The U.S. Renewable Fuel Standard

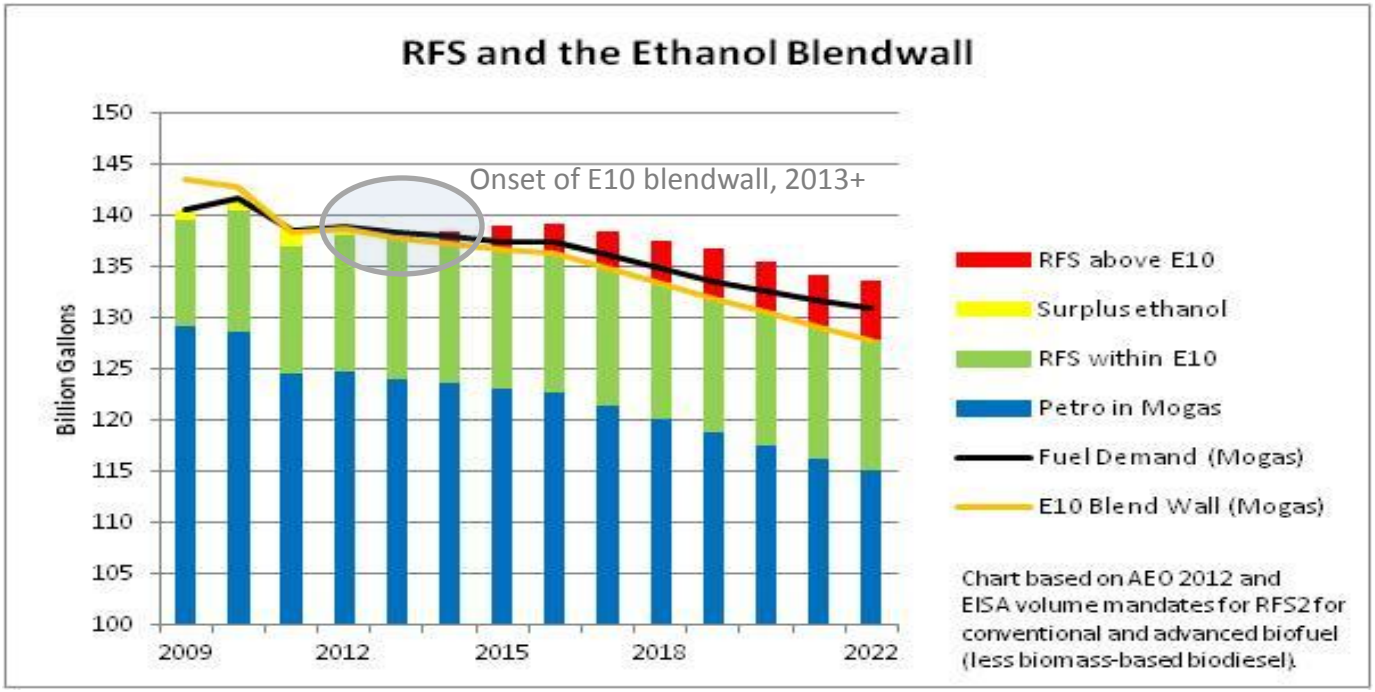
2013 Proposed Standards

RFS Issues

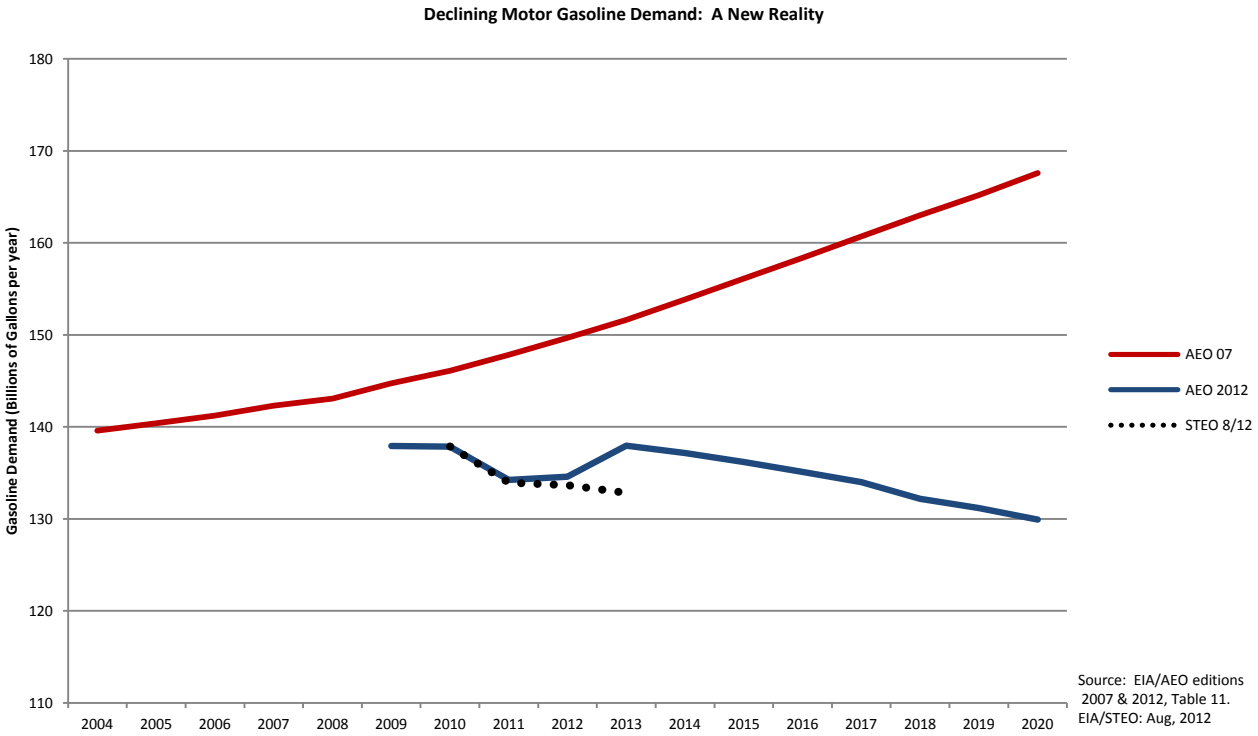
- E10 Blendwall
  - ❑ Issues with E15 and E85
- Cellulosic Mandate Issues
- Biomass Based Diesel Mandate Concerns
- RFS Waiver Petition

The “E10 Blendwall”

- Depending on U.S. gasoline demand and individual companies’ operations, obligated parties may encounter the “E10 blendwall” as early as 2013, even without the cellulosic mandate
  - ❑ Decline in U.S. gasoline demand will accelerate this timing
- Significant uncertainty exists in the marketplace due to the blendwall issue
- EPA needs to use its authority to set a realistic and workable standard



Challenges Unforeseen at RFS Program Inception



- EISA07 was based on significantly greater gasoline demand projections
  - ❑ EIA's 2012 outlook for 2022 projects 25% lower demand vs. the 2007 outlook when EISA07 was enacted
- Cellulosic technologies were expected to develop within a few years of EISA07
  - ❑ No commercial plants to-date
- E10 Blendwall and E85 issues not fully comprehended at the time
  - ❑ Significant infrastructure and cost challenges

No Practical "solutions" to the E10 Blendwall

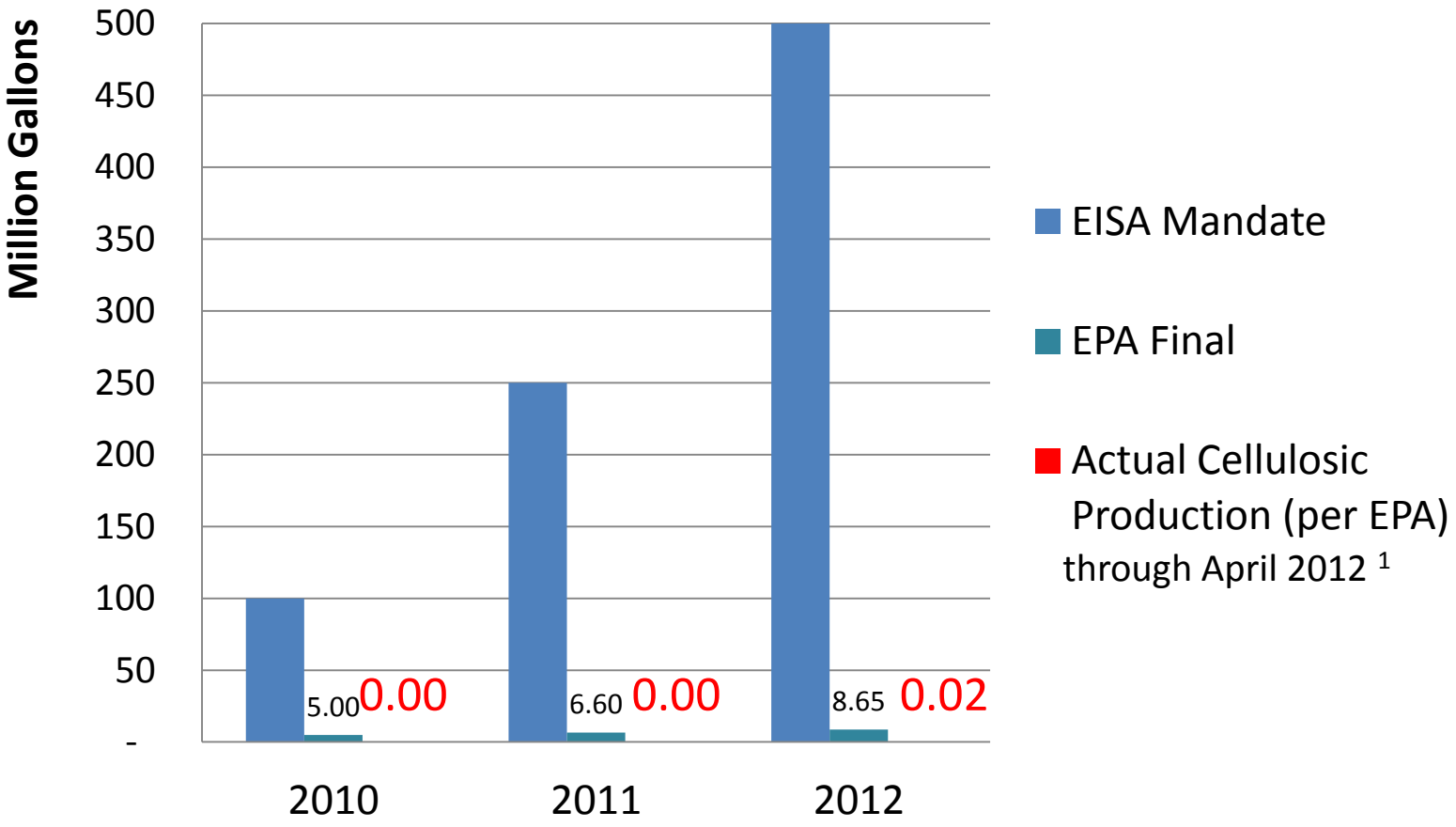
- E15 (15% ethanol)
  - ❑ EPA's E15 partial waiver decisions bifurcate the fleet and were premature
    - Vehicle engine durability may be compromised with E15 according to Coordinating Research Council (CRC) tests [1]
    - Automobile manufacturers did not warranty gasoline vehicles for E15
    - Retail fueling infrastructure is not designed or certified for E15
      - Studies show over 50% of retail fueling equipment may be E15 incompatible [2]
    - Broad coalition has challenged the EPA E15 partial waiver in Court
- E85 (85% ethanol)
  - ❑ Allowed for flexible fuel vehicle (FFV) use only (about 4% of vehicles in the U.S. today)
  - ❑ Low consumer acceptance
  - ❑ E85 fuel economy and driving range are reduced by 25-30% vs. gasoline
  - ❑ Limited use today and low projected E85 growth according to EIA
  - ❑ Limited E85 infrastructure
    - Fewer than 2,300 or less than 1.5% of retail outlets nationwide offer E85 [3]
    - High installation costs: $25,000 (dispensing equipment) to $200,000+ (tanks)
    - Retailers, most of whom are small business owners, are reluctant to install due to difficulty recouping investments
      - Only 3% of retail outlets are owned by major oil companies
- Potential reduction of obligated volumes (gasoline, diesel)
  - Further pressure on refinery economics

[1] http://www.crcao.com/reports/recentstudies2012/CM-136-09-1B%20Engine%20Durability/CRC%20CM-136-09-1B%20Final%20Report.pdf "Intermediate Level Ethanol Blends Engine Durability Study", April 2012,
[2] http://www.api.org/~/media/Files/Policy/Alternatives/E15-Infrastructure-Comprehensive-Analysis.ashx
[3] http://www.afdc.energy.gov/fuels/ethanol_locations.html

Cellulosic Mandate in Practice

- Each year, EPA is required to set the cellulosic mandate based on EIA data
  - ❑ EPA's optimistic assessments "*to help drive the production of volumes that will be made available*" have consistently exceeded EIA's recommendations
- EPA has not exercised its option to reduce the advanced or total renewable mandates in proportion to the cellulosic biofuel waiver
- No commercial volumes of cellulosic RINs have been generated to-date, per EPA records
  - ❑ Yet, every year, obligated parties *must* purchase cellulosic waiver credits from the EPA in order to comply
    - This equates to a tax for not using a product that does not exist
    - This government imposed fee could harm consumers and does nothing to benefit the environment
- API filed legal challenge on the 2011 and 2012 cellulosic RFS standards

Cellulosic Mandates vs. Reality



[1] http://www.epa.gov/otaq/fuels/rfsdata/2012emts.htm

Biomass Based Diesel Mandate Concerns

- Any amount above 1.0 billion is discretionary and not required by statute
  - ❑ The statutory minimum of 1.0 billion gallons should be maintained for 2013 and 2014
  - ❑ EISA 07 requires EPA to establish an RVO for biomass-based diesel after considering 6 factors:
    - (1) Impact of the production and use of renewable fuels on the environment
    - (2) Impact of renewable fuels on the energy security of the United States
    - **(3) Expected annual rate of future commercial production of renewable fuels**
    - (4) Impact of renewable fuels on the infrastructure of the United States
    - **(5) Impact of the use of renewable fuels on the cost to consumers of transportation fuel and on the cost to transport goods**
    - **(6) Impact of the use of renewable fuels on other factors, including job creation, the price and supply of agricultural commodities, rural economic development, and food prices**
- Biodiesel Production Capability is Uncertain
  - ❑ Tax credit expired in 2011
  - ❑ Drought conditions could affect biodiesel feedstock
  - ❑ Issues with invalid RINs (5-12% of industry obligation) are significant and jeopardize the RFS
    - High RIN prices provide and producer ability to separate RINs provide incentives for fraud
    - Regulatory changes are needed to ensure RIN validity and provide affirmative defenses, consistent with other fuel and fuel additive regulations.

Drought RFS Waiver Petition

- Food vs. fuel issue is becoming an increasing concern to be taken into consideration:
  - ❑ Stanford University, Center for Food Security and the Environment [1]
  - ❑ World Bank Research and Modeling Results [2]
  - ❑ Food and Agriculture Organization of the United Nations [3]
  - ❑ National Academy of Sciences [4]
- API has not weighed in to the different Governors' and other stakeholder petition to the Agency for RFS waiver.
  - ❑ Our industry's focus is on the impending blendwall and ability to comply.
  - ❑ Given the late 2012 timing, applying the waiver to the 2013 RFS standard would be a short term solution to the blendwall.
- EPA should accept comment on the waiver as part of the 2013 RFS rulemaking.

[1] http://foodsecurity.stanford.edu/news/biofuels_have_mixed_impacts_on_food_security_20120419/
[2] http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/0,,contentMDK:22946809~pagePK:64165401~piPK:64165026~theSitePK:469372,00.html
[3] http://www.agri-outlook.org/dataoecd/13/13/45438527.pdf
[4] "Potential Economic and Environmental Effects of U.S. Biofuel Policy", October 2011, http://www.nap.edu/catalog.php?record_id=13105

EPA Needs To Exercise Its Authority

- The cellulosic standard needs to be based on actual production
- EPA should reduce the *advanced* and *total* biofuel mandates in proportion to the cellulosic waiver
- EPA needs to set a realistic advanced biofuel standard
- EPA needs to address the recent waiver request as part of the 2013 RFS rulemaking.
  - Provide notice and comment
  - Finalize a single set of realistic 2013 standards not to be later revised
  - Waiver should be of sufficient duration to delay blendwall concerns
    - At least one year