



KEY ELEMENTS OF A SECTORAL CREDITING STANDARD FOR THE ENERGY TRANSITION ACCELERATOR

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ENVIRONMENTAL RESOURCES TRUST (ERT) AT WINROCK INTERNATIONAL

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AUTHORS

Bill Bumpers
Sean Donovan
Mary Grady
Zubair Zakir

OFFICE ADDRESS

Environmental Resources Trust (ERT)
c/o Winrock International
204 E. 4th Street
North Little Rock, Arkansas 72114 USA

ABOUT ENVIRONMENTAL RESOURCES TRUST (ERT)

Environmental Resources Trust (ERT) is a nonprofit subsidiary of Winrock International and operates the internationally recognized crediting programs ACR and the Architecture for REDD+ Transactions (ART).

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1 INTRODUCTION

1.1 BACKGROUND

At COP27, the U.S. Department of State, Bezos Earth Fund and the Rockefeller Foundation announced the Energy Transition Accelerator (ETA), a new initiative to support developing and emerging economies in achieving earlier and deeper emission reductions in the electricity sector. The ETA aims to unlock new long-term financial flows to accelerate the transition to a net zero emissions power sector through carbon markets.

This document presents key elements of a sectoral crediting standard¹ (provisionally referred to throughout this document as the *Standard*) for emissions reductions in the power sector that is being developed for the ETA. The *Standard* aims to provide a credible and rigorous process to transparently register, verify, and issue high integrity sectoral emission reduction credits. Importantly, and as described in more detail throughout this document, the key elements presented here are under active consideration, and remain subject to further refinement and modification as the *Standard* itself is developed into 2024.

1.2 GOVERNANCE

The *Standard* will be governed by the Board of the Environmental Resources Trust (ERT), a wholly owned nonprofit subsidiary of Winrock International, and guided by an advisory Board that will provide strategic counsel to ensure the program's environmental and social integrity and responsiveness to global policy and implementation aspects of just energy transitions.

Staff of ERT will be responsible for the operation of the crediting program including overseeing *Standard* development as well as the implementation of the *Standard* for the registration, verification and issuance of credits on a transparent registry.

¹ The term "sectoral crediting" is used to address the entire electric power industry within the country. Also called a "jurisdictional" crediting system, it is designed to cover all CO₂ emitting power sources within each country, including captive plants that are not grid connected. It also includes the power producing portion of combined heat and power facilities.

1.2.1 DEVELOPMENT AND REVISIONS PROCESS FOR THE STANDARD

ERT will work with global power sector experts to develop the *Standard*. A list of the advisors and experts will be made publicly available.

ERT will conduct a review of the *Standard* at a minimum of every five years, including a review of the Performance Standard crediting baselines, with input from technical experts and stakeholders as well as relevant decisions under the U.N. Framework Convention on Climate Change (UNFCCC).

ERT will solicit broad stakeholder input to the finalization of and future updates and revisions to the *Standard* through a transparent global public comment process.

By 2030, the Secretariat will review the Performance Standard to evaluate potential revisions to ensure ambition and alignment with the Paris Agreement's temperature goals.

2 ELIGIBILITY REQUIREMENTS

2.1 ELIGIBLE ENTITIES

Eligible Participants are national governments (i.e., the highest level of government that exists in the country), or an authorized designee of the national government. The designee may be a ministry, regulatory body, electric utility or an outside entity with authority granted it by the national government. A subnational jurisdiction such as a large state, province, or region may also be eligible if it operates a distinct grid with a minimum installed capacity (TBD).²

While the *Standard* will not directly issue credits to electric sector projects, ERT recognizes that Participants will work with the private sector and other stakeholders to design and implement successful just energy transition programs, which may entail facility-level activities. The *Standard* does not prescribe how such activities must be incorporated into national or subnational programs. Each Participant will be allowed to determine the arrangement that is best for their individual needs, following requirements to avoid double counting as described in Section 7 and relevant UNFCCC guidance. This includes that Participants should have policies in place to address the risk of double-

² One or more subnational jurisdiction(s) may also be eligible to apply, provided they meet requirements for installed capacity (threshold – TBD) and in the case of multiple sub-national entities can clearly identify the collective governance structure in place.

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issuance, i.e., that the project or facility level activity and the host government do not receive carbon credits for the same emissions reductions.

2.1.1 NATIONAL REPORTING REQUIREMENTS

The electricity sector must be included in the host government's Nationally Determined Contributions (NDCs) although a specific target for the electricity sector is not required.

2.2 JUST ENERGY TRANSITION PLAN

The Participant shall submit a Just Energy Transition plan (Plan) as part of the initial documentation for crediting and with each subsequent Emissions Monitoring Report. The Plan presented may be the same as or include parts of the country's NDC, Just Energy Transition Partnership Agreement, National Resource Management Plan or other plan. The scope of the Plan must include all grid connected plants, non-grid connected captive power plants, distributed energy/mini grids, and electricity imports and exports (hereafter encompassed in any references to "electric sector", "the electric / grid", "grid emissions", or "grid connected", for sake of readability). The Plan must also include associated "just transition" elements.³

The Plan should outline new and ongoing activities and initiatives to reduce electric sector emissions including a plan for the phase out of coal generation. The Plan must include specific actions, such as those listed below, the timeline for implementation, associated finance/investment needs and associated emission reductions and milestone dates.

In addition to new grid connected and distributed generation capacity and retirement of existing fossil generation capacity, the Plan is expected to include a broad range of policy and regulatory actions which may include the following:

- Enacting a carbon cap-and-trade, carbon tax, or similar system applied to the sources supplying electricity to the grid;
- Changing the dispatch sequence of the electric system manager, giving preference to lower emitting sources;
- Offering depreciation or other incentives and/or permitting reforms enabling the early retirement of coal-fired power plants;
- Providing enhanced financing for expansion and upgrade to the electric grid to better enable the development of large-scale renewable energy sources;
- Revising power bid and auction policies as well as reform of long-term power purchase agreements;

³ Guidance on Just Energy Transition plan elements in development by EDF.

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- Providing for or reforming power sector permitting to enable expedited deployment, connection, and/or upgrade of transmission lines or fast-track permitting for the development of new renewable energy supplies;
- Providing incentives (tax benefits, direct subsidies or technical assistance) for the installation of distributed renewable energy resources;
- Establishing energy efficiency standards for lighting and appliances, electric motors and updating buildings codes;
- Coordinating with project and facility owners to accelerate and smooth the transition away from fossil-based power sources;
- Supporting carbon capture and sequestration technologies and activities within the country.

As a sectoral crediting program, the *Standard* aims to encourage long-term shifts in legislative and regulatory policies and programs to accelerate the transition to a decarbonized electric sector on a trajectory consistent with Paris Agreement temperature goals. A wide range of activities can lead to lower emissions from the sector, and the *Standard* aims to incentivize and enable as many as feasible. All activities that reduce emissions in the electricity sector can contribute to lowering emissions to levels that would qualify for crediting, noting that new zero emissions generation must adhere to international standards and new coal production will be disincentivized through adjustments to credited volumes.

3 CREDITING UNDER THE STANDARD

CREDITING APPROACHES OVERVIEW

Figure 1: Crediting Approaches

CREDITING APPROACH	(1) ABSOLUTE EMISSION REDUCTION CREDITING 	(2) EMISSION RATE PERFORMANCE STANDARD 	(3) THIRD CREDITING APPROACH (Future Development) 
COUNTRY CATEGORIES	<p>Countries which have demonstrated a consistent reduction in absolute electricity-sector emissions over the past 5 years, are considered ‘past peak’ and would apply the absolute reductions approach from the outset.</p> <p>Absolute emission reduction crediting will require a measured reduction of grid-wide emission below a conservative baseline.</p>	<p>Countries demonstrating high dependence on fossil-fuel generation and high growth rate in demand for electricity, would apply the emission rate approach.</p> <p>NOTE: Sub-categories may be considered.</p> <p>Countries transition to Absolute Emissions Standard the soonest of:</p> <ol style="list-style-type: none"> 1. Peak Emissions, OR 2. 30% reduction in Emission Intensity, OR 3. By 2035 	<p>Countries with low per capita electricity access levels, low KWh per capita consumption rates and limited grid development.</p> <p>NOTE: Development in a future phase</p>

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Recognizing that different countries are in different stages of electric system development as well as along different energy transition pathways, the *Standard* will offer three distinct crediting approaches.

Crediting for absolute emission reductions: Crediting for Participants operating in contexts that have reached peak emissions and have achieved (or expect to achieve in the very near future) consistent, absolute emission reductions over a five-year period. Transition to crediting under this approach will be required for countries that reach peak emissions while crediting using the emission rate approach described below.

Crediting for emission rate reductions: Crediting for Participants that are operating in contexts that are experiencing increasing GHG emissions from the electricity sector due to increasing demand for electricity and over-reliance on fossil fuels. Here, continued increase in electricity production is anticipated in the near term to accommodate economic growth, needed electrification in other sectors (e.g., transportation, industrial production) and increased well-being of its citizens. The *Standard* encourages policies aimed at accelerating clean energy generation by crediting for emissions reductions resulting from the production of less emissions-intensive electricity while addressing energy equity and hastening the timeline to peak emissions.

Crediting for energy access emissions reductions: Crediting will be an important tool for Participants that are operating in contexts that have low levels of electricity consumption per capita, limited grid capacity and poor access to electricity, and historically low emissions from this sector. We anticipate developing a different approach to countries that fall into this third cohort in the next phase of the *Standard*.

3.1 CREDITING FOR ABSOLUTE EMISSION REDUCTIONS

For countries that have demonstrated a consistent reduction in absolute emissions in electricity sector emissions in the past [5] years, the *Standard* will be based on continued reduction in emissions from the grid. The initial crediting level will be set at the average annual emissions of the two lowest of the most recent five-year periods. Thereafter, the crediting level will be revised downward every two years based on the average emissions of the lowest two of the preceding five years and on continued alignment with a Performance Standard representing a downward trajectory of emissions that would be necessary to stay on the Paris aligned path. In no event, can the crediting level increase. Increases may result in adjustments under the ETA Performance Reserve. See Section 3.3 below.

Starting in [2036] all Participants will be required to operate under the Absolute Emission Reduction approach. At that time, the crediting levels and reduction requirements for receiving credits will be reviewed and revised to ensure that the Participants remain on a path toward the stated Paris-aligned temperature goal. See Section 3.2.3 below.

3.2 CREDITING FOR EMISSION RATE REDUCTIONS

3.2.1 REDUCTIONS IN THE ELECTRICAL GRID EMISSIONS FACTOR BEYOND A PERFORMANCE STANDARD

For countries with significant dependence on fossil fuel and a high growth rate in the demand for electricity, the *Standard* is based on demonstrating improvement in the emission rate intensity of the electric sector. Under this approach, the *Standard* sets an ambitious, yet achievable, emission rate Performance Standard that is aligned with Paris Agreement temperature goals and will lead to reaching and surmounting peak emissions sooner than in the absence of the *Standard*.

The Emission Rate Crediting Approach requires a Participant to achieve progressively lower electricity sector emission rates (in grams of CO₂ per kwh), which inevitably results in lower total emissions. The *Standard's* crediting level is the country's 2021 emission rate adjusted downward, both initially and at five-year crediting intervals, by pre-determined percentages that result in crediting to Participants that achieve emissions levels on a pathway toward net zero emissions by 2050.

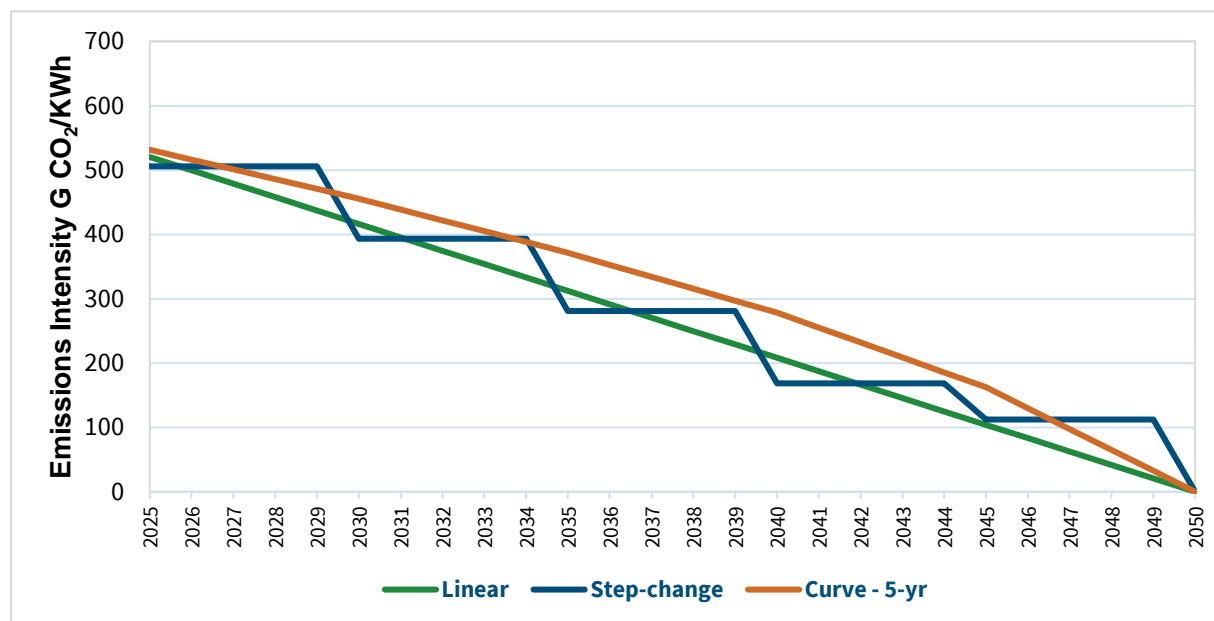
The rate of emissions reductions reflected in the charts in this document represents a Performance Standard that would align with a 70% reduction in sectoral emissions intensity by 2040, which fully aligns with the decarbonization and development objectives set out by the ETA Partners, by the global finance community, and by many interested host governments in their aspirational just energy transition plans. When finalizing the Performance Standard for each crediting interval and through 2050, ERT will take these and other factors into account, including data and information from and communication with pilot host governments, per the process in Section 1.2.1.

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Options evaluated for setting the Performance Standard include a linear, curvilinear, and step-down basis that would result in the emission rate approaching zero grams of CO₂ per kwh by 2050. The chart below demonstrates the three possible standard setting approaches considered.

Figure 2: Options Evaluated for Setting the Emissions Rate Performance Standard



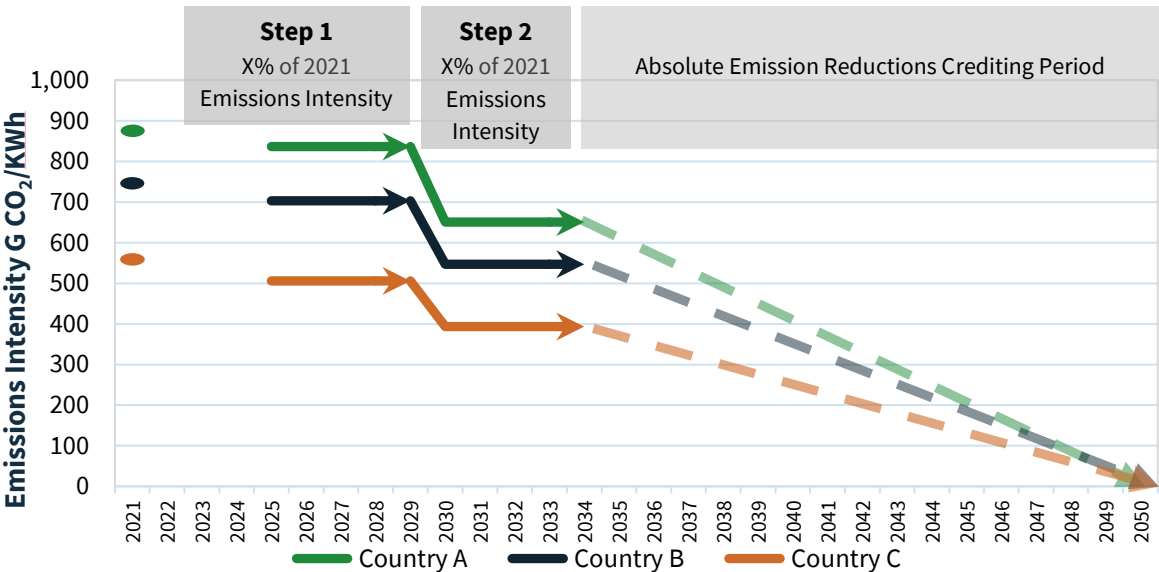
The step change approach was selected because it provides Participant countries with more predictability and addresses year-on-year variability due to, for example, drought, recession, power plant outages, etc. It also makes it possible for Participants to predict the volume of crediting that is achievable based on their energy transition plan, which will facilitate financing and budgeting decisions as well as revenue or credit allocation to specific emission reduction activities.

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The chart below demonstrates how the Performance Standard would apply to three different countries with three different average emission intensities through 2035. The dotted line beyond 2035 demonstrates the trajectory of emission rate declines that would be necessary to stay on the Paris aligned path. Participants would be required to convert to an absolute emission reductions crediting approach starting in 2036. Further requirements will be developed to ensure that the crediting level for absolute emissions reductions maintains consistency with these objectives and is set below-business as usual, for example by maintaining the Performance Standard throughout this timeframe.

Figure 3: The Step-Change Performance Standard—Illustrative Example of Three Countries



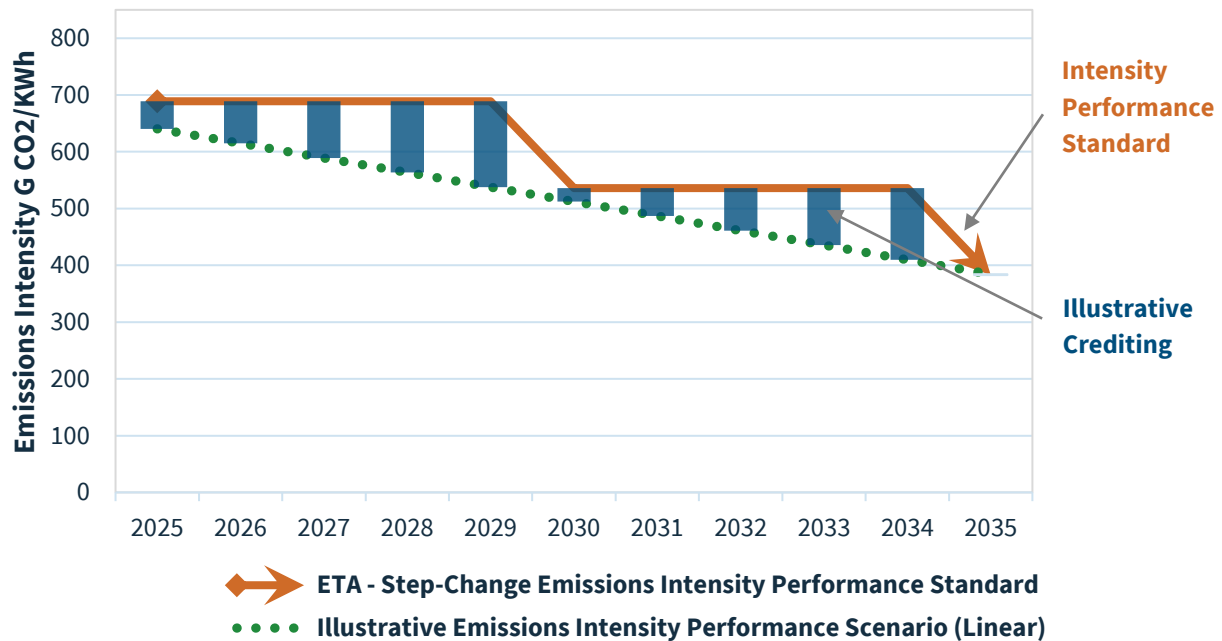
3.2.2 CALCULATING CREDITABLE EMISSION REDUCTIONS USING THE EMISSION RATE APPROACH

Participants earn credits by achieving an electricity sector emission rate reduction over each crediting period that is below the Performance Standard. In Figure 4 below, the red line represents the Performance Standard and the green dotted line represents the hypothetical electricity sector emission rate of a Participant country to illustrate potential crediting (before crediting adjustments). The blue bars represent the Credits that could be issued to the country.

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Figure 4: Illustrative Crediting Beyond Step-Change Performance Scenario



The crediting volume is calculated by subtracting Country X’s emissions intensity in each year from the Emission Rate Performance Standard. That number, in grams of CO₂ per kWh, would be multiplied by the total electricity production from the electric sector, and including all qualified distributed renewable energy production that is not grid-connected. This quantity can be expressed as follows:

Equation 1

$$\Delta ER_N \times G_N = \text{Credits in Year N}$$

WHERE

ΔER_N	Difference between Emission Rate Performance Standard (expressed in grams/CO ₂) in Year N and Participant’s actual emission rate in Year N.
G_N	Electricity Generation from all electric sector sources, any fossil fuel fired power plants not connected to the grid, plus electricity generated from qualified distributed renewable energy sources not connected to the grid.

ΔER_N is calculated by summing emissions from all sources defined above and dividing that number by the total kWh production from all sources defined above. The inclusion of distributed renewable energy in the denominator will reduce the Participant’s annual emission rate.

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HOW DOES CREDITING FOR EMISSION RATE REDUCTIONS ENSURE ENVIRONMENTAL INTEGRITY IF ABSOLUTE EMISSIONS ARE INCREASING?

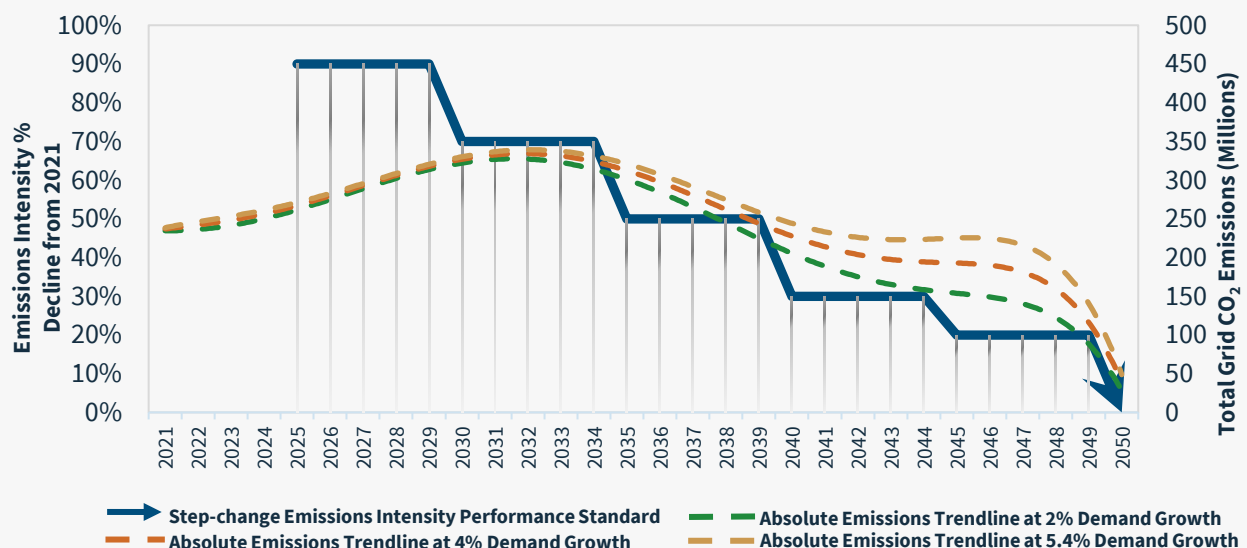
In many emerging economies and developing countries, the level of electrification, electricity consumption per capita, per capita GDP and GHG emissions (both total and per capita) lag far behind more developed countries. Continued growth in electricity production and consumption is expected. Indeed, electrification is desired to allow these countries to grow and develop along a sustainable path and to allow other sectors, notably transportation and industrial, to reduce GHG emissions by utilizing electricity instead of fossil fuels.

The chart below demonstrates the approximate emissions impact of meeting the Emissions Rate Performance Standard for a middle-income country with current emissions of approximately 250 million tons per year of CO₂. The steps are the Emission Rate Performance Standard, and the curves represent the absolute emissions path trends assuming a 2%, 4% and 5.4% electricity demand growth rate. The total emissions peak in between 2031 and 2035, and then decline precipitously mirroring the decline in intensity.

If we were to know the annual electricity demand growth rate of X% and the associated emission rate of the electricity production in that same timeframe, then we could know, with certainty, what the country's emissions would be. If we posit that the emission rate in those years will be 10% lower due to compliance with the Emission Rate Performance Standard, then we know that total emissions are reduced. The chart below shows this relationship.

However, we do not know with certainty what the growth rate in demand for electricity will be in any country, and we do not want to arbitrarily suppress demand and inhibit economic development. Rather, we take electricity production as a given while also encouraging energy efficiency measures. Setting an ambitious emission rate reduction pathway (the Performance Standard), aligned with Paris Agreement temperature goals, provides us with confidence that actual emissions will be lower if the Participant country exceeds the Performance Standard.

Figure 5: Absolute Grid CO₂ Emissions Decline to 2050 under Demand Growth Scenarios— Illustrative Example



3.2.3 TRANSITIONING TO CREDITING FOR ABSOLUTE EMISSION REDUCTIONS

The Emission Rate crediting approach is designed to apply to countries that are experiencing high growth in demand for electricity and that have significant legacy fossil generation that will be needed in the near term to ensure electric supply and meet demand. In the mid-term, we expect renewable energy technologies to become more economical and increase as a share of total generation. As demonstrated above in Figure 5, if a country meets the Emission Rate Performance Standard, the country's absolute emissions will reach a peak and begin declining on a timeline that is dependent on the electric consumption growth rate and the reduction in emission rate.

Any one of three triggers would require that countries utilizing the Emission Rate crediting approach transition to the Absolute Emissions crediting approach. Transition would be the soonest of the following:

1. If a country's absolute emissions decline for two consecutive years, indicating that the country has passed peak emissions, the country would transition at the start of the next crediting period to the Absolute Emissions crediting approach.
2. If a country achieves a decline in its grid-wide emission rate of 30% from 2021 and maintains that level for two consecutive years, the country would transition to the Absolute Emissions crediting approach at the start of the next crediting period.
3. At the start of the 2036 crediting period.

As detailed in Section 3.1, for crediting absolute emission reductions prior to 2036, the crediting level will be set at the average annual emissions of the two lowest of the most recent five-year periods. Thereafter, the crediting level will be revised downward every two years based on the average emissions of the lowest two of the preceding five years and continued alignment with a Performance Standard representing a downward trajectory of emissions that would be necessary to stay on the Paris aligned path. In no event, can the crediting level increase.

ERT will undertake a review of the Performance Standard prior to 2035 and may adjust the requirement for the crediting level for absolute emission reductions starting in 2036.

3.3 ADJUSTMENTS TO CREDITING QUANTITIES

The *Standard* will apply several adjustment factors that may impact the total quantity of credits to be issued. These adjustments are distinct from the adjustments applied to the crediting level to ensure alignment with the Performance Standard described in Section 3.2.1 above.

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First, there will be contributions to a Performance Reserve that will retain a quantity of credits to mitigate risks of under-performance as well as withdrawal from the Crediting program. Second, there will be an adjustment factor applied to address the construction of any new coal-fired power plants. Third, there will be an adjustment for imports and exports of electricity. Fourth, an adjustment is proposed for increased generation that does not come from renewable sources. Fifth, there will be contributions to a Share of Proceeds Reserve that will retain five percent of issued credits to be monetized to raise funds for adaptation and resilience in vulnerable countries as described in the ETA Framework.

PERFORMANCE RESERVE

The *Standard* requires use of a Performance Reserve to address increasing emissions intensity or absolute emissions within a Participant's electrical grid during the performance period. The Performance Reserve will reward countries for continued improved emissions performance while providing coverage for any years when emissions are above the performance target. Note that this is NOT considered a "reversal" because emission reductions achieved and credited in any prior year are permanent, meaning that they were not removed from the atmosphere so cannot be retroactively released back into the atmosphere. The Performance Reserve is a measure to conservatively account for under-performance towards the performance target.

Participants are required to contribute [X%] of verified emission reductions at each issuance into the Performance Reserve to mitigate the risk that future emissions are higher than the Performance Standard. The Reserve Contribution % can be reduced based on defined mitigating factors such as regulatory policies and measures that support emission reductions and consistently exceeding the Performance Standard.

At each subsequent successful verification of emissions results during the performance period, 20% of credits in the Reserve are eligible to be released from the Reserve and issued to the country.

In years of "negative crediting" (or not achieving the Performance Standard) credits will be cancelled from the Reserve.

If a country stops crediting under the *Standard*, all associated credits held in the Reserve will be cancelled.

ADJUSTMENTS FOR NEW COAL

One of the goals of the ETA is to discourage the construction of new coal-fired power plants that will have a long operational life and continue to emit large amounts of CO₂ for many years into the future. Consequently, the *Standard* requires negative adjustments to compensate for emissions from coal-fired power plants that begin construction after the earlier of either the date of publication of the *Standard* or Dec. 31, 2024. If a new coal-fired power plant begins construction after this effective date, there will be a deduction from the Credits issued to any Participant equal to the total emissions from the new coal-fired power plant. A Participant can avoid this deduction by retiring twice as much

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existing coal-fired generating capacity that is less than 30 years old. Thus, if a new 500 MW coal-fired generating plant is constructed, the Participant must retire at least 1000 MW of existing coal-fired generation that is less than 30 years old.

ADJUSTMENTS FOR IMPORTS AND EXPORTS OF FOSSIL ELECTRICITY

Participant imports and exports of fossil generation will be accounted for by calculating the emissions factor for the country's supply of electricity. This will correct for imports and exports of electricity.

Where supply of electricity to a country is:

Equation 2

$$\text{Supply} = \text{Generation} + \text{Imports} - \text{Exports}$$

OR

$$S = G + I - E(I)$$

And emissions for supply are:

Equation 3

$$\text{Emissions (supply)} = \text{Emissions (generation)} + \text{Emissions (imports)} - \text{Emissions (exports)}$$

Therefore, the emissions from a country's electricity generation is calculated as:

Equation 4

$$S \times EF_s = G \times EF_g + I \times EF_i - E \times EF_e$$

WHERE

EF_x

Average emissions factor over the period for supply, generation, imports or exports.

It is assumed that the emissions factor for generation and exports are the same:

Equation 5

$$EF_e = EF_g$$

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Combining the above we calculate:

Equation 6

$$EF_s - EF_g = (EF_i - EF_g) \times \left(\frac{I}{S}\right)$$

Power pool imports would be counted at the default emissions factor for the pool, to avoid double-crediting for zero emission imports / exports. If the importing and exporting countries are both participating in crediting under the *Standard*, then the exports will be treated as domestic generation unless the parties reach explicit agreement to the contrary and provide such documentation.

ADJUSTMENTS FOR NON-GRID CONNECTED RENEWABLE ENERGY GENERATION SOURCES

Freestanding additions of distributed renewable energy (solar, wind) might be estimated as MW absorbed nationally each year that are not accounted for by other uses along the lines of: MW of freestanding PV additions = MW of panels manufactured + MW of panels imported - MW of panels exported - MW of panels used in grid scale projects - MW of panels used in projects and reported to distribution utilities - growth in MW of panel inventories. Alternatively, Participants may use certain approved methodologies to estimate generation from distributed solar generation.

ADJUSTMENTS TO ENCOURAGE NEAR TERM END-USE ENERGY EFFICIENCY MEASURES

For Participants utilizing the emission rate approach, there is a risk of delaying end-use energy efficiency measures until the absolute emission reduction standard is required. To encourage early application of end-use energy efficiency measures, as well as improvements in the transmission and distribution system losses, a growth rate adjustment will be utilized.

The growth rate adjustment will be calculated as follows: If the absolute emissions increase above the level in the first year there will be a reduction in Credits issued equal to the percentage increase in absolute emissions above the emissions level in 2021. Thus, if absolute emissions in year 3 (E_3) go above their original level (E_0), apply a discount factor equal to the ratio (E_0/E_3).

4 CARBON ACCOUNTING

ADDITIONALITY

The *Standard* uses a performance-based approach in that only sector-wide electricity emission reductions achieved beyond an ambitious Performance Standard (crediting level), which is set as at a level well below Business as Usual and aligned with Paris Agreement climate goals, are eligible for crediting. The Performance Standard will be reviewed on a periodic basis to ensure conservativeness.

UNIT OF MEASURE

Credits issued represent a greenhouse gas emission reduction, denominated in metric tons of CO₂e, quantified and verified pursuant to the *Standard*, serialized and issued on the Registry.

ACCOUNTING REQUIREMENTS

Following IPCC guidelines, GHG emissions for a given period shall be the product of activity data multiplied by the respective emission factor(s), such that:

Equation 7

$$\text{Greenhouse Gas Emissions (t CO}_2\text{e)} = \text{Activity Data (units of activity)} \times \text{Emission Factor} \frac{\text{tCO}_2\text{e}}{\text{(unit of activity)}}$$

Only anthropogenic emissions shall be considered, and IPCC guidance shall be adhered to on any exclusion of non-anthropogenic emissions.

ACTIVITY DATA

Emissions data may be derived from emissions factor data, Continuous Emissions Monitoring Systems (CEMS), mass balance calculation or other verifiable data. Activity data must be reported in each Monitoring Report.

The Registration Document and Monitoring Report must provide descriptions of the methods used to establish activity data, with sufficient details to enable replication by a verifier.

Any changes in approaches over time must be reviewed to ensure conformance with the requirements in the *Standard*.

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EMISSION FACTORS

Emission factors are the GHG emissions per unit of activity data. Factors shall be the amount of CO₂e per unit of electricity generation.

Emission factors shall be reevaluated and where necessary updated every five years in line with crediting level updates.

SCOPE OF ACTIVITIES

The *Standard* requires accounting for all grid connected emissions, captive plants, electricity imports and exports and distributed generation as outlined in section 5. Emissions across all activities shall be summed.

LEAKAGE

Sector-wide accounting for all electric sector emissions including replacement capacity and imports and exports of fossil fuels avoids the displacement of emissions by other sources, known as leakage.

SCOPE OF GASES

The *Standard* will be based on emission reductions of Carbon dioxide (CO₂).

PERFORMANCE PERIODS

Participation in the Crediting Program shall begin with the first performance period, from 2025-2030.

Participants shall continue with the program through subsequent performance periods from 2031-2035, and 2036-2040.

Leaving the crediting program prior to 2040 will result in the cancellation of credits from the Performance Reserve.

5 MONITORING

Each Participant shall develop a Monitoring Plan as part of the Registration Document. All monitoring data shall be collected in line with the requirements of the *Standard*.

GRID CONNECTED GENERATION

Participants shall monitor point-source emissions from all grid-connected electricity generation within their borders. Those emissions shall be used to calculate emissions intensity and absolute emission improvements across the grid.

CAPTIVE POWER PLANTS

Participants shall monitor and include emissions from captive power plants above [threshold TBD]. Throughout this *Standard*, references to “electric sector”, “grid”, “grid emissions”, “grid connected”, and similar phrases, encompass emissions from these sources.

ELECTRICITY GENERATION FROM DISTRIBUTED SOURCES

Participants may (optionally) monitor and include distributed generation, such as distributed solar. Including generation from distributed generation may result in a reduced emissions intensity.

Options for estimating distributed generation include:

- Use existing methodologies approved by *Standard* bodies, the UNFCCC, or governments for distributed generation and associated emissions;
- Use a verifier-approved, Participant-developed methodology for estimating distributed generation and associated emissions.

6 ENVIRONMENTAL, SOCIAL, AND GOVERNANCE SAFEGUARDS

The *Standard* requires Participants to demonstrate they have implemented activities defined in the Just Energy Transition Plan (Plan) consistent with environmental, social and governance safeguards⁴.

⁴ Safeguards in development by EDF as detailed in the ETA Framework.

7 AVOIDING DOUBLE COUNTING

Double counting describes situations in which a single greenhouse gas emission reduction or removal (ERR) is used towards more than one climate mitigation target or obligation. Double counting can occur in a number of different ways, including double issuance, double use/double selling, and double claiming. The risks can be mitigated through operational processes and oversight and transparent registry infrastructure.

DOUBLE ISSUANCE

Double issuance occurs when more than one unique unit is issued for a single emission reduction, within the same program/registry or by different crediting programs. To mitigate the risk of double issuance, the *Standard* requires disclosure of duplicate registration under other crediting and Results-Based-Payment programs as well as for cancellation of the ERRs on one registry prior to re-issuance on another. Any project or facility-level activities that are directly related to electric sector emissions performance and are from activities that are being accounted for as part of the sectoral crediting (as identified in the Plan) and are authorized by the Participant will be deducted from the sectoral credit issuance under the *Standard*. Double issuance will be avoided by applying the Performance Standard to project-level activities to adjust the baseline per Article 6.4 methodological requirements.

ALLOCATION OF CREDITS OR REVENUE TO PROJECT-BASED ACTIVITIES

Project-based activities could be integrated into a sectoral program by:

- Allocating the Performance Standard to a project activity, or;
- Allocating some percentage of sectoral performance to the project activity.

It is important to note that there are factors that may contribute to sectoral emissions performance that are not project-based such as grid enhancements, which would reduce allocations to individual facilities.

ERT will develop guidance for the allocation of credits, revenues, and/or the Performance Standard to facilities including on- and off-grid renewable energy projects as well as toward the early retirement of fossil generation.

DOUBLE USE

Double use occurs when a unique unit is used twice, for example if it is 1) sold to more than one entity at a given time (also referred to as double selling) due to double issuance or fraudulent sales practices, 2) used by the same owner toward more than one obligation / target (for example, toward both a voluntary and compliance target), or 3) paid for as a results-based payment and then also transferred or sold to another entity. Double use can also occur if the use of a unique issued unit is

KEY ELEMENTS OF A SECTORAL CREDITING STANDARD FOR THE ENERGY TRANSITION ACCELERATOR

ENVIRONMENTAL RESOURCES TRUST (ERT) AT WINROCK INTERNATIONAL

reported, such as towards Nationally Determined Contribution (NDC) achievement or a CORSIA obligation, but the unit is not retired or cancelled.

To prevent double use, the *Standard* requires clear proof of ownership upon issuance and tracking of ownership of credits within the registry by serial number and account. The Registry also enables disclosure of the beneficiary and purpose of cancellation or retirement, and Registry accounts are designed and administered to prevent fraudulent sales practices. In addition, double selling will be prohibited through rules in the legal Terms of Use agreement to be executed by all Registry account holders, which will expressly prohibit double use of credits and prohibit the transfer of ownership of credits off-registry.

DOUBLE CLAIMING

Double claiming occurs when the same emission reduction is used by two or more entities (e.g., Countries that are Parties to the Paris Agreement or airplane operators under CORSIA) to meet climate change mitigation obligations, targets, pledges, commitments or efforts, including international transfers under the Paris Agreement towards achievement of NDCs and transfers for use by airplane operators under the ICAO's CORSIA. The Standard Participant may authorize transfers of Credits to buyers for compliance purposes by submitting a Host Country Letter of Authorization to ERT and as per guidance under Article 6.2 of the Paris Agreement and the *Standard*, and by applying that guidance, including corresponding adjustments, and demonstrating this in all requisite reports to the UNFCCC.⁵

The *Standard's* Registry will provide the infrastructure to publish Host Country Letters of Authorization for Credits, to label authorized Credits as per a Letter of Authorization, as well as to label Credits for which a corresponding adjustment has been applied. All Credit retirements and cancellations will be transparently recorded in public reports on the Registry (see Section 9).

8 VALIDATION & VERIFICATION

Validations and Verifications shall be conducted in accordance with the published Validation and Verification Standard.

⁵ For detailed requirements that will be integrated into the *Standard* reference *ACR Standard 8.0* Appendix B: ACR Requirements for Avoiding Double Counting in the ICAO's CORSIA and *ART TREES 2.0* Annex B: Requirements for Avoiding Double Counting in the ICAO's CORSIA.

KEY ELEMENTS OF A SECTORAL CREDITING STANDARD FOR THE ENERGY TRANSITION ACCELERATOR

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VALIDATION AND VERIFICATION BODY ACCREDITATION

Validation and Verification Bodies (VVBs) shall be accredited for validation and verification for ISO 14065 by an accreditation body that is a member of the International Accreditation Forum (IAF) and with which ERT has an MoU for the scope of the *Standard*.

Applicants may be provisionally approved by ERT while seeking accreditation if the VVB can demonstrate that it has both applied for accreditation for the *Standard* with an IAF member with whom ERT has an MOU or is in the process of developing an MOU and is currently accredited for ISO 14065 and the electric sector under a different Greenhouse Gas Program.

VALIDATION AND VERIFICATION SCOPE AND FREQUENCY

Validation is the systematic, independent, and documented process for the evaluation of a Program Registration Document against applicable requirements in the *Standard* including, but not limited to eligibility requirements, ownership rights to Credits, Monitoring Plan and requirements to avoid double counting.

Verification is the systematic, independent, and documented assessment by a qualified and impartial third party of the ERR statement for a specific reporting period that assesses the degree to which a program conforms with the *Standard* and has correctly quantified net GHG reductions and demonstrated conformance with the Environmental, Social and Governance Safeguard requirements.

Validation is required after the first year of each performance period. Verification is required at least every two years. No credits will be issued without verification.

The verification process shall be designed and applied to provide a reasonable level of assurance in regard to the degree to which a Participant complies with the *Standard*, has correctly quantified net GHG reductions, and correctly applied its management systems underlying the GHG reduction calculations.

9 REGISTRY REQUIREMENTS

All Participants will have an account in the Registry. The Registry will contain public information on Participants, Participant programs, Validation and Verification Reports, records of serialized credit issuance, and credit cancellation, transfer, and retirement data.

Standard Development



The methodology team has decades of experience in CO₂ markets and electricity

Core Team



Mary Grady
President and CEO of Environmental Resources Trust (ACR, ART-TREES)



William Bumpers
Board Member at Winrock International, Environmental Resources Trust, and ART



Sean Donovan
Director, 10+ Years Carbon Market Experience.



Zubair Zakir
Senior Advisor, 16 Years Carbon Market Experience

Expert Advisors



Peter Fraser
Former Head of Gas, Coal, and Power Markets Division at International Energy Agency



Howard Gruenspecht
Former Deputy Administrator of the U.S. Energy Information Administration



Adam Diamant
Technical Executive, Energy Systems and Climate Analysis at Electric Power Research Institute (EPRI)

+ Initial Phase Advisors

Analysis Team



London Economics International
Energy Consultants



London Economics International
Energy Consultants


Technical Support



Prof. John Mayo
Chair of Business Administration at Georgetown's McDonough School of Business & Exec. Director of the Georgetown Center for Business and Public Policy

+ Post-Doctoral Analyst





“The Energy Transition Accelerator (ETA) unites private and public sector carbon market-based incentives to provide substantial, sustained support for just transition strategies that truly decarbonize power sectors in developing countries—on an accelerated timeline..”

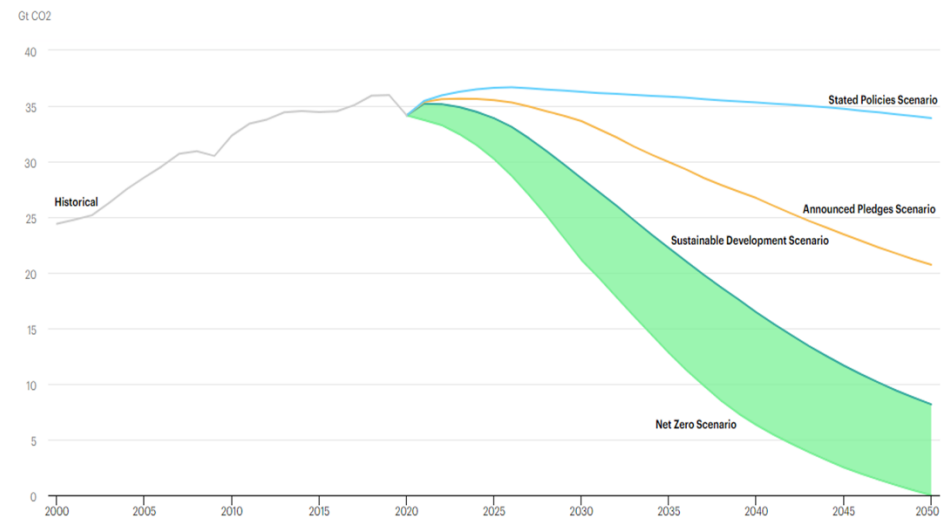
ENERGY TRANSITION ACCELERATOR GUIDING PRINCIPLES



Global CO2 emissions from electricity generation are beginning to fall. We need them to fall much faster to meet 1.5C targets

- IEA's World Energy Outlook (2023) demonstrates the potential contribution of energy sector decarbonization toward goal of limiting warming to 1.5C.
- IEA estimates that energy transition finance needs to increase 700% by 2030 – to \$1.1 trillion annually – as part of a global pathway to NetZero by 2050
- While ensuring access to affordable, reliable, sustainable and modern energy for all (SDG 7)

CO2 emissions in the WEO-2021 scenarios, 2000-2050



Our Challenge:

How to incentivize rapid
grid-wide decarbonization
of **electric sector** while
addressing **energy access**
needs **sustainably**





ETA's Carbon Market Solution:
A **jurisdictional scale, performance-based** carbon standard, which will credit countries for achieving **earlier** and **deeper** electric sector emission reductions and **accelerating** the timeline to **peak emissions**



Goals In developing ETA crediting standard



Comprehensive Transformation

To enable the comprehensive, structural and lasting transformation of electricity production systems, through changes in policies and infrastructure



High-integrity Crediting

High-integrity crediting system consistent with the ICVCM which will catalyze large scale investment, revenue and resources needed to achieve clean energy transition



Ambitious but achievable

Establish an ambitious but achievable Emissions Performance Crediting Level that accelerates transition to lower electric sector emissions



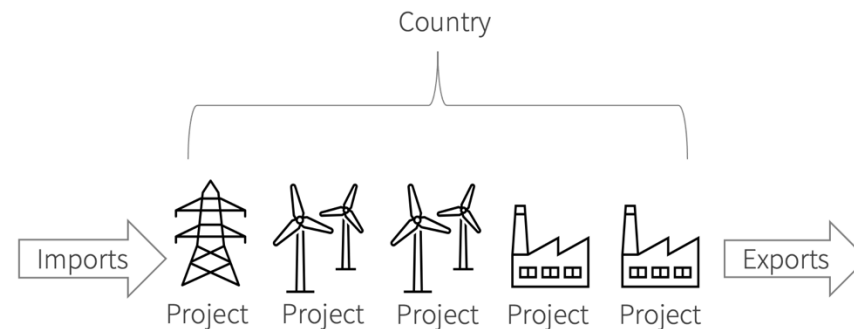
Support countries

Support countries in achieving NDCs and announced pledges for electricity grids – faster.



The ETA crediting program Is jurisdictional, focusing exclusively on the electric sector

- ETA Crediting Program focuses on the emissions from the electricity sector at a national or subnational level
- Initial scope is all grid-connected electric generating sources plus distributed renewable energy



Why Jurisdictional?

- National-scale crediting incentivizes systemic changes to decarbonize the power sector through lasting economic, policy and regulatory shifts
- Broad eligibility allows for many activities to contribute to reduce emissions while being intentional about the phase down
- Grid-level GHG accounting captures all emissions, avoiding the displacement of emissions by other sources, known as leakage
- Grid-level GHG accounting measures actual emissions performance
- Aligns with Paris Agreement accounting and NDCs



Proposed eligibility criteria

Basic Requirements

1. Applicants are national government entities or Designees
2. Applicants submit a Just Energy Transition Plan
 - Plan must include specific actions and timing (new generation capacity, curtailed plants, closed plants, infrastructure improvements, policy changes), associated finance/investment needs and associated emission reductions and milestone dates. Scope includes all grid connected plants, non-grid connected captive power plants, distributed energy/mini grids, and electricity imports and exports. Plan must also include associated “just” elements (requirements in development by EDF)
3. Electricity sector included in the NDC
 - Does *not* mean NDC has to have specific electricity target






Design Features





Three Distinct Crediting Approaches

CREDITING APPROACH	(1) ABSOLUTE EMISSION REDUCTION CREDITING 	(2) EMISSION RATE PERFORMANCE STANDARD 	(3) THIRD CREDITING APPROACH <i>(Under Development)</i> 
COUNTRY CATEGORIES	<p>PAST PEAK EMISSIONS</p> <p>Countries which have demonstrated a consistent reduction in absolute electricity-sector emissions over the past 5 years, are considered ‘past peak’ and would apply the absolute approach from the outset.</p> <p>Absolute emission reduction crediting will require a measured reduction of grid-wide emission below a conservative baseline.</p>	<p>HIGH DEMAND GROWTH</p> <p>Countries which demonstrate high dependence on fossil-fuel generation and high growth rate in demand for electricity, would apply the emission rate approach. <i>(*Note - further sub-categories are under consideration)</i></p> <p>Countries transition to Absolute Emissions Standard the soonest of: (1) Peak Emissions, OR (2) 30% reduction in Emission Intensity, OR (3) By 2035</p>	<p>LOW PER CAPITA ELECTRICITY ACCESS, KWH USE AND GRID CAPACITY</p> <p>Countries with low per capita electricity access levels, low KWh per capita consumption rates and limited grid development</p> <p><i>(Under Development)</i></p>



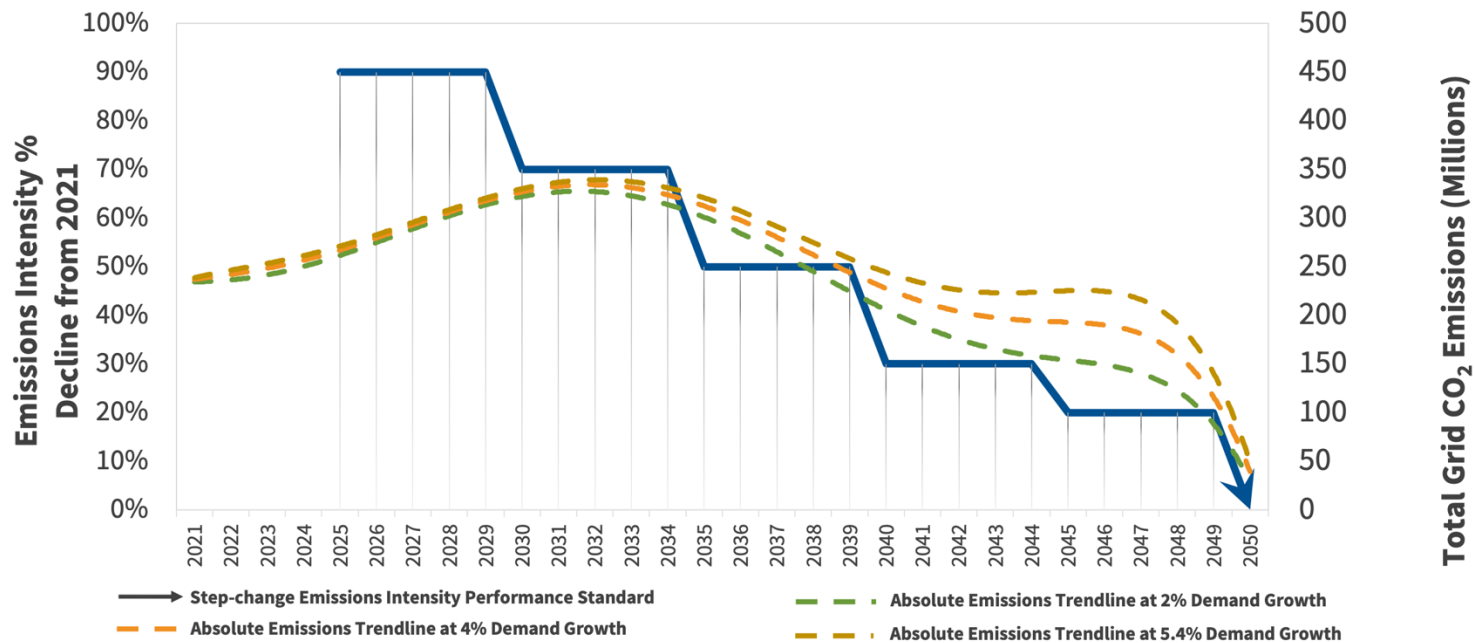
Design features of the crediting standard

- The standard is designed to **accelerate the transition to peak emissions**
- The crediting approach is based on surpassing an ambitious declining Performance Standard for continuous reductions in Emission Intensity
 - Intensity crediting on an interim basis allows countries to meet growing demand, addressing **energy equity**
 - Significant reductions in emissions intensity will lead to declines in absolute emissions
- Transition to crediting for absolute emission reductions no later than 2035 with performance triggers for earlier transition to mitigate the risk of over crediting



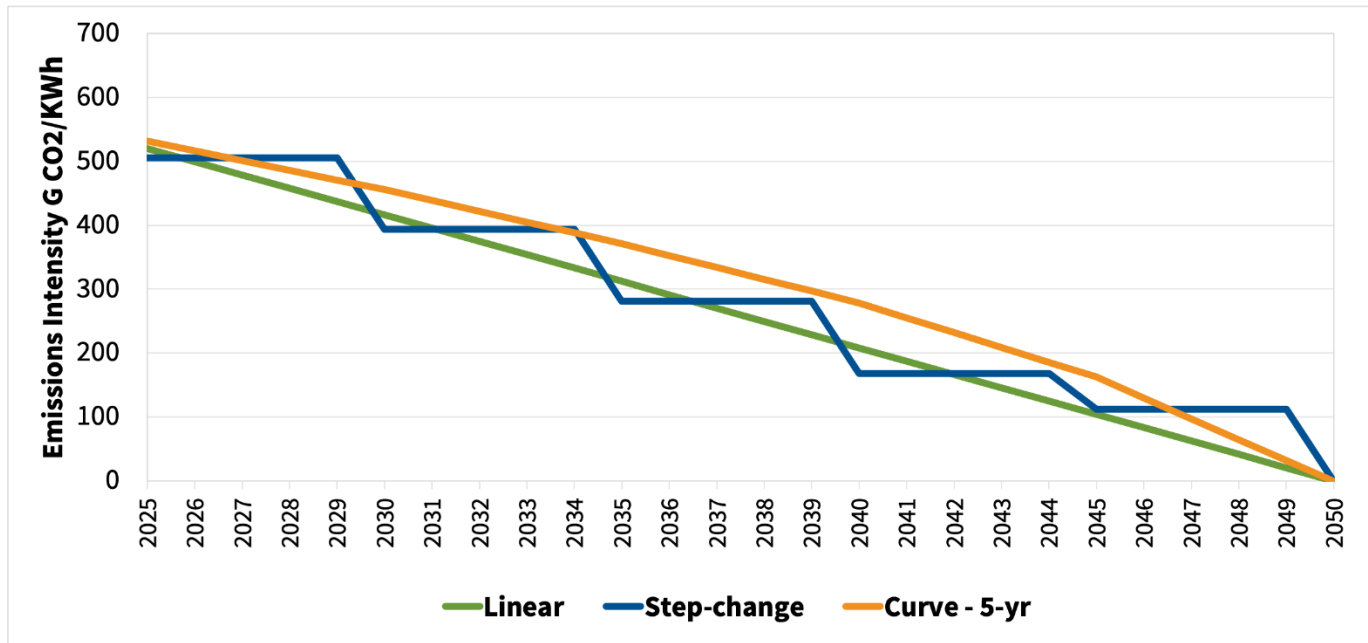
Absolute Grid CO₂ Emissions Decline to 2050

Large Middle-Income Country with ~250 Mt CO₂ Electricity Sector Emissions in 2020



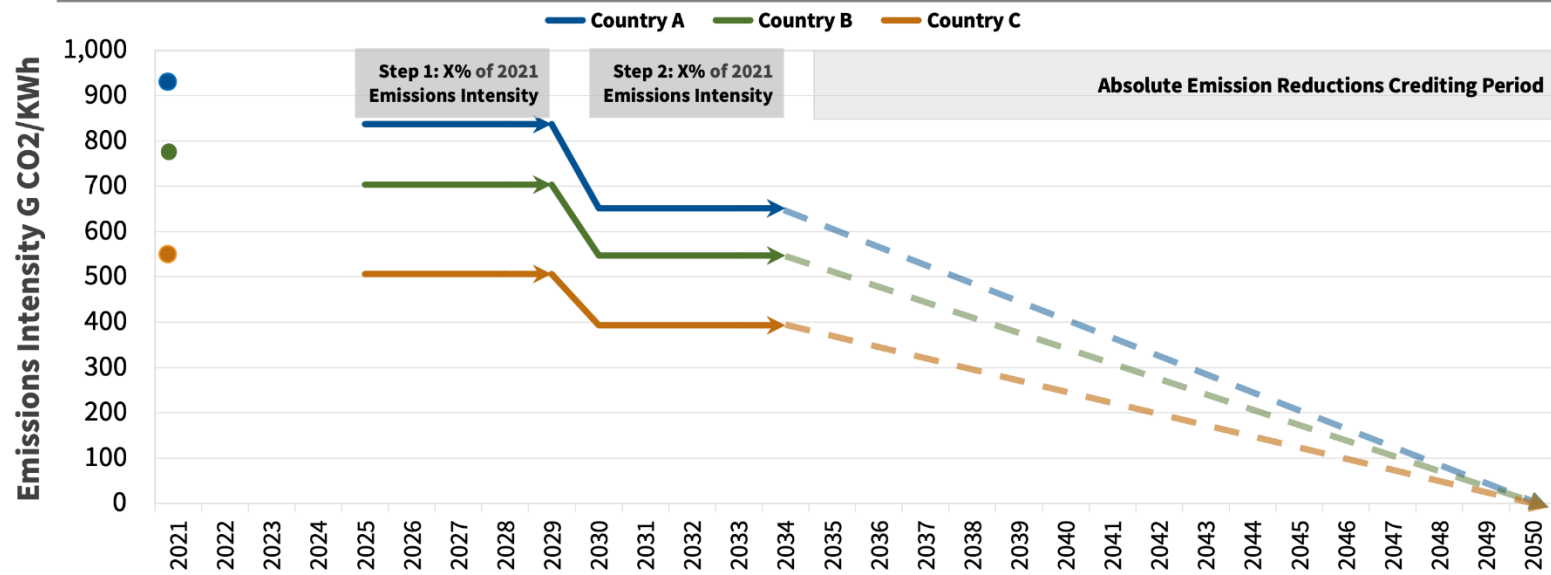
Options Evaluated for Setting the Emissions Rate Performance Standard

Linear, 5-Year Curve and Step-Change Decline Approach



The step-change performance standard – Illustrative of three countries

Intensity crediting transitions to crediting for absolute emission reductions

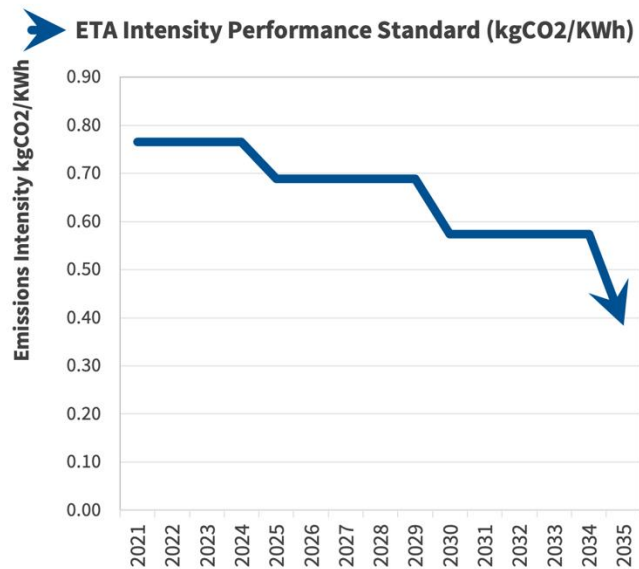


- Crediting starts in 2025, with the first stepwise decline in 2030
- The step change is calculated as the average emissions intensity for the target period from the 2021 EI
- The decline steps are illustrative and subject to adjustment based on further analysis
- Transition to crediting for absolute emission reductions based on annual change from historical baseline period

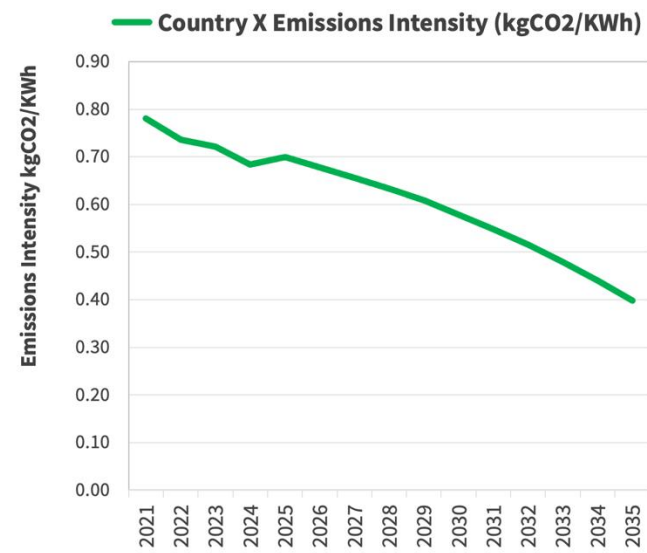


Illustrative Example Country

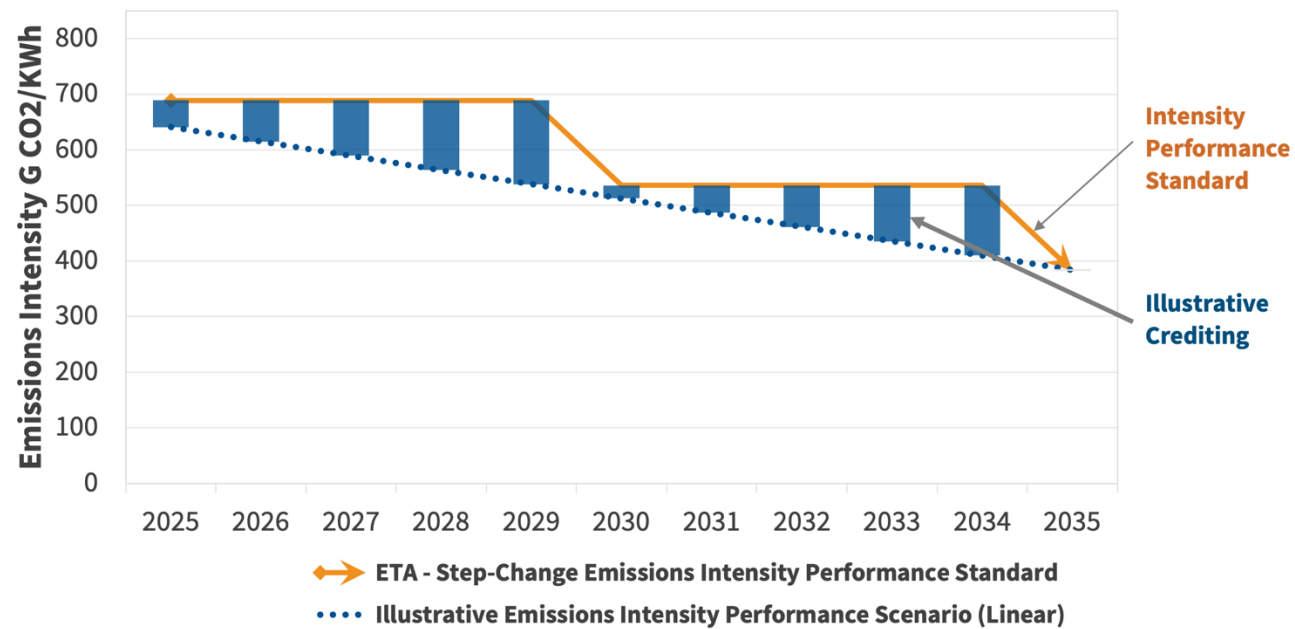
ETA Performance Standard (50% below 2021 by 2035)



Illustrative Emissions Intensity Performance to 2035



Illustrative Crediting Beyond Step-Change Performance Scenario



The performance standard is not based on BAU

Ambitious yet achievable declines

- Credits are issued for verified performance that surpasses the performance standard
- The performance standard is NOT based on a counterfactual BAU scenario
- Step-wise intensity declines and transition to crediting for absolute emission reductions are based on achieving ambitious emission reductions
- The performance standard is dynamic in that it:
 - Declines over time on a Paris-aligned trajectory
 - Has triggers to respond to emissions intensity and absolute emission performance results that are achieved faster than the performance standard (steps) to address the risk of over-crediting



Transition from emissions intensity to absolute emission reductions

Three events can trigger the transition from intensity-based to absolute-based crediting under the ETA



**Sustained (2 Years)
Drop in Emissions
Intensity of 30% or
more**



**Sustained (2
Consecutive Years)
Reduction in
Absolute Electricity
Generation
Emissions**



By 2035



Dynamic Performance Reserve for risk mitigation

A dynamic performance reserve mechanism will withhold and release volumes annually

- **Performance Reserve – design purpose:** Induce further improvements, discourage departures from crediting program, manage over-crediting
- **How it will work:**
- [X%] annual credits verified are placed in a reserve account and released on scheduled basis depending on performance.
 - [X%] of verified credits will be deposited in the Reserve
 - 1/5th of a given deposit will be released annually over succeeding 5-year period, subject to performance
 - In years of “negative crediting” the Reserve will cover shortfall
 - If a country leaves the program, all credits held in Reserve are cancelled



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Example of performance reserve

Year	VERIFIED CREDITS	RESERVE %	ANNUAL RELEASE	RESERVE BALANCE																	CREDITS ISSUED	RESERVE CREDITS - RELEASED	TOTAL CREDITS ISSUED		
		50%	20%		2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038				2039	2040
2023	15.00	7.50	0.00	7.50		1.50	1.50	1.50	1.50	1.50												7.50	0.00	7.50	
2024	32.00	16.00	-1.50	22.00			3.20	3.20	3.20	3.20												16.00	1.50	17.50	
2025	-5.00	-5.00	-4.70	12.30				-5.00														0.00	4.70	4.70	
2026	3.00	1.50	0.30	14.10					0.30	0.30	0.30	0.30										1.50	-0.30	1.20	
2027	12.00	6.00	-5.00	15.10						1.20	1.20	1.20	1.20	1.20								6.00	5.00	11.00	
2028	28.00	14.00	-6.20	22.90							2.80	2.80	2.80	2.80	2.80							14.00	6.20	20.20	
2029	33.00	16.50	-7.50	31.90								3.30	3.30	3.30	3.30	3.30						16.50	7.50	24.00	
2030	-4.00	-4.00	-7.60	20.30									-4.00									0.00	7.60	7.60	
2031	12.00	6.00	-3.60	22.70										1.20	1.20	1.20	1.20	1.20				6.00	3.60	9.60	
2032	35.00	17.50	-8.50	31.70											3.50	3.50	3.50	3.50	3.50			17.50	8.50	26.00	
2033	51.00	25.50	-10.80	46.40												5.10	5.10	5.10	5.10	5.10		25.50	10.80	36.30	
2034	88.00	44.00	-13.10	77.30													8.80	8.80	8.80	8.80	8.80	44.00	13.10	57.10	
2035	-15.00	-15.00	-18.60	43.70																		0.00	18.60	18.60	
	285.00	130.50	-86.80	43.70	0.00	1.50	4.70	-0.30	5.00	6.20	7.50	7.60	3.60	8.50	10.80	13.10	18.60	3.60	17.40	13.90	8.80	0.00	154.50	86.80	241.30

- Annual deduction to **mitigate performance risk**
- Not the same as forestry buffer because **reductions are permanent.**

- Dynamic adjustment and release.
- May have surplus at the end of program, not all credits are assumed to be released.

67% 85%



Additional Elements

Approaches detailed in Appendix

- Accounting for captive plants
- Accounting for electricity imports / exports
- Accounting for distributed renewables generation
- Adjustments to crediting for new coal plants

Elements for Future Consideration

- Implementation of a performance standard review including the basis and timing for update
- Crediting approach for countries with low per capita access to electricity, low Kwh per capita consumption rates and limited grid development
- Allocation guidance to carbon crediting projects
- Possible adjustments for increased total emissions in early years



What's next



What is next?

Before COP28

- **Crediting Framework Development:** Continue critical development work to finalize key features and requirements for inclusion in Framework
- **Illustrated Scenarios:** Continue data analysis and modelling work, including to gather and iterate data analysis used in refining performance standard features and crediting approach, (i.e. incorporation of adjustment factors, country groupings)
- **Stakeholder Engagement:** Coordination and engagement with ETA Partners, continue this phase of country briefings with government representatives, the World Bank SCALE team, IEA, and other groups

At COP28

- Launch of ETA Crediting Framework – *Specific Date- TBC*

2024

- Publication of draft Standard for stakeholder consultation
- Coordination with ICVCM on jurisdictional work program
- Consideration of how to implement a performance standard review including the basis and timing for updates



Appendix: Adjustment Factors



Crediting adjustments: Captive fossil fuel plants

Adjustment Factors

Rationale – Potentially large source of electricity-associated emissions (Indonesia announcements indicate that captive power for nickel-processing will rise from 15% of coal-fired power to 24%)

Proposed Approach – Require that captive plants (over 30 MW installed capacity) be included in MRV



Crediting adjustment: distributed renewables

Adjustment Factors

Rationale – Low cost and rapid deployment could lead to early wins. Vietnam’s PDP-8 (Power Development Plan 2020-2030) notes a goal of 50% of offices and residential buildings w/ solar by 2030

Potential Approach – Use EIA distributed solar estimate methodology

- 1) Collect manufacturing and trade data to calculate net balance of solar panels
- 2) $\text{MW of Distributed Solar} = \text{MW manufactured panels} + \text{MW of imported panels} - \text{MW exported panels} - \text{MW of panels used in grid-scale projects} - \text{MW of panels reported to utilities} - \text{growth in MW of panel inventories}$



Crediting Adjustments: Electricity Imports / Exports (Continued)

Adjustment Factors

Implication of Import/Export Formula

$$EFs - EFg = (EFi - EFg) * (\text{Imports/Supply})$$

- a) No adjustment needed where there are no imports
- b) No adjustment needed if the other jurisdiction has the same EF
- c) If imports are a small share of supply, then correction is small
- d) If importing 100% clean power, then EFs will decrease and clean imports would be recognized

Treatment of imports can be quite complicated See: EU CBAM



Crediting adjustments: New coal plants

Adjustment Factors

Rationale – Building new coal plants will lock-in emissions for the technical life of the plant, which contradicts the goal of the ETA.

Potential Approach – Crediting adjustment for new coal (to define what constitutes “new” CFPP given the various stages of development in each country):

- 1) Deduct all emissions from new coal from credits earned
- 2) Require that the country retire / decommission 2X MW of existing coal



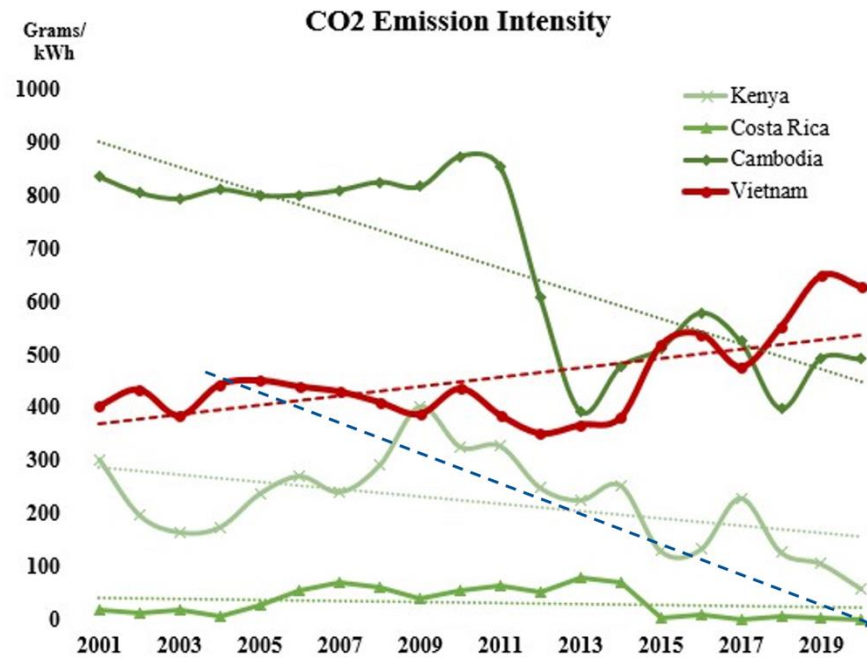
Development of approach for countries with low power sector development

- Recognition of need for third approach to accommodate countries with low power sector development
- Potential factors:
 - Low electricity consumption per capita (below 1000KWh?)
 - Kilometers of transmission lines per capita
 - Access to electricity
- Potential change:
 - Smaller stepwise declines for countries in this cohort



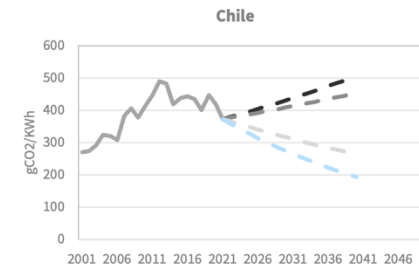
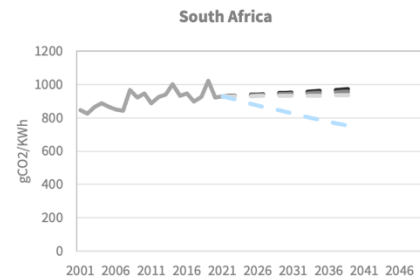
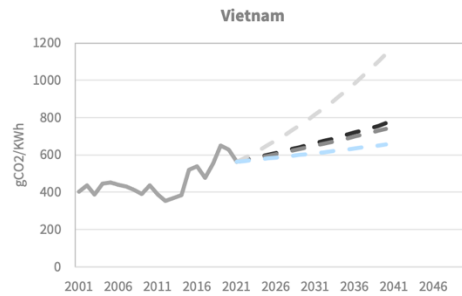
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Country	CAGR
Kenya	-0.75%
Costa Rica	-0.60%
Senegal	-0.55%
Cambodia	-0.24%
Chile	-0.13%
South Afric	-0.04%
Nigeria	-0.01%
Dominican	0.19%
Colombia	0.20%
Guyana	1.18%
Mexico	2.08%
Vietnam	2.35%
Ghana	7.73%



Historic BAU proxy

(CAGR 5, 10, 15, 20 Years)



- BAU proxy - 2001-2021 CAGR
- BAU proxy - 2006-2021 CAGR
- BAU proxy - 2011-2021 CAGR
- BAU proxy - 2016-2021 CAGR

