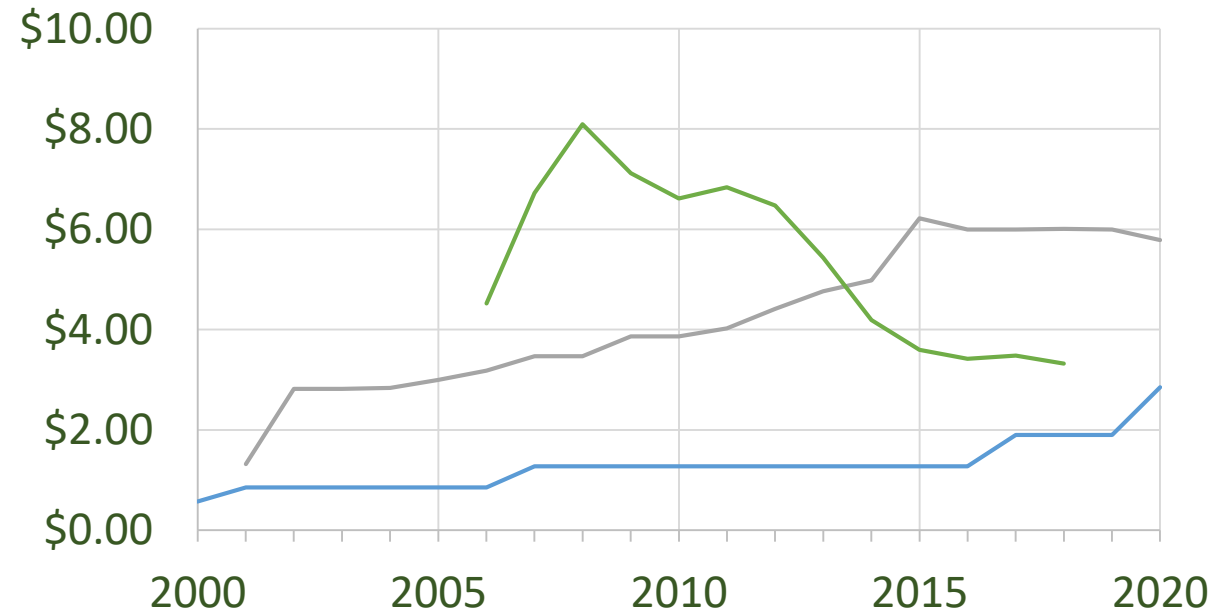


— EFSC Rate — TCT Avg. Price — Avg. Voluntary Market Price

Proposed Rate Increase

- Based on the empirical evidence of the cost of offsets negotiated by TCT, staff recommends that the maximum 50 percent increase is justified.
- Staff recommends the new rate be set at \$2.85 per ton of CO₂,

Carbon Offset Rate, Prices & Costs 2000-2020
(\$/US Ton CO₂e)



— EFSC Rate — TCT Avg. Price — Avg. Voluntary Market Price

Review of Issues

Findings of Economic Achievability

- ORS 469.503(2)(c)(C), “* * * Any change to the monetary offset rate shall be based on *** the council’s finding that the standard will be economically achievable with the modified rate for natural gas-fired power plants. ***”
- “Economically Achievable” is not further defined.

Recommended Indicators

- Staff recommends the following indicators be used to determine economic achievability:
 - *Indicator #1: % Increase in Costs of Developing a New Natural Gas-Fired Power Plant*
 - *Indicator #2: \$ Increase in Cost of Electricity from a New Natural Gas-Fired Power Plant*

Calculation of Indicators*

Indicator #1

$$\frac{\text{Total Excess Emissions} * \$0.95}{\text{Total Construction Costs}} = \% \text{ Increase in Development Costs}$$

Indicator #2

$$\text{Excess Emissions Rate} * \$0.95 = \text{Increase Costs of Producing Electricity}$$

Committee Discussion

- Are these appropriate indicators of economic achievability?
- Should any other indicators should be considered?
- When is a proposed increase economically achievable (or not) based on the indicators?

Recommended Reference Data

Staff Considered three potential data sources for cost and performance estimates for new gas-fired power plants:

- Perennial Wind Chaser Facility Application Materials
- Reference Cases from Integrated Resource Plans
- Reference Cases from 2020 Annual Energy Outlook (US EIA)

Recommended Reference Data

Based on availability and generalizability, staff recommends using reference cases from the 2020 Annual Energy Outlook.

Description	Net Capacity (MW)	Total Capital Costs (2019 \$/kw)	Avg. Full Load Heat Rate (HHV Btu/KWh)
Combined-Cycle Combustion Turbine (1x1x1)	418	\$ 1,135	6431
Combined-Cycle Combustion Turbine (2x2x1)	1083	\$ 985	6370
Reciprocating Internal Combustion Engine (RICE)	21	\$ 1,904	8295
Single-Cycle Combustion Turbine – Aeroderivative	105	\$ 1,212	9124
Single-Cycle Combustion Turbine – Industrial Frame	237	\$ 737	9905

Committee Discussion

- Are these data appropriate?
- Should other data be considered for generating or non-generating facilities?

Results & Findings*

Indicator #1: Increase in Development Costs

$$\frac{\text{Increased Cost of Compliance}}{\text{Total Construction Costs}} = \frac{\$5.7 \text{ Million}}{\$376.3 \text{ Million}} = 1.5\% \text{ Increase}$$

Indicator #2: Increase in Cost of Producing Electricity

$$\text{Excess Emissions Rate} * \$0.95 = .162 \text{ ton/MWh} * \$0.95 = \$0.15/\text{MWh}$$

Results & Findings

- Staff estimates that the proposed increase would increase the costs of developing a new natural gas power plant by an average of 1.5%. This would represent an additional \$0.15 per megawatt hour of electricity produced by a new natural gas-fired power plant.
- Staff recommends that these modest increases are not likely to affect the economic achievability of the Council Standard for natural gas-fired power plants.

Committee Discussion

- Do you have additional feedback on the accuracy/presentation of the results and methods?
- Do you have additional feedback on the interpretation of the results and recommended findings?

Estimated Fiscal Impacts

- Staff recommends using the results of the economic achievability analysis to estimate the costs of the proposed increase and the Social Cost of Carbon to estimate the benefits.
- The SCC represents the net present value of the economic damages associated with emitting one ton of carbon dioxide.
- We used an SCC of \$58 based on the last central estimates from the federal Interagency Working Group on the Social Cost of Greenhouse Gases (IWG)

Estimated Fiscal Impacts

Increase in Offset Funds * Cost of Offsets = Average Reduction in Net CO2 Emissions

$$\$0.15/MWh * \$6.00/tCO_2e = .0257 tCO_2e/MWh$$

Average Reduction in Net CO2 Emissions * SCC = Social Benefit of Rate Increase

$$.0257 tCO_2e/MWh * \$58/tCO_2e = \$1.48/MWh$$

Social Benefit of Rate Increase – Increase in Cost of Compliance = Net Social Benefit

$$\$1.48 - \$0.015 = \mathbf{\$1.33/MWh \textit{ Net Social Benefit}}$$

Estimated Fiscal Impacts

- Staff Notes that while an average \$1.33/MWh net benefit is expected, the rate impact will not affect previously approved site certificates.
- Impact for non-generating facilities is not clear, similar magnitude expected.
- The total impact, if any, is unknown. No applications or requests for amendment for carbon dioxide emitting facilities are currently under review.

Committee Discussion

- Does the estimate accurately reflect the extent of the fiscal impacts of the proposed rules?
- Are any significant adverse impacts on small businesses that are not identified?

Public Comment



Wrap-up & Next Steps

Thank You

If you have questions about this rulemaking project please contact the Council's Rulemaking Coordinator, Christopher Clark by email at EFSC.rulemaking@oregon.gov or call 503-373-1033.