Renewable Energy Guidance

Guidance for assessing the greenhouse gas impacts of renewable energy policies

May 2018

What is the guidance and why should I use it?

1. INTRODUCTION

With the adoption of the Paris Agreement in 2015, governments around the world are increasingly focused on implementing policies and actions that achieve greenhouse gas (GHG) mitigation objectives. Electricity generation accounts for approximately 40% of global GHG emissions\(^1\) and countries are increasingly implementing renewable energy policies to accelerate the move from fossil fuel to renewable sources of electricity generation. In this context, there is an increasing need to assess and communicate the impacts of renewable energy policies and actions to ensure they are effective in delivering GHG mitigation and helping countries meet their sectoral targets and commitments.

Purpose of the guidance

This document provides methodological guidance for assessing the GHG impacts of renewable energy (RE) policies. The guidance provides a stepwise approach for estimating the effects of policy design characteristics, economic and financial factors, and other barriers on the potential for RE policies to achieve their maximum implementation potential. Guidance is provided to convert this impact (expressed in terms of newly installed renewable energy capacity or generated electricity) into GHG emission reductions.

This guidance is part of the Initiative for Climate Action Transparency (ICAT) series of guidance for assessing the impacts of policies and actions. It is intended to be used in combination with any other ICAT guidance documents that users choose to apply. The series of guidance is intended to enable users that choose to assess GHG impacts, sustainable development impacts and transformational impacts of a policy to do so in an integrated and consistent way within a single impact assessment process. Refer to the ICAT Introductory Guide for more information about the ICAT guidance documents and how to apply them in combination.

Intended users
This guidance is intended for use by policymakers and practitioners seeking to estimate GHG mitigation impacts in the context of Nationally Determined Contribution (NDC) development and implementation, national low carbon strategies, and Nationally Appropriate Mitigation Actions (NAMAs) and other mechanisms. The primary intended users are developing country governments and their partners who are implementing and assessing RE policies. Throughout the guidance, the term “user” refers to the entity implementing the guidance.

The main emphasis of the guidance is on the assessment of GHG impacts. Impact assessment can also inform and improve the design and implementation of policies. Thus, the intended users include any stakeholders involved in the design and implementation of national renewable energy policies, strategies, NDCs or NAMAs, including research institutions, businesses and non-governmental organisations.

Scope and applicability of the guidance
This guidance provides general principles, concepts and a stepwise method for estimating the GHG impacts of three types of RE policies:

- **Feed-in tariff policies (including feed-in premiums):** Policies that aim to promote RE deployment by offering long-term purchase agreements with power producers at a specified price per kilowatt-hour (kWh)
- **Auction policies (including tender policies):** Competitive bidding procurement processes for renewable electricity in the form of either capacity (MW) or electricity generated (MWh)
- **Tax incentive policies:** Policies under which authorities at the national, subnational or municipal level offer tax incentives for the installation and operation of RE installations

These types of RE policies form the core of many policy packages that countries are using to promote RE and are further discussed in Chapter 3. RE can also be promoted via economic instruments (such as emission trading programs or carbon taxes), actions to change the regulatory environment (such as grid access), priority dispatch and wheeling, and capacity building programmes (such as energy service company development initiatives). However, the focus of this guidance is on policies that specifically target RE deployment, and these other types of instruments and actions are only discussed peripherally in this guidance. Appendix F lists the full criteria used to choose the scope of the guidance.

This guidance details a process for users to follow when conducting a GHG assessment of RE policies. It provides guidance on defining the assessment, an approach to GHG assessment including ex-ante (forward-looking) assessments and ex-post (backward-looking) assessments, and monitoring and reporting. Throughout the document, examples and case studies [to be developed] are provided to illustrate how to apply the guidance.

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2 Throughout this guidance, where the word “policy” is used without “action,” it is used as shorthand to refer to both policies and actions. See Glossary for definition of “policies or actions”.
The guidance is applicable to policies:

- At any level of government (national, subnational, municipal) in all countries and regions
- That are planned, adopted or implemented
- That are new policies or actions, or extensions, modifications or eliminations of existing policies or actions

The guidance does not provide exhaustive accounting guidance for all renewable energy technologies. For example, the GHG impact of electricity generation from biomass depends on the emissions associated with growing the biomass and any land-use change. In such cases, the guidance highlights technology-specific considerations and provides references to other resources where possible, but does not provide detailed accounting guidance.

When to use the guidance

The guidance can be used at multiple points in time throughout the policy design and implementation process, including:

- **Before policy implementation**: To assess the expected future impacts of a policy (through ex-ante assessment)
- **During policy implementation**: To assess the achieved impacts to date, ongoing performance of key performance indicators, and expected future impacts of a policy
- **After policy implementation**: To assess what impacts have occurred as a result of a policy (through ex-post assessment)

Depending on individual objectives and when the guidance is applied, users can implement the steps related to ex-ante assessment, ex-post assessment or both. The most comprehensive approach is to apply the guidance first before implementation, regularly during policy implementation and again after implementation. Users carrying out an ex-post assessment only skip Chapters 7 and 8. Users carrying out an ex-ante assessment only skip Chapter 9.

Key recommendations

The guidance includes *key recommendations* that represent recommended steps to follow when assessing and reporting impacts. These recommendations are intended to assist users in producing credible impact assessments that pursue high quality and based on the principles of relevance, completeness, consistency, transparency and accuracy.

Key recommendations are indicated in subsequent chapters by the phrase “It is a *key recommendation* to….“ All key recommendations are also compiled in a checklist at the beginning of each chapter.

Users that want to follow a more flexible approach can choose to use the guidance without adhering to the key recommendations. The ICAT *Introductory Guide* provides further description of how and why key recommendations are used within the ICAT guidance documents, as well as more information about following either the “flexible approach” or the “key recommendations” approach when using the guidance. Refer to the *Introductory Guide* before deciding on which approach to follow.
Relationship to other guidance and resources
This guidance uses and builds on existing resources mentioned throughout the document. This includes Clean Development Mechanism (CDM) large-scale consolidated methodology ACM0002: Grid-connected electricity generation from renewable sources, and CDM Tool to calculate the emission factor for an electricity system.

The guidance builds upon the Greenhouse Gas Protocol Policy and Action Standard\(^3\) and the Draft Policy and Action Standard – Energy Supply Sector guidance\(^4\) (both of which provide guidance on estimating the greenhouse gas impacts of policies and actions, and discussion on many of the accounting concepts in this document such as baseline and policy scenarios), to provide a detailed method for specific renewable energy policies. As such, this guidance adapts the structure and some of the tables, figures and text from the Policy and Action Standard where relevant. Figures and tables adapted from the Policy and Action Standard are cited, but for readability not all text taken directly or adapted from the standard is cited.

A full list of references is provided at the end of this document.

Process for developing the guidance
This guidance has been developed through an inclusive, multi-stakeholder process convened by the Initiative for Climate Action Transparency. The development is led by the NewClimate Institute (technical lead) and Verra (co-lead), who serve as the Secretariat and guide the development process. The first draft was developed by drafting teams, consisting of a subset of a broader Technical Working Group (TWG) and the Secretariat. The TWG consists of experts and stakeholders from a range of countries identified through a public call for expressions of interest. The TWG contributed to the development of the technical content for the guidance through participation in regular meetings and written comments. The energy sector TWG contributed to both the ICAT Renewable Energy Guidance and the Buildings Efficiency Guidance. A Review Group provided written feedback on the first draft of guidance.

This version of guidance will be applied with ICAT participating countries and other interested countries to ensure that it can be practically implemented, gather feedback for its improvement and provide case studies.

ICAT’s Advisory Committee provides strategic advice to the initiative. More information about the guidance development process, including governance of the initiative and the participating countries, is available on the ICAT website.

All contributors are listed in the “Contributors” section.

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2. **OBJECTIVES OF ASSESSING THE GHG IMPACTS OF RE POLICIES**

This chapter provides an overview of objectives users may have in assessing the GHG impacts of renewable energy policies. Determining the assessment objectives is an important first step, since decisions made in later chapters are often guided by the stated objectives.

Checklist of key recommendations

- Determine the objectives of the assessment at the beginning of the impact assessment process

Assessing the GHG impacts of RE policies is a key step towards identifying opportunities and gaps in effective GHG mitigation strategies. Impact assessment supports evidence-based decision making by enabling policymakers and stakeholders to understand the relationship between policies and expected GHG impacts. It is *key recommendation* to determine the objectives of the assessment at the beginning of the impact assessment process.

Examples of objectives for assessing the GHG impacts of a policy are listed below. The ICAT Sustainable Development Guidance can be used to assess the broader sustainable development impacts of RE policies and users should refer to that guidance for objectives for assessing such impacts.

**General objectives**

- **Estimate the GHG impacts of policies to determine whether they are on track to help meet goals** such as NDCs or RE targets
- **Maximise positive impacts** of policies, such as increased GHG emission reductions, RE capacity addition, and RE electricity generation
- **Ensure that policies are cost-effective** and that limited resources are invested efficiently

**Objectives of assessing impacts before policy implementation**

- **Improve policy design and implementation** by understanding the impacts of different design and implementation choices
- **Inform goal setting** by assessing the potential contribution of policies to national goals and targets, such as NDCs
- **Access financing** for policies by estimating potential GHG emission reductions, or by estimating the RE capacity addition and RE electricity generation

**Objectives of assessing impacts during or after policy implementation**

- **Assess policy effectiveness** by determining whether RE policies are delivering the intended results
- **Improve policy implementation** by determining whether RE policies are being implemented as planned
- **Inform future policy design** and decisions on whether to continue current actions, enhance current actions, or implement additional actions
- **Learn from experience and share best practices** about policy impacts

- **Track progress toward national goals and targets** such as NDCs and understand the contribution of policies toward achieving them

- **Report**, domestically or internationally, including under the Paris Agreement’s enhanced transparency framework, on the impacts of policies achieved to date

- **Meet funder requirements** to report on GHG emissions reductions or RE capacity addition, RE electricity generation

Users should also identify the intended audience(s) of the assessment report. Possible audiences include policymakers, the general public, NGOs, companies, funders, financial institutions, analysts, research institutions, or other stakeholders affected by or who can influence the policy or action. For more information on identifying stakeholders, refer to the ICAT *Stakeholder Participation Guidance* (Chapter 5).

Subsequent chapters provide flexibility to enable users to choose how best to assess the impacts of policies and actions in the context of their objectives, including which impacts to include in the GHG assessment boundary and which methods and data sources to use. The appropriate level of accuracy and completeness is likely to vary by objective. Users should assess the impacts of their policies with a sufficient level of accuracy and completeness to meet the stated objectives of the assessment.