Norike Geotech

Project Plan

Implementation of Solar Power Systems

COURSE

M502 PROJECT MANAGEMENT

STUDENTS

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About Us:

Norike Geotech Ltd.

NORIKE GEOTECH LIMITED as an indigenous corporate organization was established in 2005 and incorporated into the corporate affairs commission in 2010 as a Limited Liability Company. The Purpose of Operations of the company is to provide quality specialized geotechnical services through designs, constructions, and maintenance of substructures and foundations for all civil engineering projects with consultancy services. Since inception, we have amassed a high-quality standard through execution of sophisticated geotechnical engineering projects for individuals, corporate bodies and Government agencies to the satisfaction of our clients. The company is very rich with improved technology-based equipment's, highly experienced workforce with self-motivated personnel attitude. We have the technical ability and competence to execute large scale projects and services to the satisfaction of our clients. NORIKE GEOTECH LIMITED is committed to effective and efficiency services as we look forward to serving you.

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1. Project Overview:

1.1. Purpose, Scope and Objectives, and Business Case

1.1.1. Scope

The scope of project outlined here is all about installing a solar power system at Norike Geotech Ltd. that is mainly for reducing the company's need for electricity from the national grid. This project comprehensively includes the stages of the solar photovoltaic (PV) system's design, planning, installation, and commissioning.

The solar power system will generate electricity for the company's main site and all its parts, from office buildings to workshops to operational units. As part of the project, we will conduct a detailed energy audit to determine how much power the site actually uses, then try to size and type the solar panels, inverters, batteries, and other auxiliary equipment so that they will meet the normal and peak demands of the site.

The venture further involves installing a surveillance system through which the energy yield and use can be observed almost immediately. Checks of the system's safety, its adherence to the local energy laws, and the training of some of our personnel to handle the system minimally are also part of the deal. This phase deals almost exclusively with getting the system up and running. If the system fails to be a safety hazard and is in accordance with the locals' energy laws, energy lawyers and energy law paralegals will allow some of our personnel to do what is minimally required to keep the system functioning.

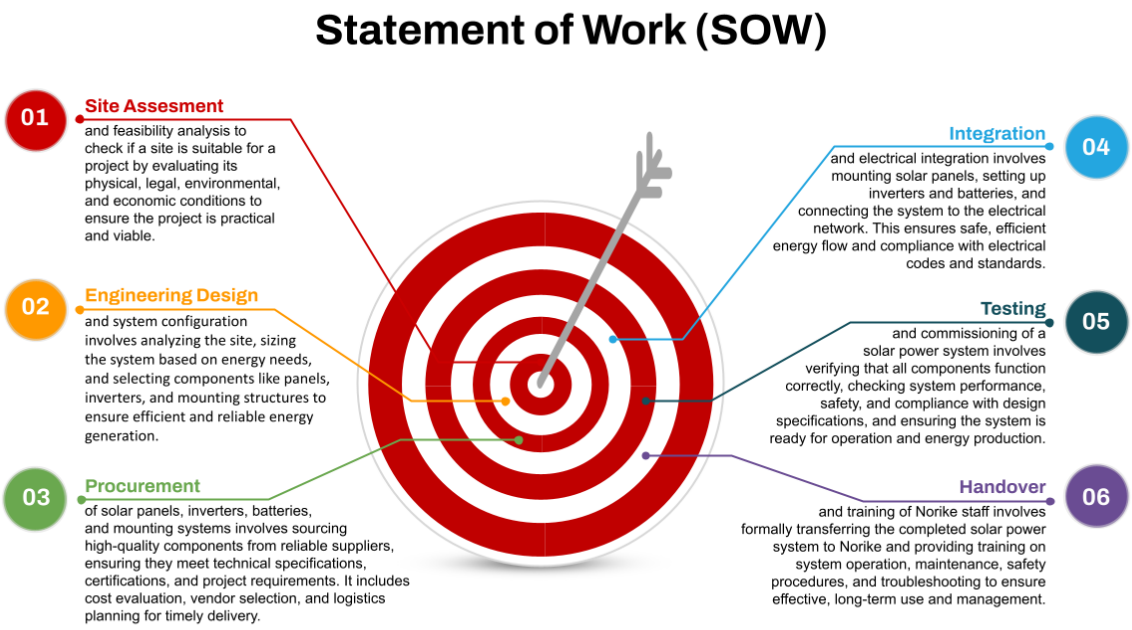
The project's final and ultimate goal is to deliver a reliable and eco-friendly energy source that lowers electricity expenses and at the same time assists the company in achieving its green targets to meet its environmental objectives.

Out of Scope

The project does not encompass the enlargement to off-site branches of Norike Geotech Ltd. and does not include wind, hydro, or any other renewable technology. Long-term operation and maintenance beyond the warranty period is not part of the project unless a separate service contract covers it.

1.1.2. Statement of Work (SOW)

The SOW outlines the responsibilities and deliverables of each project phase:



1. Site Condition Assessment and Feasibility Study: Evaluate the site conditions, estimate the energy costs, and assess both the technical and financial feasibility of implementing a solar system.
2. Engineering Design with System Configuration: Prepare detailed component and circuit diagrams including all parts of the system, paying special attention to all electrical parameters to guarantee optimal performance.
3. Equipment Purchase: Acquire necessary other tools, solar panels, inverters, batteries as well as mounting systems from trustworthy vendors together with their installation aids.
4. Electrical Integration and Installation: Integrate all components of the systems within the pre-defined boundaries as well as link them to the existing electrical network or grid.
5. Testing and Approval for Use Commissioning: Check functionality and safety by conducting thorough tests on performance to ensure that predetermined expectations were met.
6. Transfer of the solar system staff of Norike: Conduct the training of the staff with the help of system documentation and explain how they can use, observe, and care for the solar system.

1.1.3. Business Case

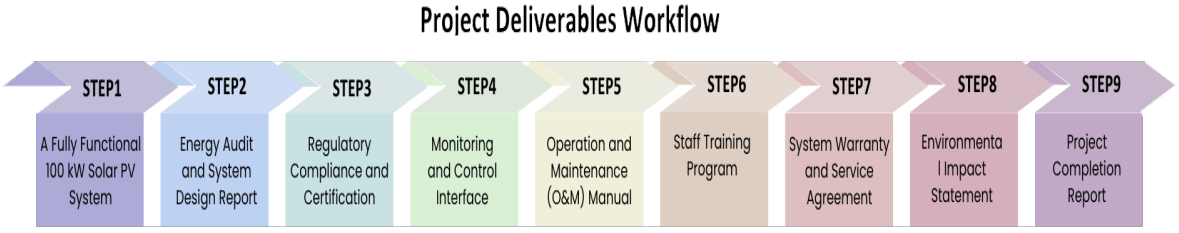
The business case for utilizing solar energy by deploying solar power systems is generally based on the objectives of lowering electricity tariffs, increasing energy reliability, and conducting green operations. The payback period is estimated to be 5 years, while most of the savings are expected during the 25 years of the system's operation. Additionally, the solar power installation will serve as a hedge against volatile energy prices for the enterprise.

1.2. Project Deliverables

1.1 Project Deliverables

Execution of this project will bring to life the following important outputs:

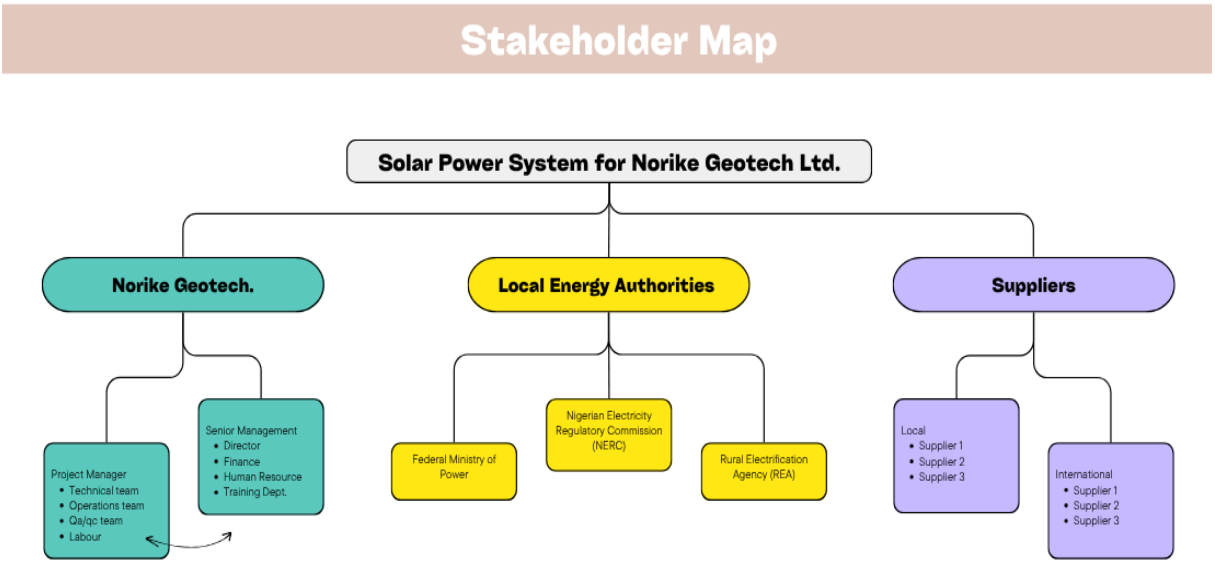
- A Fully Operational 100 kW Solar PV System: The installation of solar panels, inverters, wiring, mounting structures, and battery storage (if applicable) is covered in this. The system will be sized to cover the energy requirements of Norike Geotech Ltd.'s main facility daily.
- Energy Audit and System Design Report: A comprehensive study indicating the present energy utilization habits and the ways solar system can compensate or take the place of energy from the grid. This report is a guarantee of the technical correctness of the system setup and the energy composition.
- Regulatory Compliance and Certification: The ones that matter will be the permits and other necessary documents obtained from the authorities that deal with energy and environment. In this case, safety inspections and the system's certifications, according to local laws and the standards of the industry, are proof of compliance.
- Monitoring and Control Interface: A handy, easy-to-navigate, and adaptable digital panel or a mobile app that allows the system's energy generation to be checked in practice also makes it possible to record the use, and it gives the notification if there is any trouble.
- Operation and Maintenance (O&M) Manual: A very detailed document which lays out the parts of the system, the ways to continue with the maintenance, the frequency of performing the maintenance, security, and troubleshooting.
- Staff Training Program: A few chosen workers from the team will have the chance to get practical training on how to handle the system and do the simple maintenance work, among them will also be the procedures for emergency shutdown and the use of monitoring software.
- System Warranty and Service Agreement: The paper that defines the guarantee period of all the main parts and the suggested maintenance schedule after installation. Also, there possibility of optional service contracts.
- Environmental Impact Statement: The project's good deeds to the environment, such as the calculated decrease of annual carbon declarations and the objectives of Norike Geotech Ltd. regarding ecologically sustainable development, are the main points of this statement.
- Project Completion Report: The final document that describes the whole project from the beginning down to the installation in addition to mentioning the difficulties, how these were solved, and actual versus planned costs and schedules as well as lessons learned.



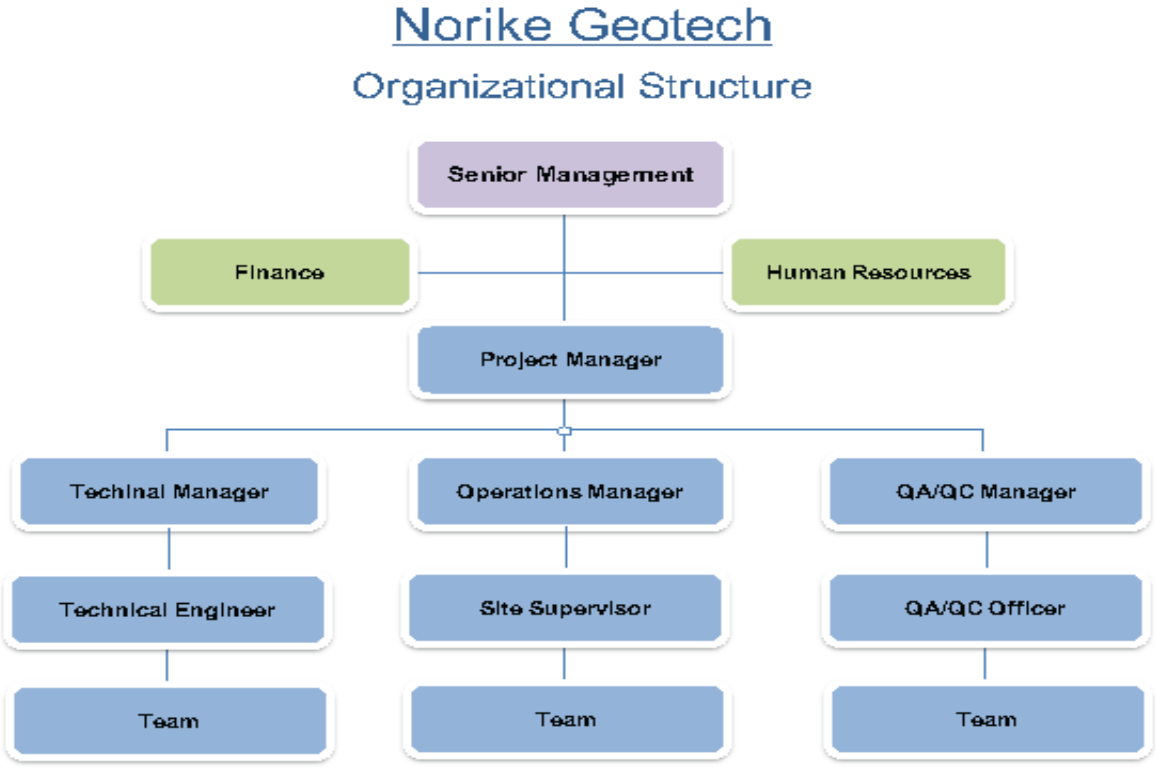
1.3. Project Organization

A dedicated team made up of a project manager, technical engineer, procurement specialist, site supervisor, financial analyst and quality assurance officer will handle the project. Norike's senior management will provide the necessary oversight. Local energy authorities, suppliers and company staff are among the key stakeholders.

STAKE HOLDER MAP



NORIKE ORGANIZATIONAL CHART

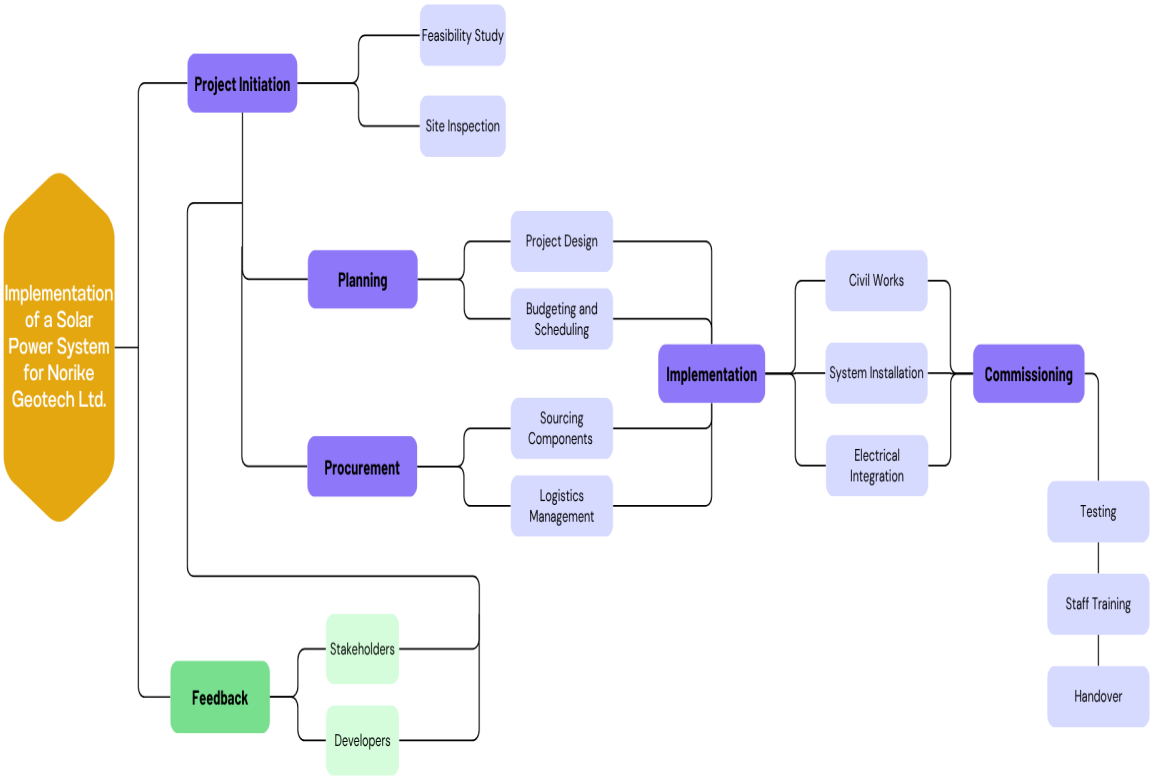


1.4. Work Breakdown Structure (WBS)

This is the Work Breakdown structure of the project. It shows the deliverables that need to be done after the project start. Also, this structure is not fixed and can be changed with the feedback and inputs from the stakeholders.

1.4.1 Task Description Documentation

1. Project Initiation
   1.1 Feasibility Study
   1.2 Site Inspection
2. Planning
   2.1 Project Design
   2.2 Budgeting and Scheduling
3. Procurement
   3.1 Sourcing Components
   3.2 Logistics Management
4. Implementation
   4.1 Civil Works
   4.2 System Installation
   4.3 Electrical Integration
5. Commissioning
   5.1 Testing
   5.2 Staff Training
   5.3 Handover



1.4.2 Organization Breakdown Structure (OBS)

The Organization Breakdown Structure (OBS) represents the project team in a hierarchical way and also illustrates the correspondence between the parties or individuals given to the departments. It also specifies the relationship between the organizational units and the WBS in order to enable tracking and efficient resource management.

	Level Role.	**Department.**	**Responsibility**
1	Project Sponsor	Executive	Oversight, Strategic alignment
2	Project Manager	Engineering	Execution, control, team coordination
3	Technical Lead	Solar Engineering	System Design
4	Financial Analyst	Finance	Budget planning and control
5	Procurement Officer	Supply Chain	Material and contractor acquisition
6	Field Engineer	Installation team	On-site supervision, quality control
7	Safety Officer	HSE	Ensure safety and regulatory compliance
8	Communication Lead	Admin	Stakeholder, communication, update

1.5 Responsibility Assignment Matrix (RAM)

The Responsibility Assignment Matrix (RAM) maps out tasks to responsible individuals using the RACI model:

RACI MODEL

Project	Sponsor	Senior Management	Project Manager	Tech lead	Field Engineer	Finance	Procurement
	Project Leadership		Project Team Members				
INITIATE PHASE ACTIVITIES							
Project Planning	I	C	A	C	C	C	C
Site Assessment	I	I	R	A	R	I	I
PLAN PHASE ACTIVITIES							
System Desing	I	I	C	A	I	I	C
Budget Estimation	I	C	R	C	I	A	C
Procurement	I	C	C	R	I	C	A
EXECUTE PHASE ACTIVITIES							
Intallation	I	I	I	R	A	I	C
Testing and commissioning	I	I	C	A	R	I	I
CLOSE PHASE ACTIVITIES							
Final Handover	A	C	A	C	C	C	C

R — Responsible
A — Accountable
C — Consulted
I — Informed

Anderson, D.K. and Anderson, L.A., 2010. Beyond change management: How to achieve breakthrough results through conscious change leadership. 2nd ed. San Francisco, CA: Pfeiffer.

1.6 Work Authorization

Every project activity in the project needs a formal work permit from the Project Manager. Work packages are authorized after a scope, budget, and timeline compliance check. This makes sure that only the work that has been approved is carried out.

1.7 Project Charter

Project Title: Solar Power System Implementation for Norike Geotech Ltd.

Project Purpose: To reduce energy cost, ensure power reliability, and promote sustainability by installing a solar photovoltaic (PV) system at Norike Geotech Ltd.

Objectives:

- Install a 50-kW solar system within 90 days
- Reduce monthly energy bills by 60%
- Ensure ROI in less than 4 years

Key Deliverables:

- Solar system design
- Equipment procurement
- System installation and testing
- Operational manual and training

Stakeholders:

- Sponsor: Managing Director
- End-users: Staff and management
- Contractor: SolarTech Ltd.

Constraints:

- Budget of €60,000
- Completion within 3 months
- Regulatory compliance

Assumptions:

- Adequate sunlight
- Stable prices from suppliers
- No project-halting permits delay

PROJECT CHARTER

GENERAL PROJECT INFORMATION

PROJECT NAME		PROJECT MANAGER	PROJECT SPONSOR
Solar Power System Implementation for Norike Geotech Ltd.		PROJECT MANAGER	NORIKE GEOTECH
EMAIL	**PHONE**	**ORGANIZATIONAL UNIT**	
NOEKEGEOTECH	000-000-0000	Field Engineering, Operations, and Project Management	
GREEN BELTS ASSIGNED		**EXPECTED START DATE**	**EXPECTED COMPLETION DATE**
Project Manager		1/9/2025	30/11/2025
BLACK BELTS ASSIGNED		**EXPECTED SAVINGS**	**ESTIMATED COSTS**
Operations Manager		60% OF MONTHLY ELECTRICITY BILLS	$65,000

PROJECT OVERVIEW

PROBLEM OR ISSUE	• High dependence on the energy grid
PURPOSE OF PROJECT	• To reduce energy cost, ensure power reliability, and promote sustainability by installing a solar photovoltaic (PV) system at Norike Geotech Ltd.
BUSINESS CASE	• The business case for implementing solar energy is to achieve cost savings on electricity, increase energy security, and demonstrate environmental responsibility.
GOALS / METRICS	• Goal is to install a 50-kW solar system within 90 days • Reduce monthly energy bills by 60% • Ensure ROI in less than 4 years
EXPECTED DELIVERABLES	• Solar system design • Equipment procurement • System installation and testing • Operational manual and training

RESOURCES

PROJECT TEAM	• Project Manager • Qa/Qc Manager • Technical Manager • Operations Manager
SUPPORT RESOURCES	Operations, Sales, Project Management, Engineering
SPECIAL NEEDS	

COSTS

COST TYPE	VENDOR / LABOR NAMES	RATE	QTY	AMOUNT
Supplies	Solar Panels	$250.00	100	$ 25,000.00
Supplies	Inverters	$1000.00	5	$ 5,000.00
Supplies	Batteries	$600.00	10	$ 6,000.00
Supplies	Mounts & Wiring	-	-	$ 4,000.00
Labor	Labor	-	-	$ 10,000.00
Legal	Permits & Legal charhes	-	-	$ 2,000.00
Miscellaneous	Misc.	-	-	$ 3,000 .00
			TOTAL COSTS	$ 55,500.00

Pyzdek, T. and Keller, P.A., 2018. The Six Sigma handbook: A complete guide for Green Belts, Black Belts, and managers at all levels. 5th ed. New York: McGraw-Hill Education.

PROJECT SCOPE

WITHIN SCOPE	• Designing • Procurement • Installation • Commissioning • Training
OUTSIDE OF SCOPE	The project does not cover expansion to off-site branches of Norike Geotech Ltd., nor does it include wind, hydro, or other renewable technologies. It also excludes long-term operation and maintenance beyond the warranty period, unless covered by a separate service contract.

TENTATIVE SCHEDULE

KEY MILESTONE	START	FINISH
Project Initiation	01/09/25	03/09/25
Site Inspection / Load Assessment / Permits Application	03/09/25	14/09/25
System Design / Vendor Selection / Procurement	14/09/25	28/09/25
Site Preparation	28/09/25	02/10/25
Installations – Structure/Panel/Inverter	02/10/25	01/11/25
Wiring / Cabling / Battery setup	01/11/25	09/11/25
System Integration	09/11/25	12/11/25
Testing and Commisioning	12/11/25	19/11/25
Staff training & Documentation	19/11/25	26/11/25
Final Inspection	26/11/25	27/11/25
Handover & Closure	27/11/25	28/11/25

BENEFITS AND CUSTOMERS

PROCESS OWNER	Project Manager
KEY STAKEHOLDERS	• Sponsor: Managing Director • End-users: Staff and management • Contractor: SolarTech Ltd.
FINAL CUSTOMER	Staff and management
EXPECTED BENEFITS	Reduction of dependance and cost of the energy grid

RISKS, CONSTAINTS AND ASSUMPTIONS

RISKS	• Equipment delivery delays • Unexpected cost increases • Technical installation failure • Weather delays • Regulatory/Permit issues
CONSTRAINTS	• Budget of €60,000 • Completion within 3 months • Regulatory compliance
ASSUMPTIONS	• Adequate sunlight • Stable prices from suppliers • No project-halting permits delay

PREPARED BY	TITLE	DATE
Project Manager	Project Manager	23/6/2025

Pyzdek, T. and Keller, P.A., 2018. The Six Sigma handbook: A complete guide for Green Belts, Black Belts, and managers at all levels. 5th ed. New York: McGraw-Hill Education.

2. RISK ASSESSMENT

2.1 Risk Identification

Date of last review:		**21/06/2025**		
ID	Description of Risk	Impact	Risk Level	Risk owner
R1	Equipment Delivery delays	Pushes launch	High	Procurement
R2	Unexpected cost increases	Cost overruns	High	Technical Installation team
R3	Techinical faults in solar panels	Reduced system efficiency	Low	Engineering
R4	Weather delays	Installation disruption	Medium	Operations team
R5	Regulatory / Permit issues	Project halt	High	Legal team

2.2 Qualitative Assessment

A Qualitative Risk Assessment utilizing a Risk Matrix assesses risks through the non-numerical judgment of Probability (P) and Impact (I) levels. Typically, it uses only qualitative descriptors such as Low, Medium, and High instead of exact numerical calculations. The matrix is also a great tool for visual and strategic risk prioritization.

Risk Matrix		**Severity**				
		Insignificant	Minor	Moderate	Major	Severe
Likelihood	Almost Certain	Low	Medium	High	Very High	Very High
	Likely	Low	Medium	High (R1)	Very High	Very High
	Possible	Low	Medium (R4)	High	High (R2)	High
	Unlikely	Low	Low	Medium	Medium (R5)	Medium (R3)
	Rare	Low	Low	Low	Low	Low

2.3 Quantitative Assessment

We calculate Expected Monetary Value (EMV):

- R2 (Cost Overrun): 30% chance of +€10,000 → EMV = 0.3 × 10,000 = €3,000
- R3 (Failure Rework): 20% chance of +€7,000 → EMV = €1,400

2 .4 **Mitigation Strategies**

R1.	Pre-order equipment, track logistics
R2.	Include contingency budget
R3.	Hire certified installer, test components
R4.	Buffer time in schedule
R5.	Apply early for permits, consult legal

3. Project Schedule

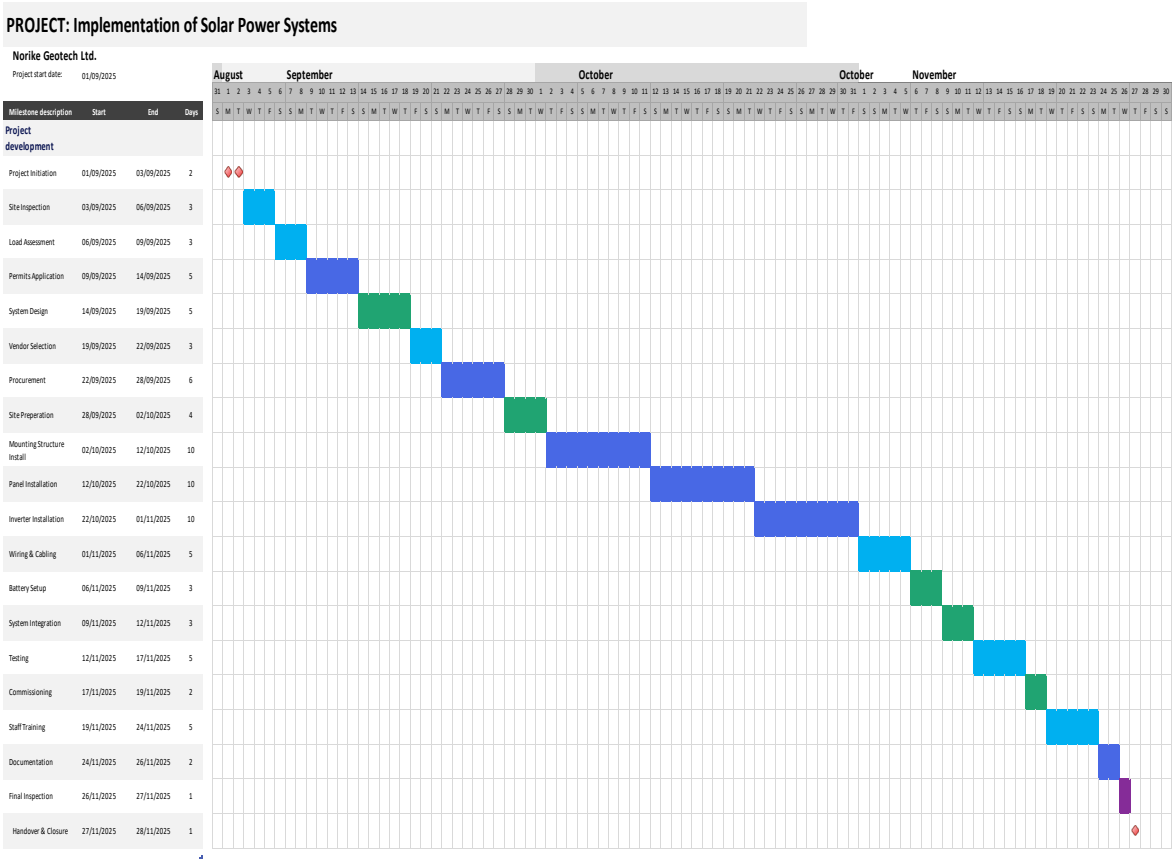
3.1 Activity Duration Estimates

20 key activities with estimated durations:

1. Project Initiation (2 days)
2. Site Inspection (3 days)
3. Load Assessment (3 days)
4. Permits Application (5 days)
5. System Design (5 days)
6. Vendor Selection (3 days)
7. Procurement (6 days)
8. Site Preparation (4 days)
9. Mounting Structure Install (10 days)
10. Panel Installation (10 days)
11. Inverter Installation (10 days)
12. Wiring & Cabling (5 days)
13. Battery Setup (3 days)
14. System Integration (3 days)
15. Testing (5 days)
16. Commissioning (2 days)
17. Staff Training (5 day)
18. Documentation (2 days)
19. Final Inspection (1 day)
20. Handover & Closure (1 day)

3.2 Gantt Chart

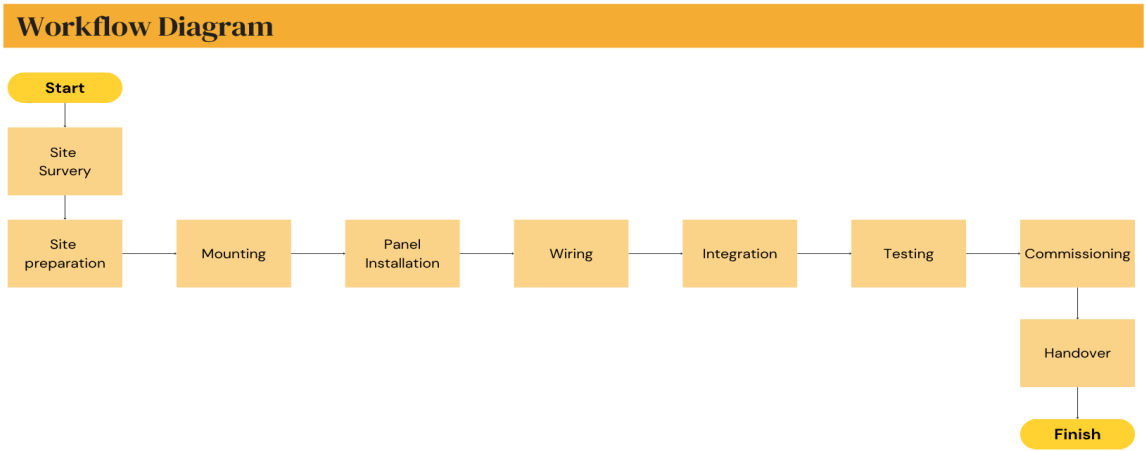
The below image shows a visual project management tool which is used for planning, coordinating and following up on work by checking each stage of the process one by one.



Project Management Institute (PMI), 2017. A guide to the project management body of knowledge (PMBOK® Guide). 6th ed. Newtown Square, PA: Project Management Institute.

3.3 Activity Network Diagram

This shows dependencies and helps identify the critical path. E.g., Site Prep → Mounting → Panel Install → Wiring → Integration → Testing → Commissioning → Handover.



4. Project Budget

4.1 Project Resources

	Resource	Quantity	Unit Cost(€)	Other Costs
1	Solar panels	100	250	25,000
2	Inverters	5	1000	5,000
3	Batteries	10	600	6,000
4	Mounts & Wiring	-		4,000
5	Labor	-		10,000
6	Permits & Legal	-		2,000
7	Miscellaneous	-		3,000
TOTAL				55,000

4.2 Other Costs

- Risk buffer: €5,000
- Unexpected issues: €2,000

4.3 Cost Estimates

All cost items reviewed and benchmarked with past solar projects in Nigeria and Germany.

4.4 Time-Phased Budget

This shows when money will be spent across months:

- Month 1: €20,000
- Month 2: €25,000
- Month 3: €10,000 + €5,000 reserve

5. Communications Management

Last but surely not the least in the project planning template is a section about a project communication plan. This means an opportunity to sketch out some of the key communication elements that will be present during the project.

- **Project Reports & Reporting Frequency: Indicate the project reports you anticipate and their frequency.**

- **Project Meetings: Will the project meetings occur at consistent intervals throughout the duration of the project? Define all meeting types along with their corresponding frequencies.**

- **Project Documentation: Summarize all relevant documentation including project charter, work breakdown structure, resource plan, schedule, and change management plan.**

Stakeholder.	Method.	Frequency.	Responsibility
Project team	Meetings	Weekly	PM
Sponsor	Report	Bi-weekly	PM
Contractor	Email & calls	Daily	Tech Lead
Public	Reports	As needed	Comm. Lead
Regulators	Reports	As needed	Comm. Lead

For a project to be successful communication has to be on time, understandable and must be of two-way nature.

Stakeholder Analysis

Registers are maintained for all stakeholders through the use of templates.

STAKEHOLDER MANAGEMENT TEMPLATE

PROJECT NAME: Implementation of Solar Power Systems
PROJECT MANAGER: Project Manager
PROJECT DELIVERABLE: A fully operational solar PV system with 100 kW capacity and Trained staff
START DATE: 01/09/2025
END DATE: 30/11/2025

						COMMUNICATION			COMMITMENT LEVEL				
STAKEHOLDER	TITLE	INTEREST	INFLUENCE	INFORMATION TYPE	DECISION MAKER?	Frequency	Type	Strategy	Unaware	Against	Neutral	Supportive	Leading
Sponsor	General Manager	High	High	Status updates	Yes	Weekly	Phone Call	Manage Closely					✓
Employees		Medium	Medium	Status updates, budget reports, timeline, change requests	Yes	Twice Weekly	Phone Call	Keep Informed				✓	
Contractor		High	Medium	Timeline, key design decisions	No	Weekly	Teams Meeting	Keep Satisfied			✓		
Regulator		Low	High	Timeline, key construction decisions	No	Weekly	Teams Meeting	Monitor		✓			
Public		Low	Low	Status updates	No	Monthly	Email	Minimal Effect	✓				

Pyzdek, T. and Keller, P.A., 2018. The Six Sigma handbook: A complete guide for Green Belts, Black Belts, and managers at all levels. 5th ed. New York: McGraw-Hill Education.

6. Tracking and status updates.

6.1 Tracking Method

Methods that will be deployed to ensure the trudge of the project through the planned stages is as per the objective are given below:

- Gantt Chart: A comprehensive Gantt chart will be the primary visual tool to easily follow project tasks, milestones, dependencies and their progress. This will be done on a weekly basis to compare actual progress with the planned schedule and therefore get an updated schedule.

- Earned Value Management (EVM): This approach is considered to be the best one for performance measurement of project in term of schedule and adherence of cost. We can find out whether the project is ahead or behind schedule and over or under the budget by calculating planned value (PV), earned value (EV) and actual cost (AC).

Earned Value Measurement (EVM)

At 30% completion:

- Planned Value (PV): €16,500 (30% of €55,000)
- Earned Value (EV): €13,200 (actual progress)
- Actual Cost (AC): €18,000

Calculations:

- Cost Variance (CV) = EV – AC = €13,200 – €18,000 = –€4,800
- Schedule Variance (SV) = EV – PV = €13,200 – €16,500 = –€3,300
- CPI = EV / AC = 0.73 (Over budget)
- SPI = EV / PV = 0.8 (Behind schedule)

- Weekly Progress Evaluation Meetings: To facilitate progress tracking, milestone modifications, and problem-solving, all teams that are involved and even stakeholders convene every Friday afternoon. A concise summary document will be circulated after these meetings.

- Site Inspections and Field Reports: Periodic on-site inspections will take place to guarantee that operations are carried out as intended. Feedback from these site inspections is useful for validation purposes against other tracking indicators.

- Time Sheets and Work Logs: Employees active in the project shall submit time sheets on a weekly basis. These documents indicate how resources are consumed and aid in checking the accuracy of effort estimates.

6.2 Notification Record

In order to streamline notifications and communications regarding timeliness of changes, the following steps will be taken:

- Any alteration to schedule, scope, or budget must be relayed and recorded within a 24 hour timeframe.
- Centralized Notification Logs will be utilized for keeping track of issues in real time. Logs will include the issue at hand, the issuer's information, communication channel (email, in-person, MS Teams), and escalation date.
- Urgent critical path issues that impact cost or pose safety concerns set forth by the tasks must be forwarded immediately to project sponsors along with relevant department heads for instant review.
- Snipes quotes acknowledge receipt of documentation thus ensuring responsibility is assigned and potential traceability guaranteed.

6.3 Control Systems

The establishment of control systems will make it easier to keep track and take correct decisions during each phase of the work:

- Change Request Forms (CRFs): A formal CRF shall be used for any changes proposed to the scope, schedule, or budget. The Change Control Board (CCB) will be the entity that reviews the requests and thus they will decide the status of each request, whether to accept it or reject it.
- Change Request Forms (CRFs): Any proposed changes to the scope, schedule, or budget shall be made using a formal CRF. Those forms will be reviewed by the Change Control Board (CCB) who will accept or reject each request.
- Issue Logs: Any issue that comes up during execution will be centrally recorded in a core issue log. To each issue will be given a responsible person, due date, and resolution status.
- Daily Site Reports: The on-site supervisors will fill out a brief report specifying work completed, encountered issues, manpower on site, weather conditions, and safety checks. They are forwarded electronically by end of day.
- Monthly Project Dashboard: An executive summary containing key performance indicators (KPIs), trends in the budget and timeline, risks, and major decisions will be prepared and circulated among executives monthly.
- Audit Trails: The log will include all major project decisions including procurement, budgetary adjustments, schedule alterations among others stated in a manner that ensures traceability for compliance audits.
- Slack Channel for Real-Time Coordination: A dedicated slack channel set up for the purpose of sharing real-time updates from sites images/screenshots as well as coordinating with the internal team is designated for intra-team communication.

7. Project Closeout

7.1 Close Cost Accounts

All expenses will be tracked back to the budget. Procurement and finance departments will confirm accounts and complete a closure report for submission.

7.2 Lessons Learned

- Equipment logistics should be confirmed earlier.
- Include buffer for weather and risk mitigation.
- Weekly risk assessment improved response time.

Conclusions and Recommendations

The solar power system project at Norike Geotech Ltd. is viable, sustainable, and cost-effective. To enhance success:

- Build strong supplier partnerships.
- Invest in risk mitigation from the start.
- Use agile feedback loops in technical phases.

8. Referances

Books & Reports

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NORIKE GEOTECH LIMITED
Geotechnics Engineering Specialist

NORIKE GEOTECH

PROJECT PLAN

IMPLEMENTATION OF SOLAR POWER SYSTEMS

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NORIKE GEOTECH LTD.

ABOUT US

NORIKE GEOTECH LIMITED as an indigenous corporate organization was established in 2005 and incorporated into the corporate affairs commission in 2010 as a Limited Liability Company. The Purpose of Operations of the company is to provide quality specialized geotechnical services through designs, constructions, and maintenance of substructures and foundations for all civil engineering projects with consultancy services. Since inception, we have amassed a high-quality standard through execution of sophisticated geotechnical engineering projects for individuals, corporate bodies and Government agencies to the satisfaction of our clients. The company is very rich with improved technology-based equipment's, highly experienced workforce with self-motivated personnel attitude. We have the technical ability and competence to execute large scale projects and services to the satisfaction of our clients. NORIKE GEOTECH LIMITED is committed to effective and efficiency services as we look forward to serving you.

SCOPE OF WORK

This project focuses on setting up a solar power system for Norike Geotech Ltd., with the main goal of reducing the company's dependence on the national power grid. The scope covers everything from the initial design and planning to the final installation and commissioning of a solar photovoltaic (PV) system. The system will supply electricity to the company's main facility, including office buildings, workshops, and operational units. As part of the project, we'll carry out a detailed energy audit to determine current power usage, then recommend the right size and type of solar panels, inverters, batteries, and other equipment needed to meet demand. The project also includes the setup of a monitoring system that allows for realtime tracking of energy production and consumption. Safety checks, compliance with local energy regulations, and staff training for basic system operation and maintenance are also part of the deliverables. While this phase focuses on installation, long-term servicing or maintenance will be handled under a separate arrangement if needed. Ultimately, the project aims to provide a reliable and sustainable energy source that reduces electricity costs and supports the company's environmental goals.

STATEMENT OF WORK

01 Site Assesment
and feasibility analysis to check if a site is suitable for a project by evaluating its physical, legal, environmental, and economic conditions to ensure the project is practical and viable.

02 Engineering Design
and system configuration involves analyzing the site, sizing the system based on energy needs, and selecting components like panels, inverters, and mounting structures to ensure efficient and reliable energy generation.

03 Procurement
of solar panels, inverters, batteries, and mounting systems involves sourcing high-quality components from reliable suppliers, ensuring they meet technical specifications, certifications, and project requirements. It includes cost evaluation, vendor selection, and logistics planning for timely delivery.

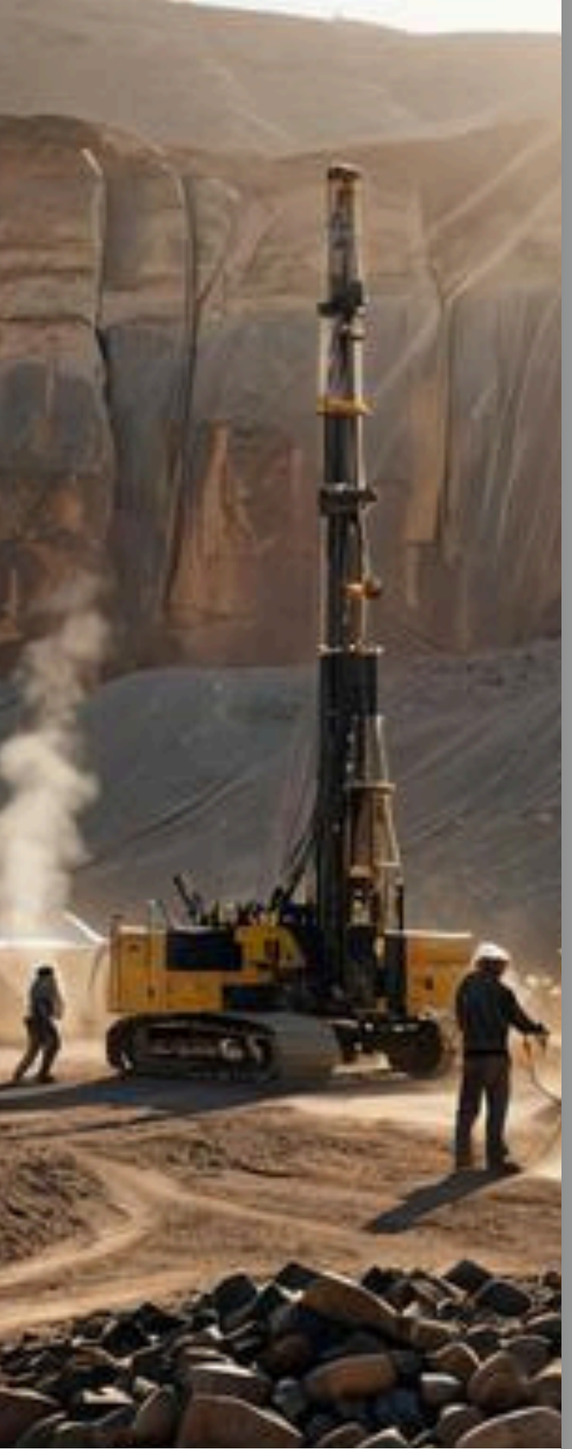
04 Integration
and electrical integration involves mounting solar panels, setting up inverters and batteries, and connecting the system to the electrical network. This ensures safe, efficient energy flow and compliance with electrical codes and standards.

05 Testing
and commissioning of a solar power system involves verifying that all components function correctly, checking system performance, safety, and compliance with design specifications, and ensuring the system is ready for operation and energy production.

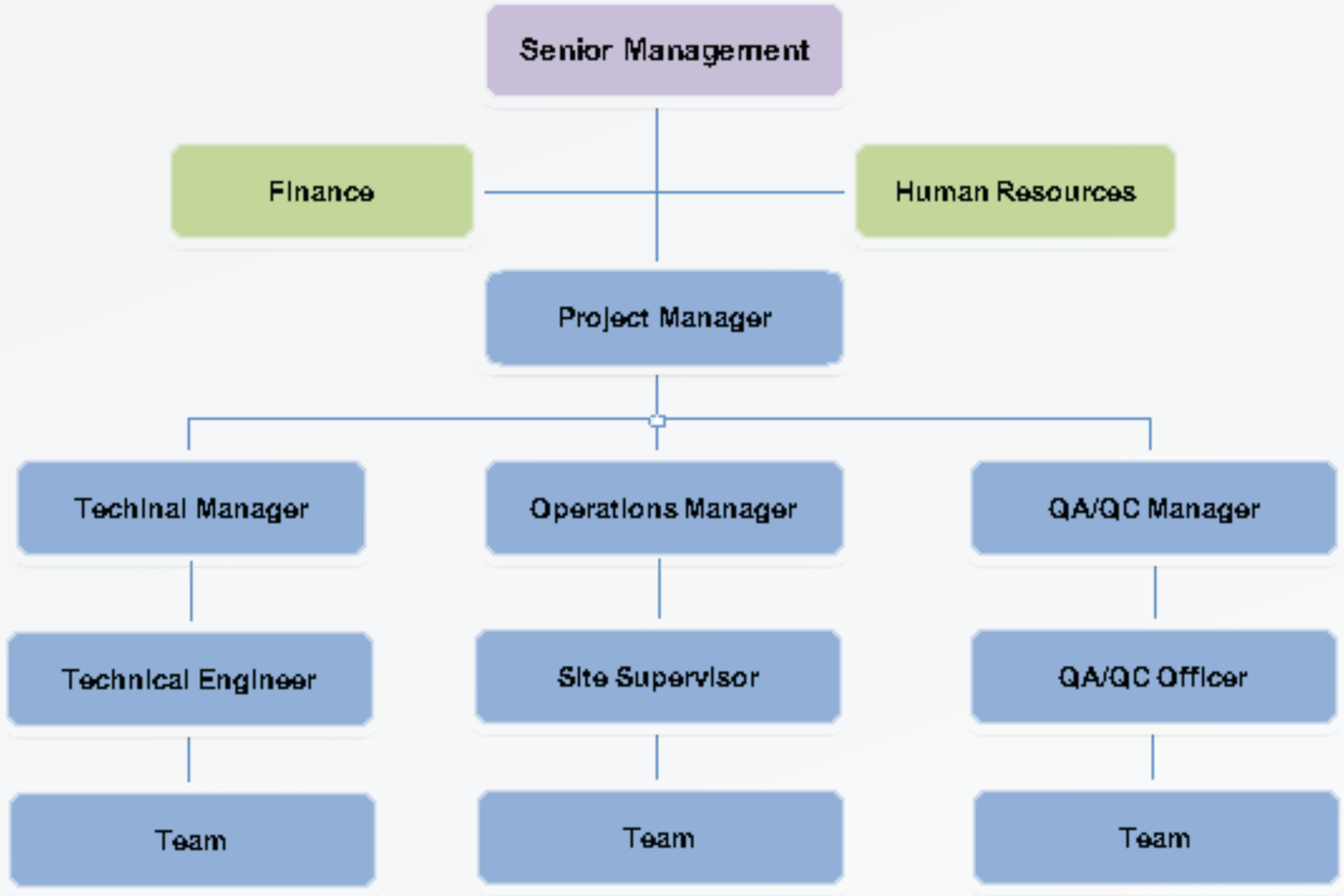
06 Handover
and training of Norike staff involves formally transferring the completed solar power system to Norike and providing training on system operation, maintenance, safety procedures, and troubleshooting to ensure effective, long-term use and management.

Project Deliverables Workflow

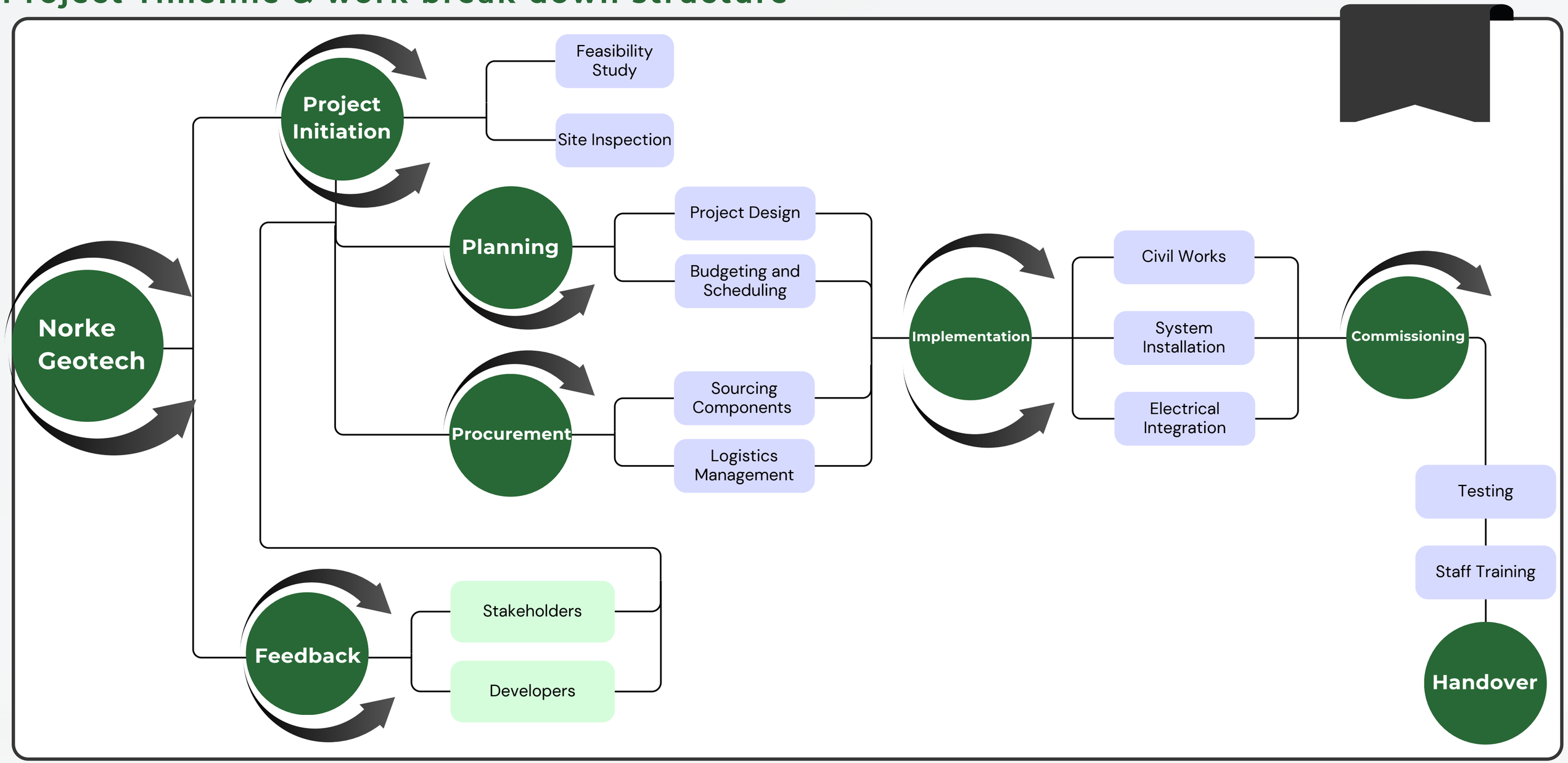
STEP1	STEP2	STEP3	STEP4	STEP5	STEP6	STEP7	STEP8	STEP9
A Fully Functional 100 kW Solar PV System	Energy Audit and System Design Report	Regulatory Compliance and Certification	Monitoring and Control Interface	Operation and Maintenance (O&M) Manual	Staff Training Program	System Warranty and Service Agreement	Environmental Impact Statement	Project Completion Report



ORGANIZATIONAL STRUCTURE



Project Timeline & work break down structure



Responsibility Assignment Matrix (RAM)

The Responsibility Assignment Matrix (RAM) maps out tasks to responsible individuals using the RACI model

RACI MODEL

Project	Sponsor	Senior Management	Project Manager	Tech lead	Field Engineer	Finance	Procurement
	Project Leadership		Project Team Members				
INITIATE PHASE ACTIVITIES							
Project Planning	I	C	A	C	C	C	C
Site Assessment	I	I	R	A	R	I	I
PLAN PHASE ACTIVITIES							
System Desing	I	I	C	A	I	I	C
Budget Estimation	I	C	R	C	I	A	C
Procurement	I	C	C	R	I	C	A
EXECUTE PHASE ACTIVITIES							
Intallation	I	I	I	R	A	I	C
Testing and commissiioning	I	I	C	A	R	I	I
CLOSE PHASE ACTIVITIES							
Final Handover	A	C	A	C	C	C	C

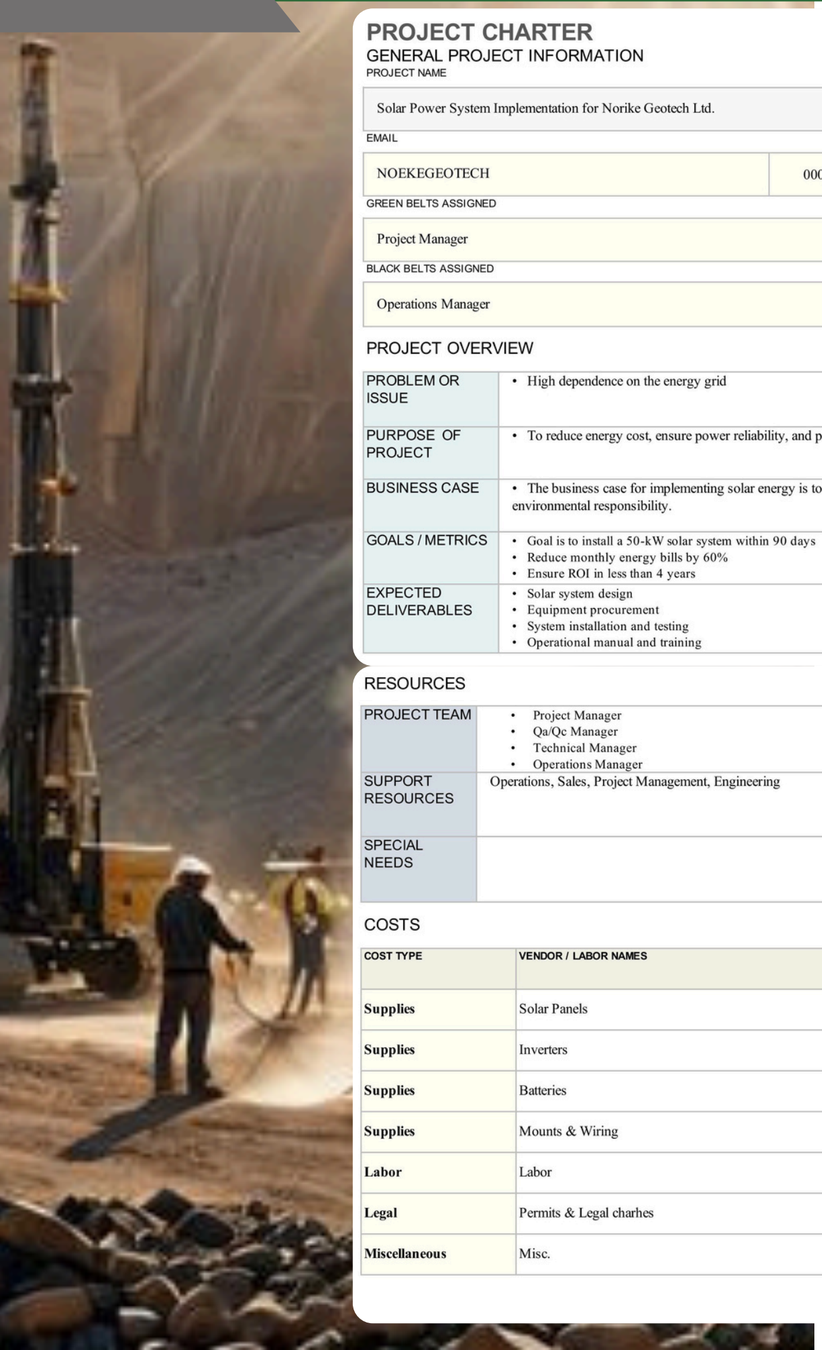
R — Responsible

A — Accountable

C — Consulted

I — Informed

PROJECT CHARTER



PROJECT CHARTER

GENERAL PROJECT INFORMATION

PROJECT NAME		PROJECT MANAGER	PROJECT SPONSOR
Solar Power System Implementation for Norike Geotech Ltd.		PROJECT MANAGER	NORIKE GEOTECH
EMAIL	**PHONE**	**ORGANIZATIONAL UNIT**	
NOEKEGEOTECH	000-000-0000	Field Engineering, Operations, and Project Management	
GREEN BELTS ASSIGNED		**EXPECTED START DATE**	**EXPECTED COMPLETION DATE**
Project Manager		1/9/2025	30/11/2025
BLACK BELTS ASSIGNED		**EXPECTED SAVINGS**	**ESTIMATED COSTS**
Operations Manager		60% OF MONTHLY ELECTRICITY BILLS	$65,000

PROJECT OVERVIEW

PROBLEM OR ISSUE	• High dependence on the energy grid
PURPOSE OF PROJECT	• To reduce energy cost, ensure power reliability, and promote sustainability by installing a solar photovoltaic (PV) system at Norike Geotech Ltd.
BUSINESS CASE	• The business case for implementing solar energy is to achieve cost savings on electricity, increase energy security, and demonstrate environmental responsibility.
GOALS / METRICS	• Goal is to install a 50-kW solar system within 90 days • Reduce monthly energy bills by 60% • Ensure ROI in less than 4 years
EXPECTED DELIVERABLES	• Solar system design • Equipment procurement • System installation and testing • Operational manual and training

RESOURCES

PROJECT TEAM	• Project Manager • Qa/Qc Manager • Technical Manager • Operations Manager
SUPPORT RESOURCES	Operations, Sales, Project Management, Engineering
SPECIAL NEEDS	

COSTS

COST TYPE	VENDOR / LABOR NAMES	RATE	QTY	AMOUNT
Supplies	Solar Panels	$250.00	100	$ 25,000.00
Supplies	Inverters	$1000.00	5	$ 5,000.00
Supplies	Batteries	$600.00	10	$ 6,000.00
Supplies	Mounts & Wiring	-	-	$ 4,000.00
Labor	Labor	-	-	$ 10,000.00
Legal	Permits & Legal charhes	-	-	$ 2,000.00
Miscellaneous	Misc.	-	-	$ 3,000 .00
			TOTAL COSTS	$ 55,500.00

PROJECT SCOPE

WITHIN SCOPE	• Designing • Procurement • Installation • Commissioning • Training
OUTSIDE OF SCOPE	The project does not cover expansion to off-site branches of Norike Geotech Ltd., nor does it include wind, hydro, or other renewable technologies. It also excludes long-term operation and maintenance beyond the warranty period, unless covered by a separate service contract.

TENTATIVE SCHEDULE

KEY MILESTONE	START	FINISH
Project Initiation	01/09/25	03/09/25
Site Inspection / Load Assessment / Permits Application	03/09/25	14/09/25
System Design / Vendor Selection / Procurement	14/09/25	28/09/25
Site Preparation	28/09/25	02/10/25
Installations – Structure/Panel/Inverter	02/10/25	01/11/25
Wiring / Cabling / Battery setup	01/11/25	09/11/25
System Integration	09/11/25	12/11/25
Testing and Commisioning	12/11/25	19/11/25
Staff training & Documentation	19/11/25	26/11/25
Final Inspection	26/11/25	27/11/25
Handover & Closure	27/11/25	28/11/25

BENEFITS AND CUSTOMERS

PROCESS OWNER	Project Manager
KEY STAKEHOLDERS	• Sponsor: Managing Director • End-users: Staff and management • Contractor: SolarTech Ltd.
FINAL CUSTOMER	Staff and management
EXPECTED BENEFITS	Reduction of dependance and cost of the energy grid

RISKS, CONSTAINTS AND ASSUMPTIONS

RISKS	• Equipment delivery delays • Unexpected cost increases • Technical installation failure • Weather delays • Regulatory/Permit issues
CONSTRAINTS	• Budget of €60,000 • Completion within 3 months • Regulatory compliance
ASSUMPTIONS	• Adequate sunlight • Stable prices from suppliers • No project-halting permits delay

PREPARED BY	TITLE	DATE
Project Manager	Project Manager	23/6/2025

Risk Assessment

Risk Identification

Date of last review:		21/06/2025		
ID	Description of Risk	Impact	Risk Level	Risk owner
R1	Equipment Delivery delays	Pushes launch	High	Procurement
R2	Unexpected cost increases	Cost overruns	High	Technical Installation team
R3	Techinical faults in solar panels	Reduced system efficiency	Low	Engineering
R4	Weather delays	Installation disruption	Medium	Operations team
R5	Regulatory / Permit issues	Project halt	High	Legal team

Risk Matrix

Risk Matrix evaluates risks based on the subjective judgment of Probability (P)and Impact (I) levels—usually using descriptors like Low, Medium, High—without precise numerical calculations. The matrix helps prioritize risks visually and strategically.

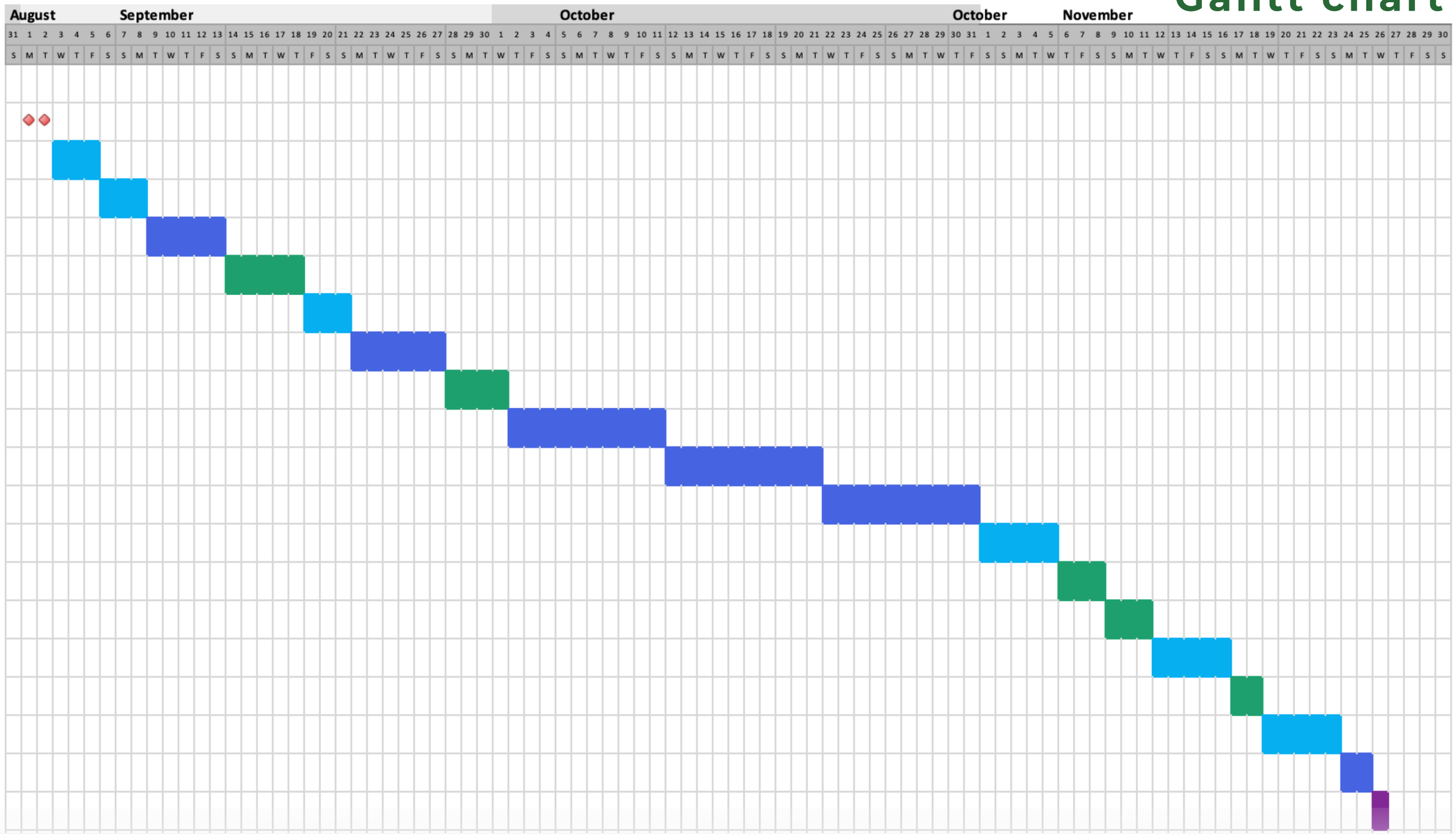
Risk Matrix		Severity				
		Insignificant	Minor	Moderate	Major	Severe
Likelihood	Almost Certain	Low	Medium	High	Very High	Very High
	Likely	Low	Medium	High (R1)	Very High	Very High
	Possible	Low	Medium (R4)	High	High (R2)	High
	Unlikely	Low	Low	Medium	Medium (R5)	Medium (R3)
	Rare	Low	Low	Low	Low	Low

Gantt chart

Norike Geotech Ltd.

Project start date: 01/09/2025

Milestone description	Start	End	Days
Project development			
Project Initiation	01/09/2025	03/09/2025	2
Site Inspection	03/09/2025	06/09/2025	3
Load Assessment	06/09/2025	09/09/2025	3
Permits Application	09/09/2025	14/09/2025	5
System Design	14/09/2025	19/09/2025	5
Vendor Selection	19/09/2025	22/09/2025	3
Procurement	22/09/2025	28/09/2025	6
Site Preperation	28/09/2025	02/10/2025	4
Mounting Structure Install	02/10/2025	12/10/2025	10
Panel Installation	12/10/2025	22/10/2025	10
Inverter Installation	22/10/2025	01/11/2025	10
Wiring & Cabling	01/11/2025	06/11/2025	5
Battery Setup	06/11/2025	09/11/2025	3
System Integration	09/11/2025	12/11/2025	3
Testing	12/11/2025	17/11/2025	5
Commissioning	17/11/2025	19/11/2025	2
Staff Training	19/11/2025	24/11/2025	5
Documentation	24/11/2025	26/11/2025	2
Final Inspection	26/11/2025	27/11/2025	1



PROJECT BUDGET

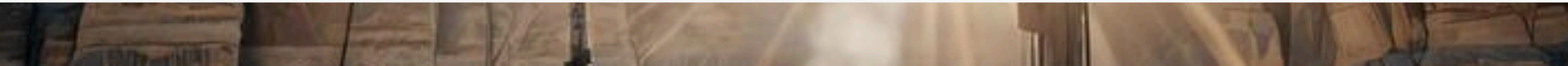
Budget& Resources

	Resource	Quantity	Unit Cost(€)	Other Costs
1	Solar panels	100	250	25,000
2	Inverters	5	1000	5,000
3	Batteries	10	600	6,000
4	Mounts & Wiring	-		4,000
5	Labor	-		10,000
6	Permits & Legal	-		2,000
7	Miscellaneous	-		3,000
TOTAL				55,000

01 **Other Costs**
- Risk buffer: €5,000
- Unexpected issues: €2,000

02 **Time-Phased Budget**
This shows when money will be spent across months:
- Month 1: €20,000
- Month 2: €25,000
- Month 3: €10,000 + €5,000 reserve

03 **Cost Estimates**
All cost items reviewed and benchmarked with past solar projects in Nigeria and Germany.



COMMUNICATION MANAGEMENT

Last but certainly not least in the project planning template is the project communication plan. This is an opportunity to outline key communication facets that will be present throughout the project.

- Project Reports & Reporting Frequency: Define what type of project reports will be produced and how often they will be generated.
- Project Meetings: Will project meetings occur consistently throughout the project? Define the type of meetings and how often they will occur.
- Project Documentation: Finally, note any project documentation including a project charter, work breakdown structure, resource plan, project schedule, change management plan, etc.

STAKEHOLDER MANAGEMENT TEMPLATE

PROJECT NAME: Implementation of Solar Power Systems

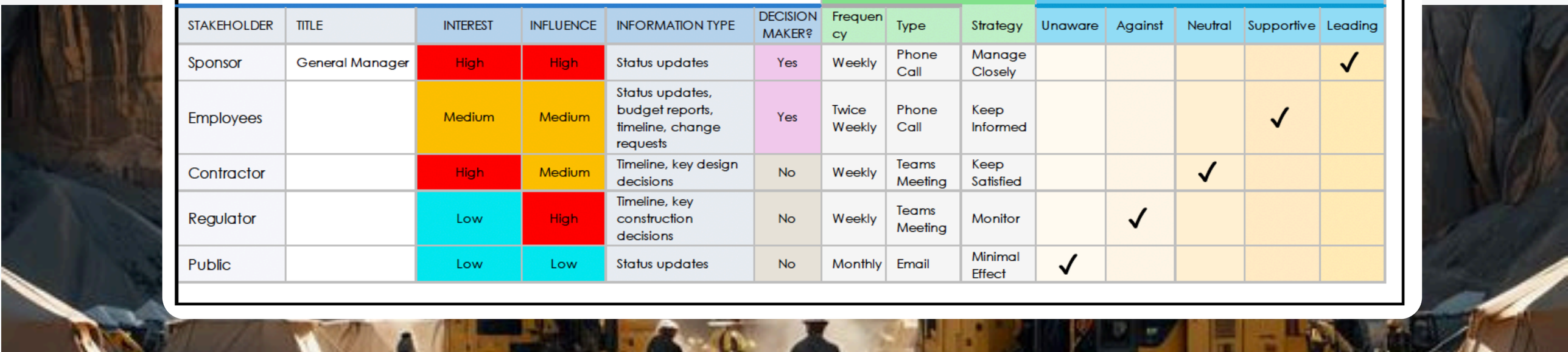
PROJECT MANAGER: Project Manager

PROJECT DELIVERABLE: A fully operational solar PV system with 100 kW capacity and Trained staff

START DATE: 01/09/2025

END DATE: 30/11/2025

						COMMUNICATION			COMMITMENT LEVEL				
STAKEHOLDER	TITLE	INTEREST	INFLUENCE	INFORMATION TYPE	DECISION MAKER?	Frequency	Type	Strategy	Unaware	Against	Neutral	Supportive	Leading
Sponsor	General Manager	High	High	Status updates	Yes	Weekly	Phone Call	Manage Closely					✓
Employees		Medium	Medium	Status updates, budget reports, timeline, change requests	Yes	Twice Weekly	Phone Call	Keep Informed				✓	
Contractor		High	Medium	Timeline, key design decisions	No	Weekly	Teams Meeting	Keep Satisfied			✓		
Regulator		Low	High	Timeline, key construction decisions	No	Weekly	Teams Meeting	Monitor		✓			
Public		Low	Low	Status updates	No	Monthly	Email	Minimal Effect	✓				



NOTIFICATION RECORD

To ensure timely communication of changes, delays, or risks, the following procedures will be in place:

01

All deviations from schedule, scope, or budget must be documented and communicated within 24 hours.

02

A centralized Notification Log will be maintained to record issues as they occur.

03

Urgent issues, especially those impacting cost, safety, or critical path tasks, must be escalated immediately to the project sponsor and relevant department heads.

04

Notifications will be acknowledged in writing to ensure accountability and tracking.

CONTROL SYSTEMS

A structured set of control tools will support tracking and decision-making throughout the project lifecycle:

- **Change Request Forms (CRFs):**
- **Issue Logs**
- **Daily Site Reports**
- **Monthly Project Dashboard**
- **Audit Trails**
- **Slack Channel for Real-Time Coordination**

PROJECT CLOSEOUT

Close Cost Accounts

All expenditures will be reconciled against budget. Procurement and finance departments will finalize accounts and submit a closure report.

Lessons Learned

- Equipment logistics should be confirmed earlier.
- Include buffer for weather and risk mitigation.
- Weekly risk assessment improved response time.

Conclusions and Recommendations

The solar power system project at Norike Geotech Ltd. is viable, sustainable, and cost-effective. To enhance success:

- Build strong supplier partnerships.
- Invest in risk mitigation from the start.
- Use agile feedback loops in technical phases.

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THANK YOU