

Undertaking: U-6(a)

Include the full amount of parasitic power in the calculations as well as a separate calculation using the differential of approximately 5 percent

As part of U-6, we added in the cost of electricity associated with parasitic loads, using ANSS's estimate of *total* parasitic loads (14% of total electricity output). Here we add in our estimate of the *incremental* parasitic load (5.5%), consistent with our approach of allocating CHP costs net of steam only costs to electricity. We assume that the electricity to meet this load is purchased from NSPI at \$80 per MWh.

We assess the effect of this added cost in the Excel file titled, "Synapse U-6(a)." As seen in cell F17 of the "Assumptions" worksheet, this parasitic load adds \$55,600 to annual operating costs. This change has no effect on fuel costs. In order to show the effect of the change on the fixed component of the rate, we have removed fuel costs from "Synapse U-6(a)." The fixed component of the rate with these additional electricity purchases would be \$99 per MWh. Adding the \$64 per MWh fuel cost to this yields a full 2012 rate of \$163 per MWh. To facilitate comparison, we have included this rate in the table summarizing the other sensitivity analyses performed pursuant to Undertaking U-6.

Nova Scotia COMFIT Model

Biomass CHP (condensing turbine; new boiler in steam-only scenario in year 10)

Synapse U-6(a)

Assumptions		Notes:
General Inflation Factor (revenue and expenses)	1.92%	From NSPI 2009 IRP Update
Capital Costs (Uses of Funds)		
Development	238,146	Net of steam-only scenario
Equipment & Installation	5,950,432	Net of steam-only scenario
Interconnection	199,000	Net of steam-only scenario
Reserves		
Up-Front Maintenance	21,353	Net of steam-only scenario
Working Capital	473,752	Net of steam-only scenario
Debt Service Reserve	564,407	Net of steam-only scenario
Financing		
Debt Closing Costs & Fees	289,860	Net of steam-only scenario
Equity Closing Costs & Fees	128,868	Net of steam-only scenario
Interest During Construction	241,550	Net of steam-only scenario
Total Project Cost	8,107,369	Net of steam-only scenario
Total Project Cost (\$/kW)	3,955	Net of steam-only scenario
Initial Reserve Account Sizing		
Upfront Maintenance (months of Year 1 O&M)	6	
Working Capital (months of Year 1 OPEX)	6	
Debt Service Reserve (months of P&I)	6	
Capital Structure (Sources of Funds)		
Amount (\$)		
Grants (net value)	0	
Debt	4,864,421	
Equity	3,242,948	
Total Sources of Funds	8,107,369	
Amount (%)		
Grants	0.0%	
Debt	60.0%	
Equity	40.0%	
Total Sources of Funds	100.0%	
Grants:		
State and Federal Incentives	0	
State/Provincial Tax 1	0	
State/Provincial Tax 2	0	
Federal tax	0	
Net Value of Grants	0	
Debt Terms		
Amount	4,864,421	(Based on target debt/equity ratio)
Loan Life	15	
Interest Rate	9.50%	
Up-Front Fee (%)	1.00%	
Up-Front Fee (\$)	48,644	
Closing Costs	243,221	(5% of loan value)
Tax Depreciation Allocation		
% of Total Project Cost		
30% Double Declining	0.0%	
50% Double Declining	69.7%	95% of equipment and installation
20-yr SL	0.0%	
40-yr SL	0.0%	
Other	0.0%	
Non-Depreciable	30.27%	Interconnection, development, reserves and financing
Total	100.0%	
Amount Allocated		
30% Double Declining	0	
50% Double Declining	5,652,911	
20-yr SL	0	
40-yr SL	0	
Other	0	
Non-Depreciable	2,454,458	
Total	8,107,369	
Year One Depreciation		
Year One Percent	25.0%	(Based on the "half year rule")
Year One Amount	1,413,228	

Assumptions:		Notes:
Operating Inputs		
Net Generator Capacity (MW)	2.05	1.55 MW at full extraction, 2.05 MW at full condensing
Energy Production:		
Net Capacity Factor		60% of time at full extraction, another 25% at full condensing
Net Output in MWhs	12,636	
Annual Operating Expenses		
Annual Fuel Cost		
Fuel Required per Year (mmBtu)	0	Net of steam-only scenario
Initial year Fuel Price (\$/mmBtu)	\$0.00	
Annual O&M (expensed)	\$93,667	Escalates at inflation.
Site Maintenance	\$0	Escalates at inflation.
General & Administrative	\$0	Escalates at inflation.
Insurance	\$29,752	Escalates at inflation.
Land Lease	\$0	Escalates at inflation.
Station Use (parasitic load)	\$55,600	5.5% of plant output purchased at \$80/MWh
Property Tax		
Project Hard Costs	5,950,432	
Assessed Value (%)	1.68%	Machinery and equipment is not assessed.
Assessed Value (\$)	100,000	
Annual Decline in Assessed Value	1.00%	
Assessed Value Minimum %	0.00%	
Property Tax Rate	3.50%	
Revenue Assumptions		
Levelized Energy Price (\$/MWh)	99.40	
% of Levelized Rate Escalating @ Infl.	0.0%	
Other Revenues (increases with inflation)	0	
Return Metrics		
20-year Equity IRR		
Pre-Tax	13.82%	
After-Tax	13.00%	
Average Debt Service Coverage Ratio	1.68	
Minimum Debt Service Coverage Ratio	1.65	
Minimum Annual After-Tax Equity Net Benefits	185,536	Includes tax benefit/(liability)
Tax Rates:		
Federal Income Tax	15.0%	
State/Provincial Income Tax		
Tax Rate 1		
Applicable Income (less than X)	400,000	
Tax Rate 1	4.5%	
Tax Rate 2 (for income greater than X)	16.0%	
Major Maintenance		
Replacement Occurs Every X Years	11	
Cost of Replacement (Year 0 Dollars)	356,720	
	50% Double	
Tax Depreciation Classification of Spending	Declining	
Book Depreciation Classification of Spending	30-yr SL	
Residual Value		
Residual Value (Net Book Value)	421	
Book Depreciation Classifications		
20-yr SL	100.0%	
30-yr SL	0.0%	
37-yr SL	0.0%	
40-yr SL	0.0%	
Non-Depreciable	0.00%	
Total	100.0%	
Amount Allocated		
20-yr SL	8,107,369	
30-yr SL	0	
37-yr SL	0	
40-yr SL	0	
Non-Depreciable	0	
Total	8,107,369	

Operating Year	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Generation (MWh)		12,636	12,636	12,636	12,636	12,636	12,636	12,636	12,636	12,636	12,636	12,636	12,636	12,636	12,636	12,636	12,636	12,636	12,636	12,636	12,636
Partial Income Statement																					
Revenue																					
Standard Offer Price (\$/MWh)																					
Fixed Price Component	100%	99.40	99.40	99.40	99.40	99.40	99.40	99.40	99.40	99.40	99.40	99.40	99.40	99.40	99.40	99.40	99.40	99.40	99.40	99.40	99.40
Escalating Price Component	0%	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	0.00	0.00	0.00	0.00	0.00
Standard Offer Price		99.40	99.40	99.40	99.40	99.40	99.40	99.40	99.40	99.40	99.40	99.40	99.40	99.40	99.40	99.40	99.40	99.40	99.40	99.40	99.40
Revenues From Energy Production		1,256,048	1,256,048	1,256,048	1,256,048	1,256,048	1,256,048	1,256,048	1,256,048	1,256,048	1,256,048	1,256,048	1,256,048	1,256,048	1,256,048	1,256,048	1,256,048	1,256,048	1,256,048	1,256,048	1,256,048
Other Revenues		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Interest Revenue		20,343	21,096	21,849	22,602	23,355	24,108	24,861	25,614	26,367	27,120	27,873	20,343	20,343	20,343	20,343	9,506	9,506	9,506	9,506	9,506
Total Revenue		1,276,391	1,277,144	1,277,897	1,278,650	1,279,403	1,280,156	1,280,909	1,281,662	1,282,415	1,283,168	1,283,921	1,276,391	1,276,391	1,276,391	1,276,391	1,265,554	1,265,554	1,265,554	1,265,554	1,265,554
Expenses																					
Fuel Cost		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
O&M		(93,667)	(95,465)	(97,298)	(99,166)	(101,070)	(103,011)	(104,988)	(107,004)	(109,059)	(111,153)	(113,287)	(115,462)	(117,679)	(119,938)	(122,241)	(124,588)	(126,980)	(129,418)	(131,903)	(134,435)
Site Maintenance		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
G&A		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Insurance		(29,752)	(30,323)	(30,906)	(31,499)	(32,104)	(32,720)	(33,348)	(33,989)	(34,641)	(35,306)	(35,984)	(36,675)	(37,379)	(38,097)	(38,828)	(39,574)	(40,334)	(41,108)	(41,897)	(42,702)
Land Lease		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Station Use (parasitic load)		(55,600)	(56,667)	(57,755)	(58,864)	(59,994)	(61,146)	(62,320)	(63,517)	(64,736)	(65,979)	(67,246)	(68,537)	(69,853)	(71,194)	(72,561)	(73,954)	(75,374)	(76,821)	(78,296)	(79,800)
Property tax		(3,500)	(3,465)	(3,430)	(3,395)	(3,360)	(3,325)	(3,290)	(3,255)	(3,220)	(3,185)	(3,150)	(3,115)	(3,080)	(3,045)	(3,010)	(2,975)	(2,940)	(2,905)	(2,870)	(2,835)
Total		(182,518)	(185,921)	(189,389)	(192,924)	(196,528)	(200,202)	(203,947)	(207,765)	(211,656)	(215,623)	(219,667)	(223,789)	(227,991)	(232,274)	(236,641)	(241,091)	(245,628)	(250,253)	(254,967)	(259,772)
EBITDA		1,093,872	1,091,223	1,088,508	1,085,726	1,082,875	1,079,954	1,076,962	1,073,898	1,070,759	1,067,545	1,064,255	1,052,602	1,048,400	1,044,117	1,039,750	1,024,463	1,019,926	1,015,302	1,010,588	1,005,782
Equity Return																					
Cash																					
EBITDA		1,093,872	1,091,223	1,088,508	1,085,726	1,082,875	1,079,954	1,076,962	1,073,898	1,070,759	1,067,545	1,064,255	1,052,602	1,048,400	1,044,117	1,039,750	1,024,463	1,019,926	1,015,302	1,010,588	1,005,782
Plus: Release of Debt Service Reserve		0	0	0	0	0	0	0	0	0	0	0	0	0	0	564,407	0	0	0	0	0
Plus: Release of WC & Up-Front Maint Reserves		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	495,106
Plus: Release of Major Maintenance Reserves		0	0	0	0	0	0	0	0	0	0	431,441	0	0	0	0	0	0	0	0	0
Plus: Residual Value		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	421
Less: Major Maintenance Spending		0	0	0	0	0	0	0	0	0	0	(431,441)	0	0	0	0	0	0	0	0	0
Less: Major Maintenance Reserve Funding		(39,222)	(39,222)	(39,222)	(39,222)	(39,222)	(39,222)	(39,222)	(39,222)	(39,222)	(39,222)	(39,222)	0	0	0	0	0	0	0	0	0
Less: Principal		(159,279)	(174,411)	(190,980)	(209,123)	(228,989)	(250,743)	(274,564)	(300,648)	(329,209)	(360,484)	(394,730)	(432,229)	(473,291)	(518,254)	(567,488)	(0)	(0)	(0)	(0)	(0)
Less: Interest		(462,120)	(446,989)	(430,420)	(412,276)	(392,410)	(370,656)	(346,835)	(320,752)	(292,190)	(260,915)	(226,669)	(189,170)	(148,108)	(103,145)	(53,911)	0	0	0	0	0
Total Cash		433,251	430,602	427,887	425,105	422,254	419,333	416,341	413,277	410,138	406,924	403,633	431,203	427,001	422,717	982,758	1,024,463	1,019,926	1,015,302	1,010,588	1,501,309
Equity Investment		(3,242,948)																			
Total Pre-Tax Equity Return		(3,242,948)	433,251	430,602	427,887	425,105	419,333	416,341	413,277	410,138	406,924	403,633	431,203	427,001	422,717	982,758	1,024,463	1,019,926	1,015,302	1,010,588	1,501,309
Pre-Tax Internal Rate of Return																					
13.82%																					
Taxable Income Benefit/(Liability)																					
EBITDA		1,093,872	1,091,223	1,088,508	1,085,726	1,082,875	1,079,954	1,076,962	1,073,898	1,070,759	1,067,545	1,064,255	1,052,602	1,048,400	1,044,117	1,039,750	1,024,463	1,019,926	1,015,302	1,010,588	1,005,782
Less: Interest		(462,120)	(446,989)	(430,420)	(412,276)	(392,410)	(370,656)	(346,835)	(320,752)	(292,190)	(260,915)	(226,669)	(189,170)	(148,108)	(103,145)	(53,911)	0	0	0	0	0
Less: Tax Depreciation		(1,413,228)	(2,119,842)	(1,059,921)	(529,960)	(264,980)	(132,490)	(66,245)	(33,123)	(16,561)	(8,281)	(219,861)	(109,930)	(54,965)	(27,483)	(13,741)	(6,871)	(3,435)	(1,718)	(859)	(429)
Taxable Income/(Loss)		(781,475)	(1,475,607)	(401,832)	143,489	425,485	576,808	663,882	720,024	762,008	798,349	617,724	753,501	845,327	913,488	972,098	1,017,592	1,016,491	1,013,584	1,009,729	1,005,353
Tax Benefit/(Liability)																					
State/Provincial 1		18,000	18,000	18,000	(6,457)	(18,000)	(18,000)	(18,000)	(18,000)	(18,000)	(18,000)	(18,000)	(18,000)	(18,000)	(18,000)	(18,000)	(18,000)	(18,000)	(18,000)	(18,000)	(18,000)
State/Provincial 2		61,036	172,097	293	0	(4,078)	(28,289)	(42,221)	(51,204)	(57,921)	(63,736)	(34,836)	(56,560)	(71,252)	(82,158)	(91,536)	(98,815)	(98,639)	(98,173)	(97,557)	(96,856)
Federal		117,221	221,341	60,275	(21,523)	(63,823)	(86,521)	(99,582)	(108,004)	(114,301)	(119,752)	(92,659)	(113,025)	(126,799)	(137,023)	(145,815)	(152,639)	(152,474)	(152,038)	(151,459)	(150,803)
Total Tax Benefit/(Liability)		196,257	411,438	78,568	(27,980)	(85,900)	(132,811)	(159,803)	(177,207)	(190,222)	(201,488)	(145,495)	(187,585)	(216,051)	(237,181)	(255,350)	(269,454)	(269,112)	(268,211)	(267,016)	(265,659)
Equity Investment		(3,242,948)																			
Total After-Tax Equity Return		(3,242,948)	629,509	842,040	506,455	397,124	336,354	286,523	256,538	236,069	219,916	205,436	258,139	243,617	210,949	185,536	727,408	755,009	750,814	747,091	743,572

Nova Scotia COMFIT Model

Cash Flow worksheet: Bottom

Synapse U-6(a)

Operating Year		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Debt																						
Loan Balance		4,864,421	4,705,142	4,530,732	4,339,752	4,130,629	3,901,640	3,650,896	3,376,332	3,075,685	2,746,476	2,385,992	1,991,262	1,559,033	1,085,742	567,488	(0)	(0)	(0)	(0)	(0)	(0)
Interest	9.50%	(4,456,566)	(462,120)	(446,989)	(430,420)	(412,276)	(392,410)	(370,656)	(346,835)	(320,752)	(292,190)	(260,915)	(226,669)	(189,170)	(148,108)	(103,145)	(53,911)	0	0	0	0	0
Principal		(4,864,421)	(159,279)	(174,411)	(190,980)	(209,123)	(228,989)	(250,743)	(274,564)	(300,648)	(329,209)	(360,484)	(394,730)	(432,229)	(473,291)	(518,254)	(567,488)	(0)	(0)	(0)	(0)	(0)
Annual payment			(621,399)	(621,399)	(621,399)	(621,399)	(621,399)	(621,399)	(621,399)	(621,399)	(621,399)	(621,399)	(621,399)	(621,399)	(621,399)	(621,399)	(621,399)	0	0	0	0	0
Debt Service Coverage Ratio																						
EBITDA		1,093,872	1,091,223	1,088,508	1,085,726	1,082,875	1,079,954	1,076,962	1,073,898	1,070,759	1,067,545	1,064,255	1,052,602	1,048,400	1,044,117	1,039,750	0	0	0	0	0	0
Less: Major Maintenance Reserve Funding		(39,222)	(39,222)	(39,222)	(39,222)	(39,222)	(39,222)	(39,222)	(39,222)	(39,222)	(39,222)	(39,222)	0	0	0	0	0	0	0	0	0	0
Cash Available for Debt Service		1,054,650	1,052,001	1,049,286	1,046,504	1,043,653	1,040,732	1,037,740	1,034,676	1,031,537	1,028,323	1,025,033	1,052,602	1,048,400	1,044,117	1,039,750	0	0	0	0	0	0
P&I		621,399	621,399	621,399	621,399	621,399	621,399	621,399	621,399	621,399	621,399	621,399	621,399	621,399	621,399	621,399	621,399	0	0	0	0	0
Debt Service Coverage Ratio		1.70	1.69	1.69	1.68	1.68	1.67	1.67	1.67	1.66	1.65	1.65	1.69	1.69	1.68	1.67						
Average		1.68																				
Minimum		1.65																				
Reserve Accounts																						
Reserves Funded As Part of Capital Cost																						
Beginning Balance	0	1,059,512	1,059,512	1,059,512	1,059,512	1,059,512	1,059,512	1,059,512	1,059,512	1,059,512	1,059,512	1,059,512	1,059,512	1,059,512	1,059,512	1,059,512	495,106	495,106	495,106	495,106	495,106	495,106
Up-Front Maintenance Reserve	21,353	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	(21,353)
Working Capital	473,752	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	(473,752)
Debt Service Reserve	564,407	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	(564,407)	0	0	0	0	0
Total		1,059,512	1,059,512	1,059,512	1,059,512	1,059,512	1,059,512	1,059,512	1,059,512	1,059,512	1,059,512	1,059,512	1,059,512	1,059,512	1,059,512	1,059,512	495,106	495,106	495,106	495,106	495,106	0
Major Maintenance Reserve Funded Through Operations																						
Beginning Balance	0	39,222	78,444	117,666	156,888	196,110	235,332	274,553	313,775	352,997	392,219	0	0	0	0	0	0	0	0	0	0	0
Funding	39,222	39,222	39,222	39,222	39,222	39,222	39,222	39,222	39,222	39,222	39,222	0	0	0	0	0	0	0	0	0	0	0
Release of Funds	0	0	0	0	0	0	0	0	0	0	0	(431,441)	0	0	0	0	0	0	0	0	0	0
Ending Balance		39,222	78,444	117,666	156,888	196,110	235,332	274,553	313,775	352,997	392,219	0	0	0	0	0	0	0	0	0	0	0
Major Maintenance Costs																						
Occurrence 1	431,441	0	0	0	0	0	0	0	0	0	0	431,441	0	0	0	0	0	0	0	0	0	0
Occurrence 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Occurrence 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Occurrence 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Major Maintenance Funding																						
Occurrence 1	431,441	39,222	39,222	39,222	39,222	39,222	39,222	39,222	39,222	39,222	39,222	39,222	0	0	0	0	0	0	0	0	0	0
Occurrence 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Occurrence 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Occurrence 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Interest on Reserves		20,343	21,096	21,849	22,602	23,355	24,108	24,861	25,614	26,367	27,120	27,873	20,343	20,343	20,343	20,343	9,506	9,506	9,506	9,506	9,506	9,506
Property Tax Calculation																						
Original Assessed Value		100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
Annual Decline in Assessed Value		100.0%	99.0%	98.0%	97.0%	96.0%	95.0%	94.0%	93.0%	92.0%	91.0%	90.0%	89.0%	88.0%	87.0%	86.0%	85.0%	84.0%	83.0%	82.0%	81.0%	81.0%
Annual Assessed Value		100,000	99,000	98,000	97,000	96,000	95,000	94,000	93,000	92,000	91,000	90,000	89,000	88,000	87,000	86,000	85,000	84,000	83,000	82,000	81,000	81,000
Property Tax Rate		3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%
Property Tax Expense		3,500	3,465	3,430	3,395	3,360	3,325	3,290	3,255	3,220	3,185	3,150	3,115	3,080	3,045	3,010	2,975	2,940	2,905	2,870	2,835	2,835

Operating Year	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Calendar Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030

Tax Depreciation																					
Calendar Year Depreciation per Classification (%)																					
30% Double Declining		30.00%	21.00%	14.70%	10.29%	7.20%	5.04%	3.53%	2.47%	1.73%	1.21%	0.85%	0.59%	0.42%	0.29%	0.20%	0.14%	0.10%	0.07%	0.05%	0.03%
50% Double Declining		50.00%	25.00%	12.50%	6.25%	3.13%	1.56%	0.78%	0.39%	0.20%	0.10%	0.05%	0.02%	0.01%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
20-yr SL		2.50%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
40-yr SL		1.25%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
Other		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%	0.00%	0.00%	0.00%	0.00%	0.00%

Calendar Year Depreciation per Classification (\$)																					
Year One Capital Cost Allocation	1,413,228	1,413,228	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30% Double Declining	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50% Double Declining	4,239,683	0	2,119,842	1,059,921	529,960	264,980	132,490	66,245	33,123	16,561	8,281	4,140	2,070	1,035	518	259	129	65	32	16	8
20-yr SL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40-yr SL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Major Maintenance		0	0	0	0	0	0	0	0	0	0	215,721	107,860	53,930	26,965	13,483	6,741	3,371	1,685	843	421
Annual Depreciation	6,083,923	1,413,228	2,119,842	1,059,921	529,960	264,980	132,490	66,245	33,123	16,561	8,281	219,861	109,930	54,965	27,483	13,741	6,871	3,435	1,718	859	429

Major Maintenance																					
Timing of Spending																					
Occurrence 1		0	0	0	0	0	0	0	0	0	0	1	2	3	4	5	6	7	8	9	10
Occurrence 2		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Occurrence 3		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Occurrence 4		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Depreciation Classification	Declining																					
Year	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Depreciation Schedule	0.00%	50.00%	25.00%	12.50%	6.25%	3.13%	1.56%	0.78%	0.39%	0.20%	0.10%	0.05%	0.02%	0.01%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	

Depreciation Expense																					
	Expense	Amount																			
Occurrence 1	431,441	431,020	0	0	0	0	0	0	0	0	0	215,721	107,860	53,930	26,965	13,483	6,741	3,371	1,685	843	421
Occurrence 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Occurrence 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Occurrence 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Nova Scotia COMFIT Model

Depreciation worksheet: Bottom

Synapse U-6(a)

Operating Year	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Calendar Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030

Book Depreciation																					
Calendar Year Depreciation per Classification (%)																					
20-yr SL		5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	
30-yr SL		3.33%	3.33%	3.33%	3.33%	3.33%	3.33%	3.33%	3.33%	3.33%	3.33%	3.33%	3.33%	3.33%	3.33%	3.33%	3.33%	3.33%	3.33%	3.33%	
37-yr SL		2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	
40-yr SL		2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	
Calendar Year Depreciation per Classification (\$)																					
20-yr SL	8,107,369	405,368	405,368	405,368	405,368	405,368	405,368	405,368	405,368	405,368	405,368	405,368	405,368	405,368	405,368	405,368	405,368	405,368	405,368	405,368	
30-yr SL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
37-yr SL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
40-yr SL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Major Maintenance		0	0	0	0	0	0	0	0	0	215,721	107,860	53,930	26,965	13,483	6,741	3,371	1,685	843	421	
Annual Depreciation	8,538,389	405,368	405,368	405,368	405,368	405,368	405,368	405,368	405,368	405,368	621,089	513,229	459,299	432,334	418,851	412,110	408,739	407,054	406,211	405,790	

[illegible][illegible][illegible]

Net Book Value																				
Beginning Balance	0	7,702,001	7,296,632	6,891,264	6,485,895	6,080,527	5,675,158	5,269,790	4,864,421	4,459,053	4,053,685	3,864,037	3,350,808	2,891,509	2,459,176	2,040,325	1,628,215	1,219,476	812,422	406,211
Original Book Value	8,107,369	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Plus: Major Maintenance	0	0	0	0	0	0	0	0	0	0	431,441	0	0	0	0	0	0	0	0	0
Less: Depreciation	(405,368)	(405,368)	(405,368)	(405,368)	(405,368)	(405,368)	(405,368)	(405,368)	(405,368)	(405,368)	(621,089)	(513,229)	(459,299)	(432,334)	(418,851)	(412,110)	(408,739)	(407,054)	(406,211)	(405,790)
Net Book Value	7,702,001	7,296,632	6,891,264	6,485,895	6,080,527	5,675,158	5,269,790	4,864,421	4,459,053	4,053,685	3,864,037	3,350,808	2,891,509	2,459,176	2,040,325	1,628,215	1,219,476	812,422	406,211	421

Biomass CHP Cost Scenarios

Synapse U-6(a)

Scenarios in \$2012

Component	Value for Steam-Only Scenario	Gross Value for CHP Scenario	Net Value for CHP Scenario
Project development	\$42,134	\$280,280	\$238,146
Boiler installed cost (\$)	\$1,685,370	\$3,057,600	\$1,372,230
Turbine installed cost (\$)	\$0	\$2,894,528	\$2,894,528
Emission controls	\$252,806	\$305,760	\$52,954
Condenser/Cooling Tower	\$0	\$1,630,720	\$1,630,720
Equipment and Installation (\$)	\$1,938,176	\$7,888,608	\$5,950,432
Interconnection (\$)	\$0	\$199,000	\$199,000
Maintenance reserve (\$)	\$65,279	\$86,632	\$21,353
Working capital reserve (\$)	\$223,004	\$286,497	\$63,493
Debt service reserve (\$)	\$213,498	\$777,905	\$564,407
Debt Closing Costs & Fees	\$109,646	\$399,506	\$289,860
Equity Closing Costs & Fees	\$48,718	\$177,585	\$128,868
Interest During Construction	\$91,371	\$332,922	\$241,550
Routine Maintenance (\$/yr)	\$130,557	\$173,264	\$42,707
Labour (\$)	\$305,760	\$356,720	\$50,960
General & Admin.	\$0	\$0	\$0
Insurance	\$9,691	\$39,443	\$29,752
Property taxes	\$0	\$3,567	
Year-10 Turbine overhaul (\$)	\$0	\$152,880	\$152,880
Year-10 Boiler overhaul (\$)	\$0	\$203,840	\$203,840
Annual Fuel Use (mmBtu/yr)	156,366	346,239	189,873
Annual Fuel Cost (\$/yr)	\$0	\$0	\$0
Plant capacity factor (%) - extract	60%	60%	60%
Plant capacity factor (%) - full condensing		25%	25%
NPV of new boiler(\$2M) in yr 10	\$1,685,370		
Steam Load (mmBtu/hr)	23.8	22	22
Boiler size (lb/hr)	20,000	30,000	
Boiler rating (psi)	75-100	600	
Turbine type	N/A	Condensing	
Turbine size (MW)	N/A	2.05	
Total Project Costs (\$)	\$2,731,825	\$10,428,935	\$7,697,110
Total Project Costs (\$/kW)		\$5,087	\$3,755

Actual Loan Value:	\$1,639,095	\$6,257,361	\$4,618,266
Actual Equity Amount:	\$1,092,730	\$4,171,574	

Capacity Factors:
Steam 60%
Condensin 25%

Calculation of fuel costs:	extraction	Condensing
turbine size (kW):	1550	2050
Boiler efficiency (%)	80%	80%
Adjusted turbine size (kW):		
Adjusted KWhs:		
Fuel Use (Btu):		
Fuel Use (mmBtu):	244,404	101,835

Calculation of heat input:
5,256 hrs
125,093 process heat (mmBtu)
156,366 heat input (mmBtu)

Efficiency:	49%	15%
Steam energy	125092.8	
Electric Energy	43115	15318
Fuel Use	346239	101835