

Promoting bioenergy crops – an economic perspective on challenges and opportunities

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Current policy environment

The 2014 Farm Bill – Crop Insurance

- * Crop insurance premium subsidies now part of the benefits that can be withheld for noncompliance with conservation provisions.
- * Specifically, producers not implementing approved soil conservation plans on highly erodible land or draining wetlands can become ineligible for commodity programs, conservation programs, disaster assistance, and now crop insurance premium subsidies.
- * This is important because on average, the Federal Government pays roughly 60% of crop insurance premiums, and about 80% of acreage for all major commodity crops is now covered by crop insurance.

Current policy environment

The 2014 Farm Bill - Energy

- * The Energy Title was left largely unchanged from the 2008 Bill
- * One of the most important programs in the title is the Biomass Crop Assistance Program (BCAP)
 - * 50% cost share of establishment cost and annual payment to cover cost of land during establishment (capped at \$500 per acre)
 - * Up to \$20 per ton matching price subsidy for collection, harvest, storage and transportation
 - * \$25M budget per year for 5 years
 - * Eligibility requirements
- * No explicit mechanism for selecting land to be enrolled
- * No tools to address price and yield risks
- * No flexibility on establishment cost-share cap - problem for crops with high establishment costs

Current policy environment

The 2014 Farm Bill - Energy

- * The current level of BCAP funding is limited at \$125 Million,
- * There is no mechanism to selectively enroll land (economically AND spatially)
- * Simply increasing funding levels may not be enough if farmers are risk averse and expect high rates of return
- * Supplementing BCAP with a crop insurance program for energy crops and establishment cost loans may be more cost-effective at inducing production of cellulosic biofuels

Current policy environment

The 2014 Farm Bill - Conservation

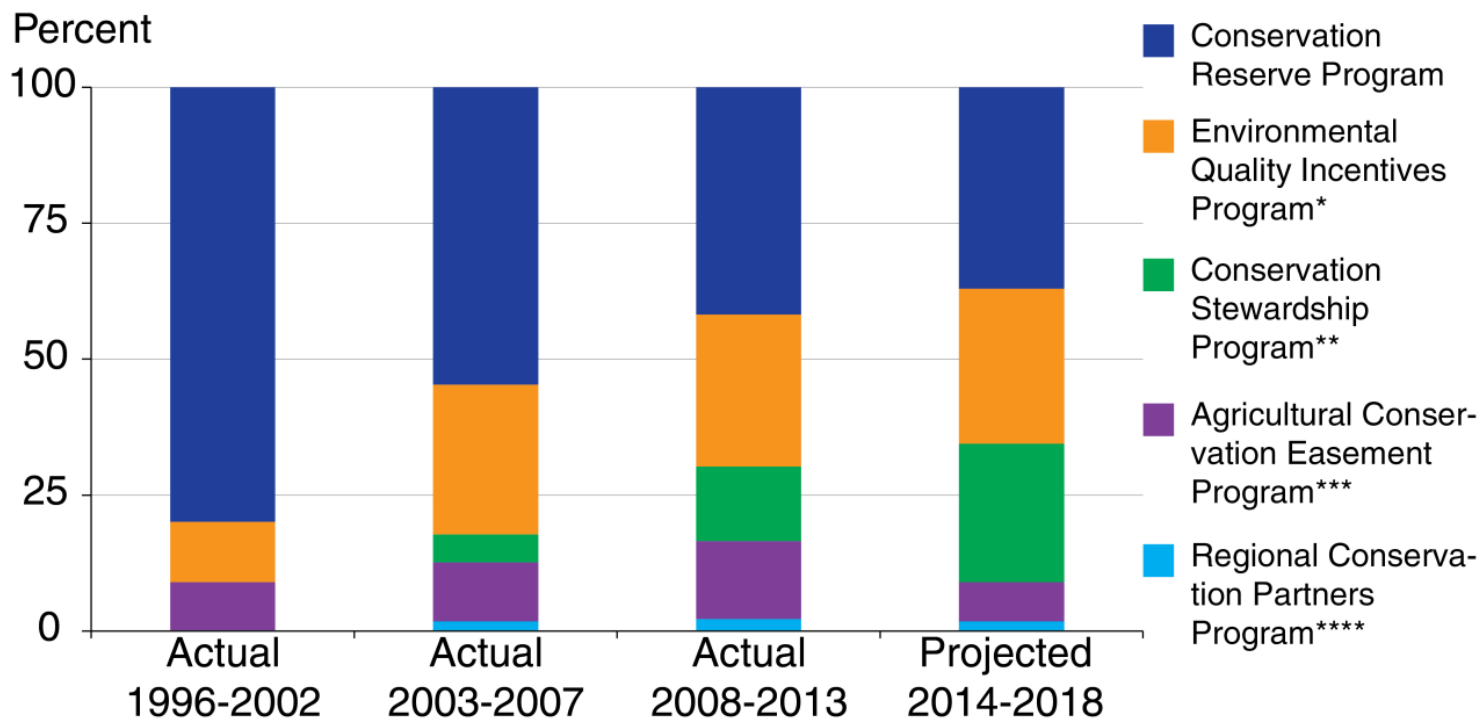
- * **Agricultural Conservation Easement Program (ACEP)—**
Funding for:
 - * long-term easements for the restoration and protection of on-farm wetlands
 - * protection of eligible agricultural land from conversion to nonagricultural uses.
- * ACEP consolidates the Wetlands Reserve Program, the Grassland Reserve Program (easement portion), and the Farmland Protection Program.
- * Annual funding is significantly less than that provided for ACEP predecessor programs in the 2008 Farm Act.

Current policy environment

The 2014 Farm Bill - Conservation

- * The share of mandatory conservation funding devoted to land retirement (CRP) and conservation easements (ACEP) will decline during 2014-2018, and the share of conservation funding for working land conservation programs (EQIP and CSP) will rise, compared with actual spending during 2008-2013.
- * Combined funding for EQIP and CSP is projected to account for more than 50% of conservation spending during 2014-2018. These programs (and predecessors) accounted for just over 40 percent of spending during 2008-2013, 32 percent during 2003-2007, and 11 percent during 1996-2002.

Share of conservation spending by major programs and predecessors in the 2014 and previous farm acts



*Includes EQIP and the Wildlife Habitat Incentives Program for 1996-2013.

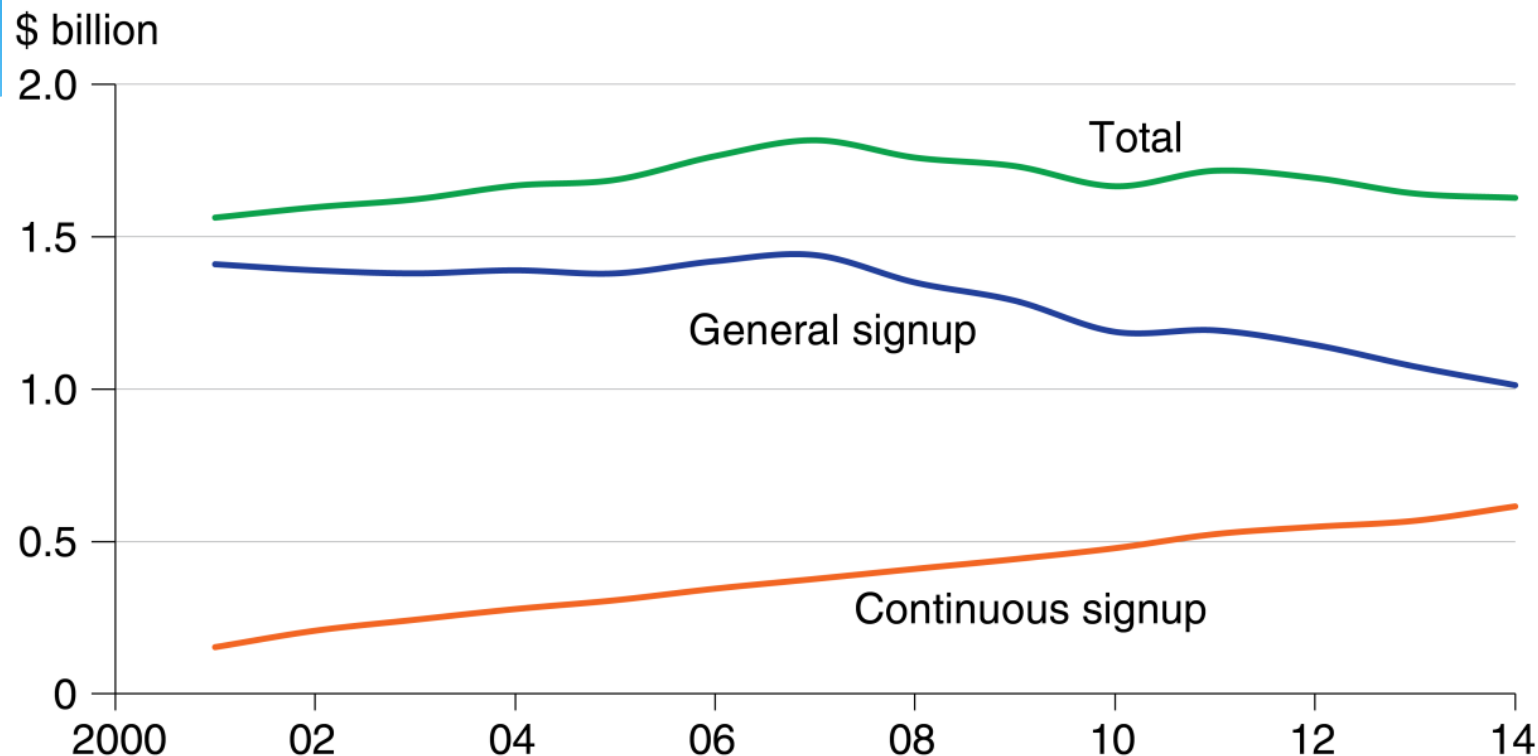
**Includes the Conservation Security Program for 2002-2007.

***Includes the Wetland Reserve Program, Farmland Protection Program, and Grassland Reserve Program (easement portion) for 1996-2013.

****Includes the Agricultural Water Enhancement Program, Chesapeake Bay Watershed Program, Cooperative Conservation Partnership Initiative, and Great Lakes Basin Program for 1996-2013.

Sources: ERS analysis of Office of Budget and Policy Analysis data on actual expenditures for 1996-2013; spending levels provided in the 2014 Farm Act and Congressional Budget Office estimates for 2014-2018.

Conservation Reserve Program annual payments, 2001-2014

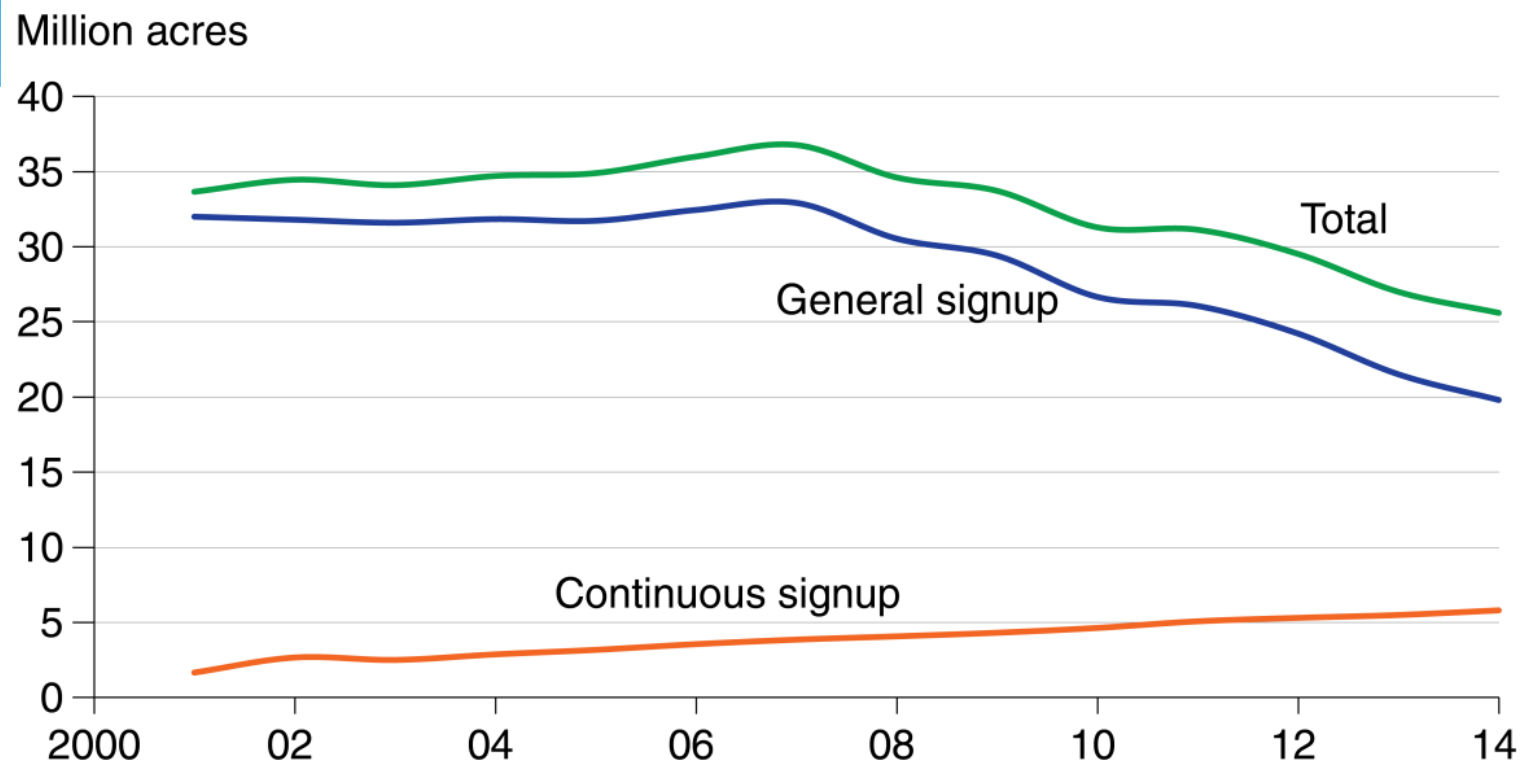


Notes: General CRP signups are competitive and generally enroll whole fields or whole farms. They are announced on a periodic basis by the Secretary of Agriculture; there is no fixed schedule.

Environmentally desirable land devoted to certain conservation practices (including riparian buffers, field-edge filter strips, grassed waterways, wetland restoration, and others) may be enrolled in CRP at any time, without competition, under continuous signups.

Source: ERS, based on data from Farm Service Agency CRP summaries.

Conservation Reserve Program acreage, 2001-2014



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Current Policy Environment

Implementation of the RFS 2

- * The EPA extended the deadline for compliance with the 2013 renewable fuel standard

	EISA mandate (mil/gals)	Revised mandate
2010	100	5
2011	250	6.6
2012	500	10.45 → 0
2013 (under reconsideration)	1,000	14 → 6
2014 (proposed)	1,750	17

Current policy environment

The Clean Power Plan Rule

- * It proposes State-specific reductions of carbon emissions from stationary sources (Electric Generating Units, EGUs) using a variety of approaches (the building blocks)
 1. Reducing the carbon intensity of generation at individual affected EGUs through heat rate improvements.
 2. Reducing emissions from the most carbon-intensive affected EGUs in the amount that results from substituting generation at those EGUs with generation from less carbon-intensive affected EGUs.
 3. **Reducing emissions from affected EGUs in the amount that results from substituting generation at those EGUs with expanded low- or zero-carbon generation.**
 4. Reducing emissions from affected EGUs in the amount that results from the use of demand-side energy efficiency that reduces the amount of generation required.
- * The proposed rule has already been partly struck down by the Supreme Court on June 23...

Current policy environment

AB 32 and the RGGI - Biomass

- * California under AB 32 and the RGGI currently allow for sequestration of carbon due to U.S. forest projects (reforestation, improved forest management, avoided conversion) or afforestation
- * AB 32 allows out of state offsets (with limits)
- * RGGI does not

Current policy environment

AB 32 and the RGGI - Carbon Offsets

- * AB 32's provisions on biomass used to produce liquid fuels and electricity are still being fully developed, however biomass is generally treated as generator of net negative GHG emissions
- * Controversy over the ILUC levels included for corn ethanol – this
- * AB 32 is under litigation

Opportunities - PES

* Private-public partnerships



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Opportunities - PES

- * Valuation of several ecosystem services simultaneously

Benefit estimates of individual ecosystem services for social welfare value, and market value, assuming current markets or potential markets (estimates in \$2008/ha/year).

Ecosystem service	Social value	Market value — current markets	Market value — potential markets
GHG mitigation	\$171–\$222	\$55	\$396
Nitrogen mitigation	\$1248	\$0	\$624
Waterfowl recreation	\$16	\$15	\$15
Total	\$1435–\$1486	\$70	\$1035

Challenges

- * Effective targeting on the basis of multiple ecosystem services can be challenging
 - * Politically
 - * Historically (from a conservation policy perspective) spatial targeting has been unpalatable because it reduces opportunities for farmers to participate in programs
 - * Technically
 - * Valuation is very expensive, and benefit transfer methodologies are more prone to error

Challenges

- * The current Federal policy is very fragmented and creates many opportunities for unintended consequences
 - * Even only looking at carbon alone without considering the impacts on other ecosystem services there is a separation between liquid fuels-related policies and ones addressing stationary sources (EISA \neq CAA)
- * Not enough attention to impacts on the landscape
- * Too much focus on liquid fuels in the last ten years? Is the pendulum swinging back with all the activity on the CAA?
 - * It will all be litigated...