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Celebrating Ten Years of the Renewable Fuel Standard

This brief analysis prepared by the Renewable Fuels Association (RFA) shows that, over the last 10 years, the Renewable Fuel Standard (RFS) has had an indelible impact on our national landscape. The impetus behind creating the original RFS was to decrease our reliance on foreign sources of energy by establishing a policy that would have as its goal increasing the production of home-grown energy. And that is what ethanol is: home-grown energy.

Over the past decade our ethanol producers have met, and even exceeded, the biofuel requirements established by the original RFS, as well as the biofuel requirements that were established by the expanded RFS contained in the Energy Independence and Security Act of 2007 (EISA).

By any measure, there is no doubt the RFS has been one of our nation's most successful energy policies, and tremendous progress has been made toward achieving the objectives of the original RFS: fuel production and consumption have grown dramatically; our nation's dependence on petroleum imports and refined products has diminished significantly; greenhouse gas (GHG) emissions across transportation sectors have decreased; consumers have benefited from more choices at the pump and lower gas prices; and communities across the country have benefited from the job creation, increased tax revenue, and heightened household income that stem from biorefinery construction and operation.

This Saturday's 10-year RFS anniversary marks an important milestone in our nation's energy policy. Substantial progress has been made toward accomplishing the goals of EPAct, and the promise of the RFS continues, especially in terms of reducing petroleum imports, diversifying our fuel supply, encouraging innovation, and reducing GHG emissions. As cellulosic and other advanced biofuels reach commercial scale, the benefits of the RFS will expand exponentially.

RENEWABLE FUEL PRODUCTION, CO-PRODUCT OUTPUT, AND ECONOMIC ACTIVITY

		2005	2015	% Change
Operational Corn Ethanol Plants ¹		72	199	176%
Commercial Cellulosic Ethanol Facilities ²		0	5	--
Corn Ethanol Production ³	<i>Billion Gallons</i>	3.9	14.6	274%
Animal Feed Co-product Output ⁴	<i>Million Metric Tons</i>	10.9	39.9	267%
Value of Ethanol Industry Output ⁵	<i>Billion \$</i>	\$8.1	\$34.1	321%
Ethanol Industry Jobs ⁶		153,725	379,215	147%
U.S. Advanced & Cellulosic Biofuel Production ⁷	<i>Million Gallons</i>	112	1,759	1,471%

AGRICULTURAL INDICATORS

		2005	2015	% Change
Corn Production ⁸	<i>Billion Bushels</i>	11.11	14.22	28%
Corn Acres Planted ⁹	<i>Million Acres</i>	81.8	90.6	11%
Average Corn Yield ¹⁰	<i>Bushels/Acre</i>	147.9	171.0	16%
Corn Price (Season Avg.) ¹¹	<i>\$/Bushel</i>	\$2.00	\$3.70	85%
U.S. Cropland Planted and CRP ¹²	<i>Million Acres</i>	352.5	350.7	-1%
Gross Value of Crops ¹³	<i>Billion \$</i>	\$114.4	\$182.6	60%
Gross Value of Livestock ¹⁴	<i>Billion \$</i>	\$126.5	\$199.0	57%
Total Red Meat & Poultry Production ¹⁵	<i>Billion Pounds</i>	87.1	95.2	9%
Net Farm Income ¹⁶	<i>Billion \$</i>	\$78.8	\$73.6	-7%

ENVIRONMENTAL ISSUES

		2005	2015	% Change
U.S. Forestland ¹⁷	<i>Million Acres</i>	746.5	753.2	1%
Amazon Deforestation Rate ¹⁸	<i>Square Miles</i>	7,341	1,872	-74%
U.S. Average Carbon Monoxide Levels ¹⁹	<i>Parts per million</i>	2.25	1.45	-36%
U.S. Average Ground-Level Ozone Levels ²⁰	<i>Parts per million</i>	0.080	0.068	-15%
Transportation Sector CO2 Emissions ²¹	<i>Million Metric Tons</i>	2,018	1,806	-10%
CO2e Emissions Avoided from Using Ethanol ²²	<i>Million Metric Tons</i>	7.8	39.6	408%
Avg. Ethanol CO2e Emissions Reduction vs. Gas ²³	<i>%</i>	~20%	34%	n/a

FUEL PRICES

		2005	2015	% Change
World Oil Price ²⁴	<i>\$/Barrel</i>	\$54.57	\$60.22	10%
Retail Diesel Price ²⁵	<i>\$/Gallon</i>	\$2.40	\$2.86	19%
Retail Gasoline Price (Regular) ²⁶	<i>\$/Gallon</i>	\$2.27	\$2.48	9%
Wholesale (Rack) Gasoline Price ²⁷	<i>\$/Gallon</i>	\$1.66	\$1.90	14%
Wholesale (Rack) Ethanol Price ²⁸	<i>\$/Gallon</i>	\$1.80	\$1.62	-10%

PETROLEUM IMPORT DEPENDENCE

		2005	2015	% Change
Crude Oil Imports, as % of U.S. Crude Oil Demand ²⁹	<i>%</i>	66.1%	40.9%	n/a
Total Net Import Dependence: Crude Oil/Petroleum Prods. ³⁰	<i>%</i>	60.3%	22.5%	n/a
Crude Oil Imports from OPEC ³¹	<i>Billion Barrels</i>	2.04	0.94	-54%
Gasoline Imports ³²	<i>Billion Gals.</i>	9.24	1.02	-89%
Ethanol, % of Gasoline Supply ³³	<i>%</i>	2.8 %	9.9%	n/a

FOOD PRICES/HOUSEHOLD SPENDING

		2005	2015	% Change
World Food Prices ³⁴	<i>Index</i>	106.8	128.5	20% (2% per year)
Avg. Household Spending on Food ³⁵	<i>\$/Household</i>	\$5,931	\$6,665	12% (1.3% per year)
Avg. Household Spending on Gasoline & Motor Oil ³⁶	<i>\$/Household</i>	\$2,013	\$2,611	30% (3.3% per year)
Change in U.S. Food Prices vs. Previous Year ³⁷	<i>%</i>	2.4%	1.8%	n/a

Sources:

- ¹ RFA. 2005 and 2015 Ethanol Industry Outlook publications.
- ² Operational or near-operational. Abengoa (Hugoton, KS); DuPont (Nevada, IA); Ineos BIO (Vero Beach, FL); Poet/DSM (Emmetsburg, IA); Quad County Corn Processors (Galva, IA).
- ³ 2005 from Energy Information Administration (EIA). 2015 projected by RFA based on year-to-date EIA data.
- ⁴ Estimated by RFA.
- ⁵ Estimated by RFA, based on 2005 and 2015 market values for ethanol, distillers grains, corn gluten feed, corn gluten meal, and corn distillers oil.
- ⁶ Urbanchuk (2006), Urbanchuk (2015). Includes direct, indirect and induced jobs.
- ⁷ 2005 data from National Biodiesel Board. 2015 based on EPA EMTS data for Jan.-June 2015.
- ⁸ USDA, ERS Feed Grains Database. 2014/15 data is used for 2015 because 2015 crop has not yet been harvested.
- ⁹ *Id.*
- ¹⁰ *Id.*
- ¹¹ *Id.*
- ¹² USDA, NASS. Includes planted acres for wheat, corn, sorghum, barley, oats, soybeans, sunflower, canola, cotton, all hay, and other major crops + CRP acreage.
- ¹³ USDA.
- ¹⁴ USDA.
- ¹⁵ USDA
- ¹⁶ USDA
- ¹⁷ U.N. Food and Agriculture Organization. FAOStat. 2013 data (latest available) is used for 2015.
- ¹⁸ National Institute of Space Research, Brazil. 2014 data (latest available) is used for 2015.
- ¹⁹ EPA Air Trends. 2013 data (latest available) is used for 2015.
- ²⁰ *Id.*
- ²¹ EIA. Comparison is 2005 to 2013 (latest available)
- ²² RFA calculations based on GREET and EIA data.
- ²³ Department of Energy GREET model.
- ²⁴ EIA (Brent crude). 2015 price from July 2015 STEO.
- ²⁵ EIA. 2015 price from July 2015 STEO.
- ²⁶ EIA. 2015 price from July 2015 STEO.
- ²⁷ Omaha rack price. Nebraska Energy Office. 2015 based on Jan.-July average.
- ²⁸ Omaha rack price. Nebraska Energy Office. 2015 based on Jan.-July average.
- ²⁹ EIA. 2015 is projected based on monthly data for Jan-May.
- ³⁰ *Id.*
- ³¹ *Id.*
- ³² *Id.*
- ³³ RFA calculation based on EIA data. 2015 is projected based on monthly data for Jan-May.
- ³⁴ U.N. Food and Agriculture Organization. Food Price Index (Deflated/Real Prices); 2015 based on Jan.-June 2015.
- ³⁵ BLS Consumer Expenditure Survey. Compares 2005 to 2013 (latest available).
- ³⁶ BLS Consumer Expenditure Survey. Compares 2005 to 2013 (latest available).
- ³⁷ USDA.