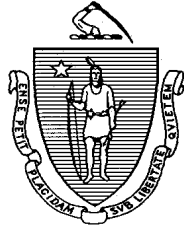


Regional Greenhouse Gas Initiative  
CO<sub>2</sub> Budget Trading Program



**Massachusetts  
Department of Environmental Protection**

**Massachusetts CO<sub>2</sub> Budget Trading Program**

**Offset Project Consistency Application  
Instruction Packet**

**Reduction in Emissions of Sulfur Hexafluoride (SF<sub>6</sub>)**

Version 1.0

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## 1. Overview

To demonstrate that an offset project involving reduction in emissions of sulfur hexafluoride (SF<sub>6</sub>) qualifies for the award of carbon dioxide (CO<sub>2</sub>) offset allowances, a Project Sponsor must submit to the Massachusetts Department of Environmental Protection (MassDEP) in accordance with these instructions, a fully completed *Massachusetts Offset Project Consistency Application – Reduction in Emissions of SF<sub>6</sub> Version 1.0 (Consistency Application)*, including the coversheet and all forms and related attachments. An incomplete *Consistency Application* will not be reviewed to determine consistency. Following these instructions will ensure that the *Consistency Application* contains all necessary information and is submitted properly.

Each Project Sponsor should review the Massachusetts CO<sub>2</sub> Budget Trading Program regulations, 310 CMR 7.70(10), for information regarding offset projects located in Massachusetts and the award of CO<sub>2</sub> offset allowances. All Massachusetts offset application materials and other documents are available at <http://www.rggi.org/offsets>.

Before the *Consistency Application* can be completed, the Project Sponsor must establish a general account and obtain an offset project ID code through the Regional Greenhouse Gas Initiative (RGGI) CO<sub>2</sub> Allowance Tracking System (COATS). The Project Sponsor identified in the *Consistency Application* must be the same as the Authorized Account Representative for the RGGI COATS general account identified in the Massachusetts *Consistency Application*. For information about establishing a RGGI COATS general account and offset project ID code, consult the RGGI COATS User's Guide, available at <http://www.rggi-coats.org>.

Key eligibility dates and application submittal requirements for offset projects are as follows:

- For offset projects commenced between December 20, 2005, and December 31, 2008, the *Consistency Application* must be submitted by June 30, 2009.
- For offset projects commenced on or after January 1, 2009, the *Consistency Application* must be submitted within six (6) months after the project is commenced.
- For an offset project located in one (1) participating state, the *Consistency Application* must be filed with the appropriate regulatory agency in that state.
- For an offset project located in more than one (1) participating state, the *Consistency Application* must be filed in the participating state where the majority of the CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emissions reduction or carbon sequestration due to the offset project is expected to occur.

## 2. Submission Instructions

The Project Sponsor should submit the completed *Consistency Application*, and all attachments, via RGGI COATS at <http://www.rggi-coats.org> as described above. For information about submitting a *Consistency Application* via RGGI COATS, consult the RGGI COATS User's Guide, available at <http://www.rggi-coats.org>.

The *Consistency Application* has three (3) parts, as described below. Each part comprises specified forms and required documentation. The *Consistency Application* has been created as a Microsoft Word document with editable fields. Enter information directly into the fields provided or submit information or documentation as an attachment, as directed. Include headers on all attachments indicating the form to which each is attached, the offset project name, and offset project ID code. If attachments are being submitted as separate electronic documents, please include the form numbers in the file names of the documents.

When submitting documents electronically via RGGI COATS, it is not necessary to submit a scanned or paper hardcopy of the application forms. The Project Sponsor must retain the completed original copy of the *Consistency Application* with the original signed documents. MassDEP reserves the right to request the original signed application documents at any time.

A completed hardcopy and/or CD of the *Consistency Application* may also be mailed to: Climate Strategies Group, Massachusetts Department of Environmental Protection, Bureau of Waste Prevention, 6<sup>th</sup> Floor, One Winter Street, Boston, MA 02108-4747.

Questions about this form and how to submit it should be directed to [climate.strategies@state.ma.us](mailto:climate.strategies@state.ma.us) or 617-574-6815.

### **3. Consistency Application Forms**

The *Consistency Application* includes ten (10) forms divided into three (3) parts, as follows:

#### **Part 1. General Information Forms**

- Form 1.1 – Coversheet
- Form 1.2 – General Information
- Form 1.3 – Attestations
- Form 1.4 – Project Sponsor Agreement
- Form 1.5 – Disclosure of Greenhouse Gas Emissions Data Reporting

#### **Part 2. Category-Specific Information and Documentation Forms**

- Form 2.1 – Project Description
- Form 2.2 – Demonstration of Eligibility
- Form 2.3 – Emissions Baseline
- Form 2.4 – Monitoring and Verification Plan

#### **Part 3. Independent Verification Form**

- Form 3.1 – Independent Verifier Certification Statement and Report

The following instructions address each of the forms in numerical order. Note that the forms themselves include many embedded instructions.

## Part 1. General Information Forms

The five (5) forms in Part 1 of the *Consistency Application* address general requirements applicable to SF<sub>6</sub> offset projects. Instructions for the Part 1 forms are provided below.

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### Form 1.1 Coversheet

Enter the requested information in the editable text fields in the form.

Check the boxes to indicate which forms are being submitted. For information about entering the Project Sponsor (RGGI COATS Authorized Account Representative), offset project name and offset project ID code, and RGGI COATS account name and number, see instructions below for Form 1.2, General Information.

Submit all forms including the Coversheet. If a required form is not submitted, the *Consistency Application* will not be considered complete for commencement of review by MassDEP.

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### Form 1.2 General Information

Enter the requested information in the editable text fields in the form. If a text field is not applicable or is unanswerable, enter "NA." Note the following:

Offset Project ID Code: Enter the offset project ID code. The offset project ID code is the alphanumeric code generated when the Project Sponsor creates a record of the offset project in the RGGI CO<sub>2</sub> Allowance Tracking System (RGGI COATS). See the RGGI COATS User's Guide for more information about creating an offset project record in RGGI COATS, available at <http://www.rggi-coats.org>.

Project Information: Enter project information. The name of the offset project should be the same name entered by the Project Sponsor when creating a project record in RGGI COATS. The project location entered should be the primary location of the project if the project consists of actions at multiple locations. The summary narrative of the project should indicate all locations where project actions occur or will occur.

Project Sponsor: Identify the Project Sponsor and provide his or her contact information. The Project Sponsor is the natural person who is the Authorized Account Representative for the RGGI COATS general account identified in the *Consistency Application*.

Project Sponsor Organization: Provide the full legal name of the organization the Project Sponsor represents, including any alternative names under which the organization also may be doing business (e.g., John Doe Enterprises, Inc., d/b/a JDE). If the Project Sponsor is representing himself or herself as an individual, enter "NA".

RGGI COATS General Account Name and Number: Enter the RGGI COATS general account name and number. The RGGI COATS general account identified in the *Consistency Application* is the RGGI COATS account into which any awarded CO<sub>2</sub> offset allowances related to the offset project will be transferred.

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### **Form 1.3      Attestations**

Sign and date the form. Submit the form via RGGI COATS as directed in the submittal instructions above. Note that the Project Sponsor must retain the completed original copy of the *Consistency Application* and attachments with all original signed documents. MassDEP reserves the right to request the original signed application documents at any time.

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### **Form 1.4      Project Sponsor Agreement**

Sign and date the form. Submit the form via RGGI COATS as directed in the submittal instructions above. Note that the Project Sponsor must retain the completed original copy of the *Consistency Application* and attachments with all original signed documents. MassDEP reserves the right to request the original signed application documents at any time.

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### **Form 1.5      Disclosure of Greenhouse Gas Emissions Data Reporting**

Check the appropriate box in the form to indicate whether greenhouse gas emissions data related to the offset project have been or will be reported to any voluntary or mandatory programs, other than the Massachusetts CO<sub>2</sub> Budget Trading Program. For each program for which data have been or will be reported, provide the program name, the program type (voluntary or mandatory), program contact information (website or street address), the categories of emissions data reported, the frequency of reporting, when the reporting began or will begin, and reporting status (prior, current, future). The Project Sponsor must disclose future reporting related to current commitments made to voluntary programs as well as future reporting mandated by current statutes, regulations, or judicial or administrative orders.

## Part 2. Category-Specific Information and Documentation Forms

The four (4) forms in Part 2 of *the Consistency Application* address category-specific requirements and documentation applicable to SF<sub>6</sub> offset projects. Instructions for the Part 2 forms are provided below.

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### Form 2.1 Project Description

Attach a detailed narrative of the offset project. The attached narrative must include a header that indicates it is an attachment to Form 2.1 and identifies the offset project name and offset project ID code. If attachments are being submitted as separate electronic documents, please include the form number in the file name of the document. The narrative must include the following information:

1. Description of Entity and Service Territory. Describe the transmission and/or distribution entity. List and describe the assets and equipment used to transmit and distribute electricity to the electrical load of customers within the entity. All of the assets and equipment listed as part of the transmission and/or distribution entity must be located within Massachusetts. The geographic area of the transmission and/or distribution entity may not span more than one (1) state.

Describe the service territory of the electric transmission and/or distribution entity. List all geographic locations (e.g., counties, cities, towns) that the entity serves. Include a map to scale of the service territory representing authorized areas of service. The service territory described must be that specified by the Massachusetts Department of Public Utilities (DPU) for which the entity has a regulatory obligation to serve electrical load.

2. Owner and Operator of Entity. Provide the organization legal name(s), point(s) of contact information, and physical address for both the owner and operator of the transmission and/or distribution entity.

Provide the same owner and operator names and contact information as provided to the Massachusetts Department of Public Utilities (DPU). The owner is the legal entity that owns the transmission and/or distribution entity. The operator, which may or may not be identical to the owner, is the legal entity responsible for operating, controlling, or supervising the transmission and/or distribution entity under a written contract with the owner of entity.

If the owner or operator of the transmission and/or distribution entity is a subsidiary of a corporate parent or holding company, provide the organization legal name(s), point(s) of contact information, and physical address for the parent company.

3. Description of Incremental Actions and Summary of Eligibility. Describe the incremental actions that will be taken as part of the offset project in one (1) or more of the following three (3) categories: (1) early retirement and replacement of electrical equipment; (2) repair/refurbishment of electrical equipment, including specific management practices to reduce equipment leakage of SF<sub>6</sub>; and (3) education and training to improve handling of SF<sub>6</sub>, including cylinder handling and gas cart operation and maintenance. Describe how such actions are consistent with the guidance provided in International Electrotechnical Commission (IEC) 1634,

“High-voltage switchgear and control gear—Use and handling of sulfur hexafluoride (SF<sub>6</sub>) in high-voltage switchgear and control gear” (CEI/IEC 1634, 1995-04), and Electric Power Research Institute (EPRI), “Practical Guide to SF<sub>6</sub> Handling Practices” (TR-113933, 2002). All incremental actions must take place within the boundaries of the transmission and/or distribution entity.

Summarize the documentation provided in Form 2.2 that demonstrates that the offset project meets the eligibility requirements of 310 CMR 7.70(10)(e)2.a.

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## Form 2.2 Demonstration of Eligibility

Enter the requested information directly in the editable text fields in Form 2.2 and attach documentation, as directed below. Each attachment must include a header that indicates it is an attachment to Form 2.2 and includes the offset project name and offset project ID code. If attachments are being submitted as separate electronic documents, please include the form numbers in the file names of the documents.

The following information and documentation must be provided:

1. Calculate and enter the baseline year SF<sub>6</sub> emissions rate for the transmission and/or distribution entity where indicated on the form. Based on 310 CMR 7.70(10)(e)2.a.Table 1, enter the applicable emissions rate performance standard that applies to the entity where indicated on the form.

To demonstrate that the offset project has an SF<sub>6</sub> entity-wide emissions rate for the baseline year that is less than the applicable emissions rate performance standard, calculate the emission rate using the following formula:

$$\text{SF}_6 \text{ Emissions Rate (\%)} = \left[ \frac{\text{Total SF}_6 \text{ Emissions for Baseline Year}}{\text{Total SF}_6 \text{ Nameplate Capacity at End of Baseline Year}} \right] \times 100$$

The entity-wide emissions used to calculate the entity-wide emissions rate entered in Form 2.2 must be that provided in Form 2.3 to document baseline year SF<sub>6</sub> emissions for the transmission and/or distribution entity. Total SF<sub>6</sub> nameplate capacity at the end of the baseline year must be that provided in the Entity-wide SF<sub>6</sub> Inventory Tracking System as an attachment to Form 2.3.

If the entity-wide emissions rate is less than the applicable emissions rate performance standard, then Form 2.2 is complete.

2. If the SF<sub>6</sub> emissions rate is greater than the applicable emissions rate performance standard, attach documentation to demonstrate that the project is being implemented at a transmission and/or distribution entity serving a predominantly urban service territory and that at least two (2) of the four (4) criteria listed at (b) through (e) below are met:
  - a. Predominantly Urban Service Territory. Provide documentation that either greater than 50% of the entity's SF<sub>6</sub> nameplate capacity is located in an urban area or greater than 50% of the electrical load served within the entity's service territory is located in an urban area. An urban area is an area that has a population density of at least 1,000 people per square mile. Include the following documentation (include (i) and either (ii) or (iii)):



- (i) Map to scale of the service territory delineating the specific geographic locations that have equal to or greater than 1,000 persons per square mile. For these geographic locations, list the names of the urban areas, their populations, and population densities; and
  - (ii) Documentation that greater than 50% of the entity's SF<sub>6</sub> nameplate capacity is located in urban areas. Identify the manufacturer and model of the equipment, total SF<sub>6</sub> nameplate capacity, and equipment locations (e.g., name of substation) in urban areas. Total the nameplate capacity of SF<sub>6</sub>-containing operating equipment that is located in urban areas. Divide that total by the total SF<sub>6</sub> nameplate capacity that was used to calculate the emissions rate. The result must be greater than 50%; or
  - (iii) Documentation that greater than 50% of the entity's electrical load served within its service territory is located in an urban area.
- b. Age of Equipment: Provide documentation that the entity is comprised of transmission and distribution equipment that is older than the national average age of equipment. Identify the year of purchase or year of installation of each piece of installed transmission and distribution equipment that has an SF<sub>6</sub> nameplate capacity. Divide the SF<sub>6</sub> nameplate capacity of the equipment that is older than 30 years—the national average age of transmission and distribution equipment—by the total SF<sub>6</sub> nameplate capacity used to calculate the baseline entity-wide emissions rate. The result must be greater than 75% of the total SF<sub>6</sub> nameplate capacity.
- c. Poor Accessibility to Underground Equipment: Provide documentation that a majority of the entity's electricity load is served by equipment that is located underground. Identify the manufacturer and model of the SF<sub>6</sub>-containing operating equipment located underground, the SF<sub>6</sub> nameplate capacity of such equipment, and the underground locations of each piece of such equipment. Divide the total SF<sub>6</sub> nameplate capacity identified as being located underground by the total SF<sub>6</sub> nameplate capacity used to calculate the baseline entity-wide emissions rate. The result must demonstrate that greater than 50% of the entity's SF<sub>6</sub> nameplate capacity is located underground.

Demonstrate that regular ongoing maintenance is precluded by the location of underground equipment. Describe how maintenance procedures, schedules, or costs differ for underground equipment compared to above-ground equipment in terms of the frequency, duration, cost, and/or other similar factors.

Retain supportive documentation for inspection by MassDEP and independent verifier, such as third-party audits, reports to regulators or other organizations responsible for system reliability, and written maintenance procedures, schedules, and/or other records.

- d. System Reliability: Provide documentation of the inability to take a substantial portion of equipment out of service, as such activity would impair system reliability. Identify the manufacturer, model, and SF<sub>6</sub> nameplate capacity of each piece of SF<sub>6</sub>-containing operating equipment in the entity's service territory that, if taken out of service, would impair system reliability. Total the SF<sub>6</sub> nameplate capacity of this equipment. Divide that total by the total SF<sub>6</sub> nameplate capacity used to calculate the baseline entity-wide emissions rate. The result must demonstrate that greater than 33% of the entity's SF<sub>6</sub>

nameplate capacity is comprised of SF<sub>6</sub>-containing operating equipment that would cause system reliability concerns if such equipment were taken out of service.

Retain supportive documentation for inspection by MassDEP and an independent verifier, such as third-party audits, reports to regulators or other organizations responsible for system reliability, written equipment replacement procedures and schedules, and/or other records that substantiate that the SF<sub>6</sub>-containing operating equipment cannot be taken out of service without impairing system reliability. Include as part of such supportive documentation entity-wide decommissioning records for the previous two (2) years showing that similar equipment has not been taken out of service. An example of relevant data would be evidence that the entity or a subset of the entity has a load factor of at least 80%, resulting in insufficient capacity to cover the circuit outages resulting from equipment taken out of service.

- e. Inherently Leak-Prone Equipment: Provide documentation that required equipment purpose or design for a substantial portion of entity equipment results in inherently leak-prone equipment. Identify the manufacturer, model, and SF<sub>6</sub> nameplate capacity of each piece of equipment that has a required purpose or design, that results in it being inherently leak-prone. Inherently leak prone equipment is SF<sub>6</sub>-containing operating equipment with an average annual SF<sub>6</sub> leak rate of 10% or higher since its installation. If actual equipment leak data are unavailable, estimate the average annual leak rates for individual pieces of equipment based on the number of service calls required since the equipment's installation and the amount of SF<sub>6</sub> leakage that typically triggers a service call (e.g. 10% loss of nameplate capacity). For example, a piece of equipment in service for three (3) years that has required six (6) service calls since its installation meets the definition of inherently leak-prone since its implied average annual leak rate of 20% (two (2) service calls per year and assumed 10% loss of nameplate capacity per service call) is greater than the average annual leak rate of 10%.

Total the SF<sub>6</sub> nameplate capacity of the inherently leak-prone equipment. Divide that total by the total SF<sub>6</sub> nameplate capacity used to calculate the baseline entity-wide emissions rate. The result must demonstrate that greater than 33% of the nameplate capacity of SF<sub>6</sub>-containing operating equipment is considered inherently leak-prone.

Retain supportive documentation for inspection by MassDEP and an independent verifier, such as third-party audits, manufacturer or industry studies, reports to regulators or other organizations responsible for system reliability, or written equipment replacement data and schedules.

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## **Form 2.3      Emissions Baseline**

Provide the following information in the editable text fields in Form 2.3 or as an attachment, as directed. Each attachment must include a header that indicates it is an attachment to Form 2.3 and includes the offset project name and offset project ID code. If attachments are being submitted as separate electronic documents, please include the form numbers in the file names of the documents.

The following information and documentation must be provided as specified below:

1. Identify Baseline Year. Enter the designated baseline year where requested in Form 2.3. The baseline year must be the calendar year immediately preceding the calendar year in which the *Consistency Application* is filed.
2. Enter SF<sub>6</sub> Values from the Entity-wide SF<sub>6</sub> Inventory Tracking System. Enter the requested SF<sub>6</sub> values in Form 2.3. The SF<sub>6</sub> values must be derived from the submitted Entity-wide SF<sub>6</sub> Inventory Tracking System (see instructions at Number 3 below).

To calculate the total entity-wide emissions of SF<sub>6</sub> for the baseline year in pounds (lbs), use the following mass-balance method:

$$\text{SF}_6 \text{ Emissions (lbs)} = (\text{SF}_6 \text{ Change in Inventory}) + (\text{SF}_6 \text{ Purchases and Acquisitions}) - (\text{SF}_6 \text{ Sales and Disbursements}) - (\text{Change in Total SF}_6 \text{ Nameplate Capacity of Equipment})$$

To calculate the SF<sub>6</sub> values requested, use the following equation that corresponds to the mass balance method described above:

Total SF <sub>6</sub>		SF <sub>6</sub> Change in Inventory (lbs)		Purchases and Acquisitions of SF <sub>6</sub> (lbs)		Sales and Disbursements of SF <sub>6</sub> (lbs)		Change in Total SF <sub>6</sub> Nameplate Capacity of Equipment (lbs)
Emissions (lbs)	=	(V <sub>iby</sub> - V <sub>iey</sub> )	+	(PA <sub>psd</sub> + PA <sub>e</sub> + PA <sub>re</sub> )	-	(SD <sub>op</sub> + SD <sub>rs</sub> + SD <sub>df</sub> + SD <sub>sr</sub> )	-	(CNP <sub>ne</sub> - CNP <sub>rse</sub> )

where:

- SF<sub>6</sub> Change in Inventory is the difference between the quantity of SF<sub>6</sub> gas in storage at the beginning of the reporting year (i.e., V<sub>iby</sub>) and the quantity in storage at the end of the reporting year (i.e., V<sub>iey</sub>). The term “quantity in storage” includes all SF<sub>6</sub> gas contained in cylinders (such as 115-pound storage cylinders), gas carts, and other storage containers. Quantity in storage does not include SF<sub>6</sub> gas contained in SF<sub>6</sub>-using operating equipment. The change in storage inventory will be negative if the quantity of SF<sub>6</sub> gas in storage increases over the course of the year. This portion of the equation is defined as follows:
  - V<sub>iby</sub> = SF<sub>6</sub> inventory in cylinders, gas carts, and other storage containers (not SF<sub>6</sub>-containing operating equipment) at the beginning of the reporting year<sup>1</sup>
  - V<sub>iey</sub> = SF<sub>6</sub> inventory in cylinders, gas carts, and other storage containers (not SF<sub>6</sub>-containing operating equipment) at the end of the reporting year

<sup>1</sup> The beginning-of-year inventory for a given year should always equal the end-of-year inventory for the previous year. Therefore, an end-of-year inventory measurement should be applied to the beginning-of-year inventory input for the following calendar year.

Determine change in inventory based on the quantities of SF<sub>6</sub> gas contained in each cylinder, storage container, and gas cart at both the start of the year and the end of the year. Total the start and end quantities for cylinders, as recorded in cylinder logs required by the SF<sub>6</sub> Inventory Management and Auditing Protocol (see instructions for Form 2.4). Total the start and end quantities for gas carts and any other storage containers, as recorded in the Entity-wide SF<sub>6</sub> Inventory Tracking System. Combine totals to obtain the storage inventory total. Use quantities that represent the physical weights of the gas stored, not a calculated estimate based on temperature and pressure.

- Purchases and Acquisitions of SF<sub>6</sub> are the sum of all the SF<sub>6</sub> gas acquired from other parties during the reporting year, contained in storage containers or SF<sub>6</sub>-using operating equipment. Acquisitions include SF<sub>6</sub> provided by equipment manufacturers with and inside equipment and SF<sub>6</sub> returned to the entity after off-site recycling. This portion of the equation is defined as follows:
  - PA<sub>psd</sub> = SF<sub>6</sub> purchased from suppliers or distributors in cylinders
  - PA<sub>e</sub> = SF<sub>6</sub> provided by equipment manufacturers with or inside SF<sub>6</sub>-containing operating equipment
  - PA<sub>rre</sub> = SF<sub>6</sub> returned to the reporting entity after off-site recycling

Sum the additions to the inventory during the year. Log each purchase and acquisition into the Entity-wide SF<sub>6</sub> Inventory Tracking System. Retain as documentation of data, for inspection by MassDEP and an independent verifier, the corresponding purchase/acquisition records of SF<sub>6</sub> gas and SF<sub>6</sub> gas that accompanies SF<sub>6</sub>-containing equipment purchases, supplier receipts of cylinders, and receipts of recycled SF<sub>6</sub> returned to the entity after off-site recycling.

- Sales and Disbursements of SF<sub>6</sub> are the sum of all the SF<sub>6</sub> gas sold or otherwise disbursed to other parties during the reporting year, contained in storage containers and SF<sub>6</sub>-using operating equipment. Disbursements include SF<sub>6</sub> returned to the supplier, SF<sub>6</sub> sent off-site for recycling, and SF<sub>6</sub> sent off-site for destruction. This portion of the equation is defined as follows:
  - SD<sub>op</sub> = Sales of SF<sub>6</sub> to other parties, including gas left in SF<sub>6</sub>-containing operating equipment that is sold
  - SD<sub>rs</sub> = Returns of SF<sub>6</sub> to supplier (producer or distributor)
  - SD<sub>df</sub> = SF<sub>6</sub> sent to destruction facilities
  - SD<sub>sor</sub> = SF<sub>6</sub> sent off-site for recycling

Sum the subtractions from inventory (i.e., the sales and disbursements of SF<sub>6</sub> during the reporting year). Log each sale and disbursement into the Entity-wide SF<sub>6</sub> Inventory Tracking System. Retain as documentation of data, for inspection by MassDEP and an independent verifier, the corresponding sales/disbursement records of SF<sub>6</sub> gas and SF<sub>6</sub> gas that is contained within

equipment sold, supplier receipts of cylinders, and receipts of SF<sub>6</sub> sent to destruction facilities or off-site for recycling.

- Change in Total SF<sub>6</sub> Nameplate Capacity of Equipment is the net change in total nameplate capacity of SF<sub>6</sub>-containing operating equipment during the reporting year. The net change in nameplate capacity is equal to new equipment nameplate capacity minus retired equipment nameplate capacity. This quantity will be negative if the retired equipment has a total nameplate capacity larger than the total nameplate capacity of the new equipment. "Nameplate capacity" refers to the full and proper SF<sub>6</sub> charge of the equipment rather than to the actual charge, which may reflect leakage. This portion of the equation is defined as follows:

- $CNP_{ne}$  = Total SF<sub>6</sub> nameplate capacity of new SF<sub>6</sub>-containing operating equipment at proper full charge
- $CNP_{rse}$  = Total SF<sub>6</sub> nameplate capacity of retired SF<sub>6</sub>-containing operating equipment at proper full charge

Record the total SF<sub>6</sub> nameplate capacity of equipment at both the start of the reporting year and the end of the reporting year in the Entity-wide SF<sub>6</sub> Inventory Tracking System. Determine change in total SF<sub>6</sub> nameplate capacity of equipment based on the difference between the two (2) quantities. Retain as documentation of data, for inspection by MassDEP and an independent verifier, records of newly installed equipment and records of retired equipment.

3. Provide Inventory Documentation. Attach the Entity-wide SF<sub>6</sub> Inventory Tracking System to Form 2.3 as documentation of reported SF<sub>6</sub> values and emissions calculations. This is the entity-wide tracking system specified in the Monitoring and Verification Plan (see instructions for Form 2.4). The attached inventory tracking system must be provided in spreadsheet form (or other appropriate database form) and include a header that indicates it is an attachment to Form 2.3 and includes the offset project name and offset project ID code. For submission of the electronic version of the *Consistency Application*, provide the spreadsheet as a distinct electronic file.

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## Form 2.4 Monitoring and Verification Plan

Provide the Monitoring and Verification (M&V) Plan as an attachment to Form 2.4. The attached M&V Plan, and any related separate attachments, must include a header that indicates it is an attachment to Form 2.4 and includes the offset project name and offset project ID code. If attachments are being submitted as separate electronic documents, please include the form numbers in the file names of the documents.

Check the boxes in Form 2.4 to indicate that the attached M&V Plan includes the required components. The M&V Plan must include the following:

1. Data Sources and Calculations. Document the data sources and calculations that will be used to determine baseline year SF<sub>6</sub> emissions and reporting year SF<sub>6</sub>

emissions. Data sources and calculations must be consistent with those required pursuant to 310 CMR 7/70(10)(e)2.

2. SF<sub>6</sub> Inventory Management and Auditing Protocol. Provide an SF<sub>6</sub> Inventory Management and Auditing Protocol, which must include the following:
  - a. Description of the Entity-wide SF<sub>6</sub> Inventory Tracking System. Provide a detailed description of the Entity-wide SF<sub>6</sub> Inventory Tracking System, including system maintenance, system back-up, system security features, report capacities, and a list of data fields. Provide a spreadsheet template (or other appropriate database template) of the Entity-wide SF<sub>6</sub> Inventory Tracking System, which must contain the following:
    - i. Identification of the facility(ies) from which all SF<sub>6</sub> gas is procured and disbursed;
    - ii. An entity-wide log of all SF<sub>6</sub> gas procurements and disbursements; and
    - iii. An entity-wide inventory of all SF<sub>6</sub>-containing operating equipment and all other SF<sub>6</sub>-related items, including cylinders, gas carts, and other SF<sub>6</sub> storage containers.
  - b. Personnel Contact Information. Provide the following information for personnel responsible for maintaining the Entity-wide SF<sub>6</sub> Inventory Tracking System:
    - i. An organizational structure of the “inventory management team,” which identifies the names and contact information for the personnel selected to oversee data entry into the Entity-wide SF<sub>6</sub> Inventory Tracking System and into any distinct tracking system for a substation(s) or other designated location(s) that is used to provide data to the Entity-wide SF<sub>6</sub> Inventory Tracking System (include names of outside contractors that provide inventory management and/or data entry services); and
    - ii. Names and contact information of the auditors of the Entity-wide SF<sub>6</sub> Inventory Tracking System and any distinct tracking system(s) for a substation(s) or other designated location(s) that is used to provide data to the Entity-wide SF<sub>6</sub> Inventory Tracking System.
  - c. Inventory Tracking System Procedures and Training. Document the following Entity-wide SF<sub>6</sub> Inventory Tracking System procedures for data input, records keeping and records retention, and maintenance of cylinder logs:
    - i. Procedures for input of data into the Entity-wide SF<sub>6</sub> Inventory Tracking System and any other distinct tracking system for a substation(s) or other designated location(s) that is used to provide data to the Entity-wide SF<sub>6</sub> Inventory Tracking System (e.g., data entry frequency; data fields requirements);
    - ii. Procedures for records retention, including: purchase/sales records, supplier receipts of cylinders received from and returned to the supplier, recycling and destruction receipts, and records of newly installed SF<sub>6</sub>-containing operating equipment and retired equipment;
    - iii. Procedures for the maintenance of cylinder-specific logs, including maintenance of a master sheet identifying all cylinders using unique identifiers, and a standardized cylinder log form that includes:

- (A) Location and specific identifying information of the equipment being filled with the SF<sub>6</sub> gas from the cylinder;
  - (B) Location and specific identifying information of the equipment from which SF<sub>6</sub> is being recovered and placed into the cylinder for transfer, reuse, recycling, reclamation, or destruction purposes; and
  - (C) Weight of the cylinder before and after: (1) the cylinder is connected to and disconnected from an automated gas top-off and filling system; or (2) any activity where gas is manually added to or removed from a cylinder. Note that estimating the weight of a cylinder using temperature and pressure to estimate SF<sub>6</sub> disbursed from or added to a cylinder is permitted for interim measurements of cylinder weight throughout the year. However, estimating cylinder weight using temperature and pressure is not allowed for determining beginning-of-year and end-of-year cylinder weight. Physical weighing of cylinders using a certified scale is the only acceptable method for calculating cylinder weight that will be used to determine inputs to the mass-balance formula;<sup>2</sup> and
- iv. Procedures for confirming that meters and scales are used for the filling and weighing of cylinders at each substation or other location designated for such activities and are consistently calibrated to manufacturer recommendations; and
  - v. An entity-wide training plan for the “inventory management team” on the use of the Entity-wide SF<sub>6</sub> Inventory Tracking System as a data source, the use of the SF<sub>6</sub> mass-balance method, and recordkeeping and record retention practices.
- d. Auditing Procedures and Plans. Document the following auditing procedures and plans:
- i. A schedule (i.e., calendar of dates) for conducting audits;
  - ii. Procedures for audits of inventory management, including all inventory tracking systems, data entry, and maintenance of cylinder logs in accordance with the M&V Plan;
  - iii. A template for a report on the findings of audits including identification of areas in need of corrective actions; and
  - iv. An entity-wide training plan for auditors on how to conduct the procedures for the audits.
3. Quality Assurance/Quality Control (QA/QC) Protocol. Document the QA/QC process, which must include the following:
- a. Contact Information and QA/QC Schedule. Provide the following:
    - i. Names and contact information for QA/QC officers in charge of administering the QA/QC process for inventory data; and

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<sup>2</sup> Temperature and pressure based calculations are not considered reliable enough for determining inputs that will be used to calculate emissions. Temperature and pressure based calculations are limited by the gas law scope of their application.

- ii. A schedule establishing periodic (such as quarterly or semi-annually) QA/QC procedures for the inventory of:
  - (A) Entity-wide SF<sub>6</sub> gas procurements and disbursements;
  - (B) All SF<sub>6</sub>-containing operating equipment and all other SF<sub>6</sub> storage-related items, including cylinders, gas carts, and other SF<sub>6</sub> storage containers; and
  - (C) All cylinder logs; and
- b. QA/QC Procedures and Training. Document the following QA/QC procedures and training plan:
  - i. Procedures for entity-wide inventory of SF<sub>6</sub> gas procurements and disbursements, which include a review of at least 10% of the receipts for purchases/sales and disbursements kept at each substation (or other designated location) against entries in the Entity-wide SF<sub>6</sub> Inventory Tracking System to ensure accuracy and completeness in data entry;
  - ii. Procedures for entity-wide inventory of all operating equipment containing SF<sub>6</sub>, which include a review of at least 10% of the records of newly installed and retired equipment and corresponding SF<sub>6</sub> nameplate capacity against entries in the Entity-wide SF<sub>6</sub> Inventory Tracking System to ensure accuracy and completeness in data entry;
  - iii. Procedures for all cylinder logs, which include:
    - (A) Confirmation in the form of certifications signed by inventory management team members that meters and scales are consistently calibrated to manufacturer recommendations for the filling and weighing of cylinders at each substation (or other designated location); and
    - (B) Periodic review of the master sheet of cylinder logs to account for cylinder totals at each substation (or other designated location); and
  - iv. Procedures for the review of annual emissions calculations in order to:
    - (A) Ensure complete compilation of data from all designated personnel of the inventory management team into the Entity-wide SF<sub>6</sub> Inventory Tracking System prior to calculation of emissions;
    - (B) Identify unusually large changes to inventory, purchases/acquisitions, or sales/disbursements, and determine if the changes can be explained or if there is an error in reported inputs to the SF<sub>6</sub> mass balance method; and
    - (C) Ensure no negative inputs are entered and negative emissions are not calculated, except for changes in storage inventory and nameplate capacity, which may result in negative numbers; and
  - v. An entity-wide training plan for QA/QC officers addressing QA/QC procedures for Entity-wide SF<sub>6</sub> Inventory Tracking System data entry, use of the SF<sub>6</sub> mass-balance method, compilation and retention of associated sources of data, and recordkeeping practices to ensure consistent and complete inventory data.



## Part 3. Independent Verification Form

The form in Part 3 of the *Consistency Application* addresses requirements and documentation related to the independent verifier certification statement and report. Instructions for the form in Part 3 are provided below.

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### Form 3.1 Independent Verifier Certification Statement and Report

An accredited verifier must sign and date the form. Attach the accredited independent verifier report. The attached verifier report must include a header that indicates it is an attachment to Form 3.1 and includes the offset project name and offset project ID code. If attachments are being submitted as separate electronic documents, please include the form numbers in the file names of the documents. Note that the Project Sponsor must retain the completed original copy of the *Consistency Application* and attachments, including the verifier's original signed documents. MassDEP reserves the right to request the original signed documents at any time. The verifier report must document the following:

1. The verifier has reviewed the entire *Consistency Application* and evaluated the contents of the application in relation to the applicable requirements of 310 CMR 7.70(10).
2. The verifier has evaluated the adequacy and validity of information supplied by the Project Sponsor to demonstrate that the offset project meets the applicable eligibility requirements of 310 CMR 7.70(10)(c) and (e).
3. The verifier has evaluated the adequacy and validity of information supplied by the Project Sponsor to demonstrate baseline emissions, pursuant to the applicable requirements of 310 CMR 7.70(10)(e)2.
4. The verifier has evaluated the adequacy of the M&V Plan submitted pursuant to 310 CMR 7.70(10)(e).

The verifier report must include the following contents, in the order listed below:

- Cover page with report title and date
- Table of contents
- List of acronyms and abbreviations
- Executive summary
- Description of objective of report
- Identification of the client, including name, address, and other contact information
- Identification of the offset project
- Description of evaluation criteria (applicable regulatory provisions and documentation required in the *Consistency Application*)
- Description of the review and evaluation process, including any site visits and interviews
- Identification of individuals performing the verification work, including the verification team leader and key personnel, and contact information for the team leader
- Description of the materials provided to the verifier by the Project Sponsor
- Evaluation conclusions and findings, including level of assurance provided