



Pool Cover Forecast Methodology v1.0 ERRATA AND CLARIFICATIONS

The Climate Action Reserve (Reserve) published its Climate Forward Pool Cover Forecast Methodology v1.0 in April 2021 (Pool Cover v1.0). While the Reserve intends for the methodology to be a complete, transparent document, it recognizes that correction of errors and clarifications will be necessary as the methodology is implemented and issues are identified. This document is an official record of all errata and clarifications applicable to Pool Cover v1.0.¹

Per the Climate Forward Program Manual, both errata and clarifications are considered effective on the date they are first posted on the Climate Forward website. The effective date of each erratum or clarification is clearly designated below. All new and listed pool cover projects must incorporate and adhere to these errata and clarifications when they undergo confirmation. The Reserve will incorporate both errata and clarifications into future versions of the methodology.

All project proponents and confirmation bodies must refer to this document to ensure that the most current guidance is adhered to in project design and confirmation. Confirmation bodies shall refer to this document immediately prior to uploading any Confirmation Statement to assure all issues are properly addressed and incorporated into confirmation activities.

If you have any questions about the updates or clarifications in this document, please contact the Climate Action Reserve at info@climateforward.org or (213) 891-1444 x4.

¹ See the policy memo dated June 6, 2023 or the Climate Forward Program Manual for an explanation of the Reserve's policies on methodology errata and clarifications. For document management and program implementation purposes, both errata and clarifications are contained in this single document.

Errata and Clarifications (arranged by methodology section)

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Section 5

1. Wind Shielding Factor (CLARIFICATION – October 8, 2024)

Section: Table 5.1. SCG Model Input Parameters

Context: The approved model for use under this methodology is the Southern California Gas Company's Pool Cover and Pool Heater Energy Savings Tool (SCG model) to calculate baseline energy use, project energy use, and energy savings. One key parameters for the model is wind shielding factor, which is a user entered parameter. The wind shielding factor, FW, is used to adjust the airport wind speed to the poolside wind speed for calculating heat loss and evaporation rate. The protocol does not provide guidance on how to calculate the wind shielding factor for a project, this clarification provides guidance for calculating this parameter.

Clarification: The wind speed at a pool significantly influences the evaporation rate, which in turn affects the energy required to maintain the pool's temperature. Higher wind speeds increase evaporation, leading to greater heat loss and higher energy consumption to reheat the pool. As described in the Southern California Gas Company's (SCG) Pool Cover and Pool Heater Energy Savings Tool², "most swimming pools are encircled with high hedges, fences, walls, and buildings to screen the occupants from the wind. Since most pools have good wind screens, the poolside wind speed is much lower than the wind speed measured at a nearby weather station." The data in the tool indicates that typical wind shielding factors for various pool types show a wide range of results from 0% to 80% though the data showed public pools typically have low wind shielding factors (e.g., < 20%), there is significant variability that depends on the immediate surroundings and the orientation of the pool to direct wind. Due to the variability, to be conservative project proponents should apply a default wind shielding factor of 20%.

The guidance in Table 5.1 SCG Model Input Parameters for the wind shielding factor parameter will now read as follows, with bold indicating new text:

The wind shielding factor, FW, is used to adjust the airport wind speed to the poolside wind speed for calculating heat loss and evaporation rate. The wind shielding factor accounts for fences, buildings, and hedges which screen the pool from the wind. A pool surrounded by a wide flat open area, especially in the direction of the prevailing wind, has a wind shielding factor of 0%. A pool that is totally protected from the wind (**indoors**) has a wind shielding factor of 100%. **All other pools should apply a conservative default wind shielding factor of 20%.** The wind shielding factor is assumed to be constant all year. The wind shielding factor is used to calculate the wind speed ratio, which is the ratio of the poolside wind speed to the wind speed measured at the local airport weather station.

² Knoke, S. (2012). Pool Cover and Pool Heater Energy Savings Tool. Southern California Gas Company, Customer Programs Department.

2. Modeling Baseline Emissions (CLARIFICATION – October 8, 2024)

Section: 5.2 Modeling Baseline Emissions

Context: The baseline scenario for pool cover projects is the continuous use of natural gas to heat the pool without a cover. The Pool Cover v1.0 methodology states: “the baseline scenario would be the continued operations of a pool without a cover, coupled with the use of a fossil fuel.” In practice, however, there are warm periods of time when pool heaters and pool covers are not necessary. Modeling baseline emissions based on this common practice should allow for these periods of time and not require a non-compliance factor deduction to be applied to the quantification of FMUs.

In addition, there was a typo in this section. Where the methodology referred to the SCF model it should have read “SCG model” in reference to the Southern California Gas Company’s model on pool energy use with heaters and covers.

Clarification: The first paragraph of the section will now read as follows. Bold text indicates changes:

For purposes of estimating project emission reductions, it is assumed that in the absence of the GHG mitigation project, the baseline scenario would be the continued operations of a pool without a cover, coupled with the use of a fossil fuel (e.g., natural gas) powered pool heater. As described in Section 2.1.1, eligible pools cannot currently use an existing cover and must be heated with fossil fuels. As described further below, each pool will be modeled separately to incorporate its assumed baseline factors, including hours of operation and type of cover to be installed. For each pool in the project, the value of model input parameters may differ across seasons. **In cases where the pool is not heated during warm summer months, it is acceptable to exclude this period of time. Additionally, since there are no energy savings to be gained when heaters are not used, pool covers are not required to be used during these times. The period of time when the heater and the pool cover are not in use are not considered Non-compliance days (refer to Table 6.1). To exclude this period of time from the baseline calculation the project proponent must have confirmable evidence that the pool heater was not in use.** In such cases each period for which such values are different will need to be modelled separately, and the resulting emission reductions summed for the entire crediting period. The SCG model estimates relevant factors for each month of the calendar year, and then sums them together for the year.

3. Equation 5.3 Project GHG Emissions (CLARIFICATION – October 8, 2024)

Section: 5.3 Modeling Project GHG Emissions

Context: There is an error in how the NCFp is applied in Equation 5.3 Project GHG Emissions. As a non-compliance factor is added to the equation, it currently causes the project emissions to decrease, rather than increase.

Clarification: This equation shall now read as follows with bold text indicating the change in the formula. This was erroneously published to subtract instead of add.

$$PE_{p,j,y} = PU_{p,j,y} \times (1 + (DF_p + NCF_p)) \times EF_f \times L_p$$

CLIMATE FORWARD ▶



Pool Cover Forecast Methodology

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ACTION
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Acknowledgements

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Abbreviations and Acronyms

CEQA	California Environmental Quality Act
CO ₂	Carbon dioxide
CH ₄	Methane
EF	Emission factor
FMU	Forecasted Mitigation Unit
GHG	Greenhouse gas
N ₂ O	Nitrous oxide
Reserve	Climate Action Reserve
SSR	Source, sink, and reservoir
t	Metric ton (or tonne)

1 Introduction

The Climate Action Reserve (Reserve) is an environmental nonprofit organization that promotes and fosters the reduction of greenhouse gas (GHG) emissions through credible market-based policies and solutions. Based in Los Angeles, the Reserve is the foremost carbon offset registry in North America with internationally recognized expertise in project-level GHG accounting. The Reserve establishes regulatory-quality standards for the development and quantification of GHG emission reduction projects; issues GHG emission reduction credits for use in compliance and voluntary carbon programs; and tracks the transaction of credits over time in transparent, publicly-accessible systems. Adherence to the Reserve's standards ensures that emission reductions associated with projects are real, permanent, and additional, thereby instilling confidence in the environmental benefit, credibility, and efficiency of carbon markets.

Climate Forward, a greenhouse gas mitigation program of the Climate Action Reserve, provides a practical solution to companies and organizations seeking cost-effective mitigation of anticipated (i.e., future) operational and/or project-related GHG emissions. Climate Forward facilitates investments in GHG reduction¹ activities that are practical, scientifically-sound, transparent, and aligned with forward-looking mitigation needs such as the California Environmental Quality Act (CEQA). Climate Forward will drive forward-looking investment into actions expected to result in GHG reductions, with a goal of expanding the scope and scale of feasible emission reduction project types.

Climate Forward is designed to provide companies, organizations, developers, and other entities with a conservative, robust, and methodologically rigorous option to mitigate an estimate of expected GHG emissions, on a voluntary or compliance basis, using Forecasted Mitigation Units (FMUs) generated from mitigation projects under this program. This program fundamentally differs from existing carbon credit programs through its focus on projecting and crediting estimated emission reductions on an *ex ante* basis. Under this program, estimated GHG reductions from the mitigation project are recognized as FMUs, which are each equal to one metric ton of carbon dioxide equivalent (CO₂e) expected to be reduced or sequestered. FMUs can be retired for multiple purposes, including for CEQA mitigation or for other voluntary mitigation purposes.

The Climate Forward Pool Cover Forecast Methodology provides guidance to forecast and report GHG emission reductions associated with energy efficiency improvements realized by installing eligible pool covers on eligible pools in eligible project areas approved by the Reserve (see Section 2.1 below for guidance on eligibility). The methodology provides eligibility rules, methods to forecast and calculate reductions, and procedures for reporting project information to Climate Forward. Project proponents that install eligible pool covers use this document to register forecasted GHG reductions with Climate Forward. Additionally, a Project Implementation Report will receive independent confirmation by a Reserve-approved confirmation body selected by the project proponent. Guidance for confirmation bodies to confirm reductions is provided in the Climate Forward Confirmation Manual and Section 8 of this methodology.

¹ Throughout this document, the term "reduction" is intended to address both GHG emission reductions that are the result of activities designed to reduce or avoid emissions, and GHG removals, which are those activities aimed at removing atmospheric CO₂ at rates that exceed "business as usual" sequestration.

This methodology is designed to ensure the complete, consistent, transparent, accurate, and conservative *ex ante* quantification and confirmation of GHG emission reductions associated with a pool cover project.²

² See the WRI/WBCSD GHG Protocol for Project Accounting (Part I, Chapter 4) for a description of GHG reduction project accounting principles.

2 The GHG Reduction Project

2.1 Project Definition

The objective of pool cover projects developed under this methodology is to reduce the amount of fossil fuels needed to heat project pools, via the introduction of energy saving pool covers. For the purpose of this methodology, the project is defined as the installation of eligible pool covers on eligible pools in eligible project areas. A project may consist of the installation of a single pool cover or the installation of multiple pool covers on multiple pools, aggregated together into a batch. The baseline scenario is the continued use of natural gas to heat the pool without a cover, as described in Section 5.2. The project scenario is the use of an eligible pool cover, on an eligible pool, within an eligible project area, with reduced use of fossil fuels to heat the pool.

Eligible pool covers and locations, along with default parameters and emission factors which are required for the quantification of emission reductions under this methodology, are listed in a separate Pool Cover Forecast Methodology Parameters document.³ A project will involve the installation of a batch of multiple eligible project devices. The entire batch shall constitute one “project.” It is also possible to submit multiple batches within a single project, but all such batches should be implemented prior to the initiation of confirmation activities. The project proponent must provide a detailed description of both the baseline scenario and project scenario in their Project Implementation Report, for every project.

The project proponent may propose additions or changes to the list of eligible pool covers and/or eligible areas, as well as changes to all other parameters, by demonstrating the reasonableness of such changes to the Reserve. Examples of evidence that may satisfy this requirement include independent baseline studies conducted within 10 years of the project start date, literature reviews, or independent expert testimony. The values for all parameters must be approved by the Reserve before a project can be listed. The project proponent must provide the Reserve with robust evidence demonstrating that proposed parameter values are reasonable and conservative. The Reserve must approve the use of parameter values before they are employed in the calculation of emission reductions. Confirmation bodies must confirm the correct parameter values (as published in the most recent version of the Pool Cover Forecast Methodology Parameters document) have been used, however, the confirmation body will not need to review materials provided in support of the use of such parameters (i.e., reference documents). Users should consult with the Reserve to ensure they are using the most up to date version of the parameters document.

2.1.1 Eligible Pools

Any pool ownership structure is eligible under this methodology, including commercial, residential or municipal pools. To be eligible all pools must:

- Use fossil fuels to provide heating to the pool. Please note that for any pool that was heated in the baseline using anything other than natural gas, including supplemental heating sources, Reserve approval will be needed for the baseline assumptions, and a quantification model other than the SCG Model (which is approved for use upon adoption of this methodology) may also be needed. See Section 5.1 for guidance on use of the SCG Model.

³ The most current version of the Pool Cover Forecast Methodology Parameters file may be downloaded from <https://climateforward.org/program/methodologies/pool-covers/>.

- Not be using a pool cover prior to the project start date. This includes both not having pool covers or having pool covers that are in disrepair to the extent that the site owner no longer uses the pool covers and does not have funds available to pay either to repair the old pool covers or to purchase new pool covers. If the project pool has at any time in the past used pool covers, Reserve approval will be needed.
- Not have experienced a significant leak that resulted in additional heating of the pool beyond “business as usual.” If the pool experienced a significant leak that resulted in additional heating of water, Reserve approval will be needed.

Each pool must also pass the legal requirement test set out in Section 3.3.2.

2.1.2 Eligible Pool Covers

Any type of pool cover may be eligible under this methodology. Project proponents should submit details on pool covers to be included in a pool cover project to the Reserve for approval to use such pool covers prior to submitting the project. A list of eligible project devices, and/or reference documents outlining eligible pool covers, is contained in a separate Pool Cover Forecast Methodology Parameters document.⁴

Examples of current pool cover technologies that are likely to be eligible include polyethylene floating pool covers (solar bubble covers) and insulated floating vinyl pool covers. Uninsulated vinyl pool covers also reduce evaporative losses and are thus also eligible, however, currently they are expected to provide a reduced benefit compared to polyethylene pool covers due to lower insulation performance. Liquid pool covers are excluded from the eligible pool cover types.

2.1.3 Eligible Project Areas

A list of eligible project areas will be contained in a separate Pool Cover Forecast Methodology Parameters document. Project proponents may request the inclusion of additional eligible project areas by providing sufficient information to the Reserve to ensure additionality requirements and appropriate quantification methods exist for that area. See Section 3.3.1 for further guidance on requirements that must be met before an area will be accepted as an eligible project area. All parameter values, including eligible project areas, must be approved by the Reserve prior to project submittal.

2.2 The Project Proponent

The “project proponent” is an entity that has an active account on the Climate Forward registry, submits a project for listing and registration with Climate Forward, and is ultimately responsible for all project reporting and confirmation. In all cases, the project proponent must attest to the Reserve that they have exclusive claim to the GHG reductions resulting from the project. At the time a project is confirmed, the project proponent must attest that no other entities are reporting or claiming (e.g., for voluntary reporting or regulatory compliance purposes) the GHG reductions caused by the project (see Section 3.6).⁵ The Reserve will not issue credits for GHG reductions that are reported or claimed by entities other than the project proponent (e.g., implementation agents, householders receiving project devices, or others not designated as the project proponent).

⁴ The most current version of the Pool Cover Forecast Methodology Parameters file may be downloaded from <https://climateforward.org/program/methodologies/pool-covers/>.

⁵ A standard form for this attestation is available on the Climate Forward website at <https://climateforward.org/program/program-and-project-forms/>.

3 Eligibility Rules

Projects must fully satisfy the following eligibility rules in order to register with Climate Forward. The criteria only apply to projects that meet the definition of a GHG reduction project (Section 2.1).

Eligibility Rule I:	Location	→	Eligible locations are identified in the accompanying parameters document
Eligibility Rule II:	Start Date and Crediting Period	→	Submitted for listing no more than 12 months from installation of the last pool cover in the batch
		→	Crediting period defined by documented pool cover lifetime
Eligibility Rule III:	Additionality	→	Meet performance standard
		→	Exceed regulatory requirements
Eligibility Rule IV:	Environmental and Social Safeguards	→	No negative environmental and social impacts
Eligibility Rule V:	Regulatory Compliance	→	Compliance with all applicable laws
Eligibility Rule VI:	Ownership and Double Counting	→	Must not receive credits from more than one program, where GHG boundaries overlap
Eligibility Rule VII:	Project Resilience Measures	→	Project must address risks of failure to reach expectations

3.1 Location

Pool cover projects may be implemented at any eligible project area, as set out in Section 2.1.3. A list of eligible project areas is contained in a separate Pool Cover Forecast Methodology Parameters document⁶. The project proponent may propose additions or changes to the list of eligible project areas by demonstrating the reasonableness of such changes to the Reserve. Addition of a new, eligible region must be approved by the Reserve and reflected in an update to the Pool Cover Forecast Methodology Parameters document before a project located in that region may be listed.

3.2 Project Start Date and Crediting Period

The project start date is the date that the eligible pool cover becomes operational at the eligible pool. In the case of projects implementing batches of pool covers, the start date is the date that the first eligible pool cover becomes operational at a project pool. Under this methodology a batch can include pool covers of different make and model. A project may contain more than one batch (for example, if the project proponent groups covers of similar type or region into individual batches). The period of time over which project devices are distributed and installed is the implementation period. Pool cover projects, submitted as batches, must be submitted to

⁶ The most current version of the Pool Cover Forecast Methodology Parameters file may be downloaded from <https://climateforward.org/program/methodologies/pool-covers/>.

Climate Forward for listing no more than 12 months following the end of the implementation period.⁷ The initial confirmation activities cannot commence until the project is submitted and approved by the Reserve, and at least three months following the project start date.

Confirmation must conclude, and a Confirmation Statement must be issued, no later than two years after the project start date. Projects may always be submitted prior to the project start date. To be eligible for inclusion in a project, the pool cover at the installation site must be installed prior to the initiation of confirmation activities for that project.

Emission reductions for each project will be calculated as the sum of the forecasted total emission reductions realized by the project over the lifetime of the pool cover(s). The lifespan of each pool cover is a fixed parameter that must be demonstrated to the satisfaction of the Reserve prior to submittal of the project and will be fixed for the duration of the project. The lifetime of each pool cover will be set by reference from the manufacturer of that pool cover, as well as by reference to the warranty provided for that pool cover. The project proponent must provide documentation supporting the claimed crediting period and the life of the pool cover. This documentation must be verifiable and, along with all other parameters, must be accepted by the Reserve prior to project submittal. Documentation that may be used to support a claimed crediting period includes, but is not limited to, peer-reviewed literature, manufacturer warranties, and/or other contractual arrangements providing for continued maintenance and upkeep. The project proponent will be required to provide evidence of a manufacturer warranty period covering the duration of the claimed crediting period. The specific value of all parameters used in this method are contained in a separate Pool Cover Forecast Methodology Parameters document.

In cases where a project implements a batch of pool covers, the crediting period will span from the start date through to the final day that the last remaining pool cover comes to the end of its effective lifetime. To be eligible for inclusion in a batch, each pool cover must be implemented prior to the initiation of confirmation activities for that project. Confirmation activities for pool cover projects may commence immediately after the project proponent has completed all implementation activities.

3.3 Additionality

Climate Forward registers only projects that yield surplus GHG reductions that are additional to what would have occurred in the absence of the project.

Projects must satisfy the following tests to be considered additional:

1. The performance standard test
2. The legal requirement test

3.3.1 The Performance Standard Test

Projects pass the performance standard test by meeting a program-wide technology specific performance threshold – i.e., the installation of eligible pool covers on eligible pools located in eligible project areas. Before a location will be approved by the Reserve as an eligible project area, the project proponent must submit sufficient documentation to the Reserve to demonstrate that the installation of pool covers is not already common practice in that area. The performance standard threshold represents “better than business as usual” energy consumption. If the

⁷ Projects are considered submitted when the project proponent has fully completed and filed the appropriate Project Submittal form, available at <https://climateforward.org/program/program-and-project-forms/>.

project meets the threshold, then it exceeds what would happen under the business-as-usual scenario and generates additional GHG reductions. The performance standard test is applied at the time of the project's start date. All projects that pass this test at the project's start date are eligible to register reductions with Climate Forward for the duration of the project's crediting period. The Pool Cover Forecast Methodology Parameters document⁸ includes a list of eligible areas for which it has been demonstrated to the satisfaction of the Reserve that the performance standard has been met, as well as reference materials used to demonstrate additionality, and the specific parameters and emission factors for such regions.

3.3.2 The Legal Requirement Test

All projects are subject to a legal requirement test to ensure that the GHG reductions achieved by a project would not otherwise have occurred due to any law (including any rules, regulations, or other legally binding mandates) issued by any authority with jurisdiction over the project. A project passes the legal requirement test when there are no such legal requirements compelling implementation of project activities. The project proponent must also demonstrate that the project was not established or implemented and was not at any time prior to the start date operated, in anticipation of, or to avoid or satisfy the anticipated requirements of any law.

The legal requirement test is applied at the time of a project's start date. To satisfy the legal requirement test, project proponents must submit a signed Attestation of Legal Additionality form prior to the commencement of confirmation activities. In addition to the attestation, the Project Implementation Report must include procedures that the project proponent will follow to ascertain and demonstrate that the project passes the legal requirement test. All projects that pass this test at the project's start date are eligible to register reductions with Climate Forward for the duration of the crediting period, even if legal requirements change or new legal requirements are enacted during that period.

Though it is anticipated to be uncommon, some jurisdictions may have legal mandates on the installation of pool covers. For instance, California's Title 24, Part 6 Building Energy Efficiency Standards ("Title 24"), Section 110.4, Article B.2 mandates outdoor pools with heat pumps or gas heaters to install pool covers during usage for new pools and major modifications to existing pools.⁹ Thus, for a project implemented in California to pass the legal requirement test, the pool would have to have been built prior to (and the pool or associated building must have not been subject to major modification since) the date this mandate in Title 24 first went into effect in 1992.¹⁰

The project proponent should include documentation to justify that the project passes the legal requirement test. The confirmation body must confirm the Attestation of Legal Additionality by reviewing evidence provided by the project proponent, and any other evidence they feel is necessary such as literature reviews, independent expert testimony, or letters from relevant government agency representatives, or other means.

3.4 Environmental and Social Safeguards

Project proponents must attest that the project will not materially undermine progress on environmental issues such as air and water quality, endangered species and natural resource protection, and environmental justice, or violate any legal requirements.

⁸ The most current version of the Pool Cover Forecast Methodology Parameters file may be downloaded from <https://climateforward.org/program/methodologies/pool-covers/>.

⁹ Available at <https://www.energy.ca.gov/title24/2019standards/index.html>.

¹⁰ *Ibid.*

Project proponents must provide applicable authorizations, permits, and certifications from the appropriate authorities required for project operations to the confirmation body at the commencement of confirmation activities. Given the environmentally non-intensive nature of pool cover installations, it is not anticipated that pool cover projects will have any appreciable impact on environmentally or socially sensitive subjects. Projects with the proper permits, certifications, and regulatory approvals for the installation of the pool covers will be deemed in conformance with the environmental and social safeguard requirements of this section.

The Reserve also encourages the project proponent to include information in the Project Implementation Report regarding any non-GHG benefits of the project activities to the environment or society. This may include discussion of how the project aligns with the United Nations' Sustainable Development Goals,¹¹ as well as additional quantification of any non-GHG benefits (such quantification is not specified by this methodology).

3.5 Regulatory Compliance

The project proponent must attest that no laws have been broken in the implementation of each project and provide an assessment of any aspects of the project which may present a risk of future regulatory violations. Where such risks are identified, the project proponent shall describe measures undertaken to reduce and/or mitigate these risks. The confirmation body shall endeavor to confirm that the project implementation did not result in any regulatory noncompliance, and also that the measures implemented to ensure no future violations occur, are appropriate in the circumstances of that particular project.

3.6 Ownership and Double Counting

The project proponent must attest that the project is not being submitted for emission reductions credit under any other carbon crediting program, worldwide. By signing the Attestation of Title, the project proponent attests that the FMUs have not and will not be registered with, reported in, held, transferred or retired via any emissions registry or inventory other than the Climate Forward registry, or registered with Climate Forward under a different project title or location. The project proponent must provide a signed Attestation of Title document for each project, attesting to their ownership of all emission reductions generated by the project. This signed attestation, and any necessary supporting evidence, must be provided to the confirmation body. In addition to the Attestation of Title, confirmation bodies may wish to review relevant contracts, agreements, and/or supporting documentation between project proponents, end users, utilities, and other parties that may have a claim to the FMUs generated by the project. That the project is not part of any other carbon crediting project or program shall be confirmed by reviewing public sources of data made available by carbon crediting programs.

3.7 Project Resilience Measures

Project proponents must submit evidence of Project Resilience Measures. Evidence of Project Resilience Measures can include the following:

1. Utility bills indicating a financial incentive to continue operation of the installed pool cover; or,
2. A contract for continued operation and/or maintenance of the pool covers, as necessary.

¹¹ Additional information regarding the Sustainable Development Goals may be found online at <https://sustainabledevelopment.un.org/>.

The project proponent will also provide evidence that the following activities have been completed by, and arrangements are in place with, the project implementing agent responsible for ongoing project management:

- Evidence of warranty coverage for the pool covers.
- Placing signage in the pool and maintenance areas. Signage describing the proper use of the covers will be placed near the pool. The signage will describe the proper use of the pool covers and the critical importance of covering the pool every night or when the pool is otherwise not in use.
- Conducting annual training for personnel responsible for maintaining the pool cover. The project proponent will cause for training to be conducted concurrent with the installation of the pool cover. Responsible personnel at each project site will be trained by the pool cover contractor on the proper use the cover and the importance of putting the cover on every night or when the pool is not otherwise in use. The project proponent will provide documentation to establishing that annual training will take place throughout the project crediting period, which will address the potential for turnover in personnel on-site.
- Distribution of training and maintenance procedures for the pool cover to responsible personnel. Upon the installation of the project, training, care, and maintenance procedure manuals will be distributed to each project site for use by personnel responsible for operating the pool covers.
- Confirming agreement from site owner. Each site owner will sign an agreement to confirm that he or she has received the pool cover and related equipment, the equipment has been installed, and staff has undergone training to use the equipment. In addition, the owner will agree that the pool staff will abide by these resilience measures and will participate in the annual refresher trainings, that staff will install signage as described above, and that staff will contact the pool cover supplier if experiencing any problems with the use of the pool equipment. Moreover, the owner will agree to cooperate with the project proponent, the Reserve, and the confirmation body to quantify, confirm, issue or monitor environmental attributes that may result from the pool cover project.

See Section 8.3 for guidance on confirmation requirements pertaining to Project Resilience Measures, including site visit requirements.

3.8 Market Expansion Objective

This methodology encourages actions leading to GHG reductions that are generally not feasible under existing GHG crediting or incentive programs. The project proponent should include language in the Project Implementation Report which provides rationale to support their decision to pursue the registration of FMUs for the project emission reductions, rather than CRTs (or any other form of *ex post* offset credit). At this time, the Reserve does not issue CRTs through its offsets program for energy efficiency projects and is not aware of any other program through which a project proponent could readily generate GHG offset credits for pool cover projects.

3.9 Demonstration of *Ex Ante* Suitability

This methodology is suitable for *ex ante* crediting, as it provides for the complete, consistent, transparent, accurate, and conservative estimation of emission reductions from the project

activities, while providing sufficient safeguards to ensure the activities continue for the duration of the crediting period. Specific safeguards to ensure projected emission reductions are realized throughout the crediting period include Section 3.7, Project Resilience Measures, the guidance in Section 5.4 on Estimating Performance Decline, and Section 5.5, Estimating Abandonment Rates.

For pool cover projects, the financial barrier is entirely up front, reflecting the cost to purchase and install a pool cover. Due to warranty contracts, there are limited, if any, ongoing costs during the lifetime of the pool cover. Thus, the timing of the financial incentive provided by FMUs corresponds to the relevant financial barrier. Following installation, the barrier to GHG reductions from pool covers is behavioral (i.e., ensuring the cover is actually used), which is addressed through the Project Resilience Measures.

4 The GHG Assessment Boundary

The GHG Assessment Boundary delineates the GHG sources, sinks, and reservoirs (SSRs) that shall be assessed by project proponents in order to determine the total net change in GHG emissions caused by installing a pool cover. This methodology's assessment boundary captures sources from utility emissions due to the project's installation.

Pool covers are assumed to be a zero-emissions device. Therefore, the only GHG SSRs are from reduced GHG emissions due to a lower load on the natural gas-fired pool heaters. All CO₂ emissions associated with this project are anthropogenic (as opposed to biogenic).

Figure 4.1 below provides a general illustration of the GHG Assessment Boundary, indicating which SSRs are included and excluded from the project boundary. Only SSR 1 is within the GHG Assessment Boundary under this methodology. Table 4.1 provides a comprehensive list of the SSRs relevant to pool cover projects, and their reasons for inclusion or exclusion in the project boundary.

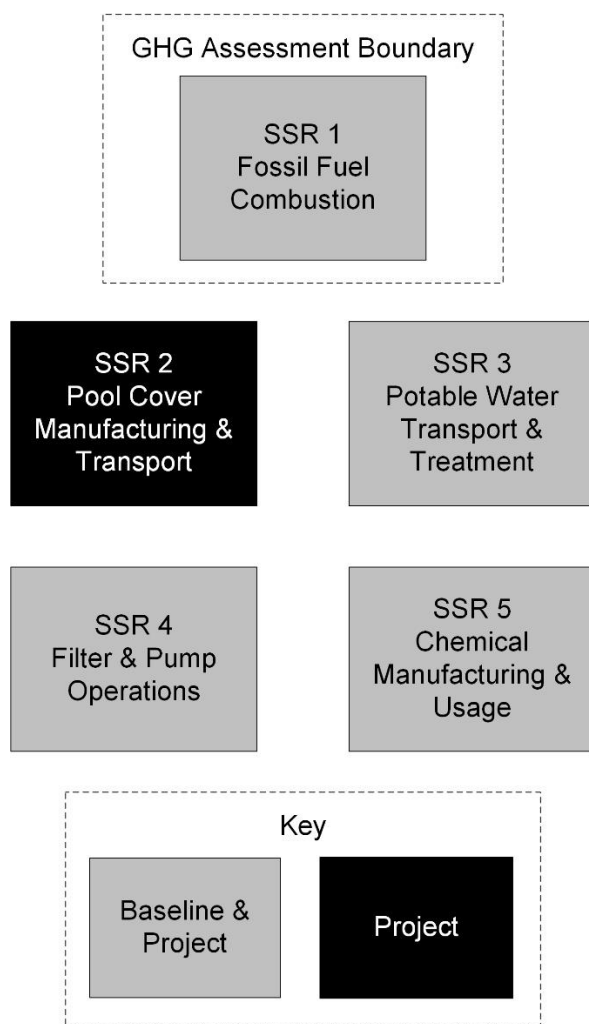


Figure 4.1. General Illustration of the GHG Assessment Boundary

Table 4.1. Description of all Sources, Sinks, and Reservoirs

SSR	GHG Source	Gas	Relevant to Baseline (B) or Project (P)	Included or Excluded	Justification/Explanation
1	Emissions from fossil fuel powered pool heater	CO ₂	B, P	Included	Primary source of emissions from project activities.
		CH ₄	B, P	Excluded	This exclusion is conservative as emissions will decrease from the baseline scenario but limited data is available to estimate emissions.
		N ₂ O			
2	Pool cover manufacturing/transport	CO ₂	P	Excluded	Emission source is assumed to be very small.
		CH ₄			
		N ₂ O			
3	Indirect electricity emissions reductions from the reduction in potable water transport and treatment	CO ₂	B, P	Excluded	While there are benefits from this source, it is conservatively excluded in this methodology.
		CH ₄			
		N ₂ O			
4	Filter and pump emissions reductions from reduced clogging potential of filters due to pool covers preventing dirt and debris from entering pool	CO ₂	B, P	Excluded	While there are benefits from this source, it is conservatively excluded in this methodology.
		CH ₄			
		N ₂ O			
5	Chemical manufacturing and direct emissions reductions from the reduced chemical usage needed due to water loss	CO ₂	B, P	Excluded	While there are benefits from this source, it is conservatively excluded in this methodology.
		CH ₄			
		N ₂ O			

5 Quantifying GHG Emission Reductions

GHG emission reductions from a pool cover project are quantified by comparing actual project emissions to baseline emissions at the project. Baseline emissions are an estimate of the GHG emissions from sources within the GHG Assessment Boundary that would have occurred in the absence of the pool cover project. Project emissions are GHG emissions that are expected to occur at sources within the GHG Assessment Boundary during the crediting period. Project emissions will be subtracted from the baseline emissions to quantify the project's total net GHG emission reductions.

For the purposes of calculation, both baseline emissions and project emissions are quantified using annual models. Only models approved by the Reserve and listed in the Pool Cover Forecast Methodology Parameters document, can be used to quantify emission reductions under this methodology. As with all parameters, project proponents may propose alternative quantification models or parameter values to the Reserve, and such methods and values must be approved by the Reserve prior to submittal of each project that proposes to use such alternatives. FMUs will be awarded on an *ex ante* basis based on application of this methodology and confirmation of project implementation.

The first model approved for use under this methodology is Southern California Gas Company's Pool Cover and Pool Heater Energy Savings Tool (SCG model), which was developed by ICF International, Inc. based on first principals of thermodynamics, heat and mass transfer. Guidance on the use of this model is set out in Section 5.1 below.

Equation 5.1. GHG Emission Reductions

$$ER = \sum_{p,j,y} BE_{p,j,y} - PE_{p,j,y}$$

Where,

ER	= Total forecasted emission reductions	tCO ₂ e
$BE_{p,j,y}$	= Baseline emissions for pool p in batch j during year y	tCO ₂ e
$PE_{p,j,y}$	= Project emissions for pool p in batch j during year y	tCO ₂ e
j	= Index for each batch in the pool cover project	
p	= Index for each individual pool cover in the batch j	
y	= Index for each individual year in the lifetime of the pool cover p	

5.1 SCG Model Methodology

The SCG model calculates baseline energy use, project energy use, and energy savings. This model is based on first principles of thermodynamics, heat and mass transfer. Several heat transfer mechanisms are internal to the model including radiative heating and cooling, evaporative water mass and temperature changes, conduction of heat into the ground through the pool walls, and convective heat losses from surface winds.

Key parameters used in the SCG model include those listed in the Table 5.1 below. Project proponents should only input values for these parameters, and no others. Where parameter

values change during the crediting period, for instance across the seasons, the project proponent should provide a table of parameter values used for each such period, clearly setting out the period of time for which such values are used. Emission reductions should be calculated separately for each such period and summed together to calculate the total emission reductions.

The project proponent should calculate emission reductions over at least one full year, in order to capture any changes in parameter values (such as operating hours) over the course of the full year. Project proponents should save a copy of the tool, capturing the parameter values used, and provide that copy to their confirmation body. For each value in the tool that the project proponent entered values, either choosing them from operating records, or tool default drop down menus, the project proponent should provide a table of each such values and explain why the value they chose was appropriate. Guidance on how to use the tool, and how to set appropriate tool input parameter values is found in the tool itself, and in a working paper which can be obtain upon request from the Reserve.¹² Project-specific values should be used wherever appropriate; however, in the absence of such data, it will be presumed that the use of defaults provided by the tool is reasonable, unless evidence suggests otherwise. Confirmation bodies should ensure project-specific values are supported by data and/or local conditions, and that the use of any defaults provided in the tool are not unreasonable in the circumstances.

Table 5.1. SCG Model Input Parameters

Parameter	User Input or Model Default	Guidance
Pool type	Select appropriate model default	The project proponent must select the user type (e.g., school, competition pool, etc.), as well as the size of the pool.
Pool depth	User input, or use values recommended in tool	Per guidance in the workpaper, this value should be set based on the pool depth and surface area. A default value for pool depth is provided in the tool, based on the pool type selected by the user.
Desired heating temperature	User input, or use values recommended in tool	If temperature is set by organizational requirement, provide documentation to demonstrate this, including any changes over seasons. Otherwise use model default or advise confirmation body why chosen temperature is appropriate.
Climate zone	Select appropriate model default	The project proponent must select one of the 16 climate zones available in the model, that best corresponds to their area, and provide evidence to demonstrate to the confirmation body why the selected climate zone is appropriate. Note that a separate Excel document is provided with the tool, which provides climate zones per zip code.
Pool operating hours	User input, or use values recommended in tool	If standard operating hours are used, as well as any seasonal changes, then documentary evidence of those should be provided to the confirmation body.
Pool heater	User input	Must be characterized based on its heating capacity and thermal efficiency, and operating season if the heater is not used for all dates that the pool is open. The tool provides guidance on how to set these values.
Pool cover	Select appropriate model default	Choose appropriate default from drop down menu, that best matches the pool covers used.

¹² The SCG tool and associated guidance will be made available upon request to the Reserve.

Parameter	User Input or Model Default	Guidance
Wind shielding factor	User input	The wind shielding factor, F_w , is used to adjust the airport wind speed to the poolside wind speed for calculating heat loss and evaporation rate. The wind shielding factor accounts for fences, buildings, and hedges which screen the pool from the wind. A pool surrounded by a wide flat open area, especially in the direction of the prevailing wind, has a wind shielding factor of 0%. A pool that is totally protected from the wind has a wind shielding factor of 100%. The wind shielding factor is assumed to be constant all year. The wind shielding factor is used to calculate the wind speed ratio, which is the ratio of the poolside wind speed to the wind speed measured at the local airport weather station.
Solar shading factor	User input	The solar shading factor, F_s , is used to account for anything that shades the pool from the sun as it arcs across the sky. The solar shading factor is the average percentage of the pool that is shaded from the sun. A pool fully exposed to the sun has a solar shading factor of 0%. Fully shaded pool has a solar shading factor of 100% (e.g., due to the presence of a large awning or a tall building to the south). The solar shading factor is assumed to be constant all year.

5.2 Modeling Baseline Emissions

For purposes of estimating project emission reductions, it is assumed that in the absence of the GHG mitigation project, the baseline scenario would be the continued operations of a pool without a cover, coupled with the use of a fossil fuel (e.g., natural gas) powered pool heater. As described in Section 2.1.1, eligible pools cannot currently use an existing cover and must be heated with fossil fuels. As described further below, each pool will be modeled separately to incorporate its assumed baseline factors, including hours of operation and type of cover to be installed. For each pool in the project, the value of model input parameters may differ across seasons. In such cases each period for which such values are different will need to be modelled separately, and the resulting emission reductions summed for the entire crediting period. The SCF model estimates relevant factors for each month of the calendar year, and then sums them together for the year.

Fossil fuel usage in pool heaters in the baseline and project scenarios will be determined using a model approved by the Reserve to calculate the energy requirement in order to maintain the pool's desired temperature over the course of a year. Energy savings will be converted to emission reductions by using emission factors for the relevant fossil fuel used. The value for all emission factors, including for fossil fuel combustion, must be approved by the Reserve and will be listed in the Pool Cover Forecast Methodology Parameters document.¹³

Baseline emissions of each project will be calculated using annual energy consumption estimates generated by the relevant, approved model (i.e., baseline energy usage, BU) as described above and fossil fuel emission factors. This calculation is summarized in Equation 5.2.

¹³ The latest version of the Pool Cover Forecast Methodology Parameters document is available at <https://climateforward.org/program/methodologies/pool-covers/>.

Equation 5.2. Baseline GHG Emissions

$$BE_{p,j,y} = BU_{p,j,y} \times EF \times L_p$$

Where,		Units
$BE_{p,j,y}$	= Baseline emissions for pool p in batch j during year y	tCO ₂ e
$BU_{p,j,y}$	= Modeled baseline energy usage for pool p in batch j during year y	MMBtu/year
EF	= Emission factor for fossil fuel combustion	tCO ₂ e/MMBtu
L_p	= Pool cover lifetime for pool p	years

GHG emission savings are calculated by first calculating energy saved per pool cover during any given year using a model approved by the Reserve (such as the SCG Model), and then multiplying that volume of energy by the relevant fossil fuel emission factor provided in the Pool Cover Forecast Methodology Parameters document, as demonstrated in Equation 5.2. The value to be used for the pool cover lifetime (L) must be approved by the Reserve prior to project submittal and will be set for each individual pool in the project, based on appropriate documentation¹⁴.

5.3 Modeling Project GHG Emissions

The project scenario is that of a pool with an installed pool cover that reduces evaporation of water from the pool surface and thermally insulates the pool, thereby saving both water and heating energy. Forecasted emission reductions correspond to the fuel savings from the reduced heating load on the fossil fuel powered pool heaters. The project scenario includes the use of a new pool cover on a pool that was previously operated without a pool cover.

Projected reductions in GHG emissions will be calculated by evaluating the calculated fossil fuel use of a heated pool with no pool cover in comparison to the same pool with a pool cover over the project lifetime. The reduction in fossil fuel use will be converted to emission reductions using a standard emission factor for the relevant fossil fuel, as shown in Equation 5.3.

Equation 5.3. Project GHG Emissions

$$PE_{p,j,y} = PU_{p,j,y} \times (1 - (DF_p + NCF_p)) \times EF_f \times L_p$$

Where,		Units
$PE_{p,j,y}$	= Project emissions for pool p in batch j during year y	tCO ₂ e
$PU_{p,j,y}$	= Project energy usage for pool p in batch j during year y	MMBtu/year
EF_f	= Emission factor for the combustion of fossil fuel f	tCO ₂ e/MMBtu
L_p	= Pool cover lifetime for pool p	years
DF_p	= Deterioration factor for specific pool cover model p	percentage
NCF_p	= Non-compliance factor for specific pool cover model p	percentage

¹⁴ See Table 6.1 for guidance on how to set this value.

5.4 Estimating Performance Decline

The current pool cover technology is such that performance is not anticipated to significantly decline over the crediting period because of how the pool cover functions. The dominant mechanism by which pool covers save energy in California climates is by preventing evaporation; therefore, as long as the pool surface area remains covered based on the scheduled hours of operation, the energy benefit will remain constant over time regardless of minor pool cover degradation. Nevertheless, the SCG Model includes numerous properties of the pool cover such as reflectance, transmittance, absorptance, insulation R-value, surface area percent covered, and “pool cover effectiveness” (ability to prevent evaporation, identified as 100%).

The SCG Model does not incorporate an aging factor to account for any potential loss of effectiveness of the pool cover over time based on how the current pool cover technology functions. However, to be conservative, a pool cover discount factor was developed. Pool cover deterioration could occur over time from sun damage; however, this is not expected to significantly reduce the efficiency of the pool cover. Significant damage to the pool cover, such as a major tear, would lead to loss of effectiveness; however, this would be expected to occur at the end of the life of the pool cover and lead to replacement.

Project proponents must estimate the number of pool cover replacements that are anticipated to occur per 10,000 pool covers installed, as well as the estimated time it will take for manufacturers to replaced damaged pool covers. Documentary evidence must be submitted to the Reserve in support of this discount, and the Reserve must approve this discount value, prior to project submittal.

A deterioration factor will be applied to account for pool cover deterioration, as calculated in Equation 5.4 below.

Equation 5.4. Deterioration Factor

$DF_p = \frac{RR_p}{10,000} \times \frac{Rt_p}{12}$		
Where,		
DF_p	= Deterioration factor, for specific pool cover model p	Units %
RR_p	= Number of pool covers expected to require major repairs or replacement, for specific pool cover model p	number
Rt_p	= Time required for manufacture to replace pool cover, for specific pool cover model p	months
10,000	= Number of pool covers over which percentage deterioration rate is calculated	number
12	= Months in a year	months

5.5 Estimating Abandonment Rates

Non-compliance for proper operation and maintenance of pool covers is expected to be low, particularly for pools with dedicated staff who are trained in pool cover operation; however, it is assumed there will be some non-compliance (e.g., nights where the pool cover is not properly installed). The required Project Resilience Measures, such as annual training, are expected to minimize non-compliance. There may also be days the pool cover is left on for longer periods of

time than modeled. Non-compliance may occur in circumstances of high winds. Knorr Systems has noted that in the worst-case pool configuration, 20 to 25 miles per hour (mph) might be the threshold to cause some bunching or cover overlap in the absence of anchors or wind edging, while wind speeds greater than 45 mph could blow the covers off the pool. The SCG model does account for these kinds of high wind events by exclusion of savings for those hours with high winds based on meteorological data.

A specific value to account for non-compliance must be approved by the Reserve prior to commencement of confirmation activities. Where possible this value must be based on data captured during the confirmation period. Where such data are not available, the project proponent may propose a value based on the use of available survey data, a literature review, or another, similar source approved by the Reserve. In the absence of specific, robust data on the sustained, appropriate use of pool covers, an estimated discount factor may be approved by the Reserve. The value of this discount factor will be approved by the Reserve and listed in the Pool Cover Forecast Methodology Parameters document.

Equation 5.5. Non-Compliance Factor

$NCF_p = \frac{NCD_p}{365}$		
Where,		
NCF_p	= Non-compliance factor, for pool cover model p	<u>Units</u> %
NCD_p	= Estimated number of days each year that pool covers not used properly, for pool cover model p	days
365	= Number of days in a year	days

5.6 Leakage Accounting

This methodology is not expected to cause an increased use of fossil fuels to heat pools not included in the project, or the increased use of fossil fuel emissions elsewhere at pool sites (something that may be referred to as “leakage”) as a result of project activities. Thus, the methodology does not need to account for increased emissions associated with leakage.

6 Project Implementation and Monitoring

Climate Forward requires a Project Implementation Report to be established for all monitoring and reporting activities associated with the project. The Project Implementation Report will serve as the basis for the confirmation body to confirm that the monitoring and reporting requirements in this methodology have been met. The Project Implementation Report must cover all aspects of monitoring and reporting contained in this methodology and must specify how data for all relevant parameters will be collected and recorded.

At a minimum, the Project Implementation Report shall include the frequency of data acquisition, parameter values, a record keeping plan, and the role of individuals performing each specific monitoring activity. The Project Implementation Report must also include procedures that the project proponent has followed to ascertain and demonstrate that the project passes the legal requirement test and is in regulatory compliance.

Project proponents are responsible for ensuring that all monitoring and reporting requirements of this methodology have been met.

6.1 Quantification Parameters

Prescribed monitoring parameters necessary to calculate baseline and project emissions are provided in Table 6.1. The value for all parameters used in this methodology can be found in the Pool Cover Forecast Methodology Parameters document.¹⁵ The value for all parameters must be approved by the Reserve before a project can be listed. Users should consult with the Reserve to ensure they are using the most up to date version of the parameters document.

Confirmation bodies must confirm the correct parameter values (as published in the most recent version of the Pool Cover Forecast Methodology Parameters document) have been used, however the Confirmation body will not need to review materials provided in support of the use of such parameters (i.e., reference documents).

Note that the use of parameters not listed in Table 6.1 below may be necessary if projects are not using the SCG Model for projects in California.

¹⁵ The most current version of the Pool Cover Forecast Methodology Parameters file may be downloaded from <https://climateforward.org/program/methodologies/pool-covers/>.

Table 6.1. Project Monitoring Parameters

Parameter	Description	Data Unit	Calculated (c) Measured (m) Reference (r) Operating Records (o)	Comment
Pool depth	The depth of the pool	ft	r	SCG Model parameter.
Desired heating temperature	Temperature at which pool heater thermostat is set	degrees Celcius	o	SCG Model parameter. The tool assigns a default annual average temperature of 80 degrees; however, it also allows an option to change the temperature. The model suggests a range between 70-90 degrees.
Climate zone	Default model parameter providing climate data		r	SCG Model parameter. Project proponent should choose the California weather station closest to each pool location.
Pool operating hours	Number of hours which pool is used	hours	o	SCG Model parameter. Should be based on documented operational records or policy. Project proponent to enter summer / winter opening and closing times for the pool.
Pool heater	Type of heater characterized based on heating capacity and thermal efficiency	N/A	r	SCG Model parameter. Follow instructions set out in SCG model.
Pool cover	The specific type of material used to enclose the top of pools, in order to retain heat	N/A	o	SCG Model parameter. Choose default model pool cover type that best matches each pool cover used in project.
<i>ER</i>	Emission reductions	tCO ₂ e	c	Total projected emission reductions for the crediting period.
<i>BE</i>	Baseline annual emissions	tCO ₂ e	c	Total emissions that would have occurred during the calendar year, under baseline conditions.
<i>BU</i>	Baseline energy usage	MMBtu / year	o	Energy usage for a given year, under baseline conditions.
<i>EF</i>	Emission factor for fossil fuel consumption	tCO ₂ e / MMBtu	r	Default emission factors will be provided in the Pool Cover Forecast Methodology Parameters document.
<i>L</i>	Pool cover lifetime	years	r	Pool cover efficacy is not expected to decline until the end of life (e.g., when a cover may experience large tears that render it ineffective at preventing evaporation). Thus, the pool cover lifetime is expected to be consistent with the warranty period for that particular pool cover.

Parameter	Description	Data Unit	Calculated (c) Measured (m) Reference (r) Operating Records (o)	Comment
<i>PE</i>	Project annual emissions	tCO ₂ e	c	Total emissions that would have occurred during a given calendar year, under project conditions.
<i>PU</i>	Project energy usage	MMBtu / year	o	Energy usage for a given year, under project conditions.
<i>DF</i>	Deterioration factor	%	o / c	Conservative discount applied to forecasted emission reductions, to account for pool cover deterioration, and loss of efficiency, during the crediting period.
<i>NCF</i>	Non-compliance factor	%	o / c	Conservative discount applied to forecasted emission reductions to account for improper use and operation of the pool covers during the crediting period.
<i>NCD</i>	Non-compliance days	days	o	Estimated number of days each the pool cover is not used properly.
<i>RR</i>	Number of pool covers expected to require major repairs or replacement	number	o	Value should be set based on manufacturer guidance and/or literature review.
<i>Rt</i>	Time required for manufacturer to replace pool cover	months	o	Based on manufacturer records, this value reflects the average time it takes the manufacturer to replace each specific type of pool cover(s) used in the project.

6.2 Voluntary Ongoing Monitoring Incentive

Each Climate Forward methodology is designed to ensure the quantification of emission reductions over the crediting period is conservative. It may be possible to have additional FMUs issued following *ex post* verification, using data collected by the project through ongoing monitoring of parameters relevant to the quantification methodology. For this methodology, *ex ante* risk related to performance decline and project abandonment rates during the full crediting period are accounted for in Section 5.4 and Section 5.5, respectively. In order to conduct a successful *ex post* project verification, and generate additional FMUs from the pool cover project, the project proponent shall conduct ongoing monitoring of all relevant project parameters, as well as actual energy usage data. It is anticipated that ongoing monitoring may not be able to conclusively demonstrate what actual abandonment rates (defined as improper use and/or maintenance, rather than complete removal) were over the crediting period, but perhaps it will be easier to demonstrate actual performance rates (in terms of the number of project pool covers that were replaced, and the time it took for replacement covers to be implemented at project sites). If data from each year of the crediting period are submitted in a

Project Monitoring Report, and successfully verified by an approved third-party, the Reserve may approve the issuance of additional FMUs. A site visit is required during *ex post* verification.

7 Reporting and Record Keeping

This section provides requirements and guidance on reporting rules and procedures. A priority of Climate Forward is to facilitate consistent and transparent information disclosure among project proponents. Project proponents must submit an emission reduction report as part of the Project Implementation Report to Climate Forward.

7.1 Project Submittal and Confirmation Documentation

List below the documents required for project listing and confirmation with Climate Forward.

- Project Submittal form
- Signed Attestation of Title form
- Signed Attestation of Legal Additionality form
- Signed Attestation of Regulatory Compliance form
- Project Implementation Report
- Confirmation Report
- Confirmation Statement
- A copy of the SCG model with input values used to calculate emission reductions for the project

At a minimum, the above project documentation will be available to the public via the Climate Forward online registry. Further disclosure and other documentation may be made available on a voluntary basis through the Climate Forward registry.¹⁶

7.2 Record Keeping

For purposes of independent confirmation and historical documentation, project proponents are required to keep all information outlined in this methodology for a period of seven years after the information is generated. This information will not be publicly available, but may be requested by the confirmation body or the Reserve. Records must be kept in both hard copy and digital format, where possible.

Examples of information the project proponent must retain includes:

- All data inputs for the calculation of the project emission reductions, including all required sampled data
- Tables of all SCG model inputs, for each project, for each distinct period for which such values were used (i.e., if any parameter values change across seasons, a separate table for each set of values must be provided), as well as a copy of the tool with parameter values used for calculating emission reductions, and justification for each parameter value used
- Copies of all permits, formal notices of regulatory violations, and any relevant administrative or legal orders dating back at least 3 years prior to the implementation of the first project device
- Executed Attestation of Title, Attestation of Regulatory Compliance, and Attestation of Legal Additionality forms
- Results of emission reduction calculations
- Confirmation records and results

¹⁶ Climate Forward documents and forms are available at <https://climateforward.org/program/program-and-project-forms/>.

- All evidence relating to continued implementation

Climate Forward also requires that the following project-related records be retained by the confirmation body for a minimum of seven years after completing confirmation activities. It must be noted that some records may be subject to fiscal or other legal requirements that are longer than Climate Forward's mandated period.

Confirmation bodies shall retain electronic copies, as applicable, of:

- The Project Implementation Report
- The project proponent's SSR and/or project activity data as well as evidence cited
- The confirmation plan
- The sampling plan
- The Confirmation Report
- The List of Findings
- The Confirmation Statement

Each confirmation body must have an easily accessible record-keeping system, preferably electronic, that provides readily available access to project information. Copies of the original activity and source data records shall be maintained within said record-keeping system. Records must be kept in both hard copy and digital format, where possible. The Reserve may at any time request access to the record-keeping system or any supporting documentation for oversight or auditing purposes.

7.3 Reporting and Confirmation Period

Project proponents must report forecasted GHG reductions from the project for the entire crediting period. The confirmation period is the period of time over which forecasted GHG reductions are confirmed. The confirmation period begins with the project start date and ends with the submission of the final Confirmation Report to Climate Forward. The end date of any confirmation period may not extend past the project crediting period end date.

7.3.1 Initial Project Confirmation

Initial confirmation activities cannot commence until the project is submitted by the project proponent and approved by the Reserve, and at least three months following the project start date. Confirmation must conclude, and a Confirmation Statement must be issued, no later than two calendar years after the project start date. Successful confirmation fixes the start and end dates of the project crediting period for the duration of the mitigation project and any future confirmations.

7.4 Ex Post Verification

Ex post issuance may be possible for pool cover projects if data from each year of the crediting period are submitted in a Project Monitoring Report and verified at the conclusion of the crediting period. A site visit is required during *ex post* verification. At this time, this methodology does not prescribe detailed *ex post* verification procedures, so guidance must be sought from the Reserve prior to the commencement of *ex post* verification.

8 Confirmation Guidance

This section provides confirmation bodies with guidance on confirming GHG emission reductions associated with the project activity. This confirmation guidance supplements the Climate Forward Confirmation Manual and describes confirmation activities specifically related to this methodology.

Confirmation bodies trained to confirm a given methodology type must be familiar with the following documents:

- Climate Forward Program Manual
- Climate Forward Confirmation Manual
- Pool Cover Forecast Methodology (this document)

The Climate Forward Program Manual, Climate Forward Confirmation Manual, and Climate Forward methodologies are designed to be compatible with each other and are posted on the Climate Forward website at <http://www.climateforward.org>.

Only confirmation bodies trained and accredited by the Reserve are eligible to confirm project reports. Information about confirmation body accreditation and Climate Forward project confirmation training can be found on the Climate Forward website at <http://www.climateforward.org/program/confirmation/>.

8.1 Standard of Confirmation

While there is no requirement for *ex post* verification of this project under Climate Forward, there is a requirement for an accredited confirmation body to confirm the project has been implemented as described in the forecast methodology and that the estimated emission reductions or removals have been calculated accurately. The confirmation incorporates both a desktop documentation review and a site visit assessment of the mitigation project.

Beyond criteria for the confirmation of mitigation project implementation, the confirmation body also confirms any provisions specified in the forecast methodology that are to be undertaken to ensure the continued implementation of the mitigation project for the duration of its crediting period. The confirmation body assesses whether such measures have been appropriately implemented.

8.2 Project Implementation Report

The Project Implementation Report serves as the basis for confirmation bodies to confirm that the monitoring and reporting requirements have been met. Confirmation bodies shall confirm that the Project Implementation Report covers all aspects of monitoring and reporting contained in this methodology and specifies how data for all relevant parameters were collected and recorded.

When assessing the Project Implementation Report, the confirmation body shall:

- a) Assess the compliance of the Project Implementation Report with the requirements of the methodology, Climate Forward Program Manual, and Climate Forward Confirmation Manual;

- b) Identify the list of parameters required by the methodology and confirm that the Project Implementation Report accounted for all necessary parameters;
- c) Assess the means of implementation of the project data capture, including data management and quality assurance and quality control procedures, and determine whether these are sufficient to ensure the accuracy of forecasted GHG emission reductions to be achieved by the batch/project/program.

Where the project proponent has applied a sampling approach to determine data and parameters, the confirmation body shall assess the proposed sampling plan in accordance with sampling requirements in section 4.3.3 of ISO 14064-3.

8.3 Core Confirmation Activities

The Climate Forward Confirmation Manual describes the core confirmation activities that shall be performed by confirmation bodies for all project confirmations.

Confirmation is a risk assessment and data sampling effort designed to ensure that the risk of reporting error is assessed and addressed through appropriate sampling, testing, and review. The core confirmation activities are:

1. Reviewing GHG management systems and estimation methodologies
2. Confirming emission reduction estimates
3. Undertaking site visits
4. Confirming implementation of Project Resilience Measures

8.3.1 Reviewing GHG Management Systems and Estimation Methodologies

The confirmation body reviews and assesses the appropriateness of the methodologies and management systems that the project proponent uses to gather data and calculate baseline and project emissions.

8.3.2 Confirming Emission Reduction Estimates

The confirmation body further investigates areas that have the greatest potential for material misstatements and then confirms whether material misstatements have occurred. Include confirmation activities required to confirm emission reduction estimates such as independent recalculation.

8.3.3 Undertaking Site Visits

In addition to undertaking a desk review, confirmation bodies shall conduct one or more site visits. The specific itinerary for a site visit and the activities to be confirmed will be determined by the confirmation body, following an assessment of project risk. At a minimum, the implementation of Project Resilience Measures must be confirmed during site visits (where practical). This may include interviews with key staff involved in such activities and visually inspecting relevant measures onsite.

A combination of risk-based and random sampling will be used to determine which project services must receive a site visit. The sampling methodology for projects shall take place in two steps. Site visit sampling shall be informed in step one by a risk-based sampling approach and in step two by random sampling. Confirmation bodies should use professional judgement to identify any sites they deem must receive a site visit, based on their assessment of information

provided to them regarding those sites. For projects that consist of batches of multiple pools, a minimum number of pools will need to be visited. For batches with up to four pools, all pools will need to be visited. For batches of over four pools, at least four pools will need to be visited or 25% of the total number of project pool sites, whichever is greater. For batches of greater than four pools, pools to be subjected to a site visit must be chosen based on a risk assessment conducted by the confirmation body; if the minimum number of pools to be visited is still not met following this risk assessment, then additional pools must be chosen by the confirmation body using random sampling. In all cases, when determining the sample size for site visits, the confirmation body shall round up to the nearest whole number. Each confirmation report must contain a description of the sampling methodology, number of site visits, and justification for higher levels of sampling (e.g., due to higher levels of risk).

8.3.4 Confirming Implementation of Project Resilience Measures

The confirmation body reviews and assesses evidence provided to demonstrate each of the Project Resilience Measures outlined in Section 3.7 have been appropriately implemented. This may include reviewing training and/or marketing materials, product manuals distributed to end-users, or reviewing budgets for training and/or materials, among other activities.

8.4 Confirmation Items

The confirmation body needs to address a set of items for each methodology type. This can be displayed in a table that lists the item, references the section in the methodology where requirements are specified, and identifies if professional judgment needs to be applied during the confirmation activity.

Confirmation bodies are expected to use their professional judgment to confirm that methodology requirements have been met in instances where the methodology does not provide sufficiently prescriptive guidance. For more information on Climate Forward's confirmation process and professional judgment, please see the Climate Forward Confirmation Manual.

Note: The tables below shall not be viewed as a comprehensive list or plan for confirmation activities, but rather guidance on areas specific to pool cover projects that must be addressed during confirmation.

8.4.1 Project Eligibility and Credit Issuance

To determine that a project is eligible under a given forecast methodology, it must meet a set of criteria that a confirmation body shall confirm during the confirmation process. These requirements determine if a project is eligible to register with Climate Forward and/or have credits issued. If any requirement is not met, the project may be determined ineligible.

The following table lists the criteria for reasonable assurance with respect to eligibility and credit issuance for a given project.

Table 8.1. Eligibility Confirmation Items

Methodology Section	Eligibility Qualification Item	Apply Professional Judgment?
3.1	Location – confirm projects are located in <i>eligible project areas</i> as listed in the Pool Cover Forecast Methodology Parameters document	No

Methodology Section	Eligibility Qualification Item	Apply Professional Judgment?
3.2	Project start date – confirm the start date is appropriately chosen and that the project was submitted to Climate Forward within one year of the start date	Yes
3.2	Crediting period – confirm the crediting period is appropriate vis-à-vis the chosen pool cover and demonstrated warranty information	No
3.3.1	Additionality – performance standard test – confirm the project installed eligible pool covers	No
3.3.2	Additionality – legal requirement test – confirm a signed Attestation of Legal Additionality has been submitted for the project, and that the project passes the legal requirement test	No
3.4	Environmental and social safeguards – confirm the project is not expected to cause adverse environmental, social or economic impacts. Confirm appropriate mitigation measures are in place to guard against such risks	Yes
3.5	Confirm that the project activities comply with applicable laws by reviewing any instances of non-compliance provided by the project proponent and performing a risk-based assessment to confirm the statements made by the project proponent in the Attestation of Regulatory Compliance form	Yes
3.6	Confirm ownership of the reductions by reviewing Attestation of Title and associated documentation	No
3.6	Confirm no other GHG mitigation credits have been issued for the project, during the crediting period	No
3.7	Confirm Project Resilience Measures have been implemented as described, including during site visit	Yes

8.4.2 Quantification

Confirmation bodies shall include quantifications within the confirmation process such as recalculations and risk assessment. These quantification items inform any determination as to whether there are material and/or immaterial misstatements in the project's GHG emission reduction calculations. If there are material misstatements, the calculations must be revised before FMUs are issued.

The following table lists the items that confirmation bodies shall include in their risk assessment and recalculation of the project's GHG emission reductions.

Table 8.2. Quantification Confirmation Items

Methodology Section	Quantification Item	Apply Professional Judgment?
4	Confirm that all SSRs in the GHG Assessment Boundary are accounted for	No
5.1	Confirm the SCG model has been used appropriately to model emission reductions	Yes
5.1	Confirm appropriate parameter values have been used	Yes
5.1	Confirm that distinct periods where parameter values differ have been modelled separately, and results aggregated	Yes
5.2	Confirm parameter values used in baseline emission calculations are correct	No

Methodology Section	Quantification Item	Apply Professional Judgment?
5.2, 5.3	Confirm emission reductions calculations are correct	No
5.3	Confirm parameter values used in project emission calculations are correct	No
5.4	Confirm performance decline was estimated appropriately	No
5.5	Confirm abandonment rates were estimated appropriately	No
5.6	Confirm <i>ex ante</i> risk pool contributions were aggregated correctly	No

In assessing the appropriateness of parameter values the confirmation body shall:

1. Confirm values published in the most recent version of the Pool Cover Forecast Methodology Parameters document were used.
2. Determine whether all data sources and assumptions are applied correctly and calculations are correct.

8.4.3 Risk Assessment

The table below provides items that confirmation bodies will review to guide and prioritize their assessment of data used in determining eligibility and quantifying GHG emission reductions.

Table 8.3. Risk Assessment Confirmation Items

Methodology Section	Item that Informs Risk Assessment	Apply Professional Judgment?
6	Confirm that the Project Implementation Report is sufficiently rigorous to support the requirements of the methodology and proper operation of the project	Yes
6	Confirm that the pool covers were installed as described	No
6	Confirm that the individual or team responsible for managing and reporting project activities are qualified to perform this function	Yes
6	Confirm that appropriate training was provided to personnel assigned to project related activities	Yes
7.2	Confirm that all required records have been retained by the project proponent	No

8.5 Completing Confirmation

The Climate Forward Confirmation Manual provides detailed information and instructions for confirmation bodies to finalize the confirmation process. It describes completing a Confirmation Report, preparing a Confirmation Statement, submitting the necessary documents to Climate Forward, and notifying the Reserve of the project's confirmed status.

9 Glossary of Terms

Accredited confirmation body	A confirmation firm approved by the Reserve to provide confirmation services for project proponents.
Additionality	Project activities that are above and beyond “business as usual” operation, exceed the baseline characterization, and are not mandated by regulation.
Anthropogenic emissions	GHG emissions resultant from human activity that are considered to be an unnatural component of the Carbon Cycle (i.e., fossil fuel destruction, de-forestation, etc.).
Batch	The implementation of the same activity at multiple sites over a finite period of time.
Biogenic CO ₂ emissions	CO ₂ emissions resulting from the destruction and/or aerobic decomposition of organic matter. Biogenic emissions are considered to be a natural part of the Carbon Cycle, as opposed to anthropogenic emissions.
Carbon dioxide (CO ₂)	The most common of the six primary greenhouse gases, consisting of a single carbon atom and two oxygen atoms.
CO ₂ equivalent (CO ₂ e)	The quantity of a given GHG multiplied by its total global warming potential. This is the standard unit for comparing the degree of warming which can be caused by different GHGs.
Confirmation	The process used to ensure that a given participant’s GHG emissions or emission reductions have met the minimum quality standard and complied with Climate Forward’s procedures and methodologies for calculating and reporting GHG emissions and emission reductions.
Confirmation body	An organization or company that has been ISO-accredited and approved by the Reserve to perform GHG confirmation activities for specific forecast methodologies.
Direct emissions	GHG emissions from sources that are owned or controlled by the reporting entity.
Emission factor (EF)	A unique value for determining an amount of a GHG emitted for a given quantity of activity data (e.g., metric tons of carbon dioxide emitted per barrel of fossil fuel burned).
Fossil fuel	A fuel, such as coal, oil, and natural gas, produced by the decomposition of ancient (fossilized) plants and animals.
Greenhouse gas (GHG)	Carbon dioxide (CO ₂), methane (CH ₄), nitrous oxide (N ₂ O), sulfur hexafluoride (SF ₆), hydrofluorocarbons (HFCs), or perfluorocarbons (PFCs).
GHG reservoir	A physical unit or component of the biosphere, geosphere, or hydrosphere with the capability to store or accumulate a GHG that has been removed from the atmosphere by a GHG sink or a GHG captured from a GHG source.
GHG sink	A physical unit or process that removes GHG from the atmosphere.
GHG source	A physical unit or process that releases GHG into the atmosphere.

Global Warming Potential (GWP)	The ratio of radiative forcing (degree of warming to the atmosphere) that would result from the emission of one unit of a given GHG compared to one unit of CO ₂ .
Indirect emissions	Reductions in GHG emissions that occur at a location other than where the reduction activity is implemented, and/or at sources not owned or controlled by project participants.
Metric ton (t, tonne)	A common international measurement for the quantity of GHG emissions, equivalent to about 2204.6 pounds or 1.1 short tons.
Project baseline	A “business as usual” GHG emission assessment against which GHG emission reductions from a specific GHG reduction activity are measured.
Project Implementation Report	A report prepared by the project proponent containing all data, calculations, and information necessary for the confirmation of the pool cover project and the issuance of <i>ex ante</i> FMUs.
Project Monitoring Report	A report prepared by the project proponent containing all monitoring data, calculations, and information necessary for the <i>ex post</i> verification of the pool cover project and the issuance of additional FMUs.
Project proponent	An entity that undertakes a GHG project, as identified in Section 2.1 of this methodology.
Project Resilience Measures	Activities tailored to the specific project that are undertaken to ensure the continuing implementation of the project for the duration of the crediting period.

10 References

Climate Forward Program Manual. Available at <https://climateforward.org/program/>.

Climate Forward Confirmation Manual. Available at <https://climateforward.org/program/>.

International Organization for Standardization, ISO 14064-2:2006 Greenhouse gases — Part 2: Specification with guidance at the project level for quantification, monitoring and reporting of greenhouse gas emission reductions or removal enhancements (2006).

World Resource Institute and World Business Counsel for Sustainable Development, Greenhouse Gas Protocol for Project Accounting (November 2005).

This methodology employs the use of a separate Pool Cover Forecast Methodology Parameters document, which contains information on specific values to be used for many parameters necessary for the estimation of emission reductions. References for the values used are provided within that parameters document.