

**CHAPTER 27C**  
**CO<sub>2</sub> BUDGET TRADING PROGRAM**

**Authority**

N.J.S.A. 13:1B-3(e), 13:1D-9 and 26:2C-1 et seq., particularly 26:2C-45 et seq.

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R.2008 d.338, effective November 17, 2008 (operative December 9, 2008).  
See: 40 N.J.R. 3792(a), 40 N.J.R. 6541(b).

**Chapter Expiration Date**

Chapter 27C, CO<sub>2</sub> Budget Trading Program, expires on November 17, 2013.

**Chapter Historical Note**

Chapter 27C, CO<sub>2</sub> Budget Trading Program, was adopted as new rules by R.2008 d.338, effective November 17, 2008 (operative December 9, 2008). See: Source and Effective Date.

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## SUBCHAPTER 1. GENERAL PROVISIONS

### 7:27C-1.1 Purpose

This chapter establishes the New Jersey component of the CO<sub>2</sub> Budget Trading Program, which is designed to stabilize and then reduce anthropogenic emissions of CO<sub>2</sub>, a greenhouse gas, from CO<sub>2</sub> budget sources in an economically efficient manner.

### 7:27C-1.2 Definitions

The following words and terms, when used in this chapter, have the following meanings, unless the context clearly indicates otherwise.

“Account number” means the identification number given by the Department to each CO<sub>2</sub> Allowance Tracking System account.

“Acid rain emissions limitation” means acid rain emissions limitation, as that term is defined by the EPA at 40 CFR 72.2, incorporated by reference herein.

“Acid Rain Program” means a multi-state sulfur dioxide and nitrogen oxides air pollution control and emission reduction program established by the Administrator under title IV of the Clean Air Act, U.S.C. §§7651 et seq., and 40 CFR Parts 72 through 78.

“Administrator” means the Administrator of the EPA or the Administrator’s authorized representative.

“Air contaminant” means any substance, other than water or distillates of air, present in the atmosphere as solid particles, liquid particles, vapors or gases.

“Allocate” or “allocation” means the determination by the Department of the number of CO<sub>2</sub> allowances to be recorded in the compliance account of a CO<sub>2</sub> budget unit, an allocation set-aside account, the consumer benefit account, or the general account of the sponsor of an approved CO<sub>2</sub> emissions offset project.

“Allocation year” means a calendar year for which the Department allocates or awards CO<sub>2</sub> allowances pursuant to N.J.A.C. 7:27C-5 and 10. The allocation year of each CO<sub>2</sub> allowance is reflected in the unique identification number given to the allowance pursuant to N.J.A.C. 7:27C-6.8(b) or (c).

“Alternate CO<sub>2</sub> authorized account representative” means, for a CO<sub>2</sub> budget source and each CO<sub>2</sub> budget unit at the source, the natural person who is authorized by the owners and operators of the source and all CO<sub>2</sub> budget units at the source, in accordance with N.J.A.C. 7:27C-2, to represent and legally bind each owner and operator in matters pertaining to the CO<sub>2</sub> Budget Trading Program or, for a general account, the natural person who is authorized, under N.J.A.C. 7:27C-6, to transfer or otherwise dispose of CO<sub>2</sub> allowances held in the general account.

“AP-42” means the January 1995, 5th edition of the manual entitled “Compilation of Air Pollutant Emission Factors,” which is published by the EPA, including supplements A through G and any subsequent revisions, as amended and supplemented, incorporated herein by reference. The manual may be obtained from the National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, Virginia, 22161, (703) 487-4650; or from the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402, (202) 783-3228. In addition, the manual can be accessed electronically through the EPA Technology Transfer Network CHIEF site at <http://www.epa.gov/ttn/chief/ap42/index.html>.

“Ascending price, multiple-round auction” means a multiple-round auction that starts with an opening price, which increases each round by predetermined increments. In each round, a bidder offers the quantity of CO<sub>2</sub> allowances the bidder is willing to purchase at the posted price. Rounds continue so long as demand exceeds the quantity of CO<sub>2</sub> allowances offered for sale. At the completion of the final round, CO<sub>2</sub> allowances may be awarded to remaining bidders at the final price or according to an alternative mechanism.

“Attribute” means a characteristic associated with electricity generated using a particular renewable fuel, such as its generation date, facility geographic location, unit vintage, emissions output, fuel, state program eligibility, or other characteristic that can be identified, accounted for, and tracked.

“Attribute credit” means a credit that represents the attributes related to one megawatt-hour of electricity generation.

1. In person;
2. By United States Postal Service; or
3. By other commonly accepted means of dispatch or transmission and delivery. Compliance with any "submission," "service," or "mailing" deadline shall be determined by the date of dispatch, transmission, or mailing and not the date of receipt.

"Ton" or "tonnage" means a short ton, that is, 2,000 pounds.

"Topping-cycle cogeneration unit" means a cogeneration unit in which the energy input to the unit is first used to produce useful power, including electricity, and at least some of the reject heat from the electricity production is then used to provide useful thermal energy.

"Total energy input" means, with regard to a cogeneration unit, total energy of all forms supplied to the cogeneration unit, excluding energy produced by the cogeneration unit itself, where each form of energy supplied is measured by the lower heating value of that form of energy, calculated as follows:

$$\text{LHV} = \text{HHV} - 10.55(\text{W} + 9\text{H})$$

where:

LHV = lower heating value of fuel in Btu/lb,

HHV = higher heating value of fuel in Btu/lb,

W = weight, by percent, of moisture in fuel, and

H = weight, by percent, of hydrogen in fuel.

"Total energy output" means, with regard to a cogeneration unit, the sum of useful power and useful thermal energy produced by the cogeneration unit.

"12-month period" means a period of 12 consecutive months determined on a rolling basis where a new 12-month period begins on the first day of each calendar month.

"Uniform-price, sealed-bid auction" means a single-round, sealed-bid auction in which a bidder may submit multiple bids at different prices. The price paid by bidders with winning bids for CO<sub>2</sub> allowances is equal to the price of the highest rejected bid.

"Unit" means a fossil fuel-fired stationary boiler, combustion turbine, or combined cycle system.

"Unit operating day" means a calendar day in which a unit combusts any fuel.

"Unsold allowance" means a CO<sub>2</sub> allowance that has been made available for sale in an auction conducted by the Department, but is not sold in such auction.

"Useful power" means, with regard to a cogeneration unit, electricity or mechanical energy made available for use, excluding any such energy used in the power production process (which process includes, but is not limited to, any on-site processing or treatment of fuel combusted at the unit and any on-site emission controls).

"Useful thermal energy" means with regard to a cogeneration unit, thermal energy that is:

1. Made available to an industrial or commercial process (not a power production process), excluding any heat contained in condensate return or makeup water;
2. Used in a heating application (for example, space heating or domestic hot water heating); or
3. Used in a space cooling application (that is, thermal energy used by an absorption chiller).

"Voluntary renewable energy market account" means an account into which the Department will allocate one percent of the CO<sub>2</sub> allowances for each allocation year from the New Jersey CO<sub>2</sub> Budget Trading Program annual base budget and manage to support the functioning of the voluntary renewable energy market.

"Voluntary renewable energy purchase" means a purchase of electricity from renewable energy generation or a purchase of renewable energy attribute credits, by a retail electricity customer on a voluntary basis. Renewable energy includes electricity generated from biomass, wind, solar thermal, photovoltaic, geothermal, hydroelectric facilities certified by the Low Impact Hydropower Institute, wave and tidal action, and fuel cells powered by renewable fuels. A voluntary renewable energy purchase does not include the purchase of any renewable energy generation or the purchase of any renewable energy attribute credits used by the generator or purchaser to meet any regulatory mandate, such as a renewable portfolio standard.

### 7:27C-1.3 Applicability

(a) The requirements of this chapter apply to any CO<sub>2</sub> budget unit or CO<sub>2</sub> budget source.

(b) Notwithstanding (a) above, a CO<sub>2</sub> budget unit that has a permit containing a condition restricting the supply of the unit's annual electrical output to the electric grid to no more than 10 percent of the annual gross generation of the unit, and which complies with (d) through (i) below, is exempt from the requirements of this chapter, except for the provisions of this section, N.J.A.C. 7:27C-1.6 and N.J.A.C. 7:27C-8.8, and, if applicable because of the award or allocation of CO<sub>2</sub> allowances during the pre-exemption time period, N.J.A.C. 7:27C-5 through 7.

(c) The exemption under (b) above shall become effective as of the January 1 that is on or after the date on which the restriction on the percentage of annual gross generation that

may be supplied to the electric grid and the provisions in the permit required at (b) above become final.

(d) A CO<sub>2</sub> budget unit exempt under (b) above shall comply with the restriction on percentage of annual gross generation that may be supplied to the electric grid described in (b) above.

(e) A CO<sub>2</sub> budget unit exempt under (b) above shall report to the Department, in accordance with the applicable provisions at N.J.A.C. 7:27C-8.8, the amount of annual gross generation and the amount of annual gross generation supplied to the electric grid during the year by the following February 1.

(f) For a period of 10 years from the date the records are created, the owners and operators of a unit exempt under (b) above shall retain, at the source that includes the unit, records demonstrating that the conditions of the permit under (b) were met. The 10-year period for keeping records may be extended for cause, at any time prior to the end of the period, in writing by the Department. The owners and operators bear the burden of proof that the unit met the restriction on the percentage of annual gross generation that may be supplied to the electric grid.

(g) The owners and operators and, to the extent applicable, the CO<sub>2</sub> authorized account representative of a CO<sub>2</sub> budget unit exempt under (b) above shall comply with all the requirements of this chapter concerning all time periods for which the exemption is not in effect, even if such requirements arise, or must be complied with, after the exemption takes effect.

(h) A CO<sub>2</sub> budget unit exempt under (b) above will lose its exemption upon the occurrence of either of the following:

1. The restriction on the percentage of annual gross generation that may be supplied to the electric grid described in (b) above is removed from the unit's permit or otherwise becomes no longer applicable in any year that commences on or after January 1, 2009; or

2. The unit fails to comply or the owners and operators fail to meet their burden of proving that the unit is complying with the restriction on the percentage of annual gross generation that may be supplied to the electric grid described in (b) above during any year that commences on or after January 1, 2009.

(i) A unit that loses its exemption in accordance with (h) above shall be subject to the requirements of this chapter. For the purposes of this chapter, the date of commencement of operation for a unit that loses its exemption pursuant to (h) above will be the date the unit loses its exemption.

(j) In the event that the Department grants an exemption under this section to one or more units that on January 1, 2005, serves an electricity generator with a nameplate capacity equal to or greater than 25 MWe, the Department

will retire for each subsequent allocation year the number of CO<sub>2</sub> allowances equal to the unit's average annual CO<sub>2</sub> emissions over the most recent three calendar years for which data are available.

#### 7:27C-1.4 General provisions

(a) The CO<sub>2</sub> authorized account representative of each CO<sub>2</sub> budget source required to have an operating permit pursuant to N.J.A.C. 7:27-22 and each CO<sub>2</sub> budget unit required to have an operating permit pursuant to N.J.A.C. 7:27-22 shall:

1. Submit to the Department a complete application for a new, renewed, or modified operating permit under N.J.A.C. 7:27C-3.3 in accordance with the deadlines specified in N.J.A.C. 7:27C-3.2; and

2. Submit in a timely manner any supplemental information that the Department determines is necessary in order to review the operating permit application and issue or deny an operating permit, permit renewal, or permit modification that includes CO<sub>2</sub> Budget Trading Program requirements.

(b) The owners and operators of each CO<sub>2</sub> budget source required to have an operating permit pursuant to N.J.A.C. 7:27-22 and of each CO<sub>2</sub> budget unit required to have an operating permit pursuant to N.J.A.C. 7:27-22 for the source shall have an operating permit that incorporates the requirements of the CO<sub>2</sub> budget trading program and shall operate the CO<sub>2</sub> budget source and the CO<sub>2</sub> budget unit at the source in compliance with such operating permit.

(c) The owners and operators and, to the extent applicable, the CO<sub>2</sub> authorized account representative of each CO<sub>2</sub> budget source and each CO<sub>2</sub> budget unit at the source shall comply with the monitoring requirements of N.J.A.C. 7:27C-8.

(d) The Department will use the emissions measurements recorded and reported in accordance with N.J.A.C. 7:27C-8 to determine compliance by the unit with the CO<sub>2</sub> requirements at (e) below. For the purpose of determining compliance with (f) below, total tons for a control period shall be calculated as the sum of all recorded hourly emissions (or the tonnage equivalent of the recorded hourly emissions rates) in accordance with N.J.A.C. 7:27C-8. The Department will round total CO<sub>2</sub> emissions to the nearest whole ton, so that any fraction of a ton equal to or greater than 0.50 tons is deemed to equal one ton and any fraction of a ton less than 0.50 tons is deemed to equal zero tons.

(e) A CO<sub>2</sub> budget unit shall be subject to the requirements at (f) below starting on January 1, 2009, or the date on which the unit commences operation, whichever comes later.

(f) The owners and operators of each CO<sub>2</sub> budget source and each CO<sub>2</sub> budget unit at the source shall hold CO<sub>2</sub> allowances available for compliance deductions under

(b) Except as provided at N.J.A.C. 7:27C-6.5(a) or (b), no objection or other communication submitted to the Department concerning the authorization, or any representation, action, inaction, or submission of the CO<sub>2</sub> authorized account representative for the general account, or the alternate CO<sub>2</sub> authorized account representative for the general account, shall affect any representation, action, inaction, or submission of the CO<sub>2</sub> authorized account representative for the general account or the alternate CO<sub>2</sub> authorized account representative for the general account or the finality of any decision or order by the Department under this chapter.

(c) The Department will not decide or otherwise intervene in any dispute concerning the authorization or any representation, action, inaction, or submission of a CO<sub>2</sub> authorized account representative or any alternate CO<sub>2</sub> authorized account representative for a general account, including private legal disputes concerning the proceeds of CO<sub>2</sub> allowance transfers.

**7:27C-6.7 Delegation of authority to make electronic submissions by the CO<sub>2</sub> authorized account representative for a general account and the alternate CO<sub>2</sub> authorized account representative for a general account**

(a) A CO<sub>2</sub> authorized account representative for a general account or an alternate CO<sub>2</sub> authorized account representative for a general account may delegate, to one or more natural persons, his or her authority to make an electronic submission to the Department under N.J.A.C. 7:27C-7.1 as provided at (b) below.

(b) In order to delegate authority to make an electronic submission to the Department in accordance with (a) above, the CO<sub>2</sub> authorized account representative for a general account or alternate CO<sub>2</sub> authorized account representative for a general account, as appropriate, shall submit to the Department a notice of delegation, in a format prescribed by the Department, that includes the following elements:

1. The name, address, e-mail address, telephone number, and facsimile transmission number of such CO<sub>2</sub> authorized account representative or alternate CO<sub>2</sub> authorized account representative;
2. The name, address, e-mail address, telephone number, and facsimile transmission number of each such natural person, herein referred to as "electronic submission agent";
3. For each such natural person, a list of the types of electronic submissions under (a) above for which authority is delegated to him or her; and
4. The following certification by the delegating CO<sub>2</sub> authorized account representative for the general account or the delegating alternate CO<sub>2</sub> authorized account representative for the general account, as appropriate:

i. "I agree that any electronic submission to the Department that is by a natural person identified in this notice of delegation and of a type listed for such electronic submission agent in this notice of delegation and that is made when I am a CO<sub>2</sub> authorized account representative (or alternate CO<sub>2</sub> authorized account representative, as appropriate,) and before this notice of delegation is superseded by another notice of delegation under N.J.A.C. 7:27C-6.7(b) shall be deemed to be an electronic submission by me." and

ii. "Until this notice of delegation is superseded by another notice of delegation under N.J.A.C. 7:27C-6.7(b), I agree to maintain an e-mail account and to notify the Department immediately of any change in my e-mail address unless all delegation authority by me under N.J.A.C. 7:27C-6.7(b) is terminated."

(c) A notice of delegation submitted under (b) above shall be effective, with regard to the delegating CO<sub>2</sub> authorized account representative for the general account or the delegating alternate CO<sub>2</sub> authorized account representative for the general account identified in such notice, upon receipt of such notice by the Department and until the Department has received a superseding notice of delegation by such CO<sub>2</sub> authorized account representative or alternate CO<sub>2</sub> authorized account representative, as appropriate. The superseding notice of delegation may replace any previously identified electronic submission agent, add a new electronic submission agent, or eliminate entirely any delegation of authority.

(d) An electronic submission covered by the certification in (b)4 above and made in accordance with a notice of delegation effective under (b) above shall be deemed to be an electronic submission by the CO<sub>2</sub> authorized account representative for the general account or alternate CO<sub>2</sub> authorized account representative for the general account submitting such notice of delegation.

**7:27C-6.8 Recordation of CO<sub>2</sub> allowance allocations and CO<sub>2</sub> allowance awards**

(a) By no later than January 30, 2009, the Department will record in the following accounts the CO<sub>2</sub> allowances for the 2009 through 2018 allocation years:

1. The CO<sub>2</sub> allowances allocated to the consumer benefit account, pursuant to N.J.A.C. 7:27C-5.2(a); and
2. The CO<sub>2</sub> allowances allocated to the voluntary renewable energy account pursuant to N.J.A.C. 7:27C-5.2(c).

(b) When allocating CO<sub>2</sub> allowances to and recording them in an account pursuant to (a) above, the Department will assign each CO<sub>2</sub> allowance a unique identification number that will include digits identifying the year for which the CO<sub>2</sub> allowance is allocated.

(c) When awarding CO<sub>2</sub> allowances to and recording them in an account pursuant to (d) and (h) below, the Department

will assign each CO<sub>2</sub> allowance a unique identification number that will include digits identifying the year for which the CO<sub>2</sub> allowance is allocated. If the CO<sub>2</sub> allowance is a CO<sub>2</sub> offset allowance, the unique identification number will identify the CO<sub>2</sub> offset allowance as such.

(d) On or before December 31, 2009, the Department will record any early reduction CO<sub>2</sub> allowances awarded to a CO<sub>2</sub> budget source pursuant to N.J.A.C. 7:27C-5.2(q) in the applicable CO<sub>2</sub> budget source's compliance account.

(e) The Department will record any CO<sub>2</sub> allowances allocated to a CO<sub>2</sub> budget source pursuant to N.J.A.C. 7:27C-5.2(j) and (k) in the compliance account of the applicable CO<sub>2</sub> budget source within five business days of such allocation by the Department.

(f) The Department will record any CO<sub>2</sub> allowances allocated to a CO<sub>2</sub> budget source pursuant to N.J.A.C. 7:27C-5.4(b) to the compliance account of the applicable CO<sub>2</sub> budget source within five business days of such allocation by the Department.

(g) The Department will record any CO<sub>2</sub> allowances awarded to a winning bidder in a CO<sub>2</sub> allowance auction pursuant to N.J.A.C. 7:27C-5.17(b) in the compliance account or general account identified by such winning bidder within five business days of such award by the Department.

(h) The Department will record any CO<sub>2</sub> allowances awarded to an offset project sponsor pursuant to N.J.A.C. 7:27C-10.11(a) or (b) in the applicable offset project sponsor's general account within five business days of such award by the Department.

### 7:27C-6.9 Compliance

(a) CO<sub>2</sub> allowances are available to be deducted in order for a CO<sub>2</sub> budget source to comply with the CO<sub>2</sub> requirements of N.J.A.C. 7:27C-1.4 for a control period, provided that:

1. The CO<sub>2</sub> allowances, other than CO<sub>2</sub> offset allowances, are of allocation years that fall within a prior control period or the same control period for which the allowances will be deducted;

2. The CO<sub>2</sub> allowances are held in the CO<sub>2</sub> budget source's compliance account as of the CO<sub>2</sub> allowance transfer deadline for that control period or are transferred into the compliance account by a CO<sub>2</sub> allowance transfer correctly submitted for recordation under N.J.A.C. 7:27C-7.1 by the CO<sub>2</sub> allowance transfer deadline for that control period;

3. For CO<sub>2</sub> offset allowances, the number of CO<sub>2</sub> offset allowances that are available to be deducted in order for a CO<sub>2</sub> budget source to comply with the CO<sub>2</sub> requirements of N.J.A.C. 7:27C-1.4 for a control period may not exceed the number of tons representing the following percentages of the CO<sub>2</sub> budget source's CO<sub>2</sub> emissions for that control

period, as determined in accordance with (a)3i through iii below, and N.J.A.C. 7:27C-8:

- i. Unless the provisions of (a)3ii or iii below apply, 3.3 percent;

- ii. If the Department determines that there has been a stage-one trigger event, five percent; or

- iii. If the Department determines that there has been a stage-two trigger event, 10 percent; and

4. The CO<sub>2</sub> allowances are not necessary for deductions for excess emissions for a prior control period under (e) below.

(b) Following the recordation, in accordance with N.J.A.C. 7:27C-7.2, of CO<sub>2</sub> allowance transfers submitted for recordation in the CO<sub>2</sub> budget source's compliance account by the CO<sub>2</sub> allowance transfer deadline for a control period, the Department will deduct CO<sub>2</sub> allowances available under (a) above to cover the source's CO<sub>2</sub> emissions for the control period, as follows:

1. Until the number of CO<sub>2</sub> allowances deducted equals the number of tons of total CO<sub>2</sub> emissions, less any CO<sub>2</sub> emissions attributable to the burning of eligible biomass, determined in accordance with N.J.A.C. 7:27C-8, from all CO<sub>2</sub> budget units at the CO<sub>2</sub> budget source for the control period; or

2. If there are insufficient CO<sub>2</sub> allowances to complete the deductions at (b)1 above, until there are no more CO<sub>2</sub> allowances remaining in the compliance account that are available to be deducted under (a) above.

(c) The CO<sub>2</sub> authorized account representative for a CO<sub>2</sub> budget source's compliance account may request the deduction of specific CO<sub>2</sub> allowances in the compliance account, identified by serial number, for emissions or excess emissions for a control period in accordance with (b) above or (e) below, as applicable. Such identification shall be made in the compliance certification report pursuant to N.J.A.C. 7:27C-4.1(b)2.

(d) Where there is no identification by the CO<sub>2</sub> authorized account representative, or only partial identification, of available CO<sub>2</sub> allowances by serial number pursuant to N.J.A.C. 7:27C-4.1(b)2, the Department will deduct CO<sub>2</sub> allowances for a control period from the CO<sub>2</sub> budget source's compliance account, in the following order:

1. CO<sub>2</sub> offset allowances, subject to the relevant compliance deduction limitations under (a)3 above, in chronological order (that is, CO<sub>2</sub> offset allowances from earlier allocation years shall be deducted before CO<sub>2</sub> offset allowances from later allocation years). In the event that some, but not all, CO<sub>2</sub> offset allowances from a particular allocation year are to be deducted, CO<sub>2</sub> offset allowances shall be deducted by serial number, with lower serial number allowances deducted before higher serial number allowances; and

$f$  = van't Hoff-Arrhenius factor for the specific month as determined using the equation below. Using a base temperature of 30 degrees Celsius, the equation is as follows:

$$f = \exp\{[E(T_2 - T_1)] / [(GC \times T_1 \times T_2)]\}$$

where:

$f$  = conversion efficiency of VS to CH<sub>4</sub> per month;

$E$  = activation energy constant (15,175 cal/mol);

$T_2$  = average monthly ambient temperature for facility where manure or organic food waste is generated (converted from degrees Celsius to degrees Kelvin) as determined from the nearest National Weather Service certified weather station (if reported temperature in degrees Celsius > five degrees Celsius; if reported temperature in degrees Celsius < five degrees Celsius, then  $f = 0.104$ ); and

$T_1 = 303.15$  (30 degrees Celsius converted to degrees Kelvin); and

$GC$  = ideal gas constant (1.987 cal/K mol); and

3. The volume of methane produced, in cubic feet (ft<sup>3</sup>), from degradation of volatile solids shall be calculated as follows:

$$V_m = (VS_{deg} \times B_o) \times 35.3147$$

where:

$V_m$  = volume of CH<sub>4</sub> (ft<sup>3</sup>);

$VS_{deg}$  = volatile solids degraded (kg); and

$B_o$  = manure or organic food waste type-specific maximum methane generation constant (m<sup>3</sup> CH<sub>4</sub>/kg VS degraded). For dairy cow manure,  $B_o = 0.24$  m<sup>3</sup> CH<sub>4</sub>/kg VS degraded. The methane generation constant for other types of manure shall be those cited at EPA, Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2005, Annex 3.10, Methodology for Estimating CH<sub>4</sub> and N<sub>2</sub>O Emissions from Manure Management, Table A-160 (2006 Manure Distribution Among Waste Management Systems by Operation (Percent)) (EPA, April 2007), as supplemented or amended, and which is incorporated by reference herein and which is available from EPA at <http://www.epa.gov/climatechange/emissions/usinventoryreport.html#>, unless the project sponsor proposes an alternate methane generation constant.

(f) Emissions reductions shall be determined based on the potential emissions (in tons of CO<sub>2</sub>e) of the methane that would have been produced in the absence of the offset project under a baseline scenario that represents uncontrolled anaerobic storage conditions, as calculated pursuant to (e)1 through 3 above, and released directly to the atmosphere. Emissions reductions shall not exceed the potential emissions of the anaerobic digester, as represented by the annual volume of methane produced by the anaerobic digester, as monitored pursuant to (g) below. If the project is a regional-type digester, CO<sub>2</sub> emissions due to transportation of manure and organic food waste from the site where the manure and

organic food waste was generated to the anaerobic digester shall be subtracted from the emissions reduction calculated pursuant to (e)1 through 3 above. Transport CO<sub>2</sub> emissions shall be determined through one of the following methods:

1. Documentation of transport fuel use for all shipments of manure and organic food waste from off-site to the anaerobic digester during each reporting year and a log of transport miles for each shipment. CO<sub>2</sub> emissions shall be determined through the application of an emissions factor for the fuel type used. For this method of determination, the emissions factor for the use of diesel fuel is 22.912 pounds of CO<sub>2</sub> per gallon, and for the use of gasoline, 19.878 pounds of CO<sub>2</sub> per gallon. If other fuel is used, the project sponsor, as part of the monitoring and verification report submitted pursuant to N.J.A.C. 7:27C-10.11(c) or (d) may submit an emissions factor for approval by the Department as technically appropriate; or

2. Documentation of total tons of manure and organic food waste transported from off-site for input into the anaerobic digester during each reporting year, as monitored pursuant to (g)1 below, and a log of transport miles and fuel type used for each shipment. CO<sub>2</sub> emissions shall be determined through the application of a ton-mile transport emissions factor for the fuel type used. The appropriate emissions factor shall be applied for each ton of manure delivered, and multiplied by the number of miles transported. For this method of determination, the emissions factor for the use of diesel fuel is 0.131 pounds of CO<sub>2</sub> per ton-mile, and for the use of gasoline is 0.133 pounds of CO<sub>2</sub> per ton-mile. If other fuel is used, the project sponsor may submit an emissions factor for approval by the Department as technically appropriate;

(g) An offset project must employ a system that provides metering of biogas volumetric flow rate and determination of methane concentration. Annual monitoring and verification reports shall include monthly biogas volumetric flow rate and methane concentration determination. Monitoring and verification shall also meet the following requirements:

1. If the offset project is a regional-type digester, manure and organic food waste from each distinct source supplying to the anaerobic digester shall be sampled monthly to determine the amount of volatile solids present. Any emissions reduction will be calculated according to mass of manure and organic food waste, in kilograms (kg) being digested and percentage of volatile solids present before digestion, consistent with (e) above and (g)3 below, and apportioned accordingly among sources. The project sponsor shall provide supporting material and receipts tracking the monthly receipt of manure and organic food waste in kilograms (kg) used to supply the anaerobic digester from each supplier;

2. If the offset project includes the digestion of organic food waste eligible pursuant to (b)2 above, organic food waste shall be sampled monthly to determine the amount of volatile solids present before digestion, consistent with the

requirements at (e) above and (g)3 below, and apportioned accordingly;

3. The project sponsor shall submit a monitoring and verification plan as part of the consistency application that includes a quality assurance and quality control program associated with equipment used to determine biogas volumetric flow rate and methane composition. The monitoring and verification plan shall be consistent with the

applicable input monitoring requirements listed in Table 5 below. The monitoring and verification plan shall also include provisions for ensuring that measuring and monitoring equipment is maintained, operated, and calibrated based on manufacturer's recommendations, as well as provisions for the retention of maintenance records for audit purposes. The monitoring and verification plan shall be certified by an accredited independent verifier; and

Table 5  
Input Monitoring Requirements

<u>Input Parameter</u>	<u>Measurement Unit</u>	<u>Frequency of Sampling</u>	<u>Sampling Method(s)</u>
Influent flow (mass) into the digester	Kilograms (kg) per month (wet weight)	Monthly total into the digester	In descending order of preference: 1. Recorded weight; 2. Digester influent pump flow; or 3. Livestock population and application of American Society of Agricultural and Biological Engineers standard, ASAE D384.2, Manure Production and Characteristics, March 2005, as supplemented or amended, and is incorporated by reference herein, and which is available from the American National Standards Institute (ANSI) at <a href="http://www.ansi.org">http://www.ansi.org</a> .
Influent total solids concentration (TS)	Percent (of sample)	Monthly, depending upon recorded variations	USGS I-3750-85, Solids, residue on evaporation at 105 degrees C total, gravimetric, as supplemented and amended and incorporated by reference herein, and which is available at <a href="http://www.usgs.gov">http://www.usgs.gov</a> .
Influent volatile solids (VS) concentration	Percent (of TS)	Monthly, depending upon recorded variations	EPA Test Method Number 160.4, Residue, Volatile (Gravimetric, Ignition at 550° C), as supplemented or amended and incorporated by reference herein, and which is available at <a href="http://www.usgs.gov">http://www.usgs.gov</a> .
Average monthly ambient temperature	Temperature degrees Celsius	Monthly (based on farm averages)	Closest National Weather Service-certified weather station

4. The project sponsor shall verify biogas methane composition quarterly through gas sampling and third party laboratory analysis using EPA Test Method 3C, Determination of Carbon Dioxide, Nitrogen, and Oxygen from

Stationary Sources, as supplemented and amended and incorporated by reference herein, and which is available at <http://www.epa.gov/ttn/emc/promgate.html>.