Fiber-Optic Line Cost Model v1 – Methods

1. Scope
- Models a standard 12 – 24 fiber optical cable production line.
- Includes extrusion, SZ stranding, sheathing, testing.

2. Inputs
- Material costs: fiber preforms, jacketing polymer, strength members.
- Labor: operator hours, wage assumptions.
- Energy: kWh per subsystem (extruder, cooling, SZ line).
- Overheads: floor space, maintenance, financing assumptions.

3. Model Structure
- Spreadsheet-based calculation.
- Parameters adjustable: line speed (m/min), utilization %, electricity rate, labor rate.
- Outputs: cost per km, payback period, TCO.

4. Assumptions
- Average Asia-Pacific labor and energy rates (Q3 2025).
- Equipment depreciation: 7 years straight-line.
- No subsidy or tax incentives.

5. Validation
- Compared against 2 customer factory actuals (confidential).
- ± 10% deviation margin.

6. Data Availability
- CSV contains parameter sets and resulting cost breakdown.