BUSINESS CASES

GREEN PROCUREMENT

GREEN PROCUREMENT AND GREEN PRODUCTS GENERATE GROWTH

The Environmental Protection Agency has assessed the economic and environmental effects of green public procurement as experienced by the market. The assessment is based on seven business cases. And the conclusion is clear: Green public procurement creates value for suppliers and the suppliers by enhancing marketing potential, innovation, sales, and export, and helps create new jobs. Moreover, green procurement can be a good economical choice for the procurer, as well as have a positive impact on the environment, health, and work environment.



Seven business cases for green procurement presents examples of public procurement contributing to the green transition of society. Focus is on the effects of green procurement the suppliers in regards to job creation, innovation, export, and marketing opportunities.

Conclusions from the casestudies

The effects of green public procurement have been assessed through seven business cases that allow both suppliers and procurers to quantify and articulate the potentials of green procurement.

The cases show that when public procurers prioritise green procurement, the effects reach beyond the specific purchase. A sale to the public sector effect-full in that it opens up for new business opportunities in both public and private markets. At the same time, it can generate innovation and may hold export potential.

GREEN PROCUREMENT HAS A RIPPLE EFFECT AND BECOMES A MULTIPLIED WIN-WIN SITUATION.

The cases also show that a company focus on green products and a green brand can pay off. The companies experience increased sales, and the procurers can achieve a decrease in operating costs. Furthermore, the cases show that green procurement is important for achieving a reduction inenvironmental impacts and an improvement of work environment and health.

The use of Life cycle costing, performance based procurement, reuse and recycling of materials, as well as a change from purchase of product to purchase of service has helped create the many positive effects.

Green procurement has a ripple effect and creates a multiplied win-win situation.

Case 1: Wastewater treatment plant – The sale of a wastewater treatment plant to Karup Air Base resulted in an export opportunity to England

Case 2: Heat pumps – Expenses became income when Hedensted Municipality chose Cronborg's RECOOL technology

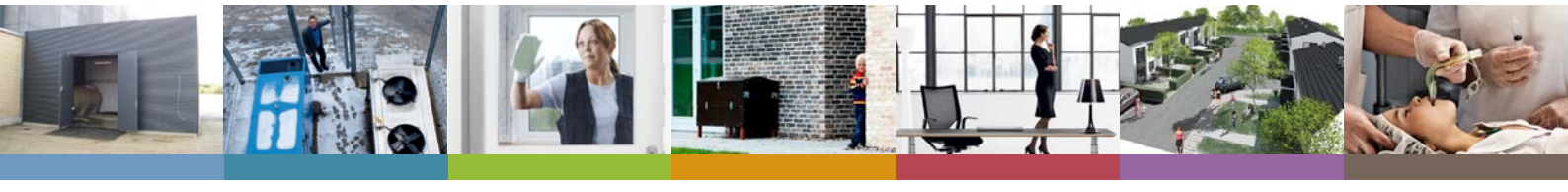
Case 3: Cleaning services – A tender for cleaning services had four winners: Viima, Lolland Municipality, the environment, and the employees

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Case 7: Hospital equipment – The desire to be proactive drives the green innovation process forward



WASTEWATER TREATMENT PLANT



THE SALE OF A WASTE-WATER TREATMENT PLANT TO KARUP AIR BASE RESULTED IN AN EXPORT OPPORTUNITY TO ENGLAND

Envotherms wastewater treatment plant helps Karup Air Base save an annual cost of DKK 1.1 million and reduces the consumption of water, energy and transportation. Now, Envotherm is facing the possibility of exporting their wastewater solution to an English air base.

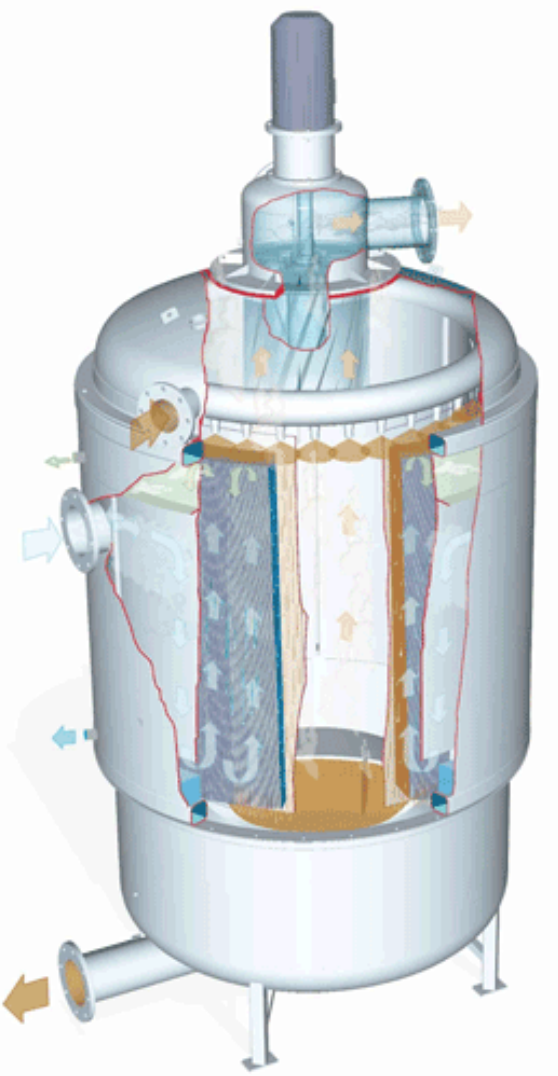
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Envotherm has developed a technology that purifies contaminated water through evaporation. The distilled water is subsequently so clean, it can be reused for industrial processes - or discharged as ordinary wastewater. By using Envotherm's wastewater treatment plant, customers are able to comply with limit values for emissions and avoid disposing of the contaminated water as hazardous waste. The evaporation technology cleans the water for a third of the cost of other solutions.

Envotherm is working hard to market their solution towards public customers, and selling of a plant to Karup Air Base marked the first sale to a public institution. It proved to be a good reference in the further efforts to enter into the public market. Envotherm uses Karup Air Base as a "show case" for new clients and employees as the airfield praise the plant when public purchasers inquire. A second plant has already been sold as a direct consequence of a successful demonstration at the air base.

One of the most interesting effects of the sale to Karup Air Base is that an English airbase has shown Envotherm considerable attention.



The English airbase has become aware of the benefits gained by Karup, and they have initiated a clarification process that will show whether the English airbase will repeat Karup's successful experience. This could create opportunities for Envotherm on the English export market.

THEY HAVE INITIATED A CLARIFICATION PROCESS THAT WILL SHOW WHETHER THE ENGLISH AIRBASE WILL REPEAT KARUP'S SUCCESSFUL EXPERIENCE. THIS COULD CREATE OPPORTUNITIES FOR ENVOTHERM ON THE ENGLISH EXPORT MARKET.

Achieved a financial advantage by solving a major environmental challenge

Each year, Karup Air Base discharges large amounts of wastewater from washing military equipment. The wastewater used to be discharged into the municipal wastewater system until analyses of water samples showed that



the wastewater was polluted with cadmium beyond the permissible limits.

- We were requested by Viborg Municipality yo comply with wastewater limits, and when we analyzed the water samples, we became aware that the wastewater contained cadmium from the washing of helicopters, says Michael Damkjer, environmental officer at Karup Air Base.

The immediate solution was to transport the wastewater by tank truck to the municipal waste treatment facility – an expensive and time-consuming option. Karup assessed different technologies as alternative solutions. However, none of them met the requirements of the air base. Solutions where chemicals are used to make pollutants settle are harmful to the environment as well as health and safety. Electrolysis-based technologies could not remove enough cadmium to make the wastewater comply with the limit values. Only one solution fit the strict requirements of the air base; a plant from Envotherm, which was both the most environmentally friendly and economically advantageous option.

- Before we invested in the plant from Envotherm, we were collecting the wastewater and shipping it to a hazardous waste treatment plant via the waste treatment facilities in Viborg. The costs were DKK 2 per liter for the treatment alone, and one helicopter generates 2,000-3,000 liters of wastewater. This corresponded to an annual cost of about DKK 1.1 million. On top of this was the costs of transportation, says Michael Damkjer.

The initial costs for Envotherms solution were DKK 2.2 million, and the annual operating costs are around DKK 48,000. Compared to the previous annual cost of DKK 1.1 million, the Envotherm solution was clearly advantageous. The investment has a repayment period of just over two years.

Envotherm has experienced a number of benefits from green public procurement:

- Increased turnover
- Show case and marketing opportunities
- Directly derived possibility of exporting the solution to England

BEFORE WE INVESTED IN THE PLANT FROM ENVOTHERM, WE WERE COLLECTING THE WASTEWATER AND SHIPPING IT TO A HAZARDOUS WASTE TREATMENT PLANT VIA THE WASTE TREATMENT FACILITIES IN VIBORG. THE COSTS WERE DKK 2 PER LITER FOR THE TREATMENT ALONE, AND ONE HELICOPTER GENERATES 2,000-3,000 LITERS OF WASTEWATER.

Michael Damkjer, Karup Flyvestation



OUR PLANTS TYPICALLY HAVE A PAYBACK TIME OF 2-4 YEARS AND A LIFESPAN OF 12-15 YEARS, SO ALREADY AFTER THE 1ST OR 2ND YEAR OUR SOLUTION TURNS INTO AN INCOME.

Vibeke Svendsen, CEO of Envotherm

The costs connected to the purchase of a storage tank for dirty water, a destillat tank for clean water, and the construction of a small building for the plant, are included in the calculations. The Envotherm plant is not completely silent, so it was decided to move it to an extension in order for the employees not to be bothered.

Cost savings by focusing on operation expenses rather than the purchasing cost alone

Envotherm recommends that public procurement officers apply a long-term economic view on their procurement instead of focusing on the purchasing price or the budget of a single year. Envotherm experiences scepticism from public procurers and potential customers regarding the magnitude of the initial investment, when considering purchasing the Envotherm waste-water plant. It will be beneficial to show them the full financial picture from life-cycle costing, where it becomes clear that the system helps save money.

- We spend a lot of time and resources on informing about life-cycle costs, because it is not present in the mindset of the customers, says Vibeke Svendsen, CEO of Envotherm.

- Our plants typically have a payback time of 2-4 years and a lifespan of

Advice from Vibeke Svendsen, CEO and partner of Envotherm:

- Examine the individual market carefully before you spend all your resources - use your network, industrial associations, embassies, etc.
- Check local trade barriers; for example certifications - what are the costs and what is the timeframe?
- Check whether new local or European rules that promote or hinder your business case are to be expected?

12-15 years, so already after the 1st or 2nd year our solution turns into an income.

The Danish Military – the head procurement organization for Karup Air Base – focuses on life-cycle costs. All investments with a payback period of less than 5 years must be implemented.

The solution spares the environment of at least 123 tonnes of CO_2 per year

The wastewater treatment plant achieves a total saving of 123 tonnes of CO_2 per year when compared to letting the hazardous waste treatment facility handle the polluted water. This calculation does not include the energy consumption of the plant or the CO_2 savings achieved by the significantly reduced truck transportation of wastewater. Before Karup Air Base bought the plant from Envotherm, the employees from the air base had to transport the wastewater from the helicopter wash to Viborg 15-18 times a year. This is now reduced to four annual trips to deliver the concentrate for waste treatment.

With the introduction of Envotherms wastewater treatment plant, the emission of cadmium has decreased by approximately 4.4 kg per year.

Envotherm is not the only system on the market that makes use of evaporation techniques, but their solution is very energy efficient. Envotherm can evaporate under atmospheric pressure instead of vacuum, which is the usual procedure. Along with a number of other energy-saving measures this reduces energy consumption from 836 kWh to 15-30 kWh/m^3 depending on the type of wastewater.

The effective process is based on a special heat exchanger that the wastewater passes. The heat exchanger causes the water to evaporate on the liquid surface rather than on the metal surface, which is more efficient. This ensures that the precipitations are not on the heating surfaces and provides a constant heat transfer to



evaporation. The evaporator recycles energy from the steam generated so that only 1-2 percent of the energy - that would otherwise be used to evaporate the water - is used.

Short description of Envotherm

Envotherm is a small company that has developed a resource efficient technology to treat and reuse wastewater. Richard Dines Schmidt, chemical engineer and technical director, and Vibeke Svendsen, MSc. and CEO, founded Envotherm in 2006. Vækst Fonden became co-owner in 2008 when the fund invested a total of DKK 8 million in the company. In the past 3 years, Envotherm has tripled its turnover. The company has a profit ratio of approx. 9 percent. Envotherms goal is to become a global leader in the management of hazardous waste with evaporation technology.

Envotherm received EU's environmental award in 2012 for one of their other environmentally friendly products, a system for car washing that reduces the water consumption from 150 liters to 3 liters per car wash.

The company is located in Nordborg, Denmark

Number of employees: 8-10

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May 2013

Danish Ministry of the Environment
Environmental Protection Agency



EXPENSES BECAME INCOME WHEN HEDENSTED MUNICIPALITY CHOSE CRONBORG'S RECOOL TECHNOLOGY

Procurement of a function rather than a product facilitates more innovative solutions than with traditional tenders. Previously, Hedensted Municipality cooled the servers using regular ventilation, but after purchasing Cronborgs RECOOL technology , the Municipality can reuse the heat generated by the servers. DKK 73,000 year in cooling and heating expenses, and the environment is annually relieved of 28 tonnes of CO_2

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GREEN PROCUREMENT CREATES DEMAND FOR OUR PRODUCTS. WE MATCH THE MUNICIPAL ENERGY POLICIES, AND WE SOLVE A TASK IN A RESOURCE-EFFICIENT MANNER.

Hanne Kronborg, co-founder and director of Cronborg



Cronborg has developed a new product based on existing technologies. Their heat pump system, RECOOL, can collect excess heat from e.g. a server and reuse it for space heating and domestic hot water through the existing heating system of a building. The system is both environmentally friendly and economically viable.

- The customer's heating costs are reduced when the excess heat is recycled and less CO_2 is emitted from the use of other sources of heat and refrigeration. Moreover, the heat pump solution is based on natural refrigerants that do not pollute the environment, says Hanne Kronborg, co-founder and director of Cronborg.

She explains that RECOOL takes the heat into the heating system, regardless of the temperature in the system, and how the heat is generated. Thus, RECOOL offers great flexibility in both installation and use.

Green Public Procurement is very important for Cronborg

When Cronborg promotes heir solution to public procurers, the economic and environmental aspects are of great importance.

Municipalities seek to buy green and energy efficient.

Green procurement is of great importance to us. It creates demand for our products. We match the municipal energy policies, and we solve a task in a resource-efficient manner. The public institutions are willing to invest in solutions that save CO_2 and turn expenses into an income, says Hanne Kronborg.

So far, 10 municipalities have invested in solutions from Cronborg, of which seven are "Climate Municipalities".

AN INTERESTING PROJECT WAS PRESENTED TO US. THERE WAS A PROSPECT OF A FINANCIAL SAVING AND AN OPPORTUNITY TO IMPROVE THE MUNICIPALITY'S CLIMATE ACCOUNT.

Niels Abildsten, Hedensted Municipality

Hedensted Municipality wished to benefit their economy and the climate

Hedensted Municipality was aware that it was a waste of resources to send excess heat from the City Hall servers through the ventilation system. This made it an easier task for Cronborg to assure the municipality of the profitable and environmental advantages of buying and installing a RECOOL solution.

- An interesting project was presented to us. There was a prospect of a financial saving and an opportunity to improve the municipality's climate account. It was important that we could save CO_2, says engineer Niels Abildsten from Department of Construction in Hedensted Municipality.

The specific system in Hedensted has an annual operational cost of DKK 32,000 in electricity consumption. In turn, the municipality saves approximately DKK 105.000 on the heating bill, creating an annual operating profit of around DKK 73,000. With a purchasing and assembly price of DKK 400,000, the system has a payback period of approximately 5.5 years.

Roughly 700 kWh is generated from the servers every day. This corresponds to the daily electricity consumption of 24 households, and it provides the City Hall with 50 percent of its heating need during the winter months. When the outdoor temperature increases, the system provides up to 75 percent of the City Hall's heating.

Overall, Hedensted Municipality saves approximately 10,000 liters of oil a year. This corresponds to an annual saving of 28 tonnes of CO_2.

The income from heat recycling is greater than the cost of the total electricity consumption of the system.

Procurement based on function rather than product specifications facilitates for more innovative solutions

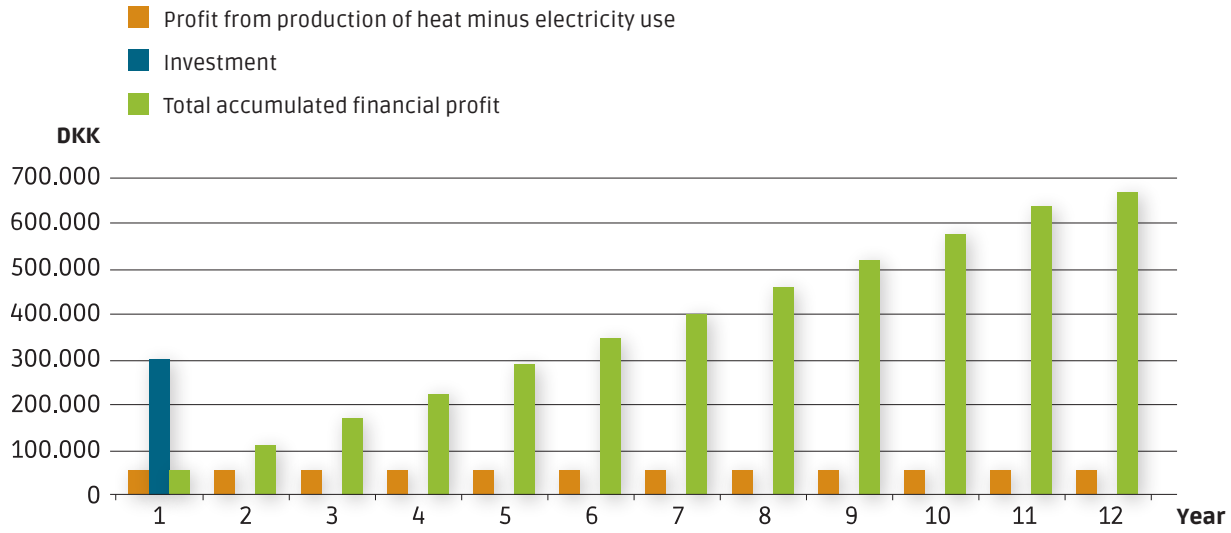
Cronborg is offering a new, innovative solution to an existing problem;

AS LONG AS TRADITIONAL PROCEDURES PREVAIL WHERE THE SYSTEM SPECIFICATIONS MUST MATCH THE TENDER DESCRIPTIONS OF FREE COOLING, WE CANNOT BE CONSIDERED.

Hanne Kronborg, co-founder and director of Cronborg

Cronborg has experienced a number of benefits from green public procurement:

- Increased revenue - so far, systems have been sold to 10 municipalities, as well as public swimming pools, the army, and several educational institutions.
- Cronborg and subcontractors are expecting to create over 40 new jobs during 2013-2014 from sales to the public and private customers.
- Good references for PR and marketing.



The income from heat recycling is greater than the cost of the total electricity consumption of the system.

a solution that can save money for the customers and reduce both CO_2 emissions and resource consumption. Nonetheless, the company cannot comply with the usual tender criteria.

- Typically, the procurement officers describe the traditional cooling systems in the tender documents, and then RECOOL is not eligible, explains Hanne Cronborg, adding:

- As long as traditional procedures prevail where the system specifications must match the tender descriptions of free cooling, we cannot be considered.

Cronborg would have better chances of expanding their market if municipalities and the State based procurement specifications on the function, performance and result rather than specific product details. It would provide the suppliers the possibility of contributing with new and innovative solutions based on knowledge of the market.

Another barrier for sale to the public is that RECOOL is not included in the ESCO solutions; i.e. solutions where the owner of the building collaborates with a private energy provider, who plans and implements energy optimizing renovations in the buildings. The investments are financed through the energy savings achieved. The ESCO consultants are not familiar with RECOOL and therefore this solutions is not included in their recommendations.

- The municipalities would experien-

Advice from Hanne Kronborg, co-founder and director of Cronborg

- **Reuse before you buy new!**
  Reuse the energy that has already been purchased, instead of wasting it and buying new energy afterwards.
- **Invest in green solutions that also provide bottom-line savings. It's a win/win!**
  Reduce CO_2 emissions and save on energy costs.
- **Invest in green solutions that are suitable for the Smart Grid!**
  So you can use electricity when it is cheap.

CRONBORG WOULD HAVE BETTER CHANCES OF EXPANDING THEIR MARKET IF MUNICIPALITIES AND THE STATE BASED PROCUREMENT SPECIFICATIONS ON THE FUNCTION, PERFORMANCE AND RESULT RATHER THAN SPECIFIC PRODUCT DETAILS.

ce greater savings if the RECOOL solution was offered through the ESCO tenders, says Hanne Kronborg.

- We have been contacting the ESCO providers to let them know that some municipalities would like to have the RECOOL solution included in the ESCO collaboration catalogue. The municipalities can demand that a RECOOL-based solution is included in the catalogue, but for this to happen they need to know about the solution. It takes a lot of resources for us to inform every single procurer, says Hanne Kronborg.

Cronborg has improved the working environment through less noise

Through the purchase of RECOOL, Hedensted Municipality did not only reduce the climate impact, also the working environment improved. The former cooling system was placed outside the office windows and was a disturbance to the employees. RECOOL has 0 decibel in noise, which has improved the wellbeing of the employees, who are relieved of the constant humming of the air conditioner.

Both Cronborg and subcontractors are expanding

Cronborg is doubling their turnover every year. But Cronborg is not the only one who experiences success; also its subcontractors are expanding. In 2013-2014 alone Cronborg and its subcontractors expect to create a total of 41 new jobs. Green procurement of heating systems from both public and private clients is included in this calculation.

– The sale to Hedensted Municipality helps ensure the positive development, says Hanne Kronborg, and adds,

- We find it easier to get through to new customers when we say that we have sold a system to Hedensted. It makes a difference.

Short description of Cronborg

Cronborg is established and owned by two energy advisors, Hanne Kronborg and Karsten Pedersen, who have developed a number of products related to heat pump technology. Besides RECOOL for server rooms, the company also produces heat recycling solutions for swimming pools, food business and other manufacturing companies.

So far, the company has doubled its turnover every year. The surplus is invested in development, marketing and sales.

The company is located in Holstebro, Denmark.
Number of employees: 8-10

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May 2013

Danish Ministry of the Environment
Environmental Protection Agency



A TENDER FOR CLEANING SERVICES HAD FOUR WINNERS: VIIMA, LOLLAND MUNICIPALITY, THE ENVIRONMENT, AND THE EMPLOYEES

Viimas chemical free cleaning system won a tender for cleaning services in Lolland Municipality. Afterwards, Lolland Municipality has saved DKK 1.3 million in man-hours, reduced the use of chemicals saved vast amounts of water, and the employees have today better working conditions and fewer sick days. Viima has strengthened the bottom line and thereby the possibility of developing their business further.

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Viima often experiences that new potential customers are sceptical towards the effects of their cleaning system.

- I have worked in cleaning services for 30 years, and I must admit that I am sceptical when I am introduced to a new 'smart' cleaning system, says Jette Wede, service manager in Lolland Municipality.
- But already at the first presentation of Viima, I was convinced. I quickly became interested in testing it. This proved to be a good decision.

Cleaning routines typically rely on conventional thinking, which is not easy to challenge. But Viima challenges. The cleaning system is quite different than traditional cleaning where water, soap, and chemicals are the basic elements. With Viima, only special microfiber cloths and small amounts of water are needed. Nevertheless, it is documented that Viima is better at cleaning.

EACH TIME A PUBLIC AUTHORITY HAS THE COURAGE TO ACT AS FRONTRUNNER BY SHOWING THAT GREEN PROCUREMENT CAN PROVIDE BENEFITS FOR BOTH THE ENVIRONMENT AND THE ECONOMY, OTHERS MAY BECOME A LITTLE LESS UNSECURE AND MAY FOLLOW TRACK

Jan Matthiesen, marketing manager at Viima

Viima benefits from the laws of physics rather than chemistry

Viima is a product and a service of the Danish company De Forenede Dampvaskerier (DFD). The concept is based on the use of microfibre cloths

WE BENEFIT FROM LARGE PUBLIC CONTRACTS. A LARGE CUSTOMER GENERATES A CAPITAL FLOW, WHICH MEANS THAT THE VIIMA CONCEPT CAN BE DEVELOPED FURTHER – ALSO TOWARDS EXPORT.

Jan Matthiesen, marketing manager at Viima



and mops of unique, thin composite fibres. When a mop or cloth with the composite fibres is used on a dry surface, the fibres are electrically charged and attract the particles of dirt and bacteria. By adding a little water on the cloth or mop, the capillary force in the fibres causes the impurities to be pulled up and maintained in the fibres. This process makes the removal of dirt and bacteria more efficient than with the traditional method using soap and chemicals. Microbiological analyses of surfaces immensely inoculated with staphylococci has proven that the use of water and Viima can reduce the number of staphylococci from 2,000,000,000 to less than 10 - without using disinfectants.

Viima has experienced a number of benefits from green public procurement:

- The increased turn over helps ensure that Viima can invest in product development
- Public sector customers such as Lolland Municipality indirectly market Viima when they disseminate their positive experiences with the cleaning system
- The private market is easier to penetrate when the private customers become aware that public sector customers have chosen Viima

Viima offers a full-service cycle, delivering cleaning equipment, collecting and washing dirty mops and cloths, and redelivering clean equipment back to the customer.

A large customer generates a capital flow

In 2011, the Municipality of Lolland decided to try Viimas cleaning system.

- Our sale to Lolland Municipality has had a positive effect on other customers' decision making processes, says Jan Matthiesen, marketing manager at Viima, and continues:

- Each time a public authority has the courage to act as frontrunner by showing that green procurement can provide benefits for both the environment and the economy, others may be a little less unsecure and may follow track. Lolland Municipality has even shared their positive experiences with Viima with other municipalities, which has helped increase our customer portfolio.

We benefit from large public contracts. A large customer generates a capital flow, which means that the Viima concept can be developed further - also towards export. The large, public customers provide stable revenues and ensure that Viima can invest in product development, Jan Matthiesen concludes.

Lolland Municipality started out with a pilot project and ended with a large-scale implementation

The cooperation between Viima and Lolland Municipality started small-scale. After a series of consultative meetings between Jan Matthiesen and a representative from Lolland Municipality, it was decided to carry out pilot projects in selected municipal institutions. Both the employee- and the quality evaluations were positive and welcomed the introduction of Viima at a larger scale. The Interest for the concept quickly grew and suddenly many units in the municipality were interested in converting, which resulted in the need for an actual tendering process.

At Lolland Municipality, there was agreement that the key parameters of the tendering selection criteria should be the employees' working environment, the external environment (use of resources), hygiene, quality and econom.

- The municipality began by deciding what they wanted to achieve through a cleaning service. This saved time for both the municipality and the potential suppliers. If the suppliers were not able to meet the objectives with their products and services, they could not pass the selection criteria and be allowed to provide an actual tender. It is an example of a public authority taking responsibility and putting demands on its suppliers, Jan Matthiesen from Viima says.

IF THE SUPPLIERS WERE NOT ABLE TO MEET THE OBJECTIVES WITH THEIR PRODUCTS AND SERVICES, THEY COULD NOT PASS THE SELECTION CRITERIA AND BE ALLOWED TO PROVIDE AN ACTUAL TENDER.

Jan Matthiesen, marketing manager at Viima

Jan Matthiesen recommends other municipalities to use functional tenders when procuring cleaning services. This will ensure that they do not exclude new and innovative solutions from the possible list of suppliers.

Improved working environment has strengthened the bottom line

Lolland Municipality was very attentive to the employees' ergonomics and general working environment in choosing their supplier. This was one of the reasons why Viima won the tender, and it was one of their main selling points.

Viima's low consumption of water and chemicals is clearly reflected in the physical working environment of the cleaning personnel, which is significantly improved compared to traditional cleaning methods. There is no lifting of heavy containers and buckets, no wet or damp hands, no wringing of cloths, but instead improved working postures, and a minimal use of detergents.

Calculations show that Lolland Municipality has saved man-hours corresponding to DKK 1.3 million since they switched to Viima in 2011. The savings are partly obtained through

Advice from Jan Matthiesen, marketing manager at Viima

- The green solution must have substance - green washing must not occur. It is not serious and it damages serious suppliers.
- External, independent accredited institutions should document the green solution.
- As a supplier, you must objectively and honestly consider whether the product or service you are offering is in the category "Doing good" or "Doing less bad".

the improved workflows, and partly through a decrease in sick days. Staff will no longer spend time on tasks like washing mops, ordering detergents and filling buckets with water. Notifications of illness are decreasing, as several employees have reported that previously experienced work-related aches have disappeared. An important reason is that they no longer carry heavy buckets of water. The overall conclusion is that is has been a positive experience for the economy, environment, and employees to switch from procurement of detergents and cleaning equipment to the purchase of Viimas cleaning service.



Significant resource savings

The environmental benefits of Viima's solution do not increase the cost of cleaning for the municipality - on the contrary. When the use of chemicals and water is reduced it benefits both the environment and the economy. The consumption of chemicals for cleaning has decreased between 30 and 50 percent in Lolland Municipality, and water use has decreased by 1,425 m^3 per year. Simultaneously, the municipality saves 85,000 kWh per year on washing machines and dryers. In addition, a cost of approximately DKK 100,000 per year for purchasing and repairing washers and dryers has been removed, as Viima handles all laundry.

Viima has had accredited institutions calculate the actual savings: chemical consumption is reduced by approx. 90 percent, water consumption by approx. 85 percent and CO_2 emissions by almost 70 percent when compared to traditional cleaning methods. The primary reasons for the improved climate performance is the use of fewer mops, which also weigh less and have a longer life span than 'traditional' mops. This means that one year of cleaning 100 m^2 floor only requires one sixth of a mop and one third kilogram of washing. Combined with the centralised and efficient washing process, major CO_2 savings are achieved.

Short description of Viima

Viima is a product and a service at the Danish company DFD. The name Viima is a Danish abbreviation of the concept's key components: Knowledge, innovation, Method, Behaviour.

DFD is a family owned business, which offers rental, washing, maintenance and supply of work clothes, bedding, tablecloths, napkins, and cleaning equipment for a variety of industries.

In 2012, Viima won the EU Environmental Award.

The company is located in Odense, Denmark.

Employees at DFD: 1,200
Employees of Viima: 11
Turnover DFD in 2012: DKK 591,725,000

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Environmental Protection Agency



GREEN PUBLIC PROCUREMENT PROVIDES VISUAL SHOWCASES IN PUBLIC SPACES

The Danish kindergarten "Brobækken" is built of bricks obtained from construction waste from Odense citizens. Gamle Musten ("Old Bricks") has developed a patented technology to recycle construction waste. The old bricks are cleaned, sorted and stacked – and are then ready to be reused for new construction. This way 1 tonne of CO_2 is saved every time 2,000 bricks are recycled.

Seven business cases for green procurement presents examples of public procurement contributing to the green transition of society. Focus is on the effects of green procurement the suppliers in regards to job creation, innovation, export, and marketing opportunities.

Based on the concept of circular economy, Gamle Mursten helped reduce CO2 emission as well as the use of new resources when they delivered reused bricks for the construction of the first Danish Eco-labeled kindergarten in Odense Municipality. The building lives up to the criteria of the Nordic Eco-label, the Swan, through the implementation of a series of considerations concerning the indoor climate. These include low energy consumption, no use of materials that are harmful for the environment or people, and high standards for ventilation and noise.

30,000 BRICKS HAVE BEEN SUPPLIED TO BROBÆKKEN. THESE BRICKS OVER NEW ONES HAS SAVED THE ENVIRONMENT OF 15 TONNES OF CO_2

Environment and aesthetics were the cornerstones in the choice of recycled building materials

The calculation behind Gamle Mursten's product is illustrative. One tonne of CO_2 is saved each time 2,000 bricks are recycled. There is no need for neither extraction of new clay nor use of energy for energy-intensive production of new stones. The energy consumption when recycling a brick is 98 percent less than when a new one is produced. The cleaning process of the used stones is mechanical, and neither chemicals nor water is used in the process, which gives a zero-dischar-



ge of hazardous substances from the production.

30,000 bricks have been supplied to Brobækken. Choosing these bricks over new ones has saved the environment of 15 tonnes of CO_2. The walls have been bricked with a special lime mortar, which makes the bricks easy to clean and reuse, if Brobækken one day is to be demolished. The circular thinking lives on.

The product from Gamle Mursten was chosen for Brobækken because of the clear environmental profile and the aesthetic qualities:

- There were of course aesthetic considerations behind the choice of Gamle Mursten as a supplier, and it is a very positive experience when aesthetics and environmental benefits go hand in hand, says Vagn Jensen, construction manager in Odense Municipality and continues:

- The bricks met our requirements for the environmental profile of the

WHEN WE SUPPLY A PUBLIC BUILDING, WE PROVE TO OUR CUSTOMERS THAT WE CAN LIVE UP TO ALL THE QUALITY DEMANDS, THE PUBLIC AUTHORITY MAKES.

Claus Juul Nielsen, owner and director at Gamle Mursten

institution; Gamle Mursten reduces the use of virgin resources and has a product that provides low CO_2 emissions in comparison to the traditional new brick.

Gamle Mursten also contributes to Brobækken's indoor climate
In the requirements for a Nordic Eco-labelled house, a number of issues relating to indoor climate have to be complied with. Since bricks naturally regulate humidity they are favorable as a building material when wanting to ensure a high standard for the indoor climate.

Children, parents and staff at Brobækken say that the indoor climate in the house is comfortable, and there have even been some examples of children with asthma even been some their condition after attending Brobækken.

Green Public Procurement makes a difference for Gamle Mursten
Gamle Musten has had good experience with sales to the public sector and has delivered bricks to a number of public buildings. It provides a good revenue and volume. The latter helps to ensure a stable utilisation

Gamle Mursten has experienced a number of benefits from green public procurement:

- Sales to public buildings have helped to ensure the expansion of the company with a new factory and 6-7 new employees
- Sales to the public gives an increased volume, so the production machinery is utilised more evenly
- Public-sector customers provide showcases in public spaces
- Sales to the public sector is a mark of approval that other customers will recognize and acknowledge

OTHER CUSTOMERS ARE MOTIVATED BY THE FACT THAT THE PUBLIC SECTOR HAS MADE THE CHOICE.

Claus Juul Nielsen, owner and director at Gamle Mursten

CLAUS JUUL NIELSEN HOPES THAT GAMLE MURSTEN CAN GET THE ACCESS NEEDED TO RECYCLE THE 30 MILLION BRICKS ANNUALLY DISPOSED OF AS CONSTRUCTION WASTE IN DENMARK. IT WOULD CREATE 400 NEW JOBS, AND THE ENERGY SAVINGS WOULD BE EQUIVALENT TO THE ANNUAL HEATING COSTS OF 3,000 HOMES.



of the production. However, the most important outcome from public customers is the marketing value it generates; more people will see a kindergarten than a private villa behind the hedge.

- Being suppliers for public constructions prove to our customers that we can live up to all the quality demands made by the public authorities. The construction of a public building is based on a political decision, and requirements from both politicians and officials are significant. So when we are approved, it is a mark of quality. Other customers are motivated by the fact that the public sector has made the choice, says Claus Juul Jensen, owner and director at Gamle Mursten.

- Additionally, a public building has many users who see our product. It is really important for us to have showcases placed in public areas.

Advise from Claus Juul Nielsen, director of Gamle Mursten

- In addition to being green, the product must have a significant advantage compared to competing products, for example in design or quality.
- Never attempt to market the product, if it can be considered "greenwashing". Your customers are smarter than you!
- Avoid products that cannot be included in a new product circle. End of Life products are "old school".

Brobækken has already proved its worth for marketing. At least one house has been built with stones from Gamle Mursten after the client had seen the facade of the kindergarten.

Patented technology and environmentally friendly mindset creates new jobs

The technology from Gamle Mursten cleans the used bricks using vibrations. In some cases, the bricks are



manually rinsed. Claus Juul Nielsen hopes that Gamle Mursten can get the access needed to recycle the 30 million bricks annually disposed of as construction waste in Denmark. It would create 400 new jobs, and the energy savings would be equivalent to the annual heating costs of 3,000 homes. Currently, Gamle Mursten's success with sales to private and public customers has ensured an expansion of the company in terms of a a new factory in Hedehusene. The expansion has also created 6-7 new jobs.

Gamle Mursten is consolidating as a clean-tech company. With 11 employees, an annual turnover of DKK 5.5 million and an profit margin of 15 percent, Gamle Mursten has shown that circular economy is not only environmentally sustainable, it can also create a financially sustainable business.

A green choice is not necessarily an expensive choice

When developing the budget for the construction of Brobækken, Odense Municipality expected that the eco-labelled kindergarten would cost 10 percent more than a traditional institution. But Brobækken ended up costing the same as other kindergartens. In addition, the operating costs of the institution are lower compared to other institutions due to the low energy consumption.

According to Claus Juul Nielsen's experience, the cost of environmentally friendly bricks must not exceed a normal price level:

- We are medium priced compared to new bricks. We will not be chosen as supplier if we price our product outside the market. We need to be competitive. You cannot price yourself higher because you are green.

Short description of Gamle Mursten

Gamle Mursten recycles construction waste by cleaning and reusing old bricks from demolished buildings. The company's rinsing technology is patented and only Gamle Mursten can clean bricks automatically. It provides an efficient production; up to 5,000-6,000 stones can be cleaned per hour.

Gamle Mursten is owned by Claus Juul Nielsen, who took over the business in 2003 from the original innovator and entrepreneur, Rudi Rusfort.

The company's headquarter is in Svendborg, Denmark and production takes place in Svendborg and Hedehusene. In 2011, Gamle Mursten received EU funding for an Eco-Innovation project, which aims to develop and commercialise Gamle Mursten's product.

Number of employees: 11
Turnover: DKK 5.5 million

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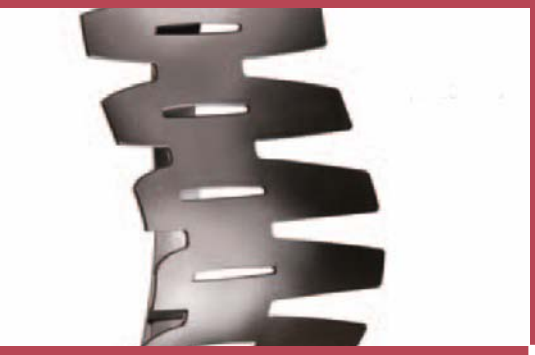
Case 5: Furniture – Furniture company has become the exclusive supplier for a joint municipal procurement contract

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Case 7: Hospital equipment – The desire to be proactive drives the green innovation process forward

May 2013

Danish Ministry of the Environment
Environmental Protection Agency



FURNITURE COMPANY HAS BECOME THE EXCLUSIVE SUPPLIER FOR A JOINT MUNICIPAL PROCUREMENT CONTRACT

A public tender with strict environmental and quality requirements – as well as documentation requirements – from the Danish State and Municipal Procurement (SKI) equals growth and innovation for the furniture manufacturer Duba-B8. The company has not only become the exclusive supplier to 66 municipalities. They also expect increased sales to private consumers as well as increased exports – including export of a new product line that was specifically developed to match the tender from SKI.

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It was a great triumph for Duba-B8 to become the exclusive supplier of a joint municipal procurement contract. The company won the contract after a long and thorough process, in which the environmental conditions of production and products were tightened and documented.

- We more or less already met the environmental requirements that were asked in the agreement, but it required a lot of resources to document our efforts, says Anne Stokvad Madsen, project and quality manager in Duba-B8.

DUBA-B8 EXPECTS GROWTH AS A RESULT OF THE AGREEMENT. THE COMPANY HAS ALREADY HIRED 5 NEW EMPLOYEES AND THE SUBCONTRACTORS WILL GAIN A HIGHER TURNOVER. NEW EXPORT POSSIBILITIES HAVE ALSO EMERGED FROM THE AGREEMENT.



The joint municipal agreement facilitates growth, innovation and the possibility of a new export product

The many initiatives have been an investment for Duba-B8. It is expected, that the binding agreement with the municipalities will provide more than 200 million DKK in turn over during the 4 years of the agreement.

- We have had to lower our prices for this specific agreement, in order to be able to compete, but in return we have a reasonable expectation that the combined municipal purchases will be of a significant volume. They are required to place at least 80 percent of their purchases on the agreement, says Anne Stokvad Madsen.

The agreement is offered by SKI

DUBA-B8 MARKETS ITSELF ON BEING ABLE TO LIVE UP TO THE MANY MINIMUM REQUIREMENTS OF THE STATE.

in collaboration with KL (Local Government Denmark). For the municipalities the agreement presents a possibility to save 26 percent compared to the market price.

Duba-B8 expects growth as a result of the agreement. The company has already hired 5 new employees and the subcontractors will gain a higher turnover. New export possibilities have also emerged from the agreement. In order to live up to the specific criteria, Duba-B8 has developed a new office chair series, and the company expects that it will become a successful export product as well.



The strict minimum requirements of SKI's procurement process can mean increased sales to private costumers

When municipalities buy furniture through the joint municipal agreement, they are ensured that a number of minimum requirements for environmental conditions are met. This helps to ensure a reduced burden on both the external environment and the working environment. Among other things, products must meet a number of requirements of the Nordic Eco-label criteria for furniture and fixtures, and 70 percent of the wood used must be either sustainable or recycled.

The fact that Duba-B8 meets all the environmental requirements benefits them in regards to sales to private costumers. More and more buildings have requirements for indoor air quality tests, and in this regard Duba-B8 proves that they meet the conditions. The many documentation processes the company went through in relation to the joint agreement are thereby not only useful for sales to the state – they are also useful for sales to private costumers. The company markets itself on being able to live up to the many minimum requirements of the state.

- It also gives us an advantage in relation to the export market, where it is an advantage to be able to provide costumers with green solutions, says Anne Stokvad Madsen.

The state should ask for documentation

Many of the tenders, that Duba-B8 applies for only pose minimum

Duba-B8 has experienced a number of benefits from providing for GPP:

- The joint municipal procurement contract is expected to provide DKK 200 mio. in turn over during in a course of four years
- 4-6 new jobs have been created as a result of the contract
- A new office chair series is expected to become a successful export product
- Duba-Bb has a marketing advantage due to the ability to prove that they can comply with criteria and demands from the public sector
- The dialogue with sub contractors has been improved through the processes of providing documentation for environmental performance

requirements for environmental and indoor climate conditions. It is not a problem for the company to meet these requirements. Rather, it often happens that public procurers do not ask for documentation. Anne Stokvad Madsen says:

- As a company, we find it problematic that suppliers can win contracts without actually meeting the criteria set for the competition. When the joint municipal agreement was offered, there was no way around it. Test municipalities assessed the quality of the furniture, and tests were conducted at the Technological Institute. The environmental performance had to be documented through certifications. It cost us a lot of resources, but it is positive when the customer follows up on the demands they make. We hope the SKI tender starts a trend, so that it becomes quite natural that suppliers have to present evidence that they can meet the requirements before they begin to deliver on the contract.

WHEN WE CHOOSE TO GET AN FSC LABEL, IT IS NOT JUST BECAUSE WE WANT TO SHOW THAT LABEL ON OUR WEBSITE. WE HAVE FOUND THE RIGHT SUPPLIERS AND WE HAVE MADE ALTERATIONS IN OUR PRODUCTION.

Anne Stokvad Madsen, project and quality manager in Duba-B8

Duba-B8 has experienced other benefits from the certifications besides the easily communicable documentation.

- When we choose to get an FSC label, it is not just because we want to show that label on our website. We have found the right suppliers and we have made alterations in our production. It has been costly for us because we are more locked on suppliers now, but in turn it has given us a better supply chain collaboration, which will benefit us, says Anne Stokvad Madsen and continues:

- We have access to information earlier than the competition and we are helping to develop their products. It benefits our production that we have influence and that we are included into the process. We are collaborating partners in our subcontractors development processes.

Duba-B8 focuses on extending the lifetime of their furniture and on recycling as much as possible

In the joint municipal agreement it is a requirement that all furniture can be disassembled in order to replace the parts. Among other things, Duba-B8 produces workbenches, whose components can be used repeatedly. The electrical features are most often the first to wear down. Duba-B8 takes back the table, breaks it down and recycles the parts in different ways. The metal parts can typically be refurbished and reused in another product. Metal parts that are worn out are re-melted and thus recycled. All the electrical parts are

Advice from Anne Stokvad Madsen, project and quality manager at Duba-B8

- Spend time on understanding the requirements - each requirement must be documented
- Create standard material for your suppliers to ensure documentation – it is a good idea to include requirements in the contracts. Remember to follow-up
- Use standards to ensure technical quality, environmental requirements, etc.

WE BELIEVE, THAT IN THE LONG RUN IT IS THE BEST BUSINESS STRATEGY TO USE ENVIRONMENTALLY FRIENDLY MATERIALS AND PROCESSES, BECAUSE IT FORCES US TO BE EFFECTIVE, AND THE EXPECTED INCREASE IN THE DEMAND FOR NATURAL RESOURCES MEANS THAT WE HAVE A HEAD START WHEN IT BECOMES A BETTER BUSINESS STRATEGY TO REPAIR AND IMPROVE EXISTING FURNITURE THAN TO BUY BRAND NEW PRODUCTS.

Anne Stokvad Madsen, project and quality manager in Duba-B8

recycled according to WEEE. Worn countertops are sent to Novopan, where they are used to make chipboards.

In order to extend the lifetime of their furniture, Duba-B8 offers a service where technicians maintain, adjust and repair the furniture on location.

Stringent environmental regulations are key to the business of the future

It is important for Duba-B8 that environmental issues are at the centre of their production. When achieving an environmental benefit on a product or in the production on the basis of a requirement from a customer, the company ensures that other products live up to the same requirements. Duba-B8 does not have a 'green line' and a 'conventional line.'

- We believe, that in the long run it is the best business strategy to use environmentally friendly materials and processes, because it forces us to be effective, and the expected increase in the demand for natural resources means that we have a head start when it becomes a better business strategy to repair and improve existing furniture than to buy brand new products, ends Anne Stokvad Madsen.

Short description of Duba-B8

Duba-B8 is the result of a merger in 2005 between System B8 Møbler and Duba Møbelindustri.

Duba was founded in Copenhagen in 1922 and for many years the company produced bicycle parts. In 1960, Duba began the production of office furniture. System B8 was founded in 1914 with the acquisition of Bjerringbro Sawmill and the establishment of a furniture manufacturing.

Today, Duba-B8 is a Danish office furniture company specialised in comprehensive interior design with core competencies in design consultancy, product development and logistics.

The company has offices in Bjerringbro, Soeborg, Odense and Oslo

Number of employees: 147
Turnover 2011: 350 million DKK
Profit margin 2011: 9.1 percent.

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Case 7: Hospital equipment – The desire to be proactive drives the green innovation process forward

May 2013

Danish Ministry of the Environment
Environmental Protection Agency

BUSINESS CASES 6

CONSTRUCTION

GREEN PROCUREMENT



EGEDAL MUNICIPALITY SETS HIGH ENVIRONMENTAL STANDARDS FOR THE BUILDINGS IN A NEW TOWN DISTRICT AND PAVES THE WAY FOR MORE SUSTAINABLE CONSTRUCTION

Stenløse Syd is a town area developed entirely after a comprehensive sustainability concept. Establishing requirements for sustainability in public tenders is one way in which public procurement can help increase the demand for sustainable construction on the private market.

Seven business cases for green procurement presents examples of public procurement contributing to the green transition of society. Focus is on the effects of green procurement the suppliers in regards to job creation, innovation, export, and marketing opportunities.

WHEN WE OFFER THIS TYPE OF CONSTRUCTION, BOTH THE ECONOMY AND THE ENVIRONMENT COUNT. FORTUNATELY, THESE TWO THINGS OFTEN OVERLAP.

Jan Johansen, Division Manager at CG Jensen

In an area of 73 hectares, Egedal Municipality has developed the town district Stenløse Syd. The municipality has been responsible for the planning, land development and supply of land for 750 new homes.

As the planning authority, Egedal Municipality has decided to develop a local plan with technical specification requirements for improved indoor air quality, low energy and water consumption, and the reduction of hazardous materials in the construction.

Besides requiring low energy consumption for each house, Egedal Municipality has called for the establishment of rainwater tanks for toilet flushing and prohibited the use of pressure-treated wood and PVC in the buildings. The Municipality also requires a min. of 3 m^2 solar panels on every roof, intelligent control and data acquisition of energy and water consumption, and heat recovery via the ventilation system. The local plan furthermore requires that the contractor must have experience from similar constructions.

Considerations for the environment as well as the residents' private economy in Stenløse Syd

All of Stenløse Syd is constructed as low-energy houses, making it one of the largest overall low energy residential areas in Denmark. The municipality expects to save a total of 3.6 million kWh (630 tonnes CO_2) and 22,000 m3 of water per year compared to conventional construction. Another effect of the extensive requirements for building materials is that the new district avoids the use of 200 tons of pressure treated wood.

The many environmental requirements are a challenge, but CG Jensen is at the forefront

The housing association, AAB, leads the construction of 62 family homes in Stenløse Syd. Following an EU procurement, CG Jensen was selected as general contractor. CG Jensen has extensive experience in sustainable construction, focusing on energy and resource savings through design and the choice of materials.

Among other things, this focus has led to enhanced insulation of the houses as well as the establishment of ventilation systems with heat recovery. During the application process, CG Jensen offered further resource-savings and environment-friendly solutions regarding the choice of materials and energy solutions.

- When we offer this type of construction, both the economy and the environment count. Fortunately, these two things often overlap. Many environmental conditions, such as the use of rainwater, also have a positive effect on the operation of the house, says Jan Johansen, Division Manager at CG Jensen.



THE MORE DEMAND THERE IS FOR SUSTAINABLE CONSTRUCTION, THE MORE WE FEEL MOTIVATED TO LEARN ABOUT ENVIRONMENTAL OPTIMIZATIONS.

Jan Johansen, Division Manager at CG Jensen

Public tenders can both generate greater demand and drive innovation

Generally speaking, CG Jensen has noticed an increase in the interest in sustainable construction, especially with public providers. The company's experience with sustainable construction has resulted in an increasing number of assignments, mainly from the public sector where the requirement for sustainability is included in the tenders.

CG Jensen also expects an increasing demand of sustainable construction in the private market. This process can be helped along by the focus on sustainability in the public sector.

- The more demand there is for sustainable construction, the more we feel motivated to learn about environmental optimizations, says Jan Johansen, adding:



- Especially turnkey projects allow for this, as they often give us free rein when it comes to integrating innovative and green solutions in the construction processes. It provides an opportunity to think outside the box.

Increased revenue and a 'green' competitiveness

The construction in Stenløse Syd has given CG Jensen a push in the right direction. With a contract sum of 64 million DKK, the amount makes up a significant share of the company's turnover during the 1½ years of construction.

CG Jensen has experienced a number of benefits from green public procurement:

- Public sector construction boosts turnover
- Public, sustainable buildings drives a development where private construction also becomes more environmentally friendly. CG Jensen can use the experiences and references from the public assignments on the private market
- Being able to demonstrate that the products or services meet the public sector requirements for environmental performance gives a competitive advantage

Besides the immediate benefits in terms of turnover, CG Jensen also benefits from the experience and publicity that the Stenløse Syd project has given them. Now the company can easily demonstrate that they can meet the high environmental standards, which gives them a competitive advantage.

BESIDES THE IMMEDIATE BENEFITS IN TERMS OF TURNOVER, CG JENSEN ALSO BENEFITS FROM THE EXPERIENCE AND PUBLICITY THAT THE STENLØSE SYD PROJECT HAS GIVEN THEM. NOW THE COMPANY CAN EASILY DEMONSTRATE THAT THEY CAN MEET THE HIGH ENVIRONMENTAL STANDARDS, WHICH GIVES THEM A COMPETITIVE ADVANTAGE.

Short description of CG Jensen

CG Jensen is a Danish medium sized company engaged in construction work in the form of subject contracts, head contracts and turnkey contracts. CG Jensen is an experienced company in sustainable construction with a special focus on energy and resource savings.

Since its establishment in 2008, CG Jensen has focused on the environment, and in 2009 the company was ISO 14001 certified. The company's ethical guidelines also include an environmental policy, stating that the company seeks to go beyond complying with relevant legislation. They also require their business partners and suppliers to respect and comply with their environmental policy. Besides complying with any environmental requirements of the costumer, CG Jensen advises the customers on possible environmental improvements and alternatives.

Since its establishment in 2008 and till 2012, CG Jensen has doubled its turnover.

The company is headquartered in Glostrup with regional offices in New Jersey and Lystrup.

Number of employees: 263
Turnover in 2012: 691.7 million DKK
Profit margin in 2012: 2 per cent.

The specific construction in Stenløse Syd gave a lower profit margin than conventional construction, as new procedures for environmentally friendly buildings needed to be incorporated. In return, CG Jensen expects that environmentally friendly construction will provide the same profit margin as other construction once the procedures have become more integrated.

CG Jensen is increasingly focused on enhancing the sustainability of their construction and services, e.g by making life cycle assessments of all materials used in the construction. Many of these initiatives are in the upstart phase, and CG Jensen is convinced that an increasing demand will give the green development a boost - in their company as well as in the construction industry in general.

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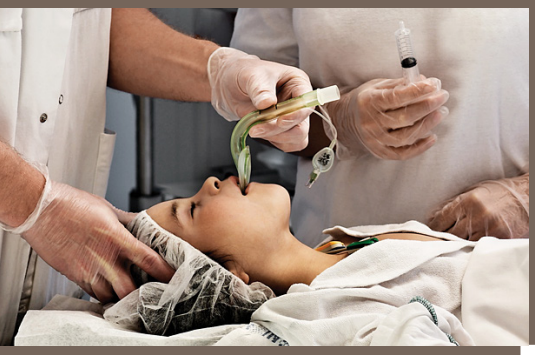
May 2013

Danish Ministry of the Environment
Environmental Protection Agency

BUSINESS CASES 7

GREEN PROCUREMENT

HOSPITAL EQUIPMENT



THE DESIRE TO BE PROACTIVE DRIVES THE GREEN INNOVATION PROCESS FORWARD

Ambu, a producer of equipment for hospitals and ambulances, is convinced that phthalate-free equipment is the way to a competitive advantage in the hospital sector. Danish Regions confirms that future tenders will demand increasingly high standards for a product's environmental performance.

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AMBU EXPECTS THAT THE INTRODUCTION OF A PHTHALATE-FREE PRODUCT WILL INCREASE THE COMPANY'S TURNOVER - WHICH OTHERWISE IS LIKELY TO DECREASE IF AMBU DOES NOT FURTHER DEVELOP ITS PRODUCTS.

Since the 1960s, PVC has been a common material used to manufacture equipment for the hospital sector, and almost 30 percent of plastic-based medical devices are currently made of PVC.

Containers and tubing in particular are made from this plastic material, and to ensure softness and flexibility, phthalate plasticizers are added as well. Some phthalates are problematic and are suspected of being endocrine disruptors as well as carcinogenic.



Phthalate products will increase Ambu's turnover

In regional public procurement, procurers are beginning to prioritize phthalate-free products for the hospital sector. Ambu is aware of these trends and wants to be at the forefront. Therefore, they have recently developed a phthalate-free laryngeal mask, which can be used in the anaesthesia.

Ambu has developed a business case for their phthalate-free product that shows the benefits they expect to achieve globally. The development scenario for the environmentally friendly product is compared with a scenario in which Ambu continues the conventional production.

Ambu expects that the introduction of a phthalate-free product will increase the company's turnover - which otherwise is likely to decrease if Ambu does not further develop its products, as the market demand for phthalate-based products will decrease.

Ambu estimates that the sale of the phthalate-free products will increase by 2 with a profit of 9 percent during 2012-2013. The following year, sales are expected to increase by 10 percent with a profit of 15 percent. The finances invested in the development process are expected to be returned within 5 months.

The company's calculations show, that the return on the product investment will add up to 46 percent over the course of 4 years. The company generally expects increased sales and a marketing advantage.

There is already a demand for the products

Ambu has already experienced procurement processes where the newly developed mask could have given them a competitive advantage, had it been commercially avaliable.

- In the latest tender of laryngeal masks to the Capital Region, the tender documents expressed a prioritisation of phthalate-free products. It was not a requirement. Since our new product will not be commercially available for another few months, we sadly ended up losing the contract to a competing product, which also contained phthalate, says Lars Nilaus, Vice President of Corporate Marketing, Ambu, adding:

- I am convinced that we would have won the tender, which until recently we were the supplier of, if our laryngeal mask had already been phthalate-free. It would have given us the necessary advantage for our product to be the winner.

Increasing demand for environmentally friendly products in regional tenders

Danish Regions confirms that developing phthalate-free products is the way to gain a competitive advantage. It is emphasized, however, that phthalate-free products also need to comply with the high standards of quality found in the tenders in order to win.

Ambu expects to gain advantages through green public procurement:

- An increasing rather than decreasing revenue
- Increasing profits of 9-15 percent up until 2014
- A return on the product investment of 46 percent over the course of 4 years
- Increased sales and a marketing advantage.

THE COMPANY'S CALCULATIONS SHOW, THAT THE RETURN ON THE PRODUCT INVESTMENT WILL ADD UP TO 46 PERCENT OVER THE COURSE OF 4 YEARS. THE COMPANY GENERALLY EXPECTS INCREASED SALES AND A MARKETING ADVANTAGE.



I AM CONVINCED THAT WE WOULD HAVE WON THE TENDER, WHICH UNTIL RECENTLY WE WERE THE SUPPLIER OF, IF OUR LARYNGEAL MASK HAD ALREADY BEEN PHTHALATE-FREE. IT WOULD HAVE GIVEN US THE EXACT ADVANTAGE NEEDED FOR OUR PRODUCT TO BE THE WINNER.

Lars Nilaus, Vice President of Corporate Marketing, Ambu

- There are more and more requirements for the environmental characteristics of a product in the regional tenders and these requirements will start to include phthalate-free products. There is a stronger focus on these issues than before. The concern for the safety of the patient and the employee, however, is of the greatest concern, followed by price and environment, says Jan Arnoldi, consultant at Danish Regions.

Jan Arnoldi expects phthalate-free products to become an award criterion. This means that the product must first meet a number of criteria on quality and function, and subsequently score on other criteria such as environment and price.

- It is beneficial for a company like Ambu to be a first mover in this area, it can give them a competitive advantage, Jan Arnoldi estimates.

The global market for phthalate-free products helps drive the development forward

In Denmark, the increase in purchases of phthalate-free hospital products is primarily driven by the regions. The regions have a formalized cooperation on the establishment of environmental requirements in the tenders. Their efforts reflect a general trend in Europe.

In 2010, the EU introduced new requirements for medical products containing phtalates. The new requirements established strict rules regarding application and documentation when the products are used for pregnant and nursing women as well as children. Future work will include the labeling of all products containing phtalates, in order to increase the awareness of the personnel then using these products.

In France, legislators have gone one step further. As of July 2015 there will be a ban the phthalate DEHP in plastic tubing used on children and maternity wards as well as neonatal.

Advice from Ole Markersen, R&D Manager, Ambu:

- The environmental work must be anchored in the top management
- Environmental Initiatives, where costs are quickly met by savings or increased sales, can easily be implemented
- In order for changes to be made, it is important to have good cooperation in the supply chain.

THERE ARE MORE AND MORE REQUIREMENTS FOR THE ENVIRONMENTAL CHARACTERISTICS OF A PRODUCT IN THE REGIONAL TENDERS AND THESE REQUIREMENTS WILL START TO INCLUDE PHTHALATE-FREE PRODUCTS.

Jan Arnoldi, consultant at Danish Regions



IT IS BENEFICIAL FOR A COMPANY LIKE AMBU TO BE A FIRST MOVER IN THIS AREA, IT CAN GIVE THEM A COMPETITIVE ADVANTAGE.

Jan Arnoldi, consultant at Danish Regions

Simultaniously, the law facilitates a general ban in France on DEHP as well as two other phthalates - BBP and DBP – in all hospital equipment, as long as the quality of the alternatives is acceptable.

It is Ambu's ambition to meet this global development.
- In addition to the developments in France, we also see an important market in other countries, such as Sweden, says Lars Nilaus from Ambu.

- In the Swedish tenders, phthalate-free products are always preferred and in some parts of the country it is a definite requirement. Now we are able to compete in these tenders as well.

In Ambu, CSR is prioritized at the management level

Ambu is convinced that acting in an environmentally friendly and socially responsible manner equals good business. This conviction has led the company to integrate CSR into its management structures. This has resulted in an increased focus on environmental impacts throughout the supply chain, and Ambu makes an effort to collaborate with suppliers on improved environmental conditions through a number of initiatives. The development of the phthalate-free product, which will soon be commecially available, occurred in close collaboration with the suppliers. In this way, Ambu's environmental initiatives have the potential to spread to other parts of the industry.

Short description of Ambu

Since its establishment in 1937, Ambu has created solutions for hospitals, clinics and ambulance services throughout the world. Ambu's equipment includes the invention of the first ventilation bag, reputable ECG electrodes as well as aScope - the first disposable flexible video scope.

Ambu is a global company with headquarters in Denmark and nearly 2,250 employees in Europe, North America, Asia and the Pacific.

Turnover in 2012: 1,045 million DKK.

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Case 1: Wastewater treatment plant – The sale of a wastewater treatment plant to Karup Air Base resulted in an export opportunity to England

Case 2: Heat pumps – Expenses became income when Hedensted Municipality chose Cronborg's RECOOL technology

Case 3: Cleaning services – A tender for cleaning services had four winners: Viima, Lolland Municipality, the environment, and the employees

Case 4: Construction – Green Public Procurement provides visual showcases in public spaces

Case 5: Furniture – Furniture company has become the exclusive supplier for a joint municipal procurement contract

Case 6: Construction – Egedal Municipality sets high environmental standards for the buildings in a new town district and paves the way for more sustainable construction

Case 7: Hospital equipment – The desire to be proactive drives the green innovation process forward

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