



Energy Efficiency and Renewable Energy in Food and Beverage Production



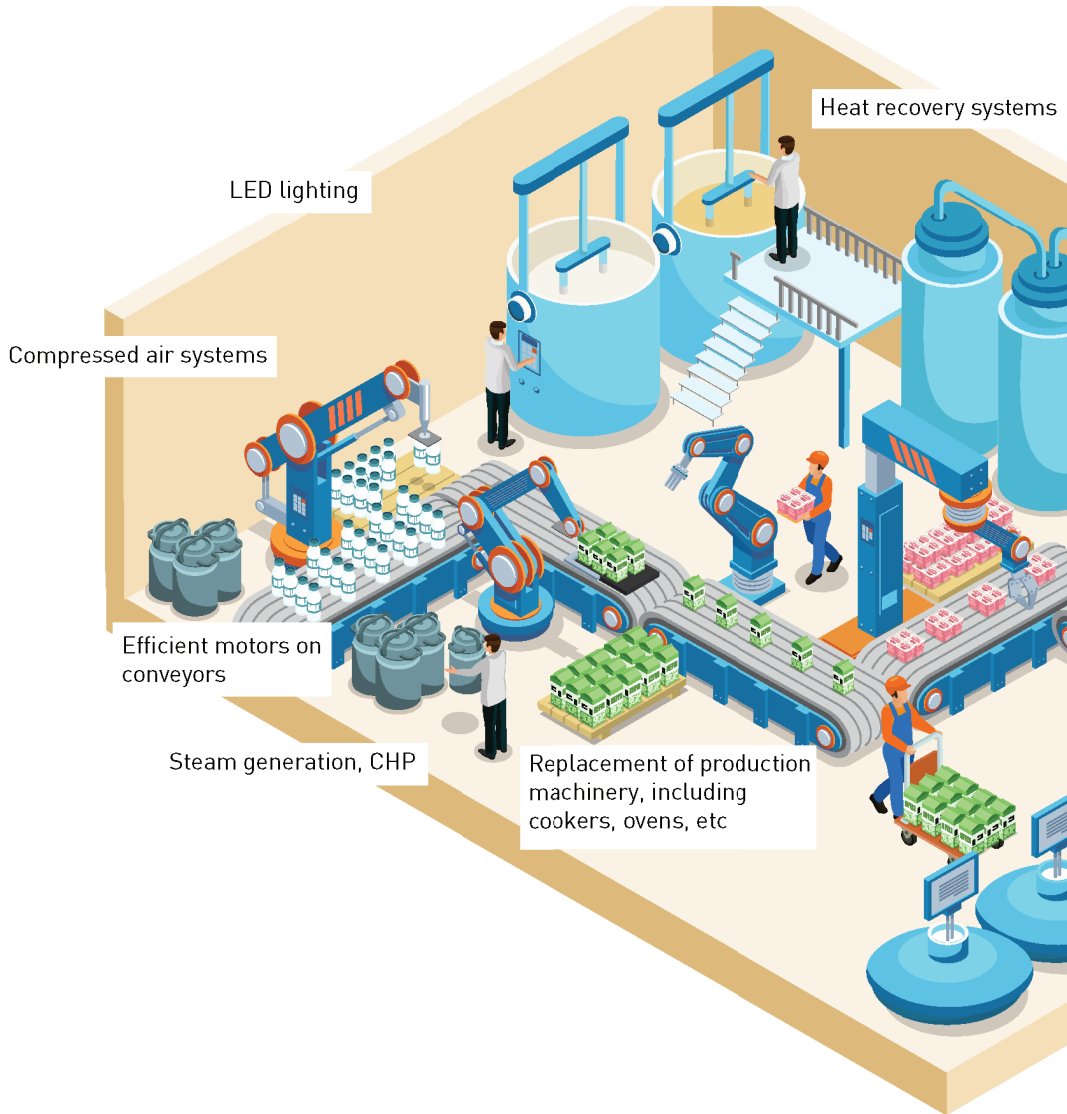
GEFF stands for Green Economy Financing Facility. GEFF in Uzbekistan is a grant supported loan facility, that helps privately owned companies invest in energy efficient and resource efficient technologies and in renewable energy solutions – we call them **GREEN TECHNOLOGIES**.

GEFF in Uzbekistan also provides free technical assistance to applicant companies to help them implement the optimal solution.

Technology examples and their benefits in food production

Much of the equipment discussed here are standard solutions that can be found in our Technology Selector – the list of automatically eligible equipment, which meets the **GEFF** Uzbekistan requirements. Invest in any of the technologies listed in the Technology Selector and obtain a **10% cash-back grant**. The Technology Selector also includes renewable energy technologies such as Solar PV and Solar Water Heaters, which are eligible for a **20% cash-back grant**.

ROOF: Solar PV and solar water heaters



COMPRESSED AIR – THE IMPORTANCE OF UPGRADING COMPRESSORS

Compressed air is common in food and drinks production. Exchanging compressors can **save up to 50% energy**.

HEAT RECOVERY

Up to **90% of heat** generated by production machines and processes can be recovered and can be re-used for heating of water and air.

MOTORS AND DRIVES

Installing a variable speed drive can save up to 30% of running costs.

BOILERS AND HEAT DISTRIBUTION

Replacing old boilers and heat distribution can lead to a **30% energy saving**.

COMBINED HEAT AND POWER

CHPs are a good alternative in cases where boilers need to be replaced, as they produce both, heat and steam.

Steam is used in a variety of cooking applications and in the food canning process.

Examples of food processors that went 'greener'

CHEESE PRODUCTION

A cheese producer undertook an energy assessment to understand how it could increase its energy security. Lack of power during black outs results in loss of trade and product, resulting in increased cost and loss of viable business. The company decided to invest in solar PV to address a peak electricity shortage. However the company first considered energy efficiency measures to reduce the load requirement and to ensure that the optimum size for the Solar PV system was selected. Energy efficiency measures implemented included a new vacuum packing line, **saving around 100,000 kWh per year**, installation of LED lighting (including inside refrigeration chambers) and then scoped the size of the Solar PV system that was installed on the roof.

BAKERY

A bakery decided to install a new efficient lighting system that would provide the same or better quality lighting as the previous system, while reducing energy consumption and cost. The new system included both high-efficiency T5 fluorescent lamps and 35W metal halide lamps as standard lamps, but with **64% less energy consumption**. Additionally, the system is split into two circuits, with one being small enough to provide safe access when the bakery is not operational.

ICE CREAM

An Ice-Cream manufacturer undertook a comprehensive multi-measure energy efficiency project including the complete re-design and re-build of the ammonia refrigeration plant, improvement of lighting systems and lighting controls, installation of a new more efficient HVAC system for the production areas and improved insulation and staging in the product storage and buffer areas. The project resulted in a **59% reduction in annual electricity consumption** while simultaneously improving lighting, comfort, and productivity.

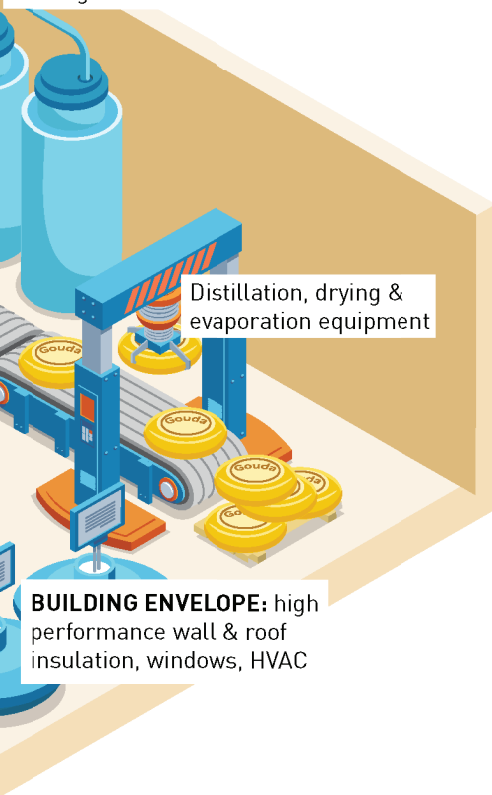
LARGE SCALE FOOD PRODUCTION

A food production company, which covers a wide product range, including confectionary, dairy products, fruit and vegetable stocks and pulps, etc, invested in four new production lines as well as energy efficient cold storage units. The US\$ 3.5 million investment resulted in **energy savings of 22,000 MWh per year, natural gas savings of 2,700 MWh** as well as **water savings of 5,700 m³ per year**. CO₂ emissions were reduced by 3,270 tonnes per year.

Efficient Freezers, cooling chambers

Distillation, drying & evaporation equipment

BUILDING ENVELOPE: high performance wall & roof insulation, windows, HVAC



GEFF in Uzbekistan provides grant supported loan finance and technical advice to privately owned companies that aim to make their business resource efficient and improve their competitiveness through investments in high performance technologies and practices:

SMALL-SCALE INVESTMENTS - UP TO US\$ 300,000

For small-scale investments we offer a simple process, which enables companies to reap the benefits of energy savings much quicker. Choose your desired equipment from our Technology Selector, which contains a vast selection of pre-approved technologies.

LARGE-SCALE INVESTMENTS – UP TO US\$ 5 MILLION

For larger investments or complex technical solutions that lead to improved energy and resource efficiency performance, companies can apply for loans up to US\$ 5 million.

Apply to one of the GEFF Partner Finance Institutions for a GEFF loan and receive a cash-back grant upon successful project implementation:

10% grant for energy efficiency projects

20% for renewable energy projects

Do you need ideas or assistance? The **GEFF** package also includes advisory services provided by an international team of experts. The technical assistance package is free of charge to clients.



GEFF

Green Economy Financing Facility



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