

THE AMERICAN CARBON REGISTRY GREEN FINANCE IMPACT PROGRAM REQUIREMENTS

REQUIREMENTS FOR THE QUANTIFICATION,
REPORTING, AND REGISTRATION OF
ENVIRONMENTAL IMPACTS OF GREEN
FINANCE

VERSION 1.0

December 2021

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December 2021

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ABOUT AMERICAN CARBON REGISTRY® (ACR)

ACR is a scientific standards body for the creation of environmental assets. This includes tradable assets like carbon offset credits issued by ACR Environmental Markets, and the quantification of environmental attributes of financial instruments by ACR Capital Markets. We complement decades of expertise in the development of market-making standards and project measurement methodologies with operational expertise in the verification, registration, issuance, retirement, and reporting of environmental claims.

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ACRONYMS

ACR	American Carbon Registry
CO ₂ e	Carbon dioxide equivalent
CUSIP	Committee on Uniform Securities Identification Procedures
GBP	Green Bond Principles
GHG	Greenhouse gas
ICMA	International Capital Markets Association
ISIN	International Securities Identification Number
ISO	International Organization for Standardization
KPIs	Key performance indicators
MoU	Memorandum of Understanding
MT	Metric ton
SDGs	United Nations Sustainable Development Goals
SSRs	GHG sources, sinks and reservoirs
QA/QC	Quality assurance and quality control

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INTRODUCTION

THE AMERICAN CARBON REGISTRY

The American Carbon Registry® (ACR) is a nonprofit scientific standards body for the creation of environmental assets. This includes tradable assets like carbon offset credits issued by ACR Environmental Markets, and the quantification of environmental attributes of financial instruments by ACR Capital Markets. We complement decades of expertise in the development of market-making standards and project measurement methodologies with operational expertise in the verification, registration, issuance, retirement, and reporting of environmental claims.

ACR is part of the Environmental Resources Trust (ERT), a wholly-owned subsidiary of Winrock International. Winrock works with people in the United States and around the world to empower the disadvantaged, increase economic opportunity, and sustain natural resources. Key to this mission is building capacity for climate change mitigation and adaptation and leveraging the power of environmental markets. Since the 1990s, Winrock has been a leader in developing science-based greenhouse gas (GHG) measurement and monitoring methods and protocols. ERT benefits from having Winrock as a parent organization and is directly managed by a board of directors that includes members of the Winrock board and senior leadership.

BACKGROUND OF GREEN FINANCE

The American Society of Civil Engineers estimates that it will cost \$5.94 trillion to bring U.S. infrastructure into a state of good repair by 2029¹ State and local governments own over 90% of non-defense public infrastructure assets² and the municipal debt markets are an avenue for financing the necessary investments to make U.S. infrastructure greener and more resilient.

As the green finance market has grown, investors have sought increased impact disclosure. The ACR Green Finance Impact Program (Program) seeks to deliver on investor demands and further mobilize capital markets to fill the multi-trillion dollar investment gap in sustainable public infrastructure. The service offering standardizes the quantification of environmental impacts of bonds and allows for meaningful comparison across assets and bond issuances.

THE GREEN FINANCE IMPACT PROGRAM REQUIREMENTS

The ACR Green Finance Impact Program Requirements (Requirements) is the governing document of the ACR Green Finance Impact Program and its product and service offerings for the quantification, reporting, and registration of the environmental key performance indicators

¹ American Society of Civil Engineers (2021). p. 7.

² Center on Budget and Policy Priorities (2019). p. 5.

(KPIs) from green projects. It provides uniform criteria and processes that participants must meet in order to utilize ACR-approved Green Finance Impact Methodologies (methodologies) and calculator tools and register quantified environmental impacts on ACR's Green Finance Impact Registry (Impact Registry).

The Program aims to maximize flexibility and usability for issuers while maintaining the scientific rigor and environmental integrity necessary to ensure that the quantification of environmental benefits is evidence-based and transparent. Adherence to the Requirements, ACR-approved methodologies, and impact disclosure templates will ensure that impact reporting is standardized, comparable, and offers a reasonable representation of the relevant environmental outcomes and social impacts from the bond proceeds – thereby establishing a quantitative demonstration of expected and assessed project benefits that are compelling to, and trusted by, investors and other market entities.

APPLICABILITY

Issuers wishing to assess the environmental impacts from the financing of green projects and register the results on ACR's Impact Registry must follow the ACR Green Finance Impact Program Requirements. Refer to www.winrock.org/ms/acr-capital-markets for the latest version of the Requirements, methodologies, tools, templates, and other guidance.

This document does not detail legal responsibilities of ACR and program participants with regard to the use of the Impact Registry, which are provided for in the legally binding Green Finance Impact Program Member Terms of Use Agreement and referenced operative documents such as the Green Finance Impact Program Operating Procedures.

CHAPTER GUIDE

- Chapter 1** Basics of the ACR Green Finance Impact Program
- Chapter 2** Accounting principles and specifications for methodologies used to quantify environmental impacts of projects funded with green finance
- Chapter 3** Requirements for providing additional disclosures related to climate risks and other social and environmental impacts
- Chapter 4** Process for reporting on bond and project impacts
- Chapter 5** Summary of key processes, participant responsibilities, and associated documents for the Green Finance Impact Program
- Chapter 6** Process for ACR approval of new methodologies and tools and methodology modifications
- Chapter 7** Procedures for handling complaints and appeals
- Definitions** Definitions of terms used in the Green Finance Impact Program Requirements
- Appendix A** Guidance for Climate Risk Assessment
- Appendix B** Guidance for Social Impact Assessment
- Appendix C** List of references contained within the Green Finance Impact Program Requirements

CITATION

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CHAPTER 1: GREEN FINANCE IMPACT PROGRAM BASICS

1.A OBJECTIVES

The ACR Green Finance Impact Program (Program) is built on principles of environmental integrity, transparency, and responsiveness. The objectives of the Green Finance Impact Program are to:

- Provide transparent standards and evidence-based methods and tools for quantifying expected and assessed environmental impacts of green projects;
- Build and administer streamlined infrastructure for environmental impact reporting for municipal entities in the U.S.;
- Promote standardized quantification of KPIs and comparable disclosure of climate risks and the environmental and social impacts of green finance to facilitate prospecting, due diligence, and benchmarking by investors;
- Stimulate broad adoption of technologies and practices that address climate change and provide significant environmental, community, and economic benefits;
- Enhance public and investor confidence in reported impacts of green financing; and
- Encourage mobilization of investment in climate resilient green assets.

1.B DESCRIPTION OF THE GREEN FINANCE IMPACT PROGRAM

The ACR Green Finance Impact Program allows for a tailoring of products and services based on the participant's role in the marketplace. The Program offers a suite of products for use by issuers, investors, and other market entities to assess the environmental performance and credentials of financed green projects. These include:

- **GREEN FINANCE IMPACT PROGRAM REQUIREMENTS:** This document defines the Green Finance Impact Program and product offering, establishes parameters of the program, and provides specific criteria that program participants must meet in order to utilize the services and products provided by the Program. The Requirements is a publicly available document.
- **GREEN FINANCE IMPACT REGISTRY:** Online platform with search functionality that enables discovery of environmental impacts from issuances. The Impact Registry displays bonds and projects with their environmental KPIs, impact relative to established benchmarks, and other related disclosure information. The Impact Registry is available as a subscription service to investors and other market entities.
- **GREEN FINANCE IMPACT METHODOLOGIES:** Project type-specific documents that detail the standardized methods for quantifying project-specific environmental KPIs and

establish U.S.-specific benchmarks. Methodologies quantify benefits compared to a no-project scenario and similar U.S. projects. Each methodology includes a list of all required (and optional) project-level data inputs necessary to quantify environmental KPIs. To support transparency, ACR-approved methodologies are publicly available.

- **CALCULATOR TOOLS:** Easy-to-use, online calculators that embed the methods and equations found in the methodologies and translate project-specific user inputs into environmental KPIs and comparable outputs.
- **DISCLOSURE TEMPLATES:** Standardized templates for collecting and communicating qualitative information about climate hazards, plans to address climate risks, considerations of social and equity impacts, harm avoidance, and project co-benefits.
- **REPORTING CHECKLISTS:** Concise and comprehensive methodology-specific documents that identify all information on the issuer, bond, and project(s) to be entered into the Green Finance Impact Registry and calculator tools. Reporting Checklists are intended to aid issuers in planning for ex-ante and ex-post reporting.

1.C RELATIONSHIP TO OTHER STANDARDS AND FRAMEWORKS

The Green Finance Impact Program builds on existing guidance for climate, green, and sustainable finance. The relationship between the Green Finance Impact Program and other standards and frameworks is described below.

1.C.1 Green Bond Principles

The Green Bond Principles (GBP) have become a leading global framework for the issuance of green bonds. The GBP are voluntary process guidelines that recommend transparency and disclosure and promote integrity in the development of the Green Bond market by clarifying the approach for issuance of a Green Bond.³ The GBP have four core components: Use of Proceeds, Process for Project Evaluation and Selection, Management of Proceeds, and Reporting.

The GBP promote the reporting of expected and/or achieved impact of projects and the use of quantitative performance measures where feasible. It is encouraged that the GBP be used as a foundation for the development of additional robust practices, such as initiatives to help further establish impact reporting. ACR's Green Finance Impact Program responds to this call by providing a standardized approach to impact quantification for bond-funded projects.

1.C.2 International Organization for Standardization

The International Organization for Standardization (ISO), has developed specifications for green debt instruments, ISO 14030.⁴ ISO 14030 expands on the GBP to provide specific requirements and guidance for the designation and verification of green bonds. The objective is to provide

³ ICMA (2021a).

⁴ ISO (2021).

market participants and other interested parties with a common framework for designating a bond as “green”. The intended result is to provide clarity in the marketplace and improve the credibility of bonds designated as “green”. This is achieved by setting requirements for the allocation of funds to projects, assets or activities and reporting requirements on the results of expected impacts.

Through the development of methodologies and a reporting framework, ACR’s Green Finance Impact Program serves as a mechanism for quantifying environmental performance indicators and reporting on impacts as required or recommended by the ISO 14030 standard. ACR affirms the ISO 14030-1⁵ principles of transparency, accuracy, completeness, relevance, robustness, accountability, and the precautionary principle. How the Green Finance Impact Program addresses and meets these accounting principles is discussed further in Chapter 2.

1.C.3 United Nations Sustainable Development Goals

The United Nations Sustainable Development Goals (SDGs) are a set of 17 goals with distinct targets that address global challenges including poverty, climate change, infrastructure, sustainable communities, clean water, and health.⁶ Developments in international policy over the last few years have brought about a momentum within the global capital markets to establish a link between investments and achieving the SDGs.⁷

In recognition that some green finance products may also contribute to sustainable development, methodologies indicate how project KPIs map to particular SDGs and these contributions are documented in the Impact Registry.

1.D SCOPE: ELIGIBLE FINANCIAL INSTRUMENTS

The Green Finance Impact Program is designed to assess the environmental impacts of bonds and funded projects.

In order to assess environmental impacts, specific projects must be identified for the use of proceeds. These can be identified prior to bond issuance, or within the timeframe specified in Section 4.B once the bond has been issued.

The Program is not limited to new issuances. Issuers, investors, and other interested parties may also utilize the Program’s product offerings to evaluate the environmental impacts of existing outstanding bonds. Bond refinances are eligible under the Program and are noted as such on the Impact Registry.

⁵ ISO (2021).

⁶ United Nations (2015).

⁷ ICMA (2020a).

1.E SCOPE: ELIGIBLE PROJECT TYPES

ACR-approved Green Finance Impact Methodologies are the basis for quantifying the environmental impacts of the financed green projects. Eligibility for environmental impact quantification is therefore limited to the sectors and project types for which there are ACR-approved methodologies. A full list of available methodologies can be found at: www.winrock.org/ms/acr-capital-markets. The Green Finance Impact Program is focused on project types relevant to the municipal markets and ACR is actively expanding its catalog of methodologies. ACR will consider methodologies developed by external authors for approval through the methodology proposal and development process described in Chapter 6.

Individual methodologies contain additional project type- and sector-specific eligibility criteria that must be met. Bonds that fund project types for which there are ACR-approved methodologies are eligible, provided they use an appropriate method and comply with the current version of the ACR Green Finance Impact Program Requirements. ACR-approved methodologies include:

- Methodologies developed and approved by ACR;
- Modifications of existing ACR methodologies, provided such modifications have been approved by ACR per the process found in Chapter 6; and
- New methodologies developed by external authors and approved by ACR through ACR's methodology development process described in Chapter 6.

Bonds that do not meet all applicable eligibility criteria articulated in the Requirements and the applicable ACR-approved Green Finance Impact Methodology are ineligible for environmental impact quantification or listing on the Impact Registry.

1.F SCOPE: ENVIRONMENTAL IMPACT QUANTIFICATION

The Program does not rate, score, or certify issuances based on subjective or undisclosed approaches. The Green Finance Impact Program is uniquely designed to enable the quantification and reporting of environmental impacts of green finance using evidence-based metrics and transparent calculations.⁸

The Green Finance Impact Methodologies quantify relevant, project-specific environmental KPIs using consistent and transparent approaches. The methodologies and accompanying calculator tools translate user inputs into environmental KPIs appropriate to the project type that they are intended to evaluate. The methodologies build upon broader efforts to harmonize impact reporting in the green bond market by, wherever possible, quantifying core indicators proposed in other frameworks and providing standardized guidance on how to apply these in the U.S. municipal context.

⁸ While the Program is designed as a holistic service offering, ACR products may still be used in combination with other reviews, ratings, and certification programs. However, no external determinations will displace or substitute for the requirements of the Program.

In addition to quantifying project impacts, the methodologies contain U.S.-specific benchmarks that are used to compare impacts relative to a representative standard of performance (both in raw units and on a percentage basis). Chapter 2 provides greater detail on quantification principles, the development of benchmarks, and how methodologies are standardized across project types.

The methodologies and calculators are designed to provide ex-ante estimates in advance of project implementation and ex-post assessments to support ongoing tracking of project performance. The KPIs of registered bonds are made available on the Impact Registry.

1.G SCOPE: DISCLOSURES ON CLIMATE RISK AND OTHER ENVIRONMENTAL AND SOCIAL IMPACTS

To complement quantified environmental KPIs, additional project-specific information necessary to contextualize the impact is collected from the issuer. The Green Finance Impact Program uses disclosure forms to collect and communicate qualitative information about climate risks and associated mitigation plans, considerations of social and equity impacts, harm avoidance, and project co-benefits. Chapter 3 provides greater detail on the disclosure requirements and additional guidance is provided in Appendices A and B of this document.

1.H SCOPE: GEOGRAPHY

The Green Finance Impact Program applies to bonds issued within the United States. Additional geographic limitations may be specified within individual methodologies.

1.I LANGUAGE

English is the operating language of ACR. All Green Finance Impact Registry entries, reporting statements, methodologies, tools, and other documents required by ACR shall be in English.

1.J ADOPTION OF AND REVISIONS TO GREEN FINANCE IMPACT PROGRAM REQUIREMENTS

ACR will review and revise the Green Finance Impact Program Requirements, as necessary, at a minimum of every 3 years.

Updates occur when significant changes to GHG accounting and/or environmental impact assessment best practices or the legislative and/or regulatory context justify an update; when

new provisions or requirements originating in methodologies make ACR aware of higher-level requirements or clarifications that should be made to this document; upon an update to ACR's internal policy and/or process requirements; or for other reasons.

I.K CONFLICT OF INTEREST POLICY

As a nonprofit organization that values its reputation for integrity, Winrock requires that all management and staff adhere to its Code of Conduct, which includes a strict and comprehensive policy against engaging in activities that present a conflict of interest. Accordingly, each director, officer, and staff member are required to regularly affirm that they are in compliance with this policy, that they avoid all conflicts of interest and take reasonable action to avoid circumstances that create the appearance of a conflict of interest. ACR staff are required to notify management immediately if any conflict of interest situations arise or come to their attention so the conflict can be appropriately mitigated.

In addition to this internal conflict of interest policy, ACR requires that its third-party registry service provider maintain and adhere to a strict conflict of interest policy.

CHAPTER 2: ENVIRONMENTAL IMPACT QUANTIFICATION

The Environmental Impact Quantification service utilizes ACR-approved Green Finance Impact Methodologies and Calculator Tools to quantify project-specific environmental KPIs. The accounting principles, methodological specifications, and data quality standards summarized here are designed to ensure that environmental impact reporting is standardized, comparable, and a reasonable representation of the relevant environmental outcomes from the bond proceeds.

2.A ACCOUNTING PRINCIPLES FOR ENVIRONMENTAL IMPACT QUANTIFICATION

ACR affirms ISO 14030-1⁹ principles from which all other ACR Green Finance Impact Program principles and eligibility criteria follow. The Green Finance Impact Program addresses and meets these accounting principles as described in the following sections.

2.A.1 Transparency

Issuers quantify and communicate the quantified environmental impacts from the financing of green projects using consistent and publicly available methodologies. Methodologies clearly document the data sources and assumptions used in impact quantification. Should ACR decide to update a methodology or tool or permit a modification to or deviation from an existing methodology, these processes are publicly documented. The methodology development and approval processes are described in Chapter 6.

The KPIs resulting from quantification are clearly presented along with other information displayed on the Impact Registry. Information available on the Impact Registry is described in Section 4.A.1.

2.A.2 Accuracy

The issuer shall reduce, as far as is practical, bias, and uncertainties related to the quantification and disclosure of project impacts to minimize the risk over or over- or understating project impacts.

The Program aims to maximize flexibility and usability for issuers while maintaining the environmental integrity and scientific rigor necessary to ensure that the environmental impacts

⁹ ISO (2021).

quantified using ACR-approved Green Finance Impact Methodologies are recognized as being of the highest quality in capital markets. Providing users with calculator tools that embed the methods and equations found in the methodologies reduces the likelihood of calculation errors in accounting. Accuracy in impact quantification is further supported through methodological specifications addressed in Section 2.B and the review and substantiation process described in Section 4.A.5.

2.A.3 Completeness and Relevance

Individual methodologies specify the environmental KPIs that shall be quantified. KPIs are selected based on their relevance to the project type being evaluated, relevance to the intended audience, and feasibility and practicability of quantification based on available data and resources. Recognizing that some relevant environmental impacts may not be quantifiable, issuers shall also submit qualitative disclosures for the sake of completeness and contextualization as described in Section 4.A. Completeness and relevance are further supported through methodological specifications addressed in Section 2.B.

2.A.4 Robustness

All eligibility criteria found within individual methodologies must be met to ensure the appropriateness of the assumptions and approaches used in the methodologies. Issuers shall supply supporting documentation required to substantiate data inputs and acknowledge assumptions or uncertainties. Robustness in impact quantification is further supported through methodological specifications addressed in Section 2.B and data quality standards in Section 2.C.

2.A.5 Accountability

When inputting data and providing disclosures issuers shall consider all relevant information that may affect the quantification and disclosure of project impacts, including potential negative impacts or tradeoffs. ACR-approved Green Finance Impact Methodologies result in KPIs that are based on the net impacts of projects considering both positive and negative aspects of projects within the accounting boundaries. Issuers must attest that project-level data inputs and disclosures are accurate, complete, and free of misstatements as described in Section 4.A.3.

2.A.6 Precautionary Principle

To complement quantified environmental KPIs, the Green Finance Impact Program uses disclosure forms to capture relevant climate, environmental, and social impacts that may not be quantifiable and to communicate efforts to avoid or mitigate potential risks. The disclosure requirements are further detailed in Chapter 3.

2.A.7 Comparability

In addition to the ISO principles listed in Table 1, comparability of environmental impacts is foundational to the design of the Green Finance Impact Program. ACR therefore prioritizes, to

the extent feasible, consistency and standardization in the development and use of its Green Finance Impact Methodologies as addressed in Section 2.B.

Meaningful comparison, through standardization of KPI quantification and the use of benchmarks, empowers investor decision making around environmental impacts. It also enables issuers to assess the relative benefits of certain project design elements during project planning or when selecting projects to fund.

2.B METHODOLOGICAL SPECIFICATIONS FOR ADHERENCE TO PRINCIPLES

ACR-approved Green Finance Impact Methodologies detail the evidence-based methods for quantifying environmental KPIs of funded projects. This section specifies how ACR-approved methodologies are designed to adhere to the accounting principles.

2.B.1 Project Accounting Boundaries

Green Finance Impact Methodologies quantify the environmental impacts within the project accounting boundaries. Project accounting boundaries include a project's:

- Temporal boundary (i.e., duration);
- Spatial boundary (i.e., physical or geographical implementation area); and
- Assessment boundary (i.e., the components or activities considered in quantification).

Individual methodologies contain the criteria and rationale used to establish appropriate boundaries for the project type and the relevant environmental impacts being evaluated. The project boundaries do not necessarily represent a full life cycle assessment.

The temporal boundary is based on the period of time over which project impacts are expected to accrue. In the built environment, this tends to align with the expected project operational life or useful life of an asset. Where project impacts continue to accrue long after a project is built or implemented, temporal boundaries are established to reflect those realities. Methodologies contain default time periods for operational life and, when useful to improve accuracy, may permit issuers to provide an alternative length of time based on project-specific characteristics and supporting documentation.

The scope of the spatial boundary will include the physical and geographical site where a project takes place and, when relevant, other locations up or downstream where impacts occur as a direct result of the project. An issuer may not have operational control over all components or activities within the spatial boundary but, for completeness, may need to have access to some basic information or data for the quantification of KPIs.

The assessment boundary identifies the project components or activities that are included in, or exclude from, the impact accounting based on relevance to the project and no-project scenarios. Considerations include the significance of the contribution to the overall impact, the ability to attribute impacts to the funded projects, and data availability. For GHG quantification, a methodology's GHG accounting boundary identifies the GHG sources, sinks, and reservoirs

(SSRs) included in the assessment boundary. When quantifying impacts, the issuer shall justify the exclusion of any component, activity, or GHG SSRs included in the GHG assessment boundary of a methodology.

2.B.2 Emission Factors and Other Default Values

Where needed to quantify GHG emission reductions and other environmental impacts, methodologies shall specify emission factors and other default values that are:

- Derived from scientific peer-reviewed literature, government publications, or established environmental impact quantification frameworks;
- Appropriate for the environmental activity and/or GHG source or sink concerned; and
- Consistent with the data sets and factors used to quantify comparable environmental activities and/or GHG SSRs in existing ACR-approved methodologies, where appropriate.

Publicly available datasets and sources for emission factors and other default values are preferred but private data may be relied on. At a minimum, methodologies shall name and describe the datasets and sources used.

2.B.3 Conservativeness and Uncertainty

Approved methodologies shall use conservative assumptions, values, and procedures in an effort to ensure that environmental impacts are reasonable and not overestimated.

Methodologies shall specify aspects of quantification that may be particularly uncertain.

Methodologies shall also define assumptions and monitoring requirements, particularly in cases where estimation methods and default values are used in place of direct measurement. Tools shall result in impact values that are rounded down.

The issuer shall reduce, as far as is practical, uncertainties related to the quantification of environmental impacts by providing data that is accurate, current, and as complete as possible. When it is anticipated that the issuer may have limited access to data or information pertaining to impacts that are expected to accrue outside of the operational control of the project (e.g., Scope 3 emissions), methodologies may distinguish between primary and secondary effects, with the latter being a designation that those benefits are less certain.

When the permanence of benefits is not assured, methodologies shall acknowledge the potential of impermanence and may address it through the crafting of eligibility criteria, applying discounting to expected impacts, and/or highlighting or promoting best practices for maintaining permanence. However, because the benefits quantified do not result in the issuance of fungible credits that require the atmosphere be made whole, permanence does not need to be ensured under the Green Finance Impact Program.

2.B.4 Benchmarks

A benchmark is a representative standard of performance that facilitates measurement and comparison of impacts across investments in the same category. ACR-approved Green Finance Impact Methodologies include U.S.-specific benchmarks that are based on either a direct

analysis of data to determine average performance or a determination of common practice for a specific project type or sector and the associated impacts of that practice. Each project is then compared to the relevant KPI benchmarks for the project type.

To the extent possible, benchmarks are established based on publicly available data from peer reviewed literature, government publications, and established environmental impact accounting frameworks. Methodologies shall explain how individual benchmarks are derived, including the rationale for any assumptions.

Project performance relative to a benchmark is not intended to offer a judgement on the overall merits of a project but rather to provide context for individual KPIs and enable meaningful comparison against a standard. To facilitate that comparison, when KPI values are calculated relative to a benchmark, they are displayed in raw units and on a percentage basis.

For GHG emissions, ACR-approved methodologies refer to the comparison of the project emission reductions to the benchmark value as the Carbon Advantage™.

2.B.5 Key Performance Indicators and Units of Measure

Project type-specific KPIs and their units of measure are defined within individual methodologies and collectively displayed in the KPI Matrix available at: www.winrock.org/ms/acr-capital-markets. To the extent possible, KPIs align with those identified in the ICMA's Harmonized Framework for Impact Reporting.¹⁰

While some KPIs are only applicable to certain types of projects being financed (e.g., reduced water use), others are more universally applicable across a wide cross section of project types (e.g., GHG emission reductions). For KPIs that are applicable across project types, impacts are displayed in a consistent unit of measure to facilitate comparison.

Metrics are presented as the total impact over the project life, such as the total emission reductions in metric tons CO₂-equivalent (MTCO₂e), and are also normalized as benefits per dollar, benefits per year and, in the case of the carbon return, the impact is expressed as MTCO₂e per dollar per year (MTCO₂e/\$-yr). When applicable, impacts are also presented as a pro-rated share of the green financing relative to total project costs.

2.B.6 Sustainable Development Goals

In recognition that projects funded with green finance may contribute to sustainable development, Green Finance Impact Methodologies map project KPIs to SDGs and a project's contribution toward the SDGs is posted on the Impact Registry.

¹⁰ ICMA (2021b).

2.C DATA QUALITY STANDARDS FOR ADHERENCE TO PRINCIPLES

Data quality standards are designed to ensure that the assumptions, values, and procedures used result in impact estimates that are a reasonable representation of the environmental outcomes from the bond finance. Green Finance Impact Methodologies are designed to quantify environmental impacts based on data readily available to issuers. The methodologies supply default values for some data inputs that can be used by an issuer only when project-specific data is not available.

2.C.1 Ex-ante and Ex-post Data

Green Finance Impact Methodologies are intended for use in advance of project implementation to produce ex-ante estimates of environmental impacts for consideration by market entities at the time of issuance and again after a project is operational to produce ex-post assessments to support ongoing tracking of project performance.

Ex-ante estimates of environmental impacts are calculated with user inputs based on the expected performance of a project once operating at normal capacity. Issuers are encouraged, but not required, to conduct ex-post reporting. Environmental impacts quantified ex-post are calculated with user inputs based on actual performance. There is no guarantee that ex-ante projections will ultimately materialize, and actual environmental impacts may diverge from initial estimates.

Maintaining data quality, including for those data inputs based on assumptions, can reduce divergences between ex-ante and ex-post values.

2.C.2 Managing Data Quality

The methodologies provide guidance on appropriate data sources available at www.winrock.org/ms/acr-capital-markets. Ex-ante data inputs shall be determined using the best information available prior to project implementation (e.g., design documents, equipment specifications, and records from past projects or existing comparable facilities).

Issuers that report ex-post shall establish and apply quality assurance and quality control (QA/QC) procedures to manage project data and information used in ex-post quantification.

Additional checks on data quality include:

- Issuer attestations affirming that project-level data inputs and disclosures are accurate, complete, and free of misstatements;
- Data validation built into ACR's calculator tools that reduce the likelihood of data input errors; and
- ACR data review and substantiation as described in Section 4.A.5.

2.D AVOIDING DOUBLE COUNTING

Recognizing that issuers may issue multiple bonds to finance the same project and may refinance a bond that was previously registered, the Green Finance Impact Program avoids double counting of impact in the following ways:

- Methodologies and calculator tools provide both the total impact of the project along with the prorated impact attributable to the proceeds of a particular bond offering;
- When there are multiple tranches or issuances for a given project, bonds are displayed together within the Impact Registry;
- Refinances are labeled as such and, when a refinance is for a previously registered bond, the earlier issuance is linked to the refinancing within the Impact Registry.

CHAPTER 3: CLIMATE RISK, ENVIRONMENTAL AND SOCIAL IMPACT DISCLOSURES

To complement quantified environmental KPIs, the Green Finance Impact Program also collects and communicates additional project-specific information. The Program uses disclosure forms to capture relevant climate risk, environmental, and social impacts that may not be quantifiable and to standardize this qualitative information to the extent possible. Avoiding harm is a core tenant of impact investing and these forms are used to disclose potential environmental and social risks. Issuers are encouraged to also use the disclosure forms to characterize any environmental or social co-benefits additional to the quantified KPIs. Issuers shall complete the two disclosure forms described below. Additional guidance is provided in Appendices A and B of this document.

3.A CLIMATE RISK AND ENVIRONMENTAL IMPACT DISCLOSURE

Issuers must use the Climate Risk and Environmental Impact Disclosure Form to disclose information about project type- or location-specific hazards, the process used to assess climate hazard vulnerability, mitigation actions taken to reduce vulnerability, and the existence of monitoring and contingency plans to ensure proper functioning of the project.

The form also captures information related to the potential for a project to significantly harm other environmental objectives including, but not limited to climate change mitigation; climate change adaptation; sustainable use and protection of water and marine resources; transition to a circular economy, waste prevention, and recycling; pollution prevention and control; and protection and restoration of ecosystems. Issuers shall seek to ensure that projects do not cause significant harm to other environmental objectives and must use the form to disclose the policies and/or processes used by the issuer to identify potential risks, the measures the issuer is taking to safeguard against potential significant harms, and any monitoring plans for risks determined to be meaningful.

Issuers are encouraged to also respond to the disclosure form prompts related to the environmental co-benefits of the project.

3.B SOCIAL IMPACT DISCLOSURE

While focused on environmental impacts, green finance also has the potential to support communities through additional social benefits or harm communities as a result of project externalities. Issuers shall seek to ensure that projects do not cause significant harm to social objectives and must use the Social Impact Disclosure Form to disclose these potential risks.

The form captures information related to the potential for a project to create or worsen social risks including, but not limited to health, safety, labor conditions, restrictions on land use or community dislocation. Issuers will also disclose the eligibility and exclusion criteria used to select projects, the policies and/or processes used by the issuer to identify potential risks, the measures the issuer is taking to safeguard against potential significant harms, and any monitoring plans for risks determined to be meaningful.

Issuers are encouraged to also respond to the disclosure form prompts related to the social and equity co-benefits of the project.

CHAPTER 4: REPORTING

The Green Finance Impact Program introduces a streamlined approach and supporting infrastructure to quantify and report the expected and assessed environmental impacts of bond-funded projects. Use of ACR-approved methodologies and tools results in standardized and comparable assessments of KPIs to support the environmental integrity of the green bond market. Reporting on environmental impacts serves the interests of a variety of market entities and enhances public and investor confidence in the merits of green financing.

Issuers shall adhere to all reporting guidance set forth in the Green Finance Impact Program Requirements, methodologies, and the methodology-specific Reporting Checklists.

4.A REPORTING INFRASTRUCTURE

The Program integrates environmental KPI quantification, qualitative disclosures, and standardized reporting to provide a comprehensive overview of information relevant to a bond and funded projects.

4.A.1 Green Finance Impact Registry

The Green Finance Impact Registry is the primary interface for issuers, investors, and other market entities. The secure, online Impact Registry hosts ACR's calculator tools and facilitates data collection and retrieval by recording the results of quantification. The Impact Registry also serves as a repository for supporting documentation, including those necessary for quantification and review/substantiation. Access to the calculator tools and data entry sections of the Impact Registry is controlled through user authentication. Issuers and other program participants shall identify users as stipulated in the Green Finance Impact Program Member Terms of Use Agreement.

KPIs are posted on the Impact Registry where they are displayed alongside other relevant information, including qualitative project information and disclosure forms. The Impact Registry includes search functionality to enable discovery of bonds or projects based on various criteria and enables the comparison of impacts across issuances and projects.

4.A.2 Reporting Checklists

The Reporting Checklists are concise and comprehensive methodology-specific documents that identify all required (and optional) quantitative and qualitative information on the issuer, bond, and project(s) to be entered into the Green Finance Impact Registry and calculator tools. These checklists are intended to aid issuers in planning for ex-ante and ex-post reporting.

4.A.3 Issuer Attestations

Attestations are used to ensure conformance with the Green Finance Impact Program Requirements and ACR-approved methodologies. Attestations shall be completed by the

authorized account owner according to the reporting schedules described in Section 4.B. Issuers and other program participants quantifying the environmental impacts of bond-funded projects shall affirm the following:

- Project(s) conform with project type-specific eligibility criteria found in individual methodologies;
- Project-level data inputs are an accurate representation of expected operation/actual project performance and free of misstatements; and
- Project(s), bond, and issuer conform to the Green Finance Impact Program Requirements.

4.A.4 Disclosure Forms

Disclosure forms are used to capture relevant environmental and social impacts that may not be quantifiable. Disclosure forms shall be completed in the Impact Registry according to the schedule described in Section 4.B. Issuers and other program participants reporting the environmental impacts of bond-funded projects shall complete the following disclosure forms within the Impact Registry:

- Climate Risk and Environmental Impact Disclosure Form;
- Social Impact Disclosure Form; and
- Project Modification Disclosure Form (if applicable).

4.A.5 Data Review and Substantiation

To substantiate the KPIs produced by its methodologies and confirm completeness of required disclosures, ACR reviews the data and supplemental documentation provided by the issuer in support of their inputs and assumptions. This process is undertaken to confirm the appropriateness of the inputs to the calculator tools and, in turn, the soundness of the resulting outputs. This review process serves the objectives of ensuring that the assumptions, values, and data quality procedures used result in KPIs that reasonably represent the relevant environmental outcomes from the bond proceeds and that they are calculated in line with the accounting principles described in Chapter 2.

ACR staff will perform a desk review to confirm that:

- All necessary documentation is submitted;
- Issuer attestations and disclosure templates are complete;
- Project-type eligibility is met and;
- Data inputs are complete and based on reasonable and supported assumptions.

If ACR staff identifies incomplete, inaccurate, or unsupported inputs or assumptions, ACR will request corrections and/or additional documentation prior to registering the environmental credentials of a bond. In some cases, data review and substantiation may result in an iterative information-sharing process between ACR and the issuer.

As stated in Section 4.B.2, if, upon project operation, operating records are available to demonstrate actual performance values for KPIs that would otherwise be calculated with an

ACR-approved methodology, issuers can request that ACR displace a methodology/calculator tool output displayed on the Impact Registry with a measured value of actual performance. Under these circumstances, the issuer must provide ACR with documentation that clearly demonstrates the project performance for the given indicator during the time period being assessed. Upon request from ACR, issuers shall also provide documentation of the issuer's or project operator's data measurement, collection, and QA/QC process.

4.B TIMING AND DURATION OF REPORTING

Environmental impact reporting occurs according to the project stages described below.

4.B.1 Ex-ante Reporting

Ex-ante reporting refers to the reporting of environmental impacts and other required information prior to a project becoming operational. Ex-ante environmental impact quantification and reporting can occur pre- or post-issuance. If an issuer provides an ex-ante report prior to all projects being identified, the issuer shall submit a complete ex-ante report capturing all projects within 24 months of the bond issuance date.

The ex-ante reporting process requires issuers to:

- Enter qualitative issuer, bond, and project information required per the methodology-specific Reporting Checklist into the Registry Platform;
- Enter project-level data required per the methodology-specific Reporting Checklist into the calculator tool(s) to estimate ex-ante KPIs for each identified project for which there is an ACR-approved methodology;
- Upload supporting documentation to substantiate data inputs such as project design documents, equipment specifications, and/or the basis for data assumptions as well as any documentation required by the applicable methodology;
- Complete Climate Risk and Environmental Impact Disclosure Form and Social Impact Disclosure Form; and
- Complete issuer attestations.

4.B.2 Ex-post Reporting

Ex-post reporting refers to the reporting of environmental impacts and other information after a project becomes fully operational (i.e., after an initial start-up period) and operates for 12 months. The Green Finance Impact Program makes ex-post reporting possible and issuers are encouraged, but not required, to conduct ex-post reporting on achieved impacts. Issuers participating in ex-post reporting should submit an ex-post report within 24 months of the operational date of a project funded with the bond proceeds. For bonds that fund multiple projects with different operational dates, issuers should continue to submit ex-post reports by the same date each year until all financed projects for which there are ACR-approved methodologies are operational and reported.

Issuers are encouraged to perform ongoing ex-post reporting on a regular interval for the duration of the term of the bond. Issuers are encouraged to adhere to the following ex-post reporting process:

- Supply any relevant updates to previously reported issuer, bond, and project information required per the Reporting Checklist;
- Enter project level data required per the methodology-specific Reporting Checklist into the calculator tool(s) to re-estimate KPIs for each operational project for which there is an ACR-approved methodology;
- Upload supporting documentation to substantiate data inputs such as operating records as well as any documentation required by the applicable methodology; and
- Complete issuer attestations.

An impact report produced by the issuer may also be uploaded.

If operating records are available to show actual performance values for KPIs that would otherwise be calculated with an ACR-approved methodology, issuers can request that ACR displace a methodology/calculator tool output displayed on the Impact Registry with a measured value of actual performance. See Section 4.A.5 for requirements.

4.B.3 Reporting on Project Modifications

In the event of changes to the use of bond proceeds greater than 5% of the total issuance or a change to the design or operation of a project that is expected to influence any quantified environmental impacts by more than 10%, issuers shall complete and submit the Project Modification Disclosure Form within one year of the catalyst event or decision.

4.C AGGREGATION

When confidentiality agreements, competitive considerations, or a large number of underlying projects limit the amount of detail that can be made available, issuers may aggregate information. When applicable, aggregated information can be entered into the Impact Registry and used in the quantification of environmental impacts, when explicitly permitted by the applicable methodologies and projects meet the aggregation criteria therein.

4.D CONFIDENTIALITY AND COMMERCIALY SENSITIVE INFORMATION

The issuer may designate certain supporting documentation, or parts therein, as confidential or commercially sensitive information. Certain information must be available for review by ACR (with non-disclosure agreements, as necessary), but is excised from the documentation posted publicly on the Impact Registry. For the sake of transparency, ACR shall presume project information to be available for publication, and designation to the contrary shall be incumbent on the issuer. At a minimum, ACR shall post quantified environmental impacts and disclosure forms on the Impact Registry.

4.E UNIT OF TRACKING

The Green Finance Impact Program tracks issuances according to their Committee on Uniform Securities Identification Procedures (CUSIP) number, which is the unique identification number assigned to all registered bonds in North America. When applicable, an issuance can also be tracked according to their International Securities Identification Number (ISIN), the numbering scheme widely adopted outside the United States and Canada.

All environmental impacts are tracked according to the units specific to the indicator as described in Section 2.B.5 and defined in individual methodologies and the KPI Matrix.

CHAPTER 5: SUMMARY OF KEY PROGRAM REQUIREMENTS

Table 2 summarizes the key requirements for participation in the Green Finance Impact Program as well as the disclosure and reporting processes and associated documents. Additional detail is available throughout the Requirements and other referenced documents.

Table 1: Summary of Key Program Requirement, Processes, and Documents

REQUIREMENT	DEFINITION	SUMMARY OF PROCESS
Green Finance Impact Program Member Terms of Use Agreement	Agreement between ACR and the Green Finance Impact Program participant.	<p>Issuers and subscribers to the Impact Registry shall accept the Green Finance Impact Program Member Terms of Use Agreement in order to establish an account and access the Impact Registry.</p> <p>The Agreement details the legal responsibilities of ACR and program participants with regard to the use of the Impact Registry such as ownership and use of tools and data, identification of authorized users, disclaimer language for bond offer documents, reporting commitments, defaults and remedies, participation in other asset platforms or certification programs, fees and payments, protection of intellectual property and confidential information, and limits on liability.</p>
Climate Risk and Environmental Impact Disclosure Form	Form completed by issuer to disclose how a project’s climate hazard vulnerability and other potential environmental risks are assessed and mitigated. Environmental co-benefits from the project can also be reported.	<p>Issuers shall complete and submit the Climate Risk and Environmental Impact Disclosure Form once for each project as part of ex-ante reporting.</p> <p>The form captures information about project type- and location-specific hazards and the processes used to assess and mitigate climate hazard vulnerability. It is also used to disclose information related to the potential for a project to significantly harm other environmental objectives and safeguarding measures. Issuers are also able to report on the environmental co-benefits of the project.</p> <p>Additional guidance is provided in Appendix A of this document.</p>

REQUIREMENT	DEFINITION	SUMMARY OF PROCESS
Social Impact Disclosure Form	Form completed by issuer to disclose how a project’s potential social risks are assessed and mitigated. Social co-benefits from the project can also be reported.	<p>Issuers shall complete and submit the Social Impact Disclosure Form once for each project as part of ex-ante reporting.</p> <p>The form captures information about the potential for a project to create or worsen social risks and the processes used to identify and safeguard against potential significant harms. Issuers are also able to report on to the social co-benefits of the project.</p> <p>Additional guidance is provided in Appendix B of this document.</p>
Project Modification Disclosure Form	Form completed by issuer to disclose changes to the funding amount or significant changes to the design or operation of a project.	In the event of changes to the use of bond proceeds greater than 5% of the total issuance or a change to the design or operation of a project that is expected to influence any quantified environmental impacts by more than 10%, issuers shall complete and submit the Project Modification Disclosure Form within one year of the catalyst event or decision.
Ex-ante Reporting	The process of reporting environmental impacts and other required information prior to a project becoming operational.	<p>ACR-approved methodologies and calculators are designed to provide ex-ante estimates of environmental impacts for consideration by market entities in advance of project implementation. Additional qualitative information shall be entered by the issuer and made available on the Impact Registry. Methodology-specific Reporting Checklists identify all information on the issuer, bond, and project(s) to be entered.</p> <p>Ex-ante reporting can occur pre- or post-issuance. If an issuer provides an ex-ante report prior to all projects being identified, the issuer shall submit a complete ex-ante report capturing all projects within 24 months of the bond issuance date.</p>
Ex-post Reporting (encouraged)	The process of reporting environmental	ACR-approved methodologies and calculators are designed for the ex-post assessment of environmental impacts in support of ongoing

REQUIREMENT	DEFINITION	SUMMARY OF PROCESS
	<p>impacts and other information upon a project becoming operational.</p>	<p>tracking of project performance. The Green Finance Impact Program makes ex-post reporting possible and issuers are encouraged, but not required, to conduct ex-post reporting on achieved impacts. Additional qualitative information may be entered by the issuer and made available on the Impact Registry. Methodology-specific Reporting Checklists identify all information on the issuer, bond, and project(s) to be entered.</p> <p>Issuers participating in ex-post reporting should submit an ex-post report within 24 months of the operational date of a project funded with bond proceeds. For bonds that fund multiple projects with different operational dates, issuers should continue to submit ex-post reports by the same date each year until all financed projects for which there are ACR-approved methodologies are operational and reported. Issuers are encouraged to perform ongoing ex-post reporting on a regular interval for the duration of the term of the bond.</p>
<p>Ex-ante and Ex-post Attestations</p>	<p>Attestations on the part of the issuer to ensure conformance with the Green Finance Impact Program Requirements and the applicable methodology(ies).</p>	<p>When submitting disclosure forms and project-level data inputs on the Impact Registry, issuers shall attest that the information provided is accurate, complete, and free of misstatements and affirm conformity with eligibility conditions found in the Requirements and the applicable methodology. Attestations shall be completed by the authorized account owner per the Green Finance Impact Program Member Terms of Use Agreement.</p>

CHAPTER 6: ACR-APPROVED METHODOLOGIES

ACR-approved Green Finance Impact Methodologies are the basis for quantifying the environmental impacts of the financed green projects. Eligibility for environmental impact quantification is therefore limited to the project types for which there are applicable ACR-approved methodologies. This Chapter details the process for developing and updating methodologies and accompanying calculator tools, how ACR-approved methods may be modified, and how new methodologies are approved.

Green Finance Impact Methodologies are project type-specific documents that detail the standardized methods for quantifying environmental KPIs of funded projects and establishing U.S.-specific benchmarks for comparison. The Green Finance Impact Program is focused on project types relevant to the municipal markets. A full list of available methodologies can be found at www.winrock.org/ms/acr-capital-markets.

6.A ACR'S METHODOLOGY DEVELOPMENT PROCESS

The following process is applied to new methodologies developed internally by ACR.

1. In consultation with stakeholders, identify a need for standardized methods to quantify environmental impacts of a specific bond-funded project type.
2. Leverage ACR's sectoral expertise and experience in environmental impact quantification to author draft methodologies consistent with the principles and specifications detailed in Chapter 2.
3. Assemble an internal team to assess consistency with stated accounting principles and methodological specifications, and to perform a quality assessment.
4. Assemble a group of external peer reviewers to solicit input from subject matter experts. Some methodologies may also be subject to a public consultation process during which draft methods are made available for public comment.
5. Revise methods and, for new methodologies, pilot the methods in partnership with a municipal issuer, when possible.
6. Make final adjustments to the methods and post a final, ACR-approved methodology for use in the Green Finance Impact Program.

6.B UPDATES TO ACR-APPROVED METHODOLOGIES

ACR may periodically update (or decide to retire) its approved methodologies and tools. Such updates occur when significant changes to accounting best practices or the legislative and/or regulatory context justify an update; when sufficient new data is available to revise eligibility criteria, benchmarks, or emission factors; when ACR becomes aware of clarifications that should be made; or for other reasons. For methodologies that employ a benchmark, ACR shall review the validity and underlying assumptions of the benchmark every 5 years, at minimum.

Depending on the scope of the update, ACR will determine whether the internal review, peer review, and public consultation process described in Section 6.A must be implemented. Modifications to applicability, accounting boundaries, and/or benchmark assumptions are likely to trigger the full process stipulated in Section 6.A; minor modifications to correct quantification errors or provide clarification on data requirements may not necessitate the full process.

A new version number for the methodology or calculator tool will be issued each time there is an update (e.g., Version 3.0 to Version 4.0).

ACR may permit project-specific deviations to an existing approved methodology where they remain consistent with the accounting principles and methodological specifications. For instance, where alternate monitoring or measurement regimes are proposed, ACR may permit these changes provided they are robust and conservative. ACR will not permit, on a project-specific basis, changes to aspects of a methodological related to benchmark establishment. Proposed project-specific methodology deviations shall be submitted to ACR for review and approval using the Methodology Deviation Request Form available at www.winrock.org/ms/acr-capital-markets. Evidence that the proposed deviation is conservative (i.e., likely to underestimate environmental benefits) must be provided. ACR may request additional evidence of alignment with other principles and methodological specifications. Approved deviations apply for that specific project but are not published as modifications to the methodology.

CHAPTER 7: COMPLAINTS AND APPEALS PROCEDURES

7.A COMPLAINTS PROCEDURE

When an issuer or ACR stakeholder objects to a decision made by ACR representatives or the application of the Green Finance Impact Program Requirements, the following confidential complaint procedure shall be followed:

1. Issuer or stakeholder sends a written complaint via email to ACRCapitalMarkets@winrock.org. The complaint must detail the following:
 - Description of the complaint with specific reference to ACR Green Finance Impact Program Requirements and/or methodology provisions, as applicable;
 - Supporting documentation provided for consideration by ACR in the complaint resolution process; and
 - Complainant name, contact details, and organization.
2. ACR Capital Markets Senior Management shall assign an ACR representative to research and further investigate the complaint. The representative assigned to handle the complaint shall not have been involved with the issue that is the subject of the formal complaint.
3. ACR Capital Markets Senior Management will provide a written response, via email, to the complainant detailing ACR's decision on the matter.

7.B APPEALS PROCEDURE

In the event that a complaint remains unresolved after the conclusion of the complaints procedure, an issuer or ACR stakeholder may appeal any such decision or outcome reached. The following confidential appeals procedure shall be followed:

1. Issuer or stakeholder sends a written appeal via email to ACRCapitalMarkets@winrock.org. The appeal must detail the following:
 - Description of the appeal, with specific reference to ACR Green Finance Impact Program Requirements and/or methodology provisions, as applicable;
 - Supporting documentation provided for consideration in the appeal process, including previous communication on the complaint and all relevant details of the previously implemented complaint procedure; and
 - Appellant name, contact details, and organization.
2. ACR Capital Markets Senior Management shall forward the appeal to the ERT Chief Executive Officer, who will convene a committee of representatives to review and discuss the matter. The committee will include the ERT Chief Executive Officer, a member of the ERT Board of Directors, and an ACR staff member unrelated to the

complaint, all of whom will have equal votes. The committee may also include a technical and/or subject matter expert or experts as necessary, who will not be able to vote. The committee members selected will depend on the subject matter and nature of the appeal.

3. The decision reached by the committee shall be communicated, via written response, to the issuer or stakeholder. Any decision reached by the committee shall be final.

DEFINITIONS

Aggregation	The grouping together of multiple projects funded by a single bond issuance for the purpose of quantification and/or reporting. The use of aggregation is limited to scenarios where confidentiality, competitive considerations, or a large number of underlying projects limit the amount of detail that can be made available. This Requirements document allows for project aggregation to protect confidentiality and relieve the administrative burden for issuers of bonds with a large number of projects.
Attestation	A declaration by the issuer made as part of ex-ante and ex-post reporting to affirm conformance with eligibility and reporting requirements and the quality, accuracy, and completeness of project-level data inputs. Attestations are made by the authorized account owner when submitting reports on the Impact Registry.
Benchmark	A benchmark is a representative standard of performance that facilitates measurement and comparison of impacts across investments in the same category. ACR methodologies include U.S.-specific benchmarks that are based on either a direct analysis of data to determine average impacts or a determination of common practice for a specific project type or sector and the associated impacts of that practice.
Bond	A type of debt instrument that serves as legally enforceable evidence of a debt and the promise of its timely repayment. ¹¹ The Green Finance Impact Program focuses on municipal bonds issued by a state, county, city, or other municipal entity, such as a special district or joint powers authority.
Bond Issuance Date	The date on which the issuer receives the proceeds and the bond begins to accrue interest.
Bond Refinancing	The restructuring of a bond, generally to take advantage of a lower interest rate.
Carbon Advantage™	A value that represents the difference between a project's GHG emission reductions compared to the appropriate sector benchmark.
Commercially Sensitive Information	Trade secrets, financial, commercial, scientific, technical, or other information whose disclosure could result in a material financial loss or gain, prejudice the outcome of contractual or other negotiations, or

¹¹ ISO (2021).

otherwise damage or enrich the person or entity to which the information relates.

Community

All groups of people who live within or adjacent to a project site, including indigenous peoples, mobile peoples, and other local communities, as well as any groups that regularly visit the area and derive income, livelihood, or cultural values from it. This may include one or more groups that possess characteristics of a community, such as shared history, shared culture, shared livelihood systems, shared relationships with one or more natural resources (e.g., forests, water, rangeland, wildlife), and shared customary institutions and rules governing the use of resources.¹²

Double Counting

A situation in which GHG emission reductions or other environmental benefits are accounted for more than once to demonstrate achievement of targets or pledges. In the context of the Green Finance Impact Program, double counting could occur when there are multiple bond issuances for the same project or a bond with registered benefits is refinanced.

Emission Factor

A value that relates an activity datum to the quantity of GHG emissions released to the atmosphere. Emission factors are often based on a sample of measured emissions data that are averaged to develop a representative rate of GHG emissions for a given activity level under a given set of operating conditions.

Environmental Risk

The potential for a project to significantly harm other environmental objectives including, but not limited to climate change mitigation; climate change adaptation; sustainable use and protection of water and marine resources; transition to a circular economy, waste prevention, and recycling; pollution prevention and control; and protection and restoration of ecosystems.

Ex-Ante

The quantification and reporting of environmental impacts based on forecasts in advance of project operation.

Ex-Post

The quantification and reporting of environmental impacts based on assessed results from project operations. The Green Finance Impact Program makes ex-post reporting possible and issuers are encouraged, but not required, to conduct ex-post reporting on achieved impacts.

Green Bond

A bond where the proceeds will be exclusively applied to finance or re-finance projects that contribute to environmental objectives such as climate change mitigation, climate change adaptation, natural resource conservation, biodiversity conservation, and pollution prevention and

¹² CCBA (2008).

control. The Green Finance Impact Program may be used by issuers whether or not a bond is labeled “green.”

Green Bond Principles (GBP)

Voluntary process guidelines that recommend transparency and disclosure and promote integrity in the development of the Green Bond market by clarifying the approach for issuance of a Green Bond.¹³

Green Finance

Financing that supports the transition to a climate resilient economy by enabling mitigation actions, adaptation initiatives promoting climate resilience, and/or addresses other environmental objectives such as natural resource conservation, biodiversity conservation, and pollution prevention and control.¹⁴

GHG Sources, Sinks, and Reservoirs (SSRs)

A GHG Source is a physical unit or process that releases a GHG into the atmosphere. A GHG Sink is a physical unit or process that removes a GHG from the atmosphere. A GHG Reservoir is a physical unit or component of the biosphere, geosphere or hydrosphere with the capability to store or accumulate a GHG removed from the atmosphere by a GHG sink or captured from a GHG source.

Carbon Return

The quantified GHG emission reduction benefit per thousand dollars of bond funding per year (MTCO₂e/\$1,000-year).

Impact Investing

An investment strategy that seeks to generate financial return as well as positive social and environmental impacts.

Investor

A person or entity that commits capital with the expectation of receiving a future financial return. In the context of the Green Finance Impact Program, investors are those who purchase, or consider purchasing, a municipal bond with quantified environmental impacts.

Issuance

A bond offering.

Issuer

The entity responsible for fulfilling the contractual obligations of the bond.¹⁵ The Green Finance Impact Program focuses on municipal issuers such as states, counties, cities, or other municipal entities, such as a special district or joint powers authority. The role of the issuer, as described in the Green Finance Impact Program Requirements, can be extended to a project operator or other designee of the issuer in accordance with the Green Finance Impact Program Member Terms of Use Agreement.

¹³ ICMA (2021a).

¹⁴ ICMA (2020b).

¹⁵ ISO (2021).

Key Performance Indicators (KPIs)	Quantifiable estimates or measurements to assess performance and achievement. The Green Finance Impact Program focuses on environmental KPIs.
Market Entity	A general term to include investors, advisors, rating agencies, underwriters, and other entities involved in the issuance, sale, or purchase of a bond or otherwise interested in the information available on the Impact Registry.
Methodology Deviations and Modifications	A project-specific change to an existing approved methodology due to a change in the conditions, circumstances, or nature of a project. A deviation may be accepted for a specific project but does not result in an approved modification to the methodology. A methodology modification is a fundamental change in an existing approved methodology due to a change in conditions, circumstances, or general developments in knowledge. Methodology deviations and modifications must be approved by ACR.
Permanence	In GHG accounting, a reference to the perpetual nature of GHG removal enhancements and the risk that a project's atmospheric benefit will not be permanent. GHG removals may not be permanent if a project has exposure to risk factors such as intentional (e.g., redevelopment) or unintentional events (e.g., fire, flood) that results in the emissions into the atmosphere of CO ₂ e previously stored or sequestered by the project.
Project	The infrastructure, asset, or activity funded with bond proceeds.
Project Accounting Boundaries	Project accounting boundaries include a project's duration (temporal boundary), physical or geographical implementation area (spatial boundary), and the components or activities considered in quantification (assessment boundary). Methodologies contain the criteria and rationale used to establish appropriate boundaries for a given project type.
Project Operational Date	The project-specific date corresponding to the start of full operation of project activities as defined by the relevant methodology. An initial start-up period when a project is not operating at full capacity may precede the project operational date. Ex-post reporting timeframes for the Green Finance Impact Program are established based on the project operational date.
Project Type	A specific category of bond-funded green projects. Methodologies and tools are developed for individual project types that have sufficiently similar characteristics in order to share a quantification approach. While a

single methodology may apply to a whole sector, there are generally multiple project types and associated methodologies within a given sector.

Registration

The process by which an issuer lists a bond and the environmental impacts of bond-funded projects on the Green Finance Impact Registry.

Reporting

The process of quantifying and reporting environmental impacts and other information on the bond and projects according to the applicable requirements and recommendations for the project stage (i.e., ex-ante or ex-post reporting).

Reversal

An intentional or unintentional event that results in emissions into the atmosphere of CO₂e previously stored or sequestered by the project.

Social Impacts

The effects, positive and negative, that a project may have on the socioeconomic well-being of affected communities.

Social Risk

The potential for a project to significantly harm social objectives including, but not limited to health, safety, labor conditions, restrictions on land use or community dislocation.

Start-Up Period

The time period after a project is functional and prior to becoming fully operational.

United Nations Sustainable Development Goals (SDGs)

The United Nations Sustainable Development Goals (SDGs) are a set of 17 goals with distinct targets that address global challenges including poverty, climate change, infrastructure, sustainable communities, clean water, and health.¹⁶

¹⁶ United Nations (2015).

APPENDIX A. GUIDANCE FOR CLIMATE RISK ASSESSMENT

INTRODUCTION

The ability of an asset to function as designed over its expected operational life is critical for both achieving the expected environmental impacts of the project and meeting the financial obligation to repay the debt on the asset. As investors, ratings agencies, and underwriters increasingly consider the climate resiliency of assets and borrowers, ACR encourages project proponents and/or issuers of bonds to:

1. Assess a project's vulnerability to current and future physical climate hazards;
2. Take action to reduce vulnerability to physical climate hazards;
3. Avoid significant harm to climate change mitigation objectives, to the asset's resiliency against other climate hazards, or to the climate resiliency of other populations or assets; and
4. Adopt plans to re-evaluate risk and monitor and modify mitigation measures as necessary to manage and adapt to forward risk.

This Appendix provides guidance to issuers to help facilitate the process of enhancing the resiliency of projects funded with bond proceeds. This guidance may supplement, but is not intended to supplant, policies or regulatory requirements applicable to the issuer and/or project jurisdiction. ACR recognizes that existing policies and regulations require project proponents to consider multiple environmental factors when designing and planning a project but also acknowledges that there remains wide variation in the degree to which future climate scenarios are taken into account.

ACR appreciates the need for flexibility and context-specific approaches to protecting the proper functioning and operation of assets. As such, ACR provides this guidance to issuers and project proponents as a set of best practices for evaluating potential climate hazards and building resilience. Climate hazards and appropriate mitigation measures will vary by location, asset type, and the existing systems and capacity of the issuer.

This resiliency guidance applies equally to bond proceeds used to:

1. Fund new infrastructure;
2. Fund capital improvements to existing infrastructure;
3. Reimburse previously incurred expenditures for purposes identified in 1 or 2; or
4. Refinance existing debt issued for purposes identified in 1 or 2.

While following the guidance contained in this Appendix is not required for the quantification, reporting, and registration of environmental impacts, issuers will need to disclose actions taken to identify, mitigate, monitor, and plan for physical climate hazards using the standardized Climate Risk and Environmental Impact Disclosure Form.

STEP 1. PHYSICAL CLIMATE HAZARD IDENTIFICATION

The first step toward building climate resiliency is determining a project's exposure to current or future climate hazards that could prevent an asset from performing as expected during its operational life. This is frequently done by modeling future climate scenarios to identify areas subject to harm and evaluating that against the presence of people, infrastructure, natural systems, and resources in those areas. A number of global climate models exist and the way they treat timeframes, emission scenarios, hazard types, and geographic boundaries vary. ACR does not endorse any single model but does recommend using the following parameters when conducting the modeling.

What is a Climate Hazard?

Climate hazards are events or physical conditions, created or exacerbated by the effects of climate change, that have the potential to cause harm to human life, property, the environment, or business operation.

Climate hazards can impact both the project's physical plant and the broader system of which it is a part.

Timeframe: Given that the purpose of the assessment is to identify potential hazards that could impact the ability of an asset to function as designed, the impacts of the changing climate should be assessed over the entirety of the expected operational life of the project. For example, if a project is expected to become operational in 2025 and operate for 30 years, the project proponent should assess the impact of climate hazards through 2055. Due to the natural climate variability, experts stress the importance of using a 30-year average when evaluating projections rather than individual years that could be anomalous.

Emission Scenarios: The effects of climate change will vary based on how atmospheric GHG concentrations change over time and models differ in their use of emission scenarios, or representative concentration pathways (RCPs). For analyses considering impacts through 2050, a higher RCP should be used. This is because there is minimal difference between the emissions scenarios for impacts projected in the first part of the century and current emission trends are following RCP 8.5, or a "business as usual" projection.¹⁷ For analysis of hazards beyond mid-century, use of RCP 8.5 is still recommended as a conservative approach but project proponents may find it useful to review results for a range of scenarios such as using both RCP 8.5 and RCP 4.5, representative of a low emissions scenario.

Hazard Types: Physical climate hazards fall into two general categories, acute shocks and chronic stressors. An acute shock is event-driven, such as increased severity of extreme weather events, while a chronic stressor refers to hazards that result from gradual shifts in climate patterns over time, such as increased temperatures. Climate hazards can also be categorized based on the type of climate change effect. Examples of different types of physical climate hazards, classified into hazard groups and climate change effects are displayed in

¹⁷ Governor's Office of Planning and Research (2018). Planning and Investing for a Resilient California. A Guidebook for State Agencies, p. 19. http://opr.ca.gov/docs/20180313-Building_a_Resilient_CA.pdf.

Table 1 below.¹⁸ ACR recommends using a model, or models, that enables evaluation of a wide variety of climate hazard types.

Table 2: Examples of Physical Climate Hazards

	TEMPERATURE	WIND	WATER	SOLID MASS
CHRONIC	<ul style="list-style-type: none"> • Changing temperature (air, freshwater, marine water) • Heat stress • Temperature variability • Permafrost thawing 	<ul style="list-style-type: none"> • Changing wind patterns 	<ul style="list-style-type: none"> • Changing precipitation patterns and types (rain, hail, snow, ice) • Precipitation and/or hydrological variability • Ocean acidification • Saline intrusion • Sea level rise • Water stress 	<ul style="list-style-type: none"> • Coastal erosion • Soil degradation • Soil erosion • Solifluction
ACUTE	<ul style="list-style-type: none"> • Heat wave • Cold wave/frost • Wildfire 	<ul style="list-style-type: none"> • Cyclone, hurricane, typhoon • Storm (including blizzard, dust and sandstorm) • Tornado 	<ul style="list-style-type: none"> • Drought • Heavy precipitation (rain, hail, snow/ice) • Flood (coastal, fluvial, pluvial, ground water) • Glacial lake outburst 	<ul style="list-style-type: none"> • Avalanche • Landslide • Subsidence

Geographic Boundaries: The use of a downscaled climate model is recommended as they project the effects of climate change on the local climate and therefore offer a more refined assessment of physical hazards. When determining the physical boundary to examine, it is recommended that the analysis not be confined to just the physical site of the project as it is common for there to be interdependencies between the proper functioning of the project and climate impacts at other locations (e.g., energy supply). Project proponents should scrutinize those interdependencies and seek to assess climate hazards for the broader system of which it is a part.

¹⁸ EU Technical Expert Group on Sustainable Finance (March 2020). Taxonomy Report Technical Annex. Adapted from Table 5. https://ec.europa.eu/info/files/200309-sustainable-finance-teg-final-report-taxonomy-annexes_en.

STEP 2 DETERMINATION OF VULNERABILITY TO CLIMATE HAZARDS

After using a model to identify exposure to physical climate hazards, the next step is determining the vulnerability of the asset to those hazards. A vulnerability assessment is the examination of the degree of risk, the sensitivity, and adaptive capacity for each climate hazard to which there is exposure. Understanding these components enables priority setting for mitigating physical climate hazards and building resilience.

What is Vulnerability?

Vulnerability is the degree to which natural, built, and human systems are at risk.

Vulnerability is considered a function of exposure, sensitivity, and adaptive capacity and can be impacted by physical, social, political, or economic factors.

To illustrate, imagine an asset that is highly exposed to heatwaves and moderately exposed to wildfire. If the proper functioning of the asset is not particularly sensitive to a heatwave or the asset is able to modify its operation during a heatwave, the asset is likely less vulnerable to heatwaves than to the moderate exposure risk of wildfire that could halt operations or destroy the asset.

Assessing vulnerability involves thinking through the impacts and follow-on effects of the applicable chronic and acute climate hazards – once again looking at both the project’s physical plant and the broader system of which it is a part. In addition to the risk of property damage, project proponents should consider an asset’s sensitivity to additional factors such as a loss of service from utilities, disruptions to transportation or telecommunications systems, degradation or loss of local ecosystems or ecosystem services, and the health and safety of staff.

There are several resources that can aid project proponents and issuers in determining the sensitivity and adaptive capacity to an identified climate hazard. ACR recommends a review of existing local, regional, and/or state reports and plans, engagement with a range of stakeholders including, public officials in the fields of sustainability, emergency services, and public health, as well as asset managers and operators at special districts (e.g., electricity, water, fire, sewer and sanitation).

Using the information collected through climate modeling, reviewing existing reports and plans, and consulting with stakeholders, the project proponent can assemble a picture of the exposure risk, sensitivity or impact, and adaptive capacity of various physical climate hazards. Synthesizing this information facilitates decision making. An example of a straightforward approach to ranking potential impacts and adaptive capacity (high, medium, and low) and arranging them in a matrix to identify the greatest vulnerabilities is shown in Tables 2 and 3.¹⁹

¹⁹ Governor’s Office of Emergency Services (June 2020). California Adaptation Planning Guide, p. 100. <https://www.caloes.ca.gov/cal-oes-divisions/hazard-mitigation/hazard-mitigation-planning/california-climate-adaptation>.

Table 3: Potential Impact and Adaptive Capacity Scoring Rubric

	POTENTIAL IMPACT	ADAPTIVE CAPACITY
LOW	Impact is unlikely based on projected exposure; would result in minor consequences to public health, safety, and/or other metrics of concern.	The population or asset lacks capacity to manage climate impact; major changes would be required.
MEDIUM	Impact is somewhat likely based on projected exposure; would result in some consequences to public health, safety, and/or other metrics of concern.	The population or asset has some capacity to manage climate impact; some changes would be required
HIGH	Impact is highly likely based on projected exposure; would result in substantial consequences to public health, safety, and/or other metrics of concern.	The population or asset has high capacity to manage climate impact; minimal to no changes are required.

Table 4: Vulnerability Score Matrix

		ADAPTIVE CAPACITY		
		High	Medium	Low
POTENTIAL IMPACTS	High	3	4	5
	Medium	2	3	4
	Low	1	2	3

STEP 3. ACTIONS TO REDUCE VULNERABILITY

Once an issuer or project proponent has determined the relevant physical climate hazards and assessed the vulnerability of the asset to those hazards, the next step is to identify actions to minimize risk. ACR recognizes that it may not be possible to completely eliminate all risk but recommends taking action to sufficiently reduce risk to a level that enables the proper functioning and operation of an asset.

Given the range of potential hazards and contexts, there is no one-size-fits-all set of actions to reduce vulnerability from climate hazards. A variety of approaches can be successful, including limiting exposure, safeguarding against impacts, and/or enhancing adaptive capacity.

Climate Hazard Mitigation, Adaptation, and Resilience

Climate Hazard Mitigation is a sustained action to reduce or eliminate the long-term risk to human life and property through reduction of climate hazards, exposure, and vulnerability.

Adaptation to climate change is an adjustment in natural or human systems to moderate harm or exploit beneficial opportunities resulting from the actual or expected effects of climate change.

Resilience is the capacity of any entity to prepare for disruptions, to recover from shocks and stresses, and to adapt and grow from a disruptive experience.

Limiting Exposure: Limiting exposure to physical climate hazards is most effectively addressed during the early stages of project development – particularly when determining where to locate an asset. Certain vulnerabilities can be avoided altogether by analyzing climate hazards early in the process and prioritizing the reduction or elimination of long-term risk in the decision-making process.

Safeguarding Against Impacts: When it is not possible to sufficiently limit exposure to physical climate hazards, additional steps may be taken to safeguard against their impacts. Safeguarding may include the incorporation of natural or built environment features related to the design of a structure, selection of materials, hardening of infrastructure, and placement of critical equipment, among others, that increase an asset’s ability to withstand the adverse impacts of climate hazards without significant disturbance.

Enhancing Adaptive Capacity: Some impacts of physical climate hazards may be unavoidable. This may especially be the case for climate hazards facing the broader system of which an asset is a part but where the ability limit exposure and/or safeguard against impacts are outside of the control of asset operator. In light of these hazards, asset managers may be left to respond to consequences and moderate harm. Enhancing adaptive capacity to minimize disruption can take many forms such as establishing early warning systems, creating backup power generation or storage capacity, or setting aside funds for rapid repair or rebuilding of critical assets.

In addition to the guidance above, there are some principles that can guide decision making around taking actions to reduce vulnerability to physical climate hazards. Oftentimes issuers and project proponents face tradeoffs between minimizing an asset’s vulnerability to the effects of climate change and other competing factors such as cost, efficiency, and timing. Moreover, there is sometimes a desire to discount the need to future-proof infrastructure which can be attributed, at least in part, to the fact that uncertainty is an inescapable quality of the changing climate and inherent in any modeling exercise. While acknowledging that real tradeoffs do exist and that decision makers must take multiple considerations into account, it is important to:

- Factor in the costs, monetary and otherwise, associated with losses and/or lengthy disruptions to proper functioning of the asset attributable to the impacts of climate hazards;

- Understand that many climate hazard mitigation measures can provide protection against physical risk without sacrificing other attributes of a project; and
- Appreciate that many mitigation measures can also deliver co-benefits beyond their primary purpose, such as long-term cost savings.

Operating with that more complete perspective, ACR recommends issuers and project proponents build in appropriate hazard mitigation measures and seek out “win-win” and “low or no regret” design elements and adaptive responses.

Finally, resiliency is a process. If it is not possible at the onset to build in a full set of climate hazard mitigation actions to support the proper functioning and operation of an asset over its lifetime, ACR recommends that, at a minimum, early actions be taken to reduce vulnerability to the most certain impacts of climate change and plans be developed for monitoring, re-evaluating, and further responding as conditions and capabilities adjust. This dynamic approach is described more fully in Step 4.

STEP 4. RE-EVALUATE, MONITOR & PLAN

As previously noted, building asset resiliency is an ongoing process and it is unlikely that all physical climate hazards that an asset may be vulnerable to over its operational life will be entirely eliminated at a project’s onset. Due to the understanding that the uncertainty associated with modeling climate impacts tends to increase when projecting farther out in time and to the potential need to prioritize certain climate hazard mitigation efforts over others early on, ACR recommends project proponents and/or issuers adopt plans to:

1. Periodically re-evaluate climate hazards and vulnerability;
2. Monitor the efficacy of climate hazard mitigation measures implemented; and
3. Establish adaptive pathways containing thresholds that signal the need to modify mitigation measures to manage and adapt to forward risk.

Re-evaluate Risk: Exposure, sensitivity, and adaptive capacity to physical climate hazards can evolve over time. Therefore, ACR recommends that issuers and project proponents periodically reassess an asset’s vulnerability using the approach discussed in Steps 1 and 2. The frequency (e.g., every five or ten years) may vary depending on the hazard, the context, and the availability of new information, technologies or approaches, or policies and regulations.²⁰

Monitor Mitigation Measures: Mitigating climate hazards can involve making decisions in the face of uncertainty. This fact highlights the need for ongoing monitoring of the efficacy of the measures put in place to ensure that they continue to protect against physical climate hazards as designed and in accordance with current and future climate conditions. Monitoring resilience strategies is most effective when using defined indicators specific to the climate hazard and mitigation measure.

Plan to Adapt: Understanding that climate conditions, vulnerability, and the efficacy of mitigation measures can change over time, it is best practice to adopt adaptive pathways, or flexible plans, that serve as a roadmap for project proponents or issuers on how to respond to

²⁰ EU Technical Expert Group on Sustainable Finance (March 2020). Taxonomy Report Technical Annex. p. 25. https://ec.europa.eu/info/files/200309-sustainable-finance-teg-final-report-taxonomy-annexes_en.

dynamic circumstances. Adaptive pathways are most effective when based on established targets, thresholds, or triggers that signal the need to modify mitigation measures or implement new adaptation approaches in order to continue to secure the proper functioning and operation of the asset. Plans may be solely applicable to the asset or plans for the asset may be captured within a broader plan, such as a city's climate resilience plan.

APPENDIX B. GUIDANCE FOR SOCIAL IMPACT ASSESSMENT

INTRODUCTION

Green finance has the potential to support communities through additional social benefits or harm communities as a result of project externalities. This Appendix provides guidance to issuers to help facilitate the process of reporting on social impacts of projects funded with bond proceeds. This guidance may supplement, but is not intended to supplant, policies or regulatory requirements applicable to the issuer and/or project jurisdiction.

This social impact guidance applies equally to bond proceeds used to:

1. Fund new infrastructure;
2. Fund capital improvements to existing infrastructure;
3. Reimburse previously incurred expenditures for purposes identified in 1 or 2; or
4. Refinance existing debt issued for purposes identified in 1 or 2.

While following the guidance contained in this Appendix is not required for the quantification, reporting, and registration of environmental impacts, issuers will need to disclose actions taken to identify, avoid, minimize, and monitor social harms using the standardized Social Impact Disclosure Form. In addition to addressing potentially significant social harms, issuers may also use the disclosure form to communicate the potential co-benefits of a project.

SOCIAL HARMS & CO-BENEFITS

Avoiding harm is a core tenant of impact investing and ACR encourages project proponents and/or issuers of bonds to:

1. Anticipate a project's potential social harms;
2. Take action to avoid harm, or where avoidance is not possible, minimize potential harms;
3. Where residual impacts remain, compensate impacted populations/stakeholders; and
4. Adopt plans to measure/monitor significant social harms and the efficacy of mitigation measures.

Social co-benefits frequently result from green finance and ACR encourages issuers to also use the Social Impact Disclosure Form to characterize, quantitatively or qualitatively, the social co-benefits attributable to the project.

Potential social harms and co-benefits can be multiple and vary widely depending on the project type, design, and community. The table below provides sample impacts and indicators in the following areas: health, economic, education, housing, transportation, energy, water, and community. A project may only contribute to a small number of the sample impacts and may contribute to others not included in the table as it is not a comprehensive list. The sample

indicators are suggested for use when providing quantitative data on social impacts or when developing monitoring plans.

The impacts listed are framed neutrally as a project may help or harm these factors. Impacts can also be distributed differently across various segments of a population. Issuers should consider how a project reduces or exacerbates disparities across race, class, gender, immigration status, disability status, age group, and urban/rural communities.

Table 5: Sample Social Impacts & Indicators

IMPACTS	INDICATORS
Health	
<ul style="list-style-type: none"> - Availability of healthcare services - Access to healthcare services - Food security 	<ul style="list-style-type: none"> - Number of beds/facilities or numbers per population - Patients reached or percent of population served - Ratios of preventative care and urgent care services provided - Service area or distance to healthcare facility - Treatment costs - Number of patients accessing subsidized care - Life expectancy, mortality levels, etc. - Number or percentage of households that are food insecure
Economic	
<ul style="list-style-type: none"> - Job availability - Local hiring - Workforce training programs - Support for small, local, or minority- and women-owned businesses 	<ul style="list-style-type: none"> - Workforce participation - Employment levels - Income/wage and benefit levels - Income distribution - Number of workers trained or percent of eligible workforce trained - Poverty rates - Economic mobility - Rates of access to internet or number of first-time high-speed internet connections - Number of individuals or businesses provided access to financial services, including capital - Demographics of business owners - Dollars spent in locally-owned businesses

IMPACTS	INDICATORS
Education	
<ul style="list-style-type: none"> - Availability/access to education - Quality of education 	<ul style="list-style-type: none"> - Number of students or percent of school-aged population served - Educational attainment levels - Educational achievement gap - Student dropout rate - Student-teacher ratio - Rates of access to internet
Housing	
<ul style="list-style-type: none"> - Access to housing - Quality of housing - Transit oriented development - Displacement 	<ul style="list-style-type: none"> - Number of housing units permitted or built - Number of affordable housing units permitted or built - Number of affordable housing units equipped for persons with disabilities permitted or built - Number of units accessible to transit permitted or built - Number of individual or households accessing subsidized housing - Number of unhoused persons or rate of homelessness - Rental costs - Number of foreclosures/evictions or foreclosure/eviction rate - Demographics of homebuyers
Transportation	
<ul style="list-style-type: none"> - Access to public transportation - Reliability of public transportation - Station/stop safety and amenities - Access to transportation on-demand and/or micromobility services - Safe access for cyclists/pedestrians - Electric/alternative fuel vehicle uptake 	<ul style="list-style-type: none"> - Number of people or percentage of population with access to transportation service - Ridership or number of passengers served - Vehicle miles traveled or miles per capita - Service area - Service frequency - On-time performance - Number and duration of service disruptions/outages - User costs or change in user cost - Number of users accessing subsidized fares - Number of improvements to transit station/stops - Road congestion - Miles of bike lane/sidewalks - Use rate of bike/ped lanes - Number of cyclist/pedestrian casualties or fatalities - Number of chargers/alternative fueling stations or numbers per capita

IMPACTS	INDICATORS
Energy	
<ul style="list-style-type: none"> - Access to power - Reliability of power supply - Energy use efficiency - Clean power supply 	<ul style="list-style-type: none"> - Number and duration of service disruptions/outages - User costs or change in user costs - Number of households accessing subsidized rates - Capacity of distributed energy systems/microgrids - Capacity of energy storage - Percentage of energy infrastructure that is hardened - Number of households/businesses served - Energy demand/consumption per household or business - Percentage of demand met with renewable energy sources - Carbon intensity of power supplied
Water	
<ul style="list-style-type: none"> - Access to clean drinking water - Reliability of fresh water supply - Water use efficiency - Reliability of wastewater and stormwater treatment 	<ul style="list-style-type: none"> - Number or percentage of households with and without access to safe drinking water - Water demand/consumption per household or business - Percentage of water demand met with grey water - User costs or change in user costs - Number of households accessing subsidized rates - Number and duration of service disruptions/outages - Long-term sustainability/capacity of fresh water supply - Stormwater runoff - Receiving water resource quality - Number and duration of service disruptions/outages
Community	
<ul style="list-style-type: none"> - Community revitalization - Displacement - Social cohesion - Public safety - Emergency and disaster response - Access to nature and recreation 	<ul style="list-style-type: none"> - Retail sales per capita or amount or sales tax collected - GDP per capita - Displacement risk index - Demographic changes - Measures of social trust or social inclusion - Measures of trust in government institutions - Wealth to income ratio - Crime rate - Emergency response time - Vulnerability to natural disaster (e.g., flood, fire) - Percentage of public funds spent on public safety - Number of public parks or area for recreating

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