

IRA Readiness

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Today's Speakers:



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Agenda

- > IRA Basics
 - > IRA Effect on Ethanol Christianson
- > GHG Reduction Options
 - > Ethanol Plant Options
 - > Corn Farming Options
 - > CCS
- > Verification
 - > Potential Farming Compliance
- > Revenue Implications
 - > Incentive Value
 - > Next Steps, Q&A

Extended Tax Credits

*Potential reductions if tax-exempt bonds or grants received for facility

Production Tax Credit (45D)	Energy Tax Credit (48)	Alternative Fuel Refueling Property (30C)	Biodiesel, Renewable Diesel, & Alternative Fuels (40A)	Second Generation Biofuel (40B)
<p>Ends 12/31/2024</p> <p>Base - \$0.003 per kWh</p> <p>Increased - \$0.015 per kWh</p>	<p>Ends 12/31/2034</p> <p>Base - 6% of depreciable basis</p> <p>Increased - 30% of depreciable basis</p>	<p>Ends 12/31/2032</p> <p>Base - 6% of depreciable basis</p> <p>Increased - 30% of depreciable basis</p>	<p>Ends 12/31/2024</p> <p>\$1.00 per gallon</p>	<p>Ends 12/31/2024</p> <p>\$1.01 per gallon</p>

Carbon Oxide Sequestration Tax Credit (45Q)

- > Ending 12/31/2032
- > Carbon Oxides and Dioxides (does not include equivalents)
- > 12-year claim period, or 5-year direct pay
- > Direct Air Capture (DAC) – carbon captured from ambient air
 - > Per EPA – ambient air is the “portion of atmosphere, external to buildings, to which the general public has access.”

> Secure Geological Storage

- > Base - \$17 per mt
- > Increased - \$85 per mt
- > DAC:
 - > Base - \$36 per mt
 - > Increased - \$180 per mt

> Tertiary Injectant or Utilization (45Q(f)(5))

- > Base - \$12 per mt
- > Increased - \$60 per mt
- > DAC:
 - > Base - \$26 per mt
 - > Increased - \$130 per mt

Direct Pay Option

- > Beginning 1/1/2023, Ending 12/31/2032
- > Election made by Partnership, S-Corporation, or Co-op
 - > Tax filing due date (including extensions)
 - > Irrevocable
 - > Non-transferable
- > Secretary of the Treasury pays out credit
- > Tax-Exempt Income
- > No Credit passed through to owners



Qualifying Advanced Energy Project Credit (48C)

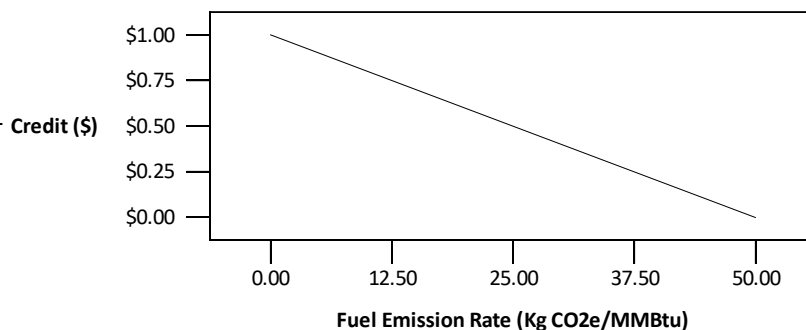
- > Projects related to:
 - > Expanding or establishing Manufacturing facilities of clean energy equipment
 - > Reducing GHG at a manufacturing facility by 20% or more
 - > Expanding or establishing facilities for processing, refining or recycling critical minerals
- > 30% of depreciable basis of project (6% base)
- > Prior approval from DOE and IRS required
 - > PIS within 2 years from approval
- > ONLY \$10B allocated to credit
- > Notice 2023-18 details the application process

Clean Fuel Production Tax Credit (45Z)

*Subject to Treasury/IRS guidance to be issued by 12/31/2024

- > Tax Years: 1/1/2025 – 12/31/2027 (3 years)
- > Replaces SAF (40B), Biodiesel (40A), and Second Gen (40B)
- > Secretary's will publish emission rate for applicable fuel type (*REET Model*)
- > Credit = Rate/gal X Emissions Factor X gallons
 - > Emissions Factor = (50 Kg CO₂e/mmBTU – emissions rate) / 50 Kg CO₂e/mmBTU
 - > Rate per gallon:

	Base	Alternative
Highway	\$0.20	\$1.00
Aviation	\$0.35	\$1.75



45Z - Disqualifications

*Subject to Treasury/IRS guidance to be issued by 12/31/2024

- > Related Party Sales
- > “Allowed” for 45Q, 45V, or 46
 - > 45Z(d)(4)(B) – “The term ‘qualified facility’ does not include any facility for which one of the following credits is allowed under section 38 for taxable year:
 - > (i) The credit for production of clean hydrogen under section 45V.
 - > (ii) The credit determined under section 46 to the extent that such credit is attributable to the energy credit determined under section 48 with respect to any specified clean hydrogen production facility for which an election is made under subsection (a)(15) of such section.
 - > (iii) The credit for carbon oxide sequestration under section 45Q.”
 - > Treasury/IRS definition of “allowed” based on past guidance – the ability to take a deduction or credit of a specified dollar amount, whether you use it or not.

Increased Credits' Requirements

*Facilities where construction begins 1/29/2023 or later (IRS Notice 2022-61)

> Prevailing Wage

- Davis-Bacon Act of 1931
- Per Secretary of Labor
 - [Sam.gov](http://sam.gov) or IRAprevailingwage@dol.gov
- Includes fringe benefits
- ALL Employees, contractors, & subcontractors
- Track:
 - Applicable Wage
 - Hours Worked
 - Individuals
 - Wages/Benefits Paid
 - Work Classification
 - Timeframe

> Apprenticeship

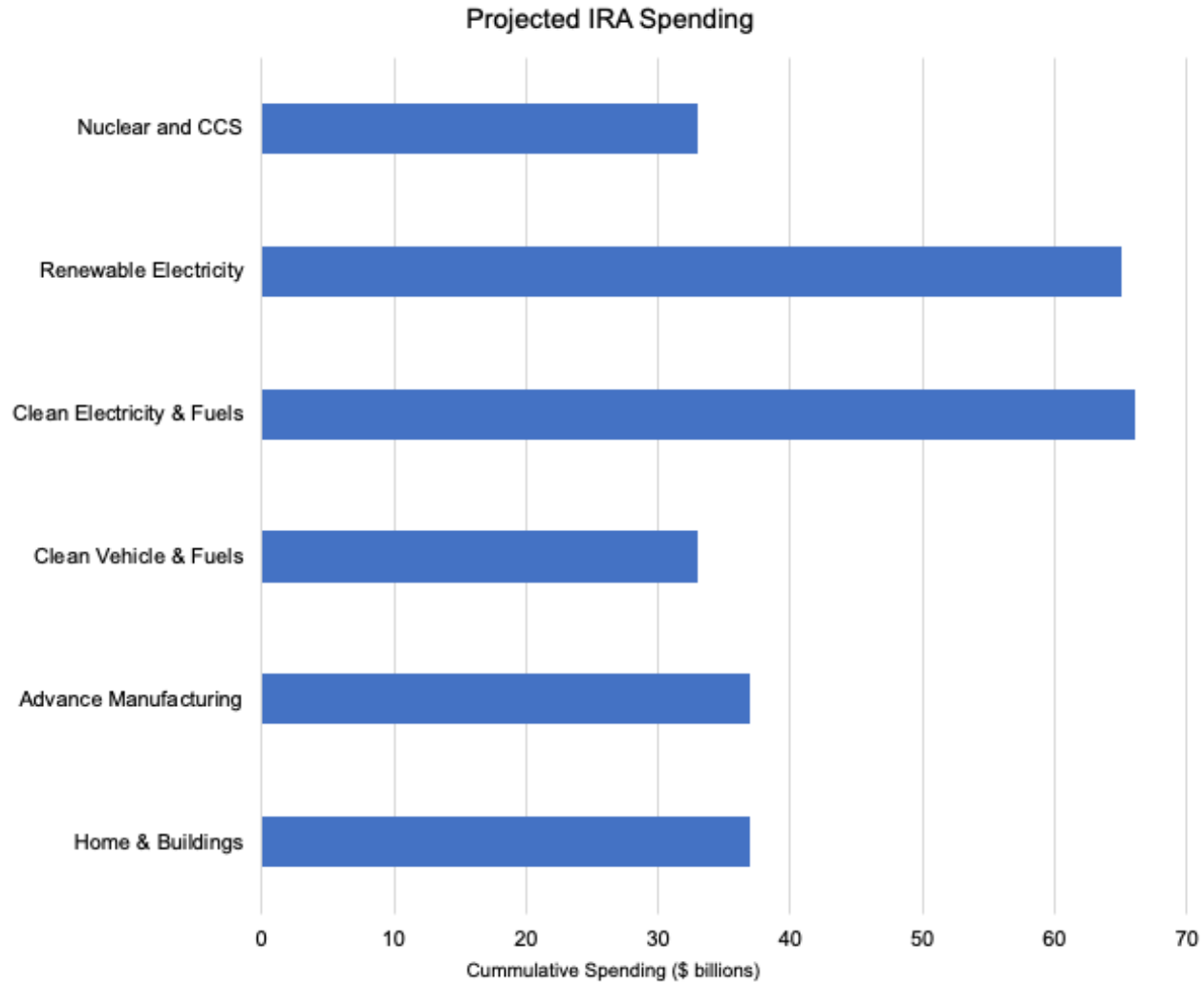
- Fitzgerald Act of 1937
- Apprenticeship.gov
- 1 Minimum if 4+ individuals
- Apprentice-to-Journeyworker Ratio
 - 2023 - 12.5%
 - 2024 and on - 15%
- ALL Employees, contractors, & subcontractors
- Good Faith Effort Exception
 - Registered Apprenticeship Program
 - Request Denial
 - Non-response



Transferability

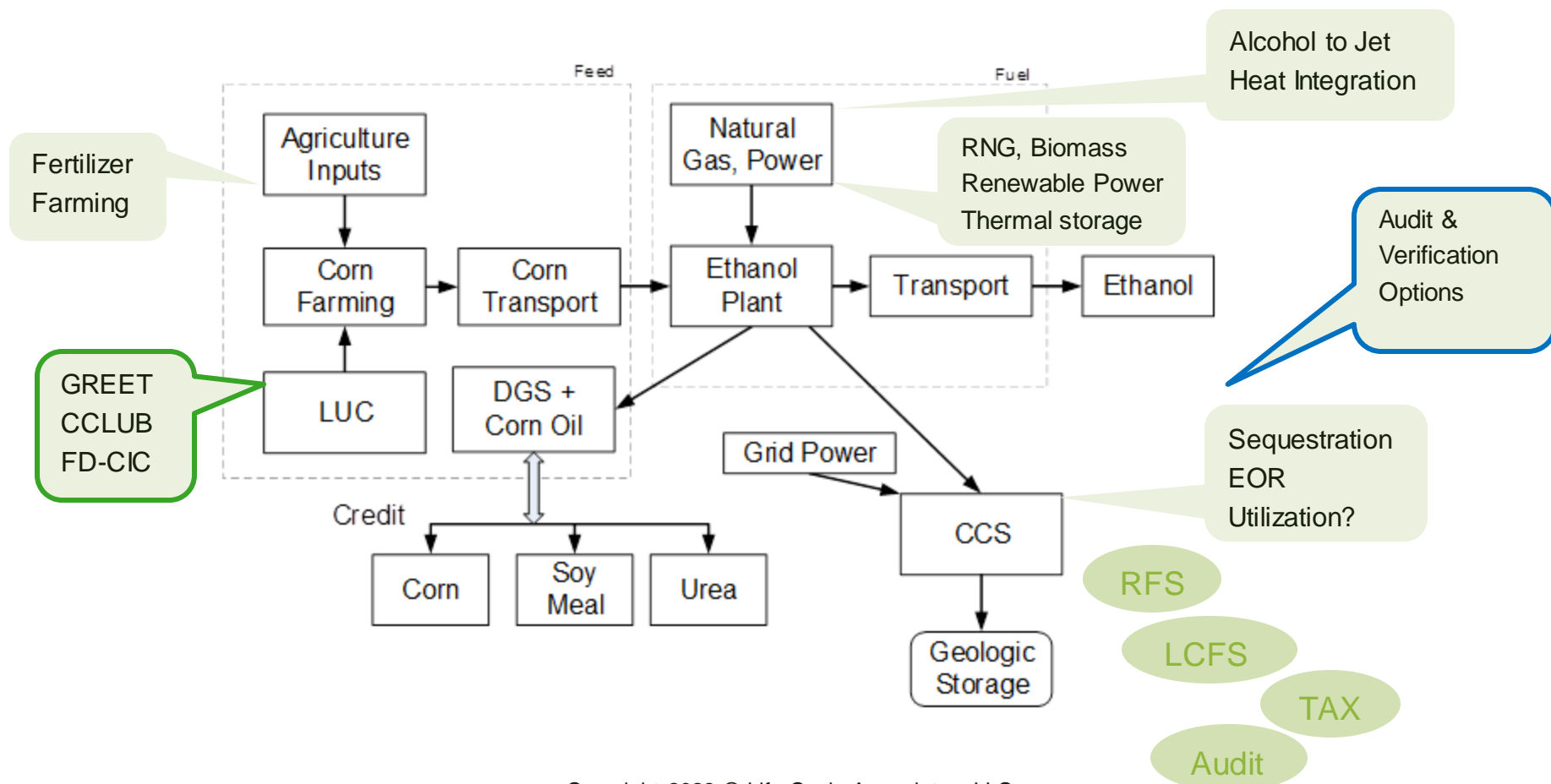
- > Beginning 1/1/2023
- > Cash Payments Only
- > Nontaxable/Nondeductible
- > Election made by Partnership, S-Corporation, or Co-op
 - > Income tax filing due date (including extensions)
 - > Irrevocable
 - > 1 Transfer limit
 - > Each facility needs separate election
 - > Must be within 10 years of PIS date (12 years for carbon capture equipment)
- > Basis reduction
- > Secretary may require registration

Inflation Reduction Act



Options for CI Reduction

- IRA refers to ANL GREET model, not CA-GREET



Farming Emissions in GREET

- Farming emissions
 - Fertilizer application
 - Ag practice
 - Region and soil type



Agriculture Modeling (Option)

- Emission Impacts
 - Farming
 - Fertilizer Production
 - Net soil GHG Balance
- Modeling Tools
 - **GREET**
 - **FD-CIC**
 - CCLUB
 - GNOC
 - DAYCENT
 - COMET Farm

ANL FD-CIC Inputs

1) Farming input parameters			
	User Specific Value	GREET Default Value	Unit
1.0) Farm size			
1.0.1) Farm size	1000	1000	acre
1.1) Yield			
1.1.1) Corn yield	166	166	Bushels/acre
1.3) Nitrogen Fertilizer			
1.3.1) Ammonia	52.7	52.7	lb N/acre
1.3.2) Urea	69.0	69.0	lb N/acre
1.3.3) Ammonium Nitrate	8.0	8.0	lb N/acre
1.3.4) Ammonium Sulfate	13.2	13.2	lb N/acre
1.3.5) Urea-ammonium nitrate solution (UAN)	44.8	44.8	lb N/acre
1.4) Phosphorus Fertilizer			
1.4.1) Monoammonium Phosphate	51.0	51.0	lb P ₂ O ₅ /acre
1.4.2) Diammonium Phosphate	52.6	52.6	lb P ₂ O ₅ /acre
1.8) Insecticide			
1.8.1) Insecticide	2.1	2.1	g/acre

Note: This section should be associated with the additional energy and chemical inputs related to land management practices, for example, cover crop and manure application; For the time being, this section is not completed yet.

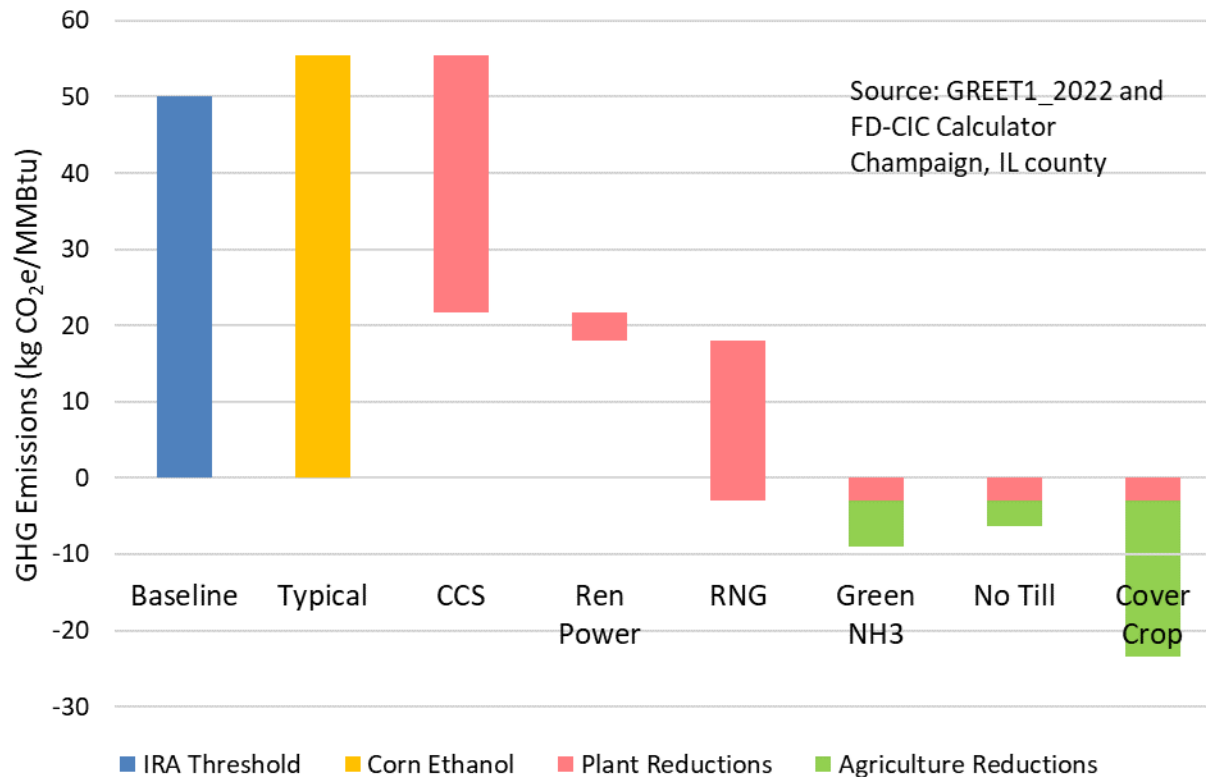
	Value	Unit
1.9) Cover crop		
1.9.1) Cover crop rotation		
1.9.2) Rye Cover Crop Farming Energy	Add detail as in item 1.2)	Btu/acre
1.9.3) Other Cover Crop		
1.10) Manure List Moisture and N content		
1.10.1) Swine		ton/acre/yr

3) Soil organic carbon lookup		CCLUB Default Value
2.0) Location - State	IA	
2.0.1) Location - County	Benton	
2.0.2) Location - FIPS	19011	
2.1) Cover crop	Cover crop	

Cover crop select one

Pathway to net zero

- Potential Scenario for Ethanol



Farm CI Expectations

First Farm Program Expected to be Simple

- ❖ 3-4 user defined inputs
- ❖ Items that are already well documented
- ❖ Easily trackable/auditable inputs



Fertilizer, Tilling Practices, Fuel Usage

Key Points for Renewable Fuel Producers

Traceability

Coordination with Farmers

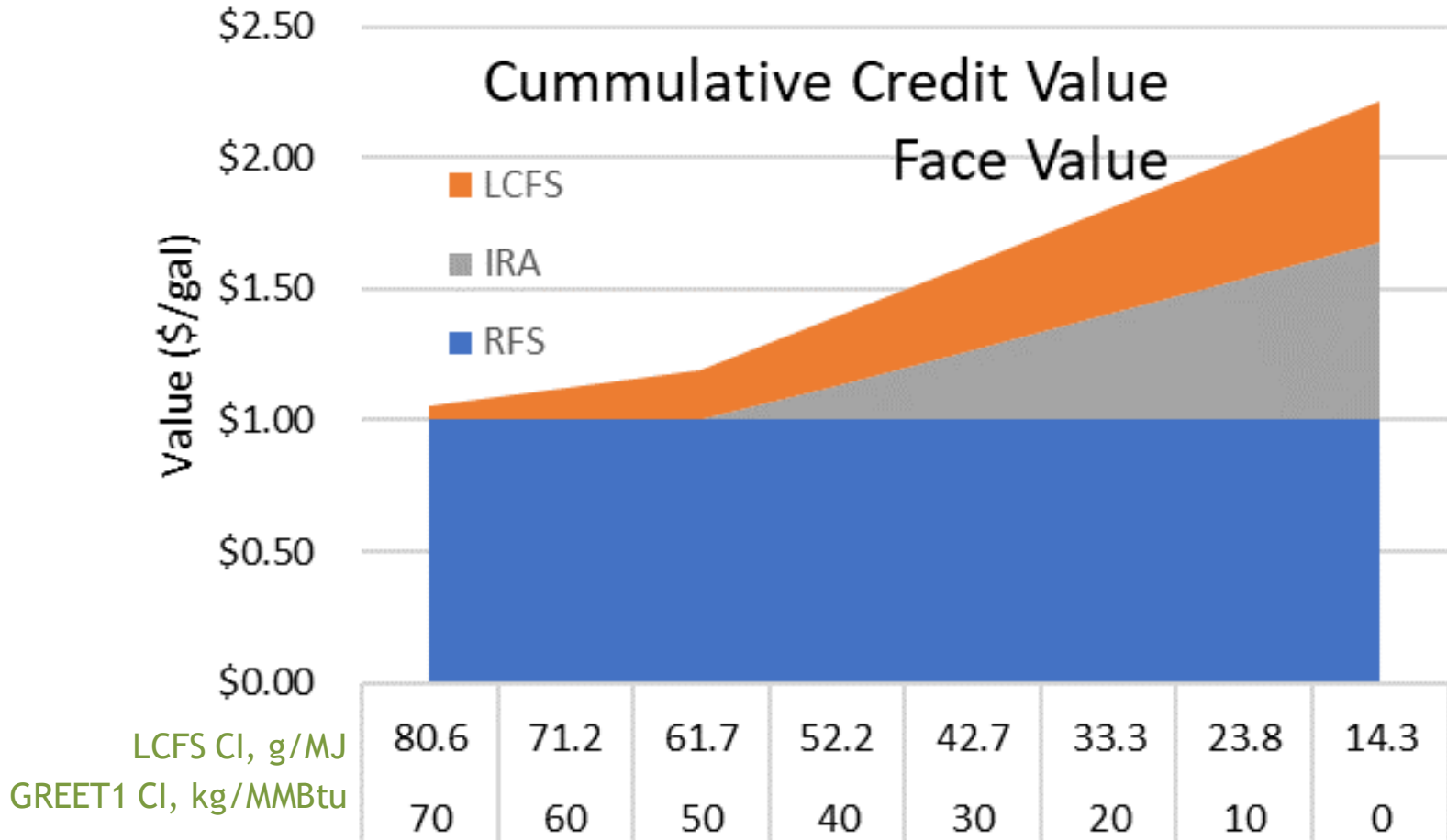
Individual/Aggregated/Averaged
Reporting

Audit Requirements

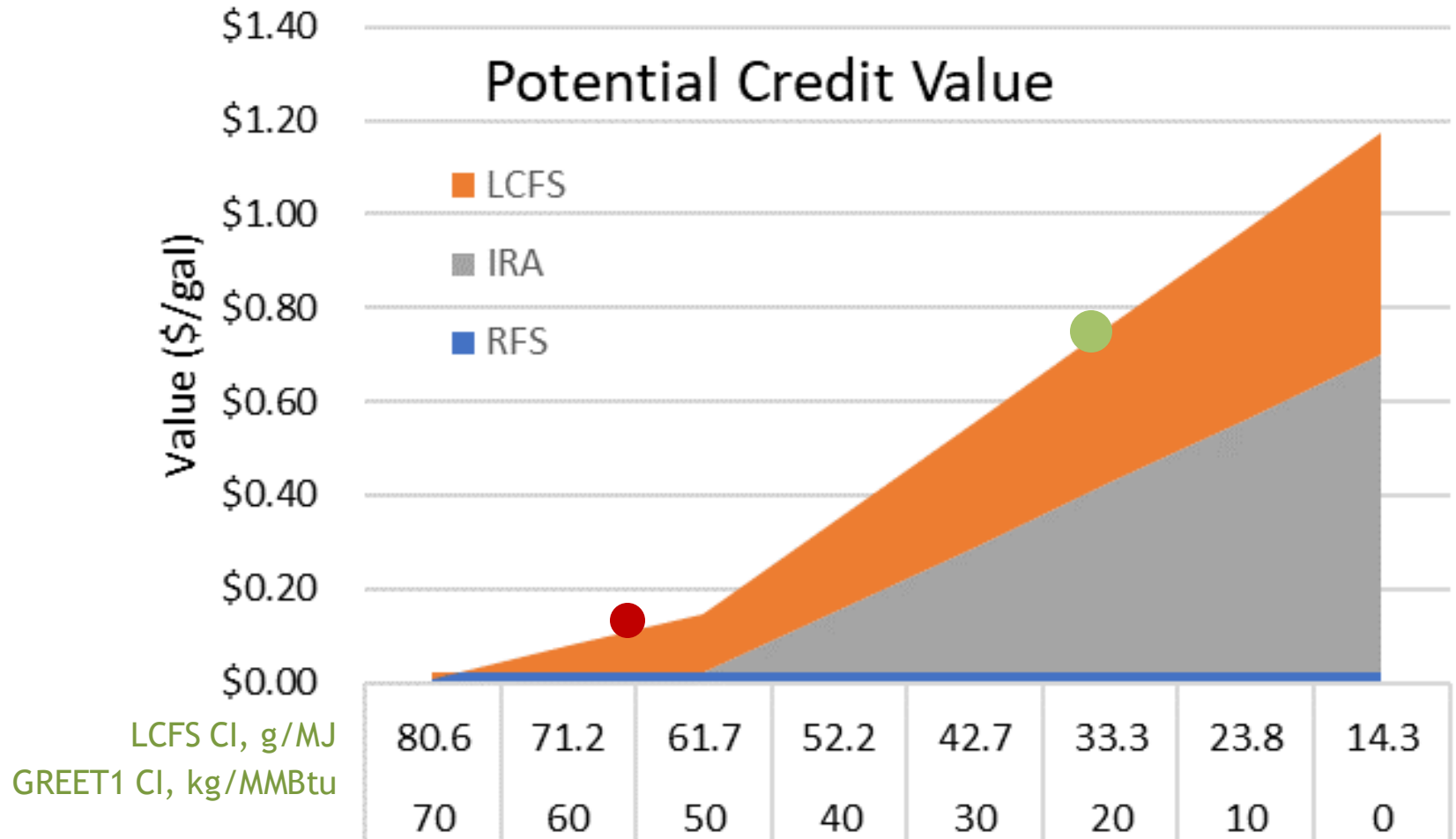
IRS Implications

- Example 45Z
 - Corn Ethanol 55/kg/MMBtu \$0/gal
 - Corn Ethanol CCS 25 kg/MMBtu \$0.50/gal 45Z
- Example 45Q
 - 2.8 tonne CO₂/1000 gal
 - \$60/tonne CO₂ utilization
 - \$0.17/gal 45 Q
- LCFS Value ~ \$100/tonne
 - \$0.36/gal
- Biodiesel and VTEC examples
- 2023 upcoming IRS Guidance

Face Value of Incentives



Potential Impact of IRA



Next Steps

- Policy Timeline
 - IRS Guidance
 - Evolution of ethanol technologies

- Next Steps
 - IRA Prep
 - Farming prep



Q&A Time!



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