



The Renewable Fuels Standard

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Overview

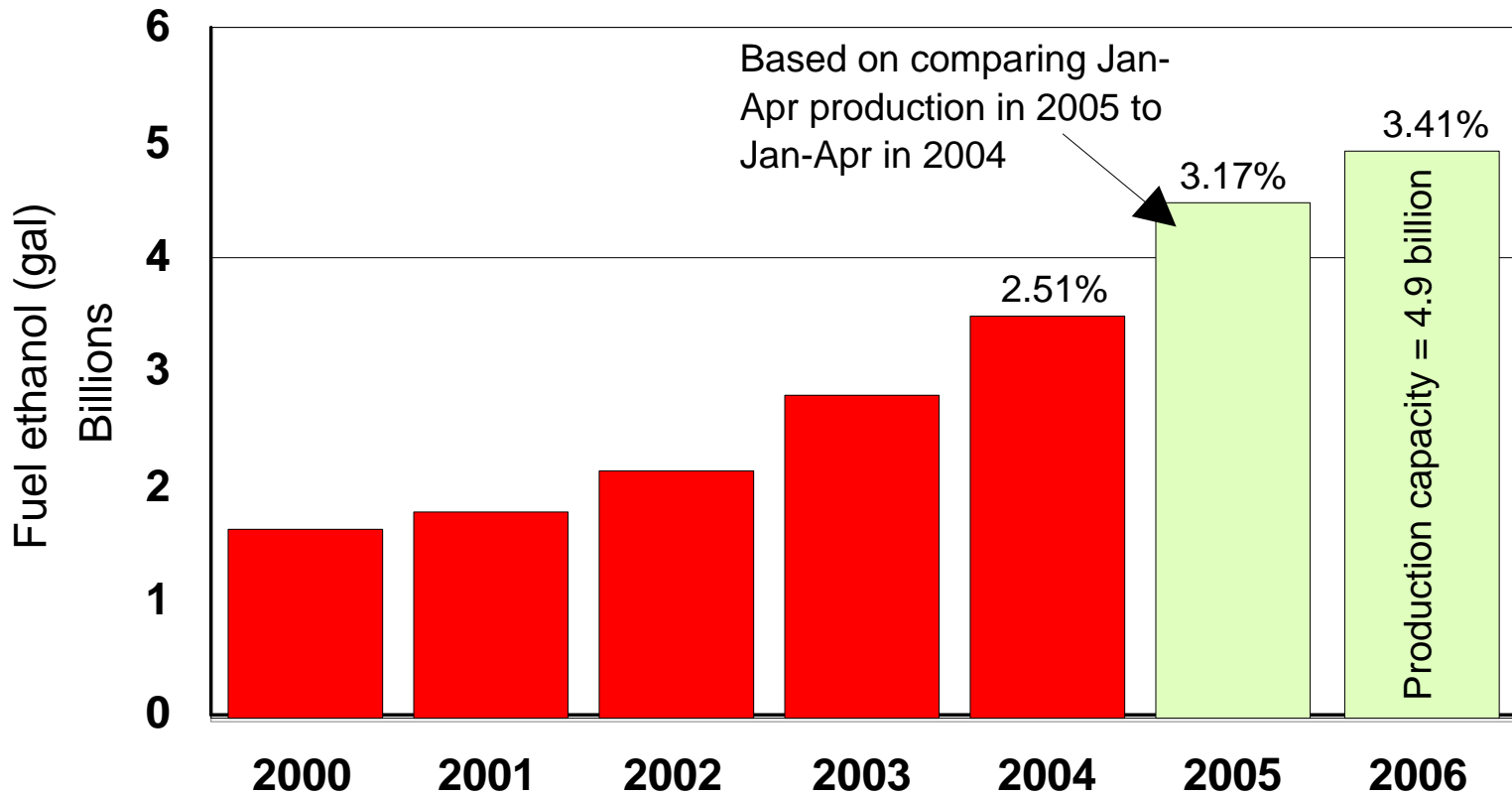
- General description of RFS
- Projected ethanol growth
- Where ethanol is used
- Effect of RFS on renewables production
- Credit provisions
- State waiver requests
- Effect of state ethanol/biodiesel mandates
- Potential environmental effects of ethanol



What the RFS is

- **EPACT 2005 requires EPA to promulgate regulations that ensure that gasoline sold in US contains applicable volume of renewable fuel**
- **Act specifies gallons of renewable use in gasoline**
 - 2006: 4.0 billion gallons/yr
 - 2007: 4.7
 - 2008: 5.4
 - 2009: 6.1
 - 2010: 6.8
 - 2011: 7.4
 - 2012: 7.5
 - 2013+: Same percent of renewables for 2012 (0.25 billion gal of which must be cellulosic ethanol)
- **EPA is required to convert these into percent of gasoline production stds based on annual EIA predictions of gasoline consumption given to EPA each Oct 31**
- **Standard must account for...**
 - Small refiner exemptions and participation (see later)
 - State waivers if any (see later)
 - Carryover from one year to the next

Projected Ethanol Consumption Will Exceed 2006 RFS Obligation



Production was 92% of capacity in 2003 and 96% of capacity in 2004



Projected ethanol production

- Ethanol production doubled between 2001 and 2004
- Under the RFS, ethanol will be roughly 7.5 bill gal by 2012
- Without the RFS, ethanol would still be expected to climb in future years due to favorable economics, and phaseout of MTBE
- USDA projected 4.7 - 4.8 bill gal by 2012
- EIA projected 5.7 bill gal by 2012



EPA's Interim Rule for 2006

- Under EPACT, if EPA fails to promulgate regulations in time for 2006 a default renewable fuel standard of 2.78% will be in effect for that year.
- Does not specify who is liable or how they are to demonstrate compliance, creating uncertainty in its implementation
- For 2006 refiners, importers, and blenders will be held responsible collectively for meeting the 2.78% default on average; No individual liability
- Projections indicate that amount of ethanol used in gasoline in 2006 should exceed the 2.78% default (i.e., > 4.0 billion gal/yr) on average due to normal market forces
- If the 2.78% is not achieved on average, then the deficit amount (gallons) would carry over to the RFS requirement for 2007.

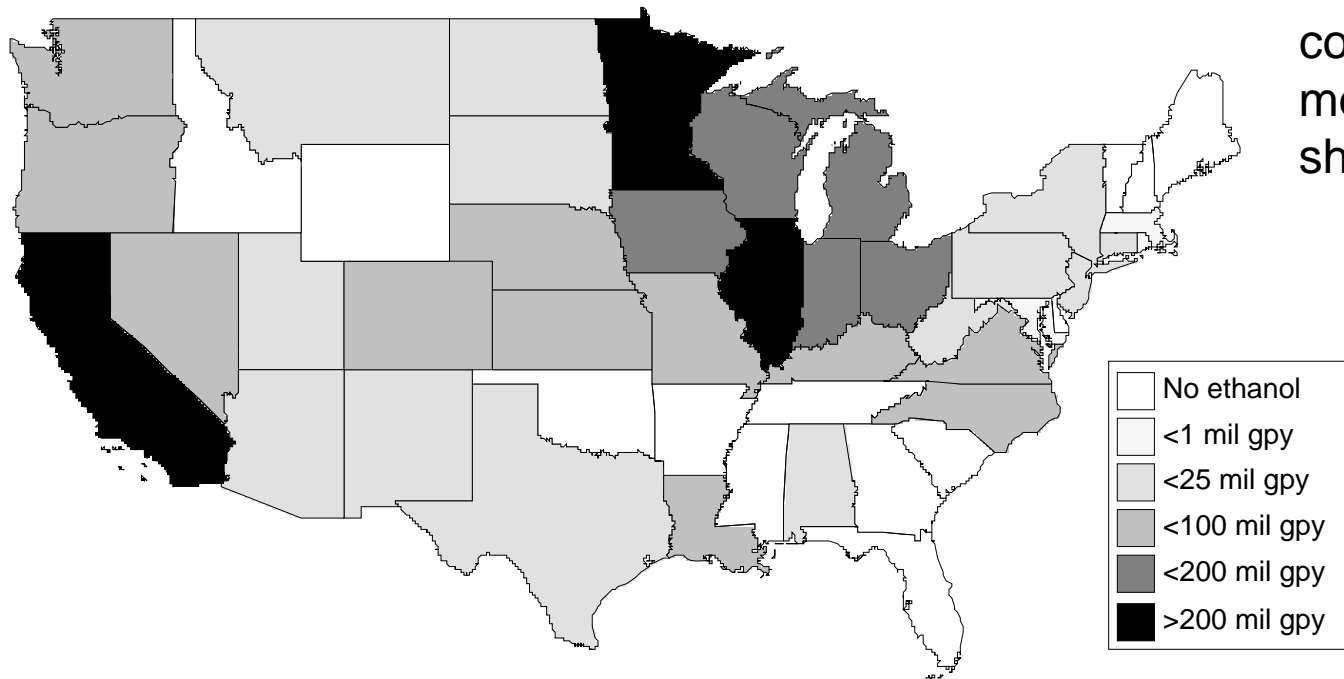


The renewable fuels standard: not just ethanol

- Renewable fuels as defined in EPACT includes more than just ethanol
- We expect biodiesel, cellulosic ethanol and other renewables to be used to meet the standard
- The majority is expected to be corn ethanol for the foreseeable future.
- The increased demand of the RFS by itself will require rapid expansion of ethanol/biodiesel production facilities.
- Ethanol and biodiesel will be used where it is most economical to do so - much of it in the mid-west.

Where Is Ethanol Consumed?

Note: In 2004, RFG in CT and NY contained much more ethanol than shown here



2003 data from FHA



What will be effect of RFS on renewables production?

- Ethanol and biodiesel will be used where it is most economical to do so - much of it in the mid-west
- Federal and state tax incentives will continue to spur production of ethanol and biodiesel
- The potential market that RFS represents will create an incentive for other renewables, most notably biodiesel



Credit provisions of RFS required under statute

- RFS regulations must provide “for the generation of an appropriate amount of credits” by any person that refines, blends or imports gasoline that contains renewable fuel in excess of the standard.
- Credit provisions must allow for “generation of an appropriate amount of credits for biodiesel”
- Credits are valid for 12 months from the date of generation
- RFS rule must include provisions for persons unable to generate or purchase sufficient credits to carry forward a deficit for the following year



State RFS waiver requests

- States may petition EPA for waiver of the RFS
 - Must demonstrate RFS would cause economic or environmental harm
 - Must demonstrate insufficient domestic supply
- EPA in consult with DOA and DOE may approve for 1 year (can be renewed for up to one more year)
- Would require adjustment to the national std – but not prohibit use within the state
- Requires annual monitoring of and adjustments to the program



Effect of state mandates

- Some states considering mandates requiring specific amounts of ethanol/biodiesel to be used
- Any State mandates are unlikely to add to the federal RFS mandated volume, but will shift where the ethanol/biodiesel is blended and impact the economics



Potential environmental effects of RFS within states

- There are likely to be some emission benefits (CO and CO₂) and some small potential detriments (VOC, NO_x) that have raised concerns in the past.
- CO₂ benefits occur when considering “life cycle emissions” of ethanol; i.e., the amount of fossil fuel energy displaced by using ethanol in place of gasoline.
- For the other pollutants, we expect the impacts to be relatively minor on current technology vehicles.
- EPA intends to conduct testing over the next couple years to better quantify the effect of ethanol on NO_x, VOC and CO.