
Cost Benefit Features Main Topics

A CBA is a helpful method because it indicates whether a project or which project should be undertaken, the project's objectives are framed appropriately, a prior and after measures can be developed so as the project can be successful and the required resources to perform the project work can be estimated.

To begin with, in order to decide whether a project should be implemented or not, specification of alternative solutions needs to be determined. To put it differently, whether applying a project is under consideration, what must be defined is in what way that specific project is going to be applied and what costs and benefits is going to occur. A rule that is followed whatever the case is that if the costs outweigh the benefits, then the project is rejected and if the benefits outweigh the costs, then the project can be applied.

In this case, the alternatives are of no concern since there is the Kyoto Protocol and the Directive 2009/28/EC of the European Parliament and of the Council which Greece has to comply with. The main purpose of turning the lignite power plants to renewable operating ones is to contribute to the targets the Kyoto Protocol and the Climate Change regime mandates.

In this step, who has standing must be decided and this means whose benefits and costs should be included. To put it simply, it should be specified who are the ones that would enjoy the benefits of the PPC's transition from fossil fuels to renewables and the ones that would bear the costs of it. Standing is usually most appropriately specified at a national level. However, the issue of standing is sometimes contagious

In this step of CBA, what is required, is the identification inputs and outputs of the alternatives that are suggested. Additionally, these physical impact categories, need to be catalogued as costs and benefits. Finally, each input and output has to be measured.

In this project, there are going to be costs that concern implementation of new technologies as well as operating and maintenance costs. The benefits that occur are from selling the produced product, that is electricity.

However, as mentioned above, we use the term impacts to include both inputs (required resources) and outputs, which in other words include both costs and benefits. As far as the benefits of the transition from fossil fuels to the renewables are concerned, the GHG's and the CO₂ emissions are expected to be dramatically reduced contributing on improving the air quality of the region the power plants are established and consequently the health of the people that live close to the facilities or work in them.

There are impacts whose value is extraordinary hard to be monetized because they are not traded in markets (i.e. life). If there is no willingness to pay for an impact, then its value equals to zero. Dealing with a project that has impacts that happen over years, we must find a way to calculate the total costs and benefits and costs through its lifetime.

As we have already seen in CBA, in order to find the present value we must discount future

benefits and costs relative to present benefits and costs. We need to discount because there is an opportunity cost to the resources used in project and also because people prefer to consume now rather than later (Boardman et al., 2011).

The project we are going to deal with, that is transition from depletable resources to RES, is going to be examined in a timescale of 40 years because technology is constantly improving and there cannot be upgrading of it more than specific times over their initial lifetime given. The reasonable alternative to choose would be the one with the largest NPV.

The proposed project with the highest NPV is representative of an efficient allocation of resources. However, because not every possible scenario is necessarily investigated in the cost benefit analysis, the alternative with the highest NPV cannot be considered as the most efficient allocation of resources.

Predicted costs and benefits cannot be monetized precisely because in order to conduct a CBA simplifying assumptions are being made. Sensitivity analysis clarifies for decision makers how these assumptions affect the CBA results. However, analysts usually concentrate on the most significant variables due to lack of time and resource limitations in order to perform the sensitivity analysis.

After having analyzed all the steps that lead to a successful and correct Cost Benefit Analysis, we conclude with giving a recommendation about the project presented. In other words, the analyst should make recommendations on implementing the alternative with the largest NPV of each alternative. The Net Present Value (NPV) equals with the present value of benefits minus the present value of costs over a period of time. NPV is used in capital budgeting to analyze the profitability of a projected investment or project. Before deciding whether to construct the irrigation system or not we first need to compare the expected costs and benefits of all the alternatives of the project. (European Commission, 2015)