

Monetizing Electricity Produced by Farm-Based Anaerobic Digestion in NY

Part 4: How the Net Energy Metering (NEM) tariff works

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When the anaerobic digester gas (ADG)-to-electricity system is behind the utility meter within the farm electrical distribution, any electricity generated supplies the connected onsite loads first. If the total power demand of the connected loads is less than the electric power generated at any point, the excess will be exported to the utility grid. Electricity import occurs when either the onsite demand exceeds the power output, or the ADG-to-electricity system is offline. It is common for there to be periods of net electricity export and net import throughout the month. Some utility meters keep track of each of these separately, but others (particularly older “net meters”) are continuously summing the exported electricity (negative kWh) and imported electricity (positive kWh).

Example month – net electricity export

An example of a utility bill for a net export billing period, based on the hourly engine-generator set (EGS) performance and hourly onsite load shown in Figure 1, is included in Table 1. The figure also shows the cumulative net electricity usage that equals -280,000 kWh. The EGS was offline for only 1 hour on May 7th (establishing the month’s utility peak demand). This was also a low demand period, so the farm was able to reduce their actual peak demand of 800 kW (May 10th) to 175 kW on the bill, saving \$5,000 this month.

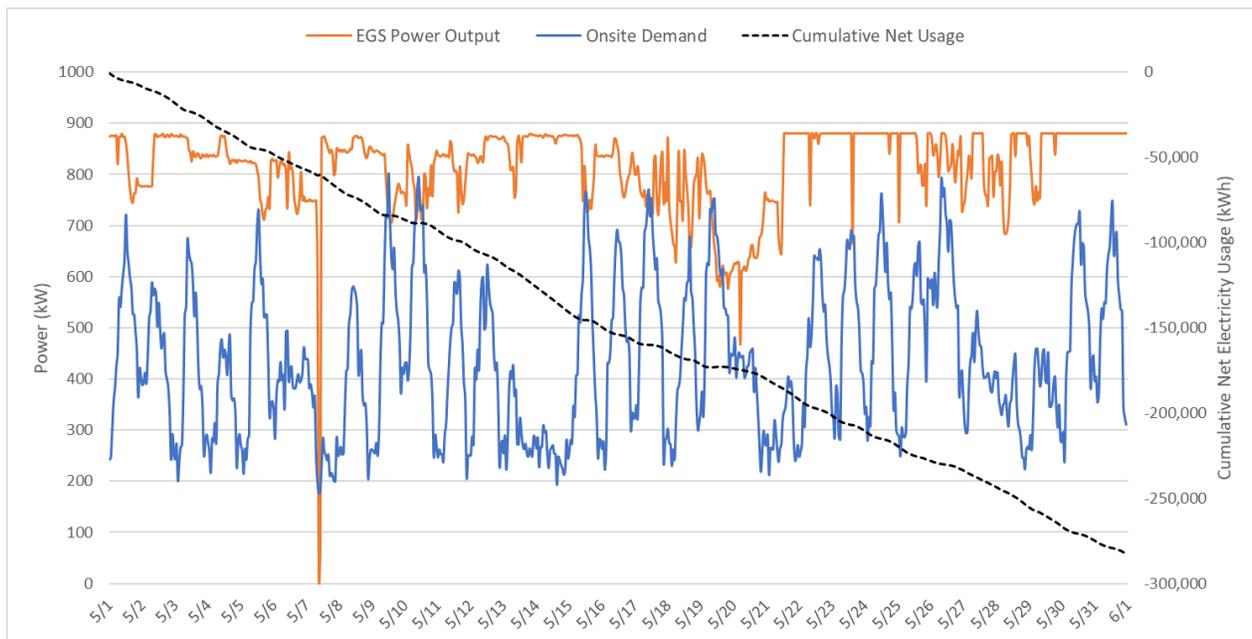


Figure 1. Example of net export month: hourly demand and power output with cumulative net electricity usage.

Table 1. Example of net export month: summary of utility bill NEM credit and charges.

	Value	Note
Total Generated Electricity (kWh)	605,000	Not reported on bill
Total Onsite Usage (kWh)	325,000	Not reported on bill
Net Metered Usage (kWh)	-280,000	Reported on bill
Peak Demand (kW)	175	Reported on bill
Customer/other fixed charges	\$500	Consistent each month
NEM Adjustment	-\$12,600	Average rate: \$0.045/kWh
Demand/other per kW charges	\$1,400	Rate: \$8/kW
TOTAL BILL	-\$10,700	Net credit carried over

Example month – net electricity import

An example of a utility bill for a net import billing period is included in Table 2 based on the conditions shown in Figure 2 with a different capacity EGS. The cumulative net electricity usage equaled 13,000 kWh. The EGS had a few periods of downtime lasting several hours and the peak imported demand of 450 kW occurred on January 16th. The farm still reduced their actual peak demand (occurring on January 10th) by nearly 200 kW. The net electricity import for this month means the farm does not receive a NEM adjustment credit, and instead pays the delivery and supply usage charges.

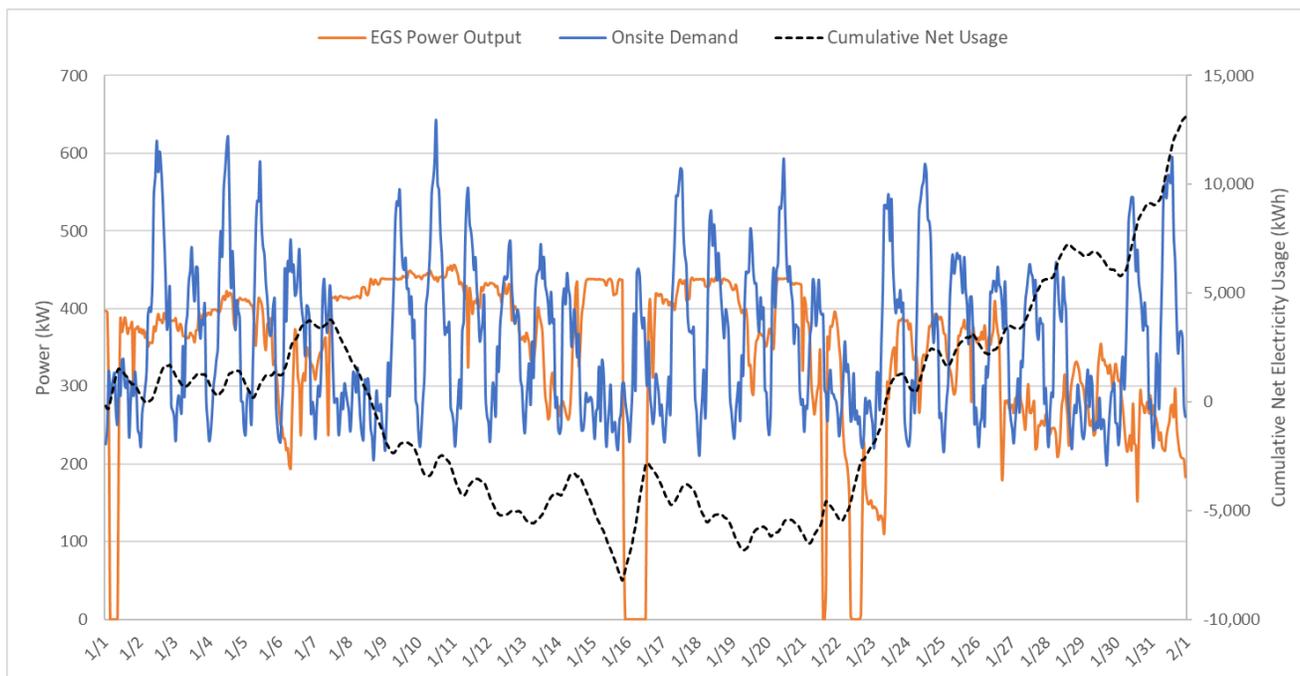


Figure 2. Example of net import month: hourly demand and power output with cumulative net electricity usage.

Table 2. Example of net import month: summary of utility bill charges.

	Value	Note
Total Generated Electricity (kWh)	252,000	Not reported on bill
Total Onsite Usage (kWh)	265,000	Not reported on bill
Net Metered Usage (kWh)	13,000	Reported on bill
Peak Demand (kW)	450	Reported on bill
Customer/other fixed charges	\$500	Consistent each month
Delivery usage charges (e.g., transition, SBC)	\$130	Average rate: \$0.01/kWh
Demand/other per kW charges	\$3,600	Rate: \$8/kW
Supply usage charges	\$650	Rate: \$0.05/kWh
TOTAL BILL	\$4,880	Net charge may be offset by carryover credit

FACT SHEET SERIES: Monetizing Electricity Produced by Farm-Based Anaerobic Digestion in New York

Part 1: Decision tree to identify electricity tariff options available

Part 2: Compare and contrast electricity tariff options

Part 3: Overview and eligibility guidelines of NEM and Phase One Value Stack electricity tariffs

Part 4: How the Net Energy Metering (NEM) tariff works

Part 5: How the Phase One Value Stack tariff works (including Community Distributed Generation)

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