

2.1 Form Template for Biomass Power Projects

Tamil Nadu

| S. No. | Assumption Head | Sub-Head | Sub-Head (2) | Unit | Assumptions |
|--------------------------------|-------------------------------|---------------------------------|--|----------------------|-------------|
| 1 | Power Generation | Capacity | Installed Power Generation Capacity | MW | 1 |
| | | | Auxillary Consumption during stabilisation | % | 10% |
| | | | Auxillary Consumption after stabilisation | % | 10% |
| | | | PLF(Stabilization for 6 months) | % | 60% |
| | | | PLF(during first year after Stabilization) | % | 70% |
| | | | PLF(second year onwards) | % | 80% |
| | | | Useful Life | Years | 20 |
| 2 | Project Cost | Capital Cost/MW | Power Plant Cost | Rs Lacs/MW | 450 |
| 3 | Financial Assumptions | Debt: Equity | Debt | % | 70% |
| | | | Equity | % | 30% |
| | | | Total Debt Amount | Rs Lacs | 315 |
| | | | Total Equity Amount | Rs Lacs | 135 |
| | | | | | |
| | | Debt Component | Loan Amount | Rs Lacs | 315 |
| | | | Moratorium Period | years | 0 |
| | | | Repayment Period(inclnd Moratorium) | years | 10 |
| | | | Interest Rate | % | 14.29% |
| | | Equity Component | Equity amount | Rs Lacs | 135 |
| | | | Return on Equity for first 10 years | % p.a | 19.00% |
| | | | RoE Period | Year | 10.00 |
| | | | Return on Equity after 10 years | | 24.00% |
| Weighted average of ROE | | | 21.50% | | |
| Discount Rate (equiv. to WACC) | | 16.45% | | | |
| 4 | Financial Assumptions | Fiscal Assumptions | Income Tax | % | 33.99% |
| | | | MAT Rate (for first 10 years) | % | 16.995% |
| | | | 80 IA benefits | Yes/No | Yes |
| | | Depreciation | Depreciation Rate(power plant) | % | 7.00% |
| | | | Depreciation Rate 11th year onwards | % | 2.00% |
| Years for 7% depreciation rate | | 10.00 | | | |
| 5 | Working Capital | For Fixed Charges | O&M Charges | Months | 1 |
| | | | Maintenance Spare | (% of O&M exepenses) | 15% |
| | | Receivables for Debtors | Months | 2 | |
| | | For Variable Charges | | | |
| | | Biomass Stock | Months | 4 | |
| Interest On Working Capital | % | 13.79% | | | |
| 6 | Fuel Related Assumptions | Heat Rate | After Stabilisation period | Kcal/kwh | 3800 |
| | | | During Stabilization Period | Kcal/kwh | 3800 |
| | | Biomass | Base Price(FY09-10) | Rs/T | 1823 |
| | | | GCV - Biomass | Kcal/kg | 3300 |
| | | | Biomass Price Escalation Factor | | 5% |
| 7 | Operation & Maintenance | power plant | | Rs Lakh | 20.25 |
| | | Total O & M Expenses Escalation | | % | 5.72% |
| 8 | Generation and Sale Of Energy | Working Hours/Day | | Hrs | 24 |
| | | No. of Days | | Days | 365 |
| | | Total No. of Hours | | Hrs | 8760 |

2.2 Form Template for (Biomass Power Projects- Tamil Nadu) : Determination of Tariff Component

| Units Generation | Unit | Year--> | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|-----------------------|------|---------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Installed Capacity | MW | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Gross Generation | MU | | 5.89 | 7.01 | 7.01 | 7.01 | 7.01 | 7.01 | 7.01 | 7.01 | 7.01 | 7.01 | 7.01 | 7.01 | 7.01 | 7.01 | 7.01 | 7.01 | 7.01 | 7.01 | 7.01 | 7.01 |
| Auxiliary Consumption | MU | | 0.57 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 |
| Net Generation | MU | | 5.12 | 6.31 | 6.31 | 6.31 | 6.31 | 6.31 | 6.31 | 6.31 | 6.31 | 6.31 | 6.31 | 6.31 | 6.31 | 6.31 | 6.31 | 6.31 | 6.31 | 6.31 | 6.31 | 6.31 |

| Variable Cost | Unit | Year--> | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|-----------------------------|----------------|-------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|--------------|--------------|--------------|
| Biomass Cost | Rs Lakh | | 119.53 | 154.47 | 162.19 | 170.30 | 176.82 | 187.76 | 197.15 | 207.00 | 217.35 | 228.22 | 239.63 | 251.61 | 264.19 | 277.40 | 291.27 | 305.84 | 321.13 | 337.19 | 354.04 | 371.75 |
| Fixed Cost | Unit | Year--> | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| O&M Expenses | Rs Lakh | | 20.25 | 21.41 | 22.63 | 23.93 | 25.30 | 26.74 | 28.27 | 29.89 | 31.60 | 33.41 | 35.32 | 37.34 | 39.47 | 41.73 | 44.12 | 46.64 | 49.31 | 52.13 | 55.11 | 58.27 |
| Depreciation | Rs Lakh | | 31.50 | 31.50 | 31.50 | 31.50 | 31.50 | 31.50 | 31.50 | 31.50 | 31.50 | 31.50 | 31.50 | 31.50 | 31.50 | 31.50 | 31.50 | 31.50 | 31.50 | 31.50 | 31.50 | 31.50 |
| Interest on term loan | Rs Lakh | | 42.76 | 38.26 | 33.76 | 29.26 | 24.76 | 20.26 | 15.75 | 11.25 | 6.75 | 2.25 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Interest on working Capital | Rs Lakh | | 11.93 | 14.35 | 14.86 | 15.40 | 15.97 | 16.58 | 17.22 | 17.90 | 18.63 | 19.39 | 19.88 | 20.84 | 21.85 | 22.91 | 24.02 | 25.19 | 26.42 | 27.71 | 29.07 | 30.50 |
| Return on Equity | Rs Lakh | | 25.65 | 26.65 | 25.65 | 25.65 | 25.65 | 25.65 | 25.65 | 25.65 | 25.65 | 25.65 | 25.65 | 25.65 | 25.65 | 25.65 | 25.65 | 25.65 | 25.65 | 25.65 | 25.65 | 25.65 |
| Total Fixed Cost | Rs Lakh | | 132.09 | 131.17 | 128.40 | 125.74 | 123.18 | 120.73 | 118.40 | 116.20 | 114.13 | 112.20 | 110.40 | 108.60 | 106.90 | 105.20 | 103.50 | 101.80 | 100.10 | 98.40 | 96.70 | 95.00 |

Levelised tariff corresponding to Useful life

| Per Unit Cost of Generation | Unit | Year--> | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|-----------------------------|---------------|---------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|------|
| Variable COG | Rs/kWh | | 2.33 | 2.45 | 2.57 | 2.70 | 2.84 | 2.98 | 3.13 | 3.28 | 3.45 | 3.62 | 3.80 | 3.99 | 4.19 | 4.40 | 4.62 | 4.85 | 5.09 | 5.35 | 5.61 | 5.89 |
| O&M expn | Rs/kWh | | 0.40 | 0.34 | 0.36 | 0.38 | 0.40 | 0.42 | 0.45 | 0.47 | 0.50 | 0.53 | 0.56 | 0.59 | 0.63 | 0.66 | 0.70 | 0.74 | 0.78 | 0.83 | 0.87 | 0.92 |
| Depreciation | Rs/kWh | | 0.61 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | |
| Int. on term loan | Rs/kWh | | 0.83 | 0.61 | 0.54 | 0.46 | 0.39 | 0.32 | 0.25 | 0.18 | 0.11 | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Int. on working capital | Rs/kWh | | 0.23 | 0.23 | 0.24 | 0.24 | 0.25 | 0.26 | 0.27 | 0.28 | 0.30 | 0.31 | 0.32 | 0.33 | 0.35 | 0.36 | 0.38 | 0.40 | 0.42 | 0.44 | 0.46 | 0.48 |
| RoE | Rs/kWh | | 0.50 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 |
| Total COG | Rs/kWh | | 4.91 | 4.53 | 4.61 | 4.69 | 4.79 | 4.89 | 5.00 | 5.12 | 5.26 | 5.40 | 5.53 | 5.67 | 5.82 | 6.08 | 6.35 | 6.64 | 6.95 | 7.27 | 7.60 | |

| Levelised Tariff | Unit | Year--> | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|------------------|------|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Discount Factor | | | 1 | 0.850 | 0.737 | 0.633 | 0.544 | 0.467 | 0.401 | 0.344 | 0.296 | 0.254 | 0.218 | 0.187 | 0.161 | 0.138 | 0.119 | 0.102 | 0.087 | 0.073 | 0.064 | 0.055 |
| Variable Cost | | | 157.2 | 193.9 | 193.9 | 193.9 | 193.9 | 193.9 | 193.9 | 193.9 | 193.9 | 193.9 | 193.9 | 193.9 | 193.9 | 193.9 | 193.9 | 193.9 | 193.9 | 193.9 | 193.9 | |
| Fixed Cost | | | 102.8 | 126.5 | 126.5 | 126.5 | 126.5 | 126.5 | 126.5 | 126.5 | 126.5 | 126.5 | 126.5 | 126.5 | 126.5 | 126.5 | 126.5 | 126.5 | 126.5 | 126.5 | 126.5 | |

| | |
|-----------------------------|---------------------|
| Levelised Tariff (Variable) | 3.07 |
| Levelised Tariff (Fixed) | 2.01 |
| Levelised Tariff | 5.08 Rs/Unit |

Determination of Accelerated Depreciation for Biomass Power Projects- Tamil Nadu

| | |
|---------------------------|---------|
| Depreciation amount | 90% |
| Book Depreciation rate | 5.28% |
| Tax Depreciation rate | 80% |
| Income Tax (MAT) | 16.995% |
| Income Tax (Normal Rates) | 33.99% |
| Capital Cost | 450.0 |

| Years | Unit | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | |
|-------------------|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Book Depreciation | % | 5.28% | 5.28% | 5.28% | 5.28% | 5.28% | 5.28% | 5.28% | 5.28% | 5.28% | 5.28% | 5.28% | 5.28% | 5.28% | 5.28% | 5.28% | 5.28% | 5.28% | 5.28% | 0.24% | 0.00% | 0.00% |
| Book Depreciation | Rs Lakh | 23.76 | 23.76 | 23.76 | 23.76 | 23.76 | 23.76 | 23.76 | 23.76 | 23.76 | 23.76 | 23.76 | 23.76 | 23.76 | 23.76 | 23.76 | 23.76 | 23.76 | 23.76 | 1.08 | 0.00 | 0.00 |

Accelerated Depreciation

| | | | | | | | | | | | | | | | | | | | | | | |
|-------------------------|---------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Opening | % | 100% | 60% | 12% | 2% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Allowed during the year | % | 40% | 48.00% | 9.60% | 1.92% | 0.38% | 0.08% | 0.02% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| Closing | % | 60% | 12% | 2.40% | 0.48% | 0.10% | 0.02% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| Accelerated Deprn. | Rs Lakh | 180.00 | 216.00 | 43.20 | 8.64 | 1.73 | 0.35 | 0.07 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| | | | | | | | | | | | | | | | | | | | | | | | |
|--------------------------|---------|--------|--------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|-------|------|------|
| Net Depreciation Benefit | Rs Lakh | 156.24 | 192.24 | 19.44 | -15.12 | -22.03 | -23.41 | -23.69 | -23.75 | -23.76 | -23.76 | -23.76 | -23.76 | -23.76 | -23.76 | -23.76 | -23.76 | -23.76 | -23.76 | -1.08 | 0.00 | 0.00 | |
| Tax Benefit | Rs Lakh | 26.55 | 32.67 | 3.30 | -2.57 | -3.74 | -3.98 | -4.03 | -4.04 | -4.04 | -4.04 | -8.08 | -8.08 | -8.08 | -8.08 | -8.08 | -8.08 | -8.08 | -8.08 | -8.08 | -0.37 | 0.00 | 0.00 |
| Net Energy generation | MU | 5.12 | 6.31 | 6.31 | 6.31 | 6.31 | 6.31 | 6.31 | 6.31 | 6.31 | 6.31 | 6.31 | 6.31 | 6.31 | 6.31 | 6.31 | 6.31 | 6.31 | 6.31 | 6.31 | 6.31 | 6.31 | 6.31 |
| Per unit benefit | Rs/Unit | 0.52 | 0.52 | 0.05 | -0.04 | -0.06 | -0.06 | -0.06 | -0.06 | -0.06 | -0.06 | -0.13 | -0.13 | -0.13 | -0.13 | -0.13 | -0.13 | -0.13 | -0.13 | -0.01 | 0.00 | 0.00 | 0.00 |
| Discounting Factor | | 1.00 | 0.86 | 0.74 | 0.63 | 0.54 | 0.47 | 0.40 | 0.34 | 0.30 | 0.25 | 0.22 | 0.19 | 0.16 | 0.14 | 0.12 | 0.10 | 0.09 | 0.08 | 0.06 | 0.06 | 0.06 | 0.06 |

Levelised Benefit **0.10** **Rs/ Unit**