
Darlene Steward and Ted Sears, NREL

EPRC6, Santa Fe, New Mexico
September 8–9, 2016

NREL/PR-6A20-67065
Energy Policy Act (EPAct) alternative fuel vehicle (AFV) programs and goals

Research questions:
• Did EPAct help create markets for alternative fuels and vehicles?
• How much have EPAct programs helped people and the environment?
EPAct Alternative Fuel Vehicle Programs

• State and Alternative Fuel Provider (SAFP) Fleet program
  o Covered fleets must comply with AFV acquisition requirements
  o Alternative fuel provider fleets include electric and natural gas utilities

• Sustainable Federal Fleets program
  o Federal fleets must comply with alternative fuel use requirements

• Clean Cities
  o Voluntary program supports nearly 100 local coalitions working to advance alternative fuels and advanced vehicles
### EPAct Alternative Fuels in Context

#### Million GGE in 2014

<table>
<thead>
<tr>
<th>Alternative fuel (EPAct fuels)</th>
<th>National</th>
<th>EPA SAFP and Federal Fleet Programs</th>
<th>EPAct Programs Percentage of National Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural gas (CNG, LNG)</td>
<td>6,720</td>
<td>4</td>
<td>0.07</td>
</tr>
<tr>
<td>Biofuels excluding ethanol blended with conventional gasoline (biodiesel, E85)</td>
<td>2,240</td>
<td>34</td>
<td>1.52</td>
</tr>
<tr>
<td>Electricity, propane, and other fuels (electricity, propane, hydrogen)</td>
<td>6,720</td>
<td>1</td>
<td>0.01</td>
</tr>
</tbody>
</table>

The number of AFVs in EPAct programs has increased steadily, but the EPAct programs’ fraction of the total number of AFVs tracked by the Energy Information Administration (EIA) nationally has decreased significantly
EPAct SAFP fleets converted vehicles to operate on compressed natural gas (CNG), which might have motivated manufacturers to offer more models.
EPAct SAFP fleets consistently used more biodiesel than they were able to get credit for.
EPAct fleets have sought fewer exemptions because of the increased availability of alternative fuels and AFVs.
EPAct fleets’ greenhouse gas (GHG) savings have been equivalent to removing almost 30,000 vehicles from the road per year in recent years.

SAFP fleets’ use of biofuels directly and indirectly supported more than 130 jobs and more than $20 million in economic activity each year.
Greater geographic distribution of smaller production plants makes biofuels less vulnerable to disruptions from weather events than conventional gasoline and diesel supplies.
DOE and industry partners have addressed longer-term weather and climate vulnerabilities of biofuels production with research in cellulosic feedstocks.

- Successful opening of a 30-million gallon-per-year plant in 2015

After Hurricanes Katrina and Rita:
- 27 refineries went offline
- 90% of oil production in the Gulf of Mexico remained shut-in after 12 weeks

Vulnerabilities of conventional fuel production are difficult to address.
Summary

EPAct fleets’ acquisitions of AFVs and use of alternative fuels:

• Provided early and reliable demand for both AFVs and alternative fuels, especially ethanol and biodiesel

• Alternative fuel production benefitted the economy by supporting more than 130 jobs and $20 million in economic activity annually

GHG savings in recent years are equivalent to removing almost 30,000 vehicles from the road annually

Biofuels are likely to be more sustainable and resilient than the petroleum fuels they are replacing
Acknowledgments

This work was authored by the National Renewable Energy Laboratory, operated by Alliance for Sustainable Energy, LLC, for the U.S. Department of Energy (DOE) under Contract No. DE-AC36-08GO28308. Funding provided by the DOE Office of Energy Efficiency and Renewable Energy Vehicle Technologies Program and EPAct State and Alternative Fuel Provider Program.

U.S. Government Rights Notice:
The views expressed in the article do not necessarily represent the views of the DOE or the U.S. Government. The U.S. Government retains and the publisher, by accepting the article for publication, acknowledges that the U.S. Government retains a nonexclusive, paid-up, irrevocable, worldwide license to publish or reproduce the published form of this work, or allow others to do so, for U.S. Government purposes.
Thank You!

Darlene Steward
darlene.steward@nrel.gov

Ted Sears
ted.sears@nrel.gov