**Project Charter Document**



**Project Name:** Optimization of Solar Power Generation

**Industry:** Renewable Energy

**Department:** Energy or Sustainability Department

**Product/Process:** Solar Power Generation Systems



**Prepared By**

|  |  |
| --- | --- |
| **Document Owner(s)** | **Project/Organization Role** |
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**Project Charter Version Control**

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# PROJECT CHARTER PURPOSE

The project charter defines the scope, objectives, and overall approach for the work to be completed. It is a critical element for initiating, planning, executing, controlling, and assessing the project. It should be the single point of reference on the project for project goals and objectives, scope, organization, estimates, work plan, and budget. In addition, it serves as a contract between the Project Team and the Project Sponsors, stating what will be delivered according to the budget, time constraints, risks, resources, and standards agreed upon for the project.



# PROJECT EXECUTIVE SUMMARY

* **Business Problem:** The client’s solar farm shows a power drop per string. With causes for the underperformance still unexplored
* **Business Objective:** Maximize energy efficiency
* **Business Constraint:** Minimize operational cost
* **Success Criteria:**
  + **Business Success Criteria**: Ensure 95% maximum output across all strings, considering weather variations
  + **Economic Success Criteria:** Annual revenue increase of $1.75 million
* **Data Collection:**

Historical performance data of each solar string.

Weather data (temperature, sunlight, etc.).

Maintenance logs.

Sensor data from the solar farm (voltage, current, etc.).

Data will be provided by the client.

* **Scope:** This project will be executed for the Operations Department of the organization, focusing on enhancing the performance and efficiency of the solar farm.
* **Assumptions**: Data will be provided by the customer in a timely manner.

Cloud infrastructure and GPU resources will be provided by the customer.

All necessary permissions and access to relevant systems will be granted.

* **Risks:** Required data might not be available or might be incomplete.

Server connectivity might be weak or intermittent.

Weather data may not be granular enough to correlate accurately with performance drops.

Potential delays in data provision from the client.

* **Costs:** Project cost – You can do assumptions by putting [number of hours \* number of human resources (cadre wise) \* hourly cost]
* **Timeline:** Approximately 25 to 30 days.
* **Approach:** Data Analytics Project Management Methodology



# PROJECT OVERVIEW

The client operates a solar farm that has been experiencing unexplained power drops in various strings of solar panels. These drops are leading to underperformance and a decrease in the overall efficiency and revenue of the solar farm. The project aims to identify the causes of these power drops and develop solutions to maximize energy efficiency while keeping operational costs to a minimum.



# PROJECT SCOPE

This project is targeted at the Operations Department of the client’s organization, which is responsible for the management and maintenance of the solar farm. The focus will be on improving the operational efficiency of the solar farm by addressing power drops and optimizing energy output.

## Project Deliverables

|  |  |
| --- | --- |
| **Milestone** | **Deliverable** |
| * Identifying Constraints and design the project architecture, explore various public forums to collect relevant data, Data Preparation. | * Deliverable 1.1—Identifying Constraints and design the project architecture. * Deliverable 1.2—Explore various public forums to collect relevant data. * Deliverable 1.3— Data Preparation |
| * EDA and Descriptive Analytics | * Deliverable 2.1— EDA and Descriptive Analytics * Deliverable 2.2— Insights documentation |
| * Show case and review, Final Presentation and documentation, Handover and KT. | * Deliverable3.1 – show case and review. * Deliverable3.2 – Final Presentation and documentation * Deliverable3.3 – Handover and KT |

## Deliverables Out of Scope

* Web Application
* Mobile App
* Cloud based deployment

## Project Duration (start date: 15/09/2021 End date: 05/10/2021)

|  |  |  |  |
| --- | --- | --- | --- |
| **Project Milestone** | **Date Estimate** | **Deliverable(s) Included** | **Confidence Level** |
| * Identifying Constraints and design the project architecture, explore various public forums to collect relevant data, Data Preparation. | [22/05/2024]  -  [29/05/2024] | * Deliverable 1.1—Identifying Constraints and design the project architecture. * Deliverable 1.2—Explore various public forums to collect relevant data. * Deliverable 1.3— Data Preparation | [High] |
| * EDA and Descriptive Analytics | [30/05/2024]  -  [09/06/2024] | * Deliverable 2.1— EDA and Descriptive Analytics * Deliverable 2.2--- Insights documentation | [High] |
| * Show case and review, Final Presentation and documentation, Handover and KT. | [10/06/2024]  -  [20/06/2024] | * Deliverable3.1 – show case and review * Deliverable3.2 – Final Presentation and documentation * Deliverable3.3 – Handover and KT | [Medium] |



# PROJECT CONDITIONS

## Project Assumptions

* Data will be extracted from public sources and then client provided data is mapped and finally one master data will be shared by Innodatatics for further analysis.
* Dashboards and insights are mandatory.

## Project Issues *–* As the project progresses, issues such as data availability, technical challenges, resource constraints, scope creep, communication breakdowns, quality control, risk management, and timeline constraints have arisen. Efforts are underway to address these issues, including engaging with the client for additional data, collaborating with the data engineering team, prioritizing tasks, conducting scope review meetings, improving communication, implementing stricter quality control measures, updating risk registers, and revising project schedules.

**Priority Criteria**

1 − High-priority/critical-path issue; requires immediate follow-up and resolution.

2 − Medium-priority issue; requires follow-up before completion of next project milestone.

3 − Low-priority issue; to be resolved prior to project completion.

4 − Closed issue.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **#** | **Date** | **Priority** | **Owner** | **Description** | **Status & Resolution** |
| 1 |  | High |  |  |  |
| 2 |  | High |  |  |  |

## Project Risks –

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **#** | **Risk Area** | **Likelihood** | **Risk Owner** | **Project Impact-Mitigation Plan** |
| 1 | Data Availability | Medium | [Owner] | Delay in analysis process due to incomplete data. Mitigation: Engage with client for additional data sources; explore alternative data acquisition methods. |
| 2 | Technical Challenges | High | [Owner] | Delays in model development and deployment. Mitigation: Collaborate with data engineering team; seek guidance from external experts. |



# PROJECT REFERENCES

# APPROVALS

**Prepared by** \_ARPITHA K V

Project Manager

**Approved by** Sharat Chandra M\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Project Sponsor

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Executive Sponsor

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Client Sponsor

