

Investment calculation

Currency : €

Dr. Thomas Stötter

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Project: Demo-Project Commissioning: 2005

WindInvestManager

Wind Turbine

Manufacturer:	N.N.
Type:	XXL
Hub Height	100
Nominal Capacity:	2.000 KW
Number of Turbines:	5

Output and sales p.a.

Turbine gross energy output :		5.366.135 KWh
Array/wake loss coefficient:	94,30 %	5.060.265 KWh
Other losses:	8,50 %	430.123 KWh
Turbine net energy output:		4.630.143 KWh
Windfarm output:		23.150.714 KWh
Energy price per kwh Ø:		0,08059
Sales of electricity :		1.865.716

Operation and Management Cost p.a.

+..p.a.

Service and maintenance Ø:	56.250	281.250	0,00	%
Insurance:	3.200	16.000	1,00	%
Land Lease Ø:	18.700	93.500	0,00	%
Operation Ø:	9.329	2,50 %	46.643	
Other Cost:	1.950	9.750	0,00	%

Reserves:	50.000	0	250.000	0,00	%
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Investment Schedule

per turbine

Tota

Wind Turbine	1.750.000	8.750.000
Transformer Station:	40.000	200.000
Foundation:	40.000	200.000
Roadworks:	30.000	150.000
Cabling:	5.000	25.000
Grid Connection:	80.000	400.000
Permits/assessments	80.000	400.000
Development Fees:	48.000	240.000
Miscellaneous:	43.000	215.000
Investment amount:	2.166.000	10.580.000
Finance Cost:	50.000	250.000
Disagio:		295.334
Planning reserve:	105.800	529.000
Total Investment:	2.330.867	11.359.000

Key Figures

Net Equiv. Hour	2.315	Investment cost per kwh:	0,49
Capacity Factor:	0,26	Investment cost per MW:	1,14
DSCR:	2,01		

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Depreciation Years: 16 degresiv Finance Amount: 11.359.000

Multiplier municipal tax G	340 %	Profit tax:	28 %	Loan 1:	65 %	Interest:	4,5 %	Disagio:	4 %	Grace Per.	2	Term	15	Amount	7.678.684
Dividend per year:	8,00 %	+ \$ 7g		Loan 2:	10 %		5 %		0 %		0		5		1.135.900
Electricity sales:	1.865.716			Loan 3:	5 %		4,8 %		0 %		0		2		567.950
Calculation made for number years:	20			Equity:	20 %		0 %		0 %		0		0		2.271.800
ROE:	21,40%			Grant:	0 %		0 %		0 %		0		0		0
IRR Equity:	30,46%			Disagio:			295.334								

	1. Year	2. Year	3. Year	4. Year	5. Year	6. Year	7. Year	8. Year	9. Year	10. Year
Electricity sales:	1.974.756	1.974.756	1.974.756	1.974.756	1.974.756	1.974.756	1.974.756	1.974.756	1.974.756	1.974.756
Service:	70.000	70.000	145.000	190.000	190.000	235.000	235.000	235.000	235.000	235.000
Insurance:	16.000	16.160	16.322	16.485	16.650	16.816	16.984	17.154	17.326	17.499
Land Lease:	93.500	93.500	93.500	93.500	93.500	93.500	93.500	93.500	93.500	93.500
Operation:	49.369	49.369	49.369	49.369	49.369	49.369	49.369	49.369	49.369	49.369
Other Cost:	9.750	9.750	9.750	9.750	9.750	9.750	9.750	9.750	9.750	9.750
Operating Cost:	238.619	238.779	313.940	359.104	359.269	404.435	404.603	404.773	404.945	405.118
Depreciation:	4.332.993	915.168	800.772	700.675	613.091	536.454	469.398	410.723	359.383	359.383
Interest Loan 1:	318.961	318.961	312.827	289.226	267.406	247.232	228.580	211.335	195.391	180.650
Interest Loan 2:	53.955	43.704	35.400	28.674	23.226	0	0	0	0	0
Interest Loan 3:	23.854	13.418	0	0	0	0	0	0	0	0
Interest Equity:	0	0	0	0	0	0	0	0	0	0
Interest Grant:	0	0	0	0	0	0	0	0	0	0
Interest Total:	396.770	376.082	348.227	317.900	290.632	247.232	228.580	211.335	195.391	180.650
Profit before tax:	-2.993.625	444.727	511.817	597.077	711.765	786.635	872.175	947.925	1.015.038	1.029.606
Municipal tax:	0	0	0	0	0	0	0	118.809	138.420	139.643
Profit tax:	0	0	0	0	0	0	0	0	175.453	179.190
Profit/Loss:	-2.993.625	444.727	511.817	597.077	711.765	786.635	872.175	829.117	701.165	710.773

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Electricity sales:	1.865.716			Loan 3:	5 %		4,8 %		0 %		0		2		567.950
Calculation made for number years:	20			Equity:	20 %		0 %		0 %		0		0		2.271.800
ROE:	21,40%			Grant:	0 %		0 %		0 %		0		0		0
IRR Equity:	30,46%			Disagio:			295.334								

	11. Year	12. Year	13. Year	14. Year	15. Year	16. Year	17. Year	18. Year	19. Year	20. Year
Sales:	1.974.756	1.974.756	1.974.756	1.974.756	1.974.756	1.974.756	1.974.756	1.247.823	1.247.823	1.247.823
Service and mainte	285.000	285.000	355.000	355.000	355.000	430.000	430.000	430.000	430.000	430.000
Insurance:	17.674	17.851	18.029	18.209	18.392	18.576	18.761	18.949	19.138	19.330
Land Lease:	93.500	93.500	93.500	93.500	93.500	93.500	93.500	93.500	93.500	93.500
Operation:	49.369	49.369	49.369	49.369	49.369	49.369	49.369	31.196	31.196	31.196
Other Cost:	9.750	9.750	9.750	9.750	9.750	9.750	9.750	9.750	9.750	9.750
Operating Cost:	455.293	455.470	525.648	525.828	526.010	601.194	601.380	583.394	583.584	583.775
Depreciation:	359.383	359.383	359.383	359.383	359.383	359.383	0	0	0	0
Interest Loan 1:	167.021	154.420	142.770	131.999	122.040	0	0	0	0	0
Interest Loan 2:	0	0	0	0	0	0	0	0	0	0
Interest Loan 3:	0	0	0	0	0	0	0	0	0	0
Interest Equity:	0	0	0	0	0	0	0	0	0	0
Interest Grant:	0	0	0	0	0	0	0	0	0	0
Interest Total:	167.021	154.420	142.770	131.999	122.040	0	0	0	0	0
Profit before tax:	993.060	1.005.484	946.955	957.546	967.322	1.014.179	1.373.376	664.429	664.240	664.048
Municipal tax:	132.272	133.313	122.373	123.258	124.073	121.665	182.729	62.208	62.176	62.143
Profit tax:	171.021	174.208	160.883	163.601	166.110	179.904	263.381	98.622	98.578	98.533
Profit/Loss:	689.767	697.963	663.699	670.688	677.139	712.610	927.266	503.599	503.486	503.372

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Depreciation Years: 16 **degresiv** Finance Amount: 11.359.000

Multiplier municipal tax G 340 % Profit tax: 28 % Loan 1: 65 %

Dividend per year: 8,00 % + \$ 7g Loan 2: 10 %

Electricity sales: 1.865.716 Loan 3: 5 %

Calculation made for number years: 20 Equity: 20 %

ROE: 21,40% Grant: 0 %

IRR Equity: 30,46%

Interest:	Disagio:	Grace Per.	Term	Amount
4,5 %	4 %	2	15	7.678.684
5 %	0 %	0	5	1.135.900
4,8 %	0 %	0	2	567.950
0 %	0 %	0	0	2.271.800
0 %	0 %	0	0	0
Disagio: 295.334				

	1. Year	2. Year	3. Year	4. Year	5. Year	6. Year	7. Year	8. Year	9. Year	10. Year
Electricity sales:	1.974.756	1.974.756	1.974.756	1.974.756	1.974.756	1.974.756	1.974.756	1.974.756	1.974.756	1.974.756
Operating Cost:	238.619	238.779	313.940	359.104	359.269	404.435	404.603	404.773	404.945	405.118
Depreciation:	4.332.993	915.168	800.772	700.675	613.091	536.454	469.398	410.723	359.383	359.383
Interest Total:	396.770	376.082	348.227	317.900	290.632	247.232	228.580	211.335	195.391	180.650
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Municipal tax:	0	0	0	0	0	0	0	118.809	138.420	139.643
Profit tax:	0	0	0	0	0	0	0	0	175.453	179.190
Profit/Loss:	-2.993.625	444.727	511.817	597.077	711.765	786.635	872.175	829.117	701.165	710.773
Reserves:	250.000	250.000	250.000	250.000	250.000	250.000	250.000	250.000	250.000	250.000
Repaym. Loan 1:	0	0	545.232	545.232	545.232	545.232	545.232	545.232	545.232	545.232
Repaym. Loan 2:	227.180	227.180	227.180	227.180	227.180	0	0	0	0	0
Repaym. Loan 3:	0	0	0	0	0	0	0	0	0	0
Repaym. Equity:	0	0	0	0	0	0	0	0	0	0
Repayment Total:	511.155	511.155	772.412	772.412	772.412	545.232	545.232	545.232	545.232	545.232
Dividend:	0	35.578	40.945	47.766	56.941	62.931	69.774	66.329	56.093	56.862
Net Cash Flow:	578.212	563.162	249.231	227.574	245.502	464.926	476.567	378.278	209.223	218.062
Cash Flow cumal:	578.212	1.141.374	1.390.605	1.618.179	1.863.681	2.328.608	2.805.175	3.183.453	3.392.676	3.610.737

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4,5 %	4 %	2	15	7.678.684
5 %	0 %	0	5	1.135.900
4,8 %	0 %	0	2	567.950
0 %	0 %	0	0	2.271.800
0 %	0 %	0	0	0
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Operating Cost:	455.293	455.470	525.648	525.828	526.010	601.194	601.380	583.394	583.584	583.775
Depreciation:	359.383	359.383	359.383	359.383	359.383	359.383	0	0	0	0
Interest Total:	167.021	154.420	142.770	131.999	122.040	0	0	0	0	0
Profit before tax:	993.060	1.005.484	946.955	957.546	967.322	1.014.179	1.373.376	664.429	664.240	664.048
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Reserves:	250.000	250.000	250.000	250.000	250.000	250.000	250.000	250.000	250.000	250.000
Repaym. Loan 1:	545.232	545.232	545.232	545.232	545.232	0	0	0	0	0
Repaym. Loan 2:	0	0	0	0	0	0	0	0	0	0
Repaym. Loan 3:	0	0	0	0	0	0	0	0	0	0
Repaym. Equity:	0	0	0	0	0	0	0	0	0	0
Repayment Total:	545.232	545.232	545.232	545.232	545.232	0	0	0	0	0
Dividend:	55.181	55.837	53.096	53.655	54.171	57.009	74.181	40.288	40.279	40.270
Net Cash Flow:	198.736	206.276	174.754	181.183	187.119	764.984	603.084	213.311	213.207	213.102
Cash Flow cumul:	3.809.474	4.015.750	4.190.504	4.371.687	4.558.806	5.323.790	5.926.874	6.140.185	6.353.392	6.566.494

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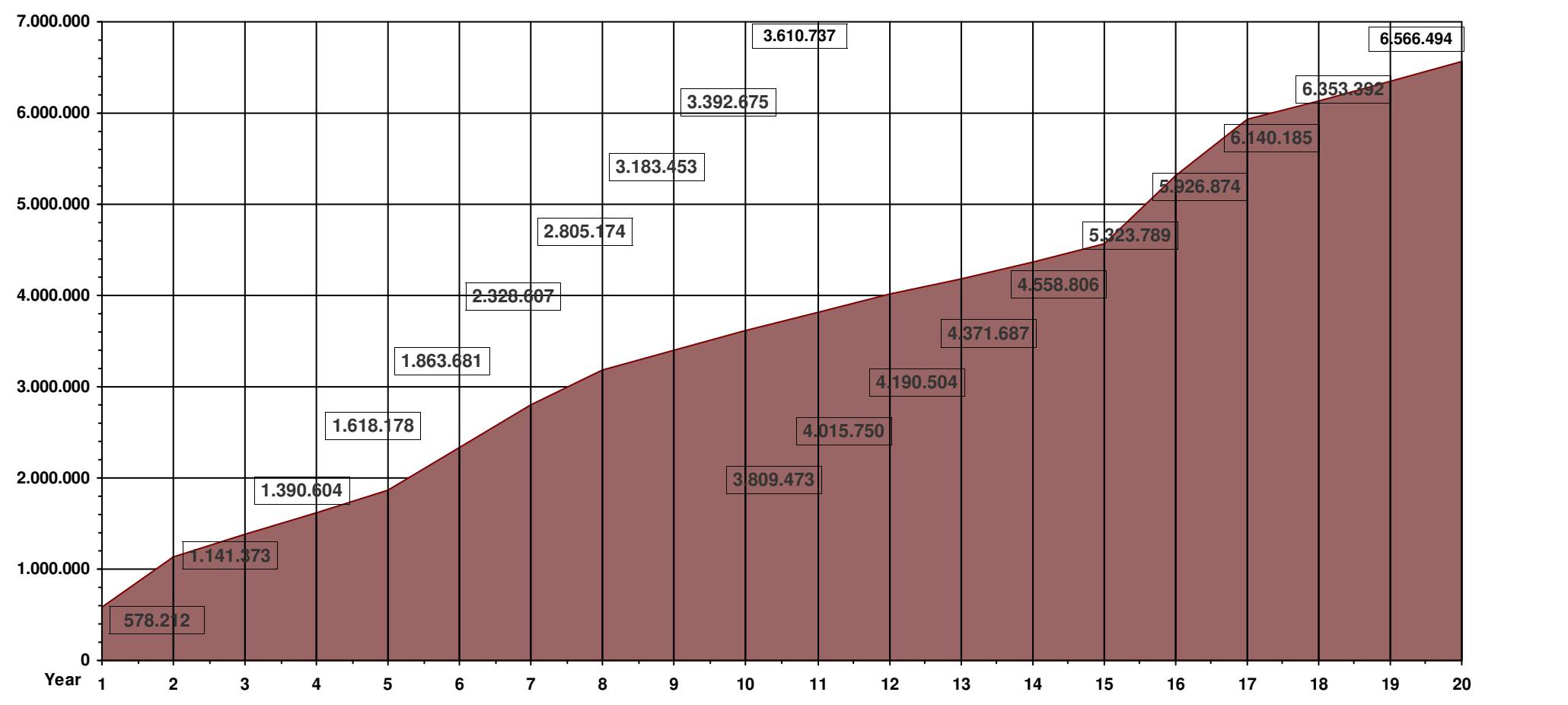
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4,5 %	4 %	2	15	7.678.684
5 %	0 %	0	5	1.135.900
4,8 %	0 %	0	2	567.950
0 %	0 %	0	0	2.271.800
0 %	0 %	0	0	0
Disagio:		295.334		

Chart-Cumulated Cash Flow



Investment calculation

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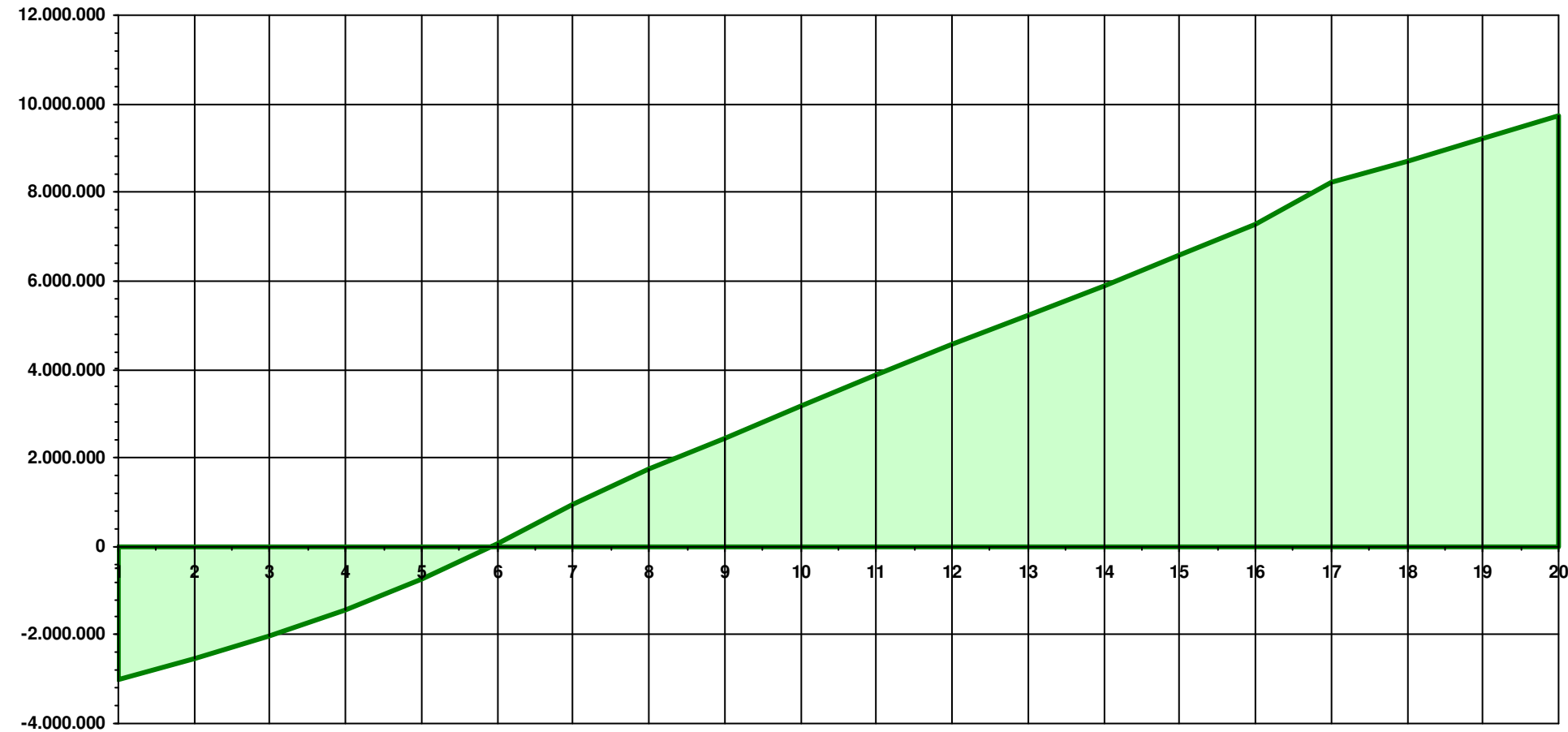
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0 %	0 %	0	0	2.271.800
0 %	0 %	0	0	0
Disagio:		295.334		

Chart-P & L cumulated



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IRR Equity: 30,46%

Loan 1: 65 %

Loan 2: 10 %

Loan 3: 5 %

Equity: 20 %

Grant: 0 %

Interest: Disagio: Grace Per. Term Amount

4,5 % 4 % 2 15 7.678.684

5 % 0 % 0 5 1.135.900

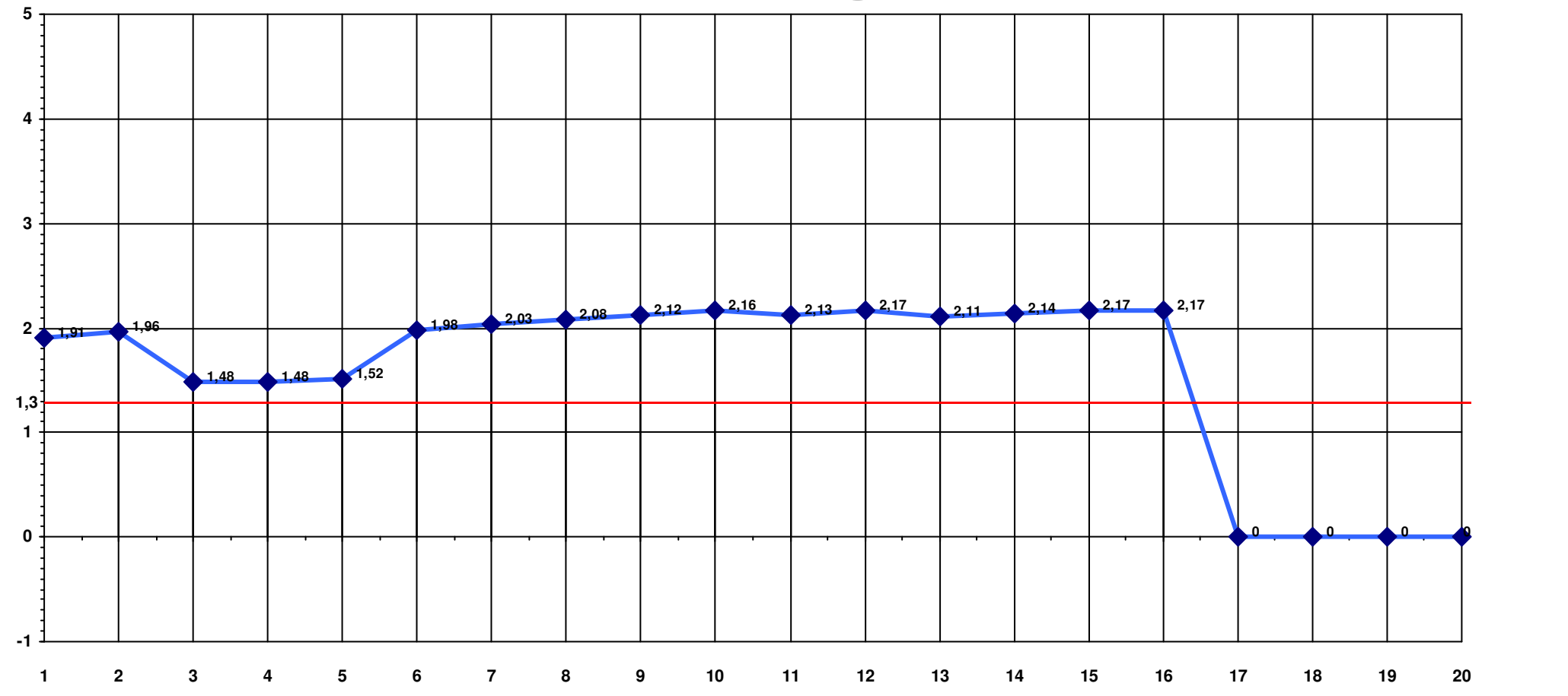
4,8 % 0 % 0 2 567.950

0 % 0 % 0 0 2.271.800

0 % 0 % 0 0 0

Disagio: 295.334

Chart -DSCR = Debt Service Covering Ratio



Investment calculation

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5 %	0 %	0	5	1.135.900
4,8 %	0 %	0	2	567.950
0 %	0 %	0	0	2.271.800
0 %	0 %	0	0	0
Disagio: 295.334				

Chart -DSCR = Debt Service Covering Ratio

Cumulative

