



Making Energy Efficiency Profitable

Handbook for Businesses

Summary

There is an increasing demand for enterprises to take action to protect the environment and improve the sustainability of their production processes. At the same time, businesses are responding to an internal need to improve their bottom line and also image while making preparations for the energy efficiency requirements of the future.

Saving energy is not only an environmental accomplishment; it is also economically viable and can significantly improve the competitiveness and sustainability of a company.

In this handbook, we offer practical tips and recommendations for saving energy that can be applied in different industries and in businesses of all sizes. We will explore both small, easy-to-implement changes and larger investments that have the potential to deliver long-term savings. Our aim is to provide you with clear and concrete advice to

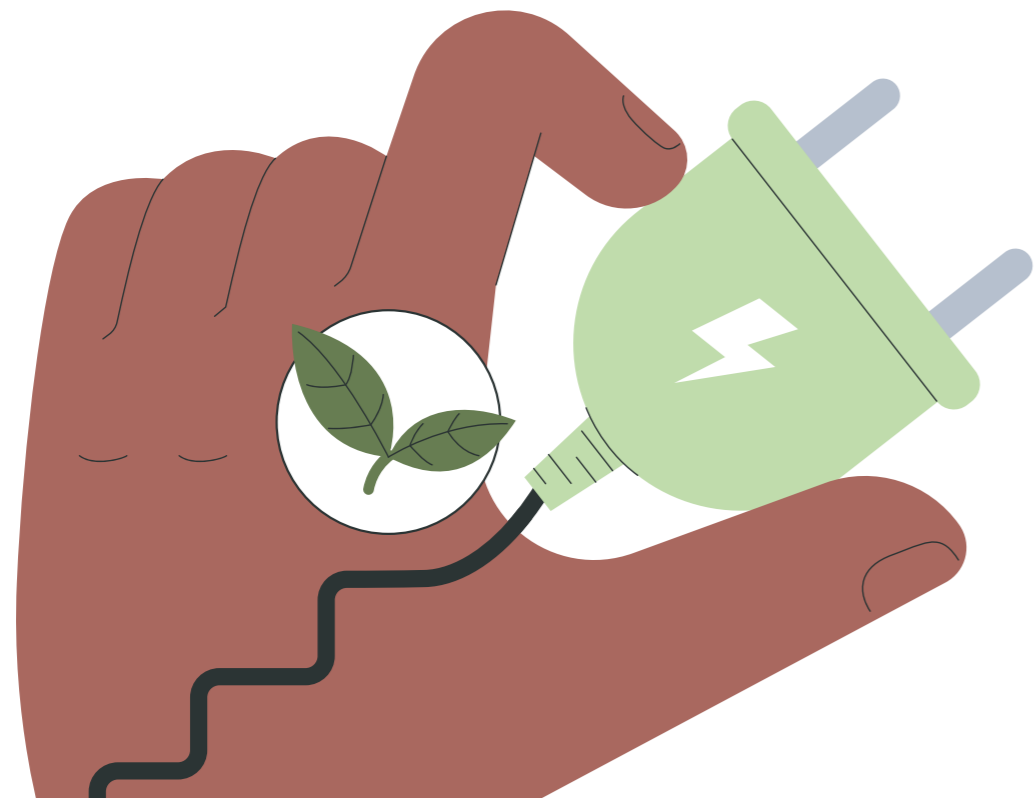
help your business start saving energy today.

This handbook is designed to help businesses identify and implement effective energy saving measures. It has been produced by Technology Centre Merinova and Vaasa Region Development Company VASEK, with funding from the project Making Energy Efficiency Profitable.

Happy reading!

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1. Assess your starting point

Improving energy efficiency in a company starts with a thorough assessment of its starting point. This will give you a clear picture of its current energy consumption and will help you to identify where you could make savings.

Consider also the impact of energy costs on your business. Besides energy costs, what other impacts does your company’s energy use have? What are its impacts on, for example, your company’s corporate image, sustainability, carbon footprint and customer requirements?

your company have and have you shopped around? Is it worth changing your company’s electricity contract from fixed-rate to electricity produced for the stock exchange or vice versa?

1. Collect energy consumption data

Start by collecting all available data on your company’s energy consumption. Include all electricity, gas, oil and any other energy bills for at least the last year. This allows you to identify seasonal variations and trends in consumption.

4. When and how is energy consumed?

Find out how much energy different systems such as lighting, heating, cooling, production equipment and office equipment draw. This will help you to identify the biggest energy consumers. Are there significant differences in consumption between different days, weeks or months? The Internet of Things (IoT) can be used to optimise production schedules and manage peak loads.

2. What energy sources does your company use?

Does your company use district heating, geothermal heat, solar collectors or heat pumps? Would it make sense to change the company’s electricity contract to wind power, for example? Do you use fossil energy, such as oil, gas or biofuels?

5. Identify energy thieves

Carry out a “night walk” to check which equipment is on at night or outside production hours. Is any equipment on stand-by or idling? Is the lighting in order? Does air conditioning need adjusting? Are there any leaks in pneumatic appliances? Note that outdated and/or unmaintained machines use more power.

3. How much does your company pay for energy?

Finding out what your company is paying for, and how much, will help you to identify the potential for energy savings and to set targets. What kind of contracts does

Make sure that any snow melting systems are switched off for the summer.

2. Set goals

Energy savings should be based on sustainability, renewability, energy efficiency and cost-effectiveness. Set specific, effective, realistic and easily measurable goals.

- List or identify energy-efficient measures.
- Which things are easy to fix – start with them! For example, introducing LED lighting and timers and replacing washers.
- Aim for renewable energy sources.
- Which things require planning and perseverance?
- Are there measures that can be combined with other improvement and development activities?
- As well as saving money or energy, goals may also be about acting in a responsible way and seeking a competitive advantage.

SMART goals are a method to help you set clear, focused and practical targets.

SMART stands for:



Graph 1. Setting SMART goals. An example of a SMART goal: to reduce the company's energy consumption by 15% over the next 12 months.

3. Plan and identify the measures needed

The first step towards managing energy consumption and improving energy efficiency is careful planning and identification of the measures needed. Setting goals and identifying measures will help you plan the concrete steps to take.

Energy audit

Carry out an energy audit in your company, either internally or with the help of an external expert. An energy audit includes a walk-through of all energy-using facilities, the identification of potential energy losses and an assessment of efficiency measures. Be sure to document any findings, such as outdated equipment, inadequate insulation or inefficient lighting solutions.

Cost-effectiveness

Assess the cost-effectiveness of existing equipment and systems. Compare their energy consumption and maintenance costs with more modern and energy-efficient alternatives.

Opportunities to save

Based on the results of the energy audit and cost analysis, list all opportunities for savings. Prioritise measures that have the greatest potential to deliver savings quickly and cost-effectively.

Permits and contracts

Take into account any necessary governmental permits and authorisations before making any final investment decisions. Make all contracts in writing and use experts, such as HVAC and energy specialists where applicable.



Tips!

Energy audit

An expert's view on areas for improvement.

Lighting

Control and technical improvements.

Heating and comfort cooling

Usage, time settings and temperature settings. Make sure that heating and cooling are not on at the same time.

Ventilation

Operation, time settings and how it works with heating systems.

Electrical equipment

Time control possibility, cooling system settings. Use of a frequency transformer.

User practices

Monitoring consumption.

Regular maintenance and monitoring

Regular maintenance improves the efficiency of machines and lengthens their lifetime.

4. Draw up a budget and financial plan

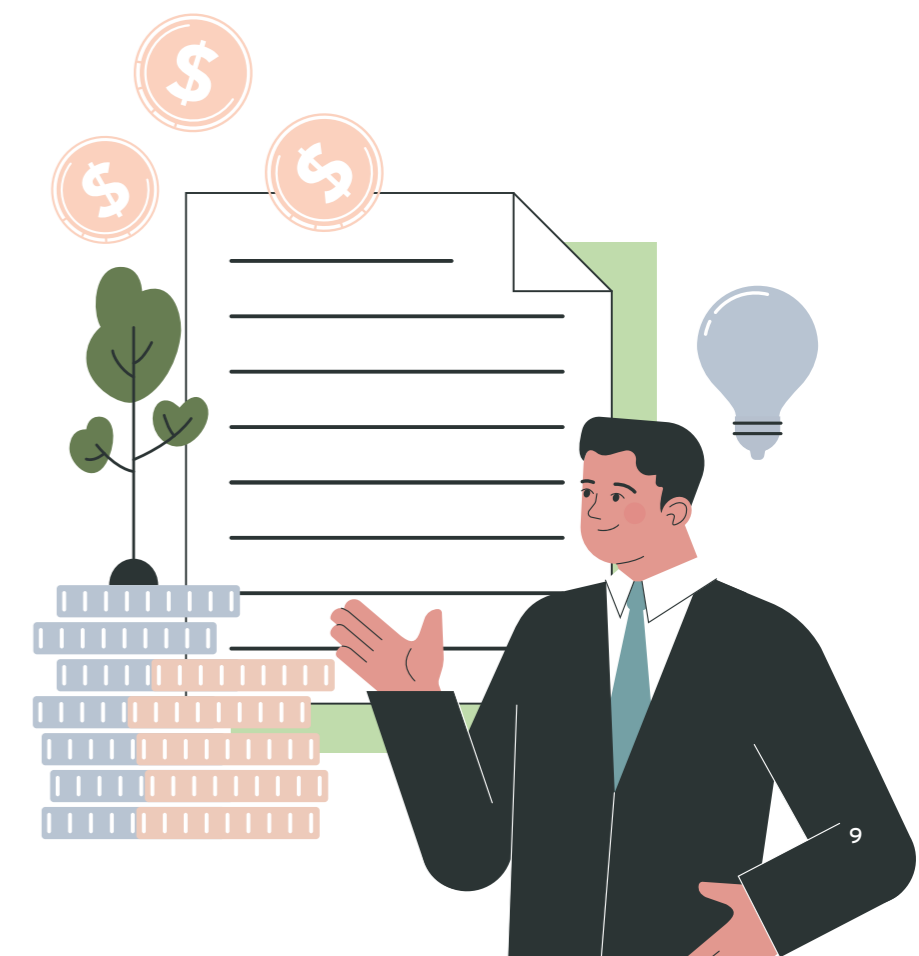
Draw up a budget for the project

Estimate the cost and repayment period of implementing the savings measures. For large-scale investments, draw up a plan for their phased implementation, taking into account the company's financial resources and objectives. If necessary, use a professional to help you draw up a budget.

Secure funding and find out about possible subsidies

Check whether banks or equipment suppliers offer green loans, which have more favourable terms when financing environmentally friendly projects.

Public authorities have various funding programmes for increasing energy efficiency. It is worth asking your local development agency about aid and funding opportunities from actors in the public sector, such as ELY centres, Leader action groups, Finnvera and Business Finland. For more information on different sources of public funding, see for example Motiva's information service [\(link at the end of this handbook\)](#).



5. Create a schedule, assign responsibilities and implement

Start with simple measures that will quickly produce results and boost motivation. Every saving, whether big or small, is a step towards more energy-efficient and environmentally friendly operations. Divide major investments into phases, taking resources into account. Put the right people in charge of implementing the changes.



Choose LED lights

Replace old incandescent bulbs and fluorescent striplights with energy-efficient LED alternatives. LED lighting consumes up to 80% less energy and has a significantly longer lifetime.

Make use of motion sensors and timers

Install motion detectors and timers in lighting fixtures, especially in areas that are infrequently used such as warehouses and meeting rooms. This reduces the time lights are on unnecessarily.

Turn off energy-consuming appliances and systems when they are not needed

For example, computers and monitors can be set to go into sleep mode more quickly. Shift consumption to “cheap” hours. Can your company make use of, for example, cheaper off-peak electricity to run its processes and heating?

Optimise heating and cooling

Check thermostats and adjust them to the appropriate temperature. In offices, the recommended temperature in winter is around 20–21 degrees Celsius. A smart thermostat can learn the user’s schedules and adjust heating accordingly, reducing energy waste.

Improve insulation and seal any leaks

Check and replace weatherstrips in doors and windows when necessary. Find out if additional insulation is needed. Use thermal imaging to detect points of heat loss.

Heating and cooling systems

Invest in smart systems that automatically adjust heating and cooling according to when the space is being used. Can the heat recovery system be made more efficient? Is a heat pump in use? Are the facilities optimally utilised?

Collaboration with a neighbour

Find out whether the company next door is interested in sharing premises, refrigeration equipment or something else.

Invest in the energy efficiency of equipment and machinery

When replacing appliances, check their energy class. Replace old, energy-intensive appliances and machines with new, energy-efficient models. This makes sense particularly in the case of large electrical appliances such as air conditioners, boilers and production machinery.

Regular maintenance

Service your equipment and machinery regularly. Remember, for example, to service ventilation units and change filters. Well-maintained equipment works more efficiently and uses less energy. Remember also to sweep flues and regularly clean air-conditioning ducts.

Ventilation

Find out whether a disc valve can be adjusted to a lower setting in winter in a natural ventilation system. Adjust the valve in a supply air window to the winter position for the duration of the heating season. Adjust the fan speed of a mechanical ventilation system as needed. Stop heat recovery during the summer season and turn it back on immediately after the hot weather turns cooler.

Timers and smart plugs

Use timers and smart plugs that automatically switch off when the devices are not in use. Smart plugs can also be programmed to take advantage of fluctuations in the price of electricity produced for the stock exchange.

Energy meters

Install energy meters that measure the energy consumption of different appliances. Regular monitoring helps to identify energy-wasting appliances and areas for improvement. Some electricity companies offer these on loan to their customers.

Take advantage of software and automation systems

Use energy management software and smart meters that analyse energy consumption data and provide recommendations for energy saving measures. The software allows you to optimise your property maintenance processes and energy consumption in real time.

Remote control of automation systems makes it easy to, for example, lower room temperature, slow down ventilation, turn off sockets and adjust lighting, as well as turn up the heat and switch on ventilation.

Window insulation film and vertical blinds

You can save energy by installing insulation film on windows. Energy-saving film improves the insulating properties of windows, helping to keep the heat in during the winter and out in the summer. Vertical blinds provide protection from the sun, as well as acoustic and heat insulation.

Utilising waste heat

Can you make use of the waste heat produced by processes or equipment (ovens, refrigeration machines, dryers, etc.)?

Pneumatic appliances

Check the setpoints of your compressors and the operation of their controls. Try to decrease the pressure as much as possible. Identify any leaks and repair them where possible. Check the running times of the compressors. Switch them off when not needed.

6. Monitor and adjust as needed

Develop a method to monitor the impact of energy saving measures.

This may involve, for example, installing energy meters, regular monitoring of energy consumption and the introduction of a reporting system. Use the app provided by your electricity company to monitor your electricity consumption and costs.

What other measures are needed?

Because the energy efficiency of machinery and equipment will continue to increase and thermal efficiency will continue to improve, it is worth periodically reviewing new prod-

ucts and services that come onto the market. Similarly, the cost of, for example, energy storage or different energy sources are changing.

Monitor the achievement of your goals - what are the actual savings?

Is the repayment period for the investment reasonable? What other measures are needed?



7. Inform and involve

Get your staff involved - inform and activate!

Encourage your staff to participate in energy efficiency measures and provide opportunities for internal training.

Concrete tips and ideas will help your staff understand how they can each contribute to improving energy efficiency in their work.

Your staff know the facilities and processes and can provide information and suggestions. Reward good suggestions!

Awareness creates motivation to improve energy efficiency, and clear instructions and raising awareness will help your staff achieve lasting savings.

Share your energy efficiency measures

Share content on your company's energy efficiency targets and commitments on your website and social media. Also share about the energy saving measures your company has implemented and their impact on energy consumption and emissions.

Communicate from a customer perspective and share tips on how your customers can improve their energy efficiency with your products and/or services.

Through these communications, you will create a positive corporate image for your customers, partners and staff. This will give your company a competitive advantage.



8. Useful links



[Energy efficiency self-assessment \(in Finnish\)](#)



[Information service on funding - Motiva \(in Finnish\)](#)



Motiva

Motiva is a company wholly owned by the state. It offers expert services to accelerate sustainable development and promotes the efficient and sustainable use of energy and materials. Motiva provides public administrations, businesses, municipalities and consumers with information, solutions and services to help them make resource-efficient, effective and sustainable choices.

On Motiva's website, you can find guidebooks on energy efficiency measures, etc. The Energy Efficiency Checklist is a good tool for reviewing your company's current state of energy efficiency and starting to develop it.

Motiva's information service on funding collates information on subsidies for improving energy efficiency and other opportunities for aid.

Ministry of Economic Affairs and Employment (MEAE)

[MEAE's](#) tasks include developing the energy market and security of supply, promoting renewable energy sources and energy efficiency, and regulating nuclear energy. The Ministry is also responsible for implementing emissions trading and coordinating the national preparation and implementation of climate policies.

Business Finland and the local ELY Centres operate under the authority of the Ministry.



Business Finland

[Business Finland](#) may support companies' energy efficiency measures by offering, among other things, energy aid. This aid is targeted at projects that contribute to energy savings and to making the production or consumption of energy more efficient, while transforming the energy system towards a low-carbon economy in the long term. Measures supported may include, for example, new technology projects, which introduce new and innovative solutions that have not been widely tested in Finland before. Study and review projects may also be eligible for energy aid: they help to identify and plan energy efficiency measures.



Leader

[Leader associations](#) are local action groups, whose task is to develop Finland's rural areas in accordance with the region's own development programme. A micro company in a rural area may be eligible to apply for Leader funding for its energy efficiency measures.



Finnvera

[Finnvera](#) is a state-owned specialised financing company that, under special conditions, also offers financial products for the implementation of energy efficiency measures.



VASEK

VASEK offers free business consulting services to companies in the Vaasa region. On VASEK's website, you can find [ideas and information](#) on implementing energy efficiency measures.

9. In conclusion

Remember that it's a good idea to seek help from experts who can help you find the best solutions for your business, including energy audits and the use of artificial intelligence to optimise the energy efficiency of your premises. Devices connected to the Internet of Things (IoT) can monitor the condition of your machines and report any faults before they cause major problems. This will reduce their downtime and improve their energy efficiency as the machines will be operating optimally. More accurate data will help you to identify potential savings and to adapt your system and its use.

Because technologies in the energy sector are continuously evolving, this will provide

more and more opportunities for energy efficiency measures in the future. Emerging battery technologies and the electricity reserve market may also create opportunities for profit.

Increase your knowledge of energy efficiency, for example by participating in various webinars and events.

You don't have to fix the world all at once; start with some quick and easy steps. Success with the first few steps will inspire you to keep going and make your business both sustainable and profitable.

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