PROJECT PROFILE

ON

XLPE PRODUCTION PLANT FOR THIRUVALLA UNIT OF TRACO CABLE LTD

Prepared by:

TRACO CABLE COMPANY LIMITED
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INTRODUCTION

1.01 TRACO CABLE COMPANY LIMITED (TRACO) is a state level public enterprise (SLPE) with majority holding by Govt. of Kerala. The company was incorporated in the year 1960.

1.02 The Registered Office of the Company is situated at KSHB Office Complex, Panampilly Nagar, Ernakulam.

1.03 The company has three manufacturing units located at (1) Irimpanam, off Tripunithura in Ernakulam District, (2) Thiruvalla in Pathanamthitta District and (3) Pinarayi, Kannur District at present.

1.04 The Manufacturing Unit at Irimpanam which was commissioned in 1965, has facilities for the manufacture of P.V.C. insulated armored and unarmored heavy duty cables up to 1.1 K.V. with Copper/Aluminium Conductors, P.V.C. insulated wires and flexible and Bare Aluminium Conductors (AAC & ACSR). Thiruvalla Unit commissioned in 1990 has facilities for manufacture of Jelly Filled Cables of various sizes, ACSR Conductors and PVC Insulated Wires. All these Cables are used for electrical transmission and distribution systems, control and signaling systems. The third Unit of the Company was inaugurated on 19.02.2011 at Pinarayi in Kannur District for manufacturing House Wiring cables of sizes 1 mm², 1.5 mm², 2.5 mm² and 4 mm².

1.05 As a first step towards diversification and expansion, Traco commenced production of paper insulated, Lead sheathed, Polythene jacketed, Copper Telephone Cables in 1974 at Irimpanam Unit with technical assistance from M/s. Hindustan Cables Limited.

1.06 This project report covers the scheme for establishing a new XLPE & Enamelled Wire Project for Traco, Thiruvalla Unit. Cross Linked Poly Ethylene (XLPE) insulated power cables have excellent electrical characteristics, has the advantage of greater continuous and short-circuit current carrying capacity.

MARKET

A market study conducted by M/s. KITCO, at the behest of Traco have concluded that

(A) The demand for (i) “Bare” Conductors, (used by State Electricity Boards for Transmission) (ii) Underground Cables (PVC and XLPE) are ever increasing.

(B) Transformer Industries are poised for substantial increase in volume.

(C) Enamelled Copper wires has major market growth forecast.

2.01 As per a study conducted by M/s.Price Water House-Coopers on behalf of IEEMA, there is 15% growth rate expected in the annual demand of XLPE Cables during 2010-2017.
2.02 The projections are considered conducive for establishing the proposed project for the manufacture of XLPE Cables & Enameled wire.

2.03 The existing plant and machinery at Irimpanam Unit are fully utilized for manufacture of ACSR Conductors, PVC Insulated Control Cables and PVC Insulated Weather Proof Wires.

2.04 In 2005-06, a revamping was carried out at Thiruvalla Plant for the manufacture of ACSR Conductors due to the very poor demand of Jelly Filled Telephone Cables on account of spontaneous growth of wireless (mobile) telephone technology and the advent of Optical Fibre Cables. For utilizing the idle plant and machinery of Jelly Filled Telephone Cables a second phase of revamping at Thiruvalla Unit for the manufacture of high voltage XLPE Cables & Super enameled Copper Conductor is planned.

2.05 On implementation of second phase of revamping at Thiruvalla Unit, the entire plant and machinery will be utilized fully and there will not be any spare machine/man hours for the manufacture of other cable products.

2.06 Considering the highly competitive nature of the market, the cost of production, capacity utilization and productivity are to be optimised for profitable functioning in this field. A self-standing facility, exclusive for the product is considered necessary for the controlled and focused attention needed for this purpose.

MANUFACTURING PROCESS

3.01 The details of manufacturing process and sequence of operations in the production of XLPE Cables upto 11 KV is as follows:

3.02 The main raw material used is Aluminium Rod (9mm diameter). This Rod is drawn in Rod Breakdown Machine to size of 2 mm dia in steel bobbins.

3.03 The 2 mm Aluminium wire is stranded as per our size requirement in the 54 Bobbin Stranding Machine.

3.04 The stranded core is then given triple extrusion (conductor screening with semi conductor material, XLPE insulation using sioplast and insulation screening) and the output is wound on steel drums.

3.05 After curing the triple extruded core in drums it is taken for laying up in our modified DT2240 machine as per the core requirement.

3.06 The core is then inner sheathed using PVC and lapping of thermoplast tapes is done.

3.07 The inner sheathed cable is then armoured if required in our 54 Bobbin Strander machine.

3.08 Armoured Cable is given final outer sheathing using PVC, followed by Testing, end sealing and packing.

PROJECT PARAMETERS

- Capacity
  
  1) XLPE CABLES

  Based on an assessment of expected demand, the production targets of various XLPE cable sizes are tabulated below:
### Enamelled Wires

With the installation of enameling plant and an additional 13 Die Wire Drawing Machine, with available intermediate Wire Drawing Machines it will be possible to convert 25 MT of Copper to various sizes of enameled wire per month. Accordingly the annual production capacity will be 300 MT.

- **Land**
  - Our factory at Thiruvalla is having sufficient free area for accommodating the XLPE triple extrusion line. The unit is best suited for establishing the XLPE Project of the Company.

- **Raw Material & Utilities**
  - The raw materials that go into the production of XLPE product range are:- Aluminium, Semi Conductor Screen, XLPE Sioplas Insulation, Outer Semi Conductor Screen, Polyethylene inner sheath, Steel Wire/Tape for Armouring, Final Polyethylene Sheath.

### Water

The requirement of water for the operations in the factory will be met from the existing pond. The water which is pumped and stored into an over head tank is abundant for our excess requirement.

### Power

11 K.V. substation of our Thiruvalla Unit is sufficient for accommodating the triple extension line also.

### Transport
The Unit is connected by road and rail to all parts of India. The nearest railway station, Thiruvalla, is only 3 Kms east to the factory. The distance from the factory to the main central road is 3 Kms. Hence there will not be any difficulty for transport of raw materials or finished goods from or to any place in India by rail and road.

- **Plant & Machinery**

  The following machineries and equipments are proposed for procurement as line balancing machineries to work alongwith the existing machineries and equipments for the manufacture of XLPE cables upto 11 KV working voltage and enameled wire upto 200°C operation.

<table>
<thead>
<tr>
<th>Sl.No.</th>
<th>Machine</th>
<th>Operation</th>
<th>Qty.</th>
<th>Cost (Rs.in lakhs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>13 Die Wire Drawing Machine</td>
<td>Copper/Aluminium Wire Drawing</td>
<td>1 No.</td>
<td>1,00,00,000.00</td>
</tr>
<tr>
<td>2</td>
<td>Sioplas XLPE Insulating Line</td>
<td>3 Layer XLPE Insulation of Wire</td>
<td>1 No.</td>
<td>3,00,00,000.00</td>
</tr>
<tr>
<td>3</td>
<td>Modification of the existing Drum Twister – DT 2240 for stranding of XLPE Insulated Conductors</td>
<td>Stranding</td>
<td>1 Set</td>
<td>45,00,000.00</td>
</tr>
<tr>
<td>4</td>
<td>Enamelling Plant</td>
<td>Enamelling</td>
<td>1 No.</td>
<td>35,00,000.00</td>
</tr>
<tr>
<td>5</td>
<td>Rewinding Machine for Winding of Enamelled Wire</td>
<td>Rewinding</td>
<td>2 Nos.</td>
<td>15,00,000.00</td>
</tr>
</tbody>
</table>

**TESTING**

<table>
<thead>
<tr>
<th>Sl.No.</th>
<th>Machine</th>
<th>Operation</th>
<th>Qty.</th>
<th>Cost (Rs.in lakhs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Additional Testing Equipments for partial discharge, Tangent Delta and Impulse Test of XLPE Cable</td>
<td>Testing of XLPE Cables</td>
<td>1 Set</td>
<td>3,50,00,000.00</td>
</tr>
<tr>
<td>7</td>
<td>Testing Equipments for Enamelled Wire</td>
<td>Testing of Enamelled Wire</td>
<td>1 Set</td>
<td>15,00,000.00</td>
</tr>
</tbody>
</table>

**MISCELENEOUS**

<table>
<thead>
<tr>
<th>Sl.No.</th>
<th>Machine</th>
<th>Cost (Rs.in lakhs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>Technical Consultancy charges for manufacture of enamelled and XLPE Cables</td>
<td>75,00,000.00</td>
</tr>
<tr>
<td>9</td>
<td>Contingencies</td>
<td>1,00,00,000.00</td>
</tr>
<tr>
<td>10</td>
<td>Civil, Electrical, Erection and Commissioning</td>
<td>80,00,000.00</td>
</tr>
<tr>
<td>11</td>
<td>Repair &amp; Upgradation of existing Machine at Thiruvalla</td>
<td>1,75,00,000.00</td>
</tr>
</tbody>
</table>

**TOTAL** 12,90,00,000.00
• **Manpower**
The present work force at Thiruvalla Unit is sufficient to meet the requirements for manufacturing ACSR Conductors, Enamelled Wire & XLPE Cables on 3 shift basis. The total requirement of Skilled labour is 80 Nos, and semiskilled is 81 Nos.

• **Cost of the Project**
The estimated total project cost including component-wise breakup is given below.

  i. **Plant and Machinery**  `495.00 Lakhs
  ii. **Laboratory Equipments**  `365.00 Lakhs
  iii. **Civil, Electrical Erection & Commissioning**  `80.00 Lakhs
  iv. **Technical Consultancy Charges**  `75.00 Lakhs
  v. **Repair and Upgradation of Existing Machinery**  `175.00 Lakhs
  vi. **Provision for contingencies**  `100.00 Lakhs

**Total**  `1290.00 Lakhs

The approximate implementation period of the project is 18 Months.

• **Means of Finance**
  i) **Equity Grant from Government**  950.00
  ii) **Loan From Government**  340.00

**Total**  `1290.00 Lakhs

• **Sales Turnover**
The optimum Sales Turnover (Revenue) for the project:- Value in the fifth year

<table>
<thead>
<tr>
<th>SIZE</th>
<th>SALES QUANTITY</th>
<th>SELLING PRICE</th>
<th>Total SALES VALUE(Lks)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3x25 Sq.mm</td>
<td>275.27Km</td>
<td>1.718/Km</td>
<td>472.83</td>
</tr>
<tr>
<td>3x50 Sq.mm</td>
<td>191.49Km</td>
<td>12.453/Km</td>
<td>469.71</td>
</tr>
<tr>
<td>3x70 Sq.mm</td>
<td>155.59Km</td>
<td>3.108/Km</td>
<td>483.59</td>
</tr>
<tr>
<td>3x95 Sq.mm</td>
<td>119.68Km</td>
<td>3.775/Km</td>
<td>451.75</td>
</tr>
<tr>
<td>3x120 Sq.mm</td>
<td>119.68Km</td>
<td>4.398/Km</td>
<td>526.36</td>
</tr>
<tr>
<td>3x150 Sq.mm</td>
<td>83.78KM</td>
<td>5.962/Km</td>
<td>499.47</td>
</tr>
<tr>
<td>3x185 Sq.mm</td>
<td>83.78Km</td>
<td>6.069/Km</td>
<td>508.47</td>
</tr>
<tr>
<td>10-30 SWG</td>
<td>179.53 MT</td>
<td>6.925/MT</td>
<td>1135.53</td>
</tr>
<tr>
<td>31-40 SWG</td>
<td>119.68 MT</td>
<td>6.812/MT</td>
<td>815.25</td>
</tr>
</tbody>
</table>

**Total**  5362.97
(1\textsuperscript{st} year 3575.81 Lks, II\textsuperscript{nd} year 4265.43 Lks, III\textsuperscript{rd} year 4810.74 Lks, IV\textsuperscript{th} year 5093.42 Lks)

FINANCIAL INDICATORS

- Net Profit
  \textit{Ist year} 46.64 Lks, \textit{II\textsuperscript{nd} year} 85.70, \textit{III\textsuperscript{rd} year} 163.06, \textit{IV\textsuperscript{th} year} 196.58 Lks and \textit{V\textsuperscript{th} year} 230.29 Lks

- Break Even Point (BEP) at 100\% Capacity  \textbackslash`3295.58 Lakhs (71.53\%)

- Debt Service Coverage Ratio (DSCR) (Average) 2.06

- Debt Equity Ratio (DER) 0.68

- Internal Rate of Return (IRR) (10 years project Life) 21.43 \%

- Pay Back period 4.5 years

CONCLUSION

By Utilising the idle machinery of Jelly Filled Telephone Cables at Thiruvalla unit as well as by procuring additional machinery and equipments as detailed in this project report, a second phase of revamping is possible with the manufacture of XLPE Cables & Super Enamelled Copper Conductors.

Machinery manufacturers, civil contractors, electrical contractors and other vendors can contact M/s Traco Cable Co. Ltd. for further requirements.

\textit{Disclaimer:}

The findings contained in this Project Profile are based on the initial information collated through primary and secondary research, which is only indicative and may not reflect the realities of an actual project. Reference herein to any specific commercial product, process, service by trade name, trademark, manufacturer, or otherwise, does not constitute or imply its endorsement, recommendation, or favoring by Traco Cable Co. Ltd or any entities thereof.