# Clean Energy Compliance Options for EGUs

## April 13, 2023 Stakeholder Meeting with Independent Power Producers

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**Air, Energy, and Materials Sustainability**

Please also note this meeting is for informational purposes only. The concepts and ideas presented and discussed do not reflect any final decision making.

As a courtesy to all, please make sure your microphone is muted at this time.

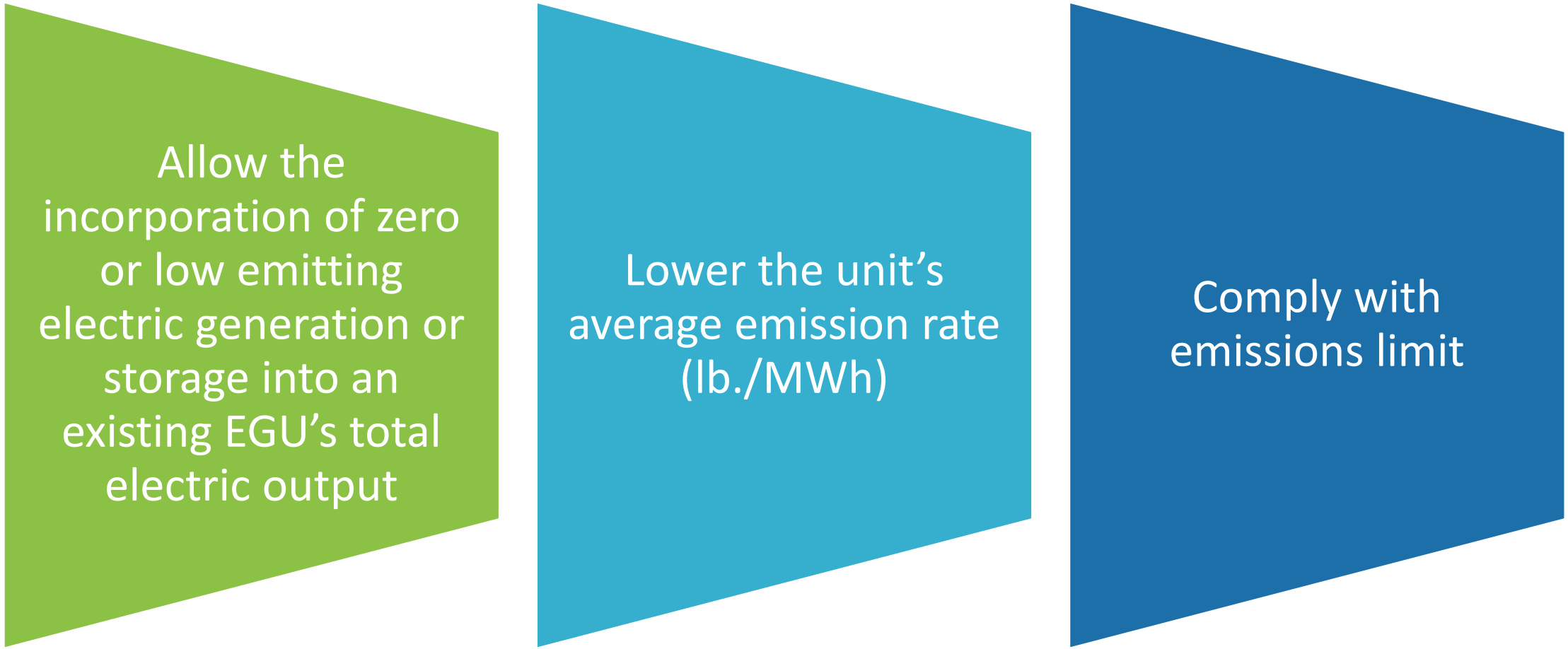
# Agenda

01

Introduction of the rulemaking concept and potential applicability

# Rulemaking concept:

# Clean Energy Compliance Options for Existing EGUs



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## Potential clean energy technologies

- Grid Supply Solar
- Behind The Meter Solar
- RNG/Hydrogen
- Battery Storage
- Fuel Cells
- Other?

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# Why is the Department considering rulemaking to allow clean energy compliance options for existing EGUs?

- Comments received
- Reliability
- Leakage
- Investment and deployment of clean energy

# Control and Prohibition of $CO_2$ Emissions Rule

| Applicability of potential clean energy options? | Compliance deadline for existing EGUs | Emission limit | # EGUs with emission rates that exceed the limit based on 2021 data |
|---|---|---|---|
| | June 1, 2024 | 1,700 lb $CO_2$/MWh gross energy output | 9 |
| ✓ | June 1, 2027 | 1,300 lb $CO_2$/MWh gross energy output | 12 |
| ✓ | June 1, 2035 | 1,000 lb $CO_2$/MWh gross energy output | 32 |

# EGUs that emit between 1,300 lb/MWh and 1,700 lb/Mwh (based on 2021 data)

| Facility Name | Unit ID | Operating Time (hours) | $CO_2$ Emission Rate (lb/MWh) |
|---|---|---|---|
| Sherman Avenue Energy Center | 1 | 186 | 1,606 |
| Forked River Power | 2001 | 143 | 1,599 |
| Linden Generating Station | 8 | 119 | 1,563 |
| Forked River Power | 3001 | 157 | 1,560 |
| Linden Generating Station | 7 | 118 | 1,501 |
| Linden Generating Station | 6 | 107 | 1,388 |
| Linden Generating Station | 5 | 124 | 1,360 |
| Gilbert Generating Station | 9 | 131 | 1,337 |
| Kearny Generating Station | 132 | 448 | 1,335 |
| Kearney Generating Station | 133 | 618 | 1,312 |
| Kearny Generating Station | 131 | 521 | 1,306 |
| Kearny Generating Station | 134 | 635 | 1,301 |

# General discussion points

- If available, would you consider utilizing clean energy to meet your compliance obligations?
- Long-term vs. short-term?
- Are there specific challenges and obstacles for an owner/operator that would make a clean energy compliance option less/more desirable or feasible?

# Discussion points: clean energy compliance options

| Grid supply solar | Behind the meter solar | RNG/Hydrogen | Battery storage | Fuel cells | Other? |
|---|---|---|---|---|---|

Is the technology advanced enough to incorporate for the 2027 and 2035 compliance dates?

Is it economically feasible?

Are there operational, safety, or regulatory (federal or local level) matters to be considered?

Environmental impacts?

Lifespan of the technology (does it degrade/lose efficiency over time)?

Locational considerations?

Monitoring, recordkeeping, reporting challenges?

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# Discussion points:

# Emissions calculations and methodology

- What emissions averaging methodology(ies) should the Department use?
- Are there other approaches besides averaging?
- How should peak versus non-peak emission rates be measured for battery storage?

# Compliance hypothetical using solar

The $CO_2$ limit for an EGU operating after June 1, 2027 is **1,300 lb/MW-hour.**

An EGU with an average output of 100 MW is operating 500 hours per year, with a $CO_2$ emission rate of **1,400 lb/MW-hour**.

The annual $CO_2$ emissions would be:

100 MW x 1,400 lb/MW-hr x 500 hours per year =

**70,000,000 lb $CO_2$ per year**

# Compliance hypothetical using solar (continued)

If the EGU has a qualifying solar capacity of **3.0 MW** operating with a **20% capacity factor**, the resulting $CO_2$ emission rate would be:

70,000,000 lb per year/((100 MW x 500 hours per year) + (0.2 x 3.0 MW x 8,760 hours per year))=

**1,270 lb/MW-hr**

The EGU would be in compliance with the $CO_2$ emission limit of **1,300 lb/MW-hr**.

# Discussion

- General
- Clean energy options
- Emissions calculations and methodology
- Other?

# Next steps

- If you are interested in providing written comments, please send to **njclimate@dep.nj.gov** by May 31, 2023.

# Thank you for attending