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Understanding the "additional cost" notion to better evaluate the return on investment of energy efficiency projects

In 2018, Énergir introduced the notions of *additional cost* and *reference scenario* in its guides and request for financial assistance forms. These two items enable Énergir to better evaluate requests and ensure that its grant programs remain pertinent, understandable and simple – qualities much appreciated by engineers and customers. However, it seems that these notions are still unclear for some applicants. We therefore propose to clarify these terms in this article to make your work easier.

Reference scenario, efficiency scenario, and additional cost

To clearly understand what is meant by a reference scenario, think of it as the « baseline » scenario, i.e., the one with the least technological, financial and/or geographic constraints.

In the case of an energy efficiency project, this is the scenario that prevails:

- before the implementation of energy efficiency measures, **if the current situation can be maintained** (existing systems and/or equipment still good for a few years); or
- **if the current situation cannot be maintained** (equipment or systems at the end of their useful life or they have to be replaced, new construction or installation), when the installation of new equipment or systems corresponds to standard energy market practice.

The **efficiency scenario**, on the other hand, includes the energy efficiency measures and is the subject of the request for financial assistance.

Additional cost – also called « eligible expenses » – is therefore *the difference between the cost of implementing the reference scenario and the cost of implementing the efficiency scenario*. If the cost of implementing the reference scenario is zero (i.e., the equipment and/or systems are still viable), then the additional cost corresponds to the cost of implementing the efficiency scenario.

How do these notions work in real life? That is what we will see in the next section, using different examples.

Project No. 1: High efficiency drying

Background: A customer has to replace the grain dryer[1] since it is over 30 years old. Continuing to repair it to keep it working would cost more than changing it. He has heard talk of a drying technology that uses less energy but is more expensive and he would like to benefit from an Énergir grant to help him replace the old dryer by the new technology.

Reference scenario:	Replace the dryer by standard market technology.
Additional cost (eligible expenses):	Cost of high efficiency dryer – cost of standard dryer.

Project No. 2: Heat recovery from a process

Background: A customer would like to install an air-water heat pump to recover the residual energy released from heating the process water. He has learned that Énergir offers financial assistance for this kind of project.

Reference scenario:	Waste heat not recovered (status quo).
Additional cost (eligible expenses):	Cost of air-water heat pump.[2]

Project No.3: Heat recovery and upgrade to meet standard

Background: A customer needs to increase the supply of fresh air in the plant since it does not meet CNESST air exchange rate requirements. He submits a request for a grant for an energy efficient solution, comprising a ventilation unit with a heating coil supplied by heat recovered from the process rather than by natural gas. He would like to obtain financial assistance to carry out the project.

Reference scenario:	Add a natural gas ventilation unit (market standard).
Additional cost (eligible expenses):	Cost of an energy efficient solution – cost of a natural gas ventilation unit.

Of course, these are typical cases and so do not cover all possible situations, but they help you understand what is meant by a reference scenario and by the additional cost of a project.

[1] The dryer is for illustrative purposes only; however, this example may apply to other equipment.
[2] On condition that at least 30% of natural gas remains at the meter and that the building has been connected for at least five years.

Applicability of grants according to type of project

The following table shows the percentage of the additional cost covered by Énergir, depending on the grant program and how the additional cost is evaluated in various specific cases.

Grant program	Additional cost (eligible expenses)	Responsibility for evaluation
Implementation assistance	Variable (based on difference between cost of reference scenario and cost of efficiency scenario)	Applicant
Efficient renovation	10% of cost of purchase and installation of new windows[3]	Énergir, based on cost of project, as presented by applicant
	100% of cost of purchase and installation, or repair, of roof[3]	Applicant
New efficient construction	5% of cost of project[3]	Énergir, based on cost of project, as presented by applicant.
Solar preheating	100% of cost of project[4]	Applicant

[3] According to best evaluation practices in effect.
[4] Except in the case of additional ventilation that avoids installing a natural gas unit, since the additional cost in this case would correspond to the cost of a solar wall.

Better informed, more efficient

While the notions of reference scenario and extra cost may sometimes seem complex because of the nature of the project (when costs are consolidated, for example), we hope that this article has helped your understanding and that you will thus be better able to calculate the return on investment of projects in which you are involved in the future, as well as calculate the grants available. However, if you need more support on this subject, DATECH Group advisors can help and advise you.

A wealth of resources just a few clicks away

You can find the terms and conditions, information, and request for grant forms in the participant's guides available under « Grants » in the Business and Major Industries sections on our Web site. The Engineers section also gives you access to energy efficiency training, technical data sheets and practical calculation tools

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