CAFE Standards for MY 2017-2025 – the new National Program

Presentation for National Conference of State Legislatures
December 6, 2012

What are we talking about today?

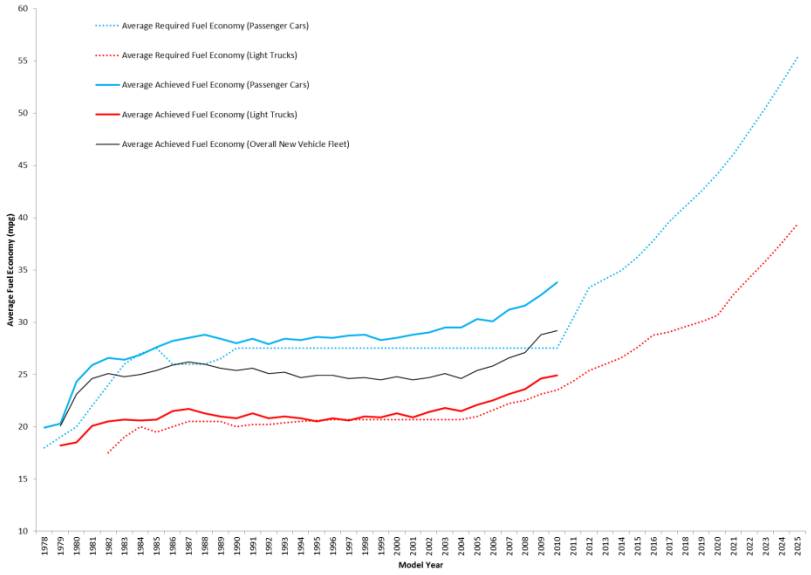
- What is CAFE?
- What steps has the Obama Administration taken to raise CAFE standards?
- What are the effects of the Administration's actions?
- What happens next?

What is CAFE?

- Corporate Average Fuel Economy
  - Standards for passenger cars and light trucks
  - Require vehicles to go further on a gallon of gas to reduce energy consumption and our dependence on imported oil
- Standards "maximum feasible" for each fleet, each year since the late 1970s
  - Balancing statutory factors and safety
- Since 2007, additional statutory requirements
  - Attribute-based
  - 35 by 2020
  - Increase ratably
  - Minimum standard for domestic passenger cars

How have CAFE standards changed over time?

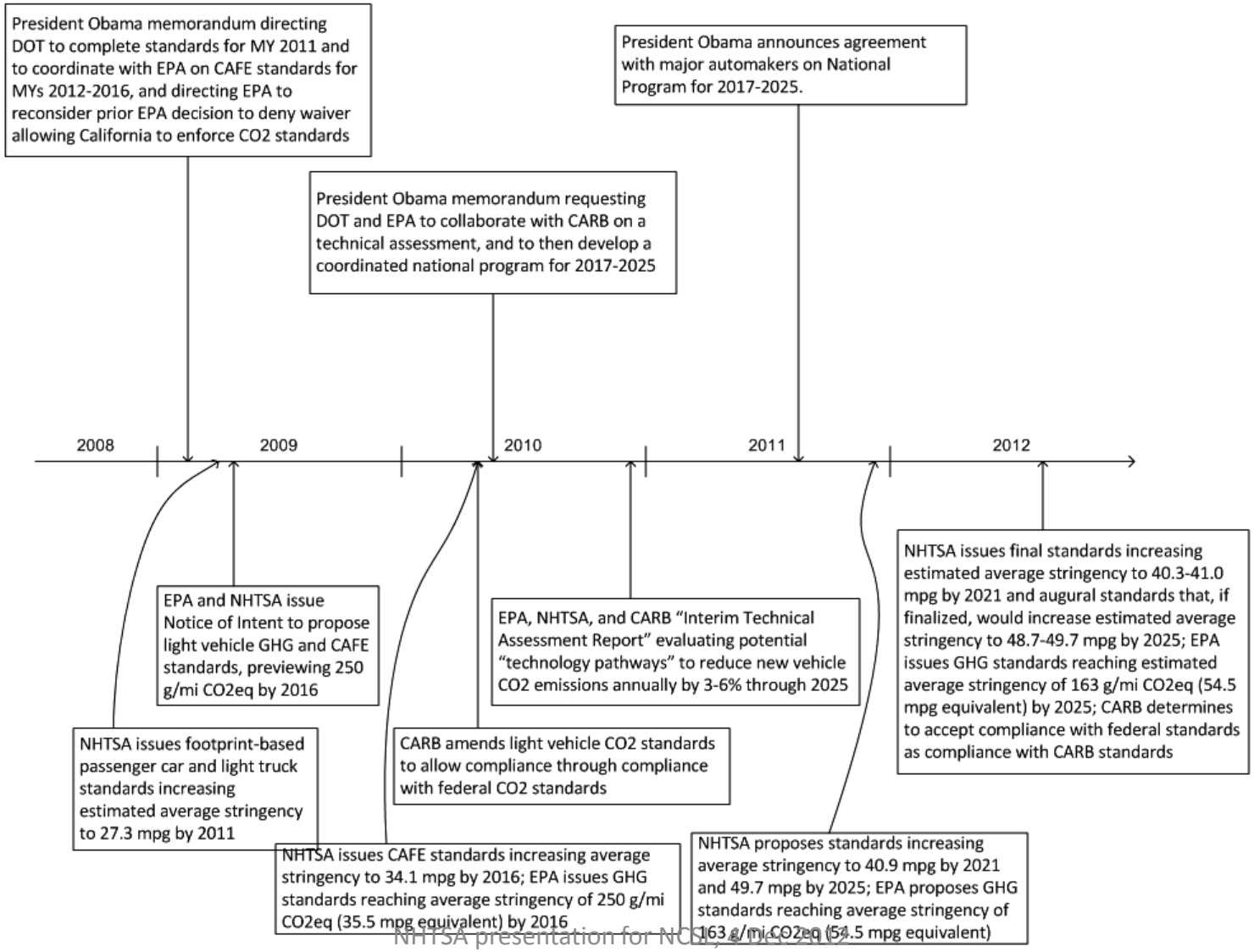
Periods of stasis*, periods of rapid increase:



Structural changes over time:

- EPCA (1975):
  - Flat standards, cars = 27.5 mpg
- NHTSA light truck rulemaking (2006):
  - Attribute (footprint)-based for MYs 2008-2011 trucks, result of recommendation from NAS
- EISA (2007):
  - Codified attribute-based approach for both fleets
  - Expansion of existing compliance flexibilities

CAFE program under Obama



Overview of National Program for MY 2017-2025

- Builds on success of MYs 2012-2016 National Program
  - Combined with CAFE standards issued earlier under Obama Administration, increases fuel economy by about 60% and reduces GHG emissions by about 35% compared to MY 2010 vehicles
- Helps automakers continue to manufacture a single fleet to meet both federal and state-level regulations – avoids “patchwork”
- Attribute-based approach ensures consumers will continue to have a full range of vehicle choices, with performance, utility, and safety that meets their needs

Public participation – a new approach

- Extensive public input and in-depth research/technical evaluation throughout development of the 2017-2025 standards:
  - May 21, 2010: Obama memorandum directing NHTSA and EPA to develop new National Program for 2017-2025 and to work with CARB on a technical assessment to inform that effort
    - Agencies and CARB met extensively with stakeholders (OEMs, suppliers, etc.) to gather input for TAR
  - Sept. 2010: Interim TAR and Notice of Intent issued, agencies seek comment
    - OEMs and other stakeholders comment; agencies spend next couple of months gathering information
  - Nov/Dec 2010: Agencies review public input and describe plans for continued technical assessment of new standards in a second NOI

Public participation, continued

- Extensive stakeholder engagement between Dec. 2010 and July 29, 2011:
  - Dec. 2010-June 20, 2011: further discussions with industry on wide range of topics
  - June 21, 2011-July 14, 2011: meetings with OEMs to share initial footprint curves and flexibility mechanisms
  - July 15, 2011-July 28, 2011: continued meetings with OEMs to refine footprint curves, compliance flexibilities, other aspects of proposal
- President announces plans for MY 2017-2025 program in July 2011 with support from 13 automakers representing 90% of U.S. market, UAW, California, environmental and consumer groups; agencies concurrently issue third NOI describing upcoming proposed standards
- Nov. 2011: NPRM
  - In response, nearly 400 testifiers across 3 public hearings, and 300,000 written comments including about 140 organizations; continued meetings with OEMs to discuss compliance flexibilities
- Benefits to stakeholder engagement: more support, fewer unexpected comments

What does the final rule establish?

- NHTSA CAFE standards -- final for MYs 2017-2021, "augural" for MYs 2022-2025; EPA standards final for all 9 model years
  - "Mid-term evaluation" a central concept for gaining OEM support
- Footprint-based standards, same as MY 2011-2016 standards
- Variety of compliance flexibilities

Final rule rates of stringency increase and estimated fleet performance

Standards	MYs 2017-2021	MYs 2022-2025
Passenger car		
CAFE	3.8%-3.9%	4.7%
GHG	5.0%	5.0%
Light truck		
CAFE	2.5%-2.7%	4.8%-4.9%
GHG	3.5%	5.0%

Est. fleet performance	Passenger cars		Light trucks		Combined	
	CAFE mpg	GHG g/mi CO_2	CAFE mpg	GHG g/mi CO_2	CAFE mpg	GHG g/mi CO_2
MY 2021	46.1-46.8	172	32.6-33.3	249	40.3-41.0	199
MY 2025	55.3-56.2	143	39.3-40.3	203	48.7-49.7	163

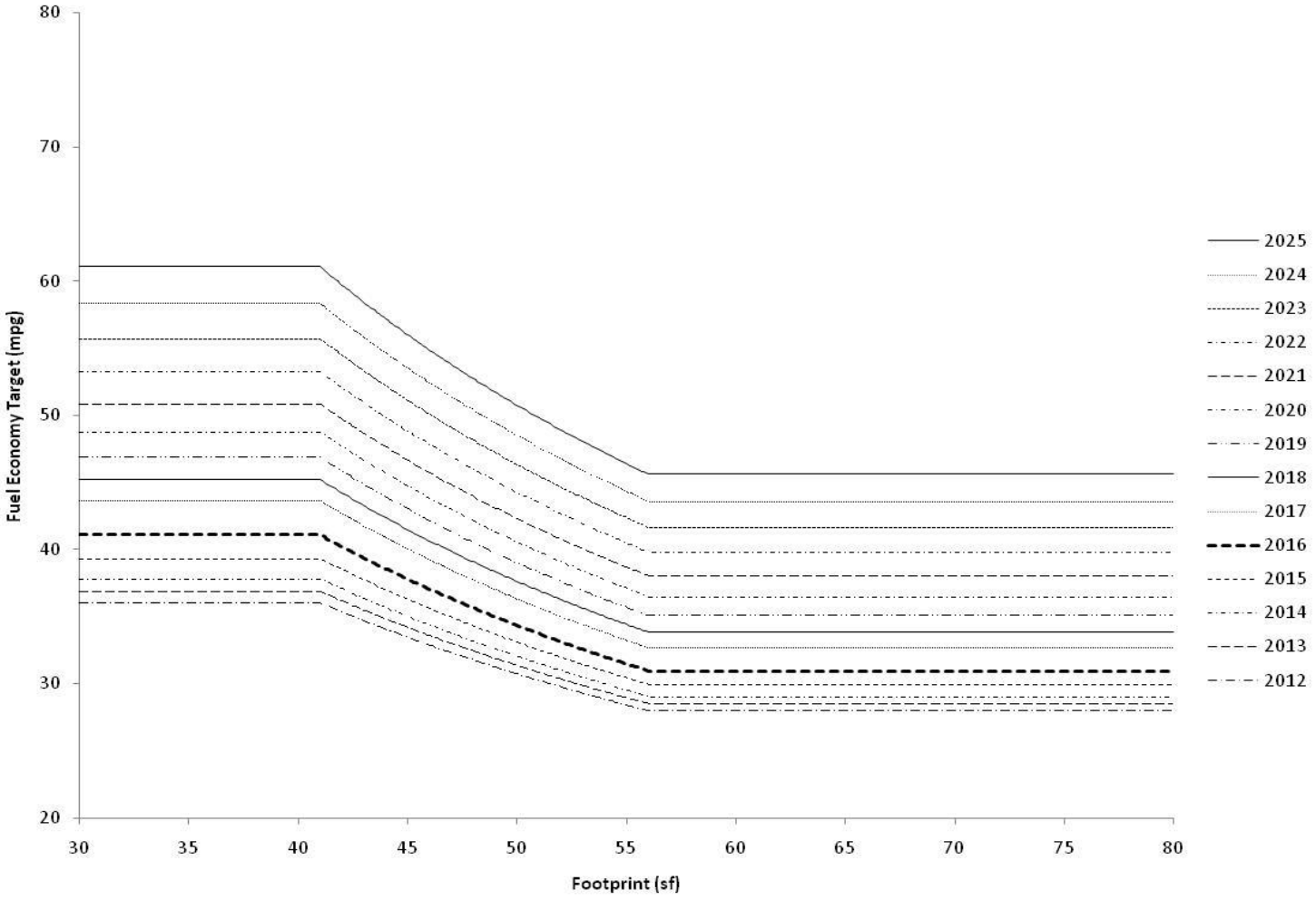
Footprint-based standards

- Footprint curves assign a specific MPG or CO_2 target for each vehicle based on its footprint (roughly the area between the tires)
- Each manufacturer has a unique car fleet standard and unique truck fleet standard, based on the sales-weighted distribution of vehicles it produced and derived from the footprint curves applicable to all manufacturers

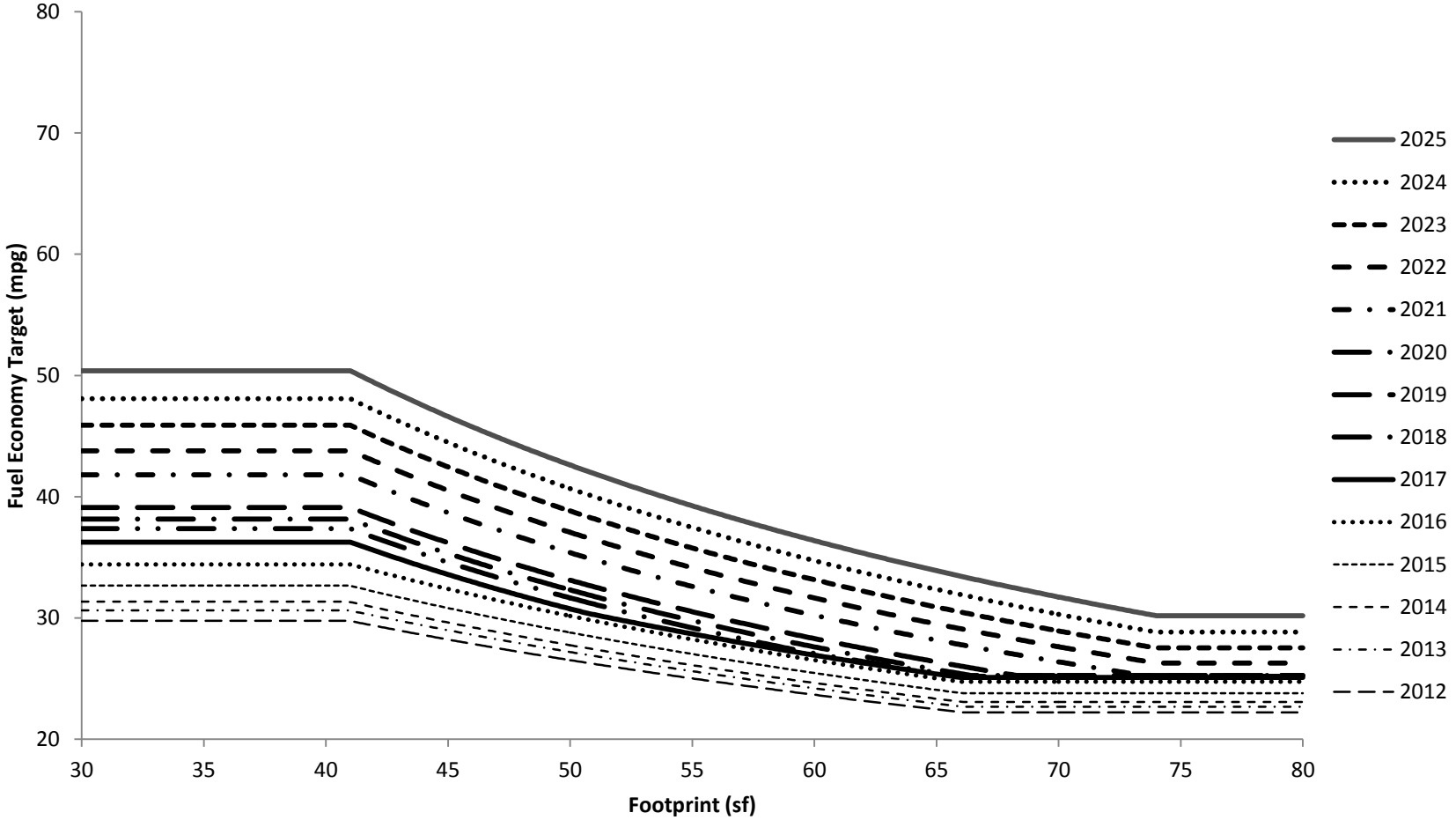
Vehicle Type	Example Models	Example Model Footprint (sq. ft.)	EPA CO_2 Emissions Target (g/mi)*	NHTSA Fuel Economy Target (mpg)*
Example Passenger Cars				
Compact car	Honda Fit	40	131	61.1
Mid-size car	Ford Fusion	46	147	54.9
Full-size car	Chrysler 300	53	170	48.0
Example Light-duty Trucks				
Small SUV	4WD Ford Escape	43	170	47.5
Midsize crossover	Nissan Murano	49	188	43.4
Minivan	Toyota Sienna	56	209	39.2
Large pickup truck	Chevy Silverado (extended cab, 6.5 foot box)	67	252	33.0

* In real-world, typically CO_2 is 25% higher and fuel economy is 20% lower than the values here

CAFE Target Curves for Passenger Cars



CAFE Target Curves for Light Trucks



Vehicle Technologies

- A wide range of technologies is available for automakers to meet the new standards
  - Advanced gasoline engines and transmissions, vehicle mass reduction, improved aerodynamics, lower rolling resistance tires, diesel engines, more efficient accessories, improvements in air conditioning systems
- Our analysis projected that automakers will increase electric technologies, such as start-stop systems, mild and strong hybrids, plug-in hybrids (PHEVs), and all electric vehicles (EVs)
- However, we also projected that automakers will meet the standards largely through advancements in internal combustion engines
  - Rulemaking analysis found that automakers would only need to produce about 1-3% of the 2025 new vehicle fleet as EVs/PHEVs to meet the 2025 standards

Compliance flexibilities

- Credit carry-forward/carry-back
- A/C efficiency
- “Off-cycle”
- Incentives for full-size pickup trucks
- Alternative fuel
- A/C leakage

Effects of the standards: benefits and costs

- Over lifetime of MY 2011-2025 vehicles, DOT estimates:
  - 10-13 billion fewer barrels of oil consumed/5-6 billion fewer metric tons of GHGs
  - Industry costs of $250 to $360 billion
  - Net benefits of $326 to $451 billion

- Estimated MY 2025 vehicle cost increase of $1,900-$2,100
- Present value of cumulative net benefits is $1.3-1.6 trillion
- Benefits and costs are on top of pre-MY 2011 standards

[Note: all ranges based on 3% discount rate]

Benefits to Consumers

- Significant per-vehicle savings estimated for consumers at the pump:
  - Lifetime fuel savings of $5,700 to $7,400
  - Net lifetime savings of $3,400 to $5,000
  - Assuming $3.87 gas price in 2025

- Payback estimated at less than 3.5 years for a MY 2025 vehicle

- Consumers buying new vehicle on loan estimated to save $12 per month, or $140 per year, over loan period
  (since monthly fuel savings more than offset higher loan payment due to increased vehicle cost)

What comes next?

- National Academies of Science updating its report on light-duty vehicle fuel economy-improving technologies, estimated delivery in 2015
- Continuing technical and economic work by NHTSA and EPA
- New rulemaking for MY 2022-2025 CAFE standards planned for the 2016-2018 timeframe and “mid-term evaluation”

For more information

http://www.nhtsa.gov/fuel-economy