The Current and Future Outlook for Carbon Markets

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2022 Indiana Certified Crop Advisor Program
Indianapolis, IN

December 13, 2022

TEXAS A&M AGRILIFE RESEARCH | EXTENSION

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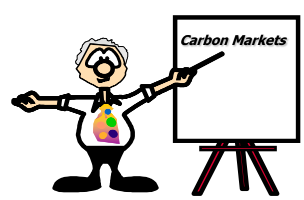
Presentation Outline

- Background…. How is This Different From Last Time?
  - Cap & Trade versus Voluntary
  - Corporation led
- The Good, The Bad and the Yet to be Determined
- Federal Policy
- Where Do We Go From Here?
- Summary and Conclusions



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Different Than Last Time?

AgriLIFE RESEARCH & EXTENSION
Texas A&M System

TEXAS A&M UNIVERSITY

Economic Implications of the EPA Analysis of the CAP and Trade Provisions of H.R. 2454 for U.S. Representative Farms

AFPC Research Paper 09-2

August 2009

Agricultural and Food Policy Center AFPC

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Concept of Cap & Trade

- Set a hard cap on emissions and polluters can buy offsets from someone who could reduce emissions cheaper than they could (forest owners, farmers)
- The American Clean Energy and Security Act of 2009" (H.R. 2454) introduced by Representative Henry Waxman
- At the time, the market was the Chicago Climate Exchange
- For more information on cap and trade systems see AFPC Research Report 08-3 by Ribera, Zenteno and McCarl entitled, *Carbon Markets: A Potential Source of Financial Benefits for Farmers and Ranchers*

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Concept of Cap & Trade (Cont.)

- Because polluters emissions were capped their costs would increase either by adopting technology to reduce emissions or from buying offsets

Table 1. Estimated Changes in Inflation Rates Relative to the Base Situation for Motor Fuel, Natural Gas, and Electricity Reported by EPA and CRA International by 2020.

	EPA	CRA International
Motor Fuel	0.04	0.04
Natural Gas	0.085	0.14
Electricity	0.127	0.16

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Conservation Tillage Soil Offset Map

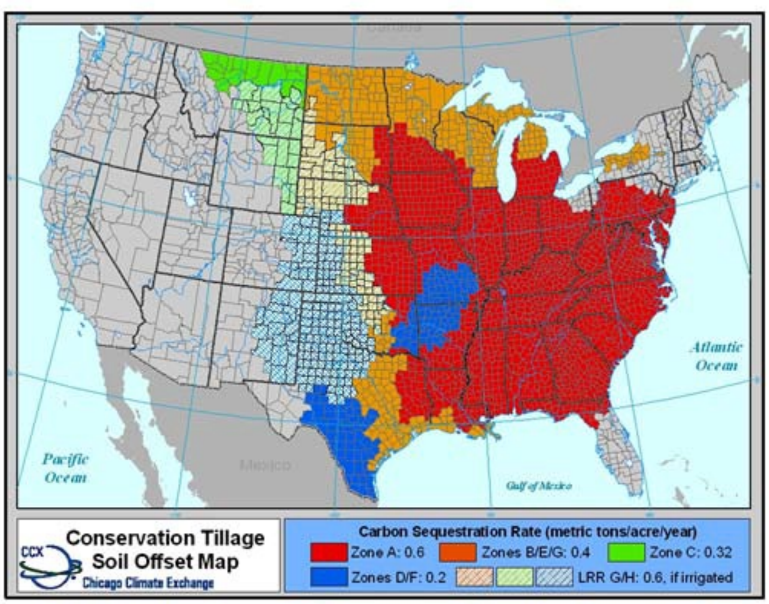

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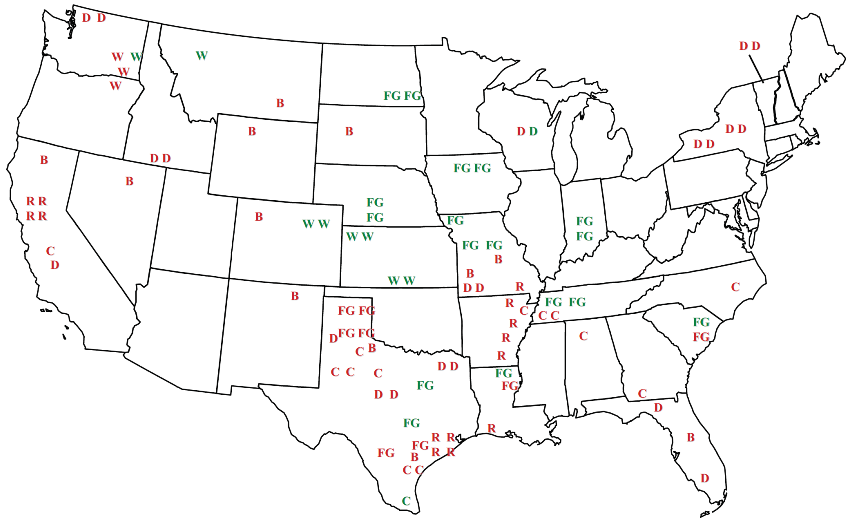
Figure 2. Representative Farms, Dairies, and Ranches Analyzed Under the C&T with Ag Carbon Credits Scenario Showing Higher and Lower Ending Cash in 2016.



Farms, dairies, and ranches are classified as "green" if their ending cash in 2016 is higher under the C&T with Ag Carbon Credits scenario compared to the Baseline. Similarly, those classified as "red" had lower ending cash in 2016 under the alternative versus the Baseline.

Legend

FG: Feedgrain	D: Dairy
W: Wheat	B: Beef Cattle
C: Cotton	R: Rice

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What is Driving Carbon Markets?

Forbes

Mar 24, 2021, 09:30am EDT | 1,446 views

A Fifth Of World's Largest Companies Committed To Net Zero Target

Bloomberg Green

Wells Fargo Targets Net-Zero Emissions After Rivals Set Goals

By Hannah Levitt
March 8, 2021, 2:50 PM EST

US Airlines Commit to Achieve Net-Zero, Help Industry Reach 2 Billion Gallons of Sustainable Aviation Fuel by 2030

APRIL 5, 2021 BY JENNIFER NASTU

Sep 30, 2020, 10:01am EDT | 1,758 views

Walmart Pledges Zero Emissions By 2040

bp

We aim to be **a very different kind of energy company by 2030** as we **scale up investment in low-carbon**, focus our oil and gas production and make headway on **reducing emissions.** Our **new strategy** kickstarts a decade of delivery towards our **#bpNetZero ambition**

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What is Driving Carbon Markets?

Changing Tastes

Source: Expedia Group, Travel Value Index 2022 Outlook

protect the environment.[10]

of consumers stating they want companies to do a better job explaining how their purchases impact the planet.[11]

willing to pay more for environmentally friendly products.[12]

Field to Market

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Is There a Carbon Market?

- Not in the sense of markets we normally think of… like an auction barn
- State government's GHG regulations – COMPLIANCE MARKETS
  - Example: California's Cap and Trade Program
- Corporate Sustainability Reporting – VOLUNTARY MARKETS

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The Good

- **Voluntary programs**
- Several traditional crop protection companies that are familiar to producers in addition to a few newcomers are serving as "middlemen"
- Not an all or nothing proposition
- Absolutely no hurry… in fact… hold on for a second
- Primary practices earning carbon credits (no-till, cover crops and rotational grazing) aren't exactly new
- Producer production costs are going up… so they may as well benefit
- A Positive in the Court of Public Opinion

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The Bad

- Uncertainty Regarding Potential Policies
  - Conservation programs got a BIG boost in IRA…
  - Could producers somehow miss out on these programs?
- Unless you Have a Law Degree… You're Going to Need a Lawyer
- The Price is NOT Right….

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Yet to Be Determined

- Will carbon credit trading stick?
  - Cap & Trade abandoned in 2010 due flip in House of Representatives
  - The House flipped so will be more difficult… but different this time.. Led by corporations
- How Long Will it Take to Build Enough Trust?
- Corporate America is Buying A lot of Credits
  - Lots of Net Carbon Zero by 20XX
  - Will They Stick With Their Pledges When Inflation and Remedy to inflation (higher interest rates) hurt earnings per share?
  - Is it because they want to hurry to do the right thing or afraid the price is going up??
- Additionality??

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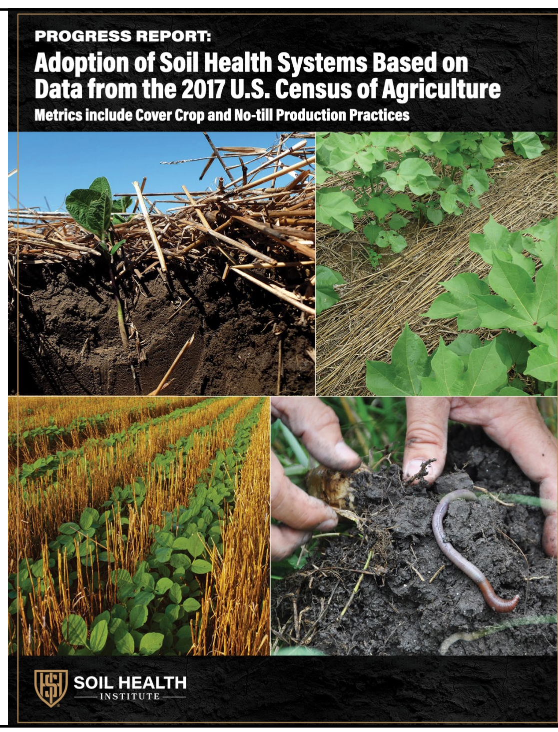

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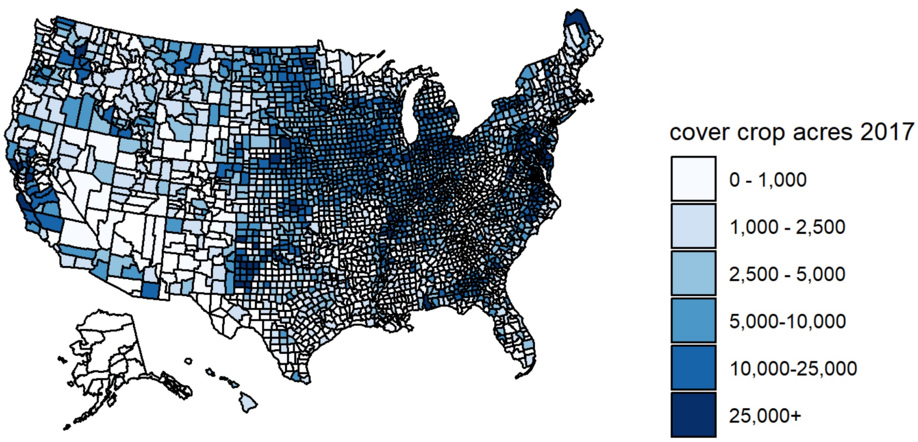
Cover Crop Acres in 2017



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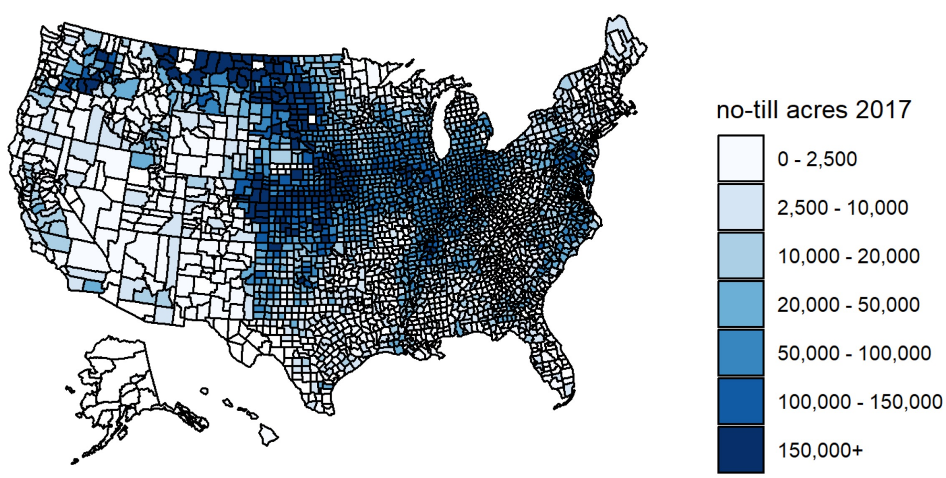
No-till Acres in 2017



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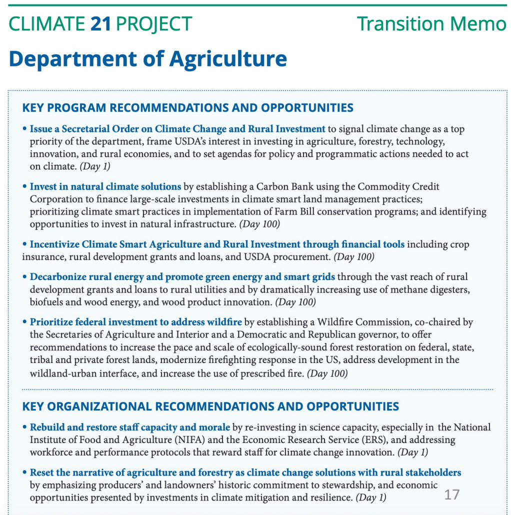
Climate Policy: Recent Activity

- Biden Transition: Climate 21 Project.


CLIMATE **21** PROJECT — Transition Memo

Department of Agriculture

KEY PROGRAM RECOMMENDATIONS AND OPPORTUNITIES

- **Issue a Secretarial Order on Climate Change and Rural Investment** to signal climate change as a top priority of the department, frame USDA's interest in investing in agriculture, forestry, technology, innovation, and rural economies, and to set agendas for policy and programmatic actions needed to act on climate. *(Day 1)*
- **Invest in natural climate solutions** by establishing a Carbon Bank using the Commodity Credit Corporation to finance large-scale investments in climate smart land management practices; prioritizing climate smart practices in implementation of Farm Bill conservation programs; and identifying opportunities to invest in natural infrastructure. *(Day 100)*
- **Incentivize Climate Smart Agriculture and Rural Investment through financial tools** including crop insurance, rural development grants and loans, and USDA procurement. *(Day 100)*
- **Decarbonize rural energy and promote green energy and smart grids** through the vast reach of rural development grants and loans to rural utilities and by dramatically increasing use of methane digesters, biofuels and wood energy, and wood product innovation. *(Day 100)*
- **Prioritize federal investment to address wildfire** by establishing a Wildfire Commission, co-chaired by the Secretaries of Agriculture and Interior and a Democratic and Republican governor, to offer recommendations to increase the pace and scale of ecologically-sound forest restoration on federal, state, tribal and private forest lands, modernize firefighting response in the US, address development in the wildland-urban interface, and increase the use of prescribed fire. *(Day 100)*

KEY ORGANIZATIONAL RECOMMENDATIONS AND OPPORTUNITIES

- **Rebuild and restore staff capacity and morale** by re-investing in science capacity, especially in the National Institute of Food and Agriculture (NIFA) and the Economic Research Service (ERS), and addressing workforce and performance protocols that reward staff for climate change innovation. *(Day 1)*
- **Reset the narrative of agriculture and forestry as climate change solutions with rural stakeholders** by emphasizing producers' and landowners' historic commitment to stewardship, and economic opportunities presented by investments in climate mitigation and resilience. *(Day 1)*

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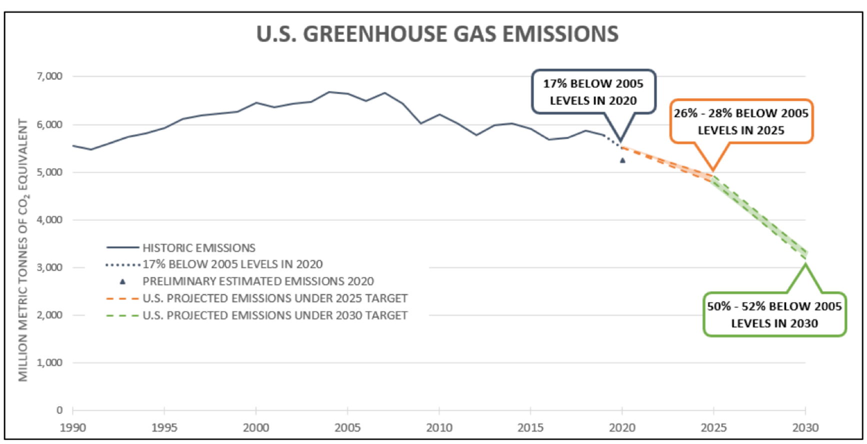
Climate Policy: Recent Activity

- Biden announced the U.S. was rejoining the Paris Climate Accords on his first day in office.



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Source: https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/United%20States%20of%20America%20First/United%20States%20NDC%20April%2021%202021%20Final.pdf

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Climate Policy: Recent Activity

- The *Growing Climate Solutions Act* passed the Senate on June 24, 2021.
  - The act directs USDA to establish a certification program for private entities that provide technical assistance to farmers, ranchers, and foresters who participate in voluntary markets that trade environmental credits.
- On September 29, 2021, Secretary Vilsack announced a request for information on the Climate-Smart Agriculture and Forestry Partnership Initiative.
  - The purpose of the initiative is "to finance the deployment of climate-smart farming and forestry practices to aid in the marketing of climate-smart agricultural commodities" using "a set of pilot projects" that "could rely on the Commodity Credit Corporation's specific power to aid in expansion or development of new and additional markets."

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President Biden's 2 Infrastructure Proposals

- Infrastructure Investment and Jobs Act $1.2 trillion
- ~~Build Back Better~~ $2.4 trillion
- Inflation Reduction Act $740 billion

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August 2022

**The Inflation Reduction Act of 2022:
What's in it for Agricultural Producers?**

AFPC

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www.afpc.tamu.edu

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Inflation Reduction Act (IRA)

Climate change investments:

- Incentives like a $4,000 tax credit for the purchase of used EVs, and $7,500 for new ones that are assembling vehicles in the U.S. The new credits would apply to trucks, vans and SUVs priced under $80,000 and cars up to $55,000 (only families with adjusted gross incomes of up to $300,000 would be eligible). This credit comes with stipulations that may make it difficult for vehicles to actually qualify, including a requirement that some of the minerals used in their batteries come from countries that have free-trade deals with the U.S. Minerals from China, a major supplier, wouldn't meet that requirement. The vast majority of EVs on the market won't actually qualify for it. The Alliance for Automotive Innovation, an influential trade group, estimates that 70% of the 72 EV and plug-in hybrid vehicles currently available in the U.S. market will not be eligible for the credit. If you're in the market for an EV Consumer Reports has the breakdown of which models will qualify for the credit under the law.
- There are also energy rebates for heat pumps, rooftop solar, electric HVAC and water heaters, as the U.S. aims to lower carbon emissions by around 40% by 2030.

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Inflation Reduction Act (IRA)

The package includes nearly $38B for ag conservation, credit, renewable energy, and forestry. Funding would remain available only through FY 2031

- **Conservation:** The IRA provides $19.5 billion for agricultural conservation. It would add over $18 billion in additional funding for existing farm bill conservation programs, including the Environmental Quality Incentives Program (EQIP; $8.45 billion), Regional Conservation Partnership Program (RCPP; $4.95 billion), Conservation Stewardship Program (CSP; $3.25 billion) and Agricultural Conservation Easement Program (ACEP; $1.40 billion). These programs provide financial and technical assistance to private landowners to voluntarily implement conservation practices on agricultural land. **Program funds would be directed to climate change-related goals and would prioritize mitigation activities**. The measure also extends some of these programs' authorities beyond their current expiration in fiscal year (FY) 2023, to FY 2031. Some program authorities would not be extended, such as payment and income limits. Additional funding would also be provided for conservation technical assistance ($1.0 billion), a carbon sequestration and greenhouse gas emissions quantification program ($300 million), and administrative expenses ($100 million).

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Inflation Reduction Act (IRA)

Ag credit: The IRA provides debt relief for distressed farm borrowers and assistance for underserved farmers and ranchers. These provisions would replace similar provisions from the American Rescue Plan Act that were blocked by the courts because the relief was found to be race-based and not narrowly tailored to meet a compelling state interest. It would use budgetary offsets of about $6 billion rescinded or repurposed from the ARPA funding. The new debt relief program would provide $3.1 billion for debt modifications, including debt forgiveness, for "distressed borrowers" of USDA Farm Service Agency direct or guaranteed farm loans "whose agricultural operations are at financial risk." USDA is expected to develop the criteria for eligibility.

The measure also includes nearly $2.9 billion to help underserved farmers, ranchers, and forest landowners, defined to include those living in high poverty areas, veterans, limited resource producers, and beginning farmers and ranchers. Most of this assistance is $2.2 billion of financial assistance for those who experienced discrimination before 2021 in USDA farm lending programs. Individual payments for discrimination would be limited to $500,000 and are to be administered by nongovernmental entities selected and overseen by USDA.

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Inflation Reduction Act (IRA)

Ag credit: Continued

The bill also would provide $125 million for technical assistance, outreach, and mediation; $250 million for land loss assistance, such as heirs' property and fractionated land; $250 million for agricultural education emphasizing scholarships and career development at historically Black, tribal, and Hispanic colleges; and $10 million for equity commissions at USDA.

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Inflation Reduction Act (IRA)

Renewable energy. The IRA provides $13.3 billion for farm bill energy title programs. It would provide $1 billion for electric loans for renewable energy under the Rural Electrification Act. USDA may use the funding to make loans for electric generation from renewable energy resources, including for projects that store electricity. The bill would provide approximately $1.7 billion for eligible projects under the Rural Energy for America Program (REAP) and approximately $304 million for grants and loans for underutilized renewable energy technologies and technical assistance with REAP applications. The bill provides $500 million for grants to increase the sale and use of agricultural commodity-based fuels through infrastructure improvements for blending, storing, supplying, or distributing biofuels.

For rural cooperatives, it would provide $9.7 billion — for financial assistance (e.g., loans) to eligible entities for the long-term resiliency, reliability, and affordability of rural electric systems through the purchase of renewable energy, renewable energy systems, zero-emission systems, carbon capture and storage systems, and more.

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Inflation Reduction Act (IRA)

Renewable energy. Continued

The package provides $5 million to the Environmental Protection Agency to carry out the Renewable Fuel Standard program, in part, for data collection and analyses for lifecycle greenhouse gas emissions of a fuel and would provide $10 million for new grants to support investment in advanced biofuels.

The IRA establishes a sustainable aviation fuel (SAF) tax credit that would, after 2024, be absorbed into a new clean fuel production tax credit.

The plan extends tax incentives for biofuels, including for biodiesel and renewable diesel, through 2024.

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USDA to invest $3B in establishing climate smart commodities

the partnership will provide grants to partners to implement pilot projects that will help incentivize farmers to adopt climate-smart production practices, activities, and systems on working lands; measure/quantify, monitor and verify the carbon and greenhouse gas benefits associated with those practices; and develop markets and promote the resulting climate-smart commodities.

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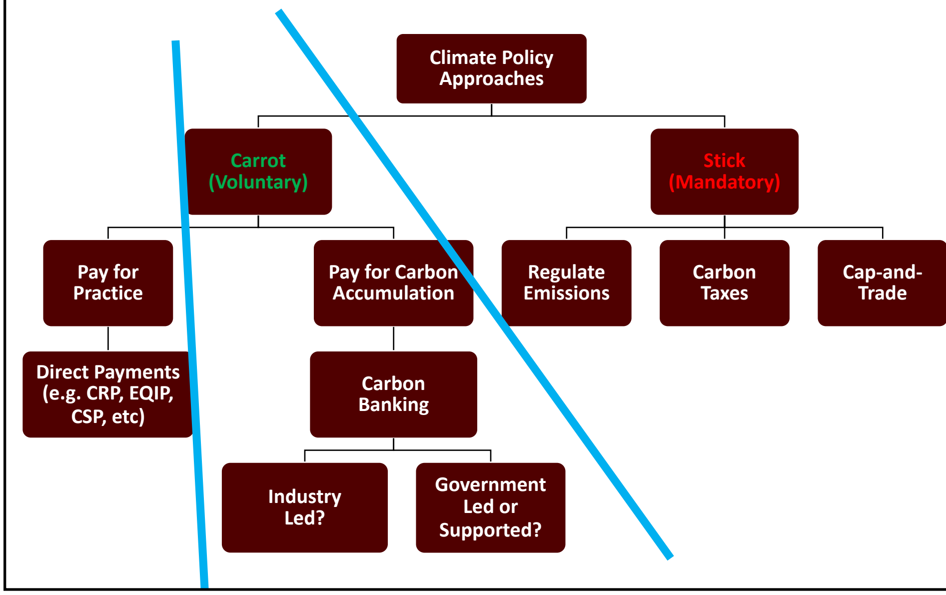
Two Choices on Climate Policy



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ECONOMIC EVALUATION OF REGENERATIVE AGRICULTURE ON PRODUCER PROFITABILITY

A Thesis

by

HARLEA ANNE HOELSCHER

Submitted to the Graduate and Professional School of
Texas A&M University
in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE

Chair of Committee,	Joe Outlaw
Committee Members,	Henry Bryant Monty Dozier
Head of Department,	David Leatham

August 2022

Major Subject: Agricultural Economics

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SECURITIES AND EXCHANGE COMMISSION

17 CFR 210, 229, 232, 239, and 249

[Release Nos. 33-11042; 34-94478; File No. S7-10-22]

RIN 3235-AM87

The Enhancement and Standardization of Climate-Related Disclosures for Investors

AGENCY: Securities and Exchange Commission

ACTION: Proposed rule.

SUMMARY: The Securities and Exchange Commission ("Commission") is proposing for public comment amendments to its rules under the Securities Act of 1933 ("Securities Act") and Securities Exchange Act of 1934 ("Exchange Act") that would require registrants to provide certain climate-related information in their registration statements and annual reports. The proposed rules would require information about a registrant's climate-related risks that are reasonably likely to have a material impact on its business, results of operations, or financial condition. The required information about climate-related risks would also include disclosure of a registrant's greenhouse gas emissions, which have become a commonly used metric to assess a registrant's exposure to such risks. In addition, under the proposed rules, certain climate-related financial metrics would be required in a registrant's audited financial statements.

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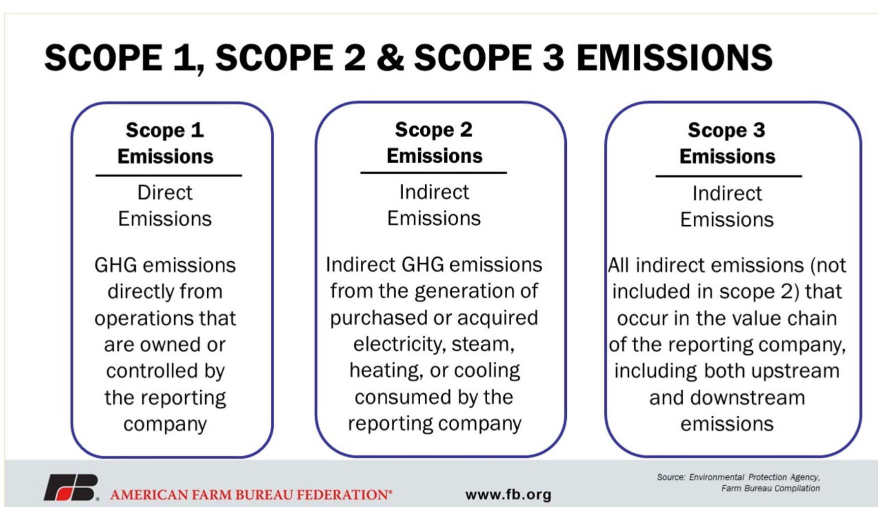
The SEC proposed rule is 510 pages long, with 1,068 technical footnotes and 750 direct questions, but the SEC has only given farmers 39 days for review, with public comments due May 20, 2022. The rule suggests that an individual farm could face significant costs in monitoring and reporting and asks for additional information in comments; but even the most basic analysis will require additional time.



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Specifically, the proposed rule requires a registrant to disclose information about its direct greenhouse gas emissions (Scope 1) and indirect emissions from purchased electricity or other forms of energy (Scope 2). In addition, a registrant would be required to disclose greenhouse gas emissions from upstream and downstream activities in its value chain (Scope 3) under many – if not most – circumstances. The SEC claims that this requirement for greenhouse gas emissions disclosures would "provide investors with information useful in decision-making as an investor assesses a registrant's exposure to, and management of, climate-related risks, and in particular transition risks."

For farmers to stay compliant with the companies that purchase their products downstream, this could mean producers will need to track and disclose on-farm data regarding individual operations and day-to-day activities. Unlike large corporations currently regulated by the SEC, farmers do not have teams of compliance officers or attorneys dedicated to handling SEC compliance issues. This could force farmers of all sizes, but particularly those with small and medium-sized operations, to report data they may be unable to provide, which would result in a costly additional expense or a loss of business to larger farms.

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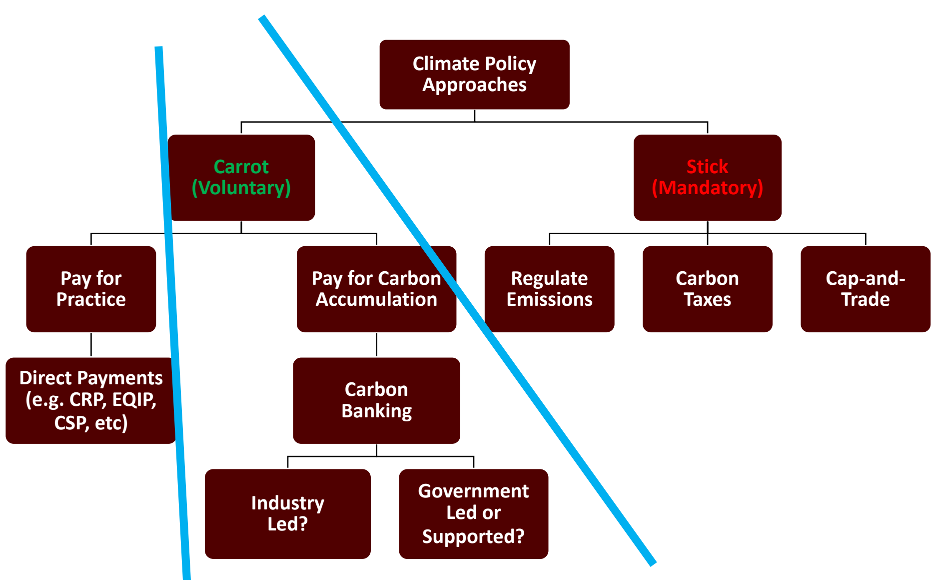
Two Choices on Climate Policy



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On March 16, I testified before the House Agriculture Committee at a hearing titled "A 2022 Review of the Farm Bill: The Role of USDA Programs in Addressing Climate Change". Working closely with commercial producers has provided the Agricultural and Food Policy Center with a unique perspective on agricultural policy.

While we normally provide the results of policy analyses at committee hearings, on this occasion I was carrying the message from the nearly 675 producers we work with across the United States.

In preparation for the testimony we emailed our representative farm members the following points that I planned on making and asked them to let us know if they agreed or disagreed with each of the 5 points. In two days, we received 105 responses and several more after I had submitted my testimony.

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1. Having a strong safety net from Title I programs (ARC/PLC and the marketing loan) and Title XI (crop insurance) remains critical even with new carbon market opportunities. They unanimously agreed with this statement in spite of the fact they expect very little benefit from Title I programs this year.

2. USDA conservation programs (CRP, CSP and EQIP) that have incentivized a broad array of conservation practices have worked well in the past. They have just been under funded. Producers much prefer this type of program to the current carbon program situation where the significant record keeping requirements, additionality requirements, uncertain soil tests, and very low financial benefits have the majority of our representative farm panel members not interested in participating.

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3. Congress should strongly consider providing financial incentives to early adopters who are not eligible to participate in current carbon programs due to the additionality requirement. If it is good to sequester carbon it should also be good to keep carbon sequestered. Many of the producers who responded to my request indicated that they are disgusted with a system that only rewards late adopters.

4. All producers regardless of size, region, or crops planted should have opportunities in any new USDA climate programs. This statement appears fairly benign but let me assure you it is not. If all producers in the U.S. do not have some USDA NRCS identified practice they can undertake in the name of sequestering carbon then there will be regional winners and losers, and by crop, and by size as carbon programs are created.

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5. Congress should consider providing USDA the authority to safeguard producers from being taken advantage of in current carbon markets dealing with private entities. For example, signing a carbon contract with at least one current company would require a producer to forgo commodity and conservation program benefits on that land. This is really the only point where many producers disagreed with me. Several producers would rather not have the government get involved in the carbon market at all and asked me to point out that while they see a problem – it could be made worse.

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Current State of Carbon Trading

- Early stages of market development and price discovery…for most, current market prices do NOT cover the full cost and risk of adopting practices for row crop farmers
- According to World Bank, to cost effectively reduce emissions in line with the Paris Agreement:
  - \$40 - \$80 per mt CO2eq by 2020
  - \$50 - \$100 per mt CO2eq by 2030.

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CURRENT CARBON PROGRAMS FOR ROW CROP PRODUCERS

- Bayer Carbon
- CIBO
- Ecosystem Services Market Consortium (ESMC)
- Indigo
- Gradable
- Nori
- Nutrien
- Truterra
- Soil and Water Outcomes Fund (SWOF)
- Cargill RegenConnect
- Corteva
- Agoro
- Farmers Edge
- ARVA Intelligence Corp.
- Kellogg's InGrained

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I Would Not Even Consider Any of This Without Having My Lawyer Look Over Contract

- In Extension, we have Tiffany Dowell Lashmet out of Amarillo that is knowledgeable about these contracts
- Blog post: https://agrilife.org/texasaglaw/2022/01/24/understanding-evaluating-carbon-contracts/
- Podcast episode: https://aglaw.libsyn.com/episode-117-anson-howard-todd-janzen-carbon-contracts

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Her Top 10 List of Considerations

1. Read the Contract
2. What practices are required?
3. How will payment be structured?
4. What is the term of the contract?
5. How will verification be done?
6. What other uses can you make?
7. What penalties could be imposed?
8. How broad is the stacking prohibition?
9. What data must you provide? (next slide)
10. My Father's Favorite Section

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Summary and Conclusions

- ~~Tremendous~~ Good?? Opportunity for Producers
- Despite being a major priority for the current administration, progress on climate policy has been slow.
- Have been telling producers it is probably not the worst idea to give this more time to play out before jumping in
- ~~I expect USDA to be more involved relatively soon~~ IRA will significantly increase conservation Baseline… still too soon to tell how it is going to work…

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Thanks!!!

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