ENERGY EVALUATION EUROPE
Energy Evaluation Europe 2022 Conference
Wednesday 28 - Friday 30 September 2022
Beyond COP26 and Fit-for-55: how energy evaluation can inform a fair path to carbon neutrality
Edf Lab Paris-Saclay
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Formerly IEPPEC

A methodology for considering additionality and sustainability aspects in results monitoring of energy access projects

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EXTENDED ABSTRACT

This abstract explains the methodology applied by the energy access program, EnDev, to mainstream considerations concerning the sustainability and additionality into the results monitoring of their projects.

Introduction / background

Since its beginning in 2005 the multi-donor energy access programme, Energising Development (EnDev), has been targeted towards long term sustainable energy access in developing countries. The technologies promoted include Improved Cook Stoves (ICS), small-scale solar products (PicoPV), Solar Home Systems (SHS), biodigesters, mini-grids, and grid electrification. Like other programmes, EnDev considers the additionality of their intervention and the sustainability of their results. But EnDev is rather unique in integrating these dimensions in their results monitoring. Historically, this has been achieved by applying "correction factors" that modified quantitative results to align the results monitoring with the longer-term vision of the programme.

During a decade of use the factors have been interpreted in many ways to fit different contexts. In 2021, the methodology was revised and strengthened to ensure more consistent application. In the revised version, an EnDev project has two ways to estimate additionality and sustainability: A "project specific approach" based on studies that are tailored to the context and a "default approach" based on statistics and historic achievements.

How EnDev operationalises sustainability in results reporting

The sustainability factor represents the share of beneficiaries that have gained sustained access to to the respective energy product or service. The methodology defines "five years after first use" as a proxy point in time for measurement which makes the notion of sustainable access easier to operationalise. "First use" is understood as the day the end user buys an ICS or the day his or her grid connection starts supplying electricity.

Sustainable access is influenced by several conditions: the durability of the product/service, the technical and financial capacity of the suppliers and providers, the capacity of the end user, enabling conditions in the market etc. The default approach simplifies these conditions into two dimensions: The technology – comprising the durability of the product and to some extent also the financial capacity of the end user – and the economic category of the country that is assumed correlated with the technical and financial capacity of market actors.

Table 1: Default sustainability-factors based on EnDev's past experiences (scaled between 0 and 1)

Country category	Grid	Biodigester	Minigrid	Standalone solar	PicoPV	ICS
Upper middle income	0.9	0.9	0.7	0.7	0.5	0.5
Lower middle income	0.8	0.8	0.6	0.6	0.5	0.4
Low income	0.8	0.7	0.5	0.5	0.3	0.3

A default factor is often a weighted average of monitoring data. The factor estimates the share of end users with access five years after "first use"

As an alternative to this table, the project-specific approach is an end-user survey that documents energy access five years after "first use". EnDev is not only concerned with the durability of the product/service but also with the wider market conditions, and sustained energy access is considered achieved if the end user has an energy access product/service of the same quality or better as the one supported by the project. E.g. an ICS might not last five years, but if the end user has a new one of similar quality, that is considered sustainable. The survey population can either be i) beneficiaries of the project five years ago or ii) client-lists dating five years back from a market actor. A third option is to rework the data of another study. Regardless of which data set is used, the survey must meet the same criteria of e.g., number of respondents, randomised selection, stratification, etc.

How EnDev operationalises additionality in its results reporting

The additionality-factor represents the share of beneficiaries that would have gained energy access in the absence of the project, five years after first use of the energy product/service acquired with project-support. Thus, the same point in time is used to operationalise additionality as was for sustainability.

In the default approach, the energy access ratio "five years after first use" is established through linear regression of energy statistics. However, while statistics for instance tell the overall electricity access rate, it does not show if the electricity is provided by a small-scale solar product or a mini-grid that can run a fridge. For EnDev, that is a crucial distinction and a method based on WB Country Diagnostic studies[1] has been developed to disintegrate the statistical projection into tiers. The result represents the share of beneficiaries that would have gained access without the project if these were selected randomly. However, as EnDev is targeting underserved people, it is postulated that it is more additional than in the random case. E.g., if the projection is 0.5, the additionality factor is above 0.5. A formula is used to translate the projection into the additionality factor.

Table 2: Default additionality-factors in two countries where EnDev is active (scaled between 0 and 1)

		Additionality-factors electricity					Additionality-factors cooking energy				
Country	**Category**	**Tier 1**	**Tier 2**	**Tier 3**	**Tier 4**	**Tier 5**	**Tier 1**	**Tier 2**	**Tier 3**	**Tier 4**	**Tier 5**
Nepal	Low. mid. inc.	0.3	0.5	0.7	0.9	1	0.4	0.9	0.9	1	1
Niger	Low income	1	1	1	1	1	0.8	1	1	1	1

The formula used for the factor is (1-projected energy access ratio)^k where k is either 2 or 2,5 depending on energy type.

As an alternative to this method, the project specific approach for the additionality-factor is a market study of current energy access in the target group. There are multiple ways that this can be done: A household survey is one option. The project specific approach does not involve forecasting or taking into account that EnDev is targeting those without energy access. Instead, the factor is established as a simple reverse relationship: Additionality-factor = 1 – study result.

Conclusion & discussions

While all development programs reflect on the additionality and sustainability of their interventions, few mainstream these reflections into their results monitoring as EnDev does. The current methodology is a refinement of previous practice: A proxy point in time for defining when energy access is sustainable is a recent addition that helps operationalising the existing concept and the two approaches for each factor help with striking the right balance between accuracy and resource use in different situations.

While the methodology is unique to EnDev, the reflections behind it are universal. Different institutions use different vocabularies and terminologies to capture these aspects, but all responsible programs are asking these hard questions. Therefore, the ideas in the methodology have the potential to be developed into common concepts applied by all, similar to the OECD-DAC evaluation criteria that are an industry standard today.

[1] https://openknowledge.worldbank.org/discover?rpp=10&etal=0&query=multi-tier+energy