Report to the Legislature

Minnesota Bioincentive Program

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Pursuant to Minnesota Statutes, section 3.197, the cost of preparing this report was approximately $750.

Executive Summary

The Bioincentive Program was established by the Legislature during the 2015 session to encourage commercial-scale production of advanced biofuels, renewable chemicals, and biomass thermal energy through production incentive payments (Minnesota Statutes, sections 41A.16-41A-19).

Incentive payments are available for three types of production: advanced biofuels, renewable chemicals, and biomass thermal energy. Payment rates are established by statute. Also established by statute are criteria for minimum production levels, and standards for the sourcing of the biomass feedstock. A minimum of 80% of the biomass must be obtained ("sourced") from Minnesota[1], and there are standards for harvest of forestry and agricultural cellulosic (i.e., fibrous material, such as wood or plant stalks) biomass intended to protect natural resources and the environment.

Funding is from the Agricultural Growth, Research, and Innovation (AGRI) program appropriation. Current funding is $2.5 million for each year of the biennium.

For each fiscal year, unspent funds are available for an additional year. The funds in the additional year are available for the AGRI program as a whole.

Expenditures in Fiscal Year 2018 (FY2018) were far lower than expected. We expected FY2018 claims of approximately $1.5 million based on information from industry sources. However, because of production difficulties and delays experienced by the expected claimants, the FY2018 total of claims was $114,980.

FY2019 was the first year that claims were higher than funding. Total claims exceeded the $1.5 million in the program by $26,889.95. Claims are likely to exceed the $2.5 million in funding for FY2020 as well. For the first quarter, over $1.8 million in claims were reimbursed. For FY2019, the last applicant to enter the program was not reimbursed their full claim. In FY2020, should the funding be depleted, the remaining funds with be distributed on a pro-rata basis in accordance with the new statutory language in the Bioincentive Statutes.

[1] If production facilities are 50 miles or less from the state border, 80% of the biomass may be sourced from outside of Minnesota within a 100-mile radius of facility.

Introduction

This report is submitted pursuant to the Laws of Minnesota 2015, Chapter 4, Article 2, Section 61:

> By January 15 each year, the commissioner shall report on the incentive programs under sections 41A.16, 41A.17, and 41A.18 to the legislative committees with jurisdiction over environment and agriculture policy and finance. The report shall include information on production and incentive expenditures under the programs.

Background

During the 2015 legislative session, the Legislature adopted statutory language (Minnesota Statutes, sections 41A.16-41A-19) and appropriated funds for incentive payments for production of advanced biofuel, renewable chemicals, and biomass thermal energy. An eligible producer may receive payment per unit of production under the program. There are minimum production levels required for eligibility. A maximum amount is set that can be claimed in any one year. A producer may collect payments through the program for ten years. The program is scheduled to end in 2035.

How the program works

The Bioincentive Program was established to encourage commercial-scale production of advanced biofuel, renewable chemicals, and biomass thermal energy through production incentive payments.

Production facilities must:

- begin producing biofuels, renewable chemicals, or biomass thermal energy before June 30, 2025,
- meet quarterly minimum production levels,
- use renewable biomass from agricultural or forestry sources, or the organic portion of solid waste[2],
- source 80 percent of renewable biomass from Minnesota[3], and
- harvest agricultural and forestry cellulosic biomass (i.e., fibrous material, such as wood or plant stalks) in ways that do not harm natural resources or the environment.

Production facilities may receive payments for up to ten years. If funding for the program should be depleted in any quarter the eligible claims are made on a pro rata basis to those applicants.

The following sections describe the incentive payment programs for the three types of production: advanced biofuels, renewable chemicals, and biomass thermal energy.

[2] The organic portion of solid waste is only an eligible feedstock for advanced biofuels and renewable chemicals. It is not an eligible feedstock for biomass thermal energy production.

[3] If production facilities are 50 miles or less from the state border, 80% of the biomass may be sourced from outside of Minnesota within a 100-mile radius of the facility.

Advanced Biofuel

Generally, advanced biofuel must demonstrate that its lifecycle greenhouse gas emissions are at least 50 percent less than baseline lifecycle greenhouse gas emissions of the fuel the advanced biofuel replaces. Biobutanol from cornstarch may be reimbursed through the Bioincentive Program without demonstrating the 50% greenhouse-gas-emission reduction.

Eligibility

Production must not have exceeded the equivalent of 23,750 MMBtu (millions of British Thermal Units or BTUs, a standard unit of measurement of heat energy) per quarter before July 1, 2015. Facilities must produce at least the equivalent of 1,500 MMBtu per quarter to enter the program and for each quarter for which a reimbursement claim is made.

Payment Amounts and Limits

Producers of advanced biofuels are reimbursed at a rate of:

- $2.1053 per the equivalent of MMBtu for production from cellulosic biomass, and
- $1.053 per the equivalent of MMBtu for production from sugar or starch.

The following table shows BTUs converted to gallons for several examples of advanced biofuels.

Table 1: Payments per gallon for several examples of advanced biofuels

Fuel	Feedstock	Btu/gal	Payment/gallon
Butanol	Corn starch	99,837	$0.11
Ethanol	Sugar beets	76,330	$0.08
Ethanol	Corn kernel fiber	76,330	$0.16

Renewable Chemicals

Renewable chemicals are produced from agricultural biomass, forestry materials, or the organic portion of solid waste qualify for Bioincentive Program payments.

Eligibility

Production must not have exceeded 250,000 pounds per quarter before January 1, 2015. Renewable chemicals produced through processes that were fully commercial before January 1, 2000 are not eligible. Facilities must produce at least 250,000 pounds per quarter to enter the program and for each quarter for which a reimbursement claim is made.

Payment Amounts and Limits

Producers of renewable chemicals are reimbursed at a rate of:

- $0.06 per pound made from cellulosic biomass, and
- $0.03 per pound made from sugar, cellulosic sugar, oil, or starch.

Production using agricultural cellulosic feedstock of perennial or cover-crop biomass is eligible for a 20% bonus payment for each pound of chemicals produced. Total payments for an eligible producer may not exceed the amount necessary for 99,999,999 pounds of production in a fiscal year.

Biomass Thermal Energy

Thermal energy produced from biomass combustion, gasification, or aerobic digestion qualifies for Bioincentive Program payments.

Eligibility

Production of biomass thermal energy that was in place before July 1, 2015 is not eligible. Facilities must produce at least 250 MMBtu per quarter to enter the program and for each quarter for which a reimbursement claim is made.

Payment Amount and Limits

Producers of biomass thermal energy are reimbursed at a rate of $5.00 per MMBtu of production. Facilities may blend cellulosic feedstock with other fuel, but only the percentage attributable to cellulosic material is eligible to receive payments. Production using agricultural cellulosic feedstock of perennial or cover-crop biomass is eligible for a 20% bonus payment for each MMBtu of biomass thermal energy produced. Total payments for an eligible producer may not exceed the amount necessary for 30,000 MMBtu of production in a fiscal year.

Cellulosic Biomass Sourcing

The Bioincentive Program statute contains standards for the sourcing of the cellulosic biomass feedstock, meant to ensure that the harvest of cellulosic biomass for advanced biofuel, renewable chemical, or biomass thermal production does not harm natural resources or the environment. Separate standards exist for cellulosic biomass from forestry sources and from agricultural sources.

The standards for sourcing cellulosic biomass from forestry rely on certifications from several forestry-certifying organizations, or state biomass harvesting guidelines.

To receive incentive payments for production that uses agricultural cellulosic biomass as feedstock, an "agricultural cellulosic biomass sourcing plan" is required to be submitted to the Minnesota Department of Agriculture. The plan contains a detailed explanation of how the agricultural cellulosic biomass is to be produced in a way that will be protective of natural resources and the environment (soils, water quality, wildlife, etc.). A more stringent plan is required for Advanced Biofuels cellulosic biomass harvest than for Renewable Chemicals or Biomass Thermal.

Changes in Bioincentive Statutes from the 2019 Legislative Session

Here is a list of changes to Minnesota Statutes 41A.15-18 from this past year's legislative session.

Thresholds for eligibility lowered for advanced biofuel and renewable chemical

- Advanced biofuel production of 1,500 MMBtu per quarter is now eligible for reimbursement, lowered from 23,750 MMbtu minimum production per quarter. For example, the new threshold is equivalent to 19,711 gallons of ethanol; the old threshold was equivalent to 312,089 gallons.
- Renewable chemical production of 250,000 pounds per quarter is now eligible for reimbursement, lowered from 750,000 pounds minimum production per quarter.
- The definition of "advanced biofuel" was revised to "a renewable fuel, other than ethanol derived from corn starch, that has lifecycle greenhouse gas emissions that are at least 50 percent less than baseline lifecycle greenhouse gas emissions." The effect is to expand eligibility

for reimbursement to fuels approved as advanced biofuels by programs other than the U.S. Environmental Protection Agency's Renewable Fuel Standard program (such as California's Low Carbon Fuel Standard program).

Biomass sourcing requirements clarified

- Biomass sourcing requirements were clarified for facilities near the state border. Most eligible facilities must obtain (source) at least 80 percent of their biomass from Minnesota. However, if a facility is located 50 miles or less from the state border, biomass may be sourced from outside of Minnesota, but only if at least 80 percent of the biomass comes from within a 100-mile radius of the facility or comes from anywhere in Minnesota.
- Tribal lands are now specifically identified as an acceptable source of cellulosic forestry biomass if all the relevant sourcing requirements are met.
- The Biomass Thermal Production Incentive language was clarified to ensure that all the qualifying biomass (biomass meeting the cellulosic forestry biomass requirements or the agricultural cellulosic biomass sourcing plan) is counted when calculating the payment amount.

First come, first served replaced by pro-rata distribution

- In any quarter where funds are less than the total of eligible claims, the funds remaining in that quarter will be awarded proportionally to the applicants.
- Once funds have been depleted for the fiscal year, payment will not be made in any succeeding quarters until the next fiscal year has begun. For example, if funds are depleted in quarter 3 there will be no payments made for quarter 4.

Other changes

- Only advanced biofuel, renewable chemical, or biomass thermal energy made or produced from biomass is eligible for reimbursement. If the product is partially made from biomass, only the portion made from biomass will be reimbursed.
- The definitions for "biobased content" and "biobased formulated product" were replaced by new definitions for "biomass", and "renewable chemical."
- Renewable chemical produced from starch, oil, or animal-fat derived feedstock is now eligible, reimbursed at the 3-cents-per-pound rate.

Funding

Funding for the Bioincentive Program is from the Agricultural Growth, Research, and Innovation (AGRI) program appropriation. Funds appropriated from AGRI for the Bioincentive Program are shown below:

Table 2: Bioincentive Program appropriations

Biennium	Year 1	Year 2
2016-2017	$500,000	$1,500,000
2018-2019	$1,500,000	$1,500,000
2020-2021	$2,500,000	$2,500,000

For all biennia, the appropriation language provides that unspent funds are available for an additional year (for example, the FY2020 appropriation is available until June 30, 2021), and that the balance remaining after the end of the fiscal year (e.g., June 30, 2020 in the case of FY2021) is available to the AGRI program as a whole in the following fiscal year (e.g., July 1, 2020, to June 30, 2021 in the case of the FY2020 appropriation).[4]

Production and Incentive Expenditures

There have now been claims in three fiscal years of the Bioincentive Program. Details of reimbursements made to date are summarized in Table 3 by section.

FY2019 was the first year that claims were higher than funding. Total claims exceeded the $1.5 million in the program by $26,889.95. Claims are likely to exceed the $2.5 million in funding for FY2020 as well. For the first quarter over $1.8 million in claims was reimbursed. For FY2019 the last applicant to enter the program was not reimbursed their full claim; in FY2020, should the funding be depleted, the remaining funds with be distributed on a pro-rata basis in accordance with the new statutory language in the Bioincentive Statutes. Details are shown in Table 3.

[4] For FY2017, however, the remaining balance of $1.47 million was cancelled.

Table 3: Program reimbursement by section for FY2017-FY2019 and through quarter 1 of FY2020.

FY	Production Type	Amount Claim (unit)	Units	Amount Claimed ($)
17	Advanced Biofuel	0.00	MMBtu	$0.00
	Renewable Chemical	986,636.00	Pounds	$29,599.08
	Biomass Thermal	0.00	MMBtu	$0.00
FY17 Total		986,636.00		$29,599.08
18	Advanced Biofuel	0.00	MMBtu	$0.00
	Renewable Chemical	3,234,517.00	Pounds	$97,035.51
	Biomass Thermal	3,588.98	MMBtu	$17,944.90
FY18 Total				$114,980.41
19	Advanced Biofuel	0.00	MMBtu	$0.00
	Renewable Chemical	23,150,019.00	Pounds	$1,291,385.10
	Biomass Thermal	47,100.97	MMBtu	$235,504.85
FY19 Total				$1,526,889.95
20	Advanced Biofuel	129,518.96	MMBtu	$272,650.31
	Renewable Chemical	20,653,952.00	Pounds	$1,239,235.30
	Biomass Thermal	65,815.20	MMBtu	$314,236.52
FY20 Total through Quarter 1				$1,826,122.13

Maximum reimbursements that could be received through the program as outlined in the statute are listed in Table 4 (all collective producers per year) and Table 5 (individual producer per year). It should be noted that a 20% bonus payment is also available for renewable chemicals and the biomass thermal energy producers utilizing agricultural perennials and/or cover crops as feedstock.

Table 4: Maximum program reimbursements per year, for each production type, under Minnesota Statutes, sections 41A.16-41A.18.

Production Type	Max per production type	Max Unit	Low Rate	High Rate	Compensation at Low Rate	Compensation at High Rate
Advanced Biofuel	17,100,000	MMBtu	$1.053	$2.1053	$18,006,300	36,000,630
Renewable Chemical	599,999,999	Pounds	$0.03	$0.06	$18,000,000	36,000,000
Biomass Thermal	150,000	MMBtu	$5.00	$5.00	$750,000	750,000
Totals					**$36,756,300**	**$72,750,630**

Table 5: Maximum reimbursements per facility per year under Minnesota Statutes, sections 41A.16-41A.18.

Production Type	Max per facility	Max Unit	Low Rate	High Rate	Compensation at Low Rate	Compensation at High Rate
Advanced Biofuel	2,850,000	MMBtu	$1.053	$2.1053	$3,001,050	6,000,105
Renewable Chemical	99,999,999	Pounds	$0.03	$0.06	$3,000,000	6,000,000
Biomass Thermal	30,000	MMBtu	$5.00	$5.00	$150,000	150,000
Totals					**$6,151,050**	**$12,150,105**

Projection of Production for Fiscal Years 2020 and 2021

The Minnesota Department of Agriculture has contacted likely applicants for incentive payment reimbursements expected in the coming fiscal year. Expected claims come from four producers. The breakdown of their expected production and reimbursement amounts are listed in Table 6 and 7.

Table 6: Projections for claims in FY2020.

Production Type	Estimated Production Amounts	Approximate Reimbursement
Advanced Biofuel	1,395,469 MMBtu	$2,869,593.25
Renewable Chemical	92,530,702 pounds	$5,551,842.15
Biomass Thermal	120,158 MMBtu	$600,790.00
Total		$9,022,225.39

Table 7: Projections for claims in FY2021.

Production Type	Estimated Production Amounts	Approximate Reimbursement
Advanced Biofuel	1,605,921 MMBtu	$3,254,875.31
Renewable Chemical	102,094,000 MMBtu	$5,885,640.00
Biomass Thermal	120,458 MMBtu	$602,290.00
Total		$9,742,805.31