Renewable Energy Portfolio 2024

Index

Memberships & Professional Associations

Renewable Energy Training Programs

"At MBC Renewables, we are proud to present our exhaustive portfolio of renewable energy training programs.

Anchored by academic rigor and bolstered by hands-on training, these programs are meticulously designed to convert enthusiasts into experts, neophytes into aficionados.

We leverage our deep industry insights to cultivate a learning environment that is awash with technical prowess, guided by experienced professionals who are leaders in the renewable energy sphere.

Our curriculum converges multiple facets of the renewable energy industry, from solar photovoltaics and battery storage to energy efficiency and grid integration, aiming to invigorate a new breed of professionals ready to champion the sustainable innovation agenda globally.

Join us in this promising journey, attending to the imperatives of the present and illuminating the possibilities of an optimized, sustainable future. With MBC Renewables, excel beyond norms, propel innovation, and navigate the green tech landscape effectively and responsibly.

Adventure into the realm of renewable energy—let us together shape the future we aspire to power."

MBC Renewables Founder, Michael Middlemast

MBC101 Renewable Energy Industry Training

Whether you are making an industry entrance or a seasoned professional looking to recalibrate your expertise, MBC101 Renewable Energy Industry Training is your conduit to industry acumen. This course is modularly crafted to cater to various levels of expertise, systematically evolving your understanding of the industry landscape.

Our curriculum embarks upon the rudiments of renewable energy technology traversing to the more complex avenues of prospect analysis and market segmentation - an end-to-end expedition through the renewable energy industry. This course is a strategic blend of theory and practice, designed to turn knowledge into actionable insights.

Completion of MBC101 leaves you equipped with a holistic view of the renewable energy market, along with the skills to effectively identify potential clients and strategies to ensure business acquisition. With MBC Renewables by your side, transcend the constraints of traditional industry training, and step into a green future brimming with opportunities.

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MBC 101 Renewable Energy Industry Training Agenda

Day 1 – 7 hours of learning

- Introduction *1 hour*
  - Key learning outcomes
  - Equipment requirements
  - Learner introductions
  - Presenter introduction

- Components of Solar Technology *2 hours*
  - Solar modules
  - Inverters
  - MLPE
  - Battery storage
  - Mounting systems

- UK Solar Market Overview *2 hours*
  - The beginning of solar in the UK
  - The FIT
  - The future of solar in the UK
  - The SEG

- Market Segmentation & Prospecting *2 hours*
  - Residential
    - Private home owner
    - EPC and SAP installations
    - Prospecting questions and techniques
    - Monitoring

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Day 2 – 7 hours of learning

- Market Segmentation & Prospecting Day *2 hours*
  - Commercial Solar
    - The customer journey
    - CAPEX, PPA and funding mechanisms
    - Prospecting questions and techniques
    - Monitoring
  - Utility Scale Solar
    - How large scale plants are built
    - How your business can fit in
    - Monitoring

- How to diversify your installation business in O&M *2 hours*
  - Operations & Maintenance Opportunities
  - Preventative Maintenance
  - Condition Based Monitoring
  - Corrective Maintenance

- Solar Sales & Marketing Techniques *2 hours*
  - The role of a solar sales person
  - Cross selling renewable technologies
  - Diversifying installation into O&M
  - A Solar PV Health Check

- SNAP *1 hour*
  - **S**ocial Media
  - **N**etworking
  - **A**wareness
  - **P**ersonal Branding

- Q&A session

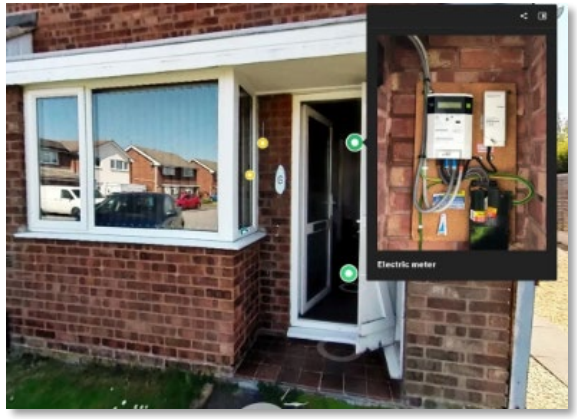
MBC102 Renewable Energy Survey Course

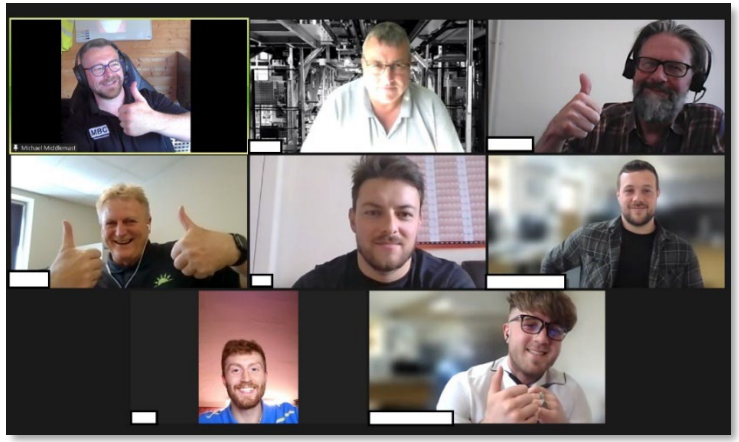
Embark on a journey to mastery with our premier MBC102 Renewable Energy Survey Course. This immersive learning experience arms attendees with the precise knowledge and skills to conduct surveys of both residential and commercial properties professionally, safely, and efficiently—perfectly priming sites for a seamless renewable energy installation.

With an emphasis on first-time success, this course ensures your site survey teams are equipped to gather comprehensive information on their initial visit. Avoid repeat, time-consuming inspections, and elevate the productivity and profitability of your operations.

Experience the future of training with our innovative, highly interactive online platform. Engaging with fellow renewable energy professionals, participants get the opportunity to virtually survey multiple 3D properties, ensuring real-world application of their new-found knowledge.

Designed exclusively for the forward-thinking energy professional, MBC102 is a nexus of up-to-date industry practices, technological innovation, and sustainable solutions.





MBC102 Renewable Energy Survey Course Agenda

Introduction

60 mins

- Disclaimer
- Presenter introduction
- Health & Safety Tool Box Talk
- Why do we survey?

Break

10 mins

Components of Solar Technology

30 mins

- Solar modules
- Inverters
- Battery storage
- Electric Vehicle Charging

Renewable Energy Market Sectors

30 mins

- Residential
- Commercial
- Utility Scale

Survey Instrumentation, Tools & Documents

30 mins

- Introduction to survey tools
- Introduction to survey instrumentation
- Introduction to survey documentation
- Special survey tools & instruments

Break

30 mins

Pre Survey Preparation

30 mins

- Consider the environment
- Check your kit

Virtual Residential Survey

60 mins

- Interactive survey on a 3D virtual residential property
- Group will complete Task 1

Virtual Commercial Survey

60 mins

- Interactive survey on a 3D virtual residential property
- Group will complete Task 2

Optional Open Q&A Session

30-60mins

MBC103 Renewable Energy Design & Simulation Training

Designing renewable energy systems demands an expert fusion of technical, practical, and commercial acumen. By utilizing precise modelling techniques, we at MBC Renewables can enhance return on investment (ROI) projections, offer our sophisticated clientele an impressive array of solutions, and prevail over the competition in a rapidly evolving market.

Crucially, this course is designed with an inherent flexibility that caters to the unique needs of each learner. MBC Renewables prides itself on the tailor-made aspect of our MBC103 training program, distinctly aligning with individual learning trajectories and professional objectives.

Such a bespoke approach enables participants to extract maximum value and directly apply acquired knowledge to further their pursuits in the dynamic realm of renewable energy technologies. Gain expertise in solar PV, ESS, and EVSE systems while shaping the sustainable energy landscape of tomorrow.

Contact us to today to customise your learning experience.

PV
PV*SOL

PVSYST
PHOTOVOLTAIC SOFTWARE

MBC104 Safely Testing & Commissioning Solar PV Arrays

Our flagship course, MBC104, is an industry-leading program that delves extensively into the IEC 62446 standard, intricacies of IV Curve Tracing, and the practical application of cutting-edge testing techniques in real-world scenarios.

At the heart of MBC104 is a robust foundation in health and safety, solar photovoltaic (PV) technology, and meticulous pre-testing preparation. Designed for industry professionals and forward-thinking individuals alike, this training expedites the transition from theoretical proficiency to hands-on, experienced application.

As a bonus, the curriculum comprises MBC106 Solar PV Testing: Electrical Safety, PPE, and Instrument Care Tool Box Talk, further bolstering the knowledge base of participants, while also equipping them with stringent safety protocols.

Join us for MBC104 to unlock your potential in the realm of renewable energy and contribute meaningfully to the sustainable future that MBC Renewables envisions.

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REGISTERED PROVIDER
NABCEP
CONTINUING EDUCATION

MBC 104 Agenda

Times are adjustable depending on the groups experience and specific learning objectives.

Class based modules and practical modules can be split across two days.

- Introduction

60 mins
  - Disclaimer
  - Presenter introduction
  - Health & Safety Tool Box Talk
  - Introduction to IEC and MIS

- Components of Solar Technology

60 mins
  - Solar modules
  - Inverters
  - Battery storage

- Solar Test Instrumentation & Tools

60 mins
  - Traditional tools VS solar tools
  - IV curve tracers
  - EL testing

- Introduction to 1500V Systems

30 mins
  - Advantages of 1500V systems
  - What new issues do we face

- Pre Testing Preparation

60 mins
  - Consider the environment
  - Check your kit

- The Visual Inspection

60 mins
  - Site inspection in the UAE
  - Front & back
  - Mounting system inspection
  - Visual Inspection Exercise

- Calculating Expected Values

60 mins
  - Short circuit current
  - Open circuit voltage
  - Expected vs measured values

- Test procedures

60 mins
  - Earth continuity test
  - Insulation resistance test
  - Operational current test & micro inverters
  - The full auto sequence test

- What is IV curve tracing?

60 mins
  - How to interpret IV curves
  - When to use IV curve tracing
  - Understanding IV curve reports

- Conclusion

120 mins
  - Practical session via camera or on site
  - Hand over of course tasks
  - Q&A session

MBC105 Introduction to G98, G99 and G100 DNO Applications

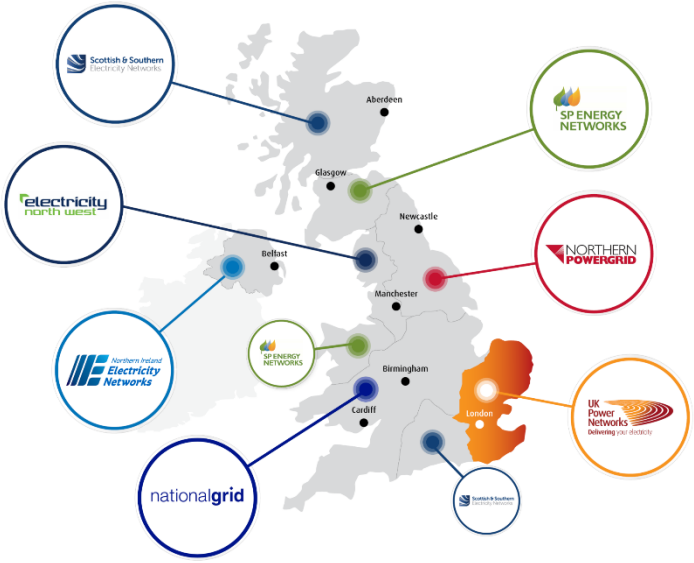
An integral part of responsible renewable energy usage and deployment involves the official registration of your energy assets with the local Distribution Network Operator.

This seemingly simple administrative step plays a pivotal role in mitigating the risk of local blackouts, a potential upshot of numerous unregistered assets switching on or off simultaneously.

Dive into the MBC105 training course, designed to elucidate the intricacies of the DNO (Distribution Network Operator) application process.

This course is gives special emphasis to the specifications and limitations of G98, G99, and G100 applications.

Equip yourself with not only the knowledge but also the confidence to navigate the regulatory landscape of this burgeoning industry.



MBC105 Introduction to G98 G99 G100 DNO Applications Agenda

Introduction

60 mins

- Disclaimer and presenter introduction
- Why is it important to register your energy asset?
- Brief history of the UK renewable energy market
- What is a Distribution Network Operator (DNO)?
- The Smart Export Guarantee (SEG)

Break

10 mins

Components of Renewable Energy Systems & the ENA Register

60 mins

- Solar photovoltaic modules
- DC/AC Inverters
- AC and DC Energy Storage Systems
- Electric Vehicle Supply Equipment

Break

30 mins

G98 and G99 DNO Application and Notification

80 mins

- Introduction to DNO Applications
- G98 Explained – process and documentation
- G99 Explained – process and documentation
- G99 Fast Track
- G100 Export Limitation

Outcomes of your application

10mins

Other terminology and processes

30 mins

- PGMD
- What are EONs, IONs, LONs and FONs?
- Witness testing
- EVSE and Vehicle to Grid

Optional Open Q&A Session

30-60mins

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MBC106 Solar PV Testing:
Electrical Safety, PPE & Instrument Care Tool Box Talk

This short form tool-box-talk focuses on the essential health and safety aspects to consider when testing DC solar PV strings. By addressing critical topics, we aim to enhance the safe practices of professionals working on solar PV installations.

Key Topics:

Risk assessment
Instrument selection
Instrument care
Connection points
And more

Important Note

This presentation is intended for competent individuals who:

Have prior electrical testing experience
Possess solid knowledge of solar PV installations
Are familiar with solar PV commissioning procedures
Understand and adhere to existing H&S (Health and Safety) systems in place

Remember, safety first when working on solar PV projects!

Contact us today for group bookings

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Course prices:

MBC101 Renewable Energy Industry Training - £450

MBC102 Renewable Energy Survey Course - £450

MBC103 Renewable Energy Design and Simulation Training - £1050

MBC104 Safely Testing & Commissioning PV Systems - £1050

MBC105 Introduction to G98, G99 and G100 DNO Applications - £450

MBC106 Solar PV Testing Toolbox Talk - £95

Prices exclude VAT

Prices are for one learner only, discounts available for group bookings

Courses are delivered online or at your premises at an additional cost

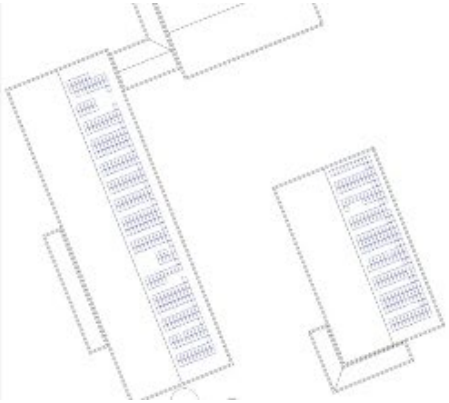
For in-person or group bookings please contact: gemma@middlemast.com

An Industry Leading Renewable Energy Design Studio...

MBC Renewables Ltd pay close attention to both technical and commercial details to create the most accurate and aesthetically pleasing renewable energy simulation possible.

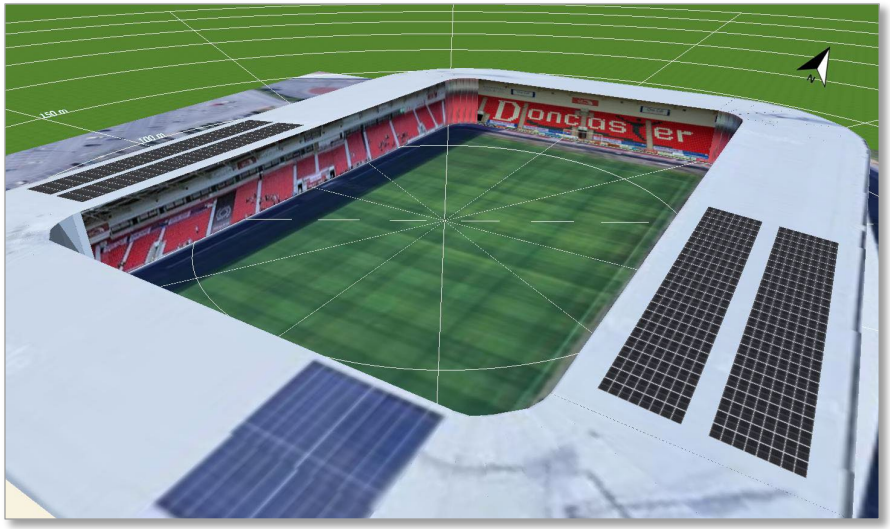
Why choose MBC Renewables Ltd?

- Solar PV, EVSE & ESS simulations
- Detailed fiscal calculations giving accurate ROI forecasts (including P50 & P90 values)
- Integration of load profiles including annual half hourly consumption data
- Detailed and accurate shading analysis
- String inverter, MLPE and optimizer simulations
- Over a decade of experience in solar PV and renewable energy design

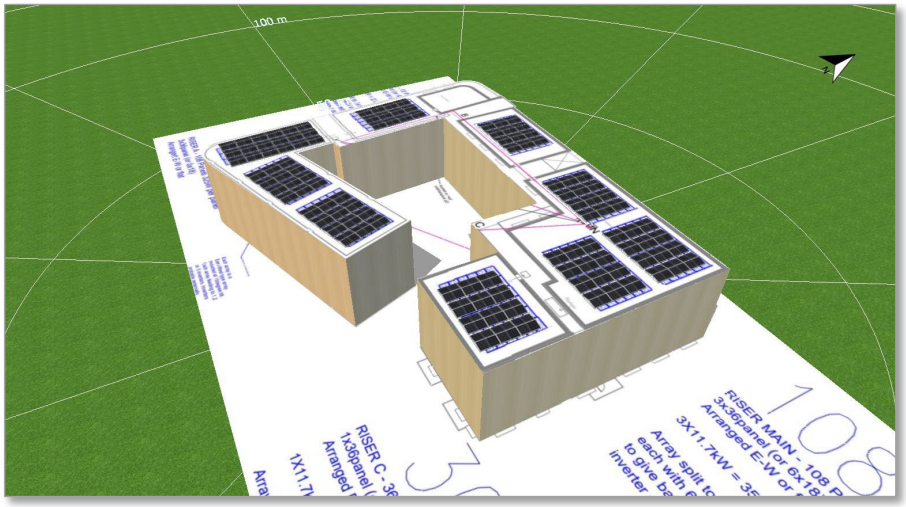


Residential 3D Simulations

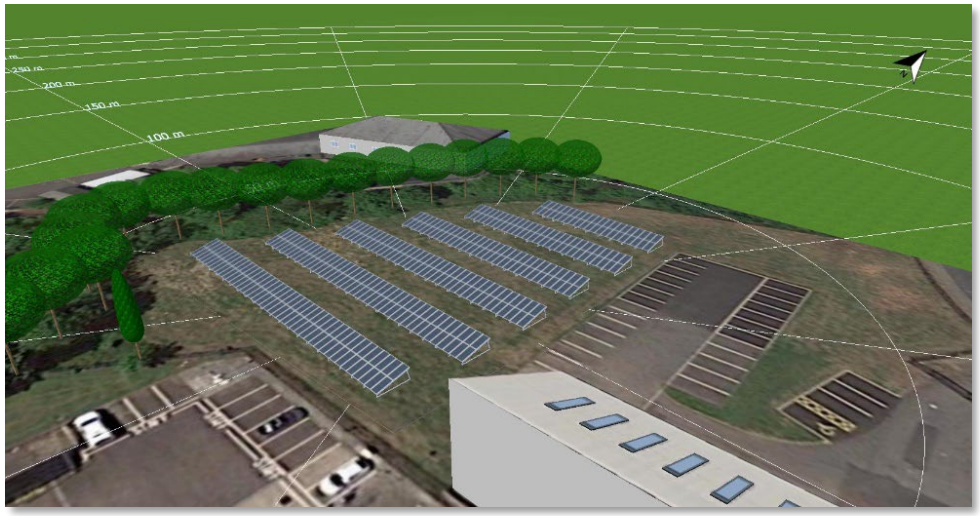
Commercial and Industrial 3D Simulations



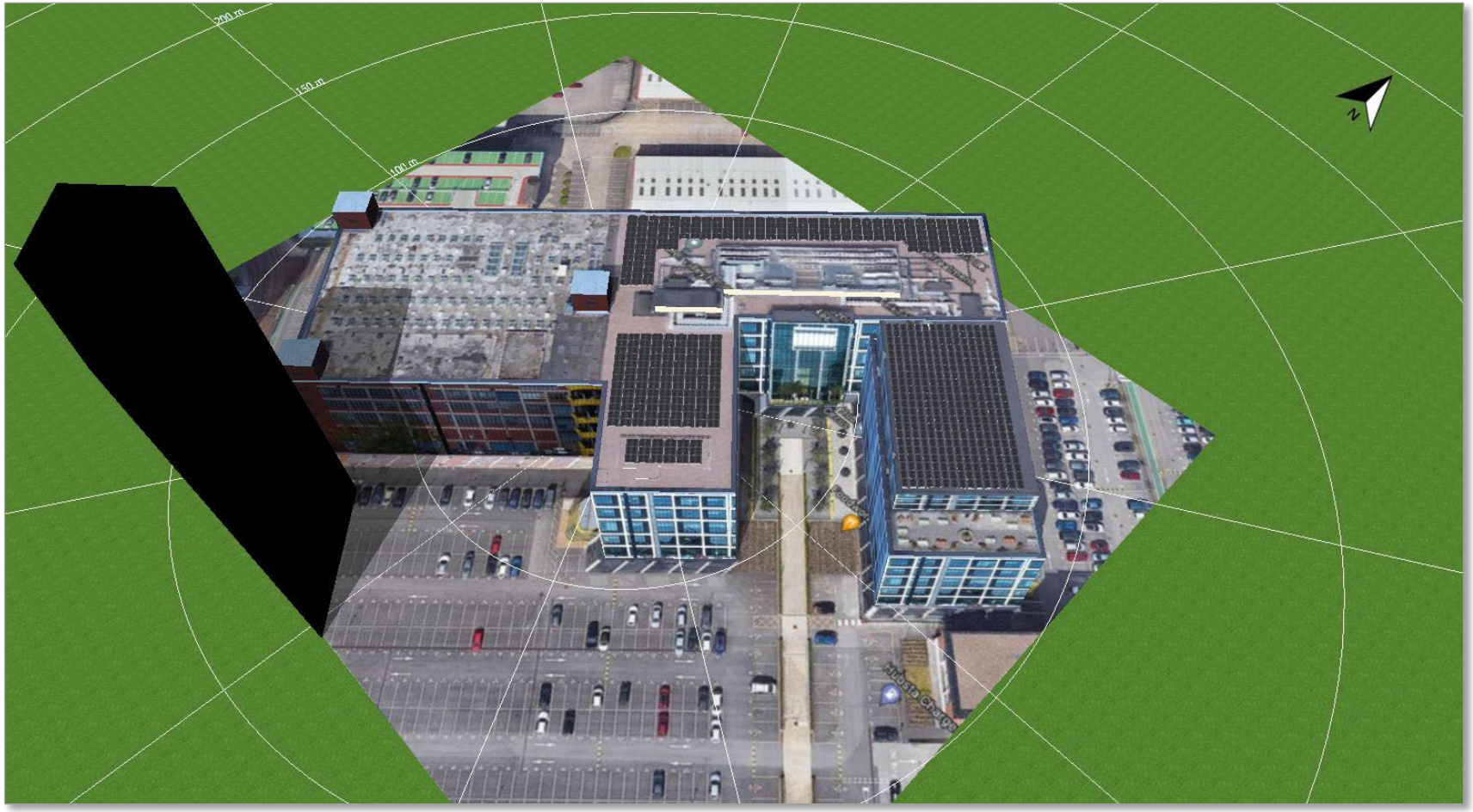
3D New Build Simulations



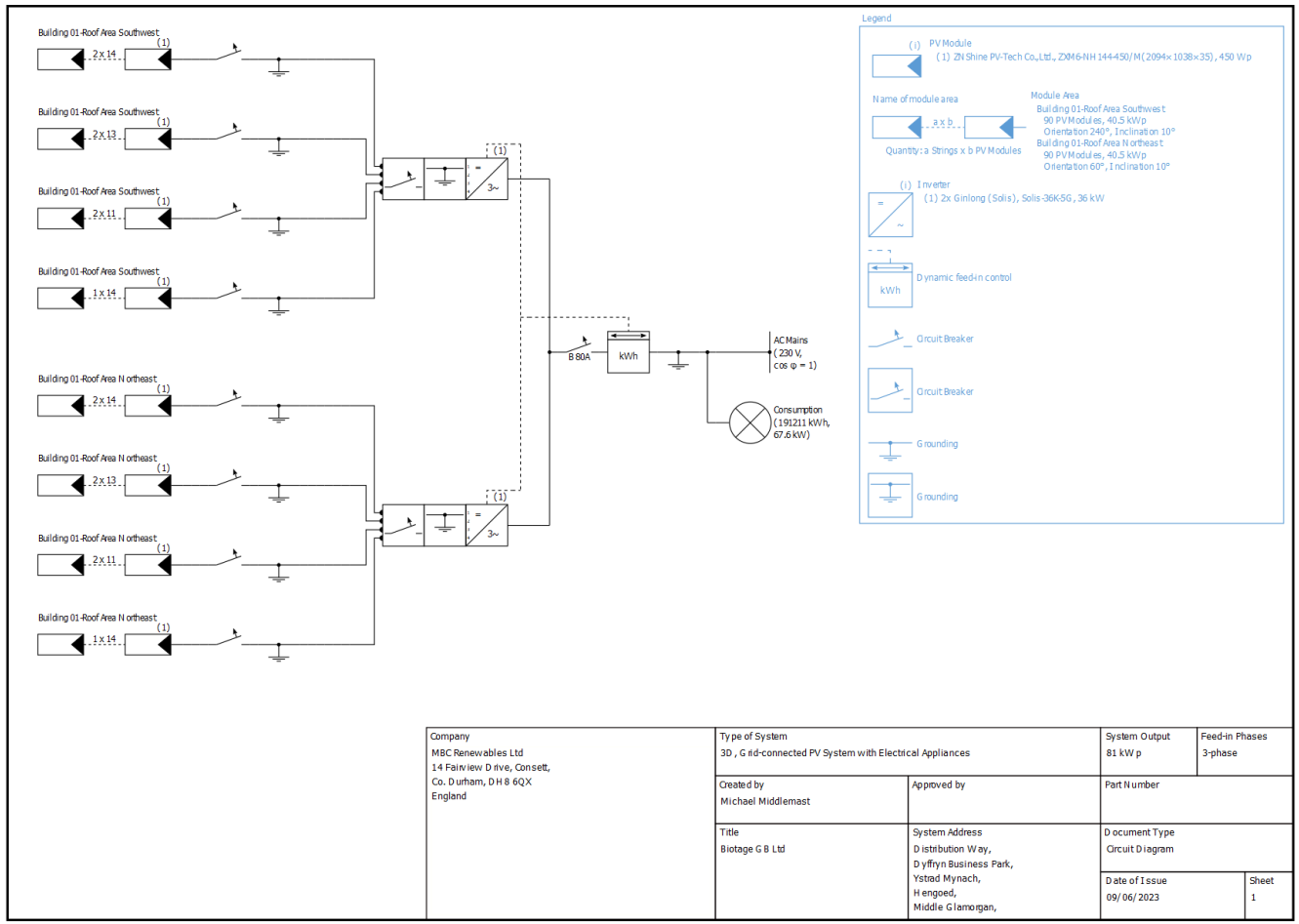
Ground Mounted & Carport 3D Simulations



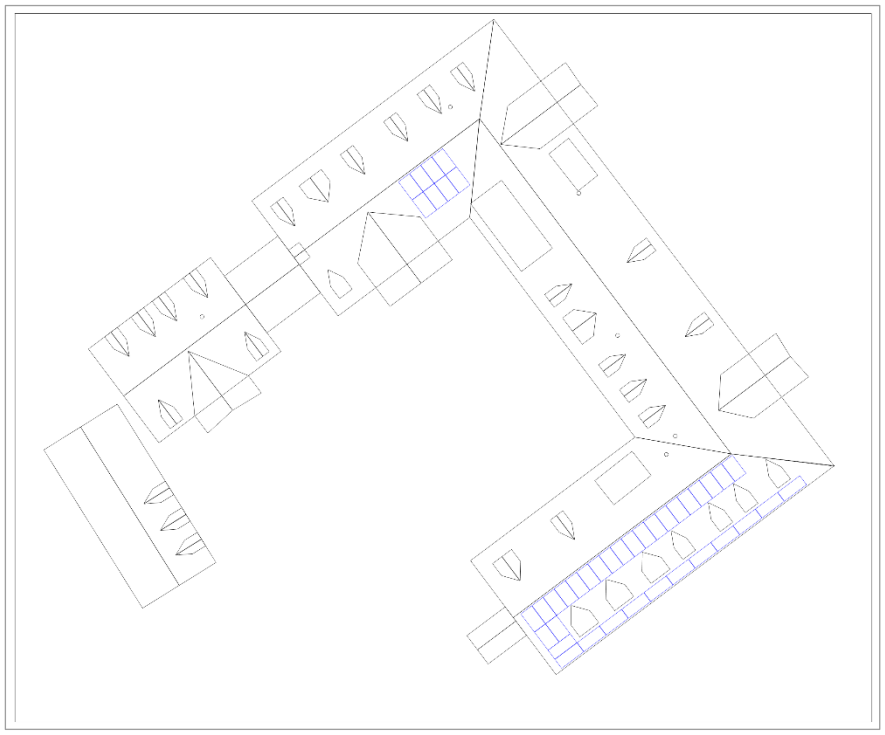
Shade Analysis Studies

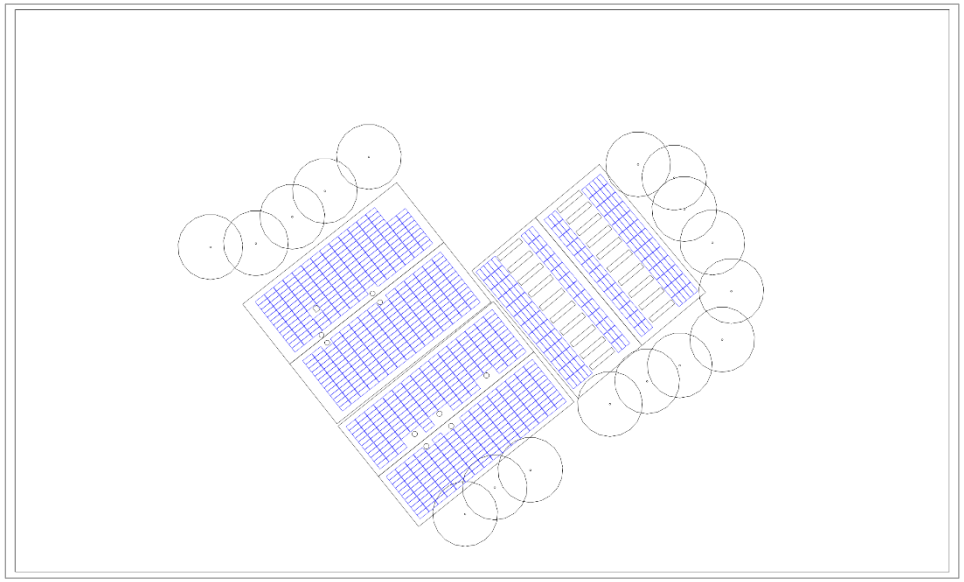


SLDs


Building 01-Roof Area Southwest
2 x 14
(1)
Building 01-Roof Area Southwest
2 x 13
(1)
Building 01-Roof Area Southwest
2 x 11
(1)
Building 01-Roof Area Southwest
1 x 14
(1)
Building 01-Roof Area Northeast
2 x 14
(1)
Building 01-Roof Area Northeast
2 x 13
(1)
Building 01-Roof Area Northeast
2 x 11
(1)
Building 01-Roof Area Northeast
1 x 14
(1)
(1)
3~
(1)
3~
B 80A
kWh
AC Mains
(230 V,
cos φ = 1)
Consumption
(191211 kWh,
67.6 kW)
Legend
(1) PV Module
(1) ZN Shine PV-Tech Co.,Ltd., ZXM6-NH 144-450/M (2094×1038×35), 450 Wp
Name of module area
a x b
Quantity: a Strings x b PV Modules
Module Area
Building 01-Roof Area Southwest
90 PV Modules, 40.5 kWp
Orientation 240°, Inclination 10°
Building 01-Roof Area Northeast
90 PV Modules, 40.5 kWp
Orientation 60°, Inclination 10°
(1) Inverter
(1) 2x Ginlong (Solis), Solis-36K-5G, 36 kW
kWh
Dynamic feed-in control
Circuit Breaker
Circuit Breaker
Grounding
Grounding
Company
MBC Renewables Ltd
14 Fairview Drive, Consett,
Co. Durham, DH8 6QX
England
Type of System
3D, Grid-connected PV System with Electrical Appliances
System Output
81 kW p
Feed-in Phases
3-phase
Created by
Michael Middlemast
Approved by
Part Number
Title
Biotage G B Ltd
System Address
Distribution Way,
Dyffryn Business Park,
Ystrad Mynach,
Hengoed,
Middle Glamorgan,
Document Type
Circuit Diagram
Date of Issue
09/06/2023
Sheet
1

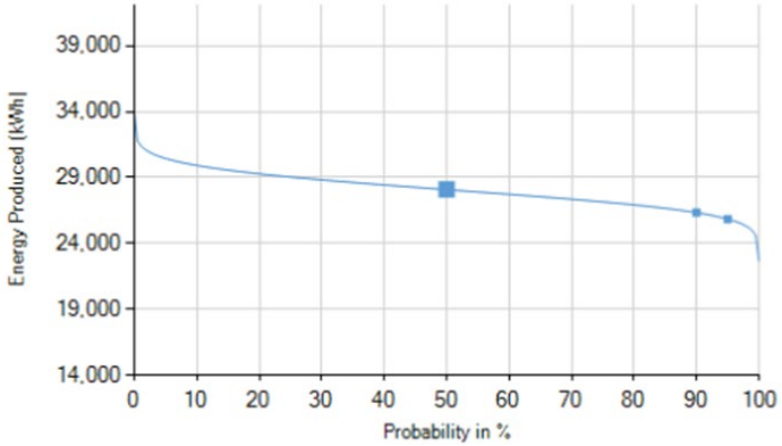
Line Drawings





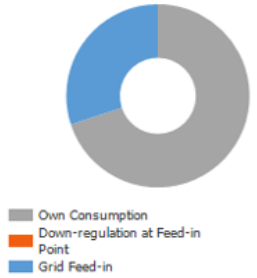
Fiscal & CO2 Modelling

Bankability: Exceedance probability of the forecast yield (P50/P90)



PV Generator Output	450.34	kWp
Spec. Annual Yield	828.93	kWh/kWp
Performance Ratio (PR)	86.01	%
Yield Reduction due to Shading	0.6	%/Year
PV Generator Energy (AC grid)	373,426	kWh/Year
Own Consumption	261,165	kWh/Year
Down-regulation at Feed-in Point	0	kWh/Year
Grid Feed-in	112,262	kWh/Year
Own Power Consumption	69.9	%
CO_2 Emissions avoided	175,450	kg / year

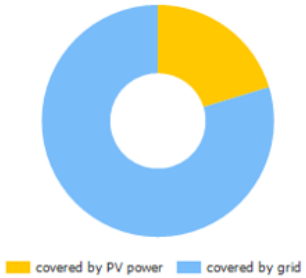
PV Generator Energy (AC grid)



Appliances

Appliances	1,286,565	kWh/Year
Standby Consumption (Inverter)	128	kWh/Year
Total Consumption	1,286,693	kWh/Year
covered by PV power	261,165	kWh/Year
covered by grid	1,025,528	kWh/Year
Solar Fraction	20.3	%

Total Consumption



Taking the lead in Renewable Energy Asset Management...

Using the latest in renewable energy test instrumentation and measurement techniques MBC Renewables Ltd can prove the electrical safety and performance of your renewable energy asset.

Our work does not stop there. We have worked with hundreds of the world's leading renewable energy developers to create robust test and measurement processes that are specific to their assets. This ensures the long-term viability of your energy generator.

Why choose MBC Renewables Ltd?

- Industry leaders in PV, ESS and EVSE test and measurement techniques
- Thorough and detailed reporting and documentation
- Over 15 years of international renewable energy industry experience
- Latest in renewable energy test equipment from Fluke, TIS & Seaward
- Highly professional approach to customer interactions

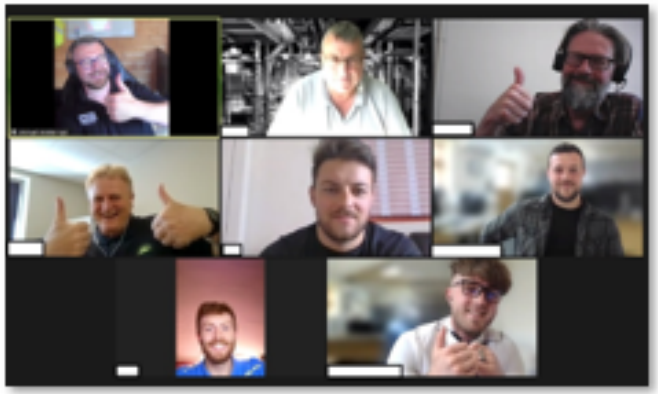
Customer Reviews & Workshop Examples

MBC104 Safely Testing & Commissioning PV Arrays

"Great training Michael, great course covering all the weakness points, bad practice examples, trouble soothing, etc. in Solar industry, providing also the commissioning process 👍. Thank you."

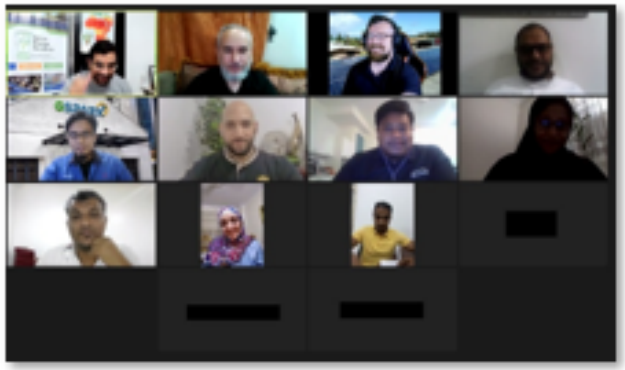
MBC103 Renewable Energy System Design

"Michael's depth of knowledge in PV SOL is excellent and his friendly nature makes the course an enjoyable experience throughout. Would Highly recommend MBC renewables for any training courses."



MBC105 online course May 2023

Marketing conference Xiamen, China



MBC104 online course May 2023

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