Maine
Transportation
Inventory &
Baseline
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NESCUM Transportation GHG Inventory (1990-2000)
CCAP Analysis of Historic Fuel Sales and VMT data

- There is often a discrepancy between trends in state data on fuel sales and fuel consumption (derived from VMT)
  - Can manifest as apparent increase or decrease in mpg
  - due for example, to out-of-state travel, or data inconsistencies

- CCAP found only minor differences in Maine
  - Our attempt to address the discrepancy made a 4-7% change in historic transportation GHG emissions, which is within the likely uncertainty of the calculation

- Therefore we do not recommend any adjustment
  - More thorough examination of individual fuels might lead to improved data, but is beyond the scope of this process
VMT Forecast: Maine DOT and USDOE

- ME DOT VMT forecast = 18.8% growth (2000 – 2020)

- ME DOT has noted that the Travel Demand model under-predicted VMT growth from 1995-2001 by about 9%. They noted that this may be due to:
  - Inadequate estimate of number of trips or trip lengths, or
  - Growth in socioeconomic variables (population, households, jobs) growth may have outpaced model inputs

- ME DOT plans to update the statewide Travel Demand model in late 2004

  - Gasoline Vehicles: +37.7%, Diesel Vehicles: +46.4%
  - Assumes population growth of 9% and 79% US GDP growth
Actual vs. Predicted VMT Growth

![Graph showing actual vs. predicted VMT growth from 1995 to 2001. The graph compares actual growth (reported by ME DOT) with predicted growth (Maine DOT Model). The actual growth shows a steady increase over the years, while the predicted growth shows a slightly different trend.](image-url)
Which VMT Forecast?

- The State will use the updated VMT forecast for the transportation GHG baseline, when it becomes available (i.e., late 2004)
- For now, we need working group input to develop an interim baseline that we can use in the time frame of the Maine GHG process

Current Options for Interim Forecast:
- Use Maine DOT estimate for VMT growth (18.8%)
- Use U.S. DOE estimate from New England (≈ 40%)
- Use something in between?
Draft Transportation GHG Forecast

- For illustrative purposes, we have used the Maine DOT VMT forecast to calculate gasoline and diesel use
  - **Using US DOE vehicle technology forecasts**
    - Passenger Vehicles: 5.6% mpg increase (2001-2020)
    - Freight Trucks: 8.3% mpg increase (2001-2020)
- For other fuels (≈ 11% of total) we used USDOE regional growth rates for lack of Maine-specific data
Draft Transportation Baseline with Maine and USDOE VMT Data

- Red line with USDOE VMT data
- Blue line with Maine DOT VMT data
- Green line NESCAUM Inventory
Initial Black Carbon Estimate

- Context: Black Carbon may responsible for up to 25% of global warming to date
- Goal: Incorporate new scientific research to develop a comprehensive baseline
- Methodology for Initial Estimate
  - Use emissions factors developed by Energy and Environmental Analysis, Inc.
  - Calculate CO₂ equivalence based on the findings of Prof Mark Jacobson of Stanford University
    - Developed by Environment Northeast in CT process
  - Refine methodology as scientific understanding evolves
Estimating 2020 Black Carbon Emissions

- Lacking adequate vehicle inventory data and turnover rates we have for now assumed 2020 BC levels are the same as 2000
  - Conservative assumption because excludes growth after 2000
  - Reflects the 2007 EPA rules for new diesel vehicles
  - Assumes that by 2020 only a small portion of the total diesel fleet will have been replaced

- Potential policy opportunity window exists to retrofit or replace more polluting vehicles
  - Black carbon savings can be as high as 75% -90%
Draft Transportation Baseline with Black Carbon

* Based on Maine DOT VMT forecast
# Impact of Black Carbon on Draft Baseline (compared to 1990)

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<tr>
<th></th>
<th>1990</th>
<th>2010</th>
<th>2020</th>
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<tr>
<td>Baseline</td>
<td>8,477</td>
<td>9,910</td>
<td>10,925</td>
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<tr>
<td>Percent above 1990</td>
<td>17%</td>
<td>29%</td>
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<tr>
<td>Baseline with Black Carbon</td>
<td>11,019</td>
<td>12,303</td>
<td>13,318</td>
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<tr>
<td>Percent above 1990</td>
<td>12%</td>
<td>21%</td>
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