

Energy strategy in enterprises

– based on
worker involvement



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We are living in at time of crises. Companies are facing financial problems, and our consumption of energy is having a negative effect on the climate. For these reasons, it is important for 3F to demonstrate how workers can help initiate new energy-saving strategies at their workplaces, not only to cut costs and thus boost financial performance, but also to help improve climatic conditions. One additional positive side effect is a substantial improvement to both the physical and the psychological working environment.

This folder can help you to begin focusing on energy consumption and energy savings and perhaps ultimately lead to a campaign in your organisation that will result in a long-term energy-saving strategy.

How can you help save energy or perhaps even launch an energy-saving campaign in your company?

We all know we need to save energy at home. No one would dream of leaving a room without switching off the light or leaving the refrigerator or freezer door open, or even letting the water run unnecessarily.

Then why don't we continue these good habits at work? Actually, it is at the workplace that we can really make a difference. Energy consumption per person is typically between fifty and a thousand times higher at work than it is at home, so in reality we should simply take our common sense and good energy habits with us to work instead of leaving them at home.

The good news is that you and your colleagues can easily help achieve major energy savings by doing a few simple things. It is fun and easy, and it could actually become quite a sport for you and your colleagues – and even for the whole company.

How can I contribute as an employee?

Take a critical look at your company. Use your senses, i.e. your eyes, ears and hands. Many energy-wasting activities are actually quite visible; all we need to do is to see and hear them. We often already know about many of them: water running out onto the floor and into the sewer, a leaky compressed-air hose, a machine left on even when it is not being used, and the lights, the coffee maker, the computer and all the other things we leave switched on both night and day. This has been going on for a long time and has become part of our everyday life. All it takes to make a change is to notice it and react.

Look at your company with new energy eyes. Note how many machines are already on when you turn up in the morning or are left on when you go for your

lunch break or leave for home at the end of the day. It probably won't take you long to find out that there are plenty of things that can be done. Talk with your colleagues about all the machines that are left on and about how you can change this part of your corporate culture and put a stop to these bad habits. Ask them if they have noticed any other examples of energy waste or have any ideas about how to cut energy consumption. They undoubtedly have.

You should also be a bit critical about the habits and routines you see around you. Many energy savings can be achieved by changing our ways of doing things and by changing production routines. In fact, it is not uncommon for all production machines and all production lines to be started in the morning, and then it

OUR EMPLOYEES HAVE A SPECIAL EYE FOR THINGS

// We have put together an energy team of fourteen employees. They have been trained to look critically at our energy consumption, which is really crucial to the project. We need our employees to be working with us rather than against us. There are workers in our production facilities all around the clock, and they are able to see opportunities that the rest of us can't see.'

***Martin K Madsen**, plant manager at Danisco in Grindsted whose objective is to cut energy consumption by 8-9% (6,000 tons of CO₂) by July 2010.*



Man Diesel in Frederikshavn. Photo: Joachim Rode

later turns out they were not going to be used at all that particular day, or they were not needed until some hours later.

Is this something that can be changed?

Be prepared to hear people say: *'Because that's how we've always done it,'* or, *'We can't change it; it has to be that way.'* In most cases, it is simply a question of old habits that are usually both outdated and expensive.

How do we get started?

Once you and perhaps some of your colleagues have 'seen the light', it is actually just a question of starting the process. Usually, it will not be enough if only you and a few dedicated colleagues save energy yourselves. In the end, you will simply lose interest. You have to get everyone in your company to understand the state of things and realise that those things can be changed so that you can, in fact, save both energy and money while at the same time strengthening the position of the company, set-

ting new targets and developing a culture of community – not to mention having fun. Who says it has to be boring?

It should be – and actually is – easy to begin saving energy, and it is fun to be part of it.

Contact your colleagues or your boss. Have a talk with the head of your company's technical department. Propose an energy campaign to management that will ensure that people focus on energy savings and making proper use of energy. Your activities will not be successful in the long term unless your management support them. Don't forget to tell management that these activities need not cost very much money or time. How much does it cost to switch off the light or some production equipment? Nothing. It's simply a question of introducing new habits and a new culture.

Propose that a small energy working group be set up with representatives from several departments and units, and prepare some information material and ideas for an energy campaign. If your company has a person in charge of energy matters, then invite him or her to be a member of the group. However, the group should not be too big, because then it might work slowly and less efficiently.

Proposal for areas and units to be represented in the working group:

- **Production.** Because the biggest energy consumption are here, and it's therefore also in the production, you can carry out the biggest retrenchment.
- **Administration and IT.** These areas also have a relatively high consumption of energy in their everyday activities.
- **Product development.** They can think about how future products could be made in more energy-friendly ways.
- **Facility management.** The facility manager controls energy consumption in day-to-day operations.
- **Financial department.** They can help ensure that any investments made in new technology, etc can be regained through energy cost reductions.
- **HR department.** Their job should also be to help motivate employees to become even more involved in reducing the company's energy consumption.
- **Communications department.** They can ensure coherence between actual efforts to save energy and the way the company markets itself.

Find out how much money your company actually spends on energy each year: electricity, gas, oil, heating, water,

wastewater, waste, technical gases, etc. It is likely that very few people in the organisation know what the costs are. No one knows that a leak in an air compression hose could cost £ 7.000 a year and that, in many cases, the power consumed because of such leaks can amount to more than 50% of total power consumption. Likewise, very few people know the hourly cost of having production lines, machinery, PCs, coffee makers, etc switched on.

One of the easiest things to start with is to identify visible air and water leakages and other types of waste. Secondly, you could check what is left switched on even when no production is taking place, or at night or weekends. This kind of thing can account for as much as 10-

25% of total energy consumption, and it is very easy to do something about it.

Prepare an information campaign with simple messages about energy costs, etc. Discuss energy consumption and energy saving at department meetings or with your colleagues in the company canteen. Arrange competitions and ‘energy hunts’, and invite everyone to make suggestions and come up with good ideas. Don’t forget to report regularly on progress made: how many ideas have been submitted, how many of them have been considered, and how many have been implemented. Try to prioritise the suggestions so that the best of them – those resulting in the greatest savings but using the least resources – are implemented first.

SHARED ENTHUSIASM AND DEDICATION

// ‘What has made the greatest impression on me is that all of us on the shop floor have been involved to such a great extent. They’ve really taken us seriously and listened to our proposals. That makes us even more committed. Everyone took part in the systematic review of the departments with a positive attitude and came up with creative ideas. It is obvious that this is something we’re all dedicated to and that it is a project that’s brought us together because of our shared interest in improving our workplace in the long run, also in terms of the working environment.’

Kaj Kristensen from the maintenance department of Danisco in Grindsted.

Make sure you have some people with technical knowledge on your team, for example people from technical units and facility management. They can not only help you find the best possible solutions and make sure they are implemented, but they can also be useful in terms of prioritising the different activities. Don't forget that there may be many possible solutions to a problem and that many problems can be solved by changing attitudes or long-standing habits. Bear in mind that it is not always possible or even necessary to use technology to solve problems – this is especially important to remember.

You should also consider whether it would be useful to ask external experts to help. Such help need not cost anything. Suppliers are generally willing to

help. Energy companies offer free advice. For large-scale projects, you could even consider bringing in special energy conservation experts.

Try to find a way to measure the savings achieved. Is the electricity bill lower? Do you have meters at different locations on the premises to help you measure how much you have saved? There is nothing that motivates better than enabling everyone to see that what you are doing is actually making a difference and that real savings are being achieved. In fact, this is also how you can ensure the support of management.

On the next page there is a checklist that we hope you will find useful in your search for energy savings.

**Energy savings cut costs, increase employee satisfaction,
improve cost effectiveness in the company
and are good for the climate.**

**The sooner your company starts,
the faster you will see results.**

**Use this folder as a source of inspiration
and find out how to get started.**



Possible focus areas

✘ Electricity

- Pumps running unnecessarily, at too high a pressure or with too much flow.
- Conveyor belts, machinery or lines running unnecessarily.
- Frequent starts and stops, product changes or low degrees of utilisation in production lines.
- Leaks in compressed air systems.
- Lighting, ventilation systems, etc that are unnecessarily switched on, for example after normal working hours.
- Poorly insulated cooling pipes, valves, etc that lead to increased power consumption by cooling compressors in the central energy facility.

✘ Facilities

- Lights that are switched on unnecessarily.
- Open doors and gates.
- Dripping or running water taps.
- No or incorrect setting of radiator thermostats, no or inadequate automatic regulation or no night-time reduction.

- Poor maintenance of buildings or technical installations.

✘ Rinsing machine

- Heat losses such as warm water spilled into sewers, overflows from containers, etc.
- Poor or broken insulation of pipes, valves, etc that leads to heat loss.

✘ Heat

- Poor or ruined insulation of pipes, valves, tanks, etc that leads to heat loss.
- Heat loss caused by water spilled into sewers, overflows from containers, etc.
- Excessively high room temperatures (higher than 21°Celsius).
- Unnecessarily high operating temperatures in machinery that necessitate more ventilation.
- Open doors and gates.
- Leaking valves, pipes or heat exchangers in heating systems.

Source: Danfoss Solutions

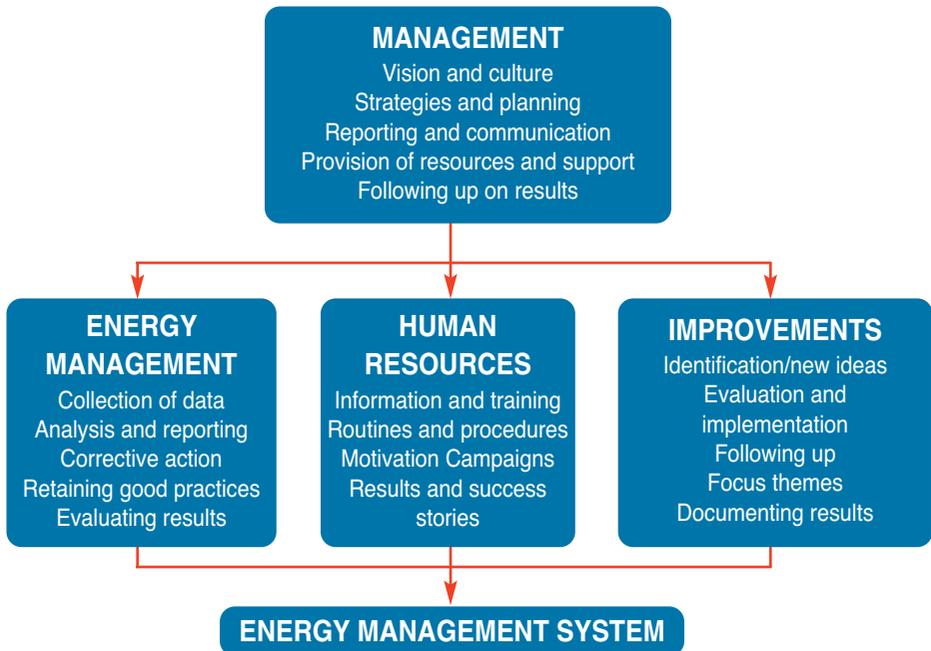
What can we do in the long term?

Starting a campaign is the easy part. Making sure that it will continue to work and be effective is much more difficult. To ensure long-term effectiveness, it is important to have the full support of management and to ensure that management is one of the driving forces behind the campaign.

In order to go a step further than just ensuring that the new initiatives, culture and habits continue, it is necessary to formulate a visible, active energy policy and embrace an energy culture that is

part of everyday activities. At this point, the company should consider bringing in outside experts.

To ensure that new useful initiatives, a new culture and new habits are not only maintained, but also to continue to move forward, it is necessary to set up an efficient energy management system. Such a system should be used to develop approaches and processes at all levels of the organisation. First of all, an active and visible energy policy should be formulated, closely followed by the devel-



Source: Danfoss Solutions

opment and promotion of an energy-oriented culture embedded in everyday activities. This energy management system must make it possible to measure savings in all important areas of the company's activities so that it can be used in the effort to hold people who use energy accountable for that use. People at all levels should be involved and a scheme put in place to ensure the implementation of all good ideas and possible improvements. This is an area in which the company should specifically consider using outside expert help.

1. Both management and workers should support the strategy.
2. A visible energy policy and culture should be put in place, and specific

targets and strategies should be formulated by management.

3. Management should appoint members of an energy group and a person to be responsible for energy matters at the workplace.
4. The company's energy consumption and further potential for saving energy should be analysed.
5. Energy savings targets should be set.
6. An energy action plan should be prepared.
7. A plan for the involvement of workers and a communications plan should be prepared.
8. The energy strategy should be implemented.
9. The results of the energy strategy should be evaluated and maintained.

BRINGING OUR GOOD HABITS TO WORK

// We consider all employees to be accountable for our energy consumption. That is why we are working together trying to identify areas where energy can be saved and why we challenge people's ways of doing things. Sometimes we can save energy simply by changing a few habits. Most people try to cut energy consumption in their own homes, and we want them to bring their good habits to the workplace. Changed behaviour almost always surprises us because it leads to even greater energy savings than we expected.'

***Morten B Vagner**, project manager, Danfoss Solutions A/S, currently working with Danisco in Grindsted*



Micromatic. Photo: Joachim Rode

The support of management and employees

For the company's energy strategy to be targeted and effective, it is crucial that management not only supports the project but also plays an active role in the entire process. Management must be willing to make investments and introduce changes in the company. Similarly, workers must be prepared to accept changes in everyday routines. Unless both parties are in favour of the strategy, it will be impossible to achieve energy savings.

It should be borne in mind that the outcome of these investments will benefit

both the company and its employees in the form of:

- Cost reductions and more efficient work procedures.
- Retention of jobs.
- A green profile communicated to employees, investors and customers, which should be used actively in the company's PR and marketing activities.
- Greater comfort and a better indoor climate in company facilities (less noise and exposure to heat).
- Greater job satisfaction as a result of being part of the process.

A generally acceptable energy policy should be formulated and translated into a number of specific objectives such as

25% energy savings or carbon reduction in absolute terms by 2025. These objectives should be broken down into sub-objectives and intermediate targets, and a strategy should be formulated for the company's achievement of those objectives and targets. The strategy should also include a plan for the gradual build-up of a new culture, and there should be a clear focus on energy so that everyone understands the company is taking energy conservation seriously.

Energy accountability at the workplace

It is important that the company makes the people who use energy accountable

for the amount they use. In other words, it should be possible to measure the energy consumption of each department or production line so that they can be held responsible in the same way they are accountable and responsible for other costs. It should be possible to measure energy consumption on a daily or weekly basis (measurement on a monthly basis would be acceptable for small companies) and to compare it with the production volume.

Furthermore, each company should appoint a person to be in charge of energy matters. If your company does not already have such an energy officer, the next step should be to appoint one. The

GOOD EFFECT BOTH ON COSTS AND THE WORKING ENVIRONMENT

// We have heating pipes that are not properly insulated. That makes us waste energy, and we have a room temperature that is too high. Once we've done something about it, we'll both save money and improve the working environment. In our warehouse, we have a lot of fluorescent lamps that are left switched on even when they are not needed. The same applies to our bathing facilities, where we have now put up signs to remind each other to turn out the lights. However, what is most surprising is the commitment we see. Everyone is really dedicated and wants to come up with good ideas, so even though our dialogue and ways of behaving towards each other have always been excellent, this shared challenge has brought us even closer together.

Viggo Kaldahl, operations manager of the emulsifier spray and blending departments of Danisco in Grindsted.

energy officer should be appointed by management so that there is no doubt that he or she has the necessary support and that management is confident that he or she can implement the energy strategy.

The idea is for the energy officer to ensure that the company's energy strategy is rolled out and implemented, but it is important to remember that he or she is not responsible for the level of energy consumption in the company.

It is important that you continue to involve employees.

Analysis of the company's energy consumption

Today, a company has several options with regard to having its energy consumption analysed.

Local energy suppliers can generally perform an energy review of buildings, while energy service companies (ESCOs) offer enterprises complete packages that include not only the advice of an energy consultant but also investment in energy renovation and management of such renovation. Schneider Electric, Grontmij Carl Bro, COWI and Korsbæk & Partners are examples of ESCOs.

Other companies offer packages similar to those offered by the ESCOs but add

the extra element of also involving a client's employees in the entire process. One such company is Danfoss Solutions, which has extensive experience in this field.

What should be included in the analysis? Where can we save energy?

Production: Optimisation of equipment and production lines, production planning and streamlining of production line operations, start/pause/stop procedure, reduction of idle energy consumption and waste, and changed routines and procedures.

Buildings: Insulation, windows, doors, solar screening.

Electricity: Replacement of light sources, installation of room sensors, outdoor lighting, heat pumps, white goods and kitchen appliances.

Water: Replacement of toilets, replacement of water taps, white goods, use of water outdoors.

Heating: Replacement of heating sources, replacement of radiators, ventilation systems, cooling systems.

Office equipment: Servers, PCs, copiers, printers.

Waste: Waste sorting to ensure that most waste is either reused or recycled.

Defining targets for energy conservation and preparing an action plan

With the help of external consultants, a company will be able to set targets for energy savings based on the results of the energy analysis, i.e. targets for how much should be saved both by the company as a whole and by individual branches and departments.

It is important to have a baseline year that can be used as a benchmark. The baseline year could be a specific year, or the average of several years can be used as a baseline value, depending on company trends in the preceding years.

Furthermore, it is important to determine how much the company wishes to cut energy consumption and over how many years the reduction should be achieved. In this respect, it is of course relevant to take the depreciation periods for the various savings into account. For some savings, the period will be a year; for others perhaps five or ten years.

It would also be a good idea to set a number of sub-targets and regularly announce whether they have been achieved and, if so, whether they were achieved before or after the milestones set out in the action plan.

From car to bicycle

In the summer of 2008, safety representative Dan Baransinski was having a chat with his colleagues, all of whom were crane drivers in the port of Fredericia. They talked about how silly it was that they were driving in cars from crane to crane and also to and from their breaks. That was how the idea of using bicycles emerged. The company was all for it and bought nineteen bicycles. Now they have all cycled from place to place for about a year. It has been good for their physical fitness, just as it has reduced carbon emissions and the amounts of fuel consumed, which were quite substantial because of the many short drives and cold starts.

Preparing an action plan

An energy strategy should define a number of prioritised focus areas. One or more specific reduction sub-targets may then be set up within each of the focus areas. This is where the action plan comes in.

The action plan will help the energy action group manage and structure its work towards achieving the energy savings targets.

Communications strategy

An essential factor in the action plan is how the company's initiatives regarding energy savings are brought to the attention of others: primarily its employees, but also the local community, local politicians and the company's customers.

Thus it is important to prepare a communications plan for the energy strategy. The plan should answer the following questions:

- How do we present the energy initiatives to company's employees?
- How do we involve the employees in the project?
- How do we keep the employees posted on the progress of the project and the results achieved?
- How do we inform the company's customers about our energy strategy?
- How do we inform the local community, local politicians and the other enterprises in the area about our energy strategy?

Regular information will help generate interest in the energy savings project in various circles. For this reason, both

Employees saved £ 500.000

Actually, they only expected to save £ 200.000 on reduced energy consumption at the Tuborg brewery in Fredericia, but when they took stock in June 2005 they realised that, in less than two years, they had reduced the amount of energy consumed at the brewery by ten per cent. In financial terms, this reduction represented savings to the tune of £ 500.000. According to the management, this success was down to the employees, who had been incredibly active in coming up with good ideas.



Toms Chokoladefabrik. Photo: Gitte Sofie Hansen.

management and employees will have an indirect duty to play an active part in the project, making sure that it is carried out.

If someone i.e. has a great new idea or sees a dripping water tap, whom should they contact? It is also important to communicate this kind of information to everyone in the company.

Implementing the energy strategy

For an energy strategy to be successful, it is important that the energy officer and the working group involve all employees in the effort to conserve energy.

The working group must also ensure the necessary coordination of the various activities.

However, most important of all is that everyone in the organisation learns that an energy strategy is being implemented and that the right motivation is provided so that everyone wants to participate.

Below are some suggested activities to motivate your colleagues and help make sure the energy strategy is realised.

Ideas competition

One way of ensuring that employees will want to help implement the company's energy strategy is to ask everyone to submit ideas for energy savings. Employees will feel that they are being taken seriously and consulted for their expertise, and the company will see that more employees will work to reach the targets set out in the energy strategy.

- *Department-specific targets*

One objective could be for a department to cut its power consumption by 10% and its water consumption by 5% a month over the next twelve months.

- *Bonus schemes*

A bonus scheme under which some of the money saved on energy is paid into the company party fund or set aside for a similar purpose is a good incentive: being rewarded for their help can also increase people's desire to participate.

- *Recognition*

Recognition of the results achieved by departments or employees is also important. An example of recognition is choosing an 'energy worker or energy department of the month' who will be given some small prize for their efforts.

- *Internal competitions*

Another way of motivating employees could be to launch an energy savings contest among the company's departments. For example, a prize could be awarded to the department that manages to reduce energy consumption most during a given period of time.

- *Capacity building*

Capacity building is extremely important: it is essential for both managers and em-

ployees to understand that conserving energy is necessary and to know how they can help each other to make the energy strategy a success.

It may be necessary to call in external experts with experience in how to get employees involved in energy projects.

Evaluating the energy strategy

Once the company's energy savings targets have been defined and announced internally in the organisation – and perhaps also to customers and the local community – continual follow-up is very important to see whether the targets are being achieved both at the individual level and the company level.

If the targets are not being achieved, it is necessary to reconsider the action plan and its implementation so that the energy strategy does not fail and generate negative publicity.

This approach will ensure that both managers and workers can follow the progress of the strategy and decide whether changes to the action plan are necessary or whether an extra effort is needed to achieve the various sub-targets.

The benefits of having an energy strategy

An energy strategy can have many benefits for a company.

Firstly, it can lead to lower costs, with the company saving substantial amounts of money if it succeeds in reducing its energy consumption. The lower costs mean that the company is more competitive and thus increases its chances of maintaining market share and possibly even gaining an increased share and thus retain employee jobs.

Secondly, an employee-driven energy strategy is likely to make workers feel more appreciated, which means that they will be more satisfied with their workplace. Consequently, the employees will probably become good ambassadors for the company – speak in a positive way

about the company to family members and acquaintances – and this can have a positive effect on the bottom line.

Thirdly, an energy strategy can lead to improvements in the physical working environment. Some companies that have focused on conserving energy have seen lower noise levels because machines, air compression hoses and water supply systems were not switched on when they were not in use.

So, in addition to benefiting the climate, the introduction of an energy strategy can also lead to improvements in both the physical and psychological working environment.



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