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# **The Effect of Higher Energy Prices from H.R. 2454 on Missouri Crop Production Costs**

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# The Effect of Higher Energy Prices from H.R. 2454 on Missouri Crop Production Costs

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## *Introduction*

At the request of Missouri Senator Kit Bond, the Food and Agricultural Policy Research Institute at the University of Missouri-Columbia (FAPRI-MU) has analyzed the effect of higher energy costs from the recently House-passed legislation, “The American Clean Energy and Security Act of 2009” (H.R. 2454) on Missouri crop production costs. This analysis uses increases in energy costs as estimated by CRA International ([http://www.nationalbcc.org/images/stories/documents/CRA\\_Waxman-Markey\\_%205-20-09\\_v8.pdf](http://www.nationalbcc.org/images/stories/documents/CRA_Waxman-Markey_%205-20-09_v8.pdf)) in its analysis of H.R. 2454. FAPRI-MU uses the results from CRA International since models of energy markets that would allow analysis of energy price changes from H.R. 2454 are not maintained by FAPRI-MU. This analysis hinges directly on the energy price effects as reported by CRA International.

This report is not a full analysis of the impact of H.R. 2454 on Missouri crop producers. This report does not incorporate likely responses by producers to these changes in production costs. As input costs increase, producers could adjust input usage and the mix of crops produced, with implications for crop yields, production and prices. Crop prices would also be affected by any impacts of H.R. 2454 on biofuel production. This analysis also does not consider any gains that Missouri crop producers could receive by selling carbon credits. All of these issues remain important to include in any overall analysis of H.R. 2454.

This analysis uses current 2009 Missouri crop production cost estimates as the base and examines the level of these production costs in 2020, 2030, 2040 and 2050 assuming these production costs change only as a result of the higher energy costs estimated by CRA International under H.R. 2454. Other factors will come into play in determining future production costs; however, this approach allows the effects of H.R. 2454 to be isolated from these other factors. Because of the approach used, production cost changes are estimated in terms of 2009 dollars.

## *Farm-level cost effects summary*

Table one provides the estimated effects for selected representative Missouri farms. This table takes the per acre effects shown in tables two through six to calculate the aggregate production cost effect. Each farm shown in this table is built using information from a panel of producers from the area to describe a farm that is representative of the size and other characteristics that are prevalent among full-time producers in that particular area of the state.

Table 1. Selected Missouri farms, change in operating costs under alternative energy costs \*

	2020	2030	2040	2050
<b>Lafayette County, 1,900 crop planted acres</b>				
798 corn, 1,007 soybeans, and 95 wheat				
<b>Total Operating Costs</b>	<b>\$11,649</b>	<b>\$13,957</b>	<b>\$20,682</b>	<b>\$30,152</b>
Seed	\$41	\$51	\$71	\$112
Fertilizer	\$9,793	\$11,630	\$17,342	\$25,098
Crop chemical	\$46	\$57	\$80	\$126
Crop insurance	\$0	\$0	\$0	\$0
Custom hire and rental	\$94	\$117	\$164	\$258
Machinery fuel, drying, and irrigation energy	\$1,261	\$1,603	\$2,288	\$3,480
Machinery repairs and maintenance	\$19	\$24	\$33	\$52
Operator and hired labor	\$0	\$0	\$0	\$0
Operating interest	\$396	\$475	\$704	\$1,026
<b>Carroll County, 802 crop planted acres</b>				
297 corn, 406 soybeans, and 99 wheat				
<b>Total Operating Costs</b>	<b>\$4,903</b>	<b>\$5,866</b>	<b>\$8,706</b>	<b>\$12,666</b>
Seed	\$17	\$21	\$29	\$45
Fertilizer	\$4,144	\$4,914	\$7,340	\$10,600
Crop chemical	\$18	\$23	\$32	\$50
Crop insurance	\$0	\$0	\$0	\$0
Custom hire and rental	\$47	\$59	\$82	\$129
Machinery fuel, drying, and irrigation energy	\$503	\$640	\$913	\$1,389
Machinery repairs and maintenance	\$8	\$10	\$14	\$22
Operator and hired labor	\$0	\$0	\$0	\$0
Operating interest	\$167	\$199	\$296	\$431
<b>Bates County, 1,744 crop planted acres</b>				
523 corn, 872 soybeans, and 349 wheat				
<b>Total Operating Costs</b>	<b>\$10,400</b>	<b>\$12,431</b>	<b>\$18,465</b>	<b>\$26,838</b>
Seed	\$34	\$43	\$60	\$94
Fertilizer	\$8,835	\$10,473	\$15,652	\$22,584
Crop chemical	\$36	\$45	\$63	\$99
Crop insurance	\$0	\$0	\$0	\$0
Custom hire and rental	\$116	\$145	\$203	\$319
Machinery fuel, drying, and irrigation energy	\$1,009	\$1,283	\$1,831	\$2,785
Machinery repairs and maintenance	\$17	\$21	\$29	\$46
Operator and hired labor	\$0	\$0	\$0	\$0
Operating interest	\$353	\$422	\$627	\$912

\* - For farm descriptions, see "Baseline Outlook - Missouri Representative Farms", FAPRI-MU Report #04-08.

The Lafayette County farm, which has 1,900 acres of planted crop area (798 acres of corn, 1,007 acres of soybeans and 95 acres of wheat), shows a production cost increase relative to the baseline of \$11,649 in 2020. The production cost increase on this farm grows to \$30,152 using the 2050 energy costs increases shown by CRA International.

The other two farms are impacted in a similar fashion to the Lafayette County farm and only differ in crop mix and total acreage. The Carroll County farm shows a \$4,903 increase in production costs in 2020, growing to \$12,666 by 2050 as a result of the higher energy price scenario.

### ***CRA International energy price changes***

This analysis calculates changes in crop operating costs based on the changes in energy costs estimated by CRA International as a result of H.R. 2454. These energy cost effects can be found at the bottom of tables two through six. CRA International shows motor fuel prices increase by 4 percent relative to a current-policy baseline in 2020 and the increase grows to 11 percent by 2050. Natural gas prices rise by 14 percent relative to the baseline in 2020 and by 34 percent in 2050. Electricity rates rise by 16 percent relative to the baseline in 2020 and 45 percent in 2050. The calculations provided here follow directly from these results. Any changes in these estimates of energy price impacts will translate directly into changes in the estimates of per-acre crop production costs.

### ***Crop operating cost budgets***

The crop budgets used in this analysis are based on average production practices employed in Missouri. For example, the corn dryland budget assumes 125 pounds of nitrogen, 70 pounds of phosphorus and 55 pounds of potash. The irrigated corn budget increases the nutrient use to a 160-90-70 mix. These budgets are meant to represent average Missouri budgets but will not represent any particular Missouri producer.

The operating cost components that depend on energy inputs are adjusted for the increase in energy prices calculated by CRA International. For example, the fuel, drying and irrigation energy category allows pass-through of 95 percent of the increase in energy costs while the crop chemical cost category has a pass-through of 3 percent of the increase in energy costs. Fertilizer cost pass-through is different for each nutrient so that the overall impact on fertilizer cost depends on the mix of nutrients used for each crop. For example, nitrogen fertilizer costs are closely tied to natural gas prices, and nitrogen fertilizer is important for corn and wheat production, but not for soybeans.

Fertilizer costs are expected to increase by the largest percentage for the corn and wheat budgets followed by fuel, drying and irrigation costs. For soybeans, the direct fuel, drying and irrigation energy category increases by the most in percentage terms followed by fertilizer costs.

Dryland corn costs increase by \$10.03 per acre in 2020, an increase of 3.2 percent. By 2050, dryland corn costs rise by \$25.44 per acre, or 8.1 percent. The irrigated corn budget shows a larger increase in production costs due to more usage of energy-based inputs, rising by \$34.14 per acre in 2050, or 8.8 percent.

Soybean operating costs rise by the smallest amount in both absolute and percentage terms under the scenario. They are less dependent on energy costs than costs for the other crops examined. Soybean operating costs rise by \$8.01 per acre in 2050 or 4.4 percent.

### *Summary*

Producers use many energy inputs in the production of agricultural commodities. The direct impact of a policy change that increases energy costs will be to reduce farmers' bottom lines. This analysis shows only the direct effects of higher energy prices that are expected to result from H.R. 2454. This analysis does not provide a complete analysis of H.R. 2454. The analysis does not consider possible impacts on input usage, biofuel production, crop production and prices, or the value of any carbon credits that producers might be able to sell.

Using the 11, 34 and 45 percent increases found by CRA International in motor fuel, natural gas and electricity prices, respectively, by 2050 as a result of H.R. 2454, estimated Missouri crop operating costs increase by 8.1, 8.8, 4.4 and 10.4 percent for dryland corn, irrigated corn, soybeans and wheat respectively.

Table 2. Missouri dryland corn operating costs under alternative energy costs \*

	2009	2020			2030			2040			2050		
	Baseline	Scenario	Change	% Δ									
<b>Operating costs per acre</b>													
Seed	\$69.38	\$69.40	\$0.03	0.0%	\$69.41	\$0.03	0.0%	\$69.42	\$0.05	0.1%	\$69.45	\$0.08	0.1%
Fertilizer	\$123.55	\$132.04	\$8.49	6.9%	\$133.47	\$9.92	8.0%	\$138.64	\$15.09	12.2%	\$144.82	\$21.27	17.2%
Crop chemical	\$30.50	\$30.54	\$0.04	0.1%	\$30.55	\$0.05	0.2%	\$30.56	\$0.06	0.2%	\$30.60	\$0.10	0.3%
Crop insurance	\$22.00	\$22.00	\$0.00	0.0%	\$22.00	\$0.00	0.0%	\$22.00	\$0.00	0.0%	\$22.00	\$0.00	0.0%
Custom hire and rental	\$4.75	\$4.85	\$0.09	2.0%	\$4.87	\$0.12	2.5%	\$4.92	\$0.17	3.5%	\$5.01	\$0.26	5.5%
Machinery fuel, drying, and irrigation energy	\$23.52	\$24.55	\$1.03	4.4%	\$24.83	\$1.31	5.6%	\$25.39	\$1.87	7.9%	\$26.36	\$2.84	12.1%
Machinery repairs and maintenance	\$15.50	\$15.51	\$0.01	0.1%	\$15.52	\$0.02	0.1%	\$15.52	\$0.02	0.1%	\$15.53	\$0.03	0.2%
Operator and hired labor	\$14.12	\$14.12	\$0.00	0.0%	\$14.12	\$0.00	0.0%	\$14.12	\$0.00	0.0%	\$14.12	\$0.00	0.0%
Operating interest	\$10.65	\$10.99	\$0.34	3.2%	\$11.05	\$0.40	3.8%	\$11.26	\$0.61	5.7%	\$11.51	\$0.86	8.1%
<b>Operating costs per acre</b>	<b>\$313.96</b>	<b>\$324.00</b>	<b>\$10.03</b>	<b>3.2%</b>	<b>\$325.81</b>	<b>\$11.84</b>	<b>3.8%</b>	<b>\$331.83</b>	<b>\$17.87</b>	<b>5.7%</b>	<b>\$339.41</b>	<b>\$25.44</b>	<b>8.1%</b>
<b>Alternative energy prices **</b>													
Motor fuel				4.0%			5.0%			7.0%			11.0%
Natural gas				14.0%			16.0%			25.0%			34.0%
Electricity				16.0%			22.0%			34.0%			45.0%

\* - 2009 baseline figures reported in: US Baseline Briefing Book: Missouri Insert, FAPRI-MU Report #02-09. 2020, 2030, 2040 and 2050 results are calculated from the energy price changes published by CRA International and include no other production cost changes from the reported 2009 level.

\*\* - Source: "Impact on the Economy of the American Clean Energy and Security Act of 2009 (H.R.2454)", CRA International, May 2009. [http://www.nationalbcc.org/images/stories/documents/CRA\\_Waxman-Markey\\_%205-20-09\\_v8.pdf](http://www.nationalbcc.org/images/stories/documents/CRA_Waxman-Markey_%205-20-09_v8.pdf)

Table 3. Missouri irrigated corn operating costs under alternative energy costs \*

	2009	2020			2030			2040			2050		
	Baseline	Scenario	Change	% Δ									
<b>Operating costs per acre</b>													
Seed	\$74.00	\$74.03	\$0.03	0.0%	\$74.04	\$0.04	0.0%	\$74.05	\$0.05	0.1%	\$74.08	\$0.08	0.1%
Fertilizer	\$156.70	\$167.47	\$10.77	6.9%	\$169.28	\$12.58	8.0%	\$175.85	\$19.15	12.2%	\$183.68	\$26.98	17.2%
Crop chemical	\$30.50	\$30.54	\$0.04	0.1%	\$30.55	\$0.05	0.2%	\$30.56	\$0.06	0.2%	\$30.60	\$0.10	0.3%
Crop insurance	\$4.00	\$4.00	\$0.00	0.0%	\$4.00	\$0.00	0.0%	\$4.00	\$0.00	0.0%	\$4.00	\$0.00	0.0%
Custom hire and rental	\$4.75	\$4.85	\$0.09	2.0%	\$4.87	\$0.12	2.5%	\$4.92	\$0.17	3.5%	\$5.01	\$0.26	5.5%
Machinery fuel, drying, and irrigation energy	\$45.35	\$47.33	\$1.98	4.4%	\$47.87	\$2.52	5.6%	\$48.95	\$3.60	7.9%	\$50.82	\$5.47	12.1%
Machinery repairs and maintenance	\$37.59	\$37.59	\$0.00	0.0%	\$37.62	\$0.04	0.1%	\$37.64	\$0.05	0.1%	\$37.67	\$0.08	0.2%
Operator and hired labor	\$19.97	\$19.97	\$0.00	0.0%	\$19.97	\$0.00	0.0%	\$19.97	\$0.00	0.0%	\$19.97	\$0.00	0.0%
Operating interest	<u>\$13.08</u>	<u>\$13.54</u>	<u>\$0.45</u>	<u>3.5%</u>	<u>\$13.62</u>	<u>\$0.54</u>	<u>4.1%</u>	<u>\$13.89</u>	<u>\$0.81</u>	<u>6.2%</u>	<u>\$14.24</u>	<u>\$1.16</u>	<u>8.8%</u>
<b>Operating costs per acre</b>	<b>\$385.94</b>	<b>\$399.31</b>	<b>\$13.37</b>	<b>3.5%</b>	<b>\$401.82</b>	<b>\$15.88</b>	<b>4.1%</b>	<b>\$409.83</b>	<b>\$23.89</b>	<b>6.2%</b>	<b>\$420.08</b>	<b>\$34.14</b>	<b>8.8%</b>
<b>Alternative energy prices **</b>													
Motor fuel				4.0%			5.0%			7.0%			11.0%
Natural gas				14.0%			16.0%			25.0%			34.0%
Electricity				16.0%			22.0%			34.0%			45.0%

\* - 2009 baseline figures reported in: US Baseline Briefing Book: Missouri Insert, FAPRI-MU Report #02-09. 2020, 2030, 2040 and 2050 results are calculated from the energy price changes published by CRA International and include no other production cost changes from the reported 2009 level.

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Table 4. Missouri soybeans operating costs under alternative energy costs \*

	2009				2020				2030				2040				2050			
	Baseline	Scenario	Change	% Δ	Scenario	Change	% Δ	Scenario	Change	% Δ										
<b>Operating costs per acre</b>																				
Seed	\$43.07	\$43.08	\$0.02	0.0%	\$43.09	\$0.02	0.0%	\$43.10	\$0.03	0.1%	\$43.11	\$0.05	0.1%							
Fertilizer	\$76.50	\$78.86	\$2.36	3.1%	\$79.46	\$2.96	3.9%	\$80.64	\$4.14	5.4%	\$83.00	\$6.50	8.5%							
Crop chemical	\$12.90	\$12.92	\$0.02	0.1%	\$12.92	\$0.02	0.2%	\$12.93	\$0.03	0.2%	\$12.94	\$0.04	0.3%							
Crop insurance	\$14.00	\$14.00	\$0.00	0.0%	\$14.00	\$0.00	0.0%	\$14.00	\$0.00	0.0%	\$14.00	\$0.00	0.0%							
Custom hire and rental	\$0.00	\$0.00	\$0.00		\$0.00	\$0.00		\$0.00	\$0.00		\$0.00	\$0.00								
Machinery fuel, drying, and irrigation energy	\$9.28	\$9.68	\$0.41	4.4%	\$9.79	\$0.52	5.6%	\$10.01	\$0.74	7.9%	\$10.40	\$1.12	12.1%							
Machinery repairs and maintenance	\$10.36	\$10.36	\$0.01	0.1%	\$10.37	\$0.01	0.1%	\$10.37	\$0.01	0.1%	\$10.38	\$0.02	0.2%							
Operator and hired labor	\$11.02	\$11.02	\$0.00	0.0%	\$11.02	\$0.00	0.0%	\$11.02	\$0.00	0.0%	\$11.02	\$0.00	0.0%							
Operating interest	<u>\$6.30</u>	<u>\$6.40</u>	<u>\$0.10</u>	<u>1.6%</u>	<u>\$6.43</u>	<u>\$0.13</u>	<u>2.0%</u>	<u>\$6.48</u>	<u>\$0.18</u>	<u>2.8%</u>	<u>\$6.58</u>	<u>\$0.28</u>	<u>4.4%</u>							
<b>Operating costs per acre</b>	<b>\$183.43</b>	<b>\$186.34</b>	<b>\$2.91</b>	<b>1.6%</b>	<b>\$187.07</b>	<b>\$3.65</b>	<b>2.0%</b>	<b>\$188.55</b>	<b>\$5.12</b>	<b>2.8%</b>	<b>\$191.44</b>	<b>\$8.01</b>	<b>4.4%</b>							
<b>Alternative energy prices **</b>																				
Motor fuel				4.0%			5.0%			7.0%									11.0%	
Natural gas				14.0%			16.0%			25.0%									34.0%	
Electricity				16.0%			22.0%			34.0%									45.0%	

\* - 2009 baseline figures reported in: US Baseline Briefing Book: Missouri Insert, FAPRI-MU Report #02-09. 2020, 2030, 2040 and 2050 results are calculated from the energy price changes published by CRA International and include no other production cost changes from the reported 2009 level.

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Table 5. Missouri soft red wheat operating costs under alternative energy costs \*

	2009	2020			2030			2040			2050		
	Baseline	Scenario	Change	% Δ	Scenario	Change	% Δ	Scenario	Change	% Δ	Scenario	Change	% Δ
<b>Operating costs per acre</b>													
Seed	\$32.00	\$32.01	\$0.01	0.0%	\$32.02	\$0.02	0.0%	\$32.02	\$0.02	0.1%	\$32.04	\$0.04	0.1%
Fertilizer	\$87.05	\$93.73	\$6.68	7.7%	\$94.81	\$7.76	8.9%	\$98.94	\$11.89	13.7%	\$103.64	\$16.59	19.1%
Crop chemical	\$7.80	\$7.81	\$0.01	0.1%	\$7.81	\$0.01	0.2%	\$7.82	\$0.02	0.2%	\$7.83	\$0.03	0.3%
Crop insurance	\$10.00	\$10.00	\$0.00	0.0%	\$10.00	\$0.00	0.0%	\$10.00	\$0.00	0.0%	\$10.00	\$0.00	0.0%
Custom hire and rental	\$9.50	\$9.69	\$0.19	2.0%	\$9.74	\$0.24	2.5%	\$9.83	\$0.33	3.5%	\$10.02	\$0.52	5.5%
Machinery fuel, drying, and irrigation energy	\$7.71	\$8.04	\$0.34	4.4%	\$8.14	\$0.43	5.6%	\$8.32	\$0.61	7.9%	\$8.64	\$0.93	12.1%
Machinery repairs and maintenance	\$10.40	\$10.41	\$0.01	0.1%	\$10.41	\$0.01	0.1%	\$10.42	\$0.01	0.1%	\$10.43	\$0.02	0.2%
Operator and hired labor	\$10.66	\$10.66	\$0.00	0.0%	\$10.66	\$0.00	0.0%	\$10.66	\$0.00	0.0%	\$10.66	\$0.00	0.0%
Operating interest	<u>\$6.09</u>	<u>\$6.35</u>	<u>\$0.25</u>	<u>4.1%</u>	<u>\$6.39</u>	<u>\$0.29</u>	<u>4.8%</u>	<u>\$6.54</u>	<u>\$0.45</u>	<u>7.4%</u>	<u>\$6.72</u>	<u>\$0.63</u>	<u>10.4%</u>
<b>Operating costs per acre</b>	<b>\$181.21</b>	<b>\$188.70</b>	<b>\$7.49</b>	<b>4.1%</b>	<b>\$189.97</b>	<b>\$8.76</b>	<b>2.8%</b>	<b>\$194.55</b>	<b>\$13.34</b>	<b>7.4%</b>	<b>\$199.97</b>	<b>\$18.76</b>	<b>10.4%</b>
<b>Alternative energy prices **</b>													
Motor fuel				4.0%			5.0%			7.0%			11.0%
Natural gas				14.0%			16.0%			25.0%			34.0%
Electricity				16.0%			22.0%			34.0%			45.0%

\* - 2009 baseline figures reported in: US Baseline Briefing Book: Missouri Insert, FAPRI-MU Report #02-09. 2020, 2030, 2040 and 2050 results are calculated from the energy price changes published by CRA International and include no other production cost changes from the reported 2009 level.

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Table 6. Missouri crop operating costs under alternative energy costs \*

	2009 Baseline	2020 Scenario	2020 Change	% Δ	2030 Scenario	2030 Change	% Δ	2040 Scenario	2040 Change	% Δ	2050 Scenario	2050 Change	% Δ
<b>Seed</b>													
Dryland corn	\$69.38	\$69.40	\$0.03	0.0%	\$69.41	\$0.03	0.0%	\$69.42	\$0.05	0.1%	\$69.45	\$0.08	0.1%
Irrigated corn	\$74.00	\$74.03	\$0.03	0.0%	\$74.04	\$0.04	0.0%	\$74.05	\$0.05	0.1%	\$74.08	\$0.08	0.1%
Soybeans	\$43.07	\$43.08	\$0.02	0.0%	\$43.09	\$0.02	0.0%	\$43.10	\$0.03	0.1%	\$43.11	\$0.05	0.1%
Soft red wheat	\$32.00	\$32.01	\$0.01	0.0%	\$32.02	\$0.02	0.0%	\$32.02	\$0.02	0.1%	\$32.04	\$0.04	0.1%
<b>Fertilizer</b>													
Dryland corn	\$123.55	\$132.04	\$8.49	6.9%	\$133.47	\$9.92	8.0%	\$138.64	\$15.09	12.2%	\$144.82	\$21.27	17.2%
Irrigated corn	\$156.70	\$167.47	\$10.77	6.9%	\$169.28	\$12.58	8.0%	\$175.85	\$19.15	12.2%	\$183.68	\$26.98	17.2%
Soybeans	\$76.50	\$78.86	\$2.36	3.1%	\$79.46	\$2.96	3.9%	\$80.64	\$4.14	5.4%	\$83.00	\$6.50	8.5%
Soft red wheat	\$87.05	\$93.73	\$6.68	7.7%	\$94.81	\$7.76	8.9%	\$98.94	\$11.89	13.7%	\$103.64	\$16.59	19.1%
<b>Crop chemical</b>													
Dryland corn	\$30.50	\$30.54	\$0.04	0.1%	\$30.55	\$0.05	0.2%	\$30.56	\$0.06	0.2%	\$30.60	\$0.10	0.3%
Irrigated corn	\$30.50	\$30.54	\$0.04	0.1%	\$30.55	\$0.05	0.2%	\$30.56	\$0.06	0.2%	\$30.60	\$0.10	0.3%
Soybeans	\$12.90	\$12.92	\$0.02	0.1%	\$12.92	\$0.02	0.2%	\$12.93	\$0.03	0.2%	\$12.94	\$0.04	0.3%
Soft red wheat	\$7.80	\$7.81	\$0.01	0.1%	\$7.81	\$0.01	0.2%	\$7.82	\$0.02	0.2%	\$7.83	\$0.03	0.3%
<b>Custom hire and rental</b>													
Dryland corn	\$4.75	\$4.85	\$0.09	2.0%	\$4.87	\$0.12	2.5%	\$4.92	\$0.17	3.5%	\$5.01	\$0.26	5.5%
Irrigated corn	\$4.75	\$4.85	\$0.09	2.0%	\$4.87	\$0.12	2.5%	\$4.92	\$0.17	3.5%	\$5.01	\$0.26	5.5%
Soybeans	\$0.00	\$0.00	\$0.00	0.0%	\$0.00	\$0.00	0.0%	\$0.00	\$0.00	0.0%	\$0.00	\$0.00	0.0%
Soft red wheat	\$9.50	\$9.69	\$0.19	2.0%	\$9.74	\$0.24	2.5%	\$9.83	\$0.33	3.5%	\$10.02	\$0.52	5.5%
<b>Machinery fuel, drying, and irrigation energy</b>													
Dryland corn	\$23.52	\$24.55	\$1.03	4.4%	\$24.83	\$1.31	5.6%	\$25.39	\$1.87	7.9%	\$26.36	\$2.84	12.1%
Irrigated corn	\$45.35	\$47.33	\$1.98	4.4%	\$47.87	\$2.52	5.6%	\$48.95	\$3.60	7.9%	\$50.82	\$5.47	12.1%
Soybeans	\$9.28	\$9.68	\$0.41	4.4%	\$9.79	\$0.52	5.6%	\$10.01	\$0.74	7.9%	\$10.40	\$1.12	12.1%
Soft red wheat	\$7.71	\$8.04	\$0.34	4.4%	\$8.14	\$0.43	5.6%	\$8.32	\$0.61	7.9%	\$8.64	\$0.93	12.1%
<b>Machinery repairs and maintenance</b>													
Dryland corn	\$15.50	\$15.51	\$0.01	0.1%	\$15.52	\$0.02	0.1%	\$15.52	\$0.02	0.1%	\$15.53	\$0.03	0.2%
Irrigated corn	\$37.59	\$37.59	\$0.00	0.0%	\$37.62	\$0.04	0.1%	\$37.64	\$0.05	0.1%	\$37.67	\$0.08	0.2%
Soybeans	\$10.36	\$10.36	\$0.01	0.1%	\$10.37	\$0.01	0.1%	\$10.37	\$0.01	0.1%	\$10.38	\$0.02	0.2%
Soft red wheat	\$10.40	\$10.41	\$0.01	0.1%	\$10.41	\$0.01	0.1%	\$10.42	\$0.01	0.1%	\$10.43	\$0.02	0.2%
<b>Operating interest</b>													
Dryland corn	\$10.65	\$10.99	\$0.34	3.2%	\$11.05	\$0.40	3.8%	\$11.26	\$0.61	5.7%	\$11.51	\$0.86	8.1%
Irrigated corn	\$13.08	\$13.54	\$0.45	3.5%	\$13.62	\$0.54	4.1%	\$13.89	\$0.81	6.2%	\$14.24	\$1.16	8.8%
Soybeans	\$6.30	\$6.40	\$0.10	1.6%	\$6.43	\$0.13	2.0%	\$6.48	\$0.18	2.8%	\$6.58	\$0.28	4.4%
Soft red wheat	\$6.09	\$6.35	\$0.25	4.1%	\$6.39	\$0.29	4.8%	\$6.54	\$0.45	7.4%	\$6.72	\$0.63	10.4%
<b>Operating costs per acre</b>													
Dryland corn	\$313.96	\$324.00	\$10.03	3.2%	\$325.81	\$11.84	3.8%	\$331.83	\$17.87	5.7%	\$339.41	\$25.44	8.1%
Irrigated corn	\$385.94	\$399.31	\$13.37	3.5%	\$401.82	\$15.88	4.1%	\$409.83	\$23.89	6.2%	\$420.08	\$34.14	8.8%
Soybeans	\$183.43	\$186.34	\$2.91	1.6%	\$187.07	\$3.65	2.0%	\$188.55	\$5.12	2.8%	\$191.44	\$8.01	4.4%
Soft red wheat	\$181.21	\$188.70	\$7.49	4.1%	\$189.97	\$8.76	2.8%	\$194.55	\$13.34	7.4%	\$199.97	\$18.76	10.4%
<b>Alternative energy prices **</b>													
Motor fuel				4.0%			5.0%			7.0%			11.0%
Natural gas				14.0%			16.0%			25.0%			34.0%
Electricity				16.0%			22.0%			34.0%			45.0%

\* - 2009 baseline figures reported in: US Baseline Briefing Book: Missouri Insert, FAPRI-MU Report #02-09. 2020, 2030, 2040 and 2050 results are calculated from the energy price changes published by CRA International and include no other production cost changes from the reported 2009 level.

\*\* - Source: "Impact on the Economy of the American Clean Energy and Security Act of 2009 (H.R.2454)", CRA International, May 2009.

[http://www.nationalbcc.org/images/stories/documents/CRA\\_Waxman-Markey\\_%205-20-09\\_v8.pdf](http://www.nationalbcc.org/images/stories/documents/CRA_Waxman-Markey_%205-20-09_v8.pdf)

# United States Senate

WASHINGTON, DC 20510-2503

July 10, 2009

Dr. Patrick Westhoff  
Food and Agricultural Policy Research Institute  
University of Missouri - Columbia  
101 Park DeVillie Dr., Suite E  
Columbia, MO 65203

Dear Dr. Westhoff,

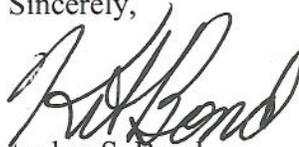
Congress is currently considering legislation to cap carbon emissions through a cap and trade program. The House of Representatives recently passed H.R. 2454, the American Clean Energy and Security Act of 2009 (ACES) and the Senate will soon consider similar legislation.

I am very concerned that this legislation will impose unaffordable costs on Missouri in the form of higher energy costs and lost jobs. A recent analysis prepared by the leading economic firm CRA International for the Black Chamber of Commerce found that ACES would kill 310,000 jobs in our region, cost our families \$800 per year, and drive up electricity bills 45%, natural gas bills 34% and gasoline nearly 60 cents per gallon.

Due to higher energy costs resulting from carbon cap and trade legislation, I fear that farmers may face higher farm production costs. As you know, farmers use fuel to run their machinery, fertilizer made from energy, and energy to irrigate their fields and dry their grain. To that end, I request that the Food and Agricultural Policy Research Institute calculate the impact of higher energy costs caused by ACES on Missouri farm production costs. Please provide this information for corn, soybean and wheat operations on representative farms in the State of Missouri. The economic analysis prepared by CRA International may be found at [http://www.nationalbcc.org/images/stories/documents/CRA\\_Waxman-Markey\\_%205-20-09\\_v8.pdf](http://www.nationalbcc.org/images/stories/documents/CRA_Waxman-Markey_%205-20-09_v8.pdf).

The prosperity of Missouri farmers and the health of our Missouri farm economy is very important to me. This information is vital to our consideration of this legislation. Thank you in advance for your assistance with this matter.

Sincerely,



Christopher S. Bond