

Carotino Biogas Project			
Key Parameters and Assumptions			
Description	Units	Value	Data Source
Capital Cost			
Total Capital Cost (Without CDM)	RM	13,913,790	Board approving development of the proposed project activity as a CDM project. (14/04/2011).
Earthworks for Biogas site	RM	200,000	Internal Estimation
Roads & perimeter drains	RM	300,000	Internal Estimation
Piling work for Biogas site	RM	263,000	Internal Estimation
Construction of Biogas Plant (Including civil & mechanical)	RM	10,885,900	Quotation from Watermech Engineering Sdn.Bhd
Electrical work from the Mill to Biogas Plant	RM	1,000,000	Internal Estimation
Contingencies	RM	1,264,890	
O&M Costs			
Total O&M Cost	RM	744,295	
Workers Salary	RM	207,116	COM Operation & Maintenance Expenses
Staff Salary	RM	24,712	COM Operation & Maintenance Expenses
Workers Accommodation	RM	7,800	COM Operation & Maintenance Expenses
Staff Accommodation	RM	15,600	COM Operation & Maintenance Expenses
General Charges	RM	59,167	COM Operation & Maintenance Expenses
Maintenance Cost	RM	429,900	Watermech Engineering Sdn. Bhd; Life Span, Operation & Maintenance Cost of Equipment
Electricity Generation			
Diesel Consumption Displaced	liter	345,623	For July 2010 – Jun 2011, Diesel Consumption = 172,811 l/y & FFB Processed = 118,332 t/y. FFB Processed Estimated for project activity = 216,000 t/y. Thus for conservativeness, 100% increase in diesel consumption assumed.
Diesel Unit Price	RM/liter	2.740	Diesel Consumption DataPurchase Price from July 2010 – Jun 2011 . The diesel purchase price was highest in April 2011.
Tax			
Corporate Tax Rate	%	25%	Lembaga Hasil Dalam Negeri Malaysia; (http://www.hasil.gov.my/goindex.php?kump=5&skum=2&posi=5&unit=1&sequ=1)
Depreciation			
General Plants and Equipment Depreciation	Years	15	Malaysian Accounting Standards Board, based on paragraph 50-62 of the Financial Reporting Standards, FRS 116. http://www.masb.org.my/index.php?option=com_content&view=article&id=142:frs116-pg4&catid=6:masb-exclude-private
Allowances			
Initial Allowances			
General Plants and Equipment		20.00%	http://www.hasil.gov.my/goindex.php?kump=5&skum=1&posi=6&unit=1&sequ=1
Annual Allowances			
General Plants and Equipment		14.00%	http://www.hasil.gov.my/goindex.php?kump=5&skum=1&posi=6&unit=1&sequ=1
Fair Value	RM	0	a. Investment period = technical lifetime, therefore no fair value is included. (para 3) b. The fair value in accordance with local accounting regulations = 0, (para 4) c. Book value of the asset = 0, and the reasonable expectation of the potential profit or loss on the realization of the assets = 0. (para 4) Paragraph 3 & 4, "Guidelines on the Assessment of Investment Analysis" (Version 05; EB 62)
Construction and Operation Lifetime Details			
Construction Start Date	dd/mm/yyyy	01/Oct/2011	Project Implementation Schedule
Construction Period	Months	15	
Operation Life	Years	15	Watermech Engineering Sdn. Bhd; Life Span, Operation & Maintenance Cost of Equipment
Operation Start Date	dd/mm/yyyy	01/Jan/2013	Project Implementation Schedule
Benchmark			
Return of Equity	%	10.9%	Appendix A of the "Guidance on the assessment of investment analysis, Version 5"
CDM			
Emission Reductions	tCO ₂ e/year	27,394	Calculated
CER Price	Euro	20	State and Trends of the Carbon Market 2010, Carbon Finance at the World Bank. Pg. 58.
Exchange rate	RM/Euro	4.21	Average exchange rate on March 2011

Carotino Biogas Project

Cash Flow Analysis

Date	01/Oct/2011	31/Dec/2013	31/Dec/2014	31/Dec/2015	31/Dec/2016	31/Dec/2017	31/Dec/2018	31/Dec/2019	31/Dec/2020	31/Dec/2021	31/Dec/2022	31/Dec/2023	31/Dec/2024	31/Dec/2025	31/Dec/2026	31/Dec/2027
Year		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Revenues																
1) Saving from Diesel Displacement																
Diesel Savings (RM)		947,007	947,007	947,007	947,007	947,007	947,007	947,007	947,007	947,007	947,007	947,007	947,007	947,007	947,007	947,007
Total Revenues (RM)		947,007	947,007	947,007	947,007	947,007	947,007	947,007	947,007	947,007	947,007	947,007	947,007	947,007	947,007	947,007
Expenditures																
A) Capital Expenditures																
Capital Expenditures (RM)	13,913,790															
B) Operational Expenditures																
O&M Costs (RM)		744,295	744,295	744,295	744,295	744,295	744,295	744,295	744,295	744,295	744,295	744,295	744,295	744,295	744,295	744,295
Total Expenditures (RM)	13,913,790	744,295	744,295	744,295	744,295	744,295	744,295	744,295	744,295	744,295	744,295	744,295	744,295	744,295	744,295	744,295
EBITDA		202,712	202,712	202,712	202,712	202,712	202,712	202,712	202,712	202,712	202,712	202,712	202,712	202,712	202,712	202,712
Total Depreciation Amount		927,586	927,586	927,586	927,586	927,586	927,586	927,586	927,586	927,586	927,586	927,586	927,586	927,586	927,586	927,586
Book Value	13,913,790	12,986,204	12,058,618	11,131,032	10,203,446	9,275,860	8,348,274	7,420,688	6,493,102	5,565,516	4,637,930	3,710,344	2,782,758	1,855,172	927,586	0
EBIT/EBT (*no interest)		-724,874	-724,874	-724,874	-724,874	-724,874	-724,874	-724,874	-724,874	-724,874	-724,874	-724,874	-724,874	-724,874	-724,874	-724,874
Adjusted Income (RM)		202,712	202,712	202,712	202,712	202,712	202,712	202,712	202,712	202,712	202,712	202,712	202,712	202,712	202,712	202,712
Capital Allowances Schedule																
General Plants and Equipment		34%	14%	14%	14%	14%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Current Year Capital Allowances																
General Plants and Equipment		4,730,689	1,947,931	1,947,931	1,947,931	1,947,931	1,391,379	0	0	0	0	0	0	0	0	0
Capital Allowances Utilized (RM)		202,712	202,712	202,712	202,712	202,712	202,712	202,712	202,712	202,712	202,712	202,712	202,712	202,712	202,712	202,712
Capital Allowances Balance (RM)		4,527,977	6,273,195	8,018,414	9,763,633	11,508,852	12,697,519	12,494,807	12,292,095	12,089,383	11,886,671	11,683,959	11,481,247	11,278,535	11,075,824	10,873,112
Statutory Income (RM)		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Losses carry forward (RM)		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Losses Utilized (RM)		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Losses Unutilized (RM)		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Taxable Income (RM)		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Income Tax Rate		25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
Income Tax (RM)		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Net Profit (RM)		-724,874	-724,874	-724,874	-724,874	-724,874	-724,874	-724,874	-724,874	-724,874	-724,874	-724,874	-724,874	-724,874	-724,874	-724,874
Cash Flows Without CDM (RM)	-13,913,790	202,712	202,712	202,712	202,712	202,712	202,712	202,712	202,712	202,712	202,712	202,712	202,712	202,712	202,712	202,712
CDM revenue (RM)		2,309,095	2,309,095	2,309,095	2,309,095	2,309,095	2,309,095	2,309,095	2,309,095	2,309,095	2,309,095					
Cash Flows With CDM (RM)	-13,913,790	2,511,807	2,511,807	2,511,807	2,511,807	2,511,807	2,511,807	2,511,807	2,511,807	2,511,807	2,511,807	202,712	202,712	202,712	202,712	202,712

IRR without CDM	-13.4%
IRR with CDM	10.1%
NPV without CDM	-12,626,536
Equity Benchmark	10.9%

Sensitivity Analysis

Sensitivity Analysis				
Factor	Move	Perturbed Value	Units	Resulting IRR
Diesel Unit Price	0%	2.740	RM/liter	-13.4%
Total Capital Cost	0%	13,913,790	RM	
Total Operational Cost	0%	744,295	RM	

Sensitivity Analysis Result

Factor	Condition required to vary result	Perturbed Value	Units	Resulting IRR
Diesel Unit Price	239%	9.290	RM/liter	10.9%

Total Capital Cost	-100%	0	RM	0.0%
Total Operational Cost	-100%	0	RM	0.2%