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Promoting the U.S. Ethanol Industry through Effective Tax Policies

Presentation to the National Ethanol Conference

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Agenda

- Preliminary issues on deficit reduction and tax simplification
- Potential alternative tax policies for promoting ethanol
- Key considerations in evaluating alternative approaches
- Efficient use of tax policies to change relative prices
- Evaluating ethanol policy alternatives
- Final considerations

Preliminary issues: deficit reduction and tax code simplification

- U.S. federal deficit at 10% of GDP – U.S. debt at 70% - 100% of GDP
- Plethora of tax incentives targeted towards energy sector – incl. fossil fuels
  - Producer credits, investment credits, accelerated depreciation, rebates, etc.
  - Programs sometimes at odds; big differences in cost effectiveness
- Tax incentives are not unique to energy sector
  - E.g., deductibility of mortgage interest, certain healthcare expenditures, etc.
- With economic stability and no major policy challenges, it would be easy to reduce the deficit and simplify the tax code, however:
  - Long-term consequences of failing to stabilize or reduce GHG emissions
  - Short-term market consequences of eliminating mortgage interest deduction
- Deficit reduction important for medium term, but needs to be balanced with other policy objectives
  - Eliminate counterproductive policies
  - Focus on big-ticket budget items: “non-discretionary” spending
- Tax code simplicity at odds with piece-meal policy process and lack of political will to implement more straight-forward policies
  - E.g., carbon tax

Potential alternative tax policies for promoting ethanol – proposed or under consideration

- Volumetric Ethanol Excise Tax Credit ("VEETC") provided to fuel ***blenders***
  - $0.45/gal reduction in federal fuel excise tax
  - Status quo maintained with one-year extension for 2011
  - Potential reductions in the amount of the VEETC thereafter
  - Import tariff seen as a complementary policy (offsets benefits to foreign producers)
- Convert VEETC to an ethanol ***producer*** credit
  - Income tax credit to be claimed by producers
  - Across the board vs. tied to producer enviro performance/sustainability metrics
- Convert VEETC or producer credit to a ***retailer*** credit for flex fuel infrastucture
  - Either 1-step or 2-step proposals
  - Reduce VEETC and increase retail credit (1-step)
  - Convert VEETC to producer credit, replace producer credit with phased in retail credit
- Convert VEETC from a fixed to a ***variable incentive*** tied to oil prices
  - E.g., Tyner proposal
- Apply VEETC only to ***volumes above RFS*** requirements
  - E.g., Fortenberry proposal
- Eliminate/phase-out VEETC with no replacement tax incentive program

Key considerations in evaluating alternative proposals

- GHG reduction is only ***one*** of Congress' goals with ethanol policy
  - Promote a domestic ethanol industry (rural economic development, employment, farm incomes)
  - Reduce dependence on imports ("energy security")
  - Other important benefits: more competitive fuel markets; reduced oil spill risks
- Tax policy can be effective and efficient by changing ***relative prices***
  - Reduce fossil fuel consumption by increasing price relative to less polluting alternatives
  - Increase after-tax price of petroleum (carbon tax); reduce after-tax price of ethanol; or both
  - "Subsidy" debate obscures the market mechanism of tax policies and their efficiency at correcting market failures (negative externalities)
- Need to identify ***tax incidence***: who bears the burden of a tax?
  - Important in assessing taxpayer costs/benefits of any proposal
  - Consumers benefit directly from VEETC via reduced gas prices at pump

Key considerations in evaluating alternative proposals (cont.)

- Proposals should be evaluated considering other ***policy interactions***
  - "Rationalize" tax code: eliminate policies that *increase* GHG emissions
  - Price effect of Renewable Fuel Standard – not a "free lunch" policy (RINs)
  - Impact of corresponding tariff changes:
    - Tax incentives directed at promotion of US ethanol industry – rationale for tariff
    - Imports as supplements or substitutes for US ethanol production?
- All policies under consideration are ***"second-best"*** (or third-best) policies for GHG reduction
  - Carbon tax the least distortionary of any policy, easiest to implement, "technology-neutral," most transparent – and provides **cost certainty**
  - Cap-and-trade a good "second-best" alternative
  - Both involve raising the cost of fossil fuels to account for negative externality of GHG emissions – no free lunch
  - Clarifying costs to consumers important for "buy-in" of any policy

Tax incentives can be an efficient policy instrument by changing ***relative prices***

- Many policies rely on taxes to change investment and consumption decisions
  - Mortgage interest tax deduction promotes housing purchases vs. rental
  - Deductions for healthcare spending
  - Tax credits/deductions for energy efficiency expenditures
- Excise taxes targeted at individual commodities
  - "Sin" taxes: cigarettes and alcohol
  - Federal gasoline excise tax to fund transportation projects
- Taxes can be efficient means for "internalizing a negative externality"
  - Cigarettes : health care costs
  - Carbon tax: pollution from fossil fuels
- Excise and sale taxes increase prices and reduce demand (consumption)
- Differential application of a tax will change investor/consumer behavior by changing ***relative prices*** – favorably or unfavorably
  - "Sin" taxes increase price of unhealthy choices relative to untaxed alternatives
  - Sales tax exemptions decrease price of groceries, medicine relative to taxed alternatives
- Reasonable to use tax policy to change relative price of ethanol vs. petroleum
  - Whether through blender, producer, or retailer tax credits – or differential excise tax

Tax incidence: who ultimately bears the cost of a tax – or benefits from an incentive?

- Who is responsible for paying a tax can – and frequently does – differ from who bears the ultimate financial burden of a tax
  - Similar issue arises with regard to beneficiaries of tax incentives
- Tax incidence has long been studied by economists – and forgotten by policymakers
  - Payroll taxes: partially borne by companies, but may be passed through to workers in the form of lower wages
  - Corporate income taxes: debate over how much is passed through to consumers in the form of higher prices
  - Excise/sales taxes: obligation is on sellers, but there is a high degree of pass-through to consumers
- Current VEETC "blender" tax incentive – a reduction in excise taxes – likely passed through to end consumers of gasoline
  - Strong empirical support for full pass-through for gasoline, alcohol, and tobacco state and federal excise taxes
  - Implies that although VEETC reduces federal tax revenue, it also reduces consumer (and taxpayer) tax burden by an equivalent amount
  - VEETC reduces the after-tax price of ethanol, stimulating demand for ethanol by blenders, and increasing prices paid to producers
  - Not a "subsidy" in the sense of a direct transfer payment to producers

Tax incidence: who ultimately bears the cost of a tax – or benefits from an incentive? (cont.)

- Implication: if deficit reduction is imperative, increase the federal excise tax to offset the foregone revenue from the VEETC
  - From budget perspective, equivalent to eliminating the VEETC – but maintains price differentials
- Most important criticism of VEETC is ***not*** excessive taxpayer cost, but rather reduction in consumer fuel costs
  - To reduce GHG emissions, consistent policies should increase fuel prices to reduce consumption
  - Increased fuel prices stimulate consumer purchases of fuel efficient vehicles, technological innovation, and mass transportation
  - Correcting this unintended effect is straight-forward: increase federal gas excise tax – addresses both budget and GHG concerns
  - "Safety valve" can be implemented to account for market volatility in fuel prices

Various alternative tax incentive proposals have strengths and weaknesses – no clearly "dominant" policy

- "Producer" tax credits can be effective in stimulating additional production and investment, but not clearly better than the VEETC
- Focused at the source for additional production – consistent with goals of expanding domestic capacity
- Success of similar program in expanding wind investment
- Concerns:
  - Foregone tax revenue more clearly a cost to taxpayers
  - Can be targeted based on performance metrics, but raises monitoring costs
  - May not be effective for marginal producers with little taxable income (or losses)
  - Political sustainability of producer tax credits questionable – see wind industry debates

Converting VEETC to a variable incentive is conceptually reasonable, but raises implementation concerns

- At a certain high price of oil, or low price of ethanol, plenty of demand for ethanol without additional tax stimulus
- Reasonable to make tax-induced price differential a function of relative market prices for petroleum fuels and ethanol
  - Some limited state experience with variable incentives (CA)
- Tax incentive could move inversely with oil/gasoline prices
  - Alternatively, oil – ethanol blending margin as proxy for blender profits
  - Alternatively, corn – ethanol crush spread as proxy for producer profits
- Administrative complexity of a variable policy
- Potential incentive problems with using taxes to achieve “target” profit
- Implementation may exacerbate pro-cyclical effects:
  - When oil prices increase, reduced VEETC would further increase after-tax consumer fuel prices at same time
  - Oil prices low when economies are weak – when it is most difficult for Treasury to “afford” the tax break

Retailer credit for fuel infrastructure helps to solve one problem, but not a silver bullet

- In principle, retailer credit for infrastructure can help to address “blend wall” and differences in vehicles/consumer preferences
- Shifts focus of tax policy from changing relative prices to increasing availability
- Significant questions as a primary policy instrument:
  - How much of an incentive is required to stimulate retailer investment in pumps?
  - How much complementary infrastructure investment is needed in addition to pumps?
  - How much additional demand will materialize given market price differentials?
- Cost uncertainty may be barrier to adoption, especially given deficit
- May be a good complement to other policies – and a substitute for traditional transportation projects (e.g., road construction)
- Can be implemented in stages to assess viability/effectiveness

Limiting VEETC to only volumes above RFS may have it backwards

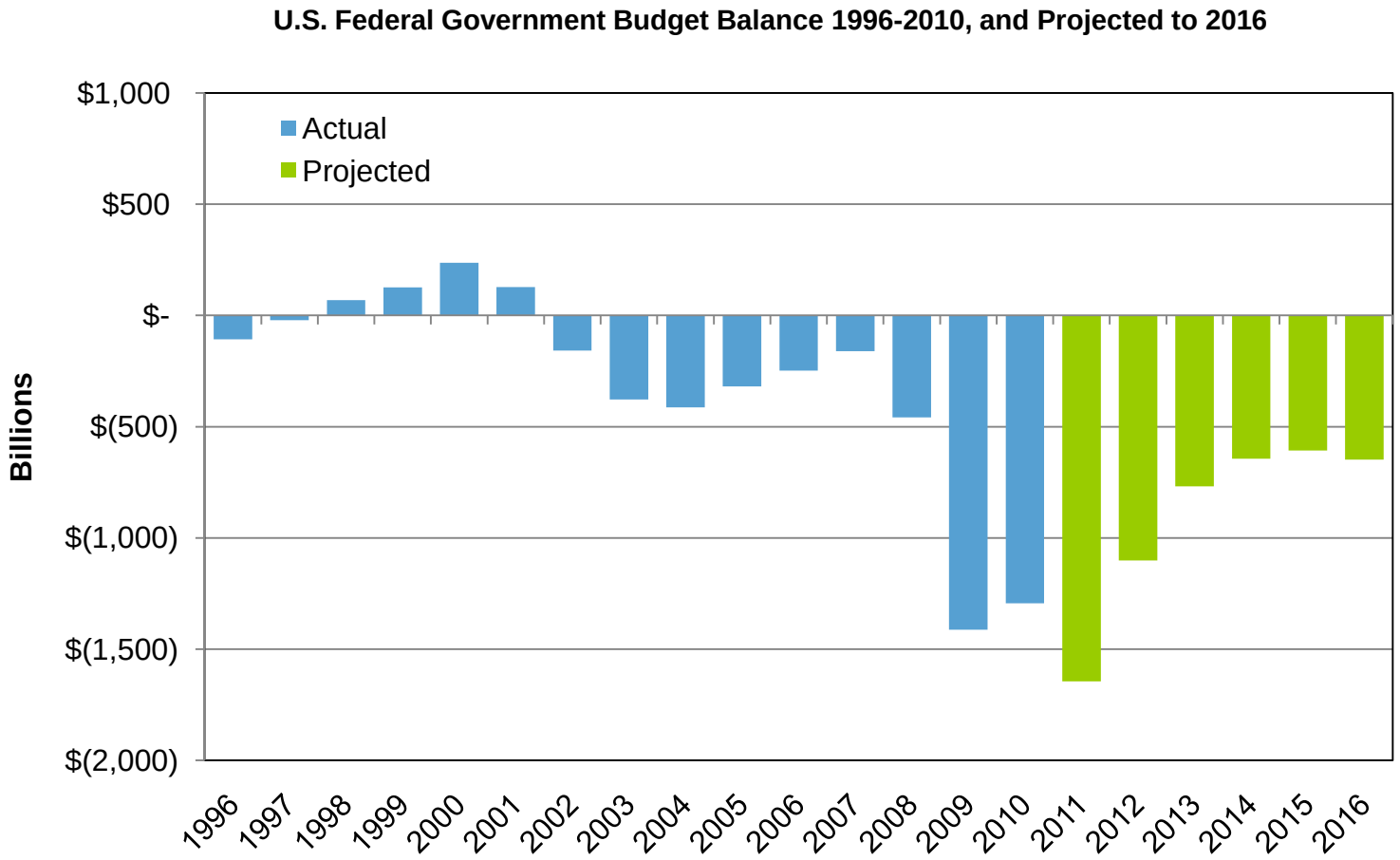
- Assumes RFS is a “free lunch” to consumers - no *tax* cost, but clear cost of RIN credits
- RFS largely non-binding to date due to VEETC: complementary, not duplicative programs
- To achieve current production levels without VEETC, price of RINs will rise
- Implementation of RFS still a work in progress – a mandate or aspirational target?
  - Most important benefit of RFS to date is to provide investment certainty re. future federal support for ethanol
- Alternative: limit VEETC to volume up to current levels, and let RIN price stimulate additional consumption of next gen biofuels
  - Still unclear if that would be less costly to taxpayers and consumers than the status quo, incl. cost of RINs and VEETC

Final considerations – Congress and states should consider more comprehensive changes to transportation funding

- If policies are successful, tax revenues from fossil fuel sales will decline, as consumption declines relative to miles driven
  - Electric vehicles: contribute to transportation need, but little or no contribution to transportation revenues
  - As gas mileage increases and electric vehicle penetration increases, need to reconsider how to raise funds
- Tax based on amount of road use (“mileage fee” or “road user fee”), timing of road use, impact on roads (size/weight), and congestion are possible
  - GPS technology makes “metering” road use possible
  - Road user fee pilot programs in Oregon, other jurisdictions
  - Based on underlying economics and technology of “congestion pricing” in Central London
  - Studies done for a UK-wide program
- Allows for broader range of pricing options tailored to particular policy objectives

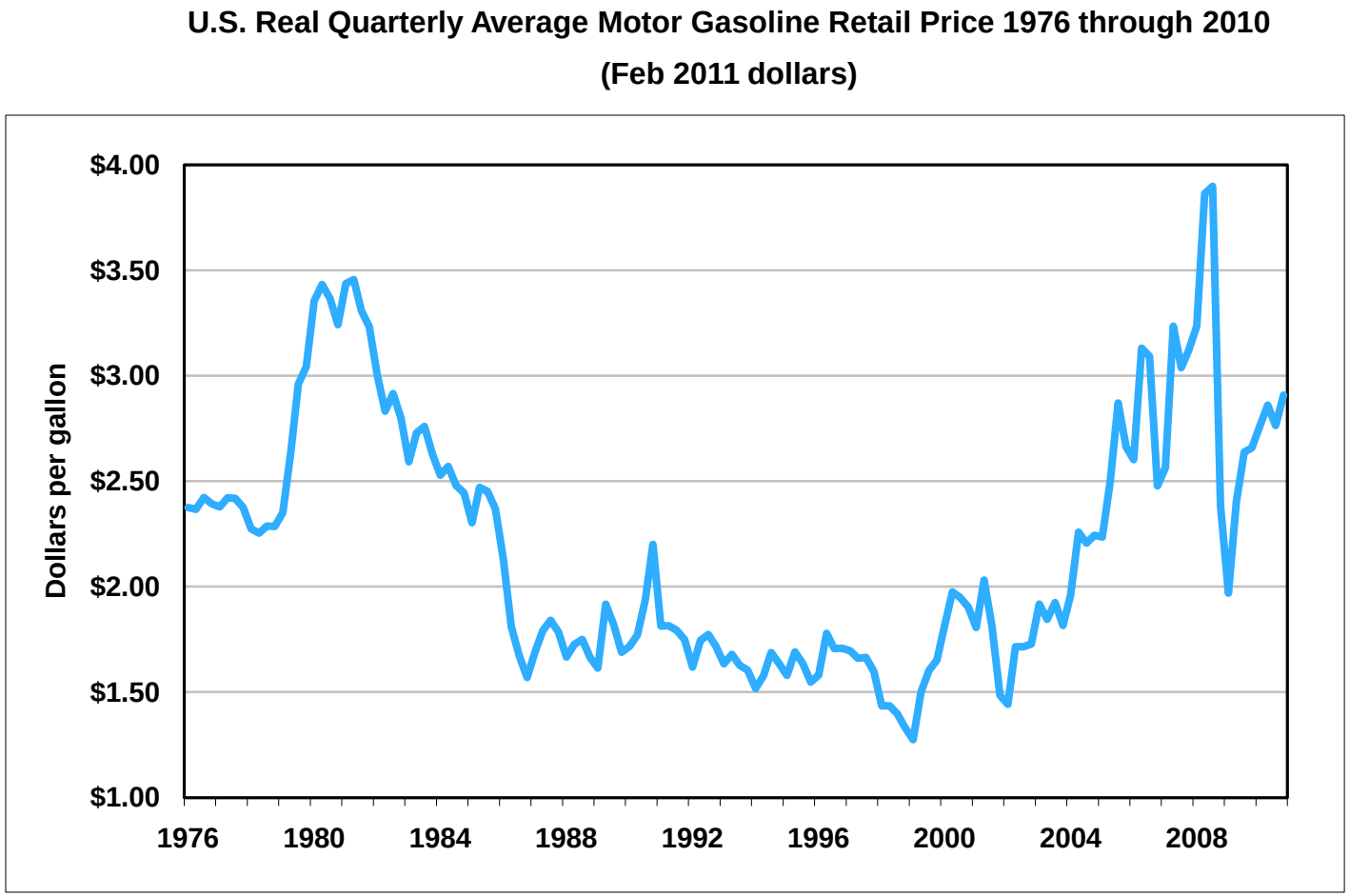
Appendix

Policy choices are increasingly constrained by federal budget deficits



Source: data from http://www.usgovernmentspending.com; projections based on US FY12 budget.

U.S. retail gasoline prices in real terms (constant dollars, 2011)



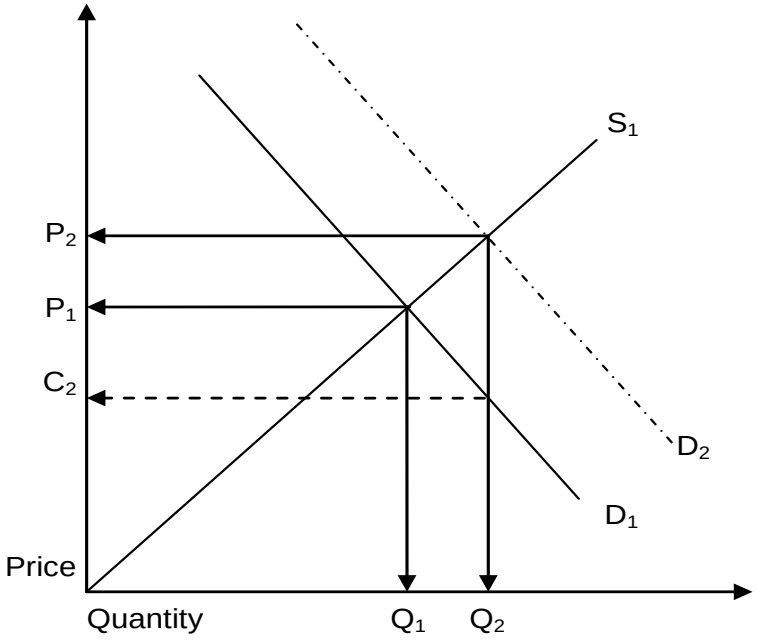
Source: EIA

Tax incidence

- The extent of a tax pass-through is a function of the elasticity of supply and demand
- Economic theory establishes expectation of high pass-through rates when supply is elastic and demand is inelastic
- Transportation fuels exhibit elastic supply and inelastic short-run demand, so the extent of pass-through of gasoline excise taxes is expected to be high
- Empirical evidence shows high pass-through rates for gasoline excise taxes
  - Alm and Sennoga, “Perfect Competition, Spatial Competition, and Tax Incidence in the Retail Gasoline Economy,” 2005
  - Conclusions: both increases and decreases in gasoline excise taxes were entirely passed through to consumer

VEETC – a tax reduction – shifts out the demand curve for ethanol

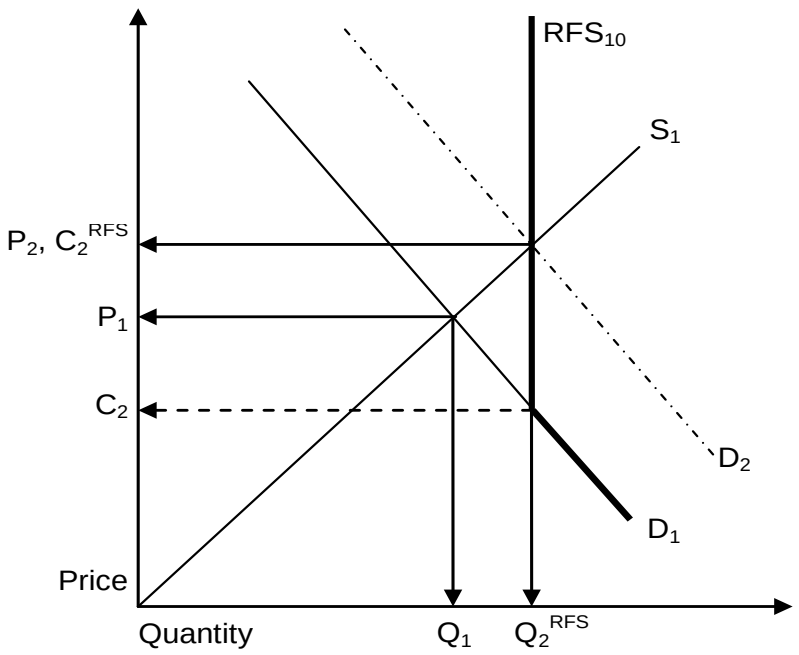
Supply and Demand for Ethanol with VEETC



- VEETC shifts demand curve (D_1) to the right (D_2)
- Increased demand requires higher prices to producers (P_2) for increased supply (Q_2)
- After-tax cost of ethanol to blenders/ consumers falls to C_2
- "Wedge" between ethanol producer prices P_2 and blender/consumer after-tax costs C_2
- Foregone excise tax revenue equals cost savings to consumers

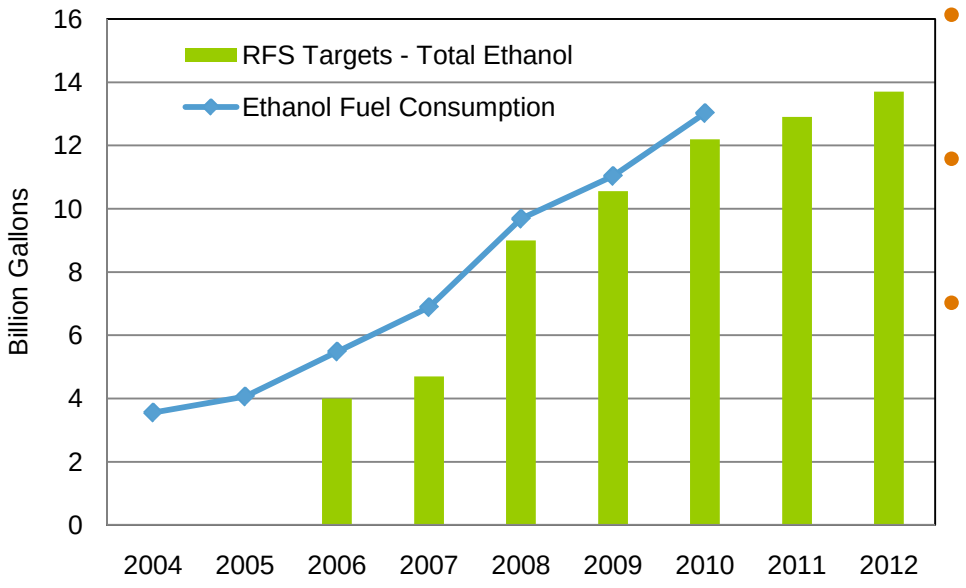
RFS would require blender/consumer ethanol costs to increase to achieve a similar amount of supply

Supply and Demand for Ethanol with RFS



- RFS creates vertical demand curve at mandated volume (RFS_{10})
- Without VEETC, an RFS that gives same increase in ethanol production (Q_2) causes both price to producers and consumers to rise (P_2, C_2^{RFS})
- Consumer cost increases from C_2 under VEETC to C_2^{RFS} under RFS
- Increase in prices results either from price of ethanol, RINs, or both

VEETC and RFS are complementary, not duplicative



- Only one policy instrument is binding at a given time
- RFS not binding to date – only impact from VEETC
- RFS provides strong signal to investors of future ethanol demand, supporting development of increased production capacity