



## Article

### **Business Opportunities in Energy Efficient Innovation**

Improving energy efficiency is a central element of the Gillard Government's Clean Energy Future package because it can help businesses save money on their operating costs while also lowering Australia's greenhouse gas emissions.

As a result of the Federal Government's Commitment, the TCF Australia ONLINE ENERGY EFFICIENCY Training & Mentoring Project is able to offer an extensive range of specialist energy efficiency services to small businesses in the fashion, textile, clothing, footwear, leather (TCF) creative, and associated industries across Australia.

Small businesses can register for FREE Online Training Webinars, ONLINE Energy Efficiency FREE 'ASK AN EXPERT' Forums and FREE mentoring.

For most TCF businesses in Australia, the energy consumption of their suppliers far outweighs their own energy consumption.

According to the McKinsey Quarterly in 2008, consumer goods makers (such as fashion garment makers), between 40% and 60% of a company's carbon footprint resides upstream in its supply chain. Upstream supply chain includes raw materials, transport, packaging and manufacturing. For retailers, the carbon footprint can be up to 80%.

Even more significant, however, can be the 'downstream' energy usage associated with TCF products. Examples of downstream usage includes energy used to wash and maintain products like clothing over their lifetime.

Business owners should consider both their upstream and downstream energy usage to and come up with innovative ways to save power.

TCF Australia ONLINE ENERGY EFFICIENCY Training & Mentoring Project manager Carol Hanlon said, "after undertaking extensive research into the upstream and downstream usage within the TCF, fashion and textile industries, did I really realise the extent of energy wasted and as a result the TCF ONLINE Energy Project has developed a massive range of quick and easy ideas to assist small business to conserve energy usage."

"We are recommending that a small businesses can reduce input costs by discussing energy usage with their suppliers, improve sustainability by examining their water and chemical usage, and most valuably being able to discuss innovative energy saving ideas with industry peers by registering for a free mentor", carol said.

One of the possible upstream manufacturing sector energy efficiency opportunities include reducing peak power consumption. The main benefit of managing site-wide electrical loads in this way is a reduction in electricity costs as large businesses are typically charged additional tariffs for the size of their peak electrical load. Businesses could examine their machine scheduling, automatic load control and power factor correction to increase energy efficiency.



Also, businesses that use electric motors, pumps and fans in the textile manufacturing industry can make sure that regular maintenance is undertaken, install variable speed drives to better match motor speed with load requirements and replace v-belts with cog-belts.



Source: [http://www.google.com.au/imgres?imgurl=http://www.superchargersonline.com/images/products/v2a042-075.jpg&imgrefurl=http://www.superchargersonline.com/index.php?main\\_page%3Dproduct\\_info%26products\\_id%3D4995&h=220&w=220&sz=36&tbnid=Mca\\_my-9xGjkjM:&tbnh=90&tbnw=90&zoom=1&usg=\\_GQRcwCrUhqQ90n7VePnJW1oX55Y=&docid=q4-18PV0In31dM&hl=en&sa=X&ei=PnowUYqKGezImAXc14DQBg&ved=0CDIQ9QEwAQ](http://www.google.com.au/imgres?imgurl=http://www.superchargersonline.com/images/products/v2a042-075.jpg&imgrefurl=http://www.superchargersonline.com/index.php?main_page%3Dproduct_info%26products_id%3D4995&h=220&w=220&sz=36&tbnid=Mca_my-9xGjkjM:&tbnh=90&tbnw=90&zoom=1&usg=_GQRcwCrUhqQ90n7VePnJW1oX55Y=&docid=q4-18PV0In31dM&hl=en&sa=X&ei=PnowUYqKGezImAXc14DQBg&ved=0CDIQ9QEwAQ)

If the speed of a pump is halved, the flow rate will also be halved, but the input energy required will drop by over 85%. This is because the energy usage of motors is approximately proportional to the cube of flow rate.

Another area to improve efficiency in is use of compressed air systems. More than 85% of the electrical energy used by an air compressor is lost as waste heat, leaving less than 15% of the energy converted into useable compressed air energy. To reduce consumption TCF businesses could reduce usage time of compressor systems, reduce the intake air temperature (as a rule of thumb, each 3°C reduction will save 1% compressor energy use) or recover compressor waste heat for other purposes such as space heating, process heat, water heating, or boiler water pre-heating.

In a case-study conducted by Georgia Technical Institute (USA), it was found that by reducing air leakage from 12% to 6% and lowering system air pressure by 16 psi, a

saving of about US\$440,000 annually is expected for a compressed air system operating 500 looms (weaving machines).

The efficiency of boiler/steam systems can also be improved. Steam systems are often found in textile plants and can account for a significant amount of end-use energy consumption. To reduce energy consumption businesses should ensure that their boilers are regularly maintained, that they are the appropriate size, fouling and pipe scaling should be removed and boiler feed water can be preheated with heat from flue gas.



Carol said, “ TCF Australia makes a concerted effort to encourage use of renewable energy sources in small businesses where possible and more importantly to promote to developers to include this aspect in building upgrades”.

Textile manufacturers might consider using naturally powered ventilation and air extraction systems, natural lighting to supplement or replace artificial lighting, direct solar energy for fibre drying, solar energy for water heating or process energy pre-heating and solar photovoltaic panels and wind turbines for on-site power generation.

There are also many ideas to reduce downstream energy wastage. While the energy usage on the supply side of TCF businesses is often significant, the demand or consumer side often remains even more substantial.

Some areas to examine include garment packaging, labels, hangers, shopping bags, washing and drying requirements

Carol said, “Some ideas that we are promoting is use of care labelling and to include using ‘cold water wash’ and ‘line dry’ instructions on garment hang tag and care labels, and eliminating stockpiles of products in obsolete colours by redyeing the stock to saleable darker colours.”

In addition to the direct benefits of reducing energy consumption, the other benefits your business may enjoy include being eligible for government assistance to drive innovation in this area. More information on these grant programs can be found at [www.ausindustry.gov.au](http://www.ausindustry.gov.au):

- Textile, Clothing and Footwear (TCF) Small Business Program (SBP)

- Clean Technology Innovation Program

To find out more about the Energy Efficiency business advisory services offered, or register for services as part of this project please visit

[www.tcfaustralia.com/greenenergy](http://www.tcfaustralia.com/greenenergy) or email [greenenergy@tcfaustralia.com](mailto:greenenergy@tcfaustralia.com)

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