

## Executive Summary

This section presents the summary of verifying the implementation results of the recommendations contained in the detailed energy audit report. This report contains the following measures that were implemented:

**1- Measure one: Air compressor pressure reduction**

Compressed air pressure was reduced with no any effects on the production process. This reduction will cause an annual saving of about JD 547. No investment was needed for this measure.

**2- Measure Two: Electrical System**

Sixteen electrical heaters on cups thermoforming machine were disconnected. This disconnection reduced the total heaters load by 1.44 KW with out affecting the production process on this machine. This will result in an annual saving JD 177.

**3- Measure three: installing an efficient chiller and insulating the chilled water network**

A new chiller was bought and erected in the factory and caused a high reduction in the chiller power demand. The new chiller power is 3 KW instead of 8.6 for the old one. The annual saving will be around JD 688.

**4- Measure four: Replacing the existing leaking valve located after the main chilled water header with new valve**

An annual saving of about JD 122 will be achieved as a consequence of replacing the old valve.

**5- Measure five: insulating the extruder heater**

The head of the extruder heater was insulated by new insulation material. Therefore, the loading time of heaters is decreased and will result an annual saving of about JD 492.

The table below illustrates the summary of the implementation results.

Measure Number	Expected saving JD	Actual saving JD	Investment JD	Payback period
<b>1</b>	400	547	Nil	Immediate
<b>2</b>	177	177	Nil	Immediate
<b>3</b>	492	688	2200	3 Years
<b>4</b>	122	122	12	0.08 Year
<b>5</b>	627	492	10	One week
<b>Total</b>	1818	2026	2222	1.10 Years

From the table above, it can be seen that the actual savings reached JD 2026 per year with an investment of JD 2222. These Savings comprise 11% of the total annual electrical bill paid by the factory. The company can get back the investment cost with in 1.1 years.

Since the factory is small and the cost of the implementation is somewhat low. The factory's technicians had executed all no cost or low cost measures such as reducing air pressure for the compressor, disconnecting the unnecessary electrical heaters, insulating chilled water pipes and insulating the heater of extruder head.

The only exception was purchasing and installing a new chiller. The recommended new chiller is a small one and there was no need to a tender paper in daily news. Therefore, by the help of an external technician who has a good experience in cooling and refrigeration systems and the factory used to get help from him for different electrical and cooling problems, the company bought a new chiller.

After installing the new chiller, NERC's Team conducted two visits to the factory and did the required measurements for the new chiller and other measures to verify the performance.