CAFE Credit Program

CAFE Credit Background

- Credit Program established December 19, 1980
  - 45FR83235, also see 49 U.S.C. § 32903
- Manufacturer's earn credits by model year and compliance category
- NHTSA established Part 536 allowing credit trades and transfers
  - March 30, 2009 (74FR14196, est. 49 CFR Part 536)

Process - *Inputs*

- Manufacturer's Reports
  - Pre-Model Year Reports (Dec 31st during MY)
  - Mid Model Year Reports (July 31st during MY)
  - EPA Final Reports (After MY)
- NHTSA Notices (received throughout the MY)
  - Petitions for Alternate Standard
  - Changes in Corporate Relationships
  - Notifications of Credit Trades and Transfers
  - Requests for Credit Balances from Credit Holder

Credit Formulation and Process

- 1 Credit = (1/10 mpg above the standard per one vehicle) or
- Credits = number of mpg above the standard x number of vehicles x 10
- NHTSA calculates and tracks *estimated* credits based upon PMY and MMY reports
- EPA measures fuel economy, calculates average fuel economy, and reports measurements and calculations to NHTSA in a Certified Final Report
- NHTSA calculates and tracks earned credits
- Manufacturer notified by NHTSA when standard not met
  - Manufacturer must confirm shortfall and submit a plan:
    - For Carry-Forward or Carry-Back
    - For Transfer from another fleet
    - Or Trade with another credit holder in which letters are needed from both
- Submitted plans must be approved by NHTSA
  - Otherwise, manufacturers must pay civil penalty

CAFE Credit Program Overview

MY 2011 and beyond

Credit Allocation Program	Applies to	Credits***	Credit Carry Forward and expiration	Credit Carry Back	Trade *	Transfer**	Penalties (credit short fall)
MY 2011 and beyond	MY 2011+ PC and LTs	Each 1/10 mpg above or below STD x number of vehicles No credit if STD = Actual achieved mpg	MY 2008 +5 MYs (Positive credits within same category)	-3 MYs (Positive credits within same category)	Credits earned MY 2011+ (Between different credit holders within same compliance category)	Credits earned MY 2011+ (Across compliance categories held by same manufacturer)	If sufficient credit are not available to offset shortfalls mfg is liable for civil penalty $5.50 each negative credit

* A trade occurs when NHTSA approves received instructions from two parties that they would like to initiate a trade.

** A transfer occurs when NHTSA receives instructions from a credit holder to move credits from one of its compliance categories to another of its (or another manufacturers) compliance categories.

*** Credit vintage is retained throughout credit life and is the basis for any adjustment factors and expiration dates.

Trade and Transfer Restrictions

- Traded and transferred credits must be **adjusted** to ensure fuel savings are preserved (49 CFR Part 536)
- Credit transfer **limitations** (49 U.S.C. § 32903 (g)(3)) – mpg increase due to credit transfers can only be:
  - MY 2011 - 2013, 1.0 mpg; MY 2014 - 2017, 1.5 mpg; MY 2018 and there after, 2.0 mpg
- Domestic passenger car minimum standard **cannot be met** with traded and transferred credits (92% of the projected average passenger car fuel economy when standards were issued)
  - MY 2011 = 27.8
  - MY 2012 = 30.7
- MY 2008 through 2010 shortfalls cannot be offset with traded or transferred credits. (536.6(c) & 536.8(b)
  - Trades and transfers begin with Model Year 2011 and can only offset shortfalls occurring in MY 2011 and later.
- Maximum increase limited from dual fueled automobiles (49 U.S.C. § 32906(a))
  - Phased out over time from 1.2 mpg through MY 2014 to 0.2 mpg in MY 2019
  - There is no limit in MY 2020 or later

Adjustment Factor

- A factor used to adjust the value of a traded or transferred credit
- Part 536.4 : When traded or transferred and <u>used</u>, credits are adjusted to ensure fuel oil savings is preserved.
  - For traded credits, the user (or buyer) of credits must multiply the calculated adjustment factor by the number of its shortfall credits it plans to offset in order to determine the number of equivalent credits to acquire from the earner (or seller).
  - For transferred credits, the user of credits must multiply the calculated adjustment factor by the number of its shortfall credits it plans to offset in order to determine the number of equivalent credits to transfer from the compliance category holding the available credits.
- The adjustment factor is calculated by the formula on the following page using the Model Year Lifetime Vehicle Miles Traveled (VMT) values below:

	2011*	2012	2013	2014	2015	2016
Passenger Cars	150,922	177,238	177,366	178,652	180,497	182,134
Light Trucks	172,552	208,471	208,537	209,974	212,040	213,954

**2011 – Issued as a single rule*

Adjustment Factor

- A factor used to adjust the value of a traded or transferred credit
- Ensures the value of the credit when used reflects the total volume of oil saved when the credit was earned

$$\text{Adjustment Factor} = \frac{VMTu * MPGae * MPGse}{VMTe * MPGau * MPGsu}$$

VMTu – Vehicle Miles Travelled for fleet where credits are to be used

MPGae – Actual Fuel Economy for fleet where credits were earned

MPGse – Fuel Economy Standard for fleet where credits were earned

VMTe – Vehicle Miles Travelled for fleet where credits were earned

MPGau –Actual Fuel Economy for fleet where credits are to be used

MPGsu – Fuel Economy standard for fleet where credits are to be used

Adjustment Factor – *"Trade"*

Example (2012-2016 equation)

$$A = \left(\frac{\text{VMTu} * \text{MPGae} * \text{MPGse}}{\text{VMTe} * \text{MPGau} * \text{MPGsu}} \right)$$

A		1.39
VMTu	Vehicle Miles Traveled (VMT) of fleet where credits are to be used	177,366
MPGae	Actual Fuel Economy (FE) of earned Mfr, Fleet and Model Year	28.5
MPGse	FE Std of earned Mfr, Fleet and Model Year	27.5
VMTe	VMT of fleet where credits were earned	177,238
MPGau	Actual FE of the using Mfr, Fleet and Model Year	20.5
MPGsu	FE Std of using Mfr, Fleet and Model Year	27.5

Manufacturer	Fleet	MY	FE	Std	Sales	Credits	Required for offset
A	IP	2012	28.5	27.5	150,000	1,500,000	
B	IP	2013	20.5	27.5	7,500	**-525,000**	**729,750**

Example of Credit Allocation Process

Model Year	MANUFACTURER A			
	Domestic Passenger Automobiles			
	Actual CAFE (mpg)	CAFE Standard (mpg)	Production Volume	MY Credit Balance Excess or (Shortfall)
2012	32.2	32.5	1,190,157	-3,570,471

Model Year	MANUFACTURER A			
	Domestic Passenger Automobiles			
	Actual CAFE (mpg)	CAFE Standard (mpg)	Production Volume	MY Credit Balance Excess or (Shortfall)
2012	32.2	32.5	1,190,157	**0**

OPTION 1
Carry forward
+3,570,471 credits
From previous MYs in same compliance category

OPTION 2
Carry backwards
+3,570,471 credits
From subsequent MYs in same compliance category

OPTION 4
MY 2011+
Trade
+3,570,471 Adjusted credits
Between different credit holders within same compliance category

OPTION 4A
MY 2011+
Trade then Transfer
+3,570,471 Adjusted credits
Across compliance categories after being traded

OPTION 3
MY 2011+
Transfer
+3,570,471 Adjusted credits
Across compliance categories held by same manufacturer

OPTION 5
Pay civil penalty of
$19,637,590.50

Adjustment Factor Example

E or U	Manufacturer	Model Year	Fleet	VMT	MPGa	MPGs
Earned	Green Motors	2011	DP	150,922	31.2	29.8
Used	Belchfire Motors	2012	LT	208,471	20.2	27.1

$$\text{Adjustment Factor} = \frac{\text{VMTu} * \text{MPGae} * \text{MPGse}}{\text{VMTe} * \text{MPGau} * \text{MPGsu}}$$

$$\text{Adjustment Factor} = \frac{208{,}471 * 31.2 * 29.8}{150{,}922 * 20.2 * 27.1} = \mathbf{2.3461}$$

Transfer within a Model Year

Green Motors DP 2011 Transferring to Green Motors LT 2011

Credit Holder	Fleet	MY	FE	Std	Sales	Credits	Adj Factor
Green Motors	DP	2011	29.8	28.4	502,532	7,035,448	1.6055
Green Motors	LT	2011	24.4	24.7	835,561	(2,506,683)	

Green Motors DP 2011 Credits Required to Offset Green Motors LT 2011 Deficit
= 1.6055 * 2,506,683 = **4,024,480**

Green Motors DP 2011 credit balance after transaction
= 7,035,448 – 4,024,480 = **3,010,968**

Green Motors LT 2011 credit balance after transaction
= **0**

Trade within a Model Year

Green Motors IP 2012 Trading to Belchfire Motors LT 2012

Credit Holder	Fleet	MY	FE	Std	Sales	Credits	Adj Factor
Green Motors	IP	2012	40.6	31.0	111,925	10,744,800	2.6469
Belchfire Motors	LT	2012	23.5	23.8	915,054	(2,745,162)	

Green Motors IP 2012 Credits Required to Offset Belchfire Motors LT 2012 Deficit
= 2.6469* 2,745,162 = **7,266,169**

Green Motors IP 2012 credit balance after transaction
= 10,744,800 – 7,266,169 = **3,478,631**

Belchfire Motors LT 2012 credit balance after transaction
= **0**

Trade between Model Years

Green Motors DP 2011 Trading to Belchfire Motors DP 2012

Credit Holder	Fleet	MY	FE	Std	Sales	Credits	Adj Factor
Green Motors	DP	2011	34.2	30.5	863,168	31,937,216	1.1743
Belchfire Motors	DP	2012	32.0	32.6	40,200	(241,200)	

Green Motors DP 2011 Credits Required to Offset Belchfire Motors DP 2012 Deficit
= 1.1743* 241,200= **283,241**

Green Motors DP 2011 credit balance after transaction
= 31,937,216 – 283,241 = **31,653,975**

Belchfire Motors DT 2012 credit balance after transaction
= **0**

Trade to a Manufacturer Banking Credits for Future Use

Green Motors DP 2011 Trading to Belchfire Motors DP 2011

Credit Holder	Fleet	MY	FE	Std	Sales	Credits	Adj Factor
Green Motors	DP	2011	34.7	30.6	337,867	13,852,547	N/A
Belchfire Motors	DP	2011	29.8	28.4	239,716	3,356,024	

Green Motors DP 2011 Credits Traded to Belchfire Motors DP 2011 to Bank
= **8,000,000**

Green Motors DP 2011 credit balance after transaction
= 13,852,547 – 8,000,000 = **5,852,547**

Belchfire Motors DP 2011 credit balance after transaction
= 3,356,024 +
8,000,000 banked unadjusted credits from Green Motors DP 2011

NHTSA Annual Notifications to Manufacturers

- Annual shortfall notification letter
  - Two types of letters:
    - Confirm carry forward
    - Request to pay penalty or submit carryback plan
- Annual Credit Status Letter to *each* Credit Holder
  - Includes total available credits and any credit activities by MY and Fleet

NHTSA Public Reports

- Credit Holdings for each Credit Holders
  - NHTSA does not make individual transactions public
- Summary of Fuel Economy Performance (March)
- Summary of CAFE Fines (January)
- Flexible Fuel Credits (March)

Discussion & Questions