

How to get your energy saving projects funded



**A Guide
Spring 2016**

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Summary

While each company and organization has its own set of policies and procedures to approve energy-saving projects, there are general steps that you could take to increase the odds of getting a project approved and funded internally. Recognizing that the energy-saving departments, which seek to finance energy-saving projects and those ultimately giving the approval, speak different languages and approach the projects from different viewpoints is a start.

However, seeking funding for energy-saving projects also requires an understanding of the internal policies and procedures in place, the general circumstances, and the political situation. Before seeking approval for an energy-saving project it is important to understand the options available in the market in order to adapt the best option to the company or organization.

This guide provides information for the user needing to prepare a business case to seek internal approval. It also addresses the pros and cons of some popular external financing using Energy-Saving Companies (ESCOS).

Concluding summary

Getting energy-saving measures or projects funded requires some homework such as knowing the internal policies and procedures, learning what the project approvals will require in order to approve the project and then gathering the required information and assembling it in a format that you could present to all the approvers in the process. While there are many steps involved in this process, once the users understand it well, it is possible to create a checklist so that you may get future projects approved more rapidly and complete the project with a better chance of success.

Introduction

“ This guide’s purpose is to provide the reader with information, tips, and ideas on how to get energy-saving projects approved and funded. ”

While each company and organizations has its own set of procedures and policies in place for getting energy-saving projects approved, there are general steps that all project seekers can take to help get their projects approved.

There is nothing more frustrating for people in companies than to work for month on finding the best energy-saving measures for a building, estimating them and packaging them into a great energy-saving project then, submit a complete business case for internal approval and funding only to have it rapidly rejected by executive management for economic or other reasons. Even worse, sometimes management rejects the project with no explanation and the people who have worked so hard are at a loss.

People initiating energy-saving projects inside companies should be able to structure their project and present them in such a way to get the proper authorization and funding to complete the projects. After all, the idea of an energy-saving project is to produce energy-saving which brings a direct benefit to the company or organization, so in theory all energy-saving measures or projects, which carry a good return on investment, should easily get approved. However, history shows that numerous projects get shelved or simply cancelled not because they are not good projects, but because the way the project was presented to upper management was not the proper one or they did not meet the company set policies.

Disconnect between operations and finance – the point of view of each group

In medium and large sized companies, there is too often a perception that there is some rather disconnect between the operations departments and the finance ones when it comes time to get projects approved. People in operations will often complain that finance people do not under-

stand the needs of the operations people and finance often complain that the operation groups do not understand some of the financial elements needed by the finance group. For the project seekers, those in need of having their projects approved, the onus is on them to provide the finance groups with proper documentation and information, since they are the ones seeking approval from finance.

Because of this, it becomes important for the people assembling the information for approval of energy-saving projects to not only understand what the finance groups require, but also present the information in their language which is not necessary the same language as operations. For example, an operation group might seek the approval of an energy-saving project, which is for the replacement of an energy efficient equipment. The operations group might go for bids in the market and prefer not to select the lowest bid because of specific operational reasons (one equipment may be easier to service than another does for example). **However, it might not make sense, from a finance point of view, to not select the lowest bid for a piece of equipment that seems to be doing the same thing.** It is up to the project seekers to explain the reasons for their selections to the finance groups and to do this in terms that will make sense to finance.

In this case, it could be possible to highlight that the equipment which is easier to service will make the business unit save X hours of maintenance per week, which at a current rate of Y dollars per hour will save Z dollars at the end of the year. The extra cost for the proposed equipment (compared to the cheapest one available) may carry an interesting pay-back (calculated by using the extra cost divided by the annual saving on maintenance). This is an explanation that finance can better understand because your project is backed by language, which they live and breathe, and judge projects all the time.



What finance or other departments might look for before approving a project

Elements of risk.

In addition to the financial information, one of the items that finance or other departments such as procurement could look before approving an energy-saving project that requires a capital expenditure is the element of risk, more precisely, all the risks involved in the project. They can be:

1. Risk of not obtaining the estimated return on investment
 - i. Lower than estimated savings
 - ii. Reduce price of energy
 - iii. Poor equipment performance
 - iv. Risk of selling/giving back the building or site
 - v. Lower production
2. Risk of going over budget from
 - i. Contract price
 - ii. Unforeseen events
 - iii. Currency

The above is only an example of risks that departments such as finance or procurement could look at and other sources of risk that you could add to this list. Unfortunately, too many business cases for project approval do not provide information to mitigate these risks. It is important to understand what risk could the project have and what actions you could take to alleviate them.

Financial terms

In order to get a project approved, you must present the business case or document for approval must follow certain financial standards. People approving energy-saving projects (and capital expenditure projects by that manner) normally evaluate the proposed projects return on investment by looking at a few standard calculations, such as the project's Payback, its **Net Present Value (NPV)**, and it is **Internal Rate of Return (IRR)**.

These financials help evaluate the financial return of the project, to see if it meets the company/organization requirement level for investment and/or to compare proposed energy-saving measures or projects in order to select the best one. Management could also use the financials to compare energy-saving projects to other type of projects, such as equipment that would increase manufacturing production.

Payback or Simple Payback.

These are two financials, which take the initial cost of the energy-saving measure or project and divide it by the annual energy-savings. In the case of the Payback, we deduct from the annual energy-savings the interest of financing the project. Because of this, many companies use a more simple method, called the Simple Payback, which is the total cost of the project divided by the annual saving. The result is a number of years and it represents the number of years required for the energy saving generated by the project to repay fully the cost of the project.

Example of a simple payback calculation:

For example, a project with a cost of \$100,000 which generates an annual saving of \$60,000 per year would have a Simple Payback of $\$100,000/\$60,000 = 1.67$ years

If we do the same calculation with a five percent (5%) cost of project financing, we would find the Payback to be a little over 1.8 years because the cost of financing the project at 5% reduces the net project savings.

Return on Investment (ROI).

Commonly used, the term ROI is a synonym to Simple Payback. Although both are related, it is important to indicate that Simple Payback as a measure of time while ROI is a rate of return, a percentage. The ROI is simply the inverse of the Simple Payback, so a project with a Simple Payback of 2 years will have an ROI of 1/2, which represents 50% so the return on investment for that project is 50%.

Internal Rate of Return (IRR).

The internal rate of return provides a way to compare a number of projects together since each project has its own return. The downside of this method is that it does not take into consideration the total benefit provided to the company over the years or give any sense of the size of the impact it can have.

The IRR is the rate where all combined present values of the energy-saving project costs are equivalent to the present value of its entire combined annual savings.

Example

For a \$100,000 project and \$60,000 of annual saving for three years, we must use a discount rate, which most companies already have internally for their calculations (each company uses its own discount rate based on its situation). Supposing here that the discount rate for the company is ten percent (10%). The NPV in this case is the sum of all the project cost and savings actualized in today's present value using a discount rate of 10%. This would give:

$$\begin{aligned} \text{NPV} &= \\ & -100,000 + (1 \div 1.1) \times 60,000 + (1 \div (1.1 \times 1.1)) \times 60,000 + \\ & (1 \div (1.1 \times 1.1 \times 1.1)) \times 60,000 \\ & = \$49,211 \end{aligned}$$

This project would bring to the company a net present added value of a little over \$49,200. This means that after all costs for the project have been paid (including interest to finance the project), this project would bring an added benefit equivalent to \$49,200 in today's dollars.

For example, if a project cost \$100,000 and generates \$60,000 of annual saving for Three (3) years, we would use:

Year 0	Year 1	Year 2	Year 3
-100,000	60,000	60,000	60,000

The IRR is the discount rate that must be applied for all generated savings from year 1 to 3 become equivalent to the initial \$100,000 project cost. In the case here, the IRR calculated is 36.3%

The Internal Rate of Return is not always the best financial to make decisions however.

For example, two projects can have the following Internal Rate of Return (IRR)

Project 1:	30%
Project 2:	50%

Looking at the two projects, one could initially determine that project 2 is better since it has a much higher IRR. However, what if the project number one is a project to change 50 lamps in the buildings for a total cost of \$500 and project number 2 is to do a complete energy retrofit with a cost of \$100,000. What more, we know that the benefit from project one will probably last 2 years (the lamps will burn after that period of time and will need to be replaced) versus project number two which is for the replacement of building systems which have a lifespan of 25 years.

Clearly, the first project is small in comparison to the second project and while project number one will provide saving for the first two years, project number two will generate savings for the next 25 years. Comparing both projects using the IRR is not appropriate. Because of this, companies also refer to a third financial, the Net Present Value, or NPV.

“ The Net Present Value is simply the sum of all project costs and savings calculated in today’s net worth; it is the sum of all present values associated with the project. ”

How many years to consider

We normally calculate Net Present Values using the total costs and benefits of an energy-saving project, over the lifespan of the project. Some companies do tend to trunk the number of years to limit the calculation. For example, an energy retrofit which would be for the replacement of a roof top unit may bring benefits for the lifespan of the unit which in turn may be for 15 years, but the NPV may be calculated using only the first ten years of the project. Inversely, NPV calculations should not span longer than the lifespan of the equipment, so if the project is for replacing lamps in a building and if the lamps have a lifespan of 2 years, we should not calculate an NPV for more than two years since the company would replace the lamps after that period.

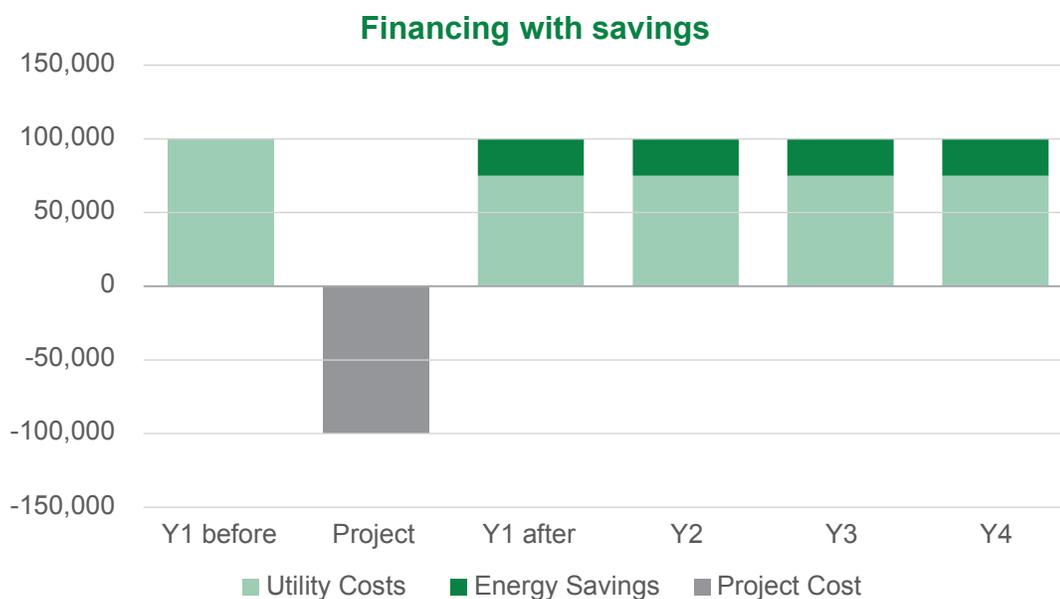
Many literature mention that in theory, companies should always accept projects which have positive NPV, for the simple fact that the project already includes all projects costs such as interest (inside the discount rate) and even risk factors can simply be added to the discount rate. However, in reality, companies have limited funds and must prioritize projects according to their objectives.

Deciding to finance the project internally or externally

Although company could finance a project internally or externally, the most common way to finance a project for people seeking energy-saving project approval is to seek internal financing from the company. That is for the company to free up funds for the energy-saving project. For the

energy project seeker, the important thing to know is that the funds will be available when needed in order to complete the project. For this, companies often establish requirements for funding such projects, such as a return on the investment. When the company finances the project internally, it is important that you present the project so that it respects the criteria for approval. It is also important that you understand the financial terms before completing the project's business case. Information on financial terms, and what they mean, are provided further in this guide, under the section "Simple finance and terms".

Financing a project using the energy-savings that are being generated from the project is a popular proposed method, not only for projects financed by external parties, but also for projects internally financed. The chart below illustrates an example of a building with its energy consumption before an energy project is undertaken (year 1). Then an energy-saving project is done at a cost of \$100,000 and for the following years after the project is completed, the building's energy cost will be reduced. Owners of the building can use the energy-savings (represented in dark green in the chart) to repay the cost of the project.



Turnkey with financing and Energy-Saving Companies (ESCOS)

Some energy-saving projects, such as turnkey projects, the contract can finance and structure them in such a way so that the user repays the project over a number of month. You could make the payment terms so that the monthly cost to the client is lower than the monthly energy-savings, thus providing a positive cash flow. While this has the benefit of showing net savings from day one, the downside of this is that the longer it takes to repay the project the more the building owner/manager pays in terms of interest. Because there projects are often sold on a turnkey basis, it is difficult to know what is the interest built into the project unless the contractor accepts to provide all information.

One way to get the information is to start on the presumption that the project will not need financing and the building owner/manager will pay once the project is completed. Once you establish the project price, it is possible to go back to the contractor and seek the terms, which would include financing over a number of months. It should be noted that some contractors will turn to external financing companies (banks for example) and in this case it is easier to know the cost of financing because the building owner need to provide guarantees of payment and the banks will do some research on the financial capabilities of the building owner/manager before approving the loan. Some companies specialize in these types of turnkey projects and we commonly refer as either energy service companies or energy-saving companies. People commonly refer to both types of companies using the acronym ESCO.

Guaranteeing the savings

This topic has already received much debate from all sides. At the origin of this concept, companies that were selling energy measures, packaged in the form of projects which included installing building automation and retrofitting equipment needed an argument to convince their clients to accept the proposed measure and appease their fear of not getting the amount of energy-saving that was estimated.

Remember:

Getting the savings guaranteed by an external party comes with a cost. While it is a form of insurance, it is important to be able to define precisely what that cost is before accepting it.

Companies such as ESCOS began proposing to their client to guarantee the savings. ESCOS would reduce their calculated estimates by a few percentage (say 15%) to keep a “buffer” and avoid having to write a check, since these contracts stipulated that if the savings were not attained, the ESCO company would write a check to his client for the missing energy saving. By doing so, many ESCOS managed to sell larger and more complex projects, packaging as many energy-saving features as possible into retrofit projects. As the size of these projects grew, so did the risk so to counter this, many ESCOS built into their proposals, in addition to the initial buffer of energy-savings, higher margins in order to insure themselves against projects going bad. The larger the project the more energy-saving measures the contractor built into the project and the contractor also built more buffer and higher margins into the selling price.

The problem with this concept

The main problem with this concept is that by bundling a large number of energy-saving measures at once, it is more difficult to track each measure in terms of success. Overall, the project can provide the estimated benefits, but knowing in detail which energy-saving measure brought to the table is hard because the contractors often blend all of the measures together into one project.

Getting a check is like pulling teeth

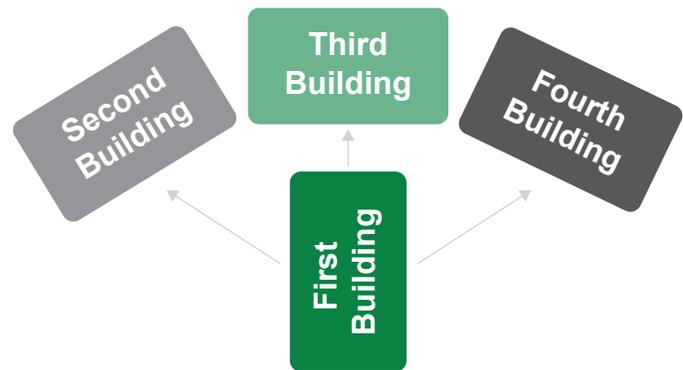
In principle, according to the ESCO concept with guaranteed energy-savings, if the savings do not materialize as planned, the ESCO will simply write a check for the missed savings. This is in theory. In practice, before the company writes any check, the company will point the first finger at the building owner/manager for not operating the building as proposed. In addition, when this does not prove anything, then the finger is pointed towards changes in the building (new tenants or renovation) or towards external factors (colder winter or hotter summer). In the end, many building owners and managers have paid for projects that have not produced the expected amount of energy-saving and have struggled to receive a compensation from their ESCO.

While the concept of the ESCO project does have its merits on paper, in reality, it is another story and many companies, which used to sell the projects with guaranteed savings, are now shying away from this practice. Companies burned building owners and managers once in the past and are now weary of these types of projects.

Potential solutions for companies

Do a project in smaller pieces.

Instead of doing a project at once, consider looking at the separate measures of the project and get them done in phases. The downside of this is that energy-saving may take more time to achieve but there are upsides to this. First, you can often track your energy-savings easier this way. If you have one or two energy-saving measures, tracking their progress might be easier than if you had done 10 measures.



Do not ask for guaranteed savings, but validate the info.

Asking for guaranteed energy-savings is the equivalent of purchasing an expense insurance. If the engineer performs the energy-saving estimates properly, technically, there should be no need for such insurance protection. The key is to have the estimated energy-savings validated in house with proper tools or by external consultants. If in the end you still decide to seek to have the savings guaranteed, ask the ESCO Company for the added price of guaranteeing the savings, but do not ask this upfront.

If you have a portfolio of similar buildings, you can try to do one specific energy-saving measure, validate it, and replicate it to your other buildings.

For companies, which have a number of similar buildings, doing an energy-saving measure and validating the results before replicating it in all other buildings can make great sense and reduce some risk.

Assembling a business case to get approval

In most medium and large companies and organizations energy-saving projects, which require a capital investment, you will need to present them for approval. The documents that you need to present can range from a simple form for approval to a detailed business case, complete with financials. Presenting the right format is obviously important, but generally, the basic information that the management requires is relatively standard across companies.

For most projects that require a capital expenditure investment the companies will require a description of the project, maybe a description of some viable alternatives we considered and explanations for why the

management selected the proposed project. In addition to this, the request normally requires details on the cost and benefits of the project (the financials), ideally backed up with price proposals (bids from contractors for example), the timeline to be completed, the information on who will do the work and information on how risks are mitigated.

While each company is free to establish its own set of requirements, the elements listed here constitute the bulk of what is normally required. Depending on the amount requested various people within the company would need to approve the project, with the rule of thumb being that the larger the project, the higher up in the company or organization the business case will go for approval.

Keep in mind that depending on who approves the project within the company, the perception, and approach towards the project will be different. For example, in a large company, the business unit controller and general manager may understand very well the request for an energy-saving project within the building. They may even see the equipment that the project calls for replacement on a daily basis and understand that a new more efficient equipment will bring more than simple energy-savings, such as to free up maintenance if the equipment has been suffering lots of downtime in recent months.

They may also see the project for its immediate energy-savings to the business unit (savings that go to the bottom line of the business unit). These people will be very favorable to the project. **On the other hand, if the project is large enough that it needs the approval of head office, the people in upper management will often compare the project to a number of other capital expenditure request and judge the project on its financial merits only.** They may not even be aware that the project will bring more benefits than what the business case presents in the financial section of the project request and may favor another project on a simple element such as the Net Present Value (NPV) or Internal Rate of Return (IRR), thus shelving or cancelling the project.

Remember: what approvers might look for when approving a project

- Financial returns (Payback/ROI, NPV, IRR)
- Cost details (ex. bids)
- Alternative scenarios considered
- Risk mitigation
- Additional Benefits (environmental, maintenance, productivity improvement)
- Timelines
- Interruption to operations

The steps towards getting a project approved

Getting an energy-saving project approved will require a few steps to be undertaken. First users will often need to prepare a business case that will respect the company's criteria.

Internal policies & procedures and criteria

In order to get the project pre-approved based on criteria, it is often important to get all approvers of the project to buy into the project first.

1. Learn the internal policies and procedures to get energy-saving projects approved

2. Understand who will need to approve the project depending on its size (total cost)

3. Reach out to as many approvers as possible to get their views on energy-saving projects in general.

If some of the approvers start out against such projects, is the approvers probably have some work do first. In today's companies, more departments are getting involved in the approval process. It is not rare to see departments such as Health and Safety, Regulations or even marketing to participate to some degree in the approval process. Departments such as Operations and Maintenance may also have a large say since the energy-saving measure or project may affect their work. Proposing projects, which either comes with minimum interruption in their work or at least offers ways to address the interruption, could be important.

4. Propose to the people a summary of what you could propose in the coming weeks/months to get some feedback.

Ideally ask what specific criteria the project will be evaluated on for acceptance and what threshold for time and payback/NPV/IRR would they accept to fund the project.

5. Assemble your information for the project.

This can take months if there are estimates, calculations to do, proposals to receive. Keep the approvers in the loop as much as possible, understanding that you might not be able to keep a direct line of communication with upper management (e.g. CEO, CFO), but may be able to keep other approvers informed of the process (VP finance, General Manager, etc.). While doing so,

ask them if they have comments, questions, or concerns during the process. By doing so, you will avoid the element of surprise from some of your approvers when you are ready to present a request for approval. It will also be more difficult for them to disapprove a project if the project manager kept them informed during the process and never raised any concern or comments before.

6. Seek financial benefits for approval, but also sell the additional benefits

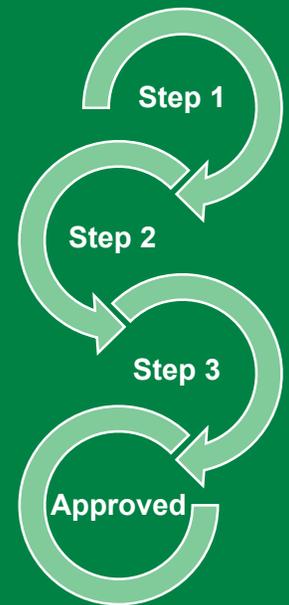
While most projects need to stand on their financial merits to get appropriate funding, other benefits related to the project might, at some time, help tip the balance in favor of one project versus another. In recent years, more and more companies and organizations have taken steps towards improving their image from an environmental perspective. This includes reducing the carbon footprint, seeking ways to highlight the company's effort to become more sustainable in general (including actions such as recycling and reducing sources of waste).

Energy-saving projects often has the double effect of providing companies with monetary savings (from reduced energy cost) and having multiple environmental benefits. You should promote these additional benefits when seeking a project approval. As more companies, especially public companies and organizations get pressured by environmental groups, shareholders with interest and even the general population (and common investor) which inquire more about what effort the companies have taken to improve themselves from an environmental perspective, upper manager (CEO and the Board of Directors) have no choice but to take note of these trends. Providing them with examples of what beneficial actions the company takes (such as funding an energy-saving project that also brings great environmental benefit) can help the projects receive funding. In many companies, energy-saving projects must compete with other projects for capital expenditure.

Departments such as Operations and Maintenance can have a loud voice in the capital expenditure process. Outlining the benefits that the energy-saving project can have on their departments could help getting the project approved. For example, an energy-saving project could call for the replacement of an equipment, which often causes maintenance headaches to the Maintenance department. The project could also improve the environment (temperature or air quality) of the people working in Operations.

7. Offer viable alternatives but propose the best solution.

Proposing a single idea of project as the only choice possible may not always be the best choice, especially if there are viable alternatives possible. When possible, describe what alternatives are possible and highlight the reasons (benefits for the company) why engineers propose one particular project over the other alternatives. This process will also show that the project seekers have done their homework and are not favoring one type of project without having considered other possible choices.



8. Gather all required data including calculations, backups and pricing info.

Collecting and organizing your data will help you during the approval process. If someone in a senior management position has a question on how the engineer calculated an energy-saving measure or how they priced an equipment replacement, it will help to have your information readily available. It will also add credibility to your project as it will show that you covered all bases.

In addition to this, should some of the project approvers seek a modification to the project, having all information at hand will help speed up the process.

Small wins add up to great savings and can lead to bigger wins

If the company or organization has no history of funding energy-saving projects, getting a large project funded might be difficult. One way to approach the situation is to start with small energy-saving measures which require very little capital expenditure and get them approved and promote the results. Small quick wins can help pave a way for larger projects to follow. This approach can take many months but in the end, it may be faster than trying to push for a large project without any history. You must remember that companies often evaluate projects on their merit, which is a combination of risk, and return on investment.

Conclusion

Getting your energy saving project funded in your company or organization is a process that requires a good understanding of the existing policies & procedures in place. Since the approval process is an integral part of your energy saving project, each step of your project will have elements that will be useful for creating your business case. In addition, knowing the financial language as well as what the approvers look for in projects, in order to approve your energy saving project will go a long way towards helping you assemble a winning business case.

About Almiranta

Almiranta Corporation markets an online (SaaS) business productivity suite of software under the name ExPlan Suite, which helps companies plan capital expenditures, manage real estate leases, and reduce their energy consumption. Almiranta Corporation's energy saving software, EnExPlan stands for Energy Expert Planning and is a complete do-it-yourself energy software that is affordable, intuitive, easy to use, and allows both technical as well as non-technical people to find, help implement, and track their energy savings without the need for specialized engineering firms or consultants.

EnExPlan gives the user the same knowledge that energy consultants have in order to do energy calculations to perform simulations. This enabled the user to come up with the best recommendation for any building.

See the full product features at <http://www.almiranta.com/enexplan.html>

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