



Report to the Legislature

Minnesota Bioincentive Program



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The estimated cost of preparing this report (as required by MINN. STAT. 3.197) is \$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 (MINN. STAT. 41A.16-41A-19).

Incentive payments are available for three types of production: advanced biofuels, renewable chemicals, and biomass thermal energy. The Legislature established the payment rates, 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 Minnesota¹, 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. Funding is \$2.5 million for each year of the current biennium (FY20-21). Funding increases to \$3 million for each year of the next biennium (FY22-23).

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

Expenditures in FY17 were \$29,599. Expenditures in FY18 were \$114,980.

FY19 was the first year that claims were higher than funding. Total claims exceeded the \$1.5 million in the program by \$26,890. For FY19, the last applicant to enter the program was not reimbursed their full claim. Claims exceeded the \$2.5 million in funding for FY20 as well. Total claims for FY20 amounted to \$5,069,164, exceeding the total funding available in the program by \$2,569,164.

Claims for FY21 will likely also exceed the \$2.5 million in funding available for the fiscal year. For the first quarter, \$1,343,623 in claims were reimbursed. In FY21, should the funding be depleted, the remaining funds will be distributed on a pro-rata basis.

Introduction

This report is submitted pursuant to the Bioincentive Program (MINN. STAT. 41A.19):

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.

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.

Background

During the 2015 legislative session, the Legislature adopted statutory language (MINN. STAT. 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 (only for advanced biofuels and renewable chemicals);
- Source 80% of renewable biomass from Minnesota²; 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 10 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.

Advanced Biofuel

Generally, advanced biofuel must demonstrate that its lifecycle greenhouse gas emissions are at least 50% 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.

² 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

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.

There is a maximum program reimbursement per year for each eligible producer of 2.85 million MMBtu, and a total maximum program reimbursement per year for all eligible facilities of 17.1 million MMBtu. See the tables in subsection [Maximum Reimbursements](#), below, for the corresponding dollar amounts of maximum reimbursements.

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 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.

There is a maximum program reimbursement per year for each eligible producer of 99,999,999 pounds, and a total maximum program reimbursement per year for all eligible facilities of 599,999,999 pounds. See the tables in subsection [Maximum Reimbursements](#), below, for the corresponding dollar amounts of maximum reimbursements.

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.

There is a maximum program reimbursement per year for each eligible producer of 30,000 MMBtu, and a total maximum program reimbursement per year for all eligible facilities of 150,000 MMBtu. See the tables in subsection [Maximum Reimbursements](#), below, for the corresponding dollar amounts of maximum reimbursements.

Cellulosic Biomass Sourcing

The Bioincentive Program specifies 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.

Maximum Reimbursements

Maximum reimbursements that could be received through the program are listed in Table 2 (all collective producers per year) and Table 3 (individual producer per year). It should be noted that a 20% bonus payment is also available for renewable chemicals and biomass thermal energy producers utilizing agricultural perennials and/or cover crops as feedstock.

Table 2. Maximum program reimbursements per year, for each production type (MINN. STAT. 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

Table 3. Maximum reimbursements per producer per year (MINN. STAT. 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

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 in Table 4:

Table 4: 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
2022-2023	\$3,000,000	\$3,000,000 ³

For all biennia, the appropriation language provides that unspent funds are available for an additional year (for example, the Fiscal Year (FY)21 appropriation is available until June 30, 2022), and that the

³ The \$3,000,000 shown per year for FY2022-23 is an increase in the base amount for the Bioincentive Program allocation contained in the FY2020-21 appropriation language

balance remaining after the end of the fiscal year (e.g., June 30, 2021 in the case of FY21) is available to the AGRI program as a whole in the following fiscal year (e.g., July 1, 2021, to June 30, 2022 in the case of the FY2021 appropriation). However, in FY2017, the remaining balance of \$1.47 million was cancelled.

Production and Incentive Expenditures

There have now been claims in five fiscal years of the Bioincentive Program. Details of reimbursements made to date are summarized in Table 5 by fiscal year and production type.

FY19 was the first year that claims were higher than funding. Total claims exceeded the \$1.5 million in the program by \$26,890. For FY19 the last applicant to enter the program was not reimbursed their full claim. Claims exceeded the \$2.5 million in funding for FY20 as well. Total claims for FY20 amounted to \$5,069,164, exceeding the total funding available in the program by \$2,569,164.

For the first quarter of FY21, \$1,343,623 in claims was reimbursed. In FY21, should the funding be depleted, the remaining funds will be distributed on a pro-rata basis in accordance with the new statutory language. Details are shown in Table 5.

Table 5. Program reimbursement by production type for FY2017-FY2020 and through quarter 1 of FY2021

Fiscal Year (FY)	Production Type	Amount Claim (unit)	Units	Amount Claimed (\$)	Amount Paid (\$)	Amount Not Paid (\$)
FY17	Advanced Biofuel	0.00	MMBtu	\$0.00	\$0.00	\$0.00
	Renewable Chemical	986,636.00	Pounds	\$29,599.08	\$29,599.08	\$0.00
	Biomass Thermal	0.00	MMBtu	\$0.00	\$0.00	\$0.00
Total FY17				\$29,599.08	\$29,599.08	\$0.00
FY18	Advanced Biofuel	0.00	MMBtu	\$0.00	\$0.00	\$0.00
	Renewable Chemical	3,234,517.00	Pounds	\$97,035.51	\$97,035.51	\$0.00
	Biomass Thermal	3,588.98	MMBtu	\$17,944.90	\$17,944.90	\$0.00
Total FY18				\$114,980.41	\$114,980.41	\$0.00
FY19	Advanced Biofuel	0.00	MMBtu	\$0.00	\$0.00	\$0.00
	Renewable Chemical	23,150,019.00	Pounds	\$1,291,385.10	\$1,264,495.15	\$26,889.77
	Biomass Thermal	47,100.97	MMBtu	\$235,504.85	\$235,504.85	\$0.00
Total FY19				\$1,526,889.95	\$1,500,000.00	\$26,889.77
FY20	Advanced Biofuel	129,518.96	MMBtu	\$1,254,057.6	\$435,705.77	\$818,351.83
	Renewable Chemical	20,653,952.00	Pounds	\$3,417,801.66	\$1,739,671.69	\$1,678,129.97
	Biomass Thermal	65,815.20	MMBtu	\$397,304.38	\$324,622.54	\$72,681.84
Total FY20				\$5,069,163.64	\$2,500,000.00	\$2,569,163.64
FY21	Advanced Biofuel	208,944.47	MMBtu	\$439,888.98	\$439,888.98	\$0.00
	Renewable Chemical	10,554,349	Pounds	\$633,261.00	\$633,261.00	\$0.00
	Biomass Thermal	54,094.7	MMBtu	\$270,473.51	\$270,473.51	\$0.00
Total FY21 Qtr. 1				\$1,343,623.49	\$1,343,623.49	\$0.00
Grand Total				\$8,084,256.39	\$5,488,202.98	\$2,596,053.41

Projection of Production for Fiscal Years 2021 and 2022

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 Table 7.

Table 6: Projections for claims in FY2021

Production Type	Estimated Production Amounts	Approximate Claims
Advanced Biofuel	817,332 MMBtu	\$1,720,729
Renewable Chemical	51,266,867 pounds	\$3,076,012
Biomass Thermal	90,000 MMBtu	\$450,000
Total		\$5,246,741

Table 7: Projections for claims in FY2022

Production Type	Estimated Production Amounts	Approximate Claims
Advanced Biofuel	1,522,652 MMBtu	\$3,205,639
Renewable Chemical	117,166,867 MMBtu	\$7,030,012
Biomass Thermal	100,000 MMBtu	\$500,000
Total		\$10,735,651