

## Fuel Savings through the incineration of tallow using the Dual Fuel Burner

### 1. Heating Fuel Oil Specifications

Gross Calorific Value: 45,000 kJ/kg

Density: 0.9 kg / ltr

### 2. Demand of Heating Fuel Oil

Operational Days: 254 days

Fuel Consumed in 2020: **529,267.3 ltr**

### 3. Demand in terms of Energy (via Heating Fuel Oil)

Energy Required in 2020: 21,435,325.65 MJ

### 4. Tallow Specifications

Gross Calorific Value: 35,186 kJ/kg

Density: 0.94 kg / ltr

### 5. Tallow Estimated Production

Mass (based on 2020 data): 422,800 kg

### 6. Energy in Tallow Produced

Energy: 14,876,640.80 MJ

### 7. Energy Deficit (in MJ)

*[3] – [6]*

Remaining Energy Needed:  $21,435,325.65 - 14,876,640.80 = 6,558,684.85$  MJ

### 8. Energy Deficit (converted to Litres of Heating Fuel Oil)

*[7] / (Gross Calorific Value \* Density of Heating Gas Oil)*

Litres of Heating Gas Oil needed to attain Thermal Energy required: 161,942.84 ltr

### 9. Litres of Heating Fuel Oil Saved

*[2] – [8]*

$(529,267.3 - 161,942.84)$  ltr

**367,324.46 ltr per annum**

HFO
Energy in MJ: 21,435,325.65
Litres: 529,267.3

Tallow
Energy in MJ: 14,876,640.80

Deficit (Energy Required)
Energy in MJ: 6,558,684.85
Litres (equivalent to HFO): 161,942.84

Savings
Litres of HFO: 367,324.46