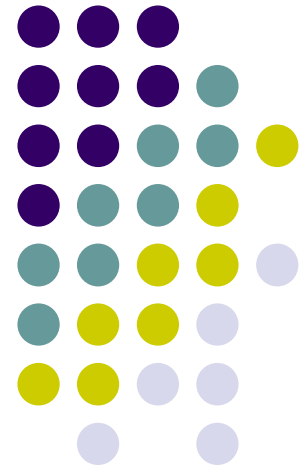


Business Plan GreenAd S.A.

Vertical Axis Wind Turbines + Advertising

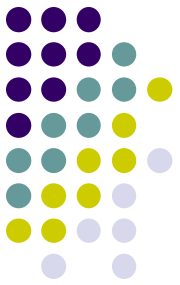
GreenAd
Publicidad Verde
S.A.



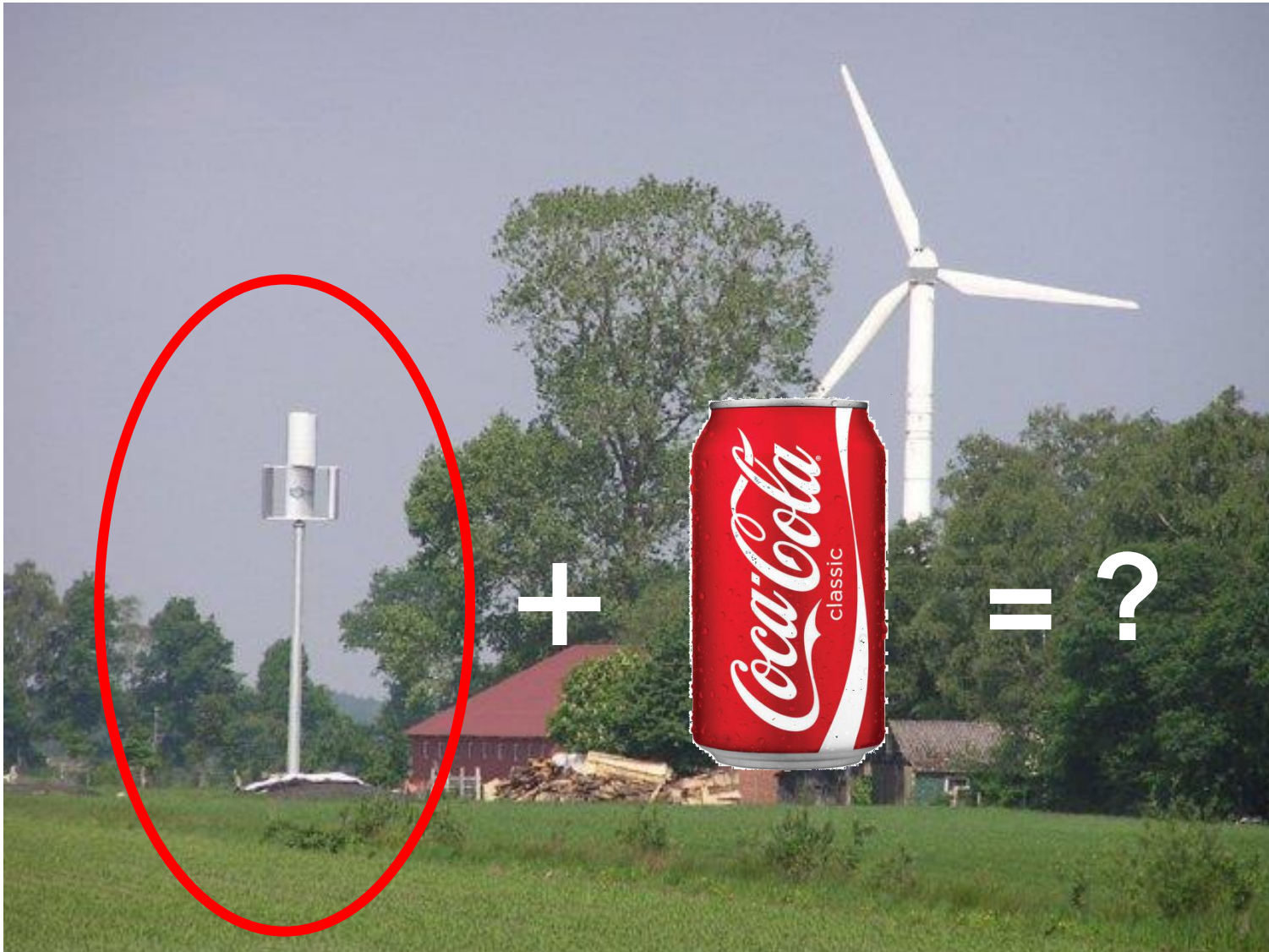
Konrad Schepp
Sebastian Becker
Hatgi Noer

Index

- Description of the project
- Technical issues
- Cost calculations
- Conclusions

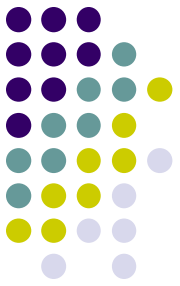


Entrepreneur's idea



Energy + Advertising



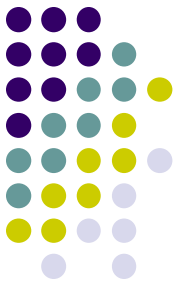


Market study

- Country: Chile
- Customers: Malls, Casinos, Hypermarkets, Gas stations, Pharmacies, etc.
- Capacity:
 - 1. year: 6 units
 - 2. year: 12 units
 - 3. year: 18 units to 26 units/year
- Product:
 - Vertical Axis Wind Turbine with Advertisement
 - New product in this country
- Production: Just in time

GreenAd S.A.

Publicidad Verde



- Legal form: Corporation (S.A.)
- Workshop: 750 m²
- Workers: 6
- Headquarters: Santiago de Chile

GreenAd
Publicidad Verde
S.A.



Market size

Population: 17.000.000

Density: 22/km²

Length: 4.200 km

Width: 90 to 440 km

GDP p.c: US\$ 15.000



1st Project: Mall Plaza



Info Mall:

- Area: 228.000 m²
- Constructed: 160.000 m²
- Stores: 123
- Visitors per year: 18M
- Parking places: 4.000

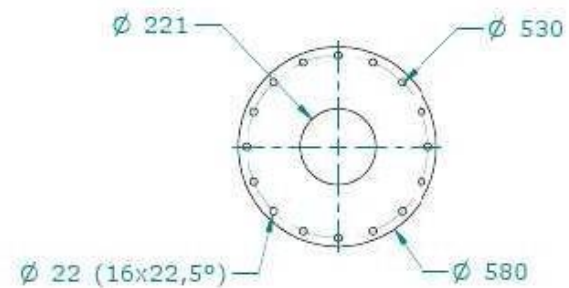
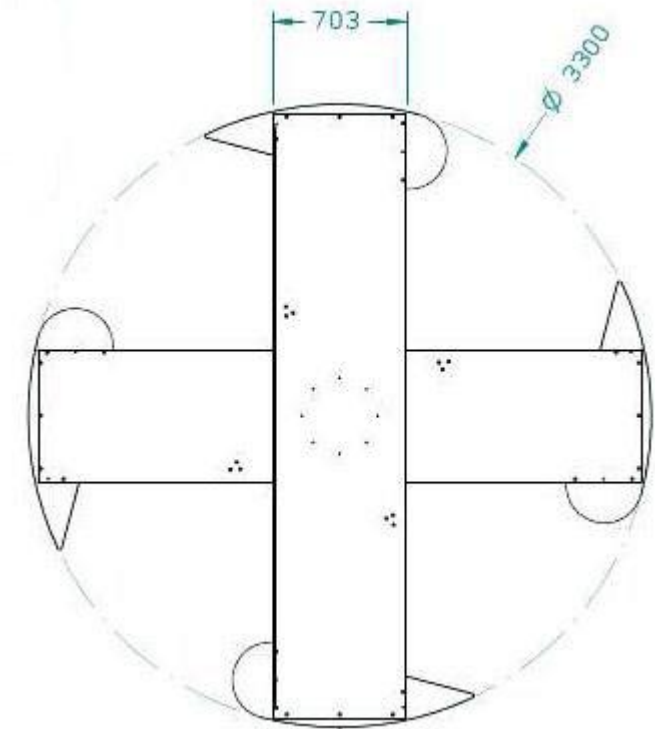
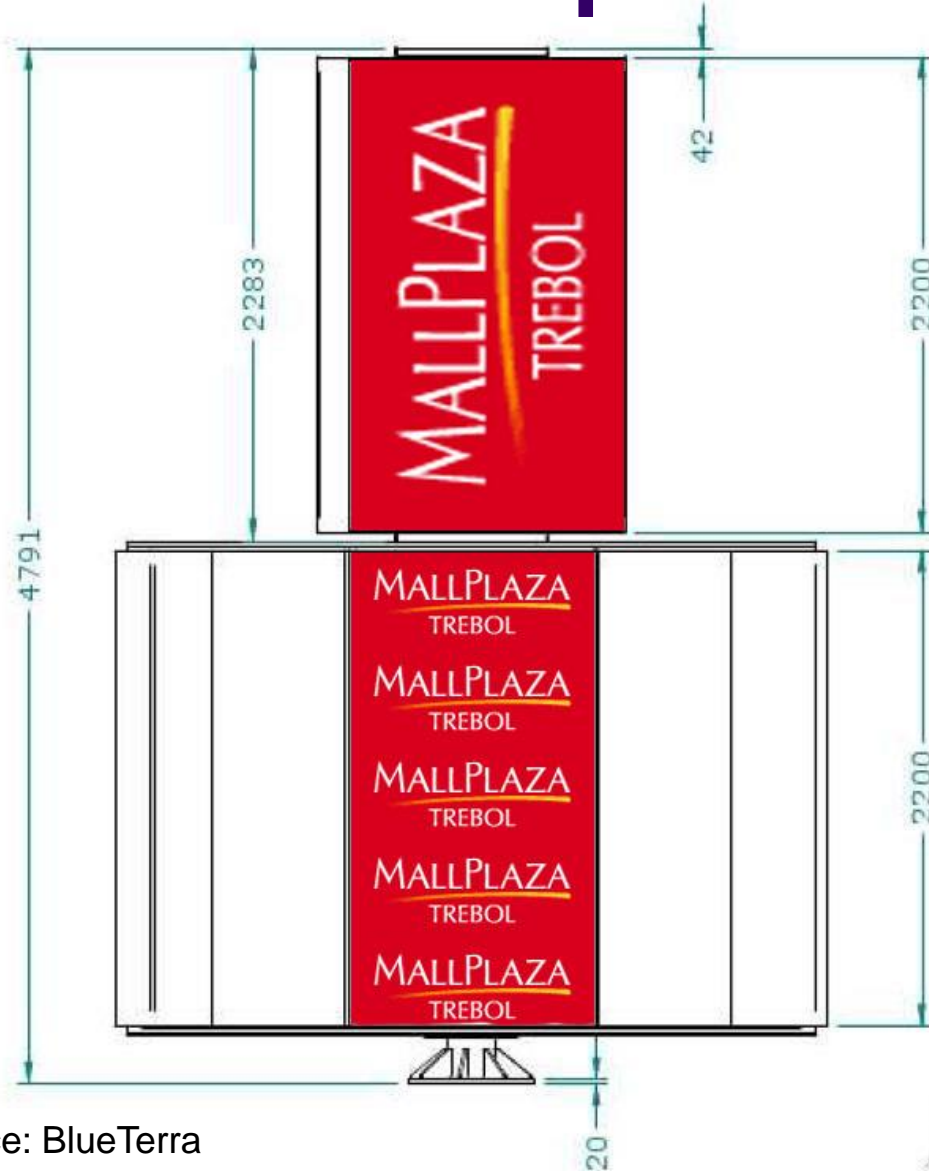
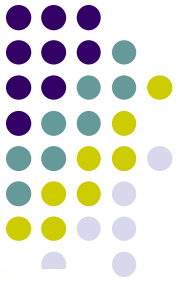


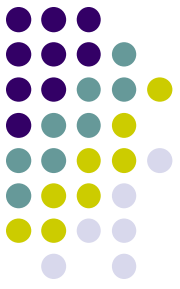
New design:



- Power: 6 kW
- Starting speed: 2 m/s
- Weight of the turbine: 850 kg
- Space for advertising: 22 m²

New development





Advantages for our client

- Attractive Ad with motion
- Self pay through electricity production
- Helps to create a „**Green Image**“
- Reduces the CO₂ emissions
- Indirect Ad through positive press publications

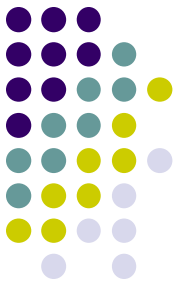
Outcome product



Technical Issues

Advantages of GreenAd -VAWTs

GreenAd
Publicidad Verde
S.A.



Not dependent on the direction of the wind



Can also work under very strong winds



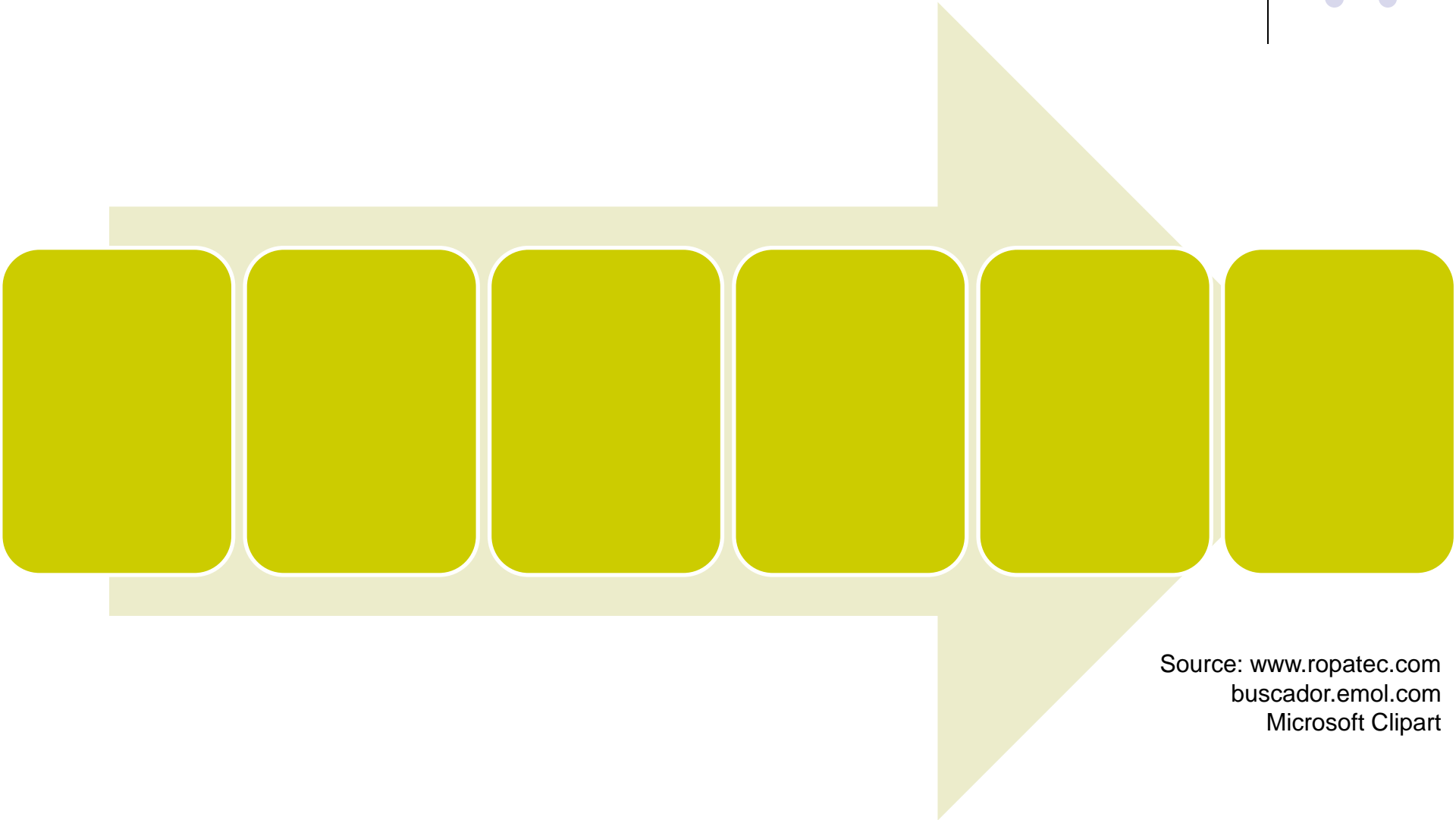
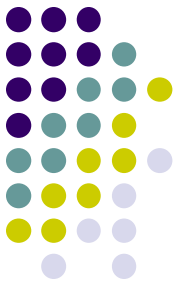
Starts rotating at wind speed at 2-3 m/s



Turbine runs with very low noise

Technical Issues

The production process



Source: www.ropatec.com
buscador.emol.com
Microsoft Clipart

Technical Issues

The production process



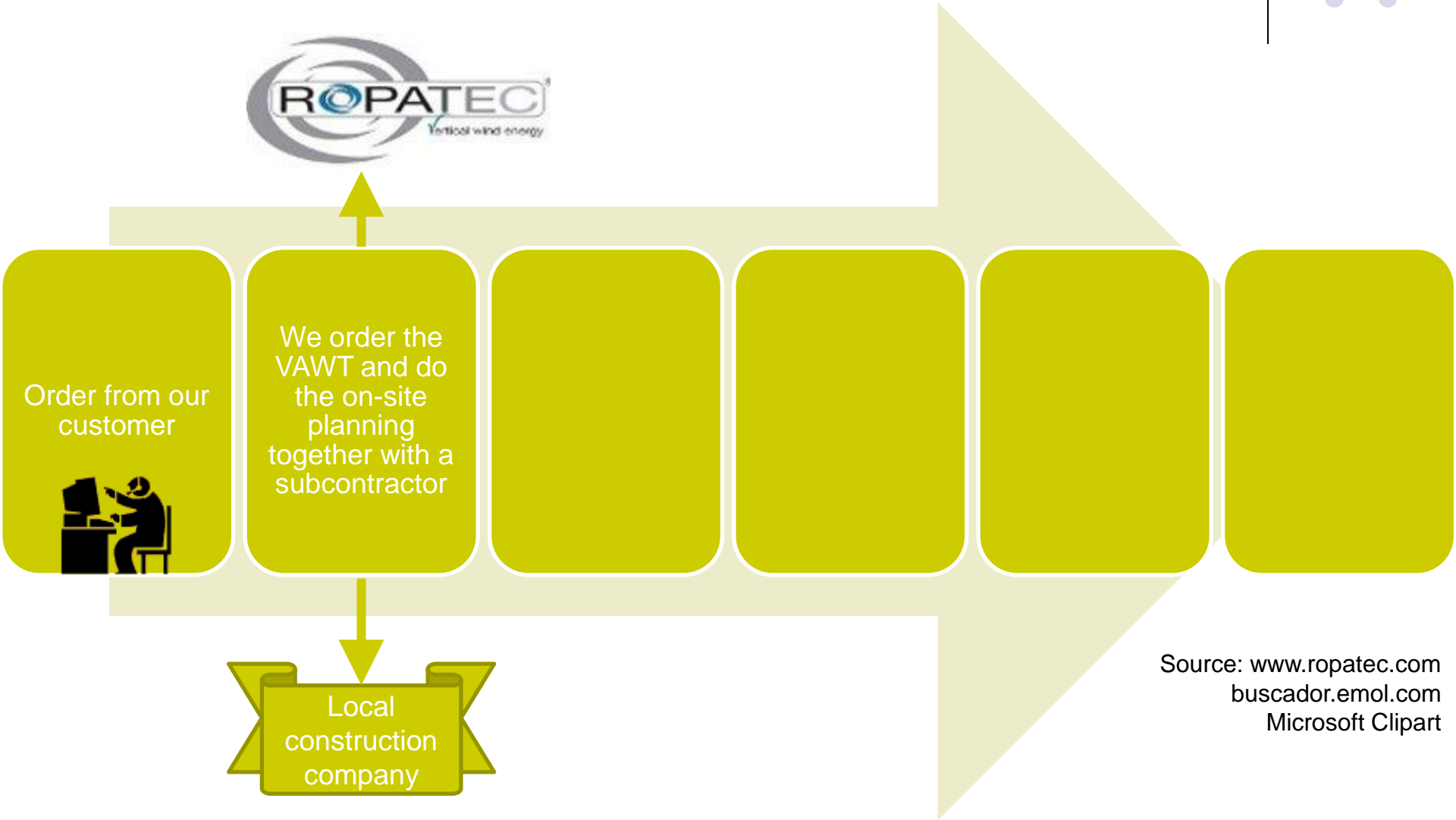
Order from our
customer



Source: www.ropatec.com
buscador.emol.com
Microsoft Clipart

Technical Issues

The production process



Order from our customer



We order the VAWT and do the on-site planning together with a subcontractor





Local construction company

Source: www.ropatec.com
buscador.emol.com
Microsoft Clipart

Technical Issues

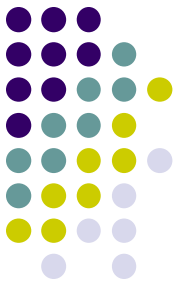
Ordering the VAWT




Country & company	Item
Italy	
	Rotor
	Generator
	Inverter
Chile	
	Engineering
	Machinery (digger, crane, etc.)
	Pole (10 m) & foundation
	Installation (construction & electric)
	

Technical Issues

On-site planning – Calculation of the electricity production



- Two special advantages of GreenAd  -VAWTs
 - „Green“ advertisement
 - What does it look like?
 - How large is the advertisement area?
 - Advertisement-area pays for itself via electricity production
 - How much electricity does the VAWT produce?
 - How much money is this worth?

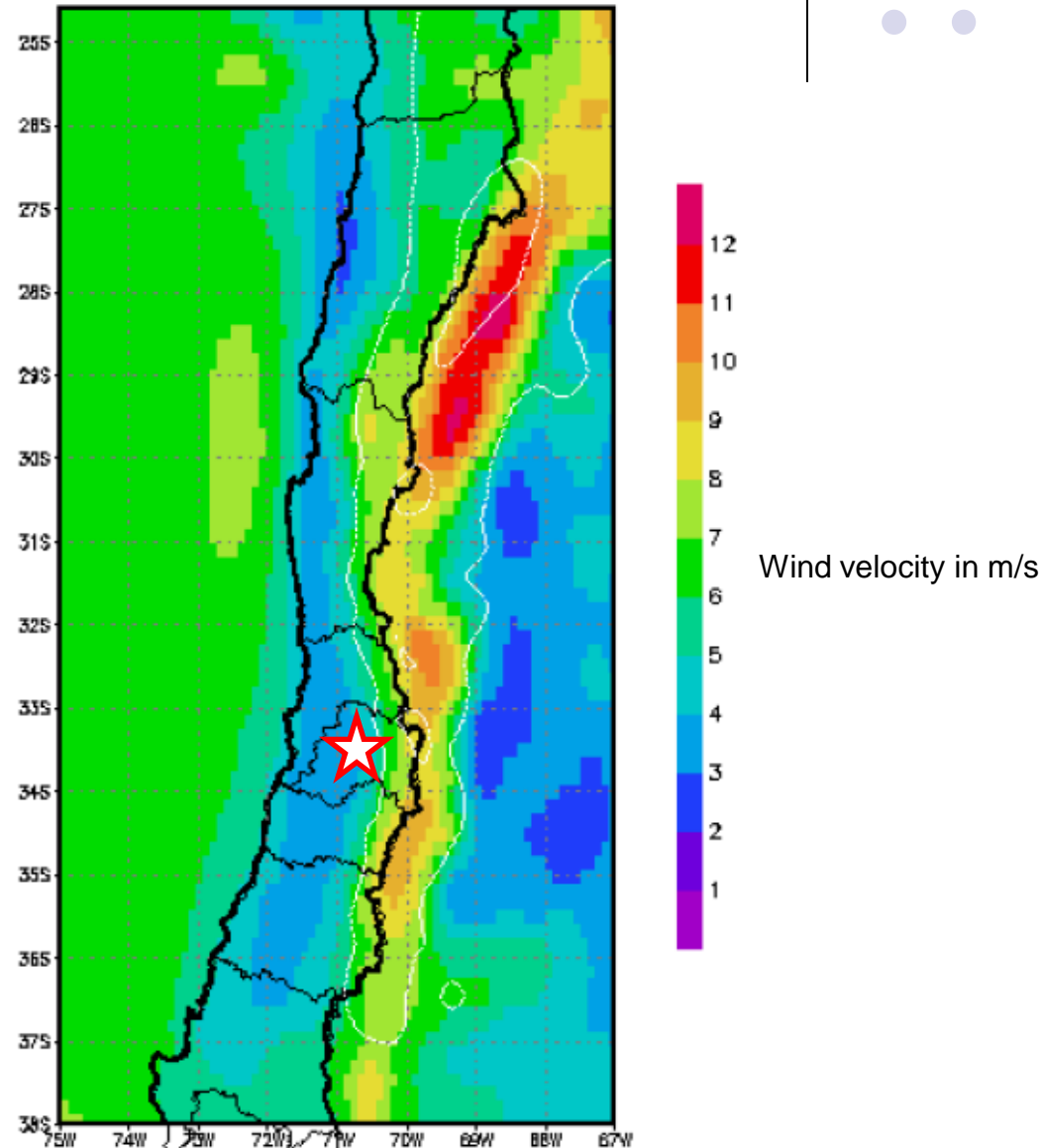


Technical Issues

On-site planning – Calculation of the electricity production

- Wind map of Chile

★ Santiago de Chile



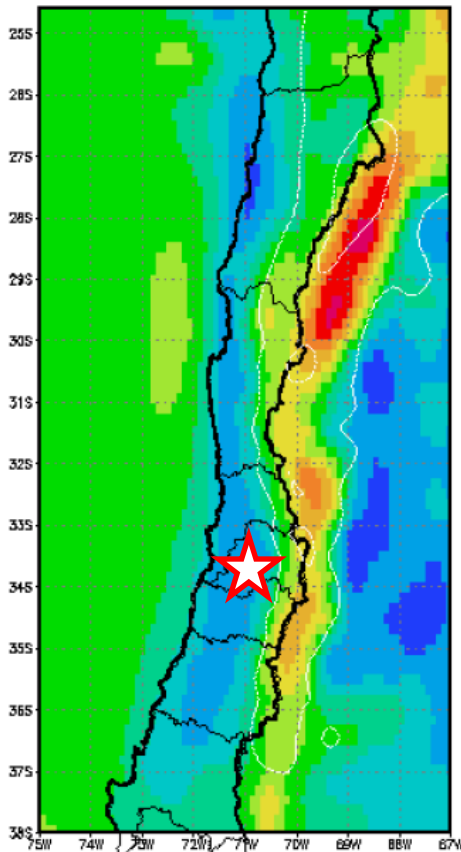
Source: „Estudio: “Mejoría del conocimiento del recurso eólico en el norte y centro del país”, page 99

Technical Issues

On-site planning – Calculation of the electricity production



Source: EN_Rayleigh_Calc,Ropatech



wind speed. [m/s]	Maxi
3	46
4	112
5	224
6	394
7	638
8	970
9	1407
10	1965
11	2634
12	3445
13	4410
14	5547
15	6000
16	6000
17	6000
18	6000

Average wind speed measured	6.0
Mast height [m]	10.0
AEP [kWh]	7161

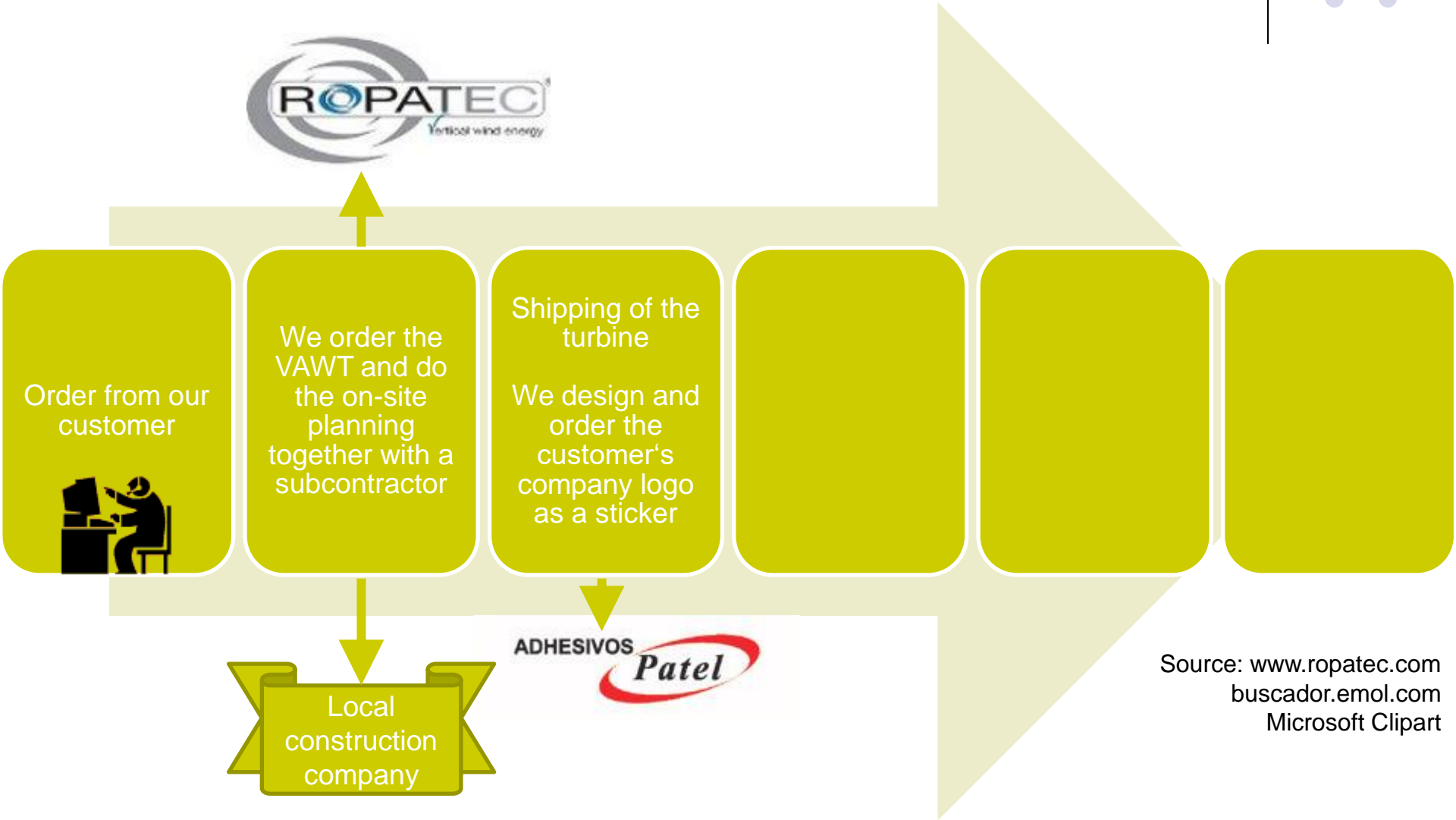
Additional profit
for our costumer:

1220 €/year

x 0.17 €/kWh

Technical Issues

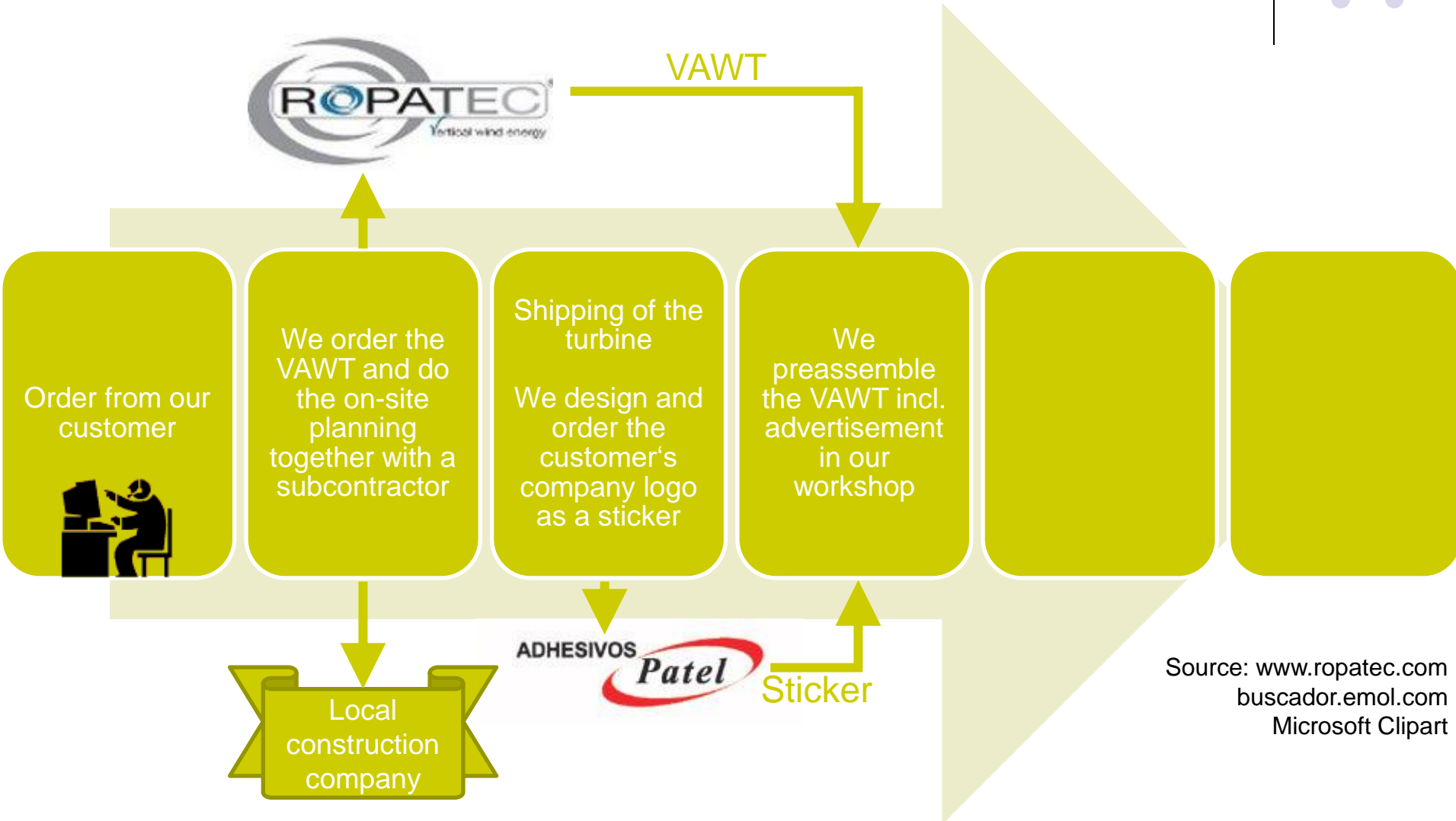
The production process



Source: www.ropatec.com
buscador.emol.com
Microsoft Clipart

Technical Issues

The production process



Source: www.ropatec.com
buscador.emol.com
Microsoft Clipart

Technical Issues

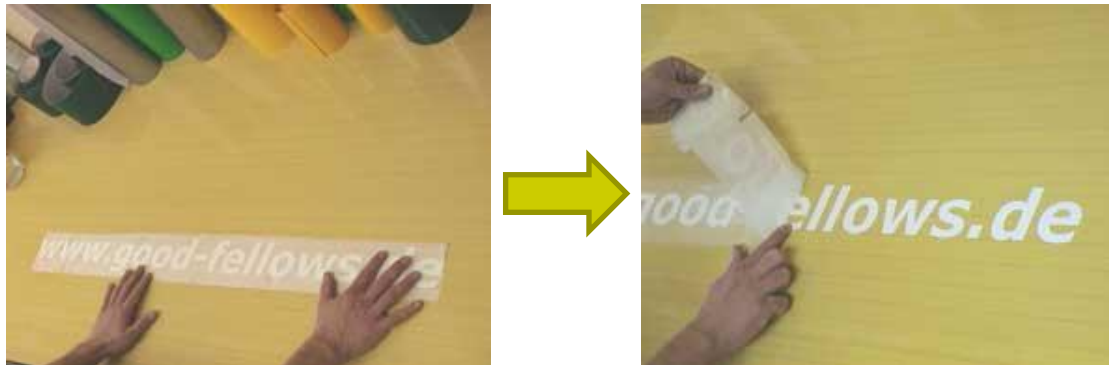
Preassembly of the VAWT



1. Varnishing of the rotor parts with the desired base color



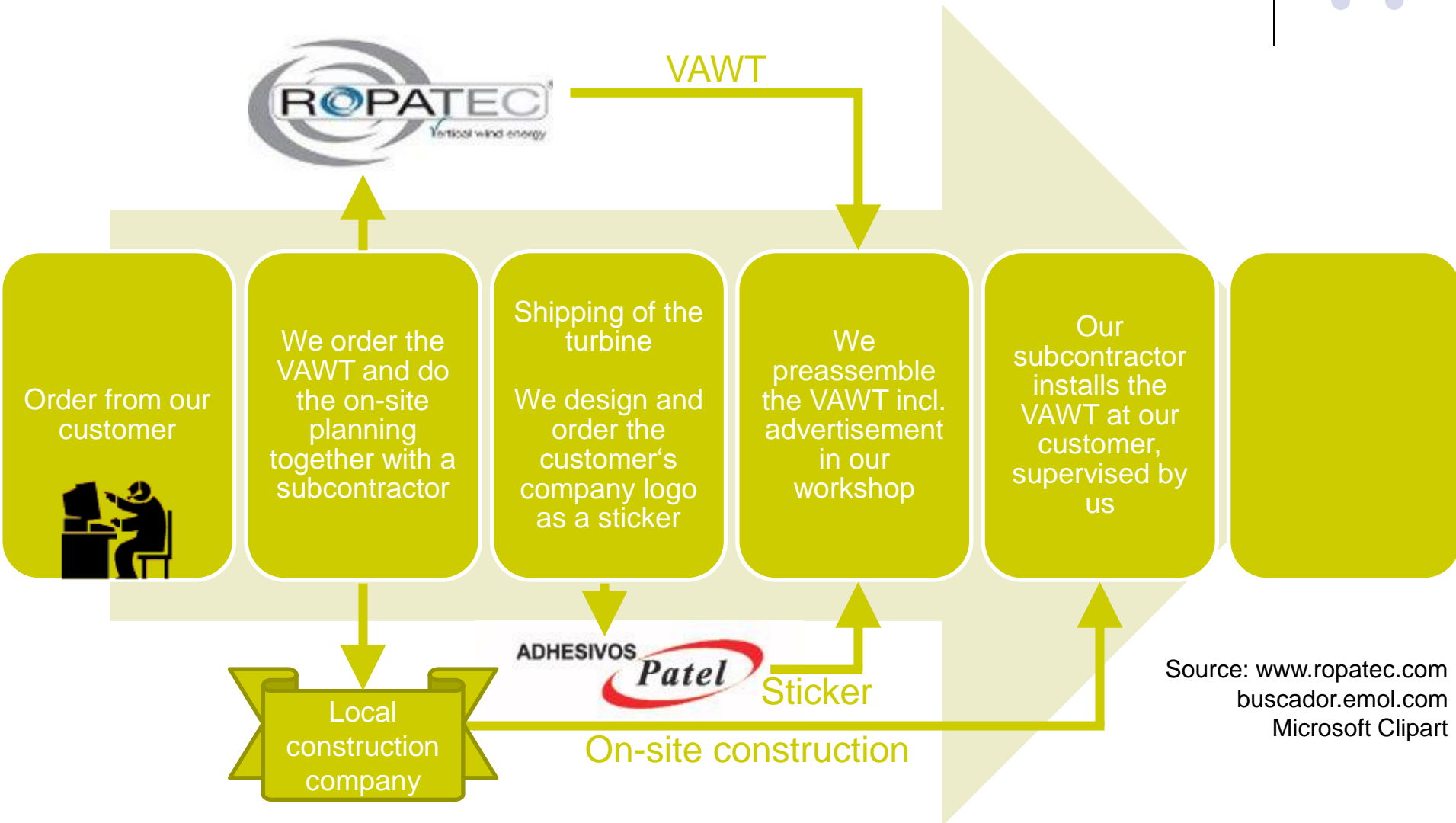
2. Gluing the advertisement on the rotor parts



3. Assembling the rotor

Technical Issues

The production process



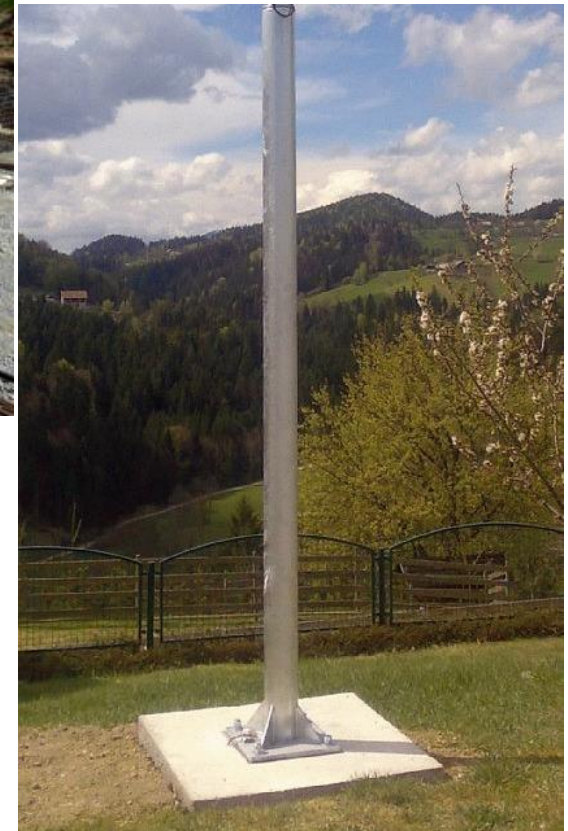
Source: www.ropatec.com
buscador.emol.com
Microsoft Clipart

Technical Issues

Installation of the VAWT



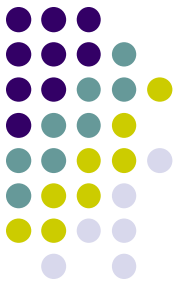
- Foundation
- Tower
- Rotor



Source: BlueTerra Public Image GmbH

Technical Issues

Installation of the VAWT



- Assembling of the VAWT takes place,



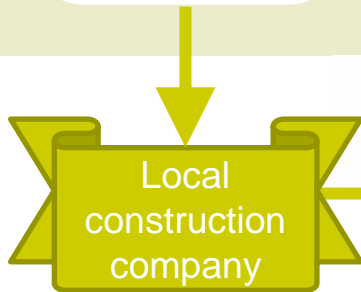
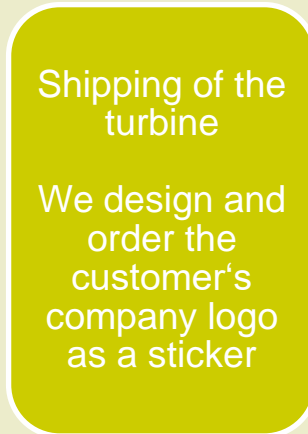
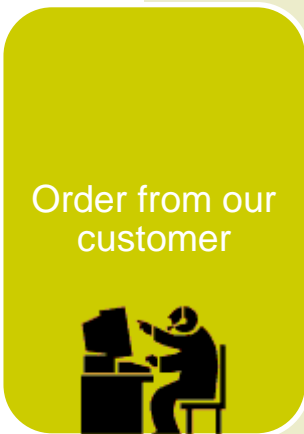
Source: BlueTerra Public Image GmbH

Technical Issues

The production process



VAWT



Sticker

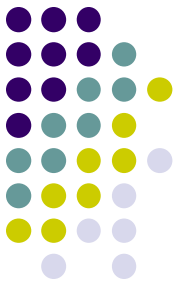
On-site construction

6 weeks

Source: www.ropatec.com
buscador.emol.com
Microsoft Clipart

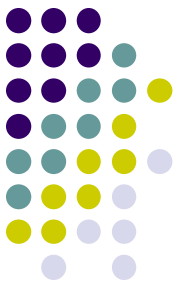
With max. 3 turbine-orders in parallel → max. 26 VAWTs per year

Investment and Depreciation Costs



Description	Quantity	Specific cost	Amount of investment	Depreciation rate	Depreciation
	unit	€/unit	€	year	€/year
COMPANY ESTABLISHMENT					
Notary + Registration	1	2.000	2.000	0	0
Total			2.000		0
OFFICE					
Computer	4	600	2.400	6	400
Router	1	540	540	6	90
Printer	2	53	106	6	18
Scanner	1	50	50	6	8
Projector	1	670	670	6	112
Furniture	1	1.500	1.500	7	214
Light	1	150	150	7	21
Other	1	500	500	7	71
Total			5.916		935
WORKSHOP					
Spray machine	2	1.000	2.000	8	250
Compressor	2	1.000	2.000	8	250
Dockside crane	1	10.000	10.000	8	1.250
Total			14.000		1.750
VEHICLES					
Car	1	8.000	8.000	7	1.143
Forklift	1	10.000	10.000	7	1.429
Van	1	12.000	12.000	7	1.714
Total			30.000		4.286
OTHERS					
Tools			1.000	8	125
Spare parts			1.000	3	333
Cables			500	3	167
Total			2.500		625

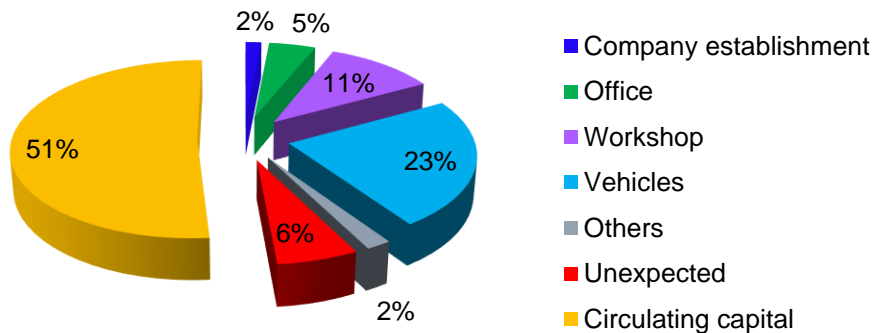
Investment and Depreciation Costs



Investment goods	Expenditure	Depreciation costs
	€	€/year
COMPANY ESTABLISHMENT	2.000	0
OFFICE	5.916	935
WORKSHOP	14.000	1.750
VEHICLES	30.000	4.286
OTHERS	2.500	625
Unexpected	8.000	0
Circulating capital	66.000	0
Total Investment	128.416	7.596

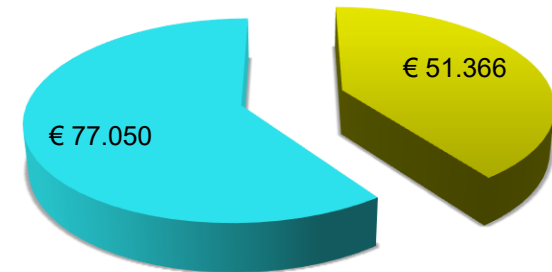
Total investment	128.416
40% own capital funds (shareholders equity)	51.366
60% outside financing (bank loan)	77.050

Investment Costs



Investment Share

■ Own capital funds ■ Outside financing



Interest Paid

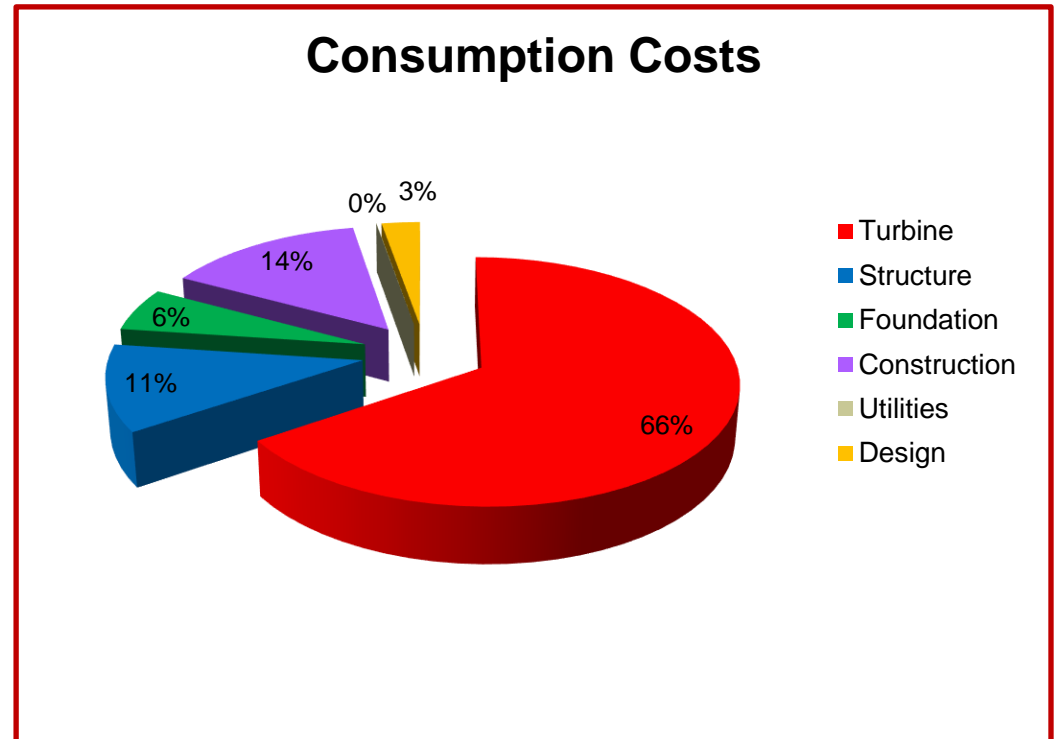


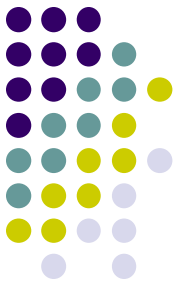
Year	Balance of debt	Interest rate	Interest costs paid	Repayment
	€	%	per annual	per annual
1	77.050	10	7.705	7.705
2	69.345	10	6.934	7.705
3	61.640	10	6.164	7.705
4	53.935	10	5.393	7.705
5	46.230	10	4.623	7.705
6	38.525	10	3.852	7.705
7	30.820	10	3.082	7.705
8	23.115	10	2.311	7.705
9	15.410	10	1.541	7.705
10	7.705	10	770	7.705
Total interest paid			42.377	
Total repayment				77.050



Consumption Costs

Expendable material	Amount of consumption €
TURBINE	
Rotor	
Generator	
Brake	
Inverter	
Controller	
Cables	
Shipment cost	2.000
Total	22.850
STRUCTURE	
Tower 0.45m d, 10m h	
Bolts	
Flanges	
Paint	
Total	4.000
FOUNDATION	
Cement	
Aggregate (gravel/limestone/stone)	
Sand	
Water	
Chemical admixtures (CaCl ₂ ,NaCl)	
Reinforcement (steel/glass fibers)	
Total	2.000
CONSTRUCTION	
Telescopic-boom crane	
Man lifter	
Workers/technicians	
Fuels	
Total	5.000
UTILITIES	
Energy	6,8
Administrative	3
Total	9,8
DESIGN	
Graphic Designer	224
Architect	240
Raw material (plastic, ink, glue)	500
Total	964
Total costs per turbine	34.824





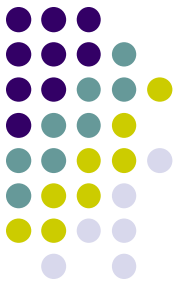
Personal in cost centre	Number	Specific cost	Personal direct costs
		€/unit/month	€/year
OFFICE			
Engineers	3	1.300	46.800
Secretary	1	500	6.000
WORKSHOP			
Operators	1	333	3.996
Technicians	1	333	3.996
HONORARY			
Bookkeeper	1		2.112
Lawyer	1		2.880
Total			65.784

Labor Costs

Description	Fixed costs/month	Fixed costs/year
	€	€
Rent (750 m2)	2.030	24.360
Electricity	321	3.852
Internet	67	804
Phone Bill	100	1.200
Water	60	720
Sanitary	300	3.600
Insurance	500	6.000
Marketing	2.000	24.000
Others (fuels, maintenance)	1.500	18.000
Total	6.878	82.536

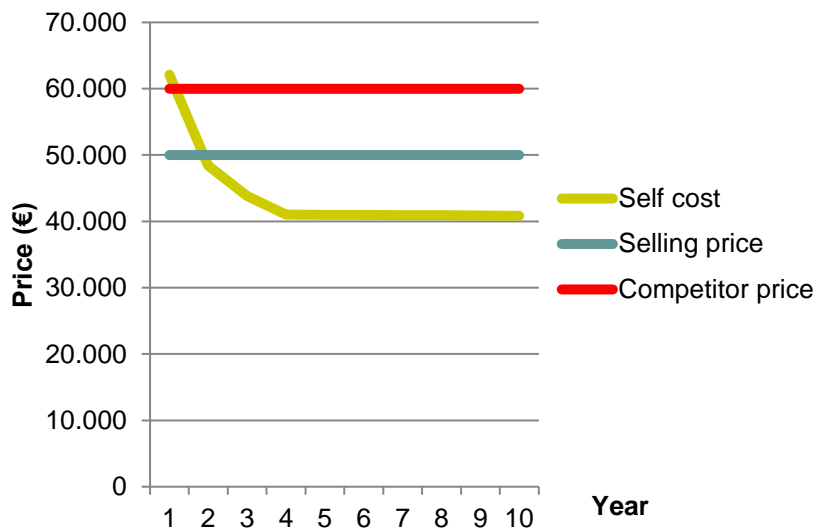
Administrative Costs

Self Cost



	1.year	2.year	3.year	4.year	5.year	6.year	7.year	8.year	9.year	10.year
Utilization of capacity (%)	23,08	46,15	69,23	100,00	100,00	100,00	100,00	100,00	100,00	100,00
Quantity (unit)	6	12	18	26	26	26	26	26	26	26

Costs	Costs/year	Costs/year	Costs/year	Costs/year	Costs/year	Costs/year	Costs/year	Costs/year	Costs/year	Costs/year
	€	€	€	€	€	€	€	€	€	€
Depreciation costs	7.596	7.596	7.596	7.596	7.596	7.596	7.596	7.596	7.596	7.596
Financing costs	7.705	6.934	6.164	5.393	4.623	3.852	3.082	2.311	1.541	770
Labor costs	65.784	65.784	65.784	65.784	65.784	65.784	65.784	65.784	65.784	65.784
Administrative costs	82.536	82.536	82.536	82.536	82.536	82.536	82.536	82.536	82.536	82.536
Consumption costs	208.943	417.886	626.828	905.419	905.419	905.419	905.419	905.419	905.419	905.419
Total costs	372.563	580.736	788.908	1.066.728	1.065.957	1.065.187	1.064.416	1.063.646	1.062.875	1.062.105
Self costs per turbine	62.094	48.395	43.828	41.028	40.998	40.969	40.939	40.909	40.880	40.850



Year	Output	Price/turbine	Revenue
	units	€	€
1	6	50.000	300.000
2	12	50.000	600.000
3	18	50.000	900.000
4	26	50.000	1.300.000
5	26	50.000	1.300.000
6	26	50.000	1.300.000
7	26	50.000	1.300.000
8	26	50.000	1.300.000
9	26	50.000	1.300.000
10	26	50.000	1.300.000

Cash Flow (€) GreenAd S.A.

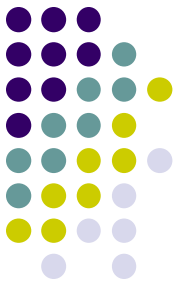


	1.year	2.year	3.year	4.year	5.year	6.year	7.year	8.year	9.year	10.year
Revenue	300.000	600.000	900.000	1.300.000	1.300.000	1.300.000	1.300.000	1.300.000	1.300.000	1.300.000
Depreciation costs	7.596	7.596	7.596	7.596	7.596	7.596	7.596	7.596	7.596	7.596
Consumption costs	208.943	417.886	626.828	905.419	905.419	905.419	905.419	905.419	905.419	905.419
Labor costs	65.784	65.784	65.784	65.784	65.784	65.784	65.784	65.784	65.784	65.784
Administrative costs	82.536	82.536	82.536	82.536	82.536	82.536	82.536	82.536	82.536	82.536
Financing costs	7.705	6.934	6.164	5.393	4.623	3.852	3.082	2.311	1.541	770
Loss carried forward	0	72.563	53.299	0	0	0	0	0	0	0
Profit before tax	-72.563	19.264	111.092	233.272	234.043	234.813	235.584	236.354	237.125	237.895
Taxes (17%)	0	0	9.825	39.656	39.787	39.918	40.049	40.180	40.311	40.442
Profit after taxes	-72.563	19.264	101.267	193.616	194.255	194.895	195.534	196.174	196.813	197.453
Cash-flow (net profit+depreciation costs)	-64.968	26.860	108.863	201.211	201.851	202.490	203.130	203.770	204.409	205.049
Repayment credit	7.705	7.705	7.705	7.705	7.705	7.705	7.705	7.705	7.705	7.705
Dividend	-72.673	19.155	101.158	193.506	194.146	194.786	195.425	196.065	196.704	197.344

Total Dividend in 10 years	1.415.615
Profitability index	27,6

Equity	51.366	51.366	51.366	51.366	51.366	51.366	51.366	51.366	51.366	51.366
Interest made on equity (%)	-141,5	37,3	196,9	376,7	378,0	379,2	380,5	381,7	382,9	384,2

Payback Period for the Customer



Description	Value	Unit
Electricity Generation		
Power	6	kW
Average wind speed	6	m/s
Price of electricity	0,17	€/kWh
Total electricity	1.220	€/year
Advertisement		
Price of electricity per month (22 m ²)	286	€/month
Total advertisement	3.432	€/year
Total savings	4.652,00	€/year
Payback periods	10,75	year

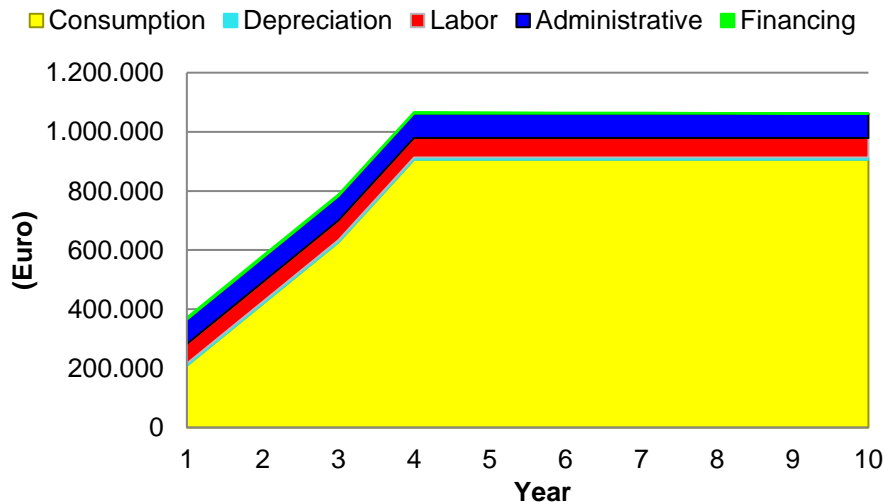
Conclusion



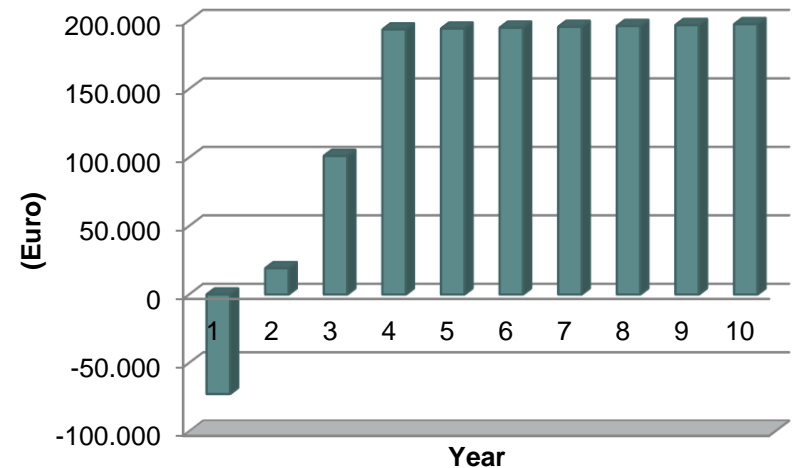
1. New and attractive „Green“ product in Chile
2. High quality and reliable product
3. Payback for customers: about 11 years
4. Variable cost oriented company → Cooperation with 3 companies (turbine, Ad Label, construction)

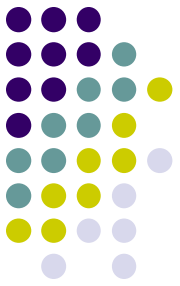
Payback period for investors: 3 years
Accumulated dividend after 10 years: 1.400.000 €
Profitability index after 10 years: 27.6

Total Costs



Dividend





**Thank You very much
for Your attention**

GreenAd
Publicidad Verde
S.A.

