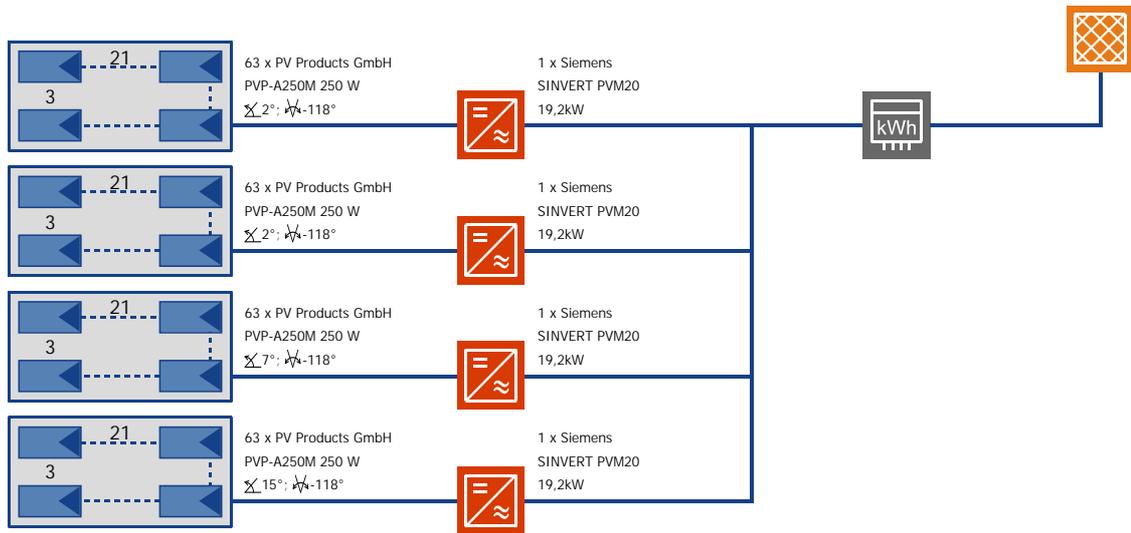




Project Name: Telese Indach
 Variant Reference: Gebäude B Ost
 Designer: Hannes Pecaver

17.11.2011



Location:	Telese Terme
Climate Data Record:	Telese Terme (1981-2000)
PV Output:	63,00 kWp
Gross/Active PV Surface Area:	405,99 / 406,61 m ²

PV Array Irradiation:	592.230 kWh
Energy Produced by PV Array (AC):	76.477 kWh
Grid Feed-in:	76.477 kWh
Yield Reduction Due to Shading:	2 %

System Efficiency:	12,9 %
Performance Ratio:	83,3 %
Specific Annual Yield:	1.214 kWh/kWp
CO2 Emissions Avoided:	67.751 kg/a

The results are determined by a mathematical model calculation. The actual yields of the photovoltaic system can deviate from these values due to fluctuations in the weather, the efficiency of modules and inverters, and other factors. The System Diagram above does not represent and cannot replace a full technical drawing of the solar system.



Project Name:	Telese Indach	17.11.2011
Variant Reference:	Gebäude B Ost	
Designer:	Hannes Pecaver	

System in Grid Connected Operation

Location:	Telese Terme	PV Output:	63,00 kWp
Climate Data Record:	Telese Terme	Gross/Active PV Surface Area:	406,0 m ² / 406,6 m ²
Number of Arrays:	4		

Array 1: Anlage 1

Output:	15,75 kW	Ground Reflection:	20,0 %
Gross/Active Solar Surface Area:	101,5 m ² / 101,7 m ²	Output Losses due to...:	
PV Module:	63 x	deviation from AM 1.5:	1,0 %
Manufacturer:	PV Products GmbH	deviation from Manufacturer's Specification:	2,0 %
Model:	PVP-A250M	in Diodes:	0,5 %
Nominal Output:	250 W	due to Pollution:	0,0 %
Power Rating Deviation:	0 %	Inverter:	1 x
Efficiency (STC):	15,5 %	Manufacturer:	Siemens
No. of Modules in Series:	21	Model:	SINVERT PVM20
MPP Voltage (STC):	641 V	Output:	19,20 kW
Orientation:	-118,0 °	European Efficiency:	97,8 %
Inclination:	2,4 °	No. of MPP Trackers:	1
Mount:	with Ventilation	MPP Tracking:	480 V To 850 V
Shade:	Yes		

Array 2: Anlage 2

Output:	15,75 kW	Ground Reflection:	20,0 %
Gross/Active Solar Surface Area:	101,5 m ² / 101,7 m ²	Output Losses due to...:	
PV Module:	63 x	deviation from AM 1.5:	1,0 %
Manufacturer:	PV Products GmbH	deviation from Manufacturer's Specification:	2,0 %
Model:	PVP-A250M	in Diodes:	0,5 %
Nominal Output:	250 W	due to Pollution:	0,0 %
Power Rating Deviation:	0 %	Inverter:	1 x
Efficiency (STC):	15,5 %	Manufacturer:	Siemens
No. of Modules in Series:	21	Model:	SINVERT PVM20
MPP Voltage (STC):	641 V	Output:	19,20 kW
Orientation:	-118,0 °	European Efficiency:	97,8 %
Inclination:	2,5 °	No. of MPP Trackers:	1
Mount:	with Ventilation	MPP Tracking:	480 V To 850 V
Shade:	Yes		

Array 3: Anlage 3

Output:	15,75 kW	Ground Reflection:	20,0 %
Gross/Active Solar Surface Area:	101,5 m ² / 101,7 m ²	Output Losses due to...:	
PV Module:	63 x	deviation from AM 1.5:	1,0 %
Manufacturer:	PV Products GmbH	deviation from Manufacturer's Specification:	2,0 %
Model:	PVP-A250M	in Diodes:	0,5 %
Nominal Output:	250 W	due to Pollution:	0,0 %
Power Rating Deviation:	0 %	Inverter:	1 x
Efficiency (STC):	15,5 %	Manufacturer:	Siemens
No. of Modules in Series:	21	Model:	SINVERT PVM20
MPP Voltage (STC):	641 V	Output:	19,20 kW
Orientation:	-118,0 °	European Efficiency:	97,8 %
Inclination:	6,9 °	No. of MPP Trackers:	1
Mount:	with Ventilation	MPP Tracking:	480 V To 850 V
Shade:	Yes		

Array 4: Anlage 4

Output:	15,75 kW	Ground Reflection:	20,0 %
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Designer:	Hannes Pecaver	

Gross/Active Solar Surface Area:	101,5 m ² / 101,7 m ²	Output Losses due to...	
PV Module	63 x	deviation from AM 1.5:	1,0 %
Manufacturer:	PV Products GmbH	deviation from Manufacturer's Specification:	2,0 %
Model:	PVP-A250M	in Diodes:	0,5 %
Nominal Output:	250 W	due to Pollution:	0,0 %
Power Rating Deviation:	0 %	Inverter	1 x
Efficiency (STC):	15,5 %	Manufacturer:	Siemens
No. of Modules in Series:	21	Model:	SINVERT PVM20
MPP Voltage (STC):	641 V	Output:	19,20 kW
Orientation:	-118,0 °	European Efficiency:	97,8 %
Inclination:	14,8 °	No. of MPP Trackers:	1
Mount:	with Ventilation	MPP Tracking:	480 V To 850 V
Shade:	Yes		

Simulation Results for Total System

Irradiation onto Horizontal:	628.051 kWh	Energy from Grid:	9 kWh
PV Array Irradiation:	592.230 kWh	Own Use:	9,4 kWh
Irradiation minus Reflection:	563.968 kWh	Energy Produced by PV Array:	78.689 kWh
Irradiation without Shade:	609.421 kWh	System Efficiency:	12,9 %
Energy from Inverter (AC):	76.477 kWh	Performance Ratio:	83,3 %
Consumption Requirement:	0 kWh	Final Yield:	3,3 h/d
Specific Annual Yield:	1.214 kWh/kWp		

Results for Array 1: Anlage 1

Irradiation onto Horizontal:	157.007 kWh	Energy Produced (DC):	20.165 kWh
Array Irradiation:	151.421 kWh	System Efficiency:	12,9 %
Irradiation without Shade:	155.622 kWh	Performance Ratio:	83,6 %
Energy Produced (AC):	19.610 kWh	Specific Annual Yield:	1.245 kWh/kWp
Own Use:	2 kWh	Array Efficiency:	13,3 %
Inverter Efficiency:	97,2 %		

Results for Array 2: Anlage 2

Irradiation onto Horizontal:	157.007 kWh	Energy Produced (DC):	20.135 kWh
Array Irradiation:	151.342 kWh	System Efficiency:	12,9 %
Irradiation without Shade:	155.550 kWh	Performance Ratio:	83,5 %
Energy Produced (AC):	19.580 kWh	Specific Annual Yield:	1.243 kWh/kWp
Own Use:	2 kWh	Array Efficiency:	13,3 %
Inverter Efficiency:	97,2 %		

Results for Array 3: Anlage 3

Irradiation onto Horizontal:	157.007 kWh	Energy Produced (DC):	19.676 kWh
Array Irradiation:	148.190 kWh	System Efficiency:	12,9 %
Irradiation without Shade:	152.487 kWh	Performance Ratio:	83,3 %
Energy Produced (AC):	19.124 kWh	Specific Annual Yield:	1.214 kWh/kWp
Own Use:	2 kWh	Array Efficiency:	13,3 %
Inverter Efficiency:	97,2 %		

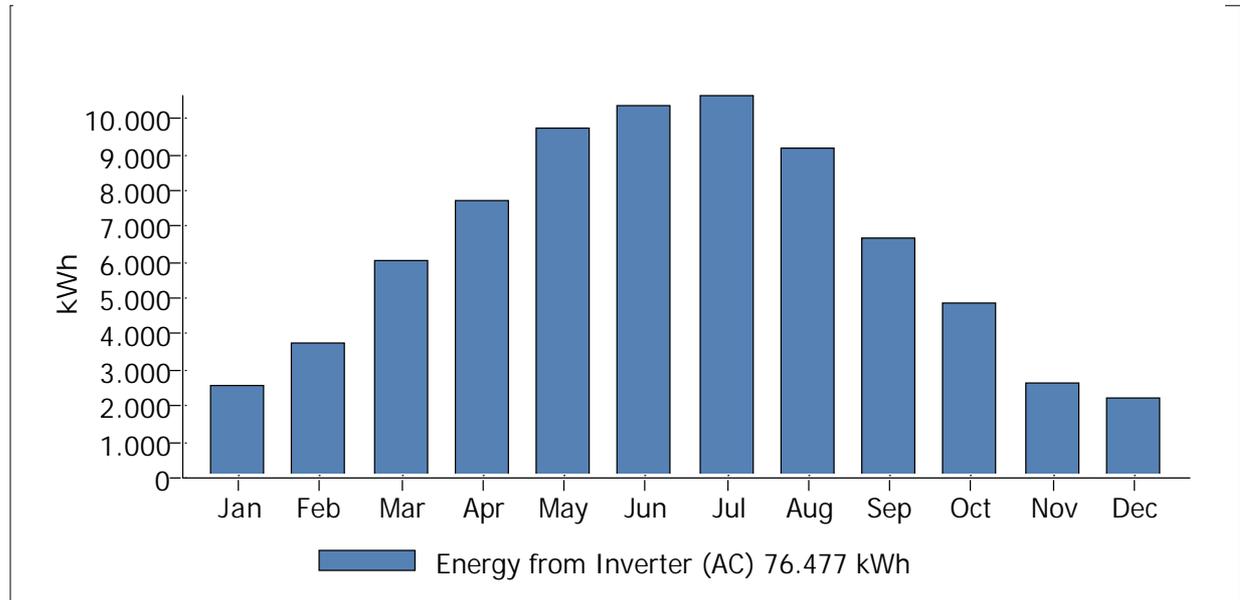
Results for Array 4: Anlage 4

Irradiation onto Horizontal:	157.007 kWh	Energy Produced (DC):	18.713 kWh
Array Irradiation:	141.278 kWh	System Efficiency:	12,9 %
Irradiation without Shade:	145.763 kWh	Performance Ratio:	83,0 %
Energy Produced (AC):	18.163 kWh	Specific Annual Yield:	1.153 kWh/kWp
Own Use:	2 kWh	Array Efficiency:	13,3 %
Inverter Efficiency:	97,1 %		



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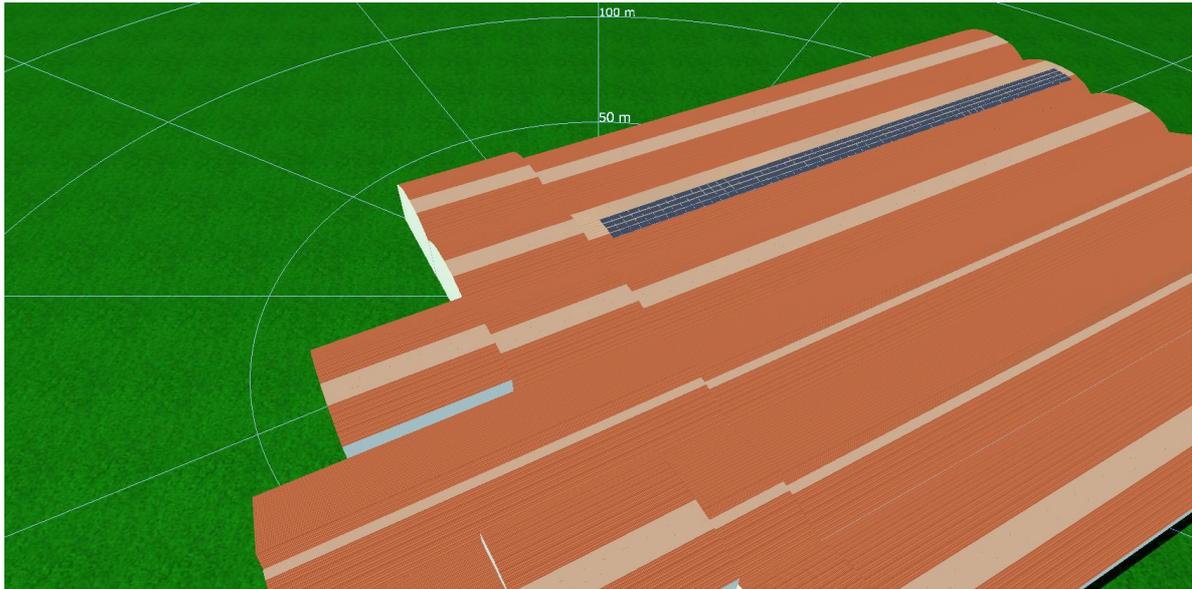


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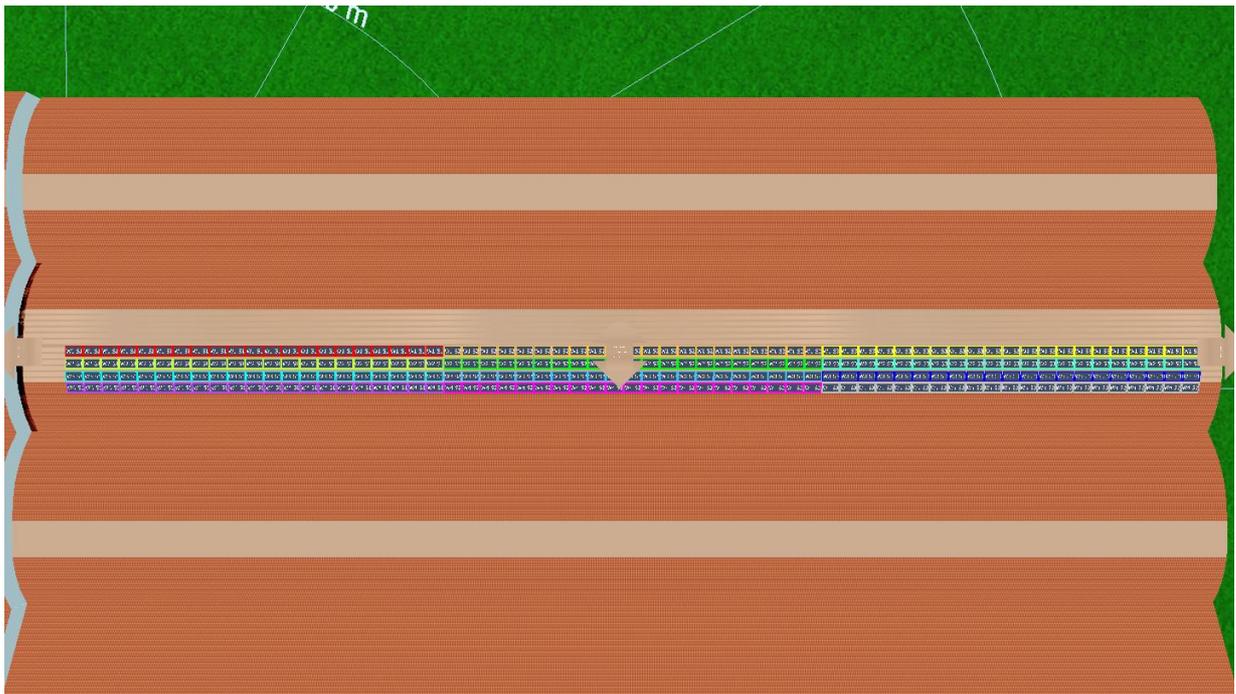
System Visualisation Screenshots

Environment



Screenshot3

Module Configuration



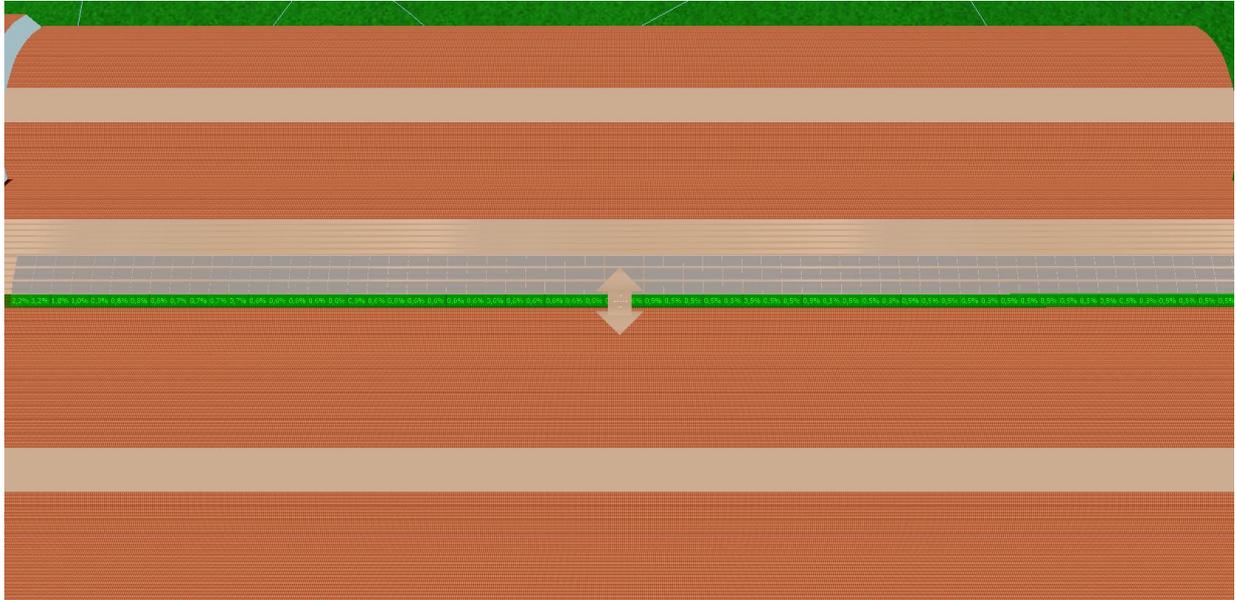
Screenshot2



Project Name: Telese Indach
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Frequency Distribution



Screenshot1