DIVISION OF AIR QUALITY
AIR QUALITY, ENERGY, AND SUSTAINABILITY

NJ GHG STATIONARY SOURCE PACT RULE
PHASE OUT OF HEAVY OILS
INTRODUCTION

• Gwladys Boukpessi

• Environmental Engineer Trainee

• Bureau of Stationary Sources
  Division of Air Quality
  NJDEP
Figure 4 from 2019 NJ Energy Master Plan (EMP): New Jersey carbon emissions today largely come from gasoline use in vehicles and natural gas use in buildings and power plants. Source: New Jersey Department of Environmental Protection.

80x50 goal
Reduce economy-wide emissions to 80% below 2006 levels

100% Clean Energy
NJ electricity sector is carbon-neutral by 2050.
Carbon intensity of selected fuels
kilograms CO2 per million British thermal units

- coal
  - anthracite (104)
  - lignite (98)
- subbituminous (97)
- bituminous (93)
- diesel and heating oil (73)
- gasoline (71)
- propane (63)
- natural gas (53)

Source: U.S. Energy Information Administration, Monthly Energy Review and Carbon Dioxide Emissions Coefficients
NJDEP is considering ways to gradually eliminate high carbon intensity fuels.

Proposed phasing out heavy fuels such as No. 6 and No. 4 fuel oil, as well as solid fuels and other dirty liquid fuels.

Over time, NJDEP will consider increasing stringency on other fuel types (e.g., No.2 fuel oil, gasoline, diesel, etc.)
ENERGY MASTER PLAN (EMP) STRATEGIES

- There are 7 Strategies outlined in the 2019 EMP

- By phasing out higher carbon intensity fuels, NJDEP hopes to encourage industry to embrace 4 out of the 7 strategies:
  
  - Strategy #1: Reduce Energy Consumption and Emissions from the Transportation Sector
  
  - Strategy #3: Maximize Energy Efficiency and Conservation and Reduce Peak Demand
  
  - Strategy #4: Reduce Energy Consumption and Emissions from the Building Sector
  
  - Strategy #6: Support Community Energy Planning and Action with an Emphasis on Encouraging and Supporting Participation by Low- and Moderate-Income and Environmental Justice Communities
CURRENT STANDARDS

• The Department does not have an existing carbon intensity standard for fuels

• The Department is not aware of other jurisdictions that impose a carbon intensity standard for fuels used in stationary sources.

• The Department is not aware of an existing carbon intensity standard for fuels as imposed by the EPA or any other Federal Agency
**DISCUSSION TOPIC: FUEL TYPE**

- Which fuel types should the Department consider phasing out?

- How do we create a balance of the various carbon intensity fuel types and green energy?
DISCUSSION TOPIC: TIMING

- Which fuel sources can we phase out now, and which should we phase out later?

- What should the projected timeline be for phasing out each fuel type?
DISCUSSION TOPIC: HOW?

- Ultimately, how will we make this happen?
- Which sources can/should be covered?
- Should there be any exemptions (for resilience; to accommodate certain engines that cannot be electrified?)
- How can we successfully implement these ideas?
IDEAS UNDER CONSIDERATION

• Goal: Reduce the carbon intensity of fossil fuels combusted within the State

• New Rule Consideration: Phasing out the sale/use of fossil fuels that do not meet specified carbon intensity (\(\text{CO}_2/\text{Btu}\)) standards
Table 1.3-12. DEFAULT CO₂ EMISSION FACTORS FOR LIQUID FUELS

<table>
<thead>
<tr>
<th>Fuel Type</th>
<th>%C&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Density&lt;sup&gt;c&lt;/sup&gt; (lb/gal)</th>
<th>Emission Factor (lb/10&lt;sup&gt;3&lt;/sup&gt; gal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. 1 (kerosene)</td>
<td>86.25</td>
<td>6.88</td>
<td>21,500</td>
</tr>
<tr>
<td>No. 2</td>
<td>87.25</td>
<td>7.05</td>
<td>22,300</td>
</tr>
<tr>
<td>Low Sulfur No. 6</td>
<td>87.26</td>
<td>7.88</td>
<td>25,000</td>
</tr>
<tr>
<td>High Sulfur No. 6</td>
<td>85.14</td>
<td>7.88</td>
<td>24,400</td>
</tr>
</tbody>
</table>

<sup>a</sup> Based on 99% conversion of fuel carbon content to CO₂. To convert from lb/gal to gram/cm³, multiply by 0.12. To convert from lb/10<sup>3</sup> gal to kg/m³, multiply by 0.12.
Costs:

- No anticipated new capital costs
- Only if necessary, to upgrade equipment, capital costs would be between $255 to $345 per horsepower
- However, any initial cost will be offset by savings in operation costs

Benefits:

- Estimated net reductions in emissions
  - 92 metric tons/per year CO2
  - 1.19 metric tons/year NOx
  - 2.66 metric tons/year SO2
  - 0.198 metric tons/year PM2.5/10
  - Reductions of other pollutants, such as HAPS
QUESTIONS?
REQUEST FOR COMMENTS

• By September 17, 2020, please send comments and/or technical support information to:

   NJairrulesstationary@dep.nj.gov

• Please use the following heading in the Subject Line of the email:

   “NJ PACT: EGUs”