This is a new section of the Public-Private Partnership Resource Center website and is currently in draft form. Your feedback is welcome: If you would like to comment on the content of this section of the website or if you have suggestions for links or materials that could be included please contact us at ppp@worldbank.org.

Photo Credit

Project ERC Value (Initial Profiling and Preliminary Decision)

Download Chatbot

On this page: *Find more on the first criterion to assess the project's high-level potential for value maximization, or the potential value that the project could fetch in the global VCM. Read more below, or visit Strategic Guidance for Country System Assessments, Guidance for Countries in Assessing ERC Projects , or Mobilizing ERC Finance.*

F1: Project ERC value: As the first criterion to assess the project's high-level potential for value maximization, or the potential value that the project could fetch in the global VCM, the project ERC value will estimate the NPV of the project based on the cash inflows driven by the potential price per tonne of the ERCs generated from the project, expected lifetime ERC volume, and the outflows driven by the cost of ERC generation, based on a typical sales contract[1]—i.e., the NPV of the ERC component.

Price per tonne estimations

There are four sources which can be leveraged to estimate an ERC's price per tonne potential:

- **Data aggregators:** Data aggregators such as Allied Offsets and Sylvera provide access to market prices for a large database of projects which can help estimate primary market prices, where primary market refers to the transaction of ERCs for offsetting purposes rather than the trading of ERCs as investments in the secondary market. Where some aggregators reflect both offer prices and retirement prices, offer prices are likely to be more accurate than retired prices due to time-lag of delivery from time of signing contract where prices are locked.
- **Exchanges and market analysis providers:** Analysis by providers such as CBL Markets and S&P Global Platts. These reflect secondary market prices for certain credit types and provide more transparency on price movements.
- **Developers, brokers, and intermediaries:** Developers, brokers, and intermediaries such as South Pole, Salesforce Marketplace, ClimatePartner, and Pachama disclose prices for certain projects that can indicate price differences between different projects. However, prices online are only for individual buyers and are not reflective of most primary market transactions, unless developers or brokers provide a direct quote.
- **Breakeven point**: This indicates the price at which a given project would need to sell at in order to break even, based on the estimated costs and expected volume over its lifetime. While this does not reflect the potential buyer's willingness-to-pay, comparing the breakeven point with other price potential sources could indicate if a project is likely financially viable.

While these four sources are provided in the Project Profile Template to estimate the Project ERC value, the Project Guidelines recommend data aggregators as a primary source of choice. This is likely to provide the

most accurate analysis, given that the primary market for ERC transactions is more dominant. When using databases provided by aggregators, there are two calculation methods that can help estimate price per tonne potential:

1. **Using ERC type averages**: Filter the database for the specific certification, subtype, and geography that the project falls under to assess the average offered price of similar projects as an estimate of the price per tonne potential of the project.
2. **Using willingness-to-pay multipliers**: Obtain four average prices: (1) the average price of an ERC in the database to set a base price, (2) the average price of ERCs by certification, (3) by subtype, and (4) by geography. Divide (2), (3), and (4) by (1) to obtain three sets of multipliers. Based on the project's certification, subtype, and geography attributes, by using a combination of these multipliers against the average base price (1), the price per tonne potential of the project can be estimated. For example, from the Allied Offsets database, the average price of an ERC is $4.74 per tonne. On average, a Verified Carbon Standard (VCS) credit is observed to be 1.25 times this average base price, while a Gold Standard (GS) credit is 1.68 times of this base price. Similarly for the project's subtype, a renewable energy project is on average 0.62 of the base price, while avoided deforestation projects are 1.83 times of the same value.

These calculation approaches are based on the six key project attributes that impact buyers' willingness-to-pay, see Box 1:

1. **Certification**: The level or type of verification of the ERC
2. **Subtype**: The technology or project activity and generated ERC type
3. **Co-benefits**: Other benefits enabled by the project
4. **Geography**: The project's location
5. **Vintage**: The year in which the emission reductions occurred
6. **Uniqueness**: The novelty and uniqueness of the project in the market

This exercise focuses on (1), (2), and (4) as the other willingness-to-pay factors are largely dependent on the specific project and market conditions.

Box 1: Willingness-to-Pay Factors

Figure 3.1 Examples of willingness-to-pay considerations for each factor

	Examples of consideration factors (non-exhaustive)
Certification	• Issued unit under Standard, e.g.Verified Carbon Standard, Gold Standard • Additional certifications or labels, e.g.Climate, Community and Biodiversity Standard • Eligibility for schemes, e.g.Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)

	Examples of consideration factors (non-exhaustive)
Subtype	• Technology or project activity type, e.g.renewable energy, forestry, energy efficiency, cookstoves, water filters, carbon capture, utilisation and storage, low-carbon transportation, etc. • Type of credits, e.g.emission reductions, emission removals
Co-benefits	• Environmental benefits, e.g.biodiversity protection, improvement to air, water or soil quality • Community benefits, e.g.employment creation, access to education and health services, enabling opportunities to gender equality
Geography	• Region in which project is located in, e.g.Asia, Africa, Latin Ameri • Country in which project is located in
Vintage	• Year in which emission reductions or removals occurred in, e.g.vintage 2022
Uniqueness	• New or novel technology, e.g.carbon capture, soil carbon • Unique or less common project impact, e.g.mangrove sequestration project, otherwise known as "blue carbon"

Certification primarily refers to the accrediting standard that the ERC is certified and issued under. In the VCM, the two most prominent standards are the Gold Standard (GS) and the Verified Carbon Standard (VCS). These organizations set the standards for ERC projects to quantify, certify, and verify their emission reductions or removals and impact, and each has their own registry to track, issue, and retire the credits under their respective standard. As these registries have their own unit to label each tonne of emission reductions or removal, the market perception of these units could differ based on its perceived quality or credibility, value, or demand and supply. In addition, certain standards also have additional labels for certifying other non-ERC attributes of the project that could fetch a higher price premium. For example, the VCS developed the Climate, Community, and Biodiversity (CCB) standards to certify projects that address climate change, benefit local communities and smallholders, and conserve biodiversity. Projects registered and verified under the CCB can issue CCB-labelled Verified Carbon Units under the VCS.

Subtype refers to the technology implemented by the project that is reducing or removing emissions to generate ERCs, which also affects the type of credit as an emission reduction or removal. Buyers care

about the type of projects they are supporting and the type of credits they are using to offset their emissions. Guidance given to buyers by organizations such as the Science-based Targets Initiative (SBTi) could influence their willingness to pay for certain credit types. For example, the SBTi Net-Zero Standard requires that companies looking to offset their residual emissions to only use emission removal credits.

Co-benefits refer to the additional benefits resulting from the project activities that go beyond emission reductions or removals, such as contributions to the environment or community. For buyers who are looking to support impactful projects or projects that are in line with their industry and business, they may be willing to pay more for projects with co-benefits that meet these considerations. In addition, certain project types also tend to have more co-benefits than others—for example, forestry projects, or nature-based solutions, tend to be stronger on their co-benefits to the environment through biodiversity conservation, and to the community via education and training programs as part of the project activities. The association of project subtypes with their co-benefits therefore also contribute to the price differences among the various project technologies.

Geography refers to the location of the project, where buyers' considerations could range from having preferences for certain regions to specific countries. Buyers tend to have a strong preference for projects within their business footprint—for example, some U.S. based companies would prefer to purchase credits from projects under the American Carbon Registry (ACR) or Climate Action Reserve (CAR), the two main standards for ERC projects in North America.

Vintage refers to the year in which the emission reductions occurred. While accreditation standards and industry bodies such as the International Carbon Reduction and Offset Alliance (ICROA) have not established a position on vintages and their associated quality or credibility, the market perception of vintages generally favors newer vintages over older ones. This is largely due to the perception that older vintages are lower in quality as standards have gradually strengthened the rigor and criteria for the monitoring and verification of credits, where these older credits could be outdated relative to the current market best practices. Some buyers also prefer offsetting their emissions from emission reductions or removals that have occurred in the same or previous year.

Uniqueness refers to how one-of-a-kind the project is relative to other projects in the market, which could be attributed to a combination of its subtype, co-benefits, geography, and vintage. For example, blue carbon projects—projects that protect or recover coastal and marine ecosystems—are less common in the market and could fetch a higher premium from buyers who are looking for exclusive or experimental projects to support.

NPV of non-ERC component

In addition to the NPV of the project's ERC component, the Project Profile Template also includes the option of calculating the NPV of the project's non-ERC components, which will also be used for assessing F2 in Step Three of the assessment process. This NPV is based on cash inflows driven by the non-ERC revenue and/or cost savings, using the values calculated for F2 in the initial profiling stage, and the outflows driven by the investment and implementation cost of the project. The approach to calculating the cost components included in the NPV of the project's ERC and non-ERC components are described in the next paragraph.

Approach to calculating cost components

While individual projects have varying cost components depending on activities and structure, ERC projects broadly tend to include several key cost factors:

- Investments or capital expenditures, which are typically not required for ERC generation but are attributable to construction or installation of project activity.
- Project implementation or operating costs, such as for training, labor, patrolling, data collection, land leases, levies, and taxes, which are typically not required for ERC generation but are attributable to the operation and maintenance of the project activities.
- ERC generation cost, such as for certification, registration, validation, and verification
- Benefit sharing, such as for contribution to the community via funds or schemes, which are typically solely funded by the ERC revenues.

This list is not exhaustive, but serves to provide a general guide in estimating project costs that should be tailored to a given project. In the Template, cost components that are attributable to non-ERC components and the ERC components of the project are calculated as two distinctive cashflows—following the matching principle in accounting. For example, the capital investments into the construction of a renewable energy plant are not directly attributable to ERC generation and should be accounted for under the non-ERC capital outlays.

Scoring of project ERC value

Once all components for calculating a project's NPVs are in place, project ERC value will be scored based on the NPV of the ERC component of the project, which reflects the financial viability for the project to generate ERCs by considering only the ERC revenues and the costs specific for ERC generation.

Suggested benchmarks are provided to rate the project's ERC value, and can be adjusted as needed. See Figure 3.2.

Figure 3.2 Guideposts for rating the project ERC value for the project profile

Values and guideposts for rating	Rating
United States Dollars (USD) 1 million (M) and above – ERC generation is very economically viable, it is likely worth considering generating ERCs.	
USD 100,000 to less than USD 1M – ERC generation is moderately economically viable, it may be worth considering generating ERCs.	
0 to less than USD 100,000 – ERC generation may not be worth considering as NPV is small and could be lesser considering risks.	

Should it be valuable for the objectives of the exercise, the ratio of the NPV of the project's ERC component to the NPV of the project's non-ERC component could also be evaluated to assess the significance of ERC generation, where a higher ratio would reflect the extent to which ERC revenues will be valuable to the project relative to its non-ERC financials. This could also reflect the additionality of the project in needing ERC revenues.

Footnote 1: For simplicity, a typical sales contract is assumed. For example, ERC payments are expected to come in only upon issuance, and the model assumes a 5-year monitoring period between each issuance. The assumptions used for assessing the project's NPV is described in the Project Profile Template, and can be adjusted accordingly if needed.

Related Content

- **Guidance for Countries in Assessing ERC Projects (Download PDF version)**

Additional Resources

- Financial Intermediaries
- Preparing, Procuring and Implementing Climate-Smart PPPs

This section is intended to be a living document and will be reviewed at regular intervals. The Guidelines have not been prepared with any specific transaction in mind and are meant to serve only as general guidance. It is therefore critical that the Guidelines be reviewed and adapted for specific transactions. Unless expressly stated otherwise, the findings, interpretations, and conclusions expressed in the Materials in this Site are those of the various authors of the Materials and are not necessarily those of The World Bank Group, its member institutions, or their respective Boards of Executive Directors or member countries. For feedback on the content of this section of the website or suggestions for links or materials that could be included, please contact the Public-Private Partnership Resource Center at ppp@worldbank.org.