

Climate Change and US Agriculture

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December 17, 2009

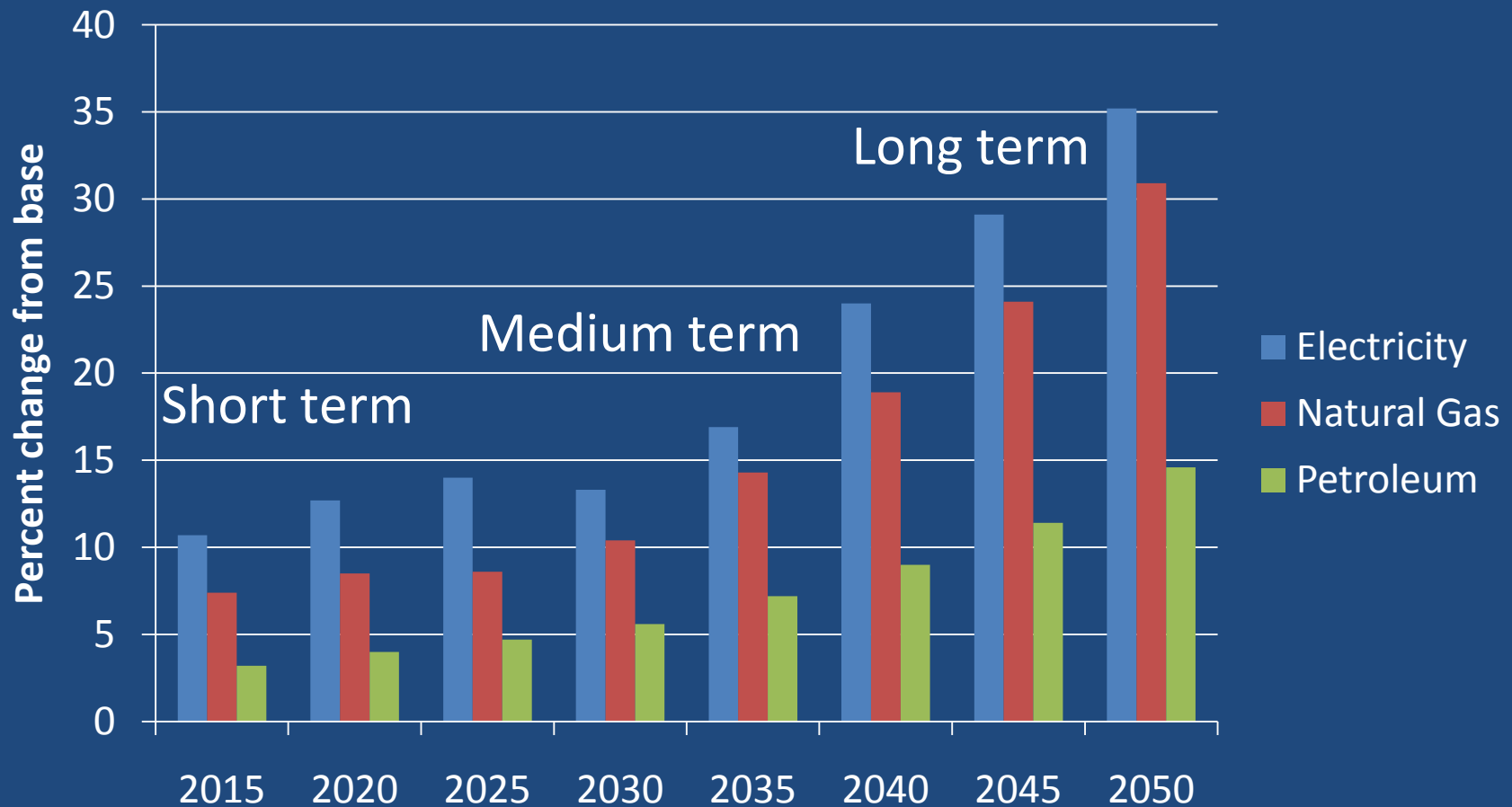
Hill Status

- House:
 - Passed HR 2454
 - Peterson Amendment covering domestic offsets
- Senate:
 - Committee on Environment and Public Works
 - Stabenow language
- EPA Endangerment Finding:
 - Final Rule published December 14, 2009
 - Ability to Regulate GHG's under Clean Air Act
 - Preference is to deal with GHG by legislation

Costs of Cap-and-Trade

- Agriculture is an uncovered sector
- Impacts are felt through higher energy price
- Energy impacts
 - Direct (fuel costs, electricity, natural gas)
 - Indirect (fertilizer)

EPA Assessment (energy price impacts)



Source: USEPA, June 23, 2009 Analysis of HR 2454

Energy-Intensive, Trade Exposed (EITE) Provision

- EITE grants allocations to industries would incur energy-related costs that foreign competitors would avoid
- EITE covers industrial sectors that have:
 - an energy or GHG intensity of at least 5% and a trade intensity of at least 15%;
 - an energy or GHG intensity of at least 20%
- Maximum amount of allowances that can be rebated to EITE industries at, 2% for 2012 and 2013, 15% in 2014, and then declining through 2025.
- Nitrogenous fertilizer manufacturing is an eligible EITE sectors.
- Should be enough allowances to cover the increased energy costs.

Studies

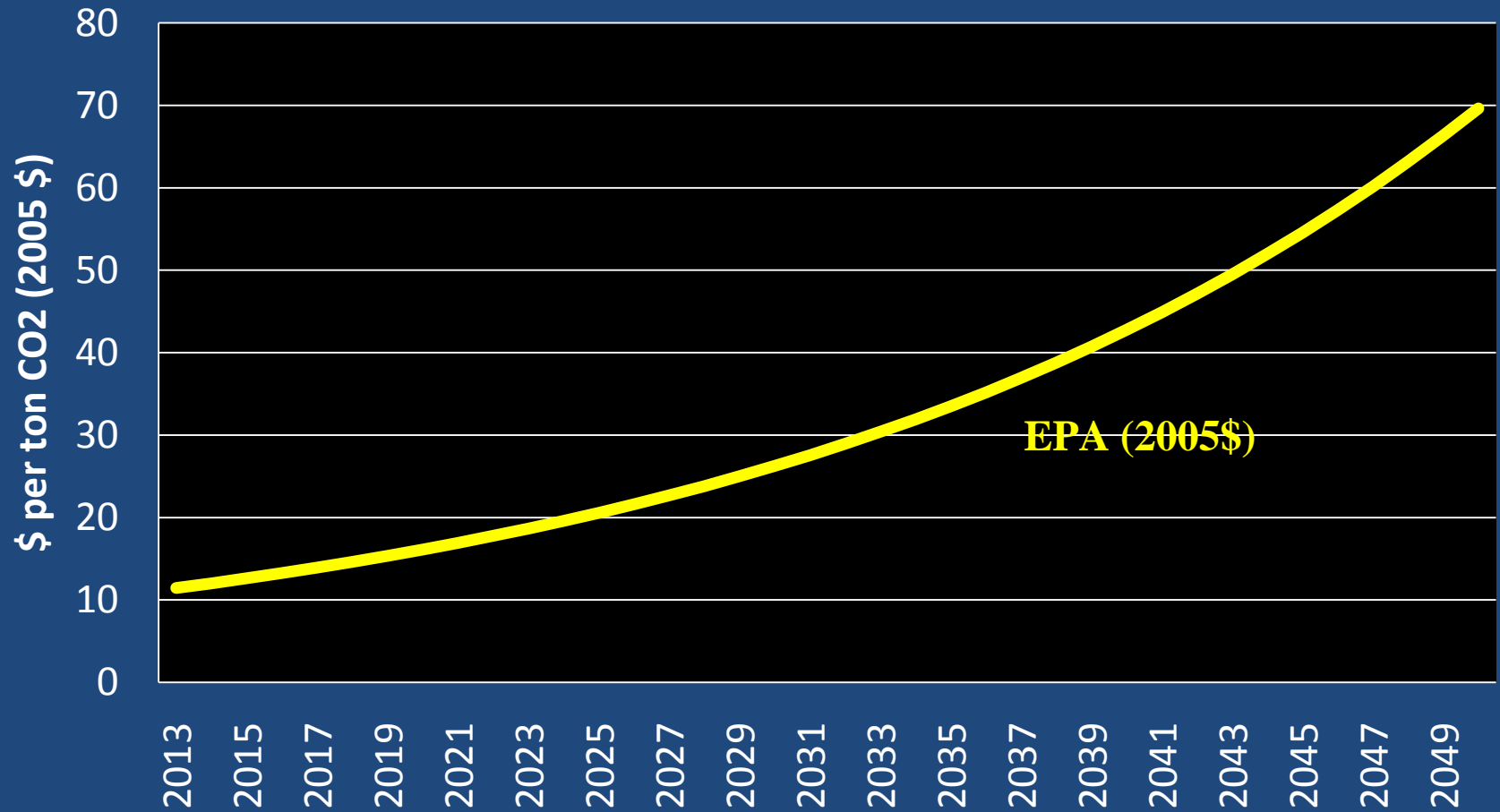
- USDA
- FAPRI
- AFPC (Outlaw et al.)
- FASOM
- Doanes

=> Impacts on costs depend largely on underlying assumptions on energy prices **and the effects of offsets**

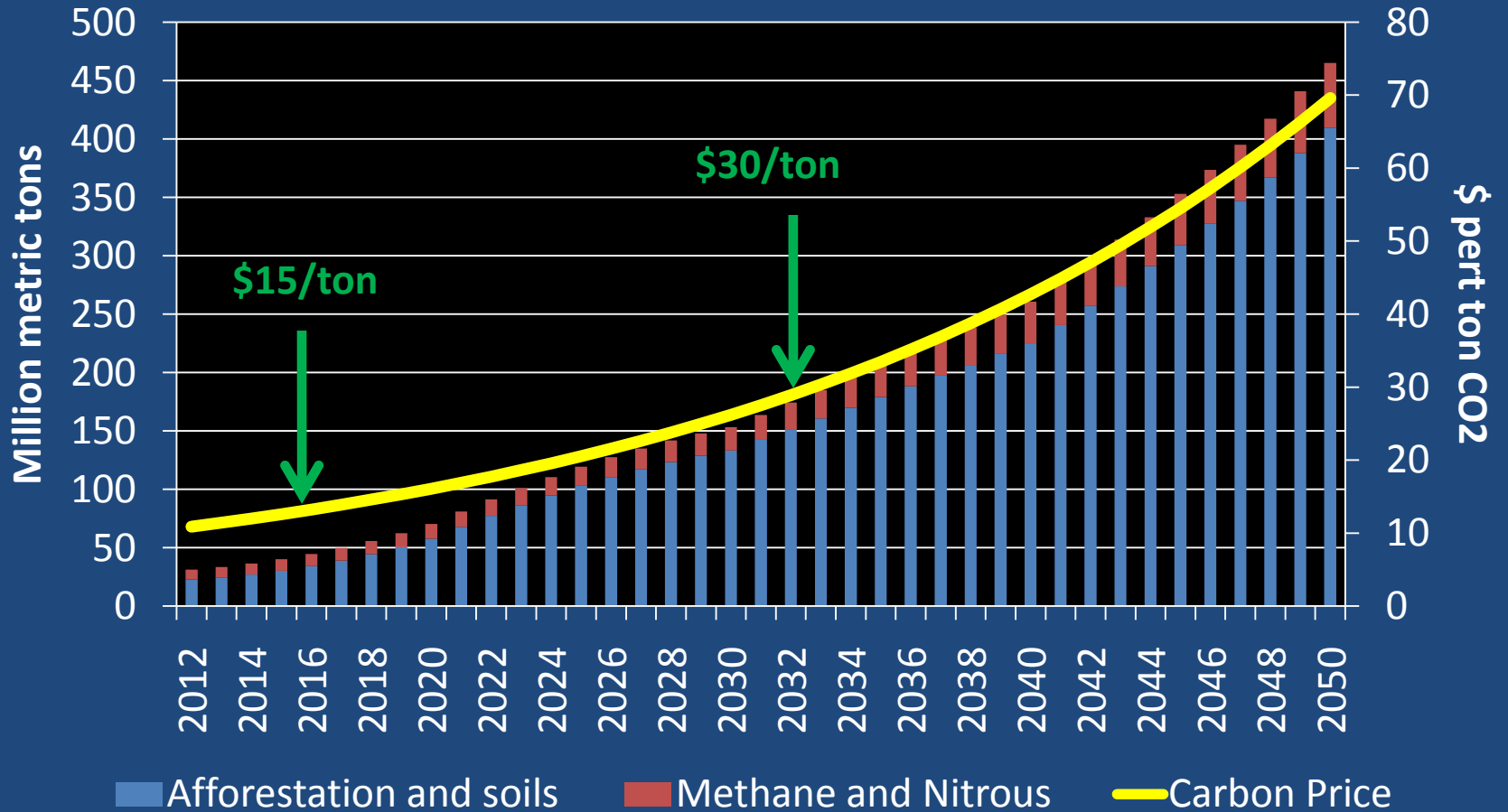
Importance of Offsets

- Lower abatement costs => lessen the impact of emission reduction targets
 - EPA: no intl offsets => energy prices 90% higher
 - EIA: no intl offsets => energy prices 67% higher
 - CBO: no offsets => energy price impacts 3x
- Offsets as a source of income
- Land use issues

Offsets – Carbon Prices (\$ per ton CO₂)



Offsets



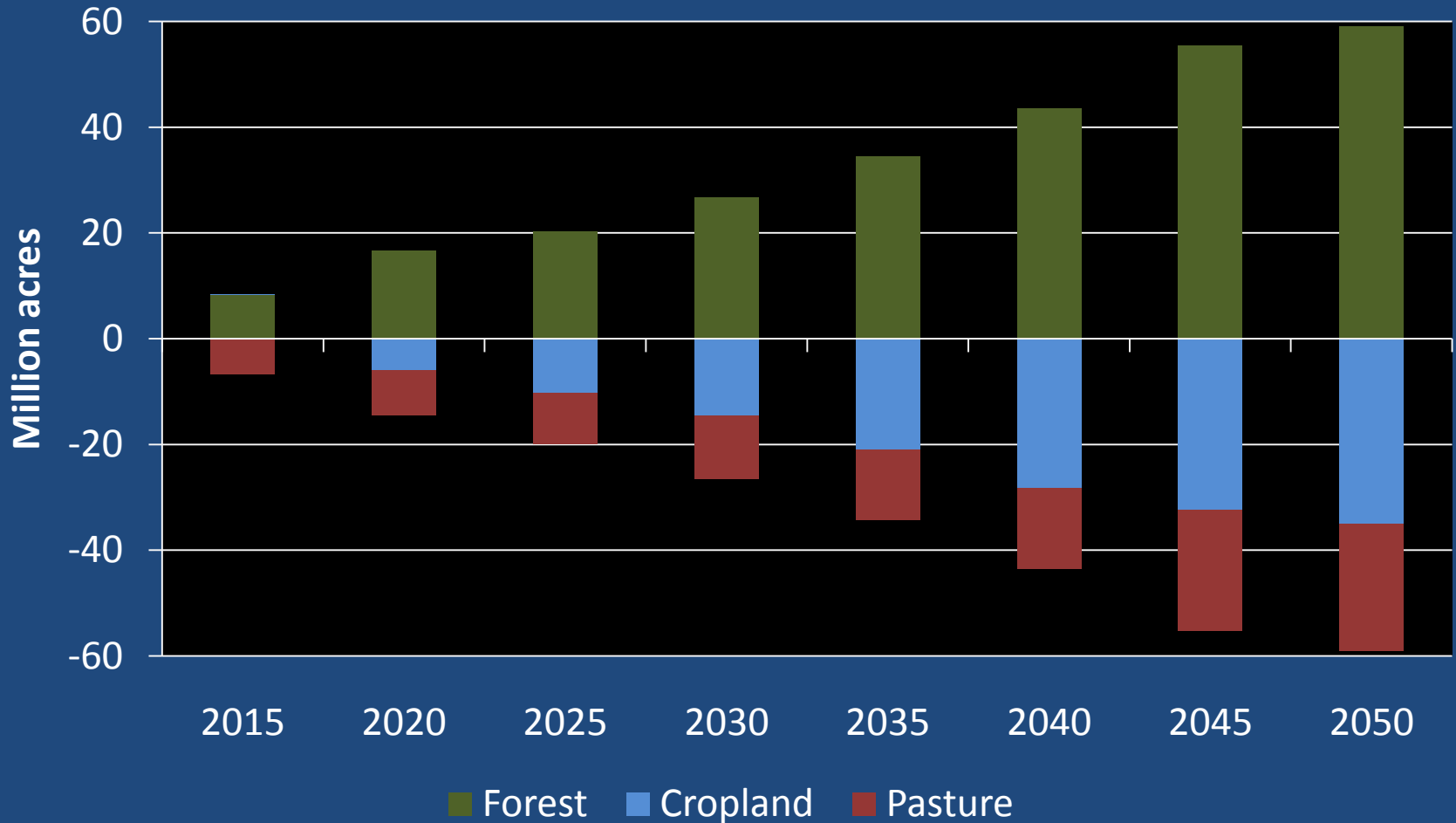
Offsets – Gross Revenues

Gross Income Associated with Offsets (Billion \$ per year, \$2005)

	2015	2020	2025	2030	2035	2040	2045	2050
Afforestation	\$0.6	\$2.1	\$3.0	\$4.5	\$10.4	\$16.1	\$20.3	\$24.2
Animal Wastes	\$0.0	\$0.1	\$0.1	\$0.2	\$0.3	\$0.5	\$1.0	\$1.8
Other Agriculture	\$0.1	\$0.2	\$0.3	\$0.5	\$0.9	\$1.5	\$2.4	\$3.8
Agricultural Soils**	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Total	\$0.8	\$2.4	\$3.5	\$5.2	\$11.6	\$18.1	\$23.7	\$29.7

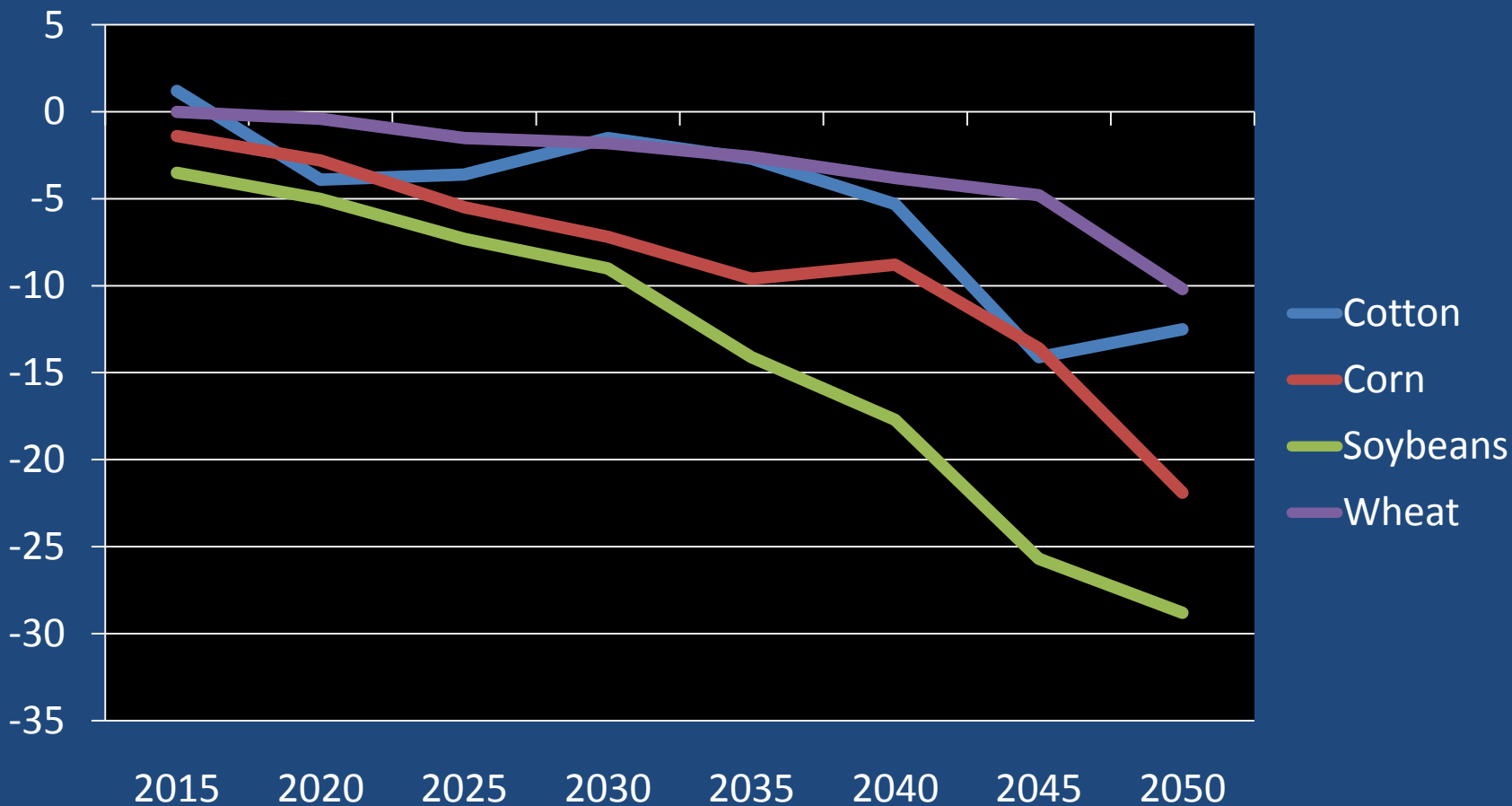
Land Use Change

(CRP maintained at 32 million acres)



Impacts on Crop Production

% Change relative to Baseline Levels



Impacts

Gross Income Associated with Offsets (Billion \$ per year, \$2005)

	2015	2020	2025	2030	2035	2040	2045	2050
Total	\$0.8	\$2.4	\$3.5	\$5.2	\$11.6	\$18.1	\$23.7	\$29.7

Change in Producer Surplus (excludes revenues from offsets) (Billion \$ per year, \$2005)

Change in Producer Surplus	\$1.4	\$2.0	\$2.8	\$3.9	\$5.5	\$7.7	\$10.8	\$15.1
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Offset Caveats

- Not modeled as HR 2454
 - Soil Carbon
- Model assumes perfect foresight.
 - No Uncertainty
- Policy variables are fixed
 - CRP Fixed at 32 million acres.
- Implementation issues

Offsets – Program Implementation

- Project Eligibility
- Baselines/Additionality
- Leakage
- Permanence
- Measurement
- Verification

Summary

- There will be costs to agriculture due to higher energy prices, but these will be small at least in the short run
- There will also be opportunities for agriculture because of the ability to provide offsets, but potential for unintended consequences (land use change)
- Program implementation will require careful deliberation