PON 2828 APPENDIX C – USING THE INCENTIVE CALCULATION TOOL

The *Incentive Calculation Tool* (see Appendix B Section C) should be used by the applicant to estimate the incentives for which their project is eligible. The following is a description and explanation of how each of the incentives in the Tool is calculated.

Note: The ***bolded, italicized text*** included below indicates information to be provided by the applicant. All of the yellow-colored cells in the Tool require information, as applicable, that must be input by the applicant.

PERFORMANCE INCENTIVES

Performance Incentives are provided to encourage on-going operation of ADG-to-Electricity systems and are based on the actual kWh's produced by the system or the performance of a hydrogen sulfide (H_2S) reduction process.

On the line labeled "Enter proposed new ADG-fueled power generation installation capacity, if any (kW)," the applicant must enter the intended new electrical capacity of the system.

The capacity should be based on the lesser of the following:

- The rated power generation capacity of the generator;
- The rated output of the engine fueled by anaerobic digester gas (including any controlled power generation limits set by the supplier);
- The power output from the expected biogas production of the anaerobic digester (if NYSERDA determines biogas sources to be inadequate the overall proposed capacity may be reduced), and;
- Any power generation capacity limits due to electrical grid interconnection capacity limits.

If the applicant intends to apply for H_2S reduction incentives for existing capacity they must also enter the capacity of the existing ADG-fueled electrical capacity on the line "Enter existing ADG-fueled power generation capacity for which incentives are being requested, if any (kW)."

Note: Once the application to the program is approved by NYSERDA, the applicant and NYSERDA will enter in to a Standard Performance Agreement. In this agreement, and likewise in this appendix, the combination of new ADG-fueled power generation capacity and existing ADG-fueled power generation capacity will be referred to as the Contract Capacity.

Once the applicant has entered the above information, the Tool calculates the minimum annual new ADG-fueled power generation using the following formula:

Minimum annual new ADG-fueled power generation = Contract Capacity (kW) x 8760 hours in one year x 75% (capacity factor)

The Tool also calculates the Power Generation Performance Incentive as follows:

Power Generation Performance Incentive = Minimum annual new ADG-fueled power generation (kWh) x $.025/kWh x 10 years

Hydrogen sulfide is a small component present in biogas that is highly corrosive to biogas engine generators, negatively affecting performance and increasing maintenance costs. Several processes have been shown to be effective in significantly reducing H_2S levels in biogas. These incentives are available for both proposed new

ADG-to-Electricity installation projects as well as existing ADG-to-Electricity projects to encourage the use of H_2S reduction processes.

Note that for all projects for which H_2S reduction incentives are requested a gas analyzer system will be required to be installed to record (at a minimum) hourly H_2S output levels from the H_2S removal systems as well as daily measurements of H_2S input levels (instrumentation requirements outlined in the Appendix E). This data must be uploaded to NYSERDA's CHP website. NYSERDA may direct its technical contractors to sample the biogas, determine H_2S removal efficiency, and compare that efficiency to the data originally provided by the operator.

Applicants that intend to install a system using one of the following products to reduce hydrogen sulfide (H_2S) produced by their project should select the appropriate option on the line "H_2S Reduction Process Performance Incentive":

The eligible processes for H_2S Removal shown below and eligibility criteria are defined at http://nyserda.ny.gov/PON2828 the corresponding H_2S Performance Incentive Variable is used to calculate the incentive)

- Iron Chloride (H_2S Performance Incentive Variable $.004/kWh)
- Ferric Hydroxide (H_2S Performance Incentive Variable $.004/kWh)
- Biological Scrubber (H_2S Performance Incentive Variable $.0023/kWh)
- Carbon Filter (H_2S Performance Incentive Variable $.0035/kWh)
- Iron Sponge (H_2S Performance Incentive Variable $.004/kWh)
- Other (H_2S Performance Incentive Variable $.004/kWh)

Other H_2S removal technologies may also be eligible for this incentive if the criteria (outlined at http://nyserda.ny.gov/PON2828) is met. Contact Tom Fiesinger or Steve Hoyt. This incentive is available for both new ADG-to-Electricity installation projects as well as existing ADG-to-electricity projects.

The total (10 year) potential for H_2S Reduction Processes Performance Incentive is calculated using the following formula:

Total potential Digester Additives and Other Technologies for H_2S Removal Performance Incentive = Contract Capacity x 8760 hrs/year x 0.75 x H_2S Perf. Inc. Variable x 10 years

Biological Scrubber, Carbon Filter, Iron Sponge processes have been demonstrated to be effective in consistently reducing H_2S levels in biogas from 2000 ppm or greater to less than 400 ppm, when properly designed and operated. But these processes also can have greater upfront installation costs than other options. Applicants installing new Biological Scrubber, Carbon Filter, Iron Sponge processes are therefore able to request Capacity Incentives and relatively greater overall incentives (as compared to other processes) but must meet stringent requirements of H_2S reduction to 400 ppm in order to receive payment as described in the Payment Distribution section of this Appendix. In addition, only applicants using vendors of biological scrubbers from the Approved Vendor list at http://nyserda.ny.gov/PON2828 or who have provided design details for an adequately sized biological scrubber, carbon filter or iron sponge shall be eligible for the incentive levels associated with these particular processes. NYSERDA shall review design information provided and determine if the proposed biological scrubber, carbon filter or iron sponge is adequately sized given the expected biogas production.

Likewise, addition of Iron Chloride and Ferric Hydroxide to digester influent may also cost effectively reduce H_2S levels in biogas from a digester from approximately 1200 – 2000 ppm to less than 800 ppm depending if the product is properly applied by the operator. Therefore incentives associated with these or other additives (or processes not specified in this PON or at http://nyserda.ny.gov/PON2828 but otherwise approved as eligible by

NYSERDA in writing) are also available for reducing H_2S levels present in the biogas. Payment of this incentive, as outlined in the Payment Distribution section of this Appendix, shall be based on the effectiveness of the process in reducing H_2S to a level of 800 ppm or less.

Total Potential Performance Incentives
The Total Potential Performance Incentive is calculated by adding the Power Generation Performance Incentive, and the H_2S Reduction Processes Performance Incentive, if appropriate. The Total Potential Performance Incentive is subject to the $2 million per project cap. All performance incentives are paid annually over a 10 year period. As mentioned previously, actual payments are based on actual kWh production and verified H_2S removal.

CAPACITY INCENTIVES

Capacity Incentives are provided to offset the capital costs associated with installing an ADG-to-Electricity project including the anaerobic digester system, the power generation system, and certain project enhancements.

Under the cell labeled "Anaerobic Digestion Component," the applicant may select one (or none) of the following components by entering "yes" in the appropriate cell:

1. Farm-based anaerobic digester with new digester vessel or new earthen lagoon digester
   An applicant proposing a project at a farm where a new digester vessel is installed (e.g., a concrete, steel or plastic tank) or an earthen lagoon should make the appropriate selection in the cell associated with this option. The incentive associated with this selection is based on both a fixed base element ($100,000 for new digester vessel, $75,000 for new earthen lagoon) and a variable element ($1,500 for new digester vessel, $1,125 new earthen lagoon digester) per kW of ADG-fueled power generation capacity.

2. Farm-based anaerobic digester made by placing a gas-tight cover over an existing waste storage structure
   An applicant proposing a project at a farm where the anaerobic digester is made by placing a gas-tight cover over an existing waste storage structure (e.g., an earthen lagoon or concrete storage tank) should enter "yes" in the cell associated with this option. The incentive associated with this selection is based on both a fixed base element of $50,000 and a variable element of $750 per kW of proposed new ADG-fueled power generation capacity.

3. New or upgrade of existing anaerobic digester for municipal waste water treatment/industrial waste processing systems
   An applicant proposing installation of a new anaerobic digester, or significant upgrades to an existing anaerobic digester, to be located at a municipal wastewater treatment plant or an industrial facility should enter "yes" in the cell associated with this option. The incentive associated with this selection is based on both a fixed base element of $100,000 and a variable element of $1,500 per kW of proposed new ADG-fueled power generation capacity.

   Note: Significant upgrades to an existing municipal waste water treatment/industrial waste processing anaerobic digester must include a minimum two of the following: i) a replacement anaerobic digester cover system; ii) installation of new gas handling systems to recover all of the gas produced by the anaerobic digester system; iii) installation of a new sludge thickening process; iv) installation of new heating arrays to heat all of the anaerobic digester contents or preheat the entire waste input stream; or v) installation of new anaerobic digester mixing systems to mix the entire contents of the anaerobic digester. Upgrades not included in this list may also be deemed sufficient by NYSERDA to satisfy this requirement and should be described in the Application Package.

Under the cell labeled "Power Generation Component," the applicant may select one (or none) of the following components by entering "yes" in the appropriate cell:

1. New ADG-fueled power generation system installation
   An applicant proposing a project where new ADG-fueled power generation equipment will be installed (i.e., equipment that has not been previously operated, other than for manufacturer testing) should enter "yes" in the cell associated with this option. The incentive associated with this selection is based both on a fixed base element of $50,000 and a variable element of $500 per kW of proposed new ADG-fueled power generation capacity.

2. Reconditioned ADG-fueled power generation system installation
   An applicant proposing a project where reconditioned ADG-fueled power generation equipment will be installed (i.e., equipment that has been previously operated but has also been adequately reconditioned/upgraded to NYSERDA's satisfaction) should enter "yes" in the cell associated with this option. The incentive associated with this selection is based both on a fixed base element of $12,500 and a variable element of $125 per kW of proposed new ADG-fueled power generation capacity.

Under the cell labeled "Project Enhancements component," the applicant must select the applicable project components by entering "yes" in the appropriate cell:

1. H_2S reduction process
   Incentives may be provided for the installation of a H_2S reduction system and/or installation of a gas analyzer to monitor H_2S levels. The incentive associated with this selection is based on the following fixed base element and variable elements per kW of generator capacity:

   - Iron Chloride - fixed base element $16,400 and variable element $0
   - Ferric Hydroxide - fixed base element $15,000 and variable element $0
   - Biological Scrubber - fixed base element $80,000 and variable element $45
   - Carbon Filter - fixed base element $17,500 and variable element $34
   - Iron Sponge - fixed base element $32,500 and variable element $39
   - Other - fixed base element $15,000 and variable element $0

   For each of the processes above, $15,000 is included in the fixed base element to offset the cost of a gas analyzer.

   Note: This cell is automatically populated when a selection has been made for the H_2S Reduction Processes Performance Incentive.

2. Black start capability
   Black start capability (the ability to start-up and produce electricity for on-site use in the absence of grid power) provides the host facility with a source of back-up power in the event that the electrical grid is down. To receive this incentive the Applicant must demonstrate that the system has black start capability, as part of the installation and commissioning process. The incentive associated with this selection is based on a fixed base element of $3,000 and a variable element of $30 per kW of proposed new ADG-fueled power generation capacity.

3. Anaerobic digester system designed to accept > 20% food waste
   In NYS, a significant amount of food waste (i.e., organic materials from food products including wastes from food production, food preparation, and post-consumer food wastes) is landfilled. This may result in methane emissions to the environment, loss of nutrient value, and significant costs to food waste

generators. Anaerobic digestion is an effective means of recycling the nutrient value of food waste and reducing methane emissions, and may lower costs for food waste generators.

An applicant selecting this component must design their project such that the anaerobic digester is capable of accepting a minimum of 20% of its total mass of input as food waste; and the system must also include at least one of the following pretreatment processes:

i) pasteurization designed to treat all food waste inputs to a minimum 160º F;
ii) separated (acid) phase digestion designed to treat all food waste inputs (with a minimum 4 day holding capacity); and/or
iii) an equalization/holding tank designed for all food waste inputs (with a minimum 2 day holding capacity) and must include an ability to heat contents to a minimum of 100º F, an ability to mix all contents and at least one of the following: waste stream concentrating process; maceration/chopping; package removal, or; odor control capability.

Other equipment or systems required to accept food waste into the digester system that are not included in this list may also be deemed sufficient by NYSERDA to satisfy this requirement and should be described in the Application Package. The incentive associated with this selection is based on a fixed base element of $50,000 and a variable element of $350 per kW of proposed new ADG-fueled power generation capacity.

4. <u>New sand separation unit installed to remove sand from sand laden manure before digestion</u>
Many dairy farms in NYS use sand bedding. However, sand laden manure can cause significant operational issues in an anaerobic digester due to sand accumulation. To qualify for this incentive, a sand separation unit must be designed to remove a minimum of 97% of the sand from the raw manure before the manure is added to the anaerobic digester. The incentive associated with this selection is based on a fixed base element of $50,000 and a variable element of $120 per kW of proposed new ADG-fueled power generation capacity; and is available only to projects digesting at least 50% manure inputs on a mass basis.

5. <u>Contract(s) to accept food waste from institutional sources</u>
A project designed to accept >20% food waste, as described above, will be eligible for this additional incentive if they have one or more (minimum 3 year) contracts in place to provide a minimum of 5% of their waste inputs (on a mass basis) from institutional sources (e.g, government-operated residential facilities). The incentive associated with this selection is based on a fixed base element of $14,000 and a variable element of $35 per kW of proposed new ADG-fueled power generation capacity.

6. <u>Participation in a cooperative anaerobic digester management entity</u>
Anaerobic digester operation and management costs can be reduced through shared management and operation services. Incentives are offered through this component to off-set the costs of forming and operating a cooperative digester management entity, for projects where at least three anaerobic digester facilities have entered in to a (minimum) 5-year shared services agreement. The incentive associated with this selection is based only on a fixed base element of $30,000; and is available only to farm projects.

The Potential Total Capacity Incentives are calculated by adding the Potential Anaerobic Digester Incentive, the Potential Power Generation Incentive, and the Total Potential Project Enhancement incentives, if appropriate.

INTERCONNECTION INCENTIVES

Interconnection Incentives are provided to offset the costs associated with the Coordinated Electric System Interconnection Review (CESIR) and the implementation of electrical grid interconnection.

The NYS Standard Interconnection Requirements (SIR - Appendix G) steps for an electrical grid interconnection for projects with an installed capacity between 50 kW and 2 MW are as follows:

STEP 1: Initial Communication from the Potential Applicant.

STEP 2: The Inquiry is Reviewed by the Utility to Determine the Nature of the Project

STEP 3: The Potential Applicant Files an Application

STEP 4: Utility Conducts a Preliminary Review and Develops a Cost Estimate for the Coordinated Electric System Interconnection Review (CESIR)

STEP 5: Applicant Commits to the Completion of the CESIR

STEP 6: Utility Completes the CESIR

STEP 7: Applicant Commits to Utility Construction of Utility's System Modifications

STEP 8: Project Construction.

STEP 9: The Applicant's Facility is Tested in Accordance with the Standardized Interconnection Requirements

STEP 10: Interconnection

STEP 11: Final Acceptance and Utility Cost Reconciliation

An application package to the ADG-to-Electricity program will not be deemed complete until the applicant completes steps 1 through 4 of the SIR and a copy of the Preliminary Review (Step 4), if applicable, is provided to NYSERDA. (The Preliminary Review provides the applicant with an estimate for the cost of the CESIR.) The Interconnection Review Incentive reimburses the applicant for up to 75% of the CESIR costs exceeding $5,000, up to a maximum incentive of $50,000. Note that many on-farm digesters may be eligible to net-meter under NYS's net-metering laws which limit the cost the utility charges for interconnection to $5,000 as long as the capacity of the generator does not exceed 20% of the utility line capacity at the site. Applicants who are proposing a net-metered project at a farm and the utility has determined that total interconnection costs will not exceed $5,000, will need to provide such a documented determination from the utility. ***To request the Interconnection Review Incentive, the applicant must enter the estimated cost of the CESIR on the line "Interconnection Review Incentive".***

Once the CESIR is complete and the applicant commits to installing the project, the remaining SIR steps must be completed in order to implement a grid interconnection. As part of step 7, the applicant is expected to pay the utility the entire estimated cost of the interconnection implementation (i.e., project construction) unless otherwise exempt from these expenses under net-metering law requirements. Upon completion of step 11, the costs are reconciled, as appropriate. NYSERDA reserves the right to review and if necessary, challenge reconciled costs as reported by the utility. The Interconnection Implementation Incentive has been developed to offset a portion of these of interconnection implementation costs. The Incentive Calculation Tool estimates the incentive as 50% of the inputted costs for interconnection implementation; a value provided in the CESIR. ***To request the Interconnection Implementation Incentive, the applicant must enter the estimated cost of interconnection implementation on the line "Interconnection Implementation Incentive". If a CESIR is required but the cost of interconnection is not yet known (at the time of application for funding under PON 28282), enter $600,000***

as the estimated cost. Any incentive provided will ultimately be based on 50% of the final cost of the interconnection implementation or $300,000, whichever is less.

The Total Potential Interconnection Incentives are calculated by adding the Interconnection Review Incentive and the Interconnection Implementation Incentives.

TOTAL INCENTIVES

The Total Budgeted Performance, Capacity and Contingent Interconnection Incentive is calculated by adding the Total Potential Performance Incentive, the Potential Total Capacity Incentives, and the Total Potential Interconnection Incentives. The Total Incentive may not exceed $2 million and this limit on funds is applied sequentially to Performance, Interconnection and Capacity Incentives calculated in *Incentive Calculation Tool* as shown under "Percentage of Potential Incentive remaining after applying the $2 million cap". These percentages are applied to each calculated Potential Incentive to then determine the actual Total Incentive amounts. Likewise, these same percentages are applied to each respective incentive payment shown in the Estimated Payment Distribution at the bottom of the *Incentive Calculation Tool*.

PAYMENT DISTRIBUTIONS

No payments will be made before an executed Standard Performance Agreement is in place between the applicant and NYSERDA. The estimated payment schedule is shown on the Incentive Calculation Tool. It is based on requirements outlined in Appendix F *Sample Standard Performance Contract Agreement* under the PAYMENTS section of ARTICLE 5.

EXAMPLE PROJECT INCENTIVE CALCULATIONS

Three examples project incentive calculations are provided to illustrate how the Incentive Calculation Tool is used and how incentive levels calculated in the Tool are used to estimate the Total Contract Project Incentive amount.

As mentioned previously, once the application to the ADG-to-Electricity Program is approved by NYSERDA, the applicant and NYSERDA will enter in to a Standard Performance Agreement. The foundation of the Agreement is the Contracted Capacity, the Annual Contracted Generation, and the Total Contracted Project Incentive. These are included in the Agreement as Exhibit A. Also included on Exhibit A are the Total Performance Incentive, Total Interconnection Incentive and Total Capacity Incentive.

Example A

ABC Dairy Farm is planning to install a brand new anaerobic digester system that will produce biogas to fuel a power generation system rated to produce 200 kW of electricity. The ADG system is designed to co-digest at least 20% food waste inputs by mass with 80% dairy manure inputs by mass. The system will include a separated phase digestion unit to pretreat all food waste inputs. The power generation system will use iron chloride to reduce H_2S levels in the biogas and have 'black start' capability to provide power to the farm in the event of a loss of grid power. The farm also plans to install a sand separation unit to separate sand from the manure portion of the waste stream. The farm has applied to the utility for a net-metered interconnection of the 200 kW ADG fueled power generation system. The utility conducted a Preliminary Review and has indicated that 200 kW is less than 20% of the electrical capacity of the utility line in front of the farm and therefore the farm will only be responsible for a maximum $5,000 for CESIR and interconnection implementation.

The Incentive Calculation Tool estimates for ADG Project A follows:

Section C: Incentive Calculation Tool

Project Name	ADG-to-Electricity Project A
Applicant Name	ABC Dairy Farm

This tool has been developed to estimate the Total Contracted Project Incentive for New ADG-to-Electricity System and Project Enhancement projects. To estimate incentives for project that have previously received NYSERDA funding, contact NYSERDA for further information. Please enter the information requested in the yellow boxes. Note that Performance Incentives are calculated first and any remaining funds, considering the $2 million cap per project can be applied to Interconnection and Capacity Incentives.

Potential Performance Incentives

Enter proposed new ADG-fueled power generation installation capacity, if any (kW)			**200**
Enter existing ADG-fueled power generation capacity for which incentives are being requested, if any (kW)			
Minimum annual new ADG fueled power generation (kWh/yr) (based on a capacity factor of 75%)			**1,314,000**
1. Power Generation Performance Incentive			**$328,500**
2. H_2S Reduction Performance Incentive - *If any of the H_2S reduction processes shown in Appendix C will be used, select the appropriate process in the adjacent box. Other H_2S reduction processes not specified in Appendix C may also be eligible - contact T. Fiesinger or S. Hoyt. (Available to new and existing ADG-to-Electricity projects.)*	**Iron Chloride**	*Note: Applicants intending to use a combination of eligible H2S reduction processes not specified herein, contact T. Fiesinger or S. Hoyt.*	**$52,560**
Total Potential Performance Incentive (paid over a 10 year period and subject to the $2 million cap)			**$381,060**

Potential Capacity Incentives

(See Incentive Calculation Tool Instructions)		**Fixed Base Incentive**	**Variable Incentive per kW**	**Total Fixed and Variable Capacity Incentives**
Anaerobic Digester component - ***Choose one (or none) that apply for the proposed project***				
1. Farm-based anaerobic digester with new digester vessel or new earthen lagoon digester.	**New Digester Vessel**	$100,000	$1,500	$400,000
2. Farm-based anaerobic digester made by placing gas tight cover over an existing waste storage structure.	**Click cell and select:**	$50,000	$750	$0
3. New or upgrade of existing anaerobic digester for municipal waste water treatment/industrial waste processing systems.	**Click cell and select:**	$100,000	$1,500	$0
		Potential Anaerobic Digester Incentive (subject to the $2 million cap)		**$400,000**
Power Generation component - ***Choose one (or none) that apply for the proposed project***				
1. New ADG-fueled power generation system.	**Yes**	$50,000	$500	$150,000
2. Reconditioned ADG fueled power generation system.	**Click cell and select:**	$12,500	$125	$0
		Potential Power Generation Incentive (subject to the $2 million cap)		**$150,000**
Project Enhancements component- ***Choose all that apply for the proposed project***				
1. H_2S removal process. (*The response above from "2. H_2S Removal Performance Incentive" is entered here automatically.*)	**Iron Chloride**	$7,500	$0	$7,500
2. "Black Start" capability of power generation system (ability-to generate on-site power in absense of utility power).	**Yes**	$3,000	$30	$9,000
3. Anaerobic digester system designed to accept > 20% food waste. *Must include pretreatment equipment. See Appendix C.*	**Yes**	$50,000	$350	$120,000
4. New sand separation unit installed to remove sand from sand laden manure before digestion. *Farm projects only.*	**Yes**	$50,000	$120	$74,000
5. Contracts to accept food waste from institutional sources. *Farm projects only.*	**Click cell and select:**	$14,000	$35	$0
6. Participant in cooperative anaerobic digester management entity. *Farm projects only.*	**Click cell and select:**	$30,000	$0	$0
		Total Potential Project Enhancement Incentives (subject to the $2 million cap)		**$210,500**
		Potential Total Capacity Incentives (subject to the $2 million cap.)		**$760,500**

Potential Interconnection Incentives

1. **Interconnection Review Incentive** - 75% reimbursement of CESIR costs exceeding $5,000 (max incentive $50,000). *In the adjacent cell, enter the estimated cost of CESIR shown in the Preliminary Review by the electric utility. If the combined CESIR and Interconnection Implementation costs are not expected to exceed $5,000, please provide evidence of this estimate from the electric utility.*		**Potential Interconnection Review Incentive**	$ -
2. **Interconnection Implementation Incentive** - 50% reimbursement of grid upgrade costs for which the applicant is responsible (max. incentive $300,000). *Enter estimated Interconnection Implementation cost, provided in the completed CESIR. If a CESIR is required but has not yet been completed, enter $600,000 in the adjacent cell.*		**Potential Interconnection Implementation Incentive**	$ -
		Total Potential Interconnection Incentives (subject to the $2 million cap)	**$0**

Percentage of Potential Incentives remaining after applying $2 million cap	**Budgeted Incentive Totals after applying $2 million cap**	
Total Performance Incentive 100%	**Total Performance Incentive**	**$ 381,060**
Total Capacity Incentive 100%	**Total Capacity Incentive**	**$ 760,500**
Total Contingent Interconnection Incentive 0%	**Total Performance and Capacity Incentives**	**$ 1,141,560**
	Total Contingent Interconnection Incentive (contingent on actual interconnection costs)	**$ -**
	Total Performance, Capacity and Contigent Interconnection Incentive	**$ 1,141,560**

Note that Interconnection Incentives may be paid first to expedite reimbursement of those costs. Remaining funds are applied per the payment distributions below.

Estimated Payment Distribution		**Estimated Totals**
Interconnection Incentive payment distribution		
1st Interconnection payment - 100% Interconnection Review Incentive		$ -
2nd Interconnection payment - 75% of Interconnection Implementation Incentive		$ -
3rd Interconnection payment - up to 25% percent of Interconnection Implementation Incentive based on the actual final costs of the interconnection implementation		$ -
Capacity Incentive payment distribution		
1st Capacity payment - up to 15% of Total Capacity Incentive		**$ 114,075**
2nd Capacity payment - 45% of Anaerobic Digestion component		**$ 180,000**
3rd Capacity payment - 45% of Power Generation component		**$ 67,500**
4th Capacity payment - 45% of total Project Enhancements component		**$ 94,725**
5th Capacity payment - 20% of Total Capacity Incentive		**$ 152,100**
6th Capacity payment - up to 100% of any remaining Total Capacity Incentive		**$ 152,100**
Performance Incentive payment distribution	Maximum average annual payment (10 years)	**$ 38,106**

The Exhibit A that would be included in the Standard Performance Agreement between NYSERDA and the ABC Dairy Farm is shown below:

EXHIBIT A
TOTAL CONTRACTED PROJECT INCENTIVE

Contractor Name: ABC Dairy Farm
Agreement Number: 12345
Project Name: ADG Project A

Contracted Capacity (kW)	Annual Contracted Generation (kWh/year)	Total Performance Incentive ($)	Total Interconnection Incentive ($)	Total Capacity Incentive ($)	Total Contracted Project Incentive ($)
200	1,314,000	$381,060	$0	$760,500	$1,141,560

Example B

The Any City municipal waste water treatment plant (WWTP) is planning to upgrade its existing anaerobic digester system to produce biogas to fuel a new power generation system rated to produce 425 kW of electricity. The ADG system is designed to co-digest at least 20% food waste inputs by mass with 80% municipal waste water inputs by mass. The project will include installation of a new digester cover and new sludge thickening equipment, as well as an equalization tank with integral mixing and odor control for the food waste inputs. The plant also plans to install a biological scrubber system selected from the approved vendor list. The utility has informed the plant that the CESIR study will cost $15,000, and the applicant has estimated that the interconnection implementation will cost $120,000.

The Incentive Calculation Tool estimates for ADG Project B follows:

Section C: Incentive Calculation Tool

Project Name	ADG-to-Electricity Project B
Applicant Name	Any City WWTP

This tool has been developed to estimate the Total Contracted Project Incentive for New ADG-to-Electricity System and Project Enhancement projects. To estimate incentives for project that have previously received NYSERDA funding, contact NYSERDA for further information. Please enter the information requested in the yellow boxes. Note that Performance Incentives are calculated first and any remaining funds, considering the $2 million cap per project can be applied to Interconnection and Capacity Incentives.

Potential Performance Incentives

Enter proposed new ADG-fueled power generation installation capacity, if any (kW)			425
Enter existing ADG-fueled power generation capacity for which incentives are being requested, if any (kW)			
Minimum annual new ADG fueled power generation (kWh/yr) (based on a capacity factor of 75%)			**2,792,250**
1. Power Generation Performance Incentive			**$698,063**
2. H_2S Reduction Performance Incentive - *If any of the H_2S reduction processes shown in Appendix C will be used, select the appropriate process in the adjacent box. Other H_2S reduction processes not specified in Appendix C may also be eligible - contact T. Fiesinger or S. Hoyt. (Available to new and existing ADG-to-Electricity projects.)*	**Biological Scrubber**	*Note: Applicants intending to use a combination of eligible H2S reduction processes not specified herein, contact T. Fiesinger or S. Hoyt.*	**$64,222**
Total Potential Performance Incentive (paid over a 10 year period and subject to the $2 million cap)			**$762,284**

Potential Capacity Incentives

(See Incentive Calculation Tool Instructions)		**Fixed Base Incentive**	**Variable Incentive per kW**	**Total Fixed and Variable Capacity Incentives**
Anaerobic Digester component - ***Choose one (or none) that apply for the proposed project***				
1. Farm-based anaerobic digester with new digester vessel or new earthen lagoon digester.	**Click cell and select:**	$0	$0	$0
2. Farm-based anaerobic digester made by placing gas tight cover over an existing waste storage structure.	**Click cell and select:**	$50,000	$750	$0
3. New or upgrade of existing anaerobic digester for municipal waste water treatment/industrial waste processing systems.	**Yes**	$100,000	$1,500	$737,500
			Potential Anaerobic Digester Incentive (subject to the $2 million cap)	**$737,500**
Power Generation component - ***Choose one (or none) that apply for the proposed project***				
1. New ADG-fueled power generation system.	**Yes**	$50,000	$500	$262,500
2. Reconditioned ADG fueled power generation system.	**Click cell and select:**	$12,500	$125	$0
			Potential Power Generation Incentive (subject to the $2 million cap)	**$262,500**
Project Enhancements component- ***Choose all that apply for the proposed project***				
1. H_2S removal process. (*The response above from "2. H_2S Removal Performance Incentive" is entered here automatically.)*	**Biological Scrubber**	$72,500	$61	$98,425
2. "Black Start" capability of power generation system (ability-to generate on-site power in absense of utility power).	**Click cell and select:**	$3,000	$30	$0
3. Anaerobic digester system designed to accept > 20% food waste. *Must include pretreatment equipment. See Appendix C.*	**Yes**	$50,000	$350	$198,750
4. New sand separation unit installed to remove sand from sand laden manure before digestion. *Farm projects only.*	**Click cell and select:**	$50,000	$120	$0
5. Contracts to accept food waste from institutional sources. *Farm projects only.*	**Click cell and select:**	$14,000	$35	$0
6. Participant in cooperative anaerobic digester management entity. *Farm projects only.*	**Click cell and select:**	$30,000	$0	$0
			Total Potential Project Enhancement Incentives (subject to the $2 million cap)	**$297,175**
			Potential Total Capacity Incentives (subject to the $2 million cap.)	**$1,297,175**

Potential Interconnection Incentives

1. **Interconnection Review Incentive** - 75% reimbursement of CESIR costs exceeding $5,000 (max incentive $50,000). *In the adjacent cell, enter the estimated cost of CESIR shown in the Preliminary Review by the electric utility. If the combined CESIR and Interconnection Implementation costs are not expected to exceed $5,000, please provide evidence of this estimate from the electric utility.*	**$ 15,000.00**	**Potential Interconnection Review Incentive**	**$ 7,500**
2. **Interconnection Implementation Incentive** - 50% reimbursement of grid upgrade costs for which the applicant is responsible (max. incentive $300,000). *Enter estimated Interconnection Implementation cost, provided in the completed CESIR. If a CESIR is required but has not yet been completed, enter $600,000 in the adjacent cell.*	**$ 120,000.00**	**Potential Interconnection Implementation Incentive**	**$ 60,000**
		Total Potential Interconnection Incentives (subject to the $2 million cap)	**$67,500**

Percentage of Potential Incentives remaining after applying $2 million cap	**Budgeted Incentive Totals after applying $2 million cap**	
Total Performance Incentive 100%	**Total Performance Incentive**	**$ 762,284**
Total Capacity Incentive 90%	**Total Capacity Incentive**	**$ 1,170,216**
Total Contingent Interconnection Incentive 100%	**Total Performance and Capacity Incentives**	**$ 1,932,500**
	Total Contingent Interconnection Incentive (contingent on actual interconnection costs)	**$ 67,500**
	Total Performance, Capacity and Contigent Interconnection Incentive	**$ 2,000,000**

Note that Interconnection Incentives may be paid first to expedite reimbursement of those costs. Remaining funds are applied per the payment distributions below.

Estimated Payment Distribution		**Estimated Totals**
Interconnection Incentive payment distribution		
1st Interconnection payment - 100% Interconnection Review Incentive		**$ 7,500**
2nd Interconnection payment - 75% of Interconnection Implementation Incentive		**$ 45,000**
3rd Interconnection payment - up to 25% percent of Interconnection Implementation Incentive based on the actual final costs of the interconnection implementation		**$ 15,000**
Capacity Incentive payment distribution		
1st Capacity payment - up to 15% of Total Capacity Incentive		**$ 175,532**
2nd Capacity payment - 45% of Anaerobic Digestion component		**$ 299,393**
3rd Capacity payment - 45% of Power Generation component		**$ 106,564**
4th Capacity payment - 45% of total Project Enhancements component		**$ 120,640**
5th Capacity payment - 20% of Total Capacity Incentive		**$ 234,043**
6th Capacity payment - up to 100% of any remaining Total Capacity Incentive		**$ 234,043**
Performance Incentive payment distribution	Maximum average annual payment (10 years)	**$ 76,228**

The Exhibit A that would be included in the Standard Performance Agreement between NYSERDA and the Any City WWTP is shown below:

EXHIBIT A
TOTAL CONTRACTED PROJECT INCENTIVE

Contractor Name: Any City WWTP
Agreement Number: 23456
Project Name: ADG Project B

Contracted Capacity (kW)	Annual Contracted Generation (kWh/year)	Total Performance Incentive ($)	Total Interconnection Incentive ($)	Total Capacity Incentive ($)	Total Contracted Project Incentive ($)
425	2,792,250	$762,284	$67,500	$1,170,216	$2,000,000

Example C

The Any Food Processor Inc.'s is planning to install a new power generation system rated to produce 975 kW of electricity using biogas from an existing anaerobic digester system. The plant also plans to install a biological scrubber system selected from the approved vendor list. The utility has informed the plant that the CESIR study will cost $35,000, and the applicant has estimated that the interconnection implementation will cost $650,000.

The Incentive Calculation Tool estimates for ADG Project C follows:

Section C: Incentive Calculation Tool

Project Name	ADG-to-Electricty Project C
Applicant Name	Any Food Processor Inc.

This tool has been developed to estimate the Total Contracted Project Incentive for New ADG-to-Electricity System and Project Enhancement projects. To estimate incentives for project that have previously received NYSERDA funding, contact NYSERDA for further information. Please enter the information requested in the yellow boxes. Note that Performance Incentives are calculated first and any remaining funds, considering the $2 million cap per project can be applied to Interconnection and Capacity Incentives.

Potential Performance Incentives

Enter proposed new ADG-fueled power generation installation capacity, if any (kW)			975
Enter existing ADG-fueled power generation capacity for which incentives are being requested, if any (kW)			
Minimum annual new ADG fueled power generation (kWh/yr) (based on a capacity factor of 75%)			**6,405,750**
1. Power Generation Performance Incentive			**$1,601,438**
2. H_2S Reduction Performance Incentive - *If any of the H_2S reduction processes shown in Appendix C will be used, select the appropriate process in the adjacent box. Other H_2S reduction processes not specified in Appendix C may also be eligible - contact T. Fiesinger or S. Hoyt. (Available to new and existing ADG-to-Electricity projects.)*	**Biological Scrubber**	*Note: Applicants intending to use a combination of eligible H2S reduction processes not specified herein, contact T. Fiesinger or S. Hoyt.*	**$147,332**
Total Potential Performance Incentive (paid over a 10 year period and subject to the $2 million cap)			**$1,748,770**

Potential Capacity Incentives

(See Incentive Calculation Tool Instructions)		**Fixed Base Incentive**	**Variable Incentive per kW**	**Total Fixed and Variable Capacity Incentives**
Anaerobic Digester component - ***Choose one (or none) that apply for the proposed project***				
1. Farm-based anaerobic digester with new digester vessel or new earthen lagoon digester.	**Click cell and select:**	$0	$0	$0
2. Farm-based anaerobic digester made by placing gas tight cover over an existing waste storage structure.	**Click cell and select:**	$50,000	$750	$0
3. New or upgrade of existing anaerobic digester for municipal waste water treatment/industrial waste processing systems.	**Click cell and select:**	$100,000	$1,500	$0
		Potential Anaerobic Digester Incentive (subject to the $2 million cap)		**$0**
Power Generation component - ***Choose one (or none) that apply for the proposed project***				
1. New ADG-fueled power generation system.	**Yes**	$50,000	$500	$537,500
2. Reconditioned ADG fueled power generation system.	**Click cell and select:**	$12,500	$125	$0
		Potential Power Generation Incentive (subject to the $2 million cap)		**$537,500**
Project Enhancements component- ***Choose all that apply for the proposed project***				
1. H_2S removal process. (*The response above from "2. H_2S Removal Performance Incentive" is entered here automatically.*)	**Biological Scrubber**	$72,500	$61	$131,975
2. "Black Start" capability of power generation system (ability-to generate on-site power in absense of utility power).	**Click cell and select:**	$3,000	$30	$0
3. Anaerobic digester system designed to accept > 20% food waste. *Must include pretreatment equipment. See Appendix C.*	**Click cell and select:**	$50,000	$350	$0
4. New sand separation unit installed to remove sand from sand laden manure before digestion. *Farm projects only.*	**Click cell and select:**	$50,000	$120	$0
5. Contracts to accept food waste from institutional sources. *Farm projects only.*	**Click cell and select:**	$14,000	$35	$0
6. Participant in cooperative anaerobic digester management entity. *Farm projects only.*	**Click cell and select:**	$30,000	$0	$0
		Total Potential Project Enhancement Incentives (subject to the $2 million cap)		**$131,975**
		Potential Total Capacity Incentives (subject to the $2 million cap.)		**$669,475**

Potential Interconnection Incentives

1. **Interconnection Review Incentive** - 75% reimbursement of CESIR costs exceeding $5,000 (max incentive $50,000). *In the adjacent cell, enter the estimated cost of CESIR shown in the Preliminary Review by the electric utility. If the combined CESIR and Interconnection Implementation costs are not expected to exceed $5,000, please provide evidence of this estimate from the electric utility.*	**$ 35,000.00**	**Potential Interconnection Review Incentive**	**$ 22,500**
2. **Interconnection Implementation Incentive** - 50% reimbursement of grid upgrade costs for which the applicant is responsible (max. incentive $300,000). *Enter estimated Interconnection Implementation cost, provided in the completed CESIR. If a CESIR is required but has not yet been completed, enter $600,000 in the adjacent cell.*	**$ 650,000.00**	**Potential Interconnection Implementation Incentive**	**$ 300,000**
		Total Potential Interconnection Incentives (subject to the $2 million cap)	**$322,500**

Percentage of Potential Incentives remaining after applying $2 million cap	**Budgeted Incentive Totals after applying $2 million cap**	
Total Performance Incentive 100%	**Total Performance Incentive**	**$ 1,748,770**
Total Capacity Incentive 0%	**Total Capacity Incentive**	**$ -**
Total Contingent Interconnection Incentive 78%	**Total Performance and Capacity Incentives**	**$ 1,748,770**
	Total Contingent Interconnection Incentive (contingent on actual interconnection costs)	**$ 251,230**
	Total Performance, Capacity and Contigent Interconnection Incentive	**$ 2,000,000**

Note that Interconnection Incentives may be paid first to expedite reimbursement of those costs. Remaining funds are applied per the payment distributions below.

Estimated Payment Distribution		**Estimated Totals**
Interconnection Incentive payment distribution		
1st Interconnection payment - 100% Interconnection Review Incentive		**$ 17,528**
2nd Interconnection payment - 75% of Interconnection Implementation Incentive		**$ 175,277**
3rd Interconnection payment - up to 25% percent of Interconnection Implementation Incentive based on the actual final costs of the interconnection implementation		**$ 58,426**
Capacity Incentive payment distribution		
1st Capacity payment - up to 15% of Total Capacity Incentive		**$ -**
2nd Capacity payment - 45% of Anaerobic Digestion component		**$ -**
3rd Capacity payment - 45% of Power Generation component		**$ -**
4th Capacity payment - 45% of total Project Enhancements component		**$ -**
5th Capacity payment - 20% of Total Capacity Incentive		**$ -**
6th Capacity payment - up to 100% of any remaining Total Capacity Incentive		**$ -**
Performance Incentive payment distribution	Maximum average annual payment (10 years)	**$ 174,877**

The Exhibit A that would be included in the Standard Performance Agreement between NYSERDA and the Any Food Processor Inc. is shown below:

EXHIBIT A
TOTAL CONTRACTED PROJECT INCENTIVE

Contractor Name: Any Food Processor Inc.
Agreement Number: 34567
Project Name: ADG-to-Electricity Project C

Contracted Capacity (kW)	Annual Contracted Generation (kWh/year)	Total Performance Incentive ($)	Total Interconnection Incentive ($)	Total Capacity Incentive ($)	Total Contracted Project Incentive ($)
975	6,405,750	$1,748,770	$251,230	$0	$2,000,000

Example D

XYZ Dairy Farm has an existing 360 kW ADG-to-Electricity project and is planning only to install a new biological scrubber, to be provided by one of the NYSERDA approved vendors of biological scrubbers, to remove H2S from the biogas.

The Incentive Calculation Tool estimates for ADG Project D follows:

Section C: Incentive Calculation Tool

Project Name	ADG-to-Electricity Project D
Applicant Name	XYZ Dairy Farm

This tool has been developed to estimate the Total Contracted Project Incentive for New ADG-to-Electricity System and Project Enhancement projects. To estimate incentives for project that have previously received NYSERDA funding, contact NYSERDA for further information. Please enter the information requested in the yellow boxes. Note that Performance Incentives are calculated first and any remaining funds, considering the $2 million cap per project can be applied to Interconnection and Capacity Incentives.

Potential Performance Incentives

Enter proposed new ADG-fueled power generation installation capacity, if any (kW)			
Enter existing ADG-fueled power generation capacity for which incentives are being requested, if any (kW)			360
Minimum annual new ADG fueled power generation (kWh/yr) (based on a capacity factor of 75%)			0
1. Power Generation Performance Incentive			$0
2. H2S Reduction Performance Incentive - *If any of the H_2S reduction processes shown in Appendix C will be used, select the appropriate process in the adjacent box. Other H_2S reduction processes not specified in Appendix C may also be eligible - contact T. Fiesinger or S. Hoyt. (Available to new and existing ADG-to-Electricity projects.)*	**Biological Scrubber**	*Note: Applicants intending to use a combination of eligible H2S reduction processes not specified herein, contact T. Fiesinger or S. Hoyt.*	$54,400
Total Potential Performance Incentive (paid over a 10 year period and subject to the $2 million cap)			$54,400

Potential Capacity Incentives

(See Incentive Calculation Tool Instructions)		Fixed Base Incentive	Variable Incentive per kW	Total Fixed and Variable Capacity Incentives
Anaerobic Digester component - *Choose one (or none) that apply for the proposed project*				
1. Farm-based anaerobic digester with new digester vessel or new earthen lagoon digester.	Click cell and select:	$0	$0	$0
2. Farm-based anaerobic digester made by placing gas tight cover over an existing waste storage structure.	Click cell and select:	$50,000	$750	$0
3. New or upgrade of existing anaerobic digester for municipal waste water treatment/industrial waste processing systems.	Click cell and select:	$100,000	$1,500	$0
			Potential Anaerobic Digester Incentive (subject to the $2 million cap)	**$0**
Power Generation component - *Choose one (or none) that apply for the proposed project*				
1. New ADG-fueled power generation system.	Click cell and select:	$50,000	$500	$0
2. Reconditioned ADG fueled power generation system.	Click cell and select:	$12,500	$125	$0
			Potential Power Generation Incentive (subject to the $2 million cap)	**$0**
Project Enhancements component- *Choose all that apply for the proposed project*				
1. H2S removal process. (*The response above from "2. H_2S Removal Performance Incentive" is entered here automatically.*)	**Biological Scrubber**	$72,500	$61	$94,460
2. "Black Start" capability of power generation system (ability-to generate on-site power in absense of utility power).	Click cell and select:	$3,000	$30	$0
3. Anaerobic digester system designed to accept > 20% food waste. *Must include pretreatment equipment. See Appendix C.*	Click cell and select:	$50,000	$350	$0
4. New sand separation unit installed to remove sand from sand laden manure before digestion. *Farm projects only.*	Click cell and select:	$50,000	$120	$0
5. Contracts to accept food waste from institutional sources. *Farm projects only.*	Click cell and select:	$14,000	$35	$0
6. Participant in cooperative anaerobic digester management entity. *Farm projects only.*	Click cell and select:	$30,000	$0	$0
			Total Potential Project Enhancement Incentives (subject to the $2 million cap)	**$94,460**
			Potential Total Capacity Incentives (subject to the $2 million cap.)	**$94,460**

Potential Interconnection Incentives

1. **Interconnection Review Incentive** - 75% reimbursement of CESIR costs exceeding $5,000 (max incentive $50,000). *In the adjacent cell, enter the estimated cost of CESIR shown in the Preliminary Review by the electric utility. If the combined CESIR and Interconnection Implementation costs are not expected to exceed $5,000, please provide evidence of this estimate from the electric utility.*		**Potential Interconnection Review Incentive**	$ -
2. **Interconnection Implementation Incentive** - 50% reimbursement of grid upgrade costs for which the applicant is responsible (max. incentive $300,000). *Enter estimated Interconnection Implementation cost, provided in the completed CESIR. If a CESIR is required but has not yet been completed, enter $600,000 in the adjacent cell.*		**Potential Interconnection Implementation Incentive**	$ -
		Total Potential Interconnection Incentives (subject to the $2 million cap)	**$0**

Percentage of Potential Incentives remaining after applying $2 million cap	**Budgeted Incentive Totals after applying $2 million cap**	
Total Performance Incentive 100%	**Total Performance Incentive**	**$ 54,400**
Total Capacity Incentive 100%	**Total Capacity Incentive**	**$ 94,460**
Total Contingent Interconnection Incentive 0%	**Total Performance and Capacity Incentives**	**$ 148,860**
	Total Contingent Interconnection Incentive (contingent on actual interconnection costs)	**$ -**
	Total Performance, Capacity and Contigent Interconnection Incentive	**$ 148,860**

Note that Interconnection Incentives may be paid first to expedite reimbursement of those costs. Remaining funds are applied per the payment distributions below.

Estimated Payment Distribution		**Estimated Totals**
Interconnection Incentive payment distribution		
1st Interconnection payment - 100% Interconnection Review Incentive		$ -
2nd Interconnection payment - 75% of Interconnection Implementation Incentive		$ -
3rd Interconnection payment - up to 25% percent of Interconnection Implementation Incentive based on the actual final costs of the interconnection implementation		$ -
Capacity Incentive payment distribution		
1st Capacity payment - up to 15% of Total Capacity Incentive		$ 14,169
2nd Capacity payment - 45% of Anaerobic Digestion component		$ -
3rd Capacity payment - 45% of Power Generation component		$ -
4th Capacity payment - 45% of total Project Enhancements component		$ 42,507
5th Capacity payment - 20% of Total Capacity Incentive		$ 18,892
6th Capacity payment - up to 100% of any remaining Total Capacity Incentive		$ 18,892
Performance Incentive payment distribution	Maximum average annual payment (10 years)	$ 5,440

The Exhibit A that would be included in the Standard Performance Agreement between NYSERDA and the ABC Dairy Farm is shown below:

EXHIBIT A
TOTAL CONTRACTED PROJECT INCENTIVE

Contractor Name: XYZ Dairy Farm
Agreement Number: 45678
Project Name: Example ADG Project D

Contracted Capacity (kW)	Annual Contracted Generation (kWh/year)	Total Performance Incentive ($)	Total Interconnection Incentive ($)	Total Capacity Incentive ($)	Total Contracted Project Incentive ($)
360	0	$54,400	$0	$94,460	$148,860