National College of Ireland

Configuration Manual

MSc Research Project
MSc Cloud Computing

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MSc Project Submission Sheet

School of Computing

Student Name:	Rishika Podila
Student ID:	23214368
Programme:	MSc Cloud Computing **Year:** 2024-25
Module:	Research Project
Lecturer:	Diego Lugones
Submission Due Date:	29-01-2025
Project Title:	OPTIMIZATION AND ECONOMIC FEASIBILITY OF HYBRID RENEWABLE ENERGY SYSTEMS FOR DATA CENTER POWER MANAGEMENT.
Word Count:	545

I hereby certify that the information contained in this (my submission) is information pertaining to research I conducted for this project. All information other than my own contribution will be fully referenced and listed in the relevant bibliography section at the rear of the project.
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Signature: Rishika Podila

Date: 29-01-2025

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Configuration Manual

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1. Introduction

This configuration manual provides instructions for installing, configuring, and running the MATLAB renewable energy and storage system model. The model evaluates energy distribution, workload management, and system performance metrics.

2. System Requirements

2.1 Hardware Requirements

Operating System: Windows 10 Home or later

Processor: Intel Core i5-1135G7 (11th Gen) with a max turbo frequency of 4.20 GHz

System Type: 64-bit Operating System

RAM: 16GB DDR4

Storage: 512GB SSD

Graphics: Intel Iris Xe Graphics

Display: 14-inch Full HD (1920 x 1080)

2.2 Software Requirements

MATLAB Version: R2022b or compatible

Toolboxes:

- Optimization Toolbox
- Statistics and Machine Learning Toolbox
- MATLAB Base Package

3. Installation

Install MATLAB:

Download and install MATLAB R2022b or a compatible version from the MathWorks website.

Download Project Files:

Obtain the renewable energy system MATLAB code files and save them in a local directory.

Set Up Dependencies:

Launch MATLAB and add the project directory to the MATLAB path.

Install Required Toolboxes:

Use the Add-Ons feature in MATLAB to install the necessary toolboxes if not already available.

4. Configuration

No additional configuration is required after setting up the software environment.

5. Usage

1. Open MATLAB and navigate to the project directory.
2. Run the main script (e.g., energy_model.m) to simulate energy distribution and workload optimization.
3. Output results, such as energy usage, cost optimization, and workload efficiency, will be displayed in the MATLAB console or plot window.

6. Troubleshooting

Missing Toolboxes: Ensure all required toolboxes are installed via MATLAB Add-Ons.

Path Errors: Verify that the project folder is correctly added to the MATLAB path.

Graphics Issues: Check system graphics settings to ensure MATLAB visualizations render correctly.

References

https://in.mathworks.com/