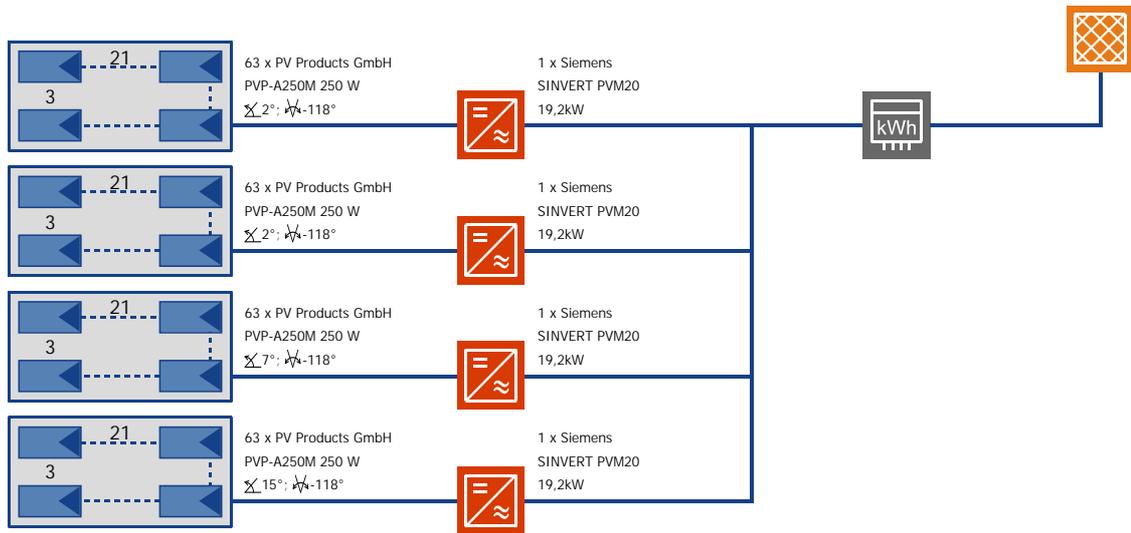




Project Name: Telese Indach
 Variant Reference: Gebäude C Ost
 Designer: Hannes Pecaver

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:	591.967 kWh
Energy Produced by PV Array (AC):	76.369 kWh
Grid Feed-in:	76.369 kWh
Yield Reduction Due to Shading:	2 %

System Efficiency:	12,9 %
Performance Ratio:	83,3 %
Specific Annual Yield:	1.212 kWh/kWp
CO2 Emissions Avoided:	67.654 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 C 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 %
---------	----------	--------------------	--------



Project Name:	Telese Indach	17.11.2011
Variant Reference:	Gebäude C Ost	
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:	591.967 kWh	Own Use:	9,4 kWh
Irradiation minus Reflection:	563.727 kWh	Energy Produced by PV Array:	78.598 kWh
Irradiation without Shade:	609.421 kWh	System Efficiency:	12,9 %
Energy from Inverter (AC):	76.369 kWh	Performance Ratio:	83,3 %
Consumption Requirement:	0 kWh	Final Yield:	3,3 h/d
Specific Annual Yield:	1.212 kWh/kWp		

Results for Array 1: Anlage 1

Irradiation onto Horizontal:	157.007 kWh	Energy Produced (DC):	20.154 kWh
Array Irradiation:	151.352 kWh	System Efficiency:	12,9 %
Irradiation without Shade:	155.622 kWh	Performance Ratio:	83,6 %
Energy Produced (AC):	19.597 kWh	Specific Annual Yield:	1.244 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):	20.120 kWh
Array Irradiation:	151.276 kWh	System Efficiency:	12,9 %
Irradiation without Shade:	155.550 kWh	Performance Ratio:	83,4 %
Energy Produced (AC):	19.561 kWh	Specific Annual Yield:	1.242 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):	19.646 kWh
Array Irradiation:	148.119 kWh	System Efficiency:	12,9 %
Irradiation without Shade:	152.487 kWh	Performance Ratio:	83,2 %
Energy Produced (AC):	19.089 kWh	Specific Annual Yield:	1.212 kWh/kWp
Own Use:	2 kWh	Array Efficiency:	13,3 %
Inverter Efficiency:	97,2 %		

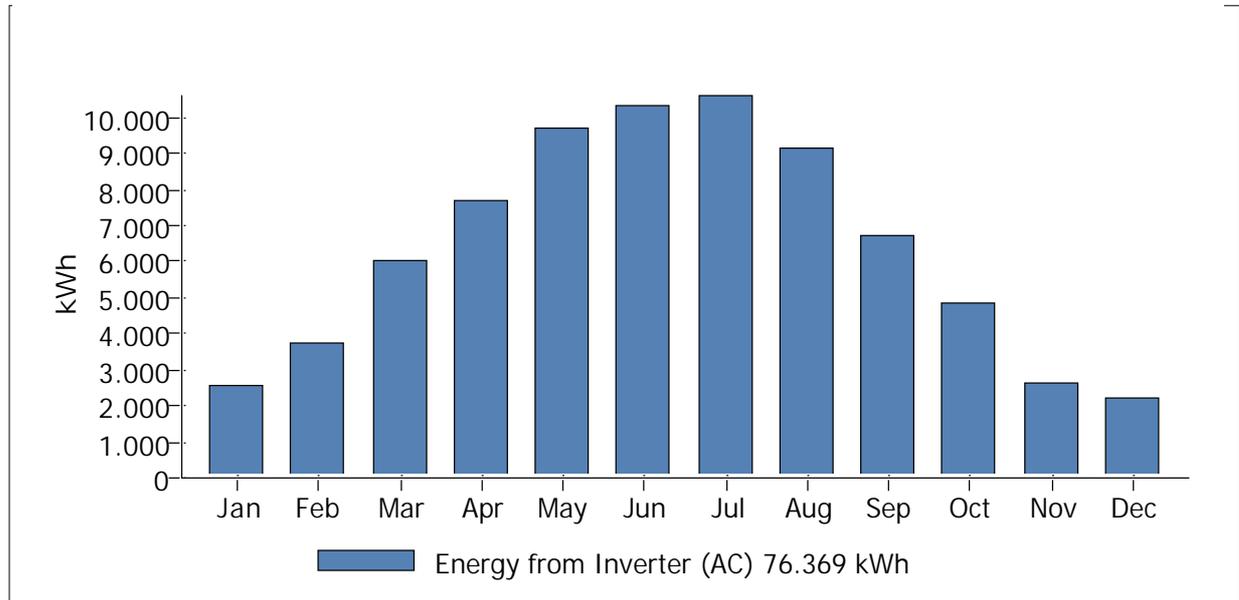
Results for Array 4: Anlage 4

Irradiation onto Horizontal:	157.007 kWh	Energy Produced (DC):	18.678 kWh
Array Irradiation:	141.219 kWh	System Efficiency:	12,8 %
Irradiation without Shade:	145.763 kWh	Performance Ratio:	82,8 %
Energy Produced (AC):	18.122 kWh	Specific Annual Yield:	1.150 kWh/kWp
Own Use:	2 kWh	Array Efficiency:	13,2 %
Inverter Efficiency:	97,0 %		



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

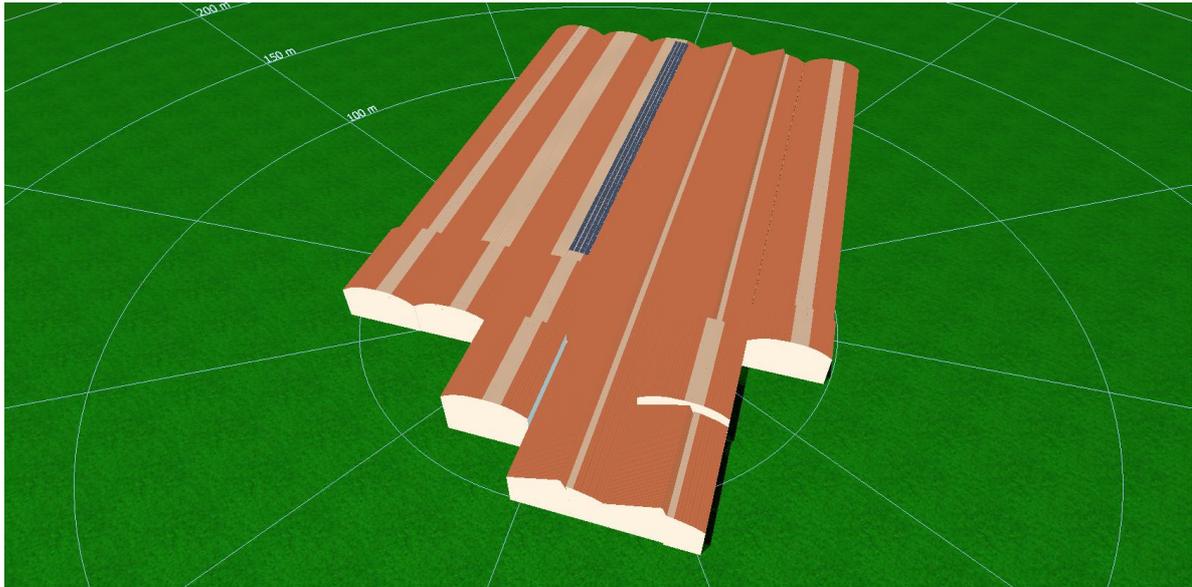
17.11.2011





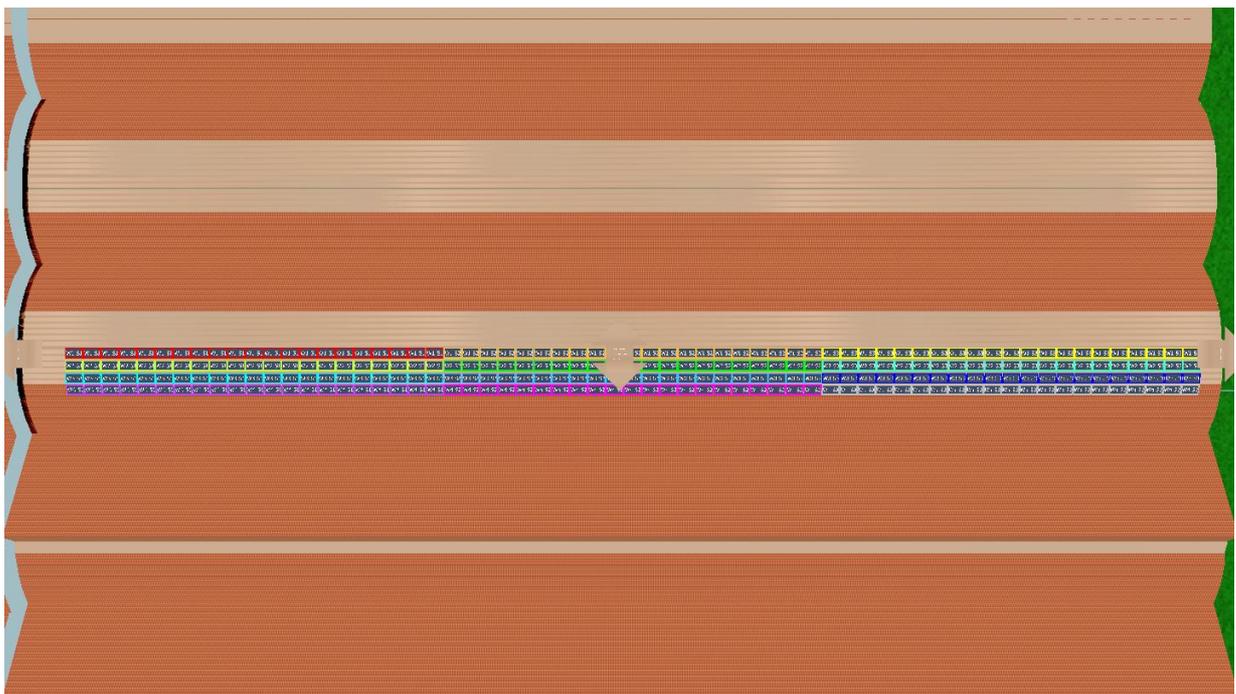
System Visualisation Screenshots

Environment



Screenshot3

Module Configuration



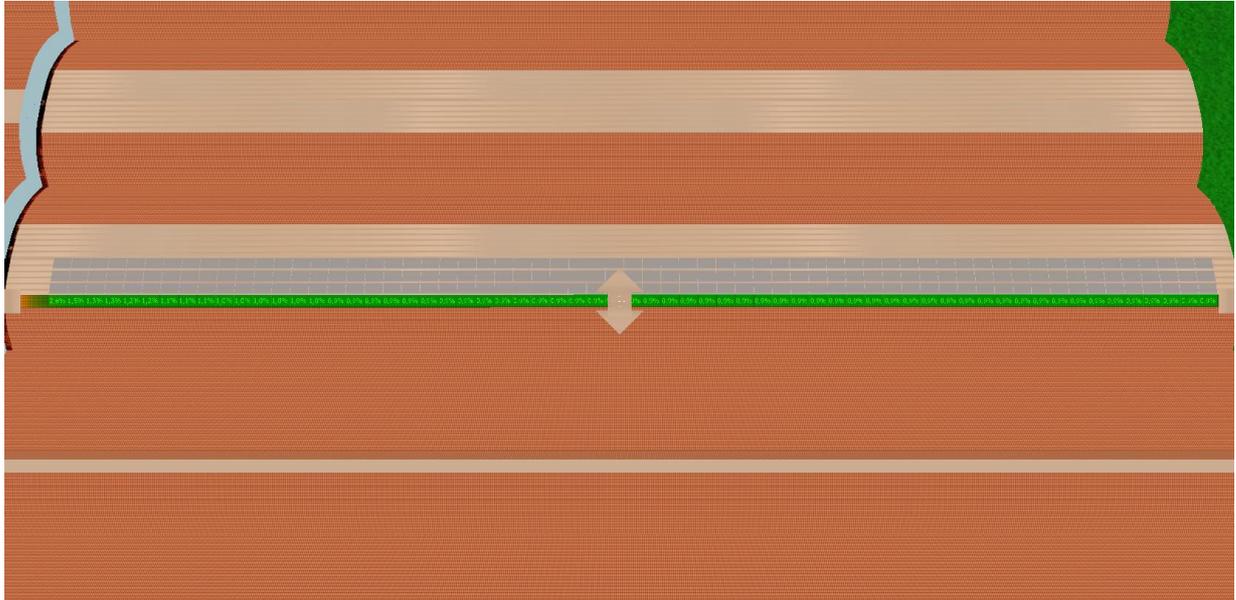
Screenshot2



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

17.11.2011

Frequency Distribution



Screenshot1