World of Science: Journal on Modern Research Methodologies

Volume 2 Issue 5, Year 2023
ISSN: 2835-3072
https://univerpubl.com/index.php/woscience

Provision of Investment in Improving the Efficiency of Alternative Energy

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Article Information

Received: March 13, 2023
Accepted: April 23, 2023
Published: May 29, 2023

Keywords: *Energy efficiency, investment, energy audit, project cost, energy management, effective sales*

ABSTRACT

In this article, the importance of investments in improving energy efficiency is considered as the main criterion. It was noted that the period of investing in energy saving activities is considered to be the period of modernization of existing technological equipment, technical re-equipment, expansion of production.

After implementing the first stage in the process of energy development at the enterprise - the organization of energy consumption control, investments to increase energy efficiency are necessary - financial investments.

Before investing in energy efficiency, we need to evaluate:

- internal effect - related not only to the costs of reducing energy consumption, but also to the operation of the developed equipment, which increases the reliability of its operation, improved working conditions, improved environmental conditions, etc.

- external influence - changes in relations with external enterprises, organizations, for example, energy supply, regulatory organizations, local authorities.

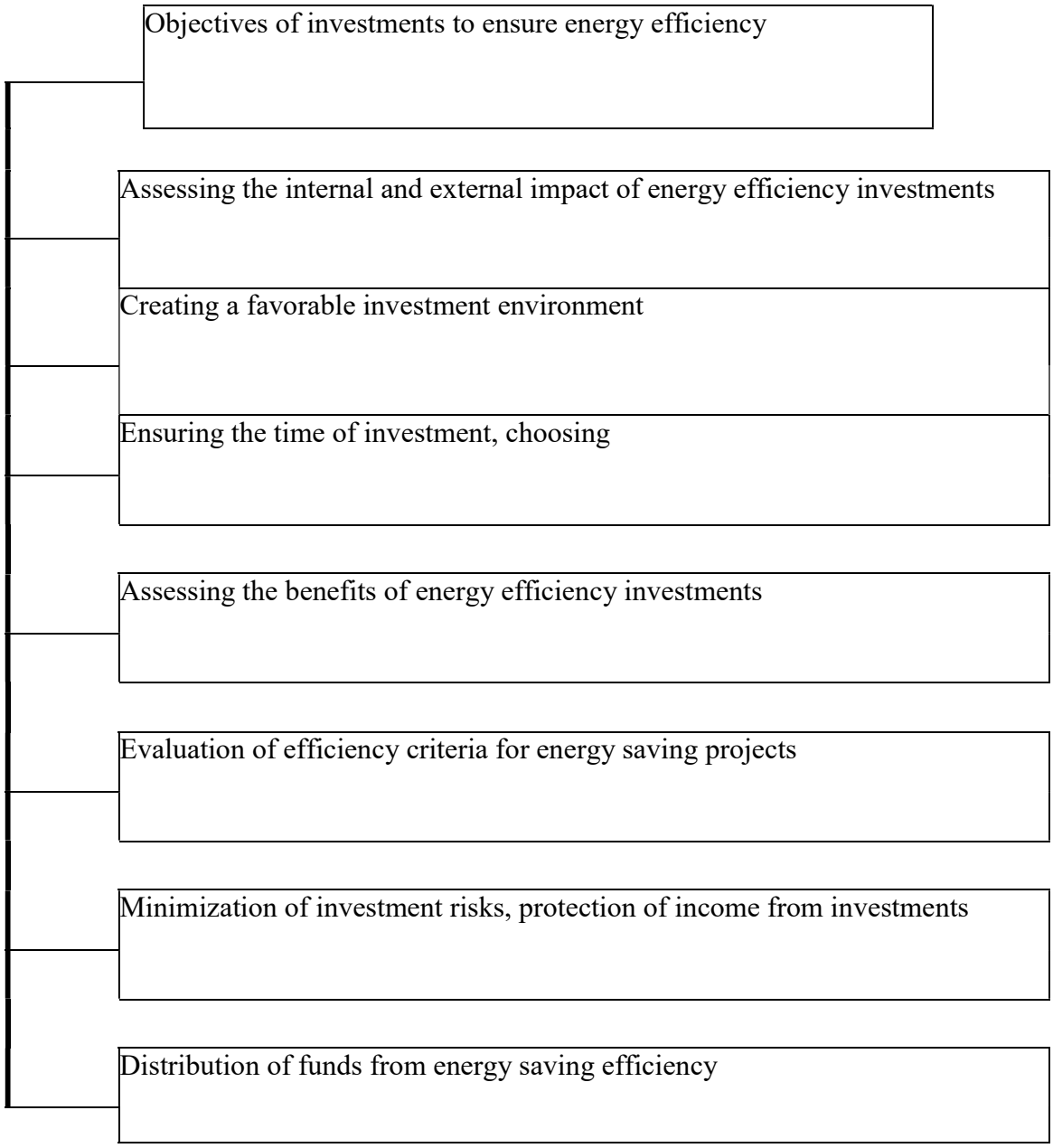
Investment measures should be selected on the basis of energy audit, feasibility study.

In order to create a favorable investment environment, support leadership, and adopt an energy efficiency investment program, energy management should work skillfully using the principles of "effective sales":

- the general state of energy consumption in the enterprise, the need to increase energy efficiency, reduce energy consumption, and increase competitiveness;

- technical measures aimed at reducing energy saving, increasing energy efficiency;

- ensuring and forecasting profitability of financial investments in energy efficiency.



Goals of investments to ensure energy efficiency.

To create a comfortable working environment before making investments, it is necessary to ensure the following:

- the best performance of machine-building equipment, equipment to ensure technical improvement and to eliminate benefits arising due to their low efficiency;

- the minimum tariffs, energy price due to the fact that the company will receive a large amount of benefits in case of an increase in tariffs due to the reduction of energy consumption;

- regular maintenance of effective management measures, energy saving practices by employees.

It is a good time to invest in energy-saving measures, such as modernization of existing technological equipment, technical re-equipment, and expansion of production.

In this context, energy management personnel should be involved in the design process of these improvements in order to capitalize on opportunities to improve energy efficiency.

In order to ensure the importance of energy efficiency measures, the following factors should be

taken into account and evaluated when creating a priority list of investments:

- general and specific energy consumption;

- condition and condition of equipment, facilities, management systems, including buildings;

- operational energy parameters (efficiency, power factor, specific energy consumption, etc.), their compliance with standards;

- service life of the equipment in order not to allocate funds for equipment with moral and physical defects;

- the working conditions of the employees, the effect of the proposed measures on the attitude and behavior of the employees;

- impact on the environment (reducing the burden on the environment).

The best way to determine the benefits of investing in energy conservation measures is to:

- reducing energy consumption, reducing operating costs and expenses;

- conditions for improvement of working conditions of employees, creation of facilities;

Such benefits for specific events are presented by the energy manager at the energy committee meetings of the enterprise as an annual illustration.

To develop and adopt an energy efficiency investment program, we need to calculate project performance criteria and choose the best options.

According to the methodological guidelines for the evaluation of investment projects, the value of the project should be determined, which is the difference between the benefits of the project and the costs of its implementation and operation.

Income from the project (benefits) consists of reducing energy consumption and increasing product quality.

Project implementation and operating costs include: capital costs, which include the cost of equipment, supply, installation, commissioning, design costs, etc., as well as labor, materials, rent, energy payment for the loss of resources, payment of utilities and other services, payment of taxes, as well as operating costs spent on repairs and maintenance.

These values of the proposed projects can be used to determine the prices compared to the existing projects.

Energy efficiency investment can be made at the expense of the enterprise's own funds and at the expense of debt funds - at the expense of loans.

In addition to project cost estimation, project profitability metrics assessment including: payback period (current), net present value, profitability index.

Payback period - the time to pay back the capital expenditure - investment.

If more than one project with the same payback period is considered, the one with the higher DI number will be more beneficial.

Minimize risk to support investments, protect investments. In this case, additional measures should be provided for the energy saving project, which will allow the use of serial measuring devices to reduce energy consumption.

In order to assess the real effectiveness of investments, it is necessary to measure the consumption of energy resources and record the funds from reducing consumption in financial reports.

A detailed financial justification of any investment event requires a clear demonstration of funds, return of investments in subsequent years.

Energy management personnel should maintain detailed information on all costs and benefits of energy efficiency measures.

At the same time, it is required to determine exactly where energy efficiency measures will be used (besides project costs). It can be spent not only on material incentives for employees, improvement of working conditions, restoration of energy efficiency.

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