

This guide is for ECA Registered Members working with domestic and small commercial clients (e.g. in small office or retail environments). It describes how to carry out, and put forward, basic financial calculations to help illustrate the financial benefits of installing energy saving measures.

These financial calculations include 'payback', which is the time it will take for a client to recoup their initial investment (based on energy savings) and 'return on investment' or ROI, which indicates the magnitude of the financial benefit (return), over a given period of time.

Making the case

Installing energy efficiency equipment and renewables can help your clients to reduce their:

- energy bills,
- other operational costs (such as maintenance), and
- 'carbon footprint' (carbon dioxide emissions arising from the energy requirements of a product and/or activity).

To assist their decision-making process, it may be helpful to present energy efficient measures as an investment that will generate a financial return over a period of time. To do this, you can:

- estimate the time it will take for your client to make operational (ongoing) savings that equal the initial investment in the energy saving measure you have installed, known as 'payback', or
- you can calculate the likely 'return on investment' or ROI, which is an indication of the financial benefit (or return) of an investment, over a set period of time.

Though payback and ROI calculations are helpful indicators of financial performance, it is important to remember that they do not take into account all the factors affecting actual financial performance, including:

- rising energy costs,
- available grants or tariffs,
- maintenance, servicing and/ or replacement costs associated with the measures and systems,
- cost of borrowing the money (if required),
- changing 'value' of money over time (known as 'discounting'), and
- the benefits of a 'lower energy' building to future tenants.

In addition, it is vital to take into account each client's premises, their requirements and other job-specific factors. Whatever factors you choose to include, remember that using and presenting realistic information is an essential part of good customer service.

Please note that there are specific guidelines on how to present financial information on microgeneration systems to potential customers, under the Microgeneration Certification Scheme (MCS)*.

CALCULATING 'PAYBACK'

'Payback' (or 'break even') refers to the time it will take your client to make operational (ongoing) savings that equal the initial investment in the installed measure or system.

To calculate the payback time, you will need the following information:

- the capital cost of the installed measure or system,
- your charges for doing the work (e.g. designing/ installing/ commissioning),
- VAT as necessary (this is of particular interest to domestic customers), and
- reliable information about the anticipated energy cost savings available from the measures/ system in question.

To calculate the 'payback' period, first work out the Total Initial Investment by adding together the capital costs, your total charges including your profit or 'mark up' and if necessary, VAT.

Then work out the annual energy savings from installing the energy efficiency measure or system. This will be the annual 'return' minus any annual 'costs' such as maintenance costs.

Then divide the Total Initial Investment by the annual savings to calculate the 'payback' period. This is usually expressed in years, although some highly cost effective measures can pay back in less than a year.

$$\frac{\text{Total Initial Investment}}{\text{Annual Savings}} = \text{'Payback' period (yrs)}$$

EXAMPLE 1

In this simple example, a Total Initial Investment of £3,000 (which includes the capital cost of the installed system and your total charges for doing the work) produces an energy saving of £1,250pa with an annual maintenance cost of £250pa.

$$\frac{3,000}{(1,250 - 250)} = \frac{3,000}{1,000} = 3 \text{ years (payback period)}$$

In this simple example, after the 3 year payback period, the amount of the initial investment will have been returned to your client. The subsequent annual savings (of around £1,000pa) are effectively their 'profit', for the working life of the overall system.

Simple payback calculations work best when inflation is low and where both the costs (the investment) and the savings are easy to identify. The result is quick, easy and widely understood. The results can also help your clients to compare similar investments. Remember though that such calculations do not take into account all the factors affecting actual financial performance (see 'Making the case' above).

Note that an 'initial investment' will include 'capital expenditure' or CAPEX (ongoing 'operational expenditure' is sometimes abbreviated to OPEX).

CALCULATING THE 'RETURN ON INVESTMENT' (ROI)

The 'Return on Investment' (ROI) is an indication of the financial benefit (or return) on an investment, over a set period of time. It will more likely be of use to small commercial clients, although some domestic clients may express an interest in potential returns on investment.

To calculate ROI, the financial return on the investment over a chosen period of time (normally several years) is divided by the Total Initial Investment. The result is then expressed as a percentage, or ratio. A percentage greater than 0% means the investment will provide a greater financial return than the initial cost, over the chosen period (and the higher the percentage, the higher the ROI.)

There are several different ways to calculate ROI, including:

- **Gross return on investment:** This is the total saving produced by an energy saving project over its lifetime, divided by the total initial investment.
- **Net return on investment:** This term represents the total savings as above, less the initial capital investment.
- **Gross average rate of return:** This is the gross return on the total initial investment, divided by the lifetime of the installation (project).
- **Net average rate of return:** This is the net return on the total initial cost, divided by the installation lifetime.

Example 2 provides figures that illustrate the ROI terms above, based on the same figures used in Example 1 (that is, an investment of £3,000 and net annual savings of £1,000.)

EXAMPLE 2

Applying each term above over a designated period of five years (for example) gives:

Year	0	Total Investment (£3000)	
	1	Net Annual Savings	1,000
	2	"	1,000
	3	"	1,000
	4	"	1,000
	5	"	1,000
Total net savings (five years)			5,000
Less Total Investment			3,000

Please note that legal, financial and other developments may affect some of the information provided. As such, this document should not be used as the sole basis for making energy saving plans or decisions.

* Microgeneration Certification under the MCS scheme is available via Elecsa (www.elecsa.co.uk). Training for the MCS and on applying energy saving technologies is available from the ECA's education and training team on 0845 8725361.

Net revenue (over five years) 2,000

- Gross return on Total Investment (includes capital)
 $5000 / 3000 \times 100 = 167\%$
- Net return on Total Investment*
 $2000 / 3000 \times 100 = 67\%$
- Gross average rate of return $167 / 5 = 33.4\%$
- Net average rate of return $67 / 5 = 13.3\%$

*For example, the net return on total investment (a term commonly used to express ROI) is calculated as:

$$\frac{5,000 - 3,000}{3,000} = \frac{2,000}{3,000} = 67\%$$

All the figures above are illustrative only, and the chosen number of years used in the calculation of ROI may vary.

For example, using the figures above, a calculated 'Net annual average rate of return' (NAR – another way of expressing return on investment) over eight years would be 20.8%. However, if the calculation is based on only four years the NAR would be 8.3%. The length of time used in the calculation may well be based on the expected service lifetime of the measure or system.

ENHANCED CAPITAL ALLOWANCES AND OTHER FISCAL SUPPORT

Factors such as capital grants or other support for energy saving measures can be included in the assessment of payback and ROI, as applicable.

For example, small commercial clients may be able to benefit from the Enhanced Capital Allowance scheme (ECA - not to be confused with the Electrical Contractors' Association).

The ECA scheme offers a 100% first year allowance for capital expenditure incurred on various listed energy efficient equipment and machinery. It applies to eligible capital costs, including installation costs, depending on the equipment.

If your client is going to access ECA scheme allowances, they will need to know the capital cost of the measures involved, as part of the total investment cost. Eligible equipment is shown on a website administered by the Carbon Trust at: <http://etl.decc.gov.uk/etl>

Further information about grants and other fiscal support for energy saving measures that may be available in the domestic and commercial sectors can be found in the 'Sustainability Solutions' area of the ECA website (www.eca.co.uk). Registered Members will need to login to view this area.

FURTHER INFORMATION

Contact: Electrical Contractors' Association Tel: 020 7313 4800 or visit the website www.eca.co.uk