Promoting bioenergy crops – an economic perspective on challenges and opportunities

Silvia Secchi
Southern Illinois University
ssecchi@siu.edu
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.
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
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
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.
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

Percent

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<tbody>
<tr>
<td>Conservation Reserve Program</td>
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<td>Environmental Quality Incentives Program*</td>
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<td>Conservation Stewardship Program**</td>
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<td>Agricultural Conservation Easement Program***</td>
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<tr>
<td>Regional Conservation Partners Program****</td>
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***Includes the Wetland Reserve Program, Farmland Protection Program, and Grassland Reserve Program (easement portion) for 1996-2013.

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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Source: ERS, based on data from Farm Service Agency CRP summaries.
The EPA extended the deadline for compliance with the 2013 renewable fuel standard

<table>
<thead>
<tr>
<th>Year</th>
<th>EISA mandate (mil/gals)</th>
<th>Revised mandate</th>
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<tr>
<td>2010</td>
<td>100</td>
<td>5</td>
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<tr>
<td>2011</td>
<td>250</td>
<td>6.6</td>
</tr>
<tr>
<td>2012</td>
<td>500</td>
<td>10.45 → 0</td>
</tr>
<tr>
<td>2013 (under reconsideration)</td>
<td>1,000</td>
<td>14→ 6</td>
</tr>
<tr>
<td>2014 (proposed)</td>
<td>1,750</td>
<td>17</td>
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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...
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
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.
Private-public partnerships

DU's Carbon Sequestration Program

DU's Carbon Sequestration Program is designed to assist landowners with taking advantage of the expanding carbon market. Our objective is to bring industry and landowners together by assembling carbon offset credits associated with ecologically sound forest or grassland restoration work on private lands. This important work will provide income to landowners, contribute in the effort against global climate change, and help fulfill DU's conservation mission by increasing waterfowl habitat in our priority areas.
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).

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<tr>
<th>Ecosystem service</th>
<th>Social value</th>
<th>Market value – current markets</th>
<th>Market value – potential markets</th>
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<tr>
<td>GHG mitigation</td>
<td>$171–$222</td>
<td>$55</td>
<td>$396</td>
</tr>
<tr>
<td>Nitrogen mitigation</td>
<td>$1248</td>
<td>$0</td>
<td>$624</td>
</tr>
<tr>
<td>Waterfowl recreation</td>
<td>$16</td>
<td>$15</td>
<td>$15</td>
</tr>
<tr>
<td>Total</td>
<td>$1435–$1486</td>
<td>$70</td>
<td>$1035</td>
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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
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 ≠ 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...