

**CER Calculation**

| <b>Year</b>                              | <b>Estimation of<br/>baseline emissions<br/>(tCO<sub>2</sub>e)</b> | <b>Estimation of project<br/>emissions (tCO<sub>2</sub>e)</b> | <b>Estimation of<br/>leakage (tCO<sub>2</sub>e)</b> | <b>Estimation of overall<br/>emissions reductions<br/>(tCO<sub>2</sub>e)</b> |
|--|--|---|---|--|
| Year 1                                   | 17,380   | 0   | 0   | 17,380   |
| Year 2                                   | 17,380   | 0   | 0   | 17,380   |
| Year 3                                   | 17,380   | 0   | 0   | 17,380   |
| Year 4                                   | 17,380   | 0   | 0   | 17,380   |
| Year 5                                   | 17,380   | 0   | 0   | 17,380   |
| Year 6                                   | 17,380   | 0   | 0   | 17,380   |
| Year 7                                   | 17,380   | 0   | 0   | 17,380   |
| <b>Total (tonnes of CO<sub>2</sub>e)</b> | <b>121,659</b>   | <b>0</b>  | <b>0</b>  | <b>121,659</b>   |

(Basecase no CDM)

## Notes

## OUTFLOW

Project IRR Pre Tax

**8.21%**

### SG PERTING MINI-HYDRO (4MW)

**CASHFLOW STATEMENT (in RM'000)**

| Notes | TOTAL   | 1       | 2       | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    | 11    | 12    | 13    | 14    | 15    | 16    | 17    | 18    | 19    | 20    | 21    | 22    | 23    |
|-------|---------|---------|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|       | 111,579 | -       | -       | 4,718 | 5,498 | 5,498 | 5,498 | 5,253 | 5,253 | 5,253 | 5,253 | 5,253 | 5,253 | 5,253 | 5,253 | 5,253 | 5,253 | 5,253 | 5,253 | 5,253 | 5,253 | 5,253 | 5,253 | 6,316 |
|       | 61,478  | 19,938  | 11,530  | 938   | 957   | 978   | 1,054 | 1,076 | 1,104 | 1,192 | 1,218 | 1,245 | 1,346 | 1,381 | 1,412 | 1,529 | 1,564 | 1,600 | 1,739 | 1,779 | 1,822 | 1,976 | 2,023 | 2,077 |
|       | 50,101  | -19,938 | -11,530 | 3,780 | 4,541 | 4,520 | 4,444 | 4,177 | 4,149 | 4,061 | 4,035 | 4,008 | 3,907 | 3,872 | 3,841 | 3,724 | 3,690 | 3,653 | 3,514 | 3,474 | 3,431 | 3,277 | 3,230 | 4,240 |

|                     |               |
|---------------------|---------------|
| Project IRR Pre Tax | <b>10.58%</b> |
|---------------------|---------------|

A: Electricity Tariff Increased by 10% to 18.37 cents / kwh

| CASHFLOW STATEMENT (in RM'000) |         | Notes   |         |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |  |
|--------------------------------|---------|---------|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--|
|                                | TOTAL   | 1       | 2       | 2009  | 2010  | 2011  | 2012  | 2013  | 2014  | 2015  | 2016  | 2017  | 2018  | 2019  | 2020  | 2021  | 2022  | 2023  | 2024  | 2025  | 2026  | 2027  | 2028  | 2029  |  |
| INFLOW                         |         |         |         |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |  |
|                                | 108,422 | -       | -       | 4,291 | 5,149 | 5,149 | 5,149 | 5,149 | 5,149 | 5,149 | 5,149 | 5,149 | 5,149 | 5,149 | 5,149 | 5,149 | 5,149 | 5,149 | 5,149 | 5,149 | 5,149 | 5,149 | 5,149 | 6,291 |  |
| OUTFLOW                        |         |         |         |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |  |
| Total Expenditure              | 61,479  | 19,938  | 11,530  | 938   | 957   | 978   | 1,054 | 1,076 | 1,104 | 1,192 | 1,218 | 1,245 | 1,346 | 1,381 | 1,412 | 1,529 | 1,564 | 1,600 | 1,739 | 1,779 | 1,822 | 1,976 | 2,023 | 2,077 |  |
| Cashflow Before Tax            | 46,943  | -19,938 | -11,530 | 3,353 | 4,192 | 4,172 | 4,096 | 4,073 | 4,045 | 3,958 | 3,932 | 3,904 | 3,803 | 3,769 | 3,737 | 3,621 | 3,586 | 3,549 | 3,411 | 3,370 | 3,328 | 3,173 | 3,127 | 4,214 |  |

Project IRR Pre Tax 9.88%

B: Capital Expenditure reduced by 10%

| CASHFLOW STATEMENT (in RM'000) |                   | Notes  |         |         |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
|--------------------------------|-------------------|--------|---------|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                                | TOTAL             |        |         | 2009    | 2010  | 2011  | 2012  | 2013  | 2014  | 2015  | 2016  | 2017  | 2018  | 2019  | 2020  | 2021  | 2022  | 2023  | 2024  | 2025  | 2026  | 2027  | 2028  | 2029  |       |
|                                |                   | 1      | 2       | 3       | 4     | 5     | 6     | 7     | 8     | 9     | 10    | 11    | 12    | 13    | 14    | 15    | 16    | 17    | 18    | 19    | 20    | 21    | 22    | 23    |       |
| INFLOW                         |                   |        |         |         |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
|                                |                   | 98,591 | -       | -       | 3,901 | 4,681 | 4,681 | 4,681 | 4,681 | 4,681 | 4,681 | 4,681 | 4,681 | 4,681 | 4,681 | 4,681 | 4,681 | 4,681 | 4,681 | 4,681 | 4,681 | 4,681 | 4,681 | 5,745 |       |
| OUTFLOW                        |                   |        |         |         |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
|                                | Total Expenditure | 58,332 | 17,944  | 10,377  | 938   | 957   | 978   | 1,054 | 1,076 | 1,104 | 1,192 | 1,218 | 1,245 | 1,346 | 1,381 | 1,412 | 1,529 | 1,564 | 1,600 | 1,739 | 1,779 | 1,822 | 1,976 | 2,023 | 2,077 |
| Cashflow Before Tax            |                   | 40,259 | -17,944 | -10,377 | 2,963 | 3,724 | 3,703 | 3,627 | 3,605 | 3,577 | 3,490 | 3,463 | 3,436 | 3,335 | 3,301 | 3,269 | 3,153 | 3,118 | 3,081 | 2,943 | 2,902 | 2,860 | 2,705 | 2,658 | 3,668 |

Project IRR Pre Tax 9.57%

C: Annual Operating and Maintenance Cost Reduced by 10%

| CASHFLOW STATEMENT (in RM'000) |                   | Notes  |         |         |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
|--------------------------------|-------------------|--------|---------|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| TOTAL                          |                   |        |         | 2009    | 2010  | 2011  | 2012  | 2013  | 2014  | 2015  | 2016  | 2017  | 2018  | 2019  | 2020  | 2021  | 2022  | 2023  | 2024  | 2025  | 2026  | 2027  | 2028  | 2029  |       |
|                                |                   | 1      | 2       | 3       | 4     | 5     | 6     | 7     | 8     | 9     | 10    | 11    | 12    | 13    | 14    | 15    | 16    | 17    | 18    | 19    | 20    | 21    | 22    | 23    |       |
| INFLOW                         |                   |        |         |         |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
|                                |                   | 98,591 | -       | -       | 3,901 | 4,681 | 4,681 | 4,681 | 4,681 | 4,681 | 4,681 | 4,681 | 4,681 | 4,681 | 4,681 | 4,681 | 4,681 | 4,681 | 4,681 | 4,681 | 4,681 | 4,681 | 4,681 | 5,745 |       |
| OUTFLOW                        |                   |        |         |         |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
|                                | Total Expenditure | 58,881 | 19,938  | 11,530  | 863   | 880   | 899   | 967   | 987   | 1,013 | 1,092 | 1,115 | 1,140 | 1,231 | 1,262 | 1,290 | 1,395 | 1,427 | 1,460 | 1,585 | 1,621 | 1,659 | 1,798 | 1,840 | 1,889 |
| Cashflow Before Tax            |                   | 39,711 | -19,938 | -11,530 | 3,038 | 3,801 | 3,783 | 3,714 | 3,694 | 3,669 | 3,590 | 3,566 | 3,542 | 3,451 | 3,419 | 3,391 | 3,286 | 3,255 | 3,222 | 3,097 | 3,060 | 3,022 | 2,883 | 2,841 | 3,855 |

Project IRR Pre Tax 8.61%

D: Electricity Generation Increased by 10%

| CASHFLOW STATEMENT (in RM'000) |         |         |         |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |  |
|--------------------------------|---------|---------|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--|
| Notes                          | TOTAL   | 2009    | 2010    | 2011  | 2012  | 2013  | 2014  | 2015  | 2016  | 2017  | 2018  | 2019  | 2020  | 2021  | 2022  | 2023  | 2024  | 2025  | 2026  | 2027  | 2028  | 2029  |       |       |  |
|                                |         | 1       | 2       | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    | 11    | 12    | 13    | 14    | 15    | 16    | 17    | 18    | 19    | 20    | 21    | 22    | 23    |  |
| INFLOW                         |         |         |         |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |  |
|                                | 108,422 | -       | -       | 4,291 | 5,149 | 5,149 | 5,149 | 5,149 | 5,149 | 5,149 | 5,149 | 5,149 | 5,149 | 5,149 | 5,149 | 5,149 | 5,149 | 5,149 | 5,149 | 5,149 | 5,149 | 5,149 | 6,291 |       |  |
| OUTFLOW                        |         |         |         |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |  |
| Total Expenditure              | 61,479  | 19,938  | 11,530  | 938   | 957   | 978   | 1,054 | 1,076 | 1,104 | 1,192 | 1,218 | 1,245 | 1,346 | 1,381 | 1,412 | 1,529 | 1,564 | 1,600 | 1,739 | 1,779 | 1,822 | 1,976 | 2,023 | 2,077 |  |
| Cashflow Before Tax            | 46,943  | -19,938 | -11,530 | 3,353 | 4,192 | 4,172 | 4,096 | 4,073 | 4,045 | 3,958 | 3,932 | 3,904 | 3,803 | 3,769 | 3,737 | 3,621 | 3,586 | 3,549 | 3,411 | 3,370 | 3,328 | 3,173 | 3,127 | 4,214 |  |

Project IRR Pre Tax 9.88%

| Sensitivity Analysis                                     |       |
|--|-------|
|  | IRR   |
| Electricity Tariff Increased by 10% to 18.37 cents / kwh | 9.88% |
| Capital Expenditure reduced by 10%                       | 9.57% |
| Annual Operating and Maintenance Cost Reduced by 10%     | 8.61% |
| Electricity Generation Increased by 10%                  | 9.88% |
| Base Case  | 8.21% |

**Note 1 - Calculation of revenue**

| Item | Details  | Units             |  |
|------|--|-------------------|--|
| A    | Capacity (kW)  | 4000              |  |
| B    | Number of operation in a year (hrs)<br>24 hrs x 365 days                               | 8760              |  |
| C    | Load Factor  | 80%               |  |
| D    | Annual Generation (kWh)<br>(A x B x C)   | 28,032,000        |  |
| E    | Grid Emission Factor<br><a href="#">ton CO2 e / MWh [1]</a>                            | 0.62              | Malaysian Energy Centre, Study on Grid Connected Electricity Baselines in Malaysia, 2005 |
|      | Total CER's Generated  | 17,380<br>121,659 |  |
| F    | Electricity Tariff (sen)   | 16.7              | REPPA  |
| G    | CER's untill end 2012 (EURO)<br>CER's after 2012 (EURO)<br>Exchange Rate (Euro to MYR) | 10<br>7<br>4.7    | As per term sheet after deduction of commission<br>World Bank Report<br>Average          |
| H    | Total Electricity Sales (RM'000)<br>(D x F)  | 4,681             |  |
| I    | Net Carbon Revenue before 2012<br>Net Carbon Revenue after 2012                        | 817<br>572        |  |
| J    | Debtors collectio period (days)  | 60                |  |
| K    | Therefore 1st yr revenue (RM'000)  | 3,901             |  |
| L    | and 21st yr revenue (RM'000)   | 5,462             |  |

[1] The Baseline Study mentions that the emission factor has been calculated as per ACM0002. It must be noted that the steps specified in ACM0002 to estimate the emission factor are same as in "Tool to calculate the emission factor for an electricity system – Version1.1. The Baseline study had adopted the latest IPCC 2006 Guidelines for National Greenhouse Gas Inventories to estimate the emission factor. Therefore, it may be considered that the emission factor has been calculated as per the tool.