

CorEnergy
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United Kingdom

Project Name: Hatton Cross Station

18/09/2024

Documentation

Customer Details

Company	Transport for London
Customer Number	
Contact person	
Address	Hatton Cross, Great South-West Road, Feltham TW6 3RE
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Project Data

Project Name	Hatton Cross Station
Offer no.	
Project Designer	Eleanor Bayton
Address	Hatton Cross, Great South-West Road, Feltham TW6 3RE



Project Overview



Figure: Overview Image, 3D Design

PV System

3D, Grid-connected PV System

Climate Data	Hounslow, GBR (1996 - 2015)
Values source	Meteonorm 8.1(i)
PV Generator Output	257.52 kWp
PV Generator Surface	1,156.0 m²
Number of PV Modules	592
Number of Inverters	2

Hatton Cross Station

Project Designer: Eleanor Bayton

Client: Transport for London

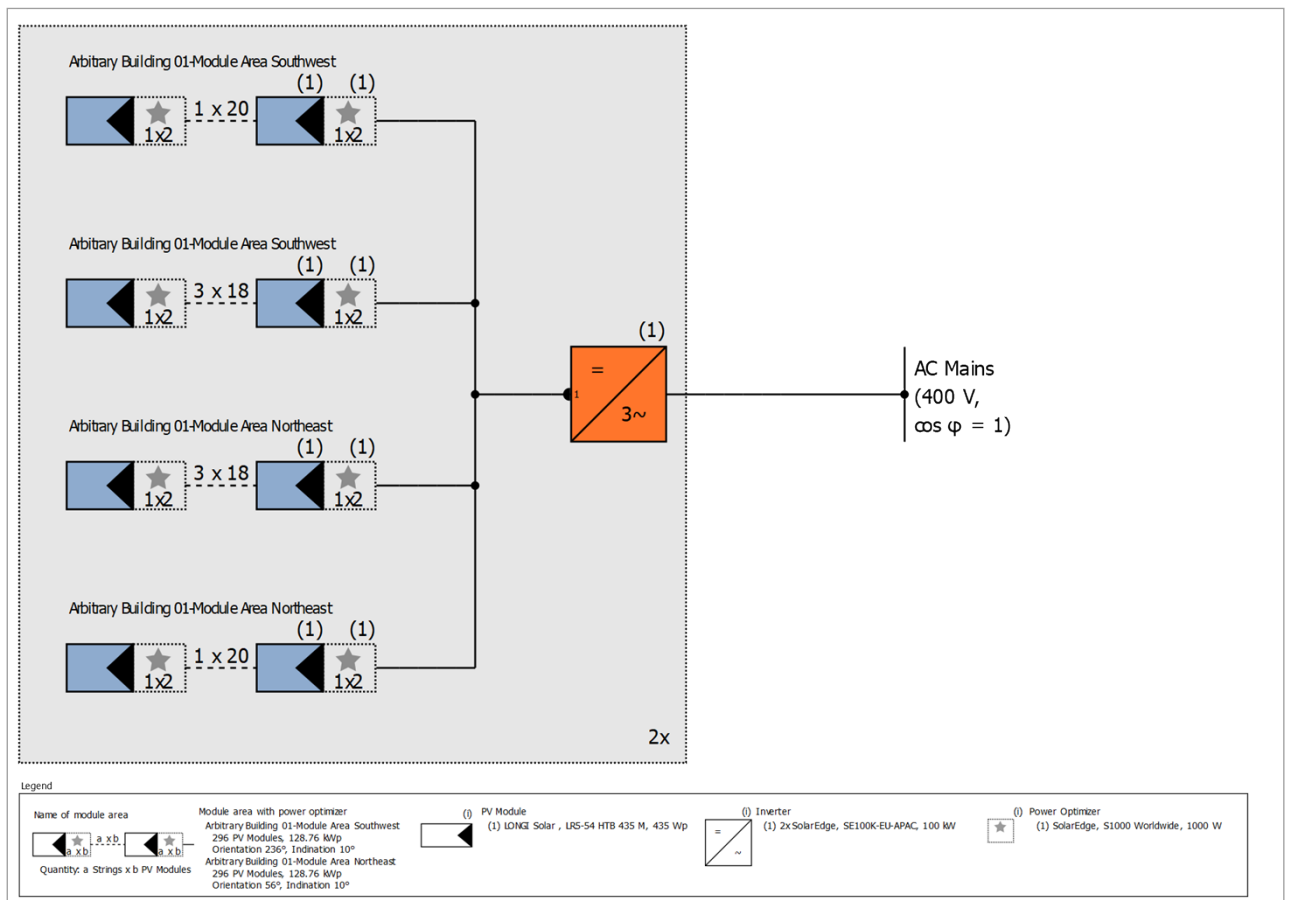


Figure: Schematic diagram

Production Forecast

Production Forecast

PV Generator Output	257.52 kWp
Spec. Annual Yield	958.77 kWh/kWp
Performance Ratio (PR)	95.80 %
Yield Reduction due to Shading	2.1 %
Grid Export	247,007 kWh/Year
Grid Export in the first year (incl. module degradation)	244,282 kWh/Year
Standby Consumption (Inverter)	106 kWh/Year
CO ₂ Emissions avoided	55,550 kg / year

The results have been calculated with a mathematical model calculation from Valentin Software GmbH (PV*SOL algorithms). The actual yields from the solar power system may differ as a result of weather variations, the efficiency of the modules and inverter, and other factors.

Set-up of the System

Overview

System Data	
Type of System	3D, Grid-connected PV System
Start of Operation	01/01/2024
Climate Data	
Location	Hounslow, GBR (1996 - 2015)
Values source	Meteonorm 8.1(i)
Resolution of the data	1 h
Simulation models used:	
- Diffuse Irradiation onto Horizontal Plane	Reindl reduced
- Irradiance onto tilted surface	Perez

Module Areas

1. Module Area - Arbitrary Building 01-Module Area Southwest

PV Generator, 1. Module Area - Arbitrary Building 01-Module Area Southwest	
Name	Arbitrary Building 01-Module Area Southwest
PV Modules	296 x LR5-54 HTB 435 M (v3)
Manufacturer	LONGI Solar
Inclination	10 °
Orientation	Southwest 236 °
Installation Type	Mounted - Roof
PV Generator Surface	578.0 m²



Figure: 1. Module Area - Arbitrary Building 01-Module Area Southwest

Hatton Cross Station

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Degradation of Module, 1. Module Area - Arbitrary Building 01-Module Area Southwest

Characteristic curve	Exponential
Remaining power (power output) after 1 year	98 %
Remaining power (power output) after 25 years	84.8 %

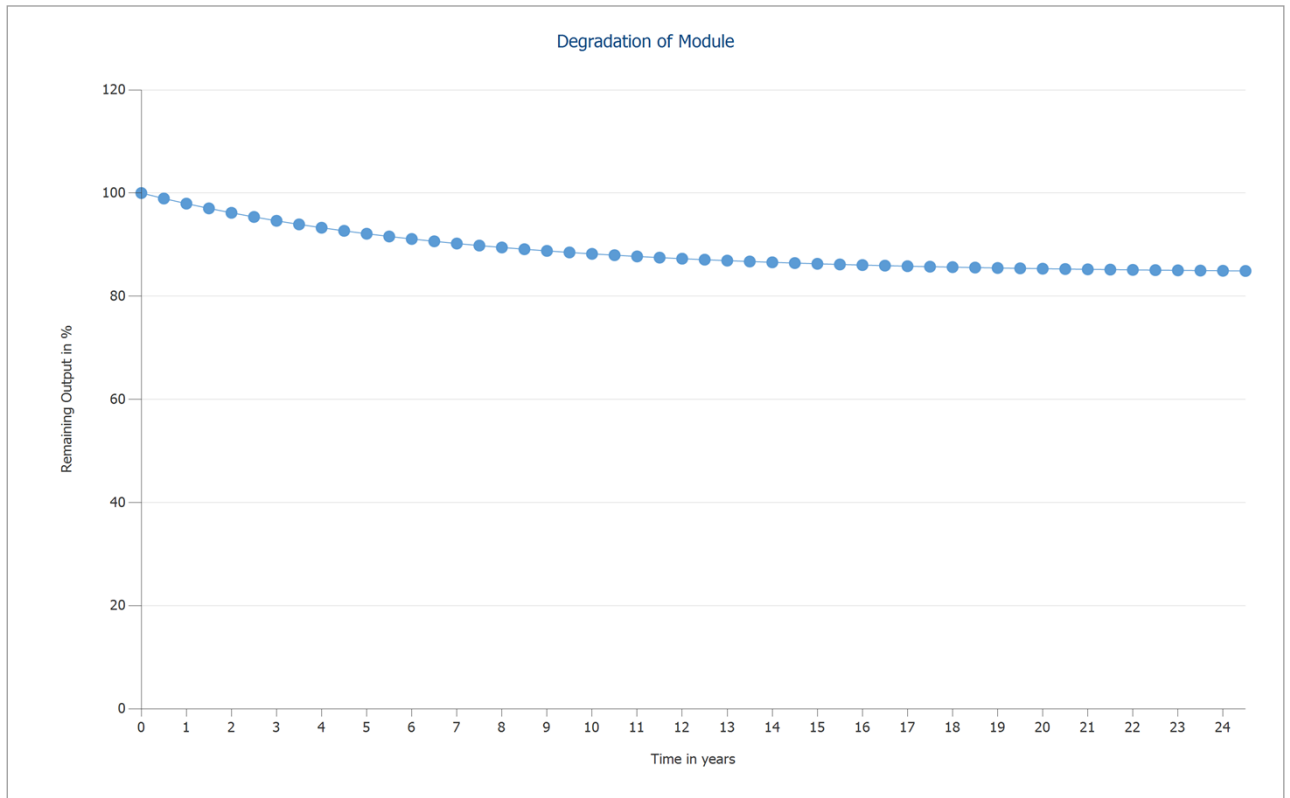


Figure: Degradation of Module, 1. Module Area - Arbitrary Building 01-Module Area Southwest

2. Module Area - Arbitrary Building 01-Module Area Northeast

PV Generator, 2. Module Area - Arbitrary Building 01-Module Area Northeast

Name	Arbitrary Building 01-Module Area Northeast
PV Modules	296 x LR5-54 HTB 435 M (v3)
Manufacturer	LONGI Solar
Inclination	10 °
Orientation	Northeast 56 °
Installation Type	Mounted - Roof
PV Generator Surface	578.0 m²

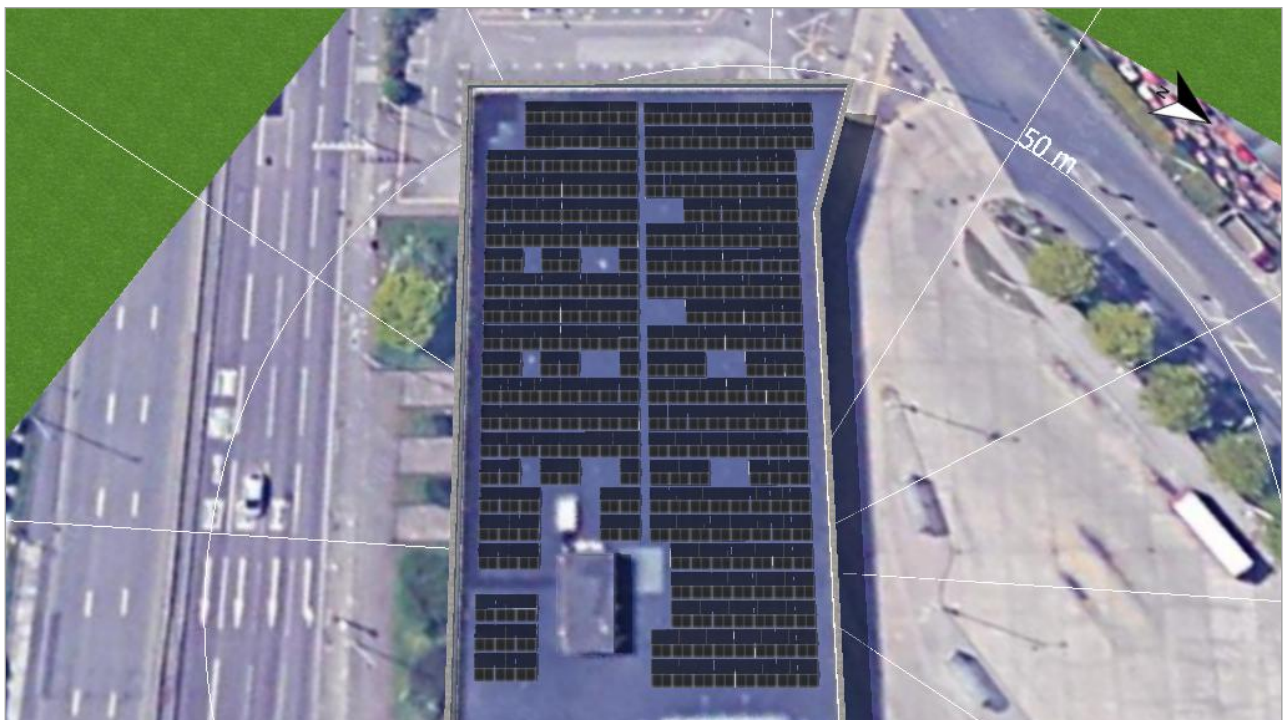


Figure: 2. Module Area - Arbitrary Building 01-Module Area Northeast

Hatton Cross Station

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Degradation of Module, 2. Module Area - Arbitrary Building 01-Module Area Northeast

Characteristic curve	Exponential
Remaining power (power output) after 1 year	98 %
Remaining power (power output) after 25 years	84.8 %

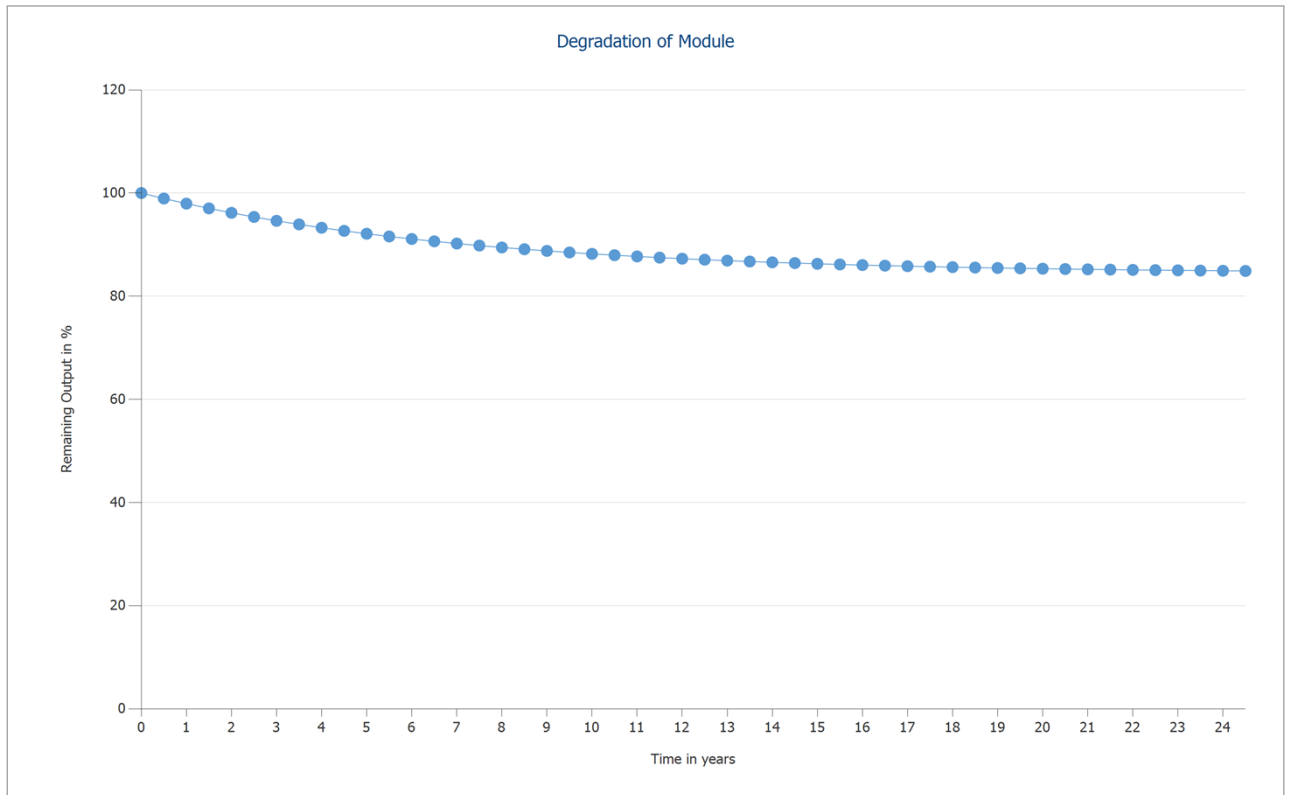


Figure: Degradation of Module, 2. Module Area - Arbitrary Building 01-Module Area Northeast

Horizon Line, 3D Design

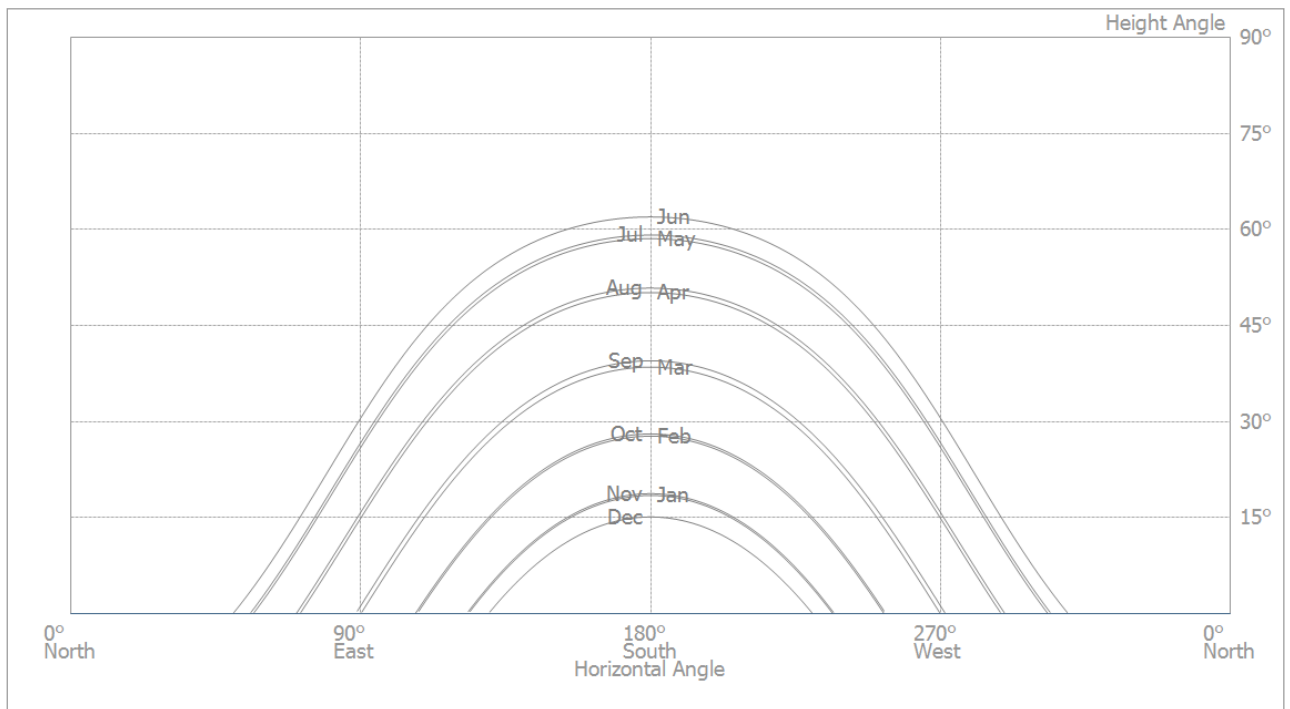


Figure: Horizon (3D Design)

Inverter configuration

Configuration 1

Module Areas	Arbitrary Building 01-Module Area Southwest + Arbitrary Building 01-Module Area Northeast
Inverter 1	
Model	SE100K-EU-APAC (v3)
Manufacturer	SolarEdge
Quantity	2
Sizing Factor	128.8 %
Configuration	MPP 1: 1 x 20☆ [1 x 2] 3 x 18☆ [1 x 2] 3 x 18☆ [1 x 2] 1 x 20☆ [1 x 2]
Power Optimizer	296x SolarEdge, S1000 Worldwide (v2)

AC Mains

AC Mains

Number of Phases	3
Mains voltage between phase and neutral	400 V
Displacement Power Factor (cos phi)	+/- 1

Simulation Results

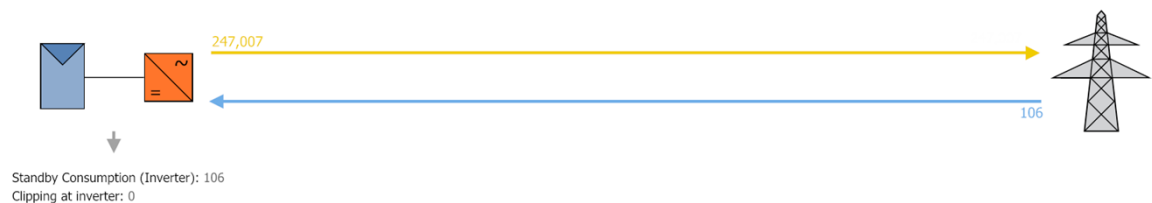
Results Total System

PV System

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Energy Flow Graph

Project: Hatton Cross Station



All values in kWh
Small deviations in the totals can occur due to rounding
created with PV*SOL

Figure: Energy flow

Hatton Cross Station

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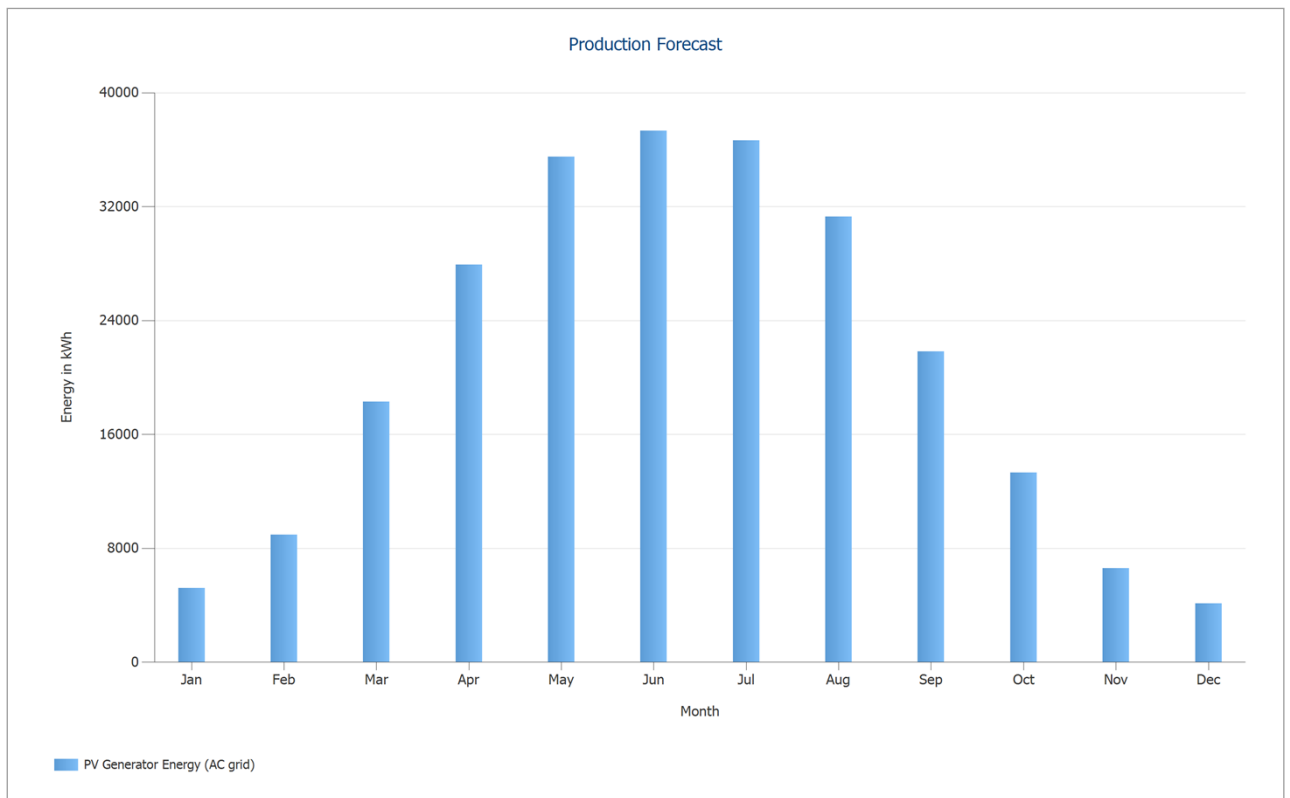


Figure: Production Forecast

Plans and parts list

Circuit Diagram

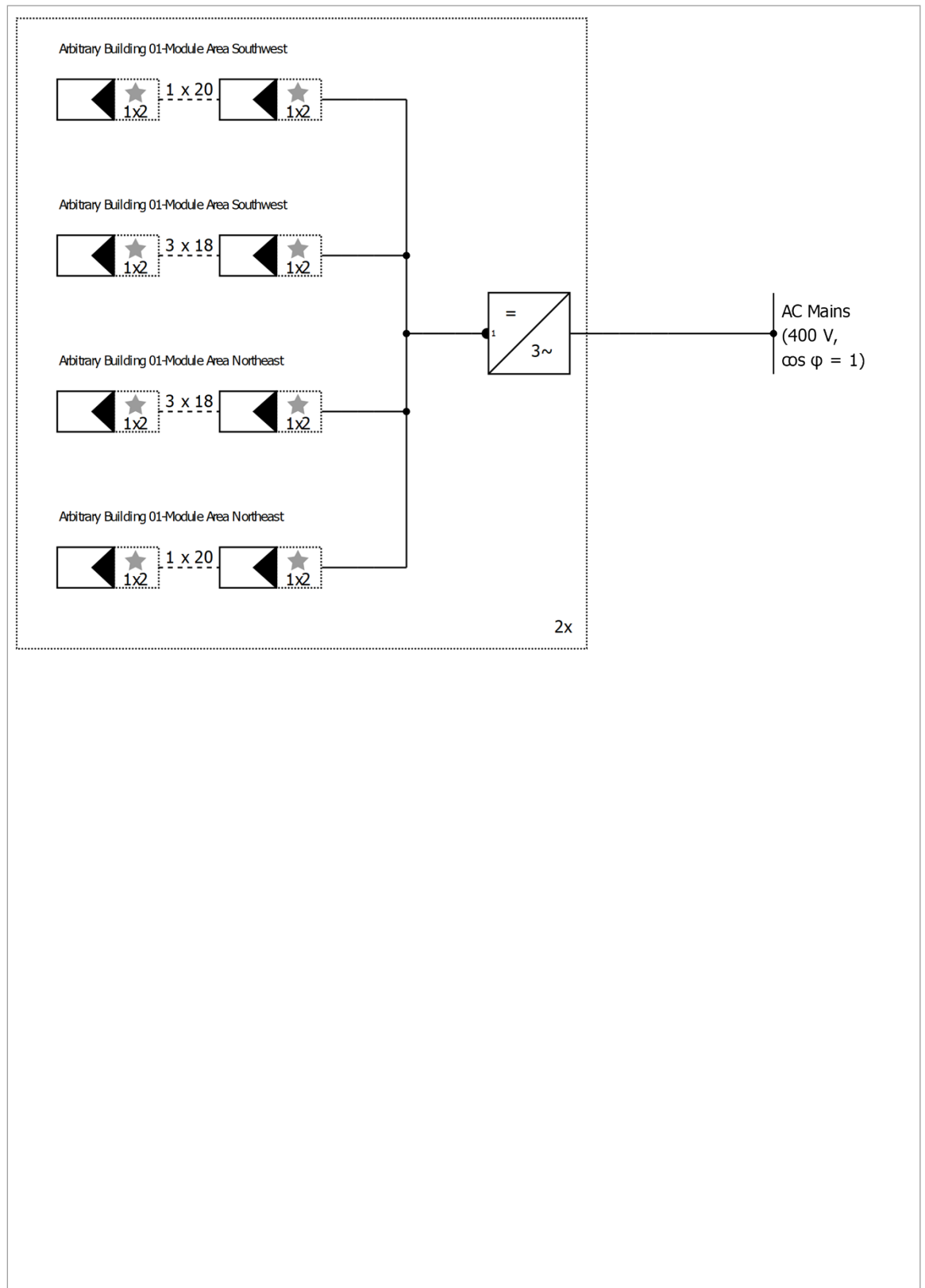


Figure: Circuit Diagram

Overview plan

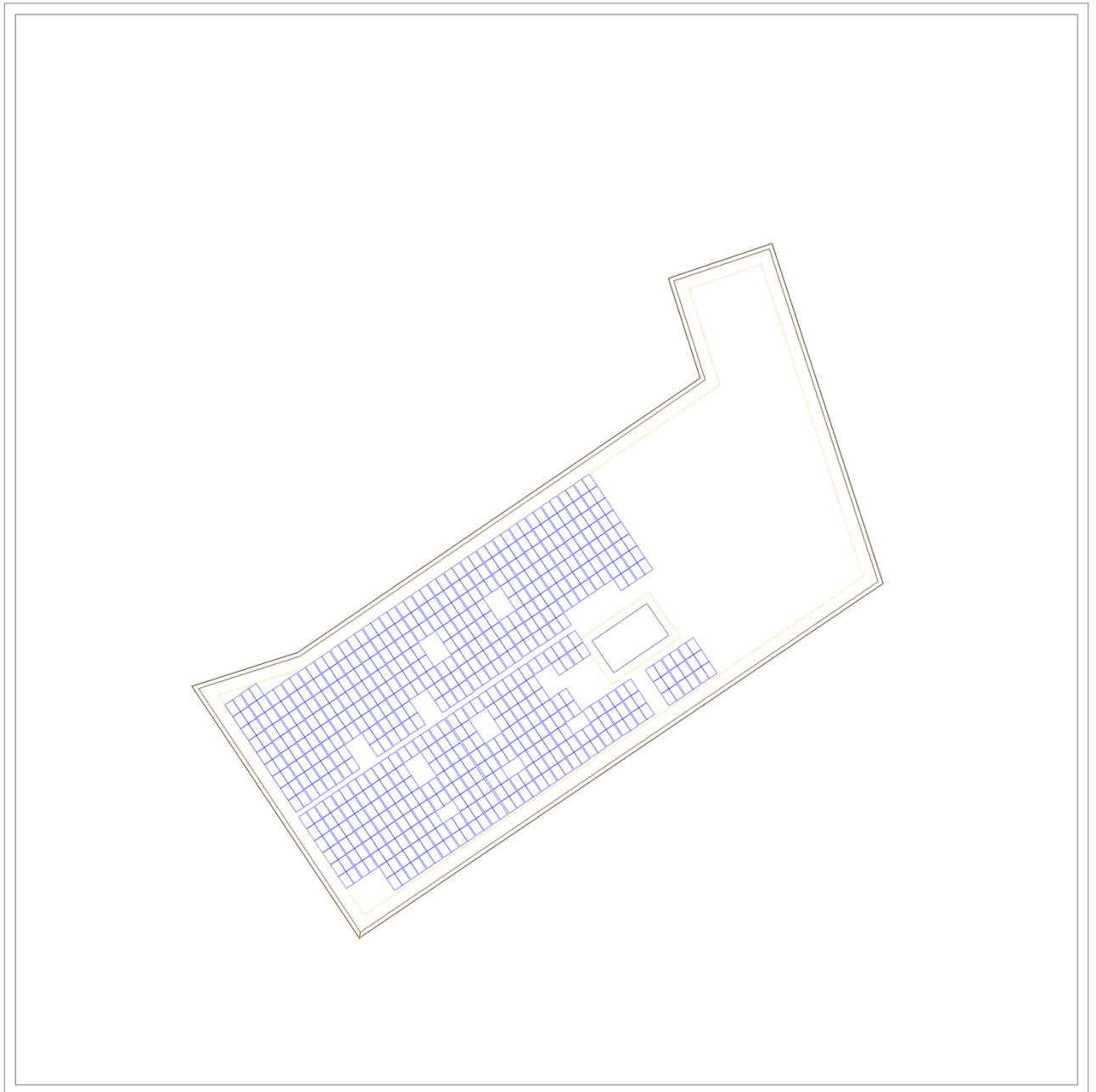


Figure: Overview plan

Dimensioning Plan

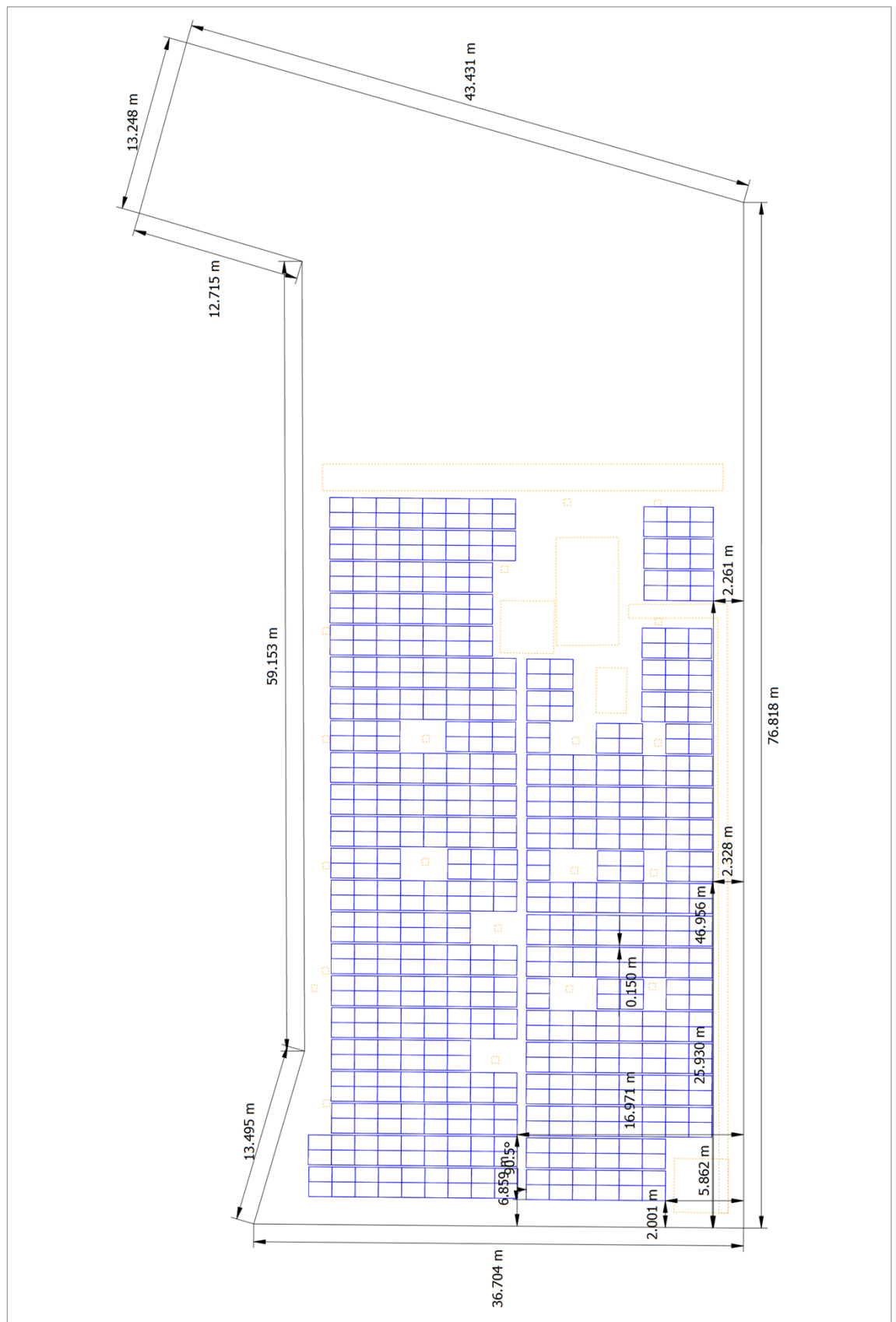


Figure: Arbitrary Building 01 - Mounting Surface Southeast

String Plan

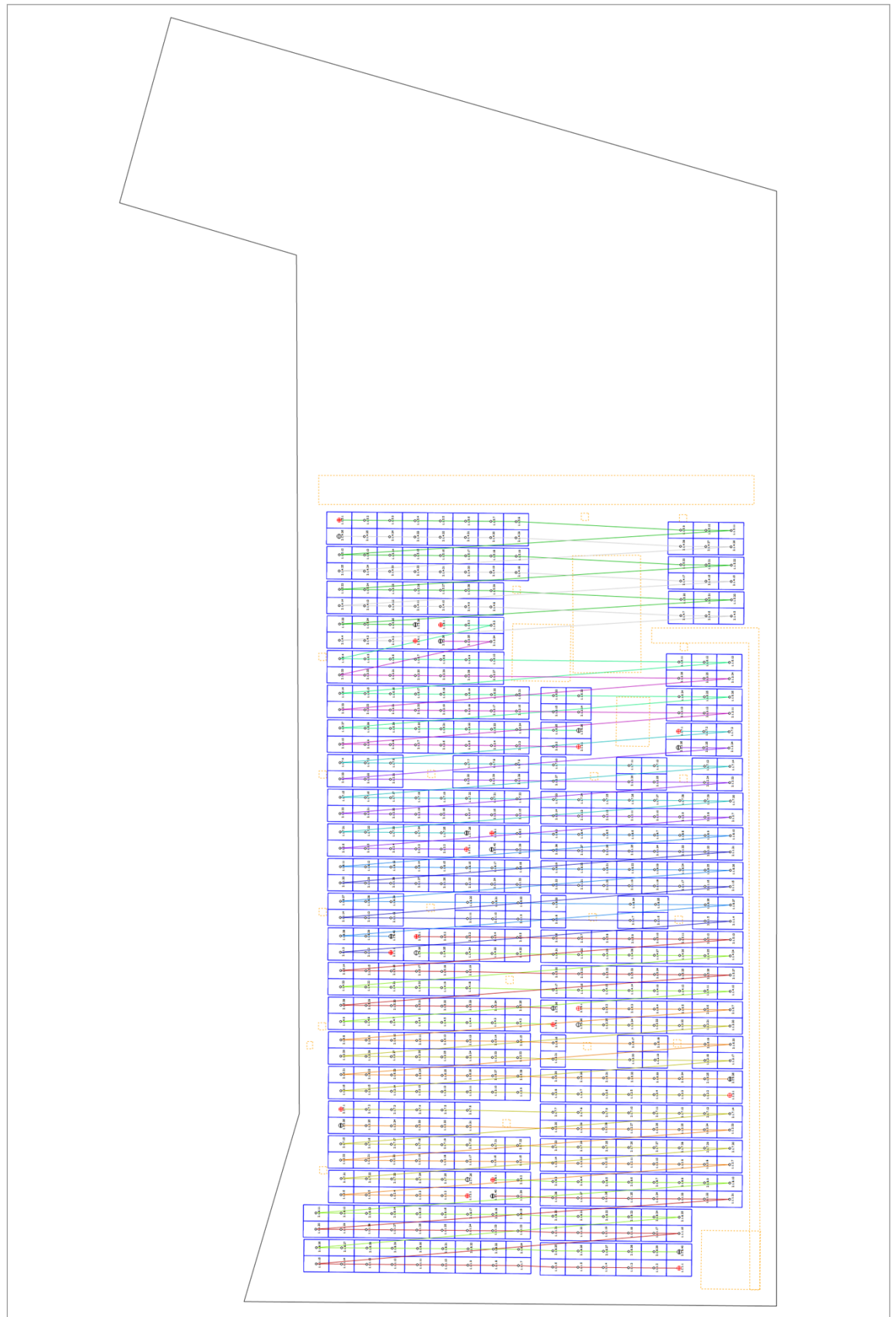


Figure: Arbitrary Building 01 - Mounting Surface Southeast

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Parts list

Parts list

#	Type	Item number	Manufacturer	Name	Quantity	Unit
1	PV Module		LONGI Solar	LR5-54 HTB 435 M	592	Piece
2	Inverter		SolarEdge	SE100K-EU-APAC	2	Piece
3	Power Optimizer		SolarEdge	S1000 Worldwide	296	Piece