

# IMPACTS POLICY HAS ON THE ECONOMIC FEASIBILITY OF DEDICATED ENERGY CROPS

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# Three Primary Goals

- Reduce Transportation Use of Fossil Fuels
- Reduce Power Use of Fossil Fuels
- Reduce Carbon Footprint

## Three Big Potential Impacts on US Agriculture

# The Nation Has Some Secondary Goals

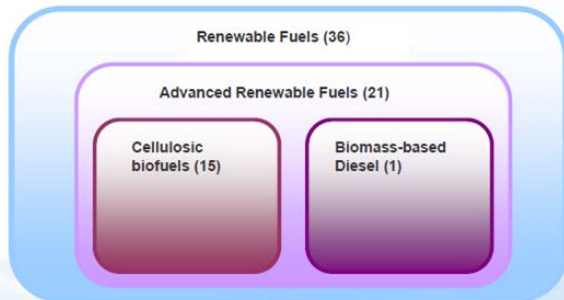
- Increase Economic Viability of Rural America
- Increase Net Farm Income
- Decrease Environmental Impact Agriculture has on the Environment
- Create a Sustainable System

# Why Are Incentives Required?

- ❑ Commercialization barriers faced by new technologies competing with mature technologies
- ❑ Price distortions from existing subsidies and unequal tax burdens between renewables and other energy sources
- ❑ Failure of the market to value the public benefits of renewables
- ❑ Market barriers such as inadequate information, lack of access to capital, "split incentives" between building owners and tenants, and high transaction costs for making small purchases

# Renewable Fuel Standard Plus

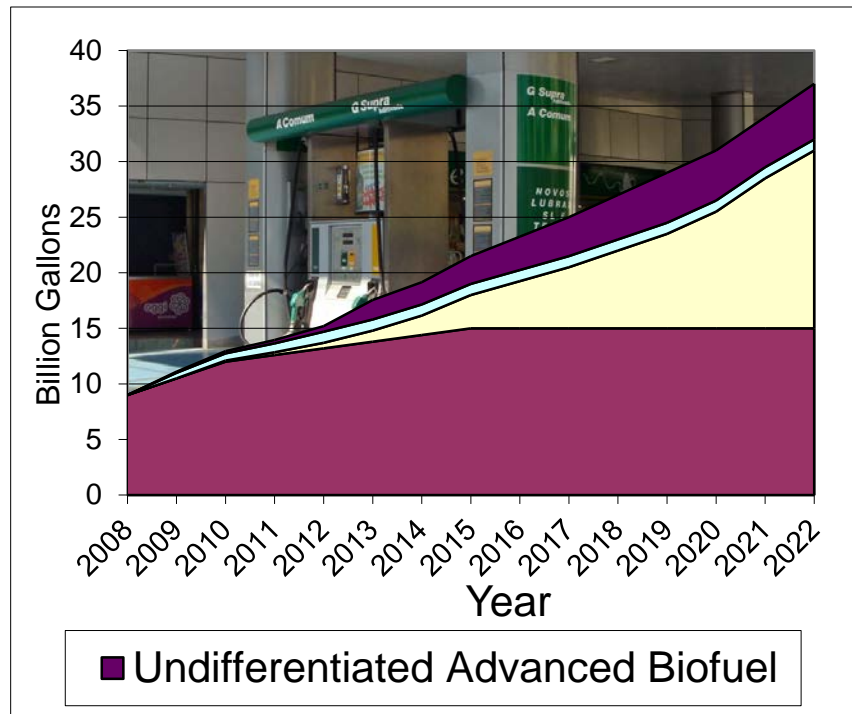
- EISA mandates the use of additional renewable fuels by modifying the existing fuel standard.
  - The standard now requires the sale of 36 billion gallons of renewable fuels per year by 2022.
  - There are sub-targets for different classifications of biofuels



Brookhaven Science Associates

BROOKHAVEN  
NATIONAL LABORATORY

- Blenders Credit
- RINs
- E85, E15, and E10
- Blend Wall



# Biofuel Incentives

Source: Alternative Fuels and Advanced Vehicles  
Data Center  
[http://www.afdc.energy.gov/afdc/ethanol/incentives\\_laws\\_federal.html](http://www.afdc.energy.gov/afdc/ethanol/incentives_laws_federal.html)

- Alternative Fuel Infrastructure Tax Credit
- Volumetric Ethanol Excise Tax Credit (VEETC)
- Small Ethanol Producer Tax Credit
- Advanced Energy Research Project Grants
- Improved Energy Technology Loans
- Advanced Biofuel Production Grants and Loan Guarantees
- Advanced Biofuel Production Payments
- Biomass Research and Development Initiative
- Value-Added Producer Grants (VAPG)
- Biobased Transportation Research Funding
- Cellulosic Biofuel Producer Tax Credit
- Rural Development Grants
- Rural Energy for America Program Grants
- Value Added Producer Grants
- Rural Business Enterprise Grants



# Biomass Crop Assistance Program

- Which comes first the Chicken or the Egg ?  
Or Where is the Market?
- BCAP addresses the classic chicken-or-egg challenge around the start up of commercial scale bioenergy activities. If commercial-scale biomass facilities are to have sufficient feedstocks, then a large-scale energy crop must exist. Conversely, if profitable crop production is to occur, then viable consumers must exist to purchase the crop.



# BCAP

- With BCAP, crop producers and bioenergy facilities team together to submit proposals to USDA for selection as a BCAP project area.
- The Record of Decision on the BCAP Environmental Impact Statement estimates that by 2023, up to \$88.5 billion in economic activity and 700,000 jobs could be created.

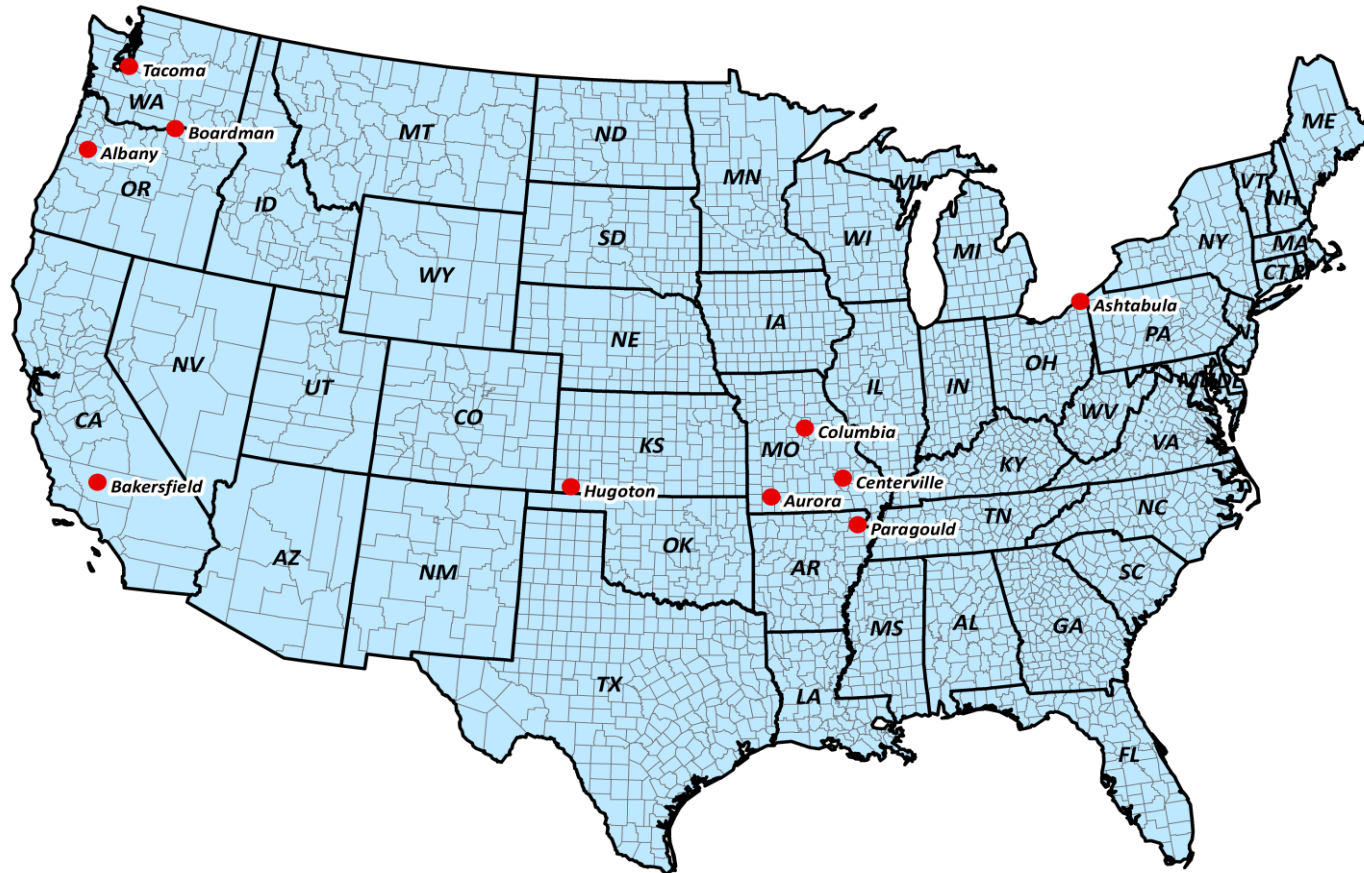
# BCAP Approved Projects

- Project Area 1 (sponsor: Show Me Energy Cooperative, Centerview, MO) — up to 50,000 acres of perennial native grasses and forbs, such as Switchgrass, Big Bluestem, Illinois Bundleflower and Purple Prairie Clover, in addition to existing suitable stands of native grasses, legumes and forbs.
- Project Area 2 (sponsor: MFA Oil Biomass LLC, Paragould, AR) — up to 6,588 acres of giant miscanthus.
- Project Area 3 (sponsor: MFA Oil Biomass LLC, Columbia, MO) — up to 3,400 acres of giant miscanthus.
- Project Area 4 (sponsor: MFA Oil Biomass LLC, Aurora, MO) — up to 3,850 acres of giant miscanthus.
- Project Area 5 (sponsor: Aloterra Energy LLC, Ashtabula, OH) — up to 5,344 acres of giant miscanthus.
- Project Area 6 (sponsor: Beaver Biodiesel LLC, Albany, OR) — up to 1,000 acres of camelina.
- Project Area 7 (sponsor: Abengoa Bioenergy LLC, Hugoton, KS) — up to 20,000 of perennial native grasses and forbs, such as switchgrass.
- Project Area 8 (sponsor: Altair Fuels LLC, Bakersfield, CA and Tacoma, WA) — up to a total of 50,000 acres of camelina.
- Project Area 9 (sponsor: ZeaChem, Inc., Boardman, OR) — up to 7,002 acres of hybrid poplar.

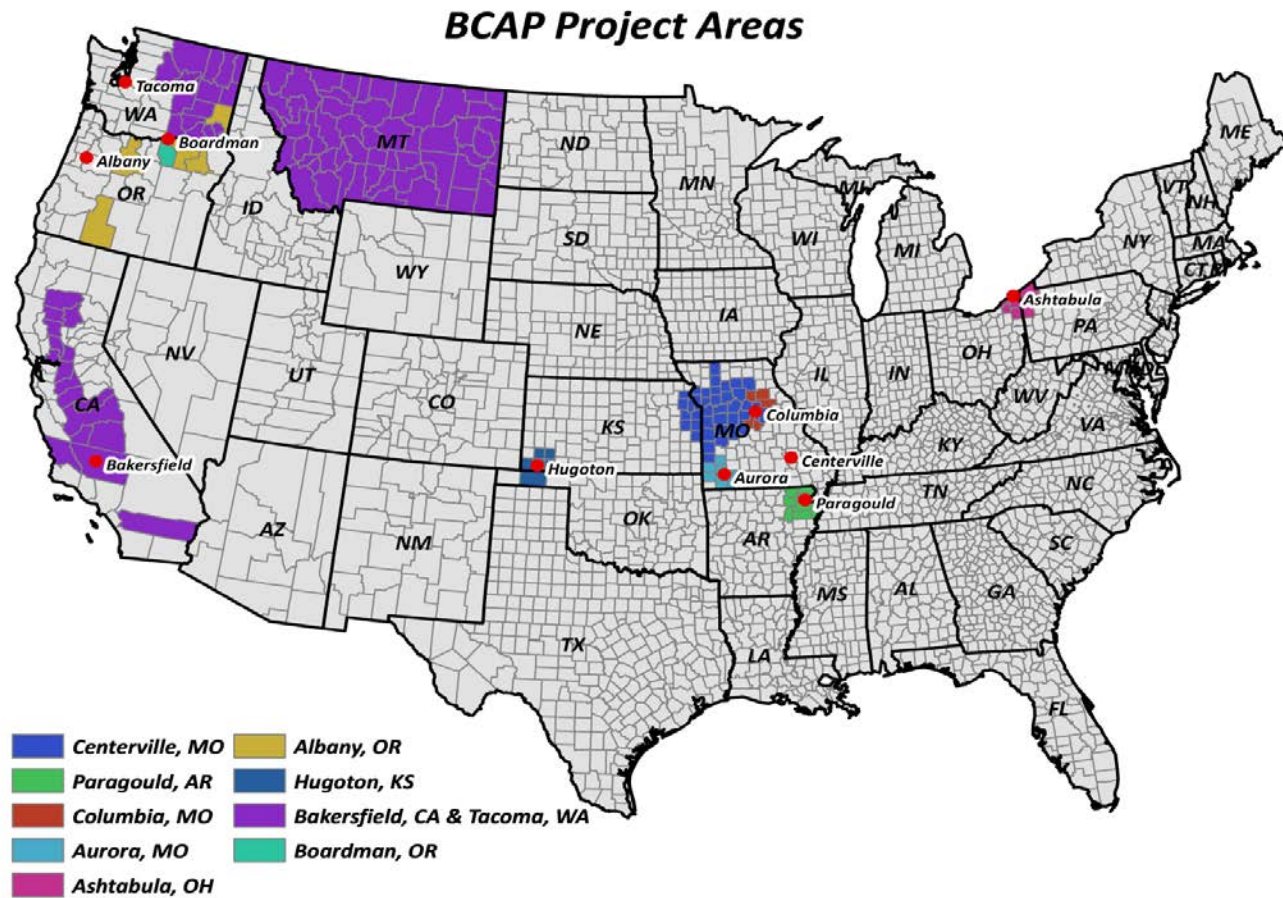


# BCAP Project Sites

*BCAP Project Areas*



# BCAP Project Areas



# Why BCAP

- BCAP provides incentives to interested farmers, ranchers and forest landowners for the establishment and cultivation of biomass crops for heat, power, bio-based products and biofuels.
- Why?
  - ▣ Many bioenergy crops need several years to become established.
  - ▣ Many bioenergy facilities need several years to reach commercial scale.
- BCAP reduces the financial risk for landowners who switch from familiar, revenue-generating crops to new, unconventional crops in preparation for the emerging bioenergy markets.

# What Incentives Are Present in BCAP?

- Crop producers will be eligible for reimbursements of up to 75 percent of the cost of establishing a bioenergy perennial crop.
- Producers also can receive up to 5 years of annual payments for grassy crops (annual or perennial), and up to 15 years of annual payments for woody crops (annual or perennial)
- Assistance for the collection, harvest, storage and transportation of biomass to biomass conversion facilities will be available for 2 years, per producer, in the form of a matching payment for up to \$45 per ton of the delivery cost to the facility.

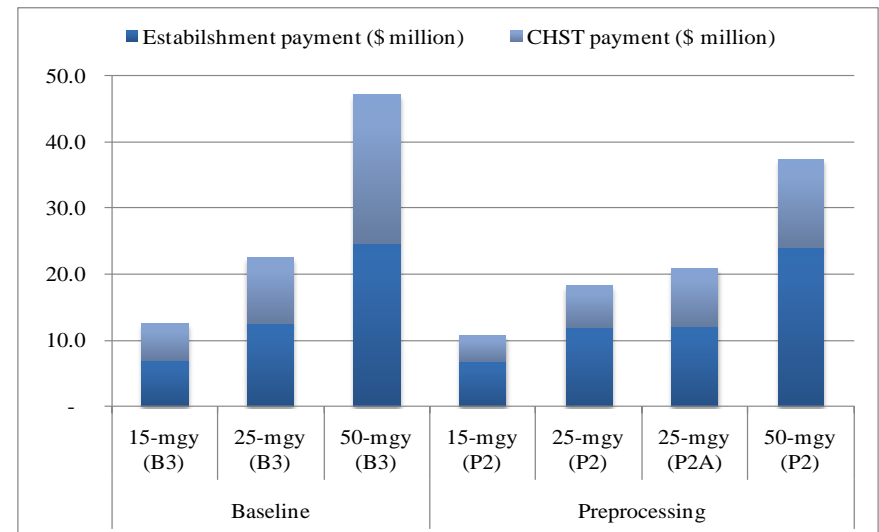
Source: BCAP Final Rule Provisions Factsheet

[http://www.fsa.usda.gov/FSA/newsReleases?area=newsroom&subject=landing&topic=pfs&newstype=prfactsheet&type=detail&item=pf\\_20101021\\_consv\\_en\\_bcap.html](http://www.fsa.usda.gov/FSA/newsReleases?area=newsroom&subject=landing&topic=pfs&newstype=prfactsheet&type=detail&item=pf_20101021_consv_en_bcap.html)



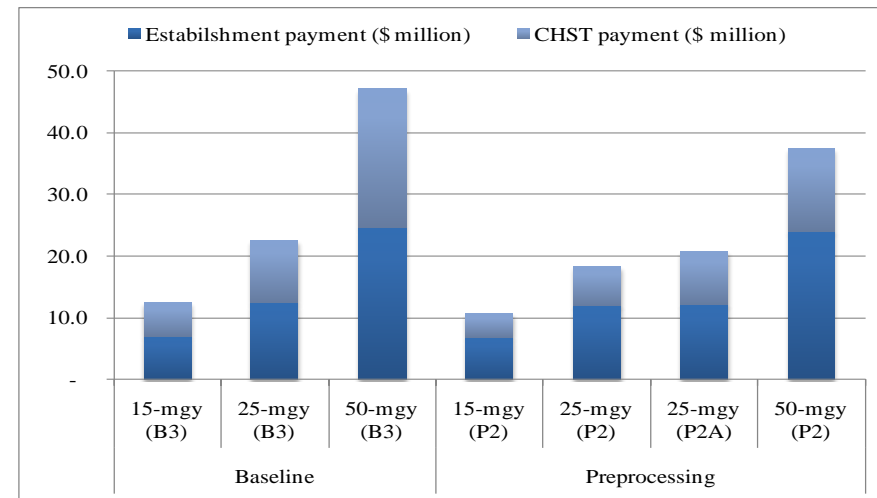
# Impact of BCAP Subsidies for Farmers

- For a 10-year horizon (the general life-span of switchgrass), BCAP is projected to save about \$7 million in establishment costs (\$318 per acre without the BCAP) for 29,500 acres of switchgrass and more than \$5 million to offset collection, harvest, storage, and transportation costs in the optimal mixed-bale case in the baseline system (Case B3) for a 15-mgy biorefinery.
- The estimated payments for establishment and logistics cost of feedstock for a 50-mgy biorefinery is nearly \$47 million for the optimal mixed-bale case in the baseline system. The payments (or cost savings) account for about 13% of total delivered cost over the 10-year horizon.



# Impact of BCAP Subsidies for Farmers (Preprocessing Scenario)

- For a 15-mgy biorefinery, BCAP payments are projected to reduce total feedstock acquisition costs by \$11 million over the 10-year horizon for the optimal preprocessing logistics system (Case P2).
- BCAP payments for a 25-mgy biorefinery in the optimal case are projected to be about \$18 million. By comparison, projected BCAP payments increased to more than \$20 million if all switchgrass feedstocks are preprocessed before delivery (Case P2A).
- Farmers providing switchgrass to a 50-mgy biorefinery are projected to receive as much as \$38 million over 10 years. BCAP payments are projected to reduce feedstock costs by about 13% over the 10-year horizon among those cases.

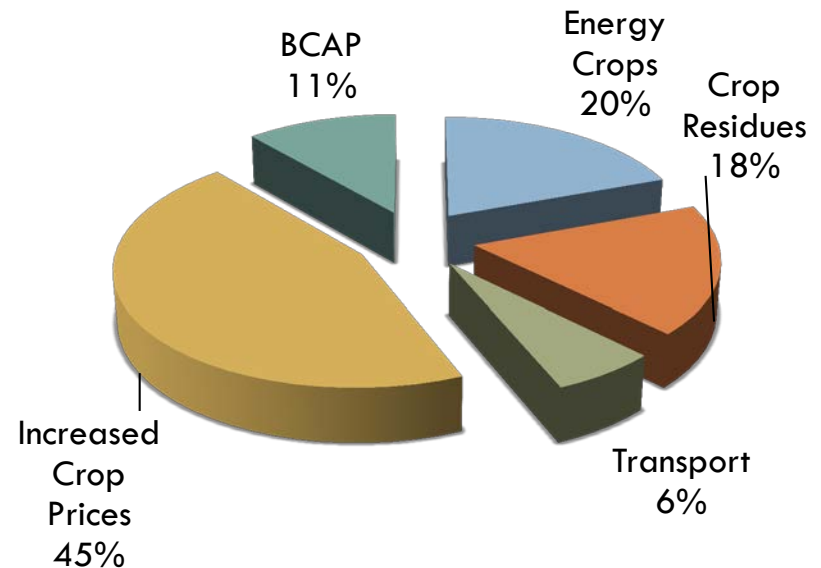


# Estimated BCAP Economic Impacts

Table 4.2-21. National Economic Impacts Resulting from Achieving EISA Targets (TIO and Jobs)

Direct	Indirect	Induced	Total
<b>National Farm Impact as a result of producing dedicated energy crops:</b>			
\$5,713,400,000	\$892,033	\$13,821,586,568	\$19,535,878,601
93,637	8	101,202	194,847
<b>National Farm Impact as a result of collecting crop residues:</b>			
\$5,289,400,000	\$1,600,030	\$12,797,553,299	\$18,088,553,329
86,688	15	93,704	180,407
<b>National Farm Level Impacts as a result of changing land uses:</b>			
(\$3,202,976,400)	(\$2,900,063,535)	(\$5,910,728,462)	(\$12,013,768,397)
(41,265)	(18,500)	(43,298)	(103,063)
<b>National impacts as a result of transporting cellulosic materials:</b>			
\$1,615,128,000	\$1,432,340,848	\$3,275,528,986	\$6,322,997,834
12,658	7,508	24,166	44,332
<b>National impacts as a result of changing commodity prices:</b>			
\$15,803,976,400	\$7,601,240,255	\$21,780,238,019	\$45,185,454,674
88,074	46,340	161,478	295,892
<b>National impacts as a result of BCAP matching payments:</b>			
\$3,988,600,000	\$1,918,397,326	\$5,496,885,975	\$11,403,883,301
22,228	11,695	40,754	74,677
<b>Total national impacts:</b>			
\$29,207,528,000	\$8,054,406,957	\$51,261,064,385	\$88,522,999,342
262,019	47,066	378,007	687,092

Source: Biomass Crop Assistance Program Programmatic Environmental Impact Statement  
[http://www.fsa.usda.gov/Internet/FSA\\_File/bcapfinalpeis062510.pdf](http://www.fsa.usda.gov/Internet/FSA_File/bcapfinalpeis062510.pdf)



\$88,500,000,000 increase in economic activity and 690,000 additional jobs annually to meet EISA targets

# Take Home Message

- There are policies in place designed to reduce risks and encourage adoption of technology all along the production system.
- For entrepreneurs there are grants and loan guarantees that will assist in getting you involved in the supply chain.
- The BCAP could reduce the costs of feedstock to the biorefinery and increase initial profits to the producer.



# Questions?

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