



Group no. 2021206354

بإشراف/ د.وليد صديق

الفصل الدراسي الثالث

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2021206354

إعداد

2021206354	Arwa Alawwad
2021206249	Yousef Bahatti
2021206488	Muhannad Alsabilah
2021206385	Mahmoud Almuhtasib
2021206446	Rani Almoqbel
2021206321	Abdulrahman Alshahrani
2021206387	Hassan Alfuhaid
2021206361	Sulaiman Alsaloom
2021206307	Amjad Aldwighry

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GREEN SUN



Introduction:

The green sun has Solar product panels created was meticulously selected by a specialized Saudi technical team to ensure the highest possible quality of electrical power production.

The Kingdom has distinct geographical and climatic advantages that make utilizing renewable energy sources economically attractive, supporting Saudi efforts to diversify the domestic energy mix – which support Vision 2030 goals.

GREEN SUN Vision, Mission & Values

GREEN SUN → **Vision**



"to become leader of solar based energy at the global level"

GREEN SUN → **Mission**



"To provide the best energy-saving solutions to our consumers through the latest solar energy technologies, solutions, and products , with the main focus with minimum carbon footprints and betterment of employees and community"

VALUE(1)

Efficiency
Ethics



- Highly efficient solar energy panels

Nature friend



- The company itself will remain carbon-neutral

customers' satisfaction



- The company will pay back to the society

healthy community



- The business will ensure no discrimination and biasedness towards employees



- The company will ensure ethical profitability

Innovation



New technologies to clean solar panels automatically will be installed

SWOT



- Strong brand recognition
- Supply chain management
- Moderate diversification

Recommendation :

- Extend in all over the world
- Open many offices to have different designers and experience too.



- Imitability of products
- High prices
- Not customized to local tastes
- High employee turnover

Recommendation :

- Create more choices local and global .
- Different models and quality to control of the price.
-



- New products
- Established all over the world.
- Business diversification
- Expansion to new countries
- Partnerships with other firms



- Saturation of the market
- Competition with green products
- Healthier lifestyle trends
- Imitation

(2-SWOT)

Organizational excellence

The basic aim is the commitment to organizational excellence. The company will ensure that it has enough internal resources to make sure that the expected quality can be achieved and delivered to consumers. It is very important to produce highly efficient solar panels which will produce maximum energy.

There will be an effective feedback method in order to make sure that the organization improves over the time and does not stuck at one point. A 360-degree feedback system will be used.

Performance indicators

There are various performance indicators which may help the company to not only measure performance but also improve performance in the future. There are two types of performance indicators. These are lagging and leading performance measurements.

In regard to the lagging performance measurement, the relevant performance indicators are customer satisfaction. The customer satisfaction rate should always be above 85%.

In addition, the employee satisfaction rate should also be above 80% because in that case they will be able to increase the effectiveness of their work.

In regard to the leading performance indicators, the role of research and development should highly be significant. The research and development should be able to bring at least one substantial patent which will be used as a competitive advantage in the future.

Project charter model

There are three components of project charter model which are objectives, scope and responsibilities.

Below are the SMART objectives.

The company must generate at least \$500,000 revenue in the first year with each year average growth between 10% to 15%.

The company should also set the targets of at least 30% automation in the process of installation due to efficiency and effectiveness.

The customer and employee satisfaction mentioned above are also the part of business objectives.

Scope

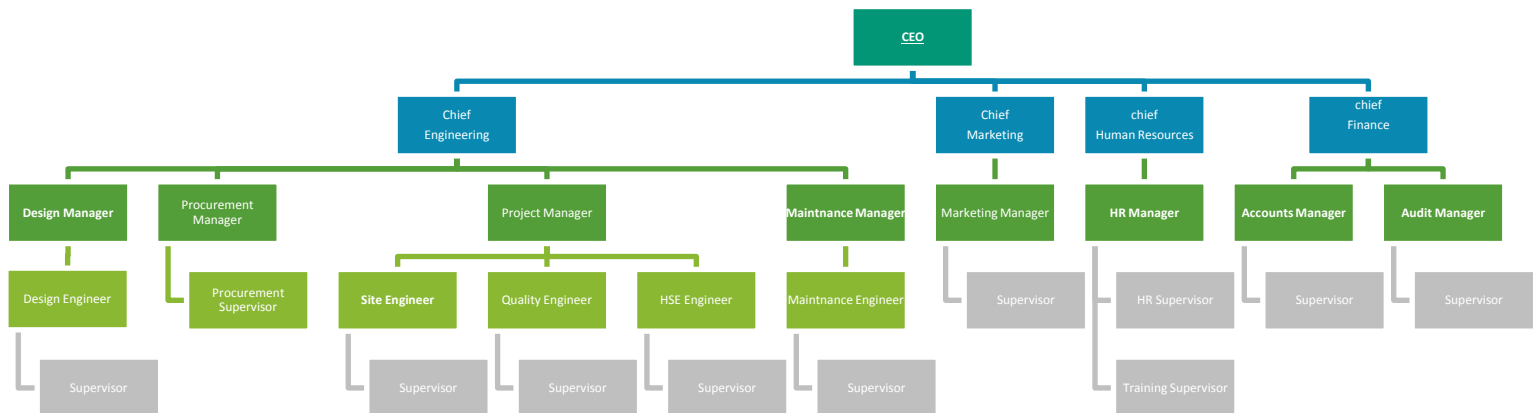
The basic scope of business is to provide renewable or clean energy both to commercial and domestic consumers of electricity. The company plans to initially operate in home country which may turn into an international company after at least ten years. It will provide the company with enough operating experience.

Responsibilities

The responsibilities of the company include ensuring that the needs of customers are met. In addition to that, all internal and external stakeholders are dealt with successfully. Moreover, the responsibilities include providing the right quality at the right price and act as a responsible corporate citizen.

Organizational structure

The company follows a formal organizational structure with a CEO, a board, managers, and employees. There are marketing, human resource, procurement, finance, and customer service managers. Each manager has its own team having respective responsibilities.



Practical and scientific bases, adopted in developing the structure

The organizational structure is hierarchical and simple. The reason is that it is not possible for the company to achieve the desired efficiency if there will be substantial levels of management.

It has been seen that often, companies have hybrid organizational structure but for this company a simple three-level organizational structure has been followed in which employees are only required to report to their managers instead of multiple managers.

Project office model

It is important to have certain project-related philosophies embedded in the organizational culture on which the company will grow in the future.

It is necessary to have dynamism and agility in business processes. It will ensure that the company is going ahead of the competition and can beat competitors well.

Another methodology to be used is the waterfall method. In this method, the company will use various techniques to improve control while the scope remains the same. In such solar installation projects, often an increased control is necessary because the scope often remains the same. That is why it is also important to use this methodology.

Specify 3 personal behaviors of the student that can influence the project

There can be different types of behavior which may influence a project.

- The first behavior is lack of commitment towards work. It will lead towards more errors and mistakes and ultimately the performance will be reduced and the cost of completing project will be higher.
- The second behavior is not meeting deadlines. Since many of the project management activities are sequential, such behavior would lead towards delays and other problems.
- The third behavior is not to be cooperative with other team members. This is very bad behavior and will lead towards lack of harmony among team members. Such teams often see more fights and could not work to achieve common goals.

Study such behavior, identify their reasons, and how they can be eliminated

Often, the reason behind such type of behaviors is to provide no training to team members. Another reason is that teams are not structured in a right manner and as a result, they are not compatible with each other and do not work with the full commitment.

It is important to eliminate these behaviors by providing right type of training to all the team members. It can be done through specialists in training persons. At the same time, the team members should be selected carefully. A combination of introverts, extroverts and effective communicator should be selected carefully in order to make sure that team members can work with each other.

(Table -1)

Job Title	• <u>President & CEO</u>
Job Summary	The Chief Executive Officer provides leadership for all aspects of the company operations with an emphasis on long-term, growth, profit, and return on investment
Duties & Responsibilities	• Works with the board of directors and other executives to establish short-term objectives and long-range goals, and related plans and policies. • Presents regular reports on the status of the companys operations to the board of directors and to company staff. • Oversees the organizations financial structure, ensuring adequate and sound funding for the mission and goals of the company. • Reviews the financial results of all operations, comparing them with the companys objectives and taking appropriate measures to correct unsatisfactory performance and results.
Skills and Competencies	• Excellent managerial and financial skills and the ability to take leadership over any business operations area. • Superlative communication skills, particularly the ability to communicate as a leader. • Thorough understanding of management and financial practices in all areas and phases of business operations.

- Extensive professional experience in leadership roles.
- Education may vary; an advanced degree in Engineering, business administration, and finan

Job Title VP Engineering

Job Summary	VP of engineering is an executive who manages development teams. VPs of engineering are responsible for ensuring that design requirements are met, overseeing the consistency of user experiences, and managing a team of engineers and developers.
Duties & Responsibilities	• Leading the team through management and mentorship. • Contributing to recruitment activities. • Developing standards and procedures to ensure that quality standards are met and consistent. • Preparing and optimizing budgets. • Recommending technological developments and improvements inefficiency. • Developing the team to ensure quality end products.
Skills and Competencies	• Bachelor's degree Engineering or Master degree. • Strong organizational leadership skills. • Extensive experience in working with stakeholders to create hiring strategies to develop quality teams. • Experience in recruiting engineers and contributors. • Previous working experience in software design and developing customer-orientated platforms. • Strong knowledge of data structures and algorithms. • Must be knowledgeable about industry trends, best practices, and change management.

Job Title	VP Marketing
Job Summary	Vice President (VP) of Marketing is a marketing expert who takes responsibility for overall marketing results of a company. Vice President (VP) of Marketing oversees marketing strategies and efforts in order to strengthen company's market position and achieve desired business goals.
Duties & Responsibilities	• Take responsibility for annual marketing plan, strategy and team • Identify and plan differentiated and impactful marketing strategies/materials • Build, manage and coach a high-performing marketing team • Drive the implementation of marketing campaigns that meet business objectives and drive leads • Direct and support market research collection, analysis, and interpretation of market data for short- and long-term market forecasts and report
Skills and Competencies	• Previous working experience as a Marketing Director for [X] year(s) • MA degree in Marketing, Communication or similar relevant field • Outstanding communication, presentation and leadership skills • In depth knowledge of market research • Sense of ownership and pride in your performance and its impact on company's success • Critical thinker and problem-solving skills • Team player • Good time-management skills • Great interpersonal and communication skills
Job Title	VP Human Resources
Job Summary	Vice President of Human Resources (HR) provides executive-level leadership and guidance to the organizations HR operations. The Vice President is responsible for setting, enforcing, and evaluating legally compliant human resources policies, procedures, and best practices, and identifying and implementing long-range strategic talent management goals.
Duties & Responsibilities	• Collaborates with executive leadership to define the organizations long-term mission and goals; identifies ways to support this mission through talent management.

Skills and Competencies	• Identifies key performance indicators for the organizations human resource and talent management functions; assesses the organizations success and market competitiveness based on these metrics. • Researches, develops, and implements competitive compensation, benefits, performance appraisal, and employee incentive programs • Excellent verbal and written communication skills. • Excellent interpersonal and conflict resolution skills. • Excellent organizational skills and attention to detail. • Strong analytical and problem-solving skills. • Strong supervisory and leadership skills. • Thorough knowledge of employment-related laws and regulations. • Knowledge of and experience with varied human resource information systems.
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Job Title

VP Finance

Job Summary	Vice President (VP) of Finance is a professional who is responsible for processing the financial activities that maximize profits for an organization. They analyze data in order to make strategic decisions about an organization's future, such as how much money should be invested into R&D or marketing.
Duties & Responsibilities	• Serving as a financial advisor to the CEO and executive team for strategic planning purposes • Overseeing all sides of accounting operations, including payables, receivables, payroll and tax preparation • Developing appropriate tracking methods for revenue and expenses • Prepare timely and accurate analyses, summaries and reports of financial data on the operating progress of the company • Create a reliable cash flow projection process and reporting structure that includes a minimum cash threshold to meet operational needs • Routinely review revenue cycle metrics to identify and address issues affecting overall performance proactively • Manage the company's compliance with local and federal regulatory matters • Partner with senior leaders to ensure the company hits revenue targets
Skills and Competencies	• Proven work experience as a VP of Finance or similar role • In-depth knowledge of financial benchmarking, accounting, audit and tax compliance and other regulatory matters • Adept in fiscal management principles and processes, including resource management and needs assessment • Partner with Chief Revenue Officer & Chief Executive Officer to establish and track revenue goals • Possesses critical knowledge of federal and multiple state tax laws as well as basic accounting issues • A bachelor's degree in finance or accounting is preferred

Job Title Design Manager

Job Summary Design managers coordinate all of the design work required during construction projects. They manage the production of technical drawings and plans used to build a structure. Design managers bring together architects, structural and service engineers, along with specialist designers and BIM technicians, to create coordinated designs which can be used during the build and aid maintenance of the structure once complete.

- Duties & Responsibilities**
- having input into the tendering process (when the main contractor is bidding to win the project in the first place)
 - selecting, or having input into the selection of, specialist subcontractors or other organisations that will help complete the project work
 - advising on the selection of materials used and other aspects of procurement
 - managing processes relating to the project's design to ensure that everything is delivered to schedule and budget, working very closely with estimators, quantity surveyors, site managers and other key members of the project team
 - reviewing and advising on designs, ensuring they meet regulatory and legislative requirements and the client's brief
 - conducting financial, technical and operational risk assessments and advising on risks, opportunities and potential hazards
 - keeping up to date with relevant regulations, codes and legislation
 - chairing design meetings, writing reports and giving presentations.

Skills and Competencies There are a few apprenticeships available for school leavers, but most design management entry-level vacancies require a degree in a related subject, such as architecture, construction management, construction project management, design management or architectural technology.

Design management professionals can gain professional qualifications with relevant professional bodies: for example, they could gain chartership with the Chartered Institute of Building (CIOB) or acquire project management qualifications through the Association for Project Management (APM). These can be valuable for career progression, but are not often a specified requirement for senior design roles.

- Technical skills and the ability to use design and project management software
- Problem solving skills and creative thinking
- Attention to detail
- Organization and time management
- Commercial awareness

- Communication skills
- Teamworking, relationship-building and influencing skills
- Client management skills
- Leadership skills and decisiveness

Job Title

- **Procurement Manager**

Job Summary

Procurement managers, also known as purchasing managers, manage a company's sourcing capabilities and supply chain. They are responsible for strategizing and negotiating with suppliers and vendors in order to acquire the most cost-effective deals and to reduce procurement expenses.

Duties & Responsibilities

- Developing procurement strategies that are inventive and cost-effective.
- Sourcing and engaging reliable suppliers and vendors.
- Negotiating with suppliers and vendors to secure advantageous terms.
- Reviewing existing contracts with suppliers and vendors to ensure on-going feasibility.
- Building and maintaining long-term relationships with vendors and suppliers.
- Approving purchase orders and organizing and confirming delivery of goods and services.
- Performing risk assessments on potential contracts and agreements.
- Controlling the procurement budget and promoting a culture of long-term saving on procurement costs.
- Overseeing and managing the IT systems that track shipments, inventory, and the supply of goods.
- Preparing procurement reports.

Skills and Competencies

- Bachelor's degree in supply chain management, logistics, or business administration.
- Proven experience managing supply chain operations.
- Experience using supply chain management software and tools, including Oracle, SAP Ariba, and/or Envision.
- In-depth knowledge of preparing and reviewing contracts, invoicing, and negotiation terms.

- Proficient in Microsoft Office Suite (Word, Excel, Outlook, and Access).
- Management and leadership skills.
- Multi-tasking and time-management skills, with the ability to prioritize tasks.
- Highly organized and detail-oriented.
- Excellent analytical and problem-solving skills.

Job Title	Project Manager
Job Summary	Project managers are responsible for planning and overseeing projects to ensure they are completed in a timely fashion and within budget. Project managers plan and designate project resources, prepare budgets, monitor progress, and keep stakeholders informed the entire way. This is all done within the confines of a company's goals and vision. Project managers are needed on a wide variety of projects, including construction, IT, HR, and marketing.
Duties & Responsibilities	• Determine and define project scope and objectives • Predict resources needed to reach objectives and manage resources in an effective and efficient manner • Prepare budget based on scope of work and resource requirements • Track project costs in order to meet budget • Develop and manage a detailed project schedule and work plan • Provide project updates on a consistent basis to various stakeholders about strategy, adjustments, and progress • Manage contracts with vendors and suppliers by assigning tasks and communicating expected deliverables • Utilize industry best practices, techniques, and standards throughout entire project execution • Monitor progress and make adjustments as needed • Measure project performance to identify areas for improvement
Skills and Competencies	• Bachelor's degree in computer science, business, or a related field • 5-8 years of project management and related experience

- Project Management Professional (PMP) certification preferred
- Proven ability to solve problems creatively
- Strong familiarity with project management software tools, methodologies, and best practices
- Experience seeing projects through the full life cycle
- Excellent analytical skills
- Strong interpersonal skills and extremely resourceful
- Proven ability to complete projects according to outlined scope, budget, and timeline.

Job Title **Maintenance Manager**

Job Summary	Maintenance Managers oversee and lead maintenance procedures in a company. They manage activities such as tracking expenses and report progress updates to owners or higher-ups. They also handle specific tasks assigned to them along the way.
Duties & Responsibilities	• Develop maintenance procedures and ensure implementation • Carry out inspections of the facilities to identify and resolve issues • Check electrical and hydraulic systems of buildings to ensure functionality • Plan and oversee all repair and installation activities • Allocate workload and supervise upkeep staff (custodians, janitors etc.) • Monitor equipment inventory and place orders when necessary • Monitor expenses and control the budget for maintenance • Manage relationships with contractors and service providers • Keep maintenance logs and report on daily activities • Ensure health and safety policies are complied with
Skills and Competencies	• Proven experience as maintenance manager or other managerial role • Experience in planning maintenance operations • Solid understanding of technical aspects of plumbing, carpentry, electrical systems etc. • Working knowledge of facilities machines and equipment • Ability to keep track of and report on activity • Excellent communication and interpersonal skills • Outstanding organizational and leadership abilities • High school diploma or equivalent; Degree from a vocational school or BSc/BA in business administration or facility management will be an advantage

Job Title Marketing Manager

Job Summary	Marketing Managers are responsible for developing, implementing and executing strategic marketing plans for an entire organization (or lines of business and brands within an organization) in order to attract potential customers and retain existing ones.
Duties & Responsibilities	• Oversee all marketing campaigns for their company or department • Implement strategy • Promote a business, product, or service • Ensure the company is communicating the right messaging to attract prospective customers and retain existing ones • Represent the marketing team to cross-functional groups including product management, sales, or customer support • Updating senior leadership on the progress of marketing activities and reporting on the results of campaigns • Manage and coordinate marketing and creative staff • Lead market research efforts to uncover the viability of current and existing products/services • Collaborate with media organizations and advertising agencies • Brainstorm ideas for new campaigns • Coordinate with the sales team and other departments to produce effective strategies • Monitor current campaigns, ensuring their staff meets deadlines and complete necessary tasks • Analyze data to evaluate the success of their marketing efforts and come up with new ideas to improve brand marketing and exposure
Skills and Competencies	• Come from a variety of academic backgrounds, including marketing, communication, business and other fields • Bachelor’s degree of Marketing or a master’s degree • 7 years of experience • Intimate understanding of traditional and emerging marketing channels • Excellent communication skills • Ability to think creatively and innovatively • Budget-management skills and proficiency • Professional judgment and discretion that comes from years of experience in the field • Analytical skills to forecast and identify trends and challenges • Familiarity with the latest trends, technologies and methodologies in graphic design, web design, production, etc.

Job Title	HR Manager
Job Summary	Human resources managers supervise a company or organization's hiring process, from recruiting, interviewing, and hiring new staff. They help connect executives with employees, build an employer brand, improve employee engagement, and build strategic talent resources plans.
Duties & Responsibilities	• Consistently recruiting excellent staff. • Maintaining a smooth onboarding process. • Training, counseling, and coaching our staff. • Resolving conflicts through positive and professional mediation. • Carrying out necessary administrative duties. • Conducting performance and wage reviews. • Developing clear policies and ensuring policy awareness. • Creating clear and concise reports. • Giving helpful and engaging presentations. • Maintaining and reporting on workplace health and safety compliance. • Handling workplace investigations, disciplinary, and termination procedures. • Maintaining employee and workplace privacy. • Leading a team of junior human resource managers.
Skills and Competencies	• Bachelor's degree in human resources management or equivalent. • Experience in human resources or related field. • Ability to build and maintain positive relationships with colleagues. • Experience in educating and coaching staff. • Experience in conflict resolution, disciplinary processes, and workplace investigations. • Experience in following and maintaining workplace privacy. • Ability to give presentations. • Knowledge of relevant health and safety laws. • Experience using computers for a variety of tasks. • Competency in Microsoft applications including Word, Excel, and Outlook.

Job Title	• Accountant Manager
Job Summary	The Accounting Manager will plan and direct the accounting activities of the department.
Duties & Responsibilities	• Establishes internal controls and guidelines for accounting transactions and budget preparation. • Oversees preparation of business activity reports, financial forecasts, and annual budgets. • Oversees the production of periodic financial reports; ensures that the reported results comply with generally accepted accounting principles or financial reporting standards. • Responsible for tax planning throughout the fiscal year; files annual corporate tax return.

- Audits accounts to ensure compliance with state and federal regulations; coordinates with outside auditors and provides needed information for the annual external audit.
- Presents recommendations to management on short- and long-term financial objectives and policies.
- Provides financial analysis with an emphasis on capital investments, pricing decisions, and contract negotiations.
- Ensures compliance with local, state, and federal government requirements.
- Performs other related duties as necessary or assigned.

Skills and
Competencies

- Excellent management and supervisory skills.
- Excellent written and verbal communication skills.
- Excellent organizational and time management skills.
- Proficient in accounting and tax preparation software.
- Proficient in Microsoft Office Suite or similar software.
- Bachelors degree in Accounting or Master degree required.
- Eight years or more of related experience required.
- Certified Public Accountant designation preferred.

Job Title

Audit Manager

Job Summary

An audit manager is responsible for organizing and managing internal audits according to audit plans. The responsibilities of audit managers include overseeing the process of audits, making recommendations on policies, and ensuring that the organization fulfills international and governmental obligations of compliance

Duties &
Responsibilities

- Coordinating and developing internal auditing processes.
- Developing and implementing policies and procedures.
- Supervising and conducting independent audits.
- Preparing analysis for departments.
- Conducting investigations on irregularities and errors.
- Drafting recommendations on corrective measures.
- Advising executives.

Skills and
Competencies

- Bachelor's Degree in accounting or finance or master degree.
- Extensive experience in auditing.
- Solid knowledge of regulations and guidelines.
- A record of success in internal and external audits.
- Excellent communication skills.
- Strong time management skills..

Job Title Design Engineer

Job Summary	Design engineers are responsible for the research and design of a company's new products and systems. They perform various tasks in an engineering department including drafting blueprints, creating test prototypes, and overseeing the manufacturing process
Duties & Responsibilities	• Research and draft blueprints, engineering plans, and graphics. • Develop test prototypes. • Identify solutions to improve production efficiency. • Use design software to develop models and drawings of new products. • Maintain existing engineering records and designs. • Assess all engineering prototypes to determine issues or risks. • Estimate cost limits and budgets for new designs. • Supervise the manufacturing process of all designs. • Coordinate with other engineers, management, and the creative department.
Skills and Competencies	• Bachelor's degree in design engineering, engineering, product design, or relevant field. • A minimum of 3 years' experience in a similar role. • Excellent written and verbal communication skills. • Accurate and strong attention to detail. • Proficient in MS Office and popular design software. • Ability to multitask and manage time effectively.

Job Title Project Engineer

Job Summary	A Project Engineer is a professional who is responsible for all technical and engineering aspects of their assigned projects. They plan, schedule, predict, and manage all the technical tasks of their assigned project to assure accuracy, proper resources, and quality from start to finish.
Duties & Responsibilities	• Prepare, schedule, coordinate and monitor the assigned engineering projects • Monitor compliance to applicable codes, practices, QA/QC policies, performance standards and specifications • Interact daily with the clients to interpret their needs and requirements and represent them in the field • Perform overall quality control of the work (budget, schedule, plans, personnel's performance) and report regularly on project status • Assign responsibilities and mentor project team • Cooperate and communicate effectively with project manager and other .

Skills and Competencies	• Proven working experience as a Project Engineer • Excellent knowledge of design and visualizations software such as AutoCAD • Advanced MS Office skills • Familiarity with rules, regulations, best practices and performance standards • Ability to work with multiple discipline projects • Project management and supervision skills • Decision making ability and leadership skills • Current engineer license • Time management and organization skills BS degree in Electrical Engineering or relevant file
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Job Title **Maintenance Engineer**

Job Summary	Maintenance engineers are responsible for the installation and maintenance of industrial equipment such as those used in the aviation, medical, and manufacturing industry. Maintenance engineers perform routine equipment maintenance, troubleshoot issues, and make on-site repairs when needed.
Duties & Responsibilities	• Traveling to client locations for equipment inspection. • Inspecting equipment and conducting routine maintenance. • Servicing and replacing old or faulty equipment. • Troubleshooting equipment malfunctions. • Removing old equipment and installing new machines. • Providing technical support and training on new equipment. • Responding to customer call-outs. • Adhering to all safety and performance regulation
Skills and Competencies	• Bachelor's degree in mechanical or electrical engineering. • Proven work experience as a maintenance engineer. • Knowledge of EPA and OSHA guidelines. • Advanced knowledge of mechanical, electrical, plumbing, and heating systems. • Ability to read system schematics. • Advanced troubleshooting skills. • Understanding of safety and equipment procedures. • Good communication and training skills.

Job Title	Quality Engineer
Job Summary	The quality engineer's responsibilities include designing quality standards, inspecting materials, equipment, processes, and products, developing quality control systems, and determining corrective actions. You will also work with managers and supervisors to implement quality measures.
Duties & Responsibilities	• Developing and implementing quality standards. • Developing and implementing quality control systems. • Monitoring and analyzing quality performance. • Inspecting and testing materials, equipment, processes, and products to ensure quality specifications are met. • Collaborating with operations managers to develop and implement controls and improvements. • Ensuring that workflows, processes, and products comply with safety regulations. • Investigating and troubleshooting product or production issues. • Developing corrective actions, solutions, and improvements. • Reviewing codes, specifications, and processes.
Skills and Competencies	• Degree in quality, industrial, or electrical engineering. • ASQ certification preferred. • 2+ years of experience in quality engineering, quality assurance, or a similar role. • Experience coding and using QA software tools and processes. • Strong communication and interpersonal skills. • Strong analytical and problem-solving skills. • Excellent project management skills.
Job Title	HSE Engineer

Job Summary	HSE engineer to ensure that all occupational health and safety standards are followed and that adherence to environmental laws is maintained in industrial or manufacturing settings. HSE engineers devise safety plans, monitor practices to ensure compliance, write up safety policies and procedures, and respond to emergencies as needed. They also review the impact an industry has on the environment and create plans to minimize or eliminate any impact on a company's surrounding.
Duties & Responsibilities	• Ensure that company policies adhere to local, state and federal regulations. • Train and oversee employees on health and safety regulations • Monitor personnel and work space • Always ensure the company is prepared to submit the appropriate document • Encourage and advocate for safer work equipment, materials and supplies

- Track the number of incidents and produce reports
- Monitor exposure to certain hazardous chemicals
- Report to Occupational Health and Safety Administration (OSHA) and other relevant organizations
- Attend seminars/workshops for further education
- Work with legislators and politicians to support key local legislation

Skills and Competencies

- More than 3 years of experience as Environmental Health and Safety Coordinator or similar role
- Ability to perform audits, write, and submit reports
- Appropriate licensure
- Appropriate certification for the geographic region
- Good time-management skills
- Great interpersonal and communication skills
- More than 3 years of experience working with Health, Safety and/or Environmental policy
- Degree in Environmental Health or relevant field

Job Title

Procurement Supervisor

Job Summary

Procurement supervisor provides production support for SAP procurement and accounts payable modules including testing support and enhancement packs, designing minor enhancements to SAP procurement modules, supporting key constituencies, and resolving system problems.

Duties & Responsibilities

- Support the implementation of appropriate SAP-P2P processes, the related procurement and materials management policies
- Assist with analysis and documentation of business processes as they pertain to the effect of services being procured
- Oversee activities that implement inventory and investment recovery practices
- Lead an international team of Purchasing Agents dedicated to Spare Parts purchase orders creation
- Review processes and deliverables ensuring high standard service level with continuous improvement focus
- Monitor internal customer adherence to procurement Principles & Practices and processes within the assigned scope
- Monitor the implementation of sourcing strategies and processes across local market/cluster
- Conduct buying and post-order management activities ensure proper handling and resolution of procure-to-pay exceptions

- Determines method of procurement such as direct purchase, quotes or bids
- Participate in the preparation and review of bid proposals and the negotiation of contracts within budgetary limitations

Skills and Competencies

Must be able to thrive in a fast-paced, dynamic environment with constantly changing priorities

Must be able to work a flexible schedule to meet the needs of the business

Category management experience (Ingredients, Packaging)

You must possess strong organizational skills and have a good understanding of customer / supplier relations

Requisition equipment, materials and/or supplies according to established policies and procedures

Bachelor degree or equivalent, preferably in Business Administration, Economics, Electrical Engineering, master degree is preferred

Project Management Office

Our Project Management Office is Directive

Directive PMO:

- High level of control over projects
- Project Managers are assigned by and report to PMO.
- PMO directly manages the projects
- Effective in larger matrix or hierarchical organization

Green Sun, we believe that innovative solutions stem from diversity, agility, and collaboration – from ensuring that every team member is doing what they're best at, which is why our PMO is directive. We've created a dedicated team of multi-disciplinary experts in technical engineering, construction, and administration whose purpose isn't to design your project, but to manage your project from start to finish. In practice, our PMO allows us to pair the right project manager with the right project and the right team.

Every project we undertake has its own project manager who acts as the client's primary contact and is intentionally selected and assigned to each project based on skill set, expertise, and project parameters – but even though we assign only one project manager to a project, our project management team works collaboratively to support each other. Not only does each project manager liaise with clients and keep them in the loop, but he or she also manages the project's moving parts (e.g. team, budget, schedule, coordination, and communication). This approach allows our technical engineers to focus on design without worrying about administration. And throughout every phase, the project manager is readily available and accessible to the team and the client, ensuring that the project is running smoothly.

Objectives (SMART):

Green sun company will focus in installing an on-grid solar PV systems for commercial, industrial, and residential sectors,

Our goal is to obtain 1% from solar energy market in Saudi Arabia by 2030, by installing 58MW of solar systems per year



Solar Energy
Is Applicable
Everywhere



Less Electricity
Lost During
Long-Distance
Transport



Good Impact
on the
Environment



Real
expectations
for your
clients .



Reduce Your
Energy Bill

SMART (4)

Performance indicator:

Strategic objectives	Leading indicator	Lagging indicator
Financial Perspectives		
Improve return on investment		Return on investment
Yearly revenue growth	Install more projects	Revenue growth
Overall cost reduction	Costs do not exceed 80% of project price	Expenses costs
Sales Perspectives		
Decentralized projects	Sales representatives for different areas	Number of projects of each area
Increase number of projects	Increase number of commercials	Number of customers
Company reputation	High quality standards	Customers satisfaction
Environment Perspectives		
Decrease carbon footprint	Install more of solar PV projects	Carbon reduction
Increase people awareness of renewable energy	Monthly webinars	Number of people who are interested in clean energy
Decrease the use of fossil fuel	Competitive solar energy price	Number of projects

(2)

Project Charter

Project Name Mahmoud's Villa Solar System

Project Manager	Mahmoud Almuhtasib	Organization	Green Sun Company
Sponsor	Andre Magel	Organization	HHM
Project Start Date	30/09/2022	Project End Date	30/11/2022

Project Objectives

To enhance energy consumption and reduce carbon emissions

Project Scope

Design Supply and Install a rooftop solar PV system

Deliverables

1. Efficient Solar system
2. Reduce the electric bill 50%

Project Size	50 kWp	Number of modules	110 Modules
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Project Budget	175,000 SAR
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Milestones Schedule

Milestone	Target Completion Date	Actual Date
Sign LNTF	30/09/2022	
Mechanical works Completion	14/10/2022	
Civil Works completion	30/10/2022	
Electrical Works Completion	25/11/2022	

Project Team

Approvals

Project Engineer	Muhannad	Sponsor	Andre Magel
HSE Engineer	Arwa	Business Head Division	
Site Engineer	Hasan	Business Unit Division	
Supervisor	Amjad	CFO	

(3)

Project description and expected outcomes template

Timeframe	Goal	Activities	Expected outcomes	Measures of success
From 1-1-2023 to 1-1-2024	Solar power generation	Through the use of solar panels that convert solar rays into electrical energy	Obtaining electrical energy that feeds homes and commercial facilities	Get the highest efficiency at reasonable prices and gain customer satisfaction
From 1-1-2025 to 1-1-2026	make profits	The company must generate at least \$500,000 revenue in the first year with each year average growth between 10% to 15%.	Expanding the field and increasing the number of branches and employees	The customer satisfaction rate should always be above 85%.
In 1-1-2030	Gaining a share in the Saudi energy market	Our goal is to obtain 1% from solar energy market in Saudi Arabia by installing 58MW of solar systems per year	Transformation into an international company after at least ten years	Increase in the value of the company's shares

(4)

develop check list model for the stages of the project

Initiation	It is the foundation of the project where your beginning determines your path	1-Identify the project manager 2-Determine the appropriate headquarters for the company 3-Establishing a policy for contract clauses 4-Customers are attracted in the region and abroad 5-Marketing of the company is carried out through programs and social networking sites 6-Create and publish marketing flyers 7-Presenting offers to attract customers	From 1-3-2023 To 1-5-2023
Planning	It is a field survey of the site you want to work on, and it shortens a lot of work for you so that you work clearly	-1Measuring the area where the photovoltaic slides are to be placed -2Measuring the voltage used at home -3Ensure that there are no obstacles on the site -4Graph of the site	From 10-5-2023 To 1-6-2023
Execution	Implementation must be as planned in order	-1 Supply and installation of solar panels for the site	From 1-6-2023 To 1-8-2023

	to work properly and be completed quickly	-2Installing the electrical transformer -3Connect the cables properly -3Removing obstacles on the site	
Monitoring	It is to monitor and control the work	-1Ensure that the photovoltaic strips are properly installed -2Check the electrical connections -3Removing the waste -3Testing the project	From 11-6-2023 To 11-7-2023
Closure	Handing over the project to the clients	-1Holding a team meeting and reviewing the project -2A final exam in the presence of clients' owners -3Handing over the project to the clients -4Receiving the rest of the amounts from the customers' owners	From 15-6-2023 To 25-6-2023

Stakeholder

Develop stakeholder register and form groups

Name	Position/Role	Contact information	Requirements	Expectations	Classification
Arwa	HSE Engineer	0541085	Business head division	Follow up business	Influences
Muhannad	Project engineer	05083344	Sponsor	Project sponsorship	Influences
Hasan	Site Engineer	0558644	Business unit division	Follow up field work	Influences
Amjad	Supervisor	0555555	CFO	Monitor project budget	Influences
Ministry of Energy	Audit and follow-up of the company's business	08001244777	Grant a license	Granting the company a license	external
Saudi Electricity Company	Audit and follow-up of the company's business	tqmforum@se.com.sa	Grant a license	Granting the company a license	external
Ministry of Municipal and Rural Affairs	Audit and follow-up of the company's business	00966114569999	Grant a license	Granting the company a license	external

GREEN SUN

Solar land Energy	Supplying project requirements	920011805	1-Solar panels. 2-Electrical transformers. 3-Cables. 4-joined installation.	1-High efficiency 2-Warranty Certificates	external
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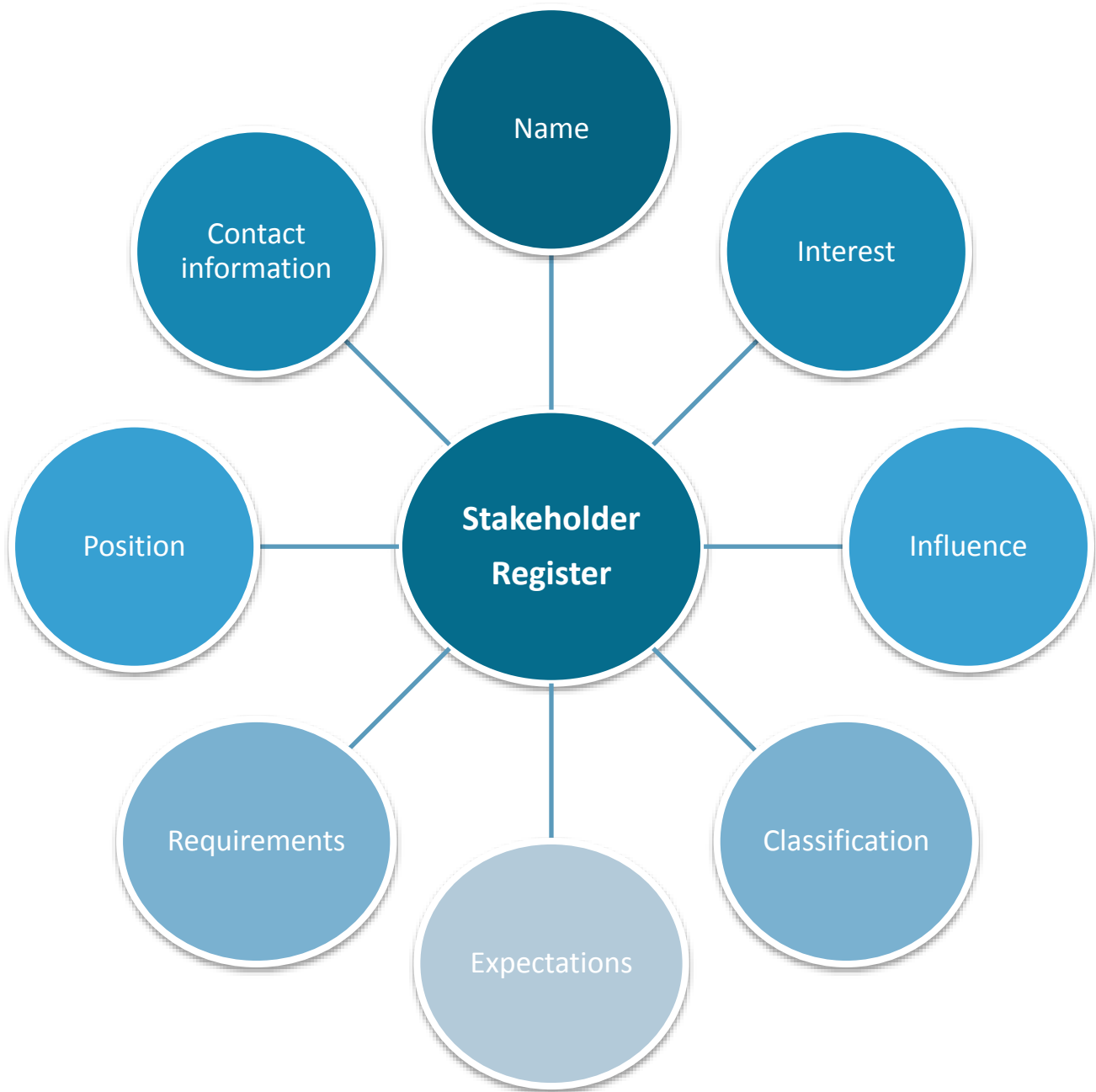
(6)

Stakeholder	Interest	Influence
Project Engineer	High	High
Site engineer	High	High
HSE Engineer	High	High
Supervisor	High	Low
Ministry of Energy	Low	High
Saudi Electricity Company	Low	High
Ministry of Municipal and Rural Affairs	Low	Low
Solar land Energy	Low	High



Stakeholder (5)

Stakeholder Register



(6)

Organization Culture



Example of behavior:

1-Lack of clarity and credibility with the client -

Analyze:

Functional: less isolation in thermal panel which allows more direct sun rays on building .

Social: less comfortable in interior environment which feel harassment of place .

Technical: impact economy due you paid to isolate the building and safe you from high fine every month.. now you pay double

2-.The team has not expired in solar panels .

Functional: Sell many panels without global standards that have not reached the expectations to keep a building more sustainable .

Social: it may allow to build something without isolation or less quality, which keeps the customers unsafe in time of operation.

Technical: Team not specific for solar panels can't market the the panels to population and keep this solution succeed very well

3-Focus only on money and avoid thinking in support .

Functional: Keep the quality in the market very lower and cancel searching to get a best panel in market .

Social: cancel a good competition between each business owner and keep the credibility lower for customers .

Technical: Don't promotion for a solar panels as a good isolation this may stop marketing this solar panels in between different generations

Personal communications: Works that cannot be recovered by readers are cited in the text as personal communications. Personal communications include emails, text messages, online chats or direct messages, personal

interviews, telephone conversations, live speeches, nonarchived social media livestreams (e.g., Instagram Live, Twitter Spaces), unrecorded webinars, unrecorded classroom lectures, memos, letters, messages from nonarchived discussion groups or online bulletin boards, and so on.

Effective communication:

is the process of exchanging ideas, thoughts, opinions, knowledge, and data so that the message is received and understood with clarity and purpose.

When we communicate effectively, both the sender and receiver feel satisfied.

Communication occurs in many forms, including verbal and non-verbal, written, visual, and listening. It can occur in person, on the internet (on forums, social media, and websites), over the phone (through apps, calls, and video), or by mail.

For communication to be effective, it must be clear, correct, complete, concise, and compassionate. We consider these to be the 5 C's of communication, though they may vary depending on who you're asking .

Can lead to:

- Improved social, emotional, and mental health
- Deeper existing connections
- New bonds based on trust and transparency
- Better problem-solving and conflict resolution skills

Personal Communication

Shapes:

1. The Analytical Communicator

Analytical communicators like concrete data and numbers and tend to have a strong aversion to ambiguity. Those with an analytical communication style are largely receptive to people who are in command of facts and data and don't identify well with emotional words.

Positive: Your relatively unemotional view of situations allows you to interpret issues logically and factually, and others will value you for your informational expertise and objectivity.

Negative: You may come across as callous and emotionless, especially when interacting with personal communicators who value warm and conversational personal relationships.

2. The Intuitive Communicator

Intuitive communicators like to see the big picture or a broad overview of the situation, avoiding getting lost in the details, cutting right to the chase. As opposed to functional communicators who like to hear things in perfect linear order, intuitive communicators would rather jump right to the end.

Positive: Your communication is quick and to the point, you don't get caught up in too many details and you're comfortable with the big idea. Due to your natural ability to view things large scale, you have a strong urge to challenge the way things are usually done.

Negative: You may lack the patience for situations that require great attention to detail. Because you are process driven and detail oriented, it can be difficult to interact with functional communicators.

3. The Functional Communicator

Functional communicators like well-thought-out plans and processes. They like to include every detail and display things in a step-by step fashion, the opposite of intuitive communicators.

Positive: Your attention to detail enables you to include every aspect in a situation. Others will value your love for process and detail and look to you to play devil's advocate.

Negative: You may lose the attention of your audience if you allow your objective to get bogged down with details, especially if you have an audience of functional communicators.

4. The Personal Communicator

Personal communicators value emotional language and connecting with others. They tend to be good listeners and care about assessing how people think and feel.

Positive: Your ability to connect with others on a personal level allows you to form deep relationships. You may serve as the “glue” that holds groups together with your strong emotional intelligence, diplomatic ability to smooth over conflicts and passion for maintaining good health in your relationships.

Negative: You can come across as overly emotional, especially in communication with analytical communicators.

Models:

1- Linear Communication Model :

The linear model's behavior is belied by its name, where a sender encodes a message via a channel and the receiver decodes the message. It is straight-line communication found typically in mass communication; think television, radio, newspapers, etc. According to this model, there is no means for immediate feedback.

2- Interactive Communication Model :

the Interactive Model takes the Linear Model and multiplies it times two with a quick flip of the return message. It now allows for a feedback element because after a message is encoded and sent to the decoding receiver, the roles then reverse and the receiver encodes and sends a response to the original sender who has now turned receiver. It sounds more confusing than it is. Envision an exchange of text messages whereby your friend sends you a message and you respond to it. The same thing happens during a telephone call, or even an email exchange. A message is sent and received, then the roles reverse.

3- Transactional Communication Model:

This model depicts face-to-face interaction, or “trans-action” as a dynamic and changeable process that is not limited to simple definition. In the Transactional Model, receiver and sender can play the same roles simultaneously, as sometimes happens, as messages can be sent back and forth simultaneously. It appears chaotic and ineffective, but sometimes communication is just that. Throw in some noise, and it would be a wonder whether any message is conveyed successfully in this environment.

Channels:

It involves two or more persons communicating directly face-to-face, person-to-audience, over the telephone, or through e-mail. Instant messaging and independent sites to collect consumer reviews are another means of growing importance in recent years. Personal communication channels derive their effectiveness through individualized presentation and feedback.

Establish The Communication Matrix:

Communication Matrix Template

COMMUNICATION	PURPOSE	MEDIUM	FREQUENCY	AUDIENCE
Kickoff Meeting	Introduce project. Review objectives and goals.	In person / Face-to-face	Once	Project team Project sponsor Stakeholders
Project Team Meetings	Review status of project	Face-to-face or Conference call	Weekly	Project team
Technical & Creative Design Meetings	Discuss, review technical & design problems and solutions.	In person / Face-to-face	As needed	Technical team Creative team
Monthly Project Status Meetings	Update leadership on project status.	Face-to-face or Conference call	Monthly	Project manager Stakeholders
Project Status Reports	Detailed report on project status including progress, costs, and problems.	Email	Monthly	Project manager Stakeholders

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Wrong Scenarios of Communication :

- **Mistake 1: Not Editing Your Work.**

Spelling, tone and grammatical mistakes can make you look careless. That's why it's essential to check all of your communications before you send them.

Don't rely on spell-checkers: they won't pick up words that are used incorrectly. Instead, proofread your work, and use a dictionary to look up any words that you're unsure about.

You may find it helpful to make a list of words and phrases that you find it hard to get right (such as "your/you're," "its/it's," or "affect/effect"). Store this close to hand.

It can be difficult to see errors in your own work, so consider asking a colleague to look over key documents before you distribute them. Alternatively, read your work aloud – this makes it easier to catch typos and tone errors. Then, give yourself time to reflect on your document, and to make any final changes.

- **Mistake 2: Delivering Bad News by Email.**

When you deliver a difficult message in person, it's easier to pick up on signs that people have misunderstood key parts of your message, or that they've taken the information particularly badly. You can then take steps to clarify your message, or help people deal with the difficult news.

- **Mistake 3: Avoiding Difficult Conversations.**

At some point, you will need to give negative feedback. It's tempting to try to avoid these conversations, but this can cause further problems – for instance, you may find that a small problem you "let go" soon grows into big one.

Develop and prepare stakeholder assessment matrix:

The Stakeholder Engagement Assessment Matrix is a simple yet powerful project management technique to document desired and monitor actual engagement levels of stakeholders. It helps identify potential gaps in the involvement of stakeholders.

Stakeholder	Power/Interest	Unaware	Resistant	Neutral	Supportive	Leading
Arwa	High \ High				D C	
Muhannad	High \ High					D C
Hasan	High \ High	C			D	
Amjad	Low \ High				D C	
Ministry of Energy	High \ Low			C		
Saudi Electricity Company	High \ Low			C	D	
Ministry of Municipal and Rural Affairs	Low \ Low			C		
Solar land Energy	High \ Low	C			D	

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Leadership model

Throughout history, great leaders have emerged with particular leadership styles in providing direction, implementing plans and motivating people. These can be broadly grouped into 5 different categories:

1. Authoritarian Leadership

Authoritarian leadership styles allow a leader to impose expectations and define outcomes. A one-person show can turn out to be successful in situations when a leader is the most knowledgeable in the team. Although this is an efficient strategy in time-constrained periods, creativity will be sacrificed since input from the team is limited. The authoritarian leadership style is also used when team members need clear guidelines.

2. Participative Leadership

Participative leadership styles are rooted in democratic theory. The essence is to involve team members in the decision making process. Team members thus feel included, engaged and motivated to contribute. The leader will normally have the last word in the decision-making processes. However, if there are disagreements within a group, it can be a time-consuming process to reach a consensus.

3. Delegative leadership

Also known as "laissez-faire leadership", a delegative leadership style focuses on delegating initiative to team members. This can be a successful strategy if team members are competent, take responsibility and prefer engaging in individual work. However, disagreements among the members may split and divide a group, leading to poor motivation and low morale.

4. Transactional leadership (Preferred)

Transactional leadership styles use "transactions" between a leader and his or her followers - rewards, punishments and other exchanges - to get the job done. The leader sets clear goals, and team members know how they'll be rewarded for their compliance. This "give and take" leadership style is more concerned with following established routines and procedures in an efficient manner, than with making any transformational changes to an organization.

5. Transformational Leadership

In transformational leadership styles, the leader inspires his or her followers with a vision and then encourages and empowers them to achieve it. The leader also serves as a role model for the vision.

There are many reasons to preferred the transactional leadership:

- Leaders create specific, measurable and time-bound goals that are achievable for employees.
- Employee motivation and productivity is increased.
- Transactional leadership eliminates or minimizes confusion in the chain of command.
- It creates a system that is easy to implement for leaders and easy to follow by employees.
- Employees can choose reward systems.

Motivation methods:

1. Set clear goals

Set clear goals for completing a project so that your team knows what is expected of them. Ensure that your team agrees with goals and deadlines you have set, and can identify with them on a personal level. This way they can be motivated to work harder and achieve those goals, boosting productivity levels in turn. Making sure that your team are in agreement and happy with goals and deadlines you have set will help them feel more involved in their work.

2. Encourage teamwork

Encourage members to work together as a team by stressing the importance of and the connection between teamwork and achieving group goals. Note the fact that when people work together, work is much easier and quicker to do. You can further motivate your team by linking performance with team goals.

Encouraging teamwork will help individual team members feel less isolated and separate from the workplace. Employees will feel more engaged and a

part of a larger community, inspiring them to work harder and enjoy what they do.

3. Give praise and rewards

This is one of the best ways to inspire and motivate your team to work harder. When you praise one person in front of others, it encourages them to work harder or perform better, simultaneously motivating the others to work hard in order to be praised. When a reward is linked to performance, people will work even harder and be more committed to their task in order to win the reward.

4. Communicate with the team

You should be contactable at all times so that your team members can ask you questions about a project, get your opinion, offer ideas, and give feedback. Being available for your team plays a key role in motivating them, as it shows that you value the project and their feedback. Making yourself more available also avoids making your team members feel isolated and separate from management. Ensuring you're always available for your team can boost productivity and improve the quality of your work.

5. Empower team members

When you give team members the power or authority to do something with complete control, this helps to motivate them to complete the work. You can also keep motivating your team members to work hard and bring out the best in them by offering constructive feedback. This will result in an empowered, happier, and more productive team.

The eight qualities above are essential in making you an effective team leader. By developing your leadership skills, you'll see your team's performance, productivity, and morale improve significantly. In turn, this can lead you and your company towards greater success.

RACI model:

Put simply, it's a tool that identifies roles and responsibilities against tasks within a project.

	Responsible Performs the tasks and is responsible for their execution	Accountable Has final responsibility for the correct completion of project tasks	Consulted Is asked for advice in advance of performing the tasks	Informed Is informed in the interim about the decisions, progress, and results achieved
Product Management	Arwa Muhannad	Mohannad	Saudi Electricity Company	Hasan Amjad
Design	Hasan	Arwa	Saudi Electricity Company	Muhannad Amjad
Product Marketing	Project Manager	Marketing Team		All SteakeHolders
Legal and Compliance	Project Manager	Legal Depatment		
Customer Success	Amjad	Quality Assurance		Project Manager miro

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STRATEGIC



MARKETING & SALES

Strategic Objectives

- Decentralized projects
- Increase number of projects
- Company reputation

Leading Indicator

- Sales representatives for different areas
- Increase number of commercials
- High quality standards

Lagging Indicator

- Number of projects of each area
- Number of customers
- Customers satisfaction



FINANCE

Strategic Objectives

- Improve return on investment
- Yearly revenue growth
- Overall cost reduction

Leading Indicator

- Install more projects
- Costs do not exceed 80% of project price

Lagging Indicator

- Return on investment
- Revenue growth
- Expenses costs



ENVIRONMENT

Strategic Objectives

- Decrease carbon footprint
- Increase people awareness of renewable energy
- Decrease the use of fossil fuel

Leading Indicator

- Install more of solar PV projects
- Monthly webinars
- Competitive solar energy price

Lagging Indicator

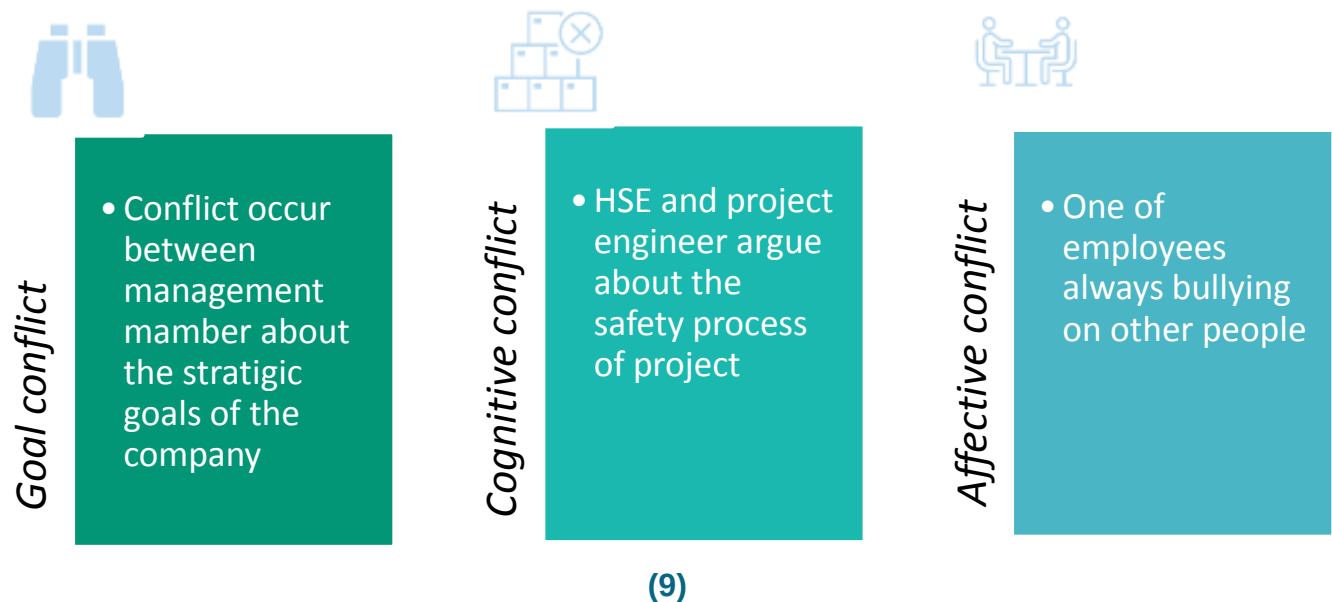
- Carbon reduction
- Number of people who are interested in clean energy
- Number of projects

CONFLICTS AND CRISIS

Conflict is when two perspectives, personalities, values, or opinions contradict each other.

Crisis is a sudden and unplanned event that results in the instability of an organization and can be caused by internal or external factors. To prevent serious damage to your company, it is important to address the factors that instigated the crisis and prevent further escalation.

Three scenarios of conflicts



Goal Conflict can be solved through a meeting of all management members to agree on the strategic goals with a professional advisor.

Cognitive Conflict in our case can be solved through choose a way that both of project engineer and HSE engineer agree with

Affective conflict to have a conversation with this employee about the dangers of bullying on people mental health

ROOT CASE ANALYSIS

Goal Conflict

- why management have a goals conflicts ?
- Each member of management have a different vision of the future of the company,
- why they have a different vision ?
- Because they didn't agree on the company vision from the beginning,
- why ?
- because the company owner didn't explain the strategic goals probably
- why ?
- because they think it was obvious

Cognitive Conflict

- Why the project engineer didn't agree on the safety process ?
- Because the HSE engineer have put a detailed safety process,
- Why ?
- Because HSE engineer is fully aware of the importance of safety during the project
- Why ?
- Because safety on the site during projects have saving a lot of workers lives and the project engineer don't have this awareness
- Why ?
- because the project engineer didn't took a full course of safety at sites

Affective conflict

- Why this employee bullying on other people?
- because he is have a bad attitude
- Why ?
- because he didn't feel appreciated by the management
- Why ?
- because he didn't took the promotion when he deserve it
- Why ?
- because the management don't communicate probably with employees,
- Why ?
- because the company don't have a good strategy for communication

General rules for the negotiation process

The Negotiation Process

Negotiation is:

Communication back and forth for the purpose of making a joint decision.

A way of finding a mutually acceptable solution to a shared problem.

Achieving an ideal outcome: a wise decision, efficiently and amicably agreed upon.

Options for negotiation style are (Fisher & Ury, 1992):

- **Hard (controlling)**
 - Hard bargaining is adversarial—you assume that your opponent is your enemy and the only way you can win is if he or she loses. So you bargain in a very aggressive, competitive way.
- **Soft (giving in)**
 - Soft bargaining is just the opposite. Your relationship with your opponent is so important that you concede much more easily than you should. You get taken advantage of in your effort to please, and while agreement is reached easily, it is seldom a wise one.
- **Principled (much more effective): P2O2**
 - People: Separate the people from the problem
 - Positions: Focus on interests not positions
 - Options: Generate options for mutual gain before choosing
 - Objective Criteria: Decide based on objective criteria
 - + BATNA (Best Alternative to Negotiated Agreement): Know theirs. Know & improve yours.

Good negotiations consist of a relentless search for the Third Alternative:

- We humans are presently conditioned to expect our relationships to be win/lose.
- View most situations from an “either/or” point of view: either I win or I lose
- It has to be one or the other.

- There is a third alternative.
- May be harder to find, but there almost always exists a third way of doing things where no one loses
- Or at worst are assured that the loss has been minimized and fairly shared
 - Minimizes and distributes the loss so it has the least negative effect
 - This is the win-win way—this is synergy.

Sources of power in negotiation are:

- Developing good working relationships among people negotiating
- Understanding interests
- Inventing an elegant option
- Using external standards and benchmarks
- Developing a good BATNA
- Understanding their BATNA

Negotiation Lifecycle



The Types of Negotiation

There are two possible types of negotiation, depending on the point of view and leadership styles of each negotiating party:

1. **Distributive negotiation:** Also sometimes called “hard bargaining,” distributive negotiation is when both parties take an extreme position and one side’s win is believed to be the other side’s loss (a win-lose solution). This operates on a “fixed pie” principle, in which there is only a set amount of value in the negotiation, and one side will walk away with the better deal. Examples include haggling prices in real estate or at a car dealership.
2. **Integrative negotiation:** Parties engaging in integrative negotiation don’t believe in a fixed pie, instead asserting that both sides can create value or mutual gains by offering trade-offs and reframing the problem so that everyone can walk away with a win-win solution.

The 5 Stages of the Negotiation Process

While there are many approaches to negotiation tactics, there are five common steps that most effective negotiations follow to achieve a successful outcome:

1. **1. Prepare:** Negotiation preparation is easy to ignore, but it's a vital first stage of the negotiating process. To prepare, research both sides of the discussion, identify any possible trade-offs, determine your most-desired and least-desired possible outcomes. Then, make a list of what concessions you're willing to put on the bargaining table, understand who in your organization has the decision-making power, know the relationship that you want to build or maintain with the other party, and prepare your BATNA ("best alternative to a negotiated agreement"). Preparation can also include the definition of the ground rules: determining where, when, with whom, and under what time constraints the negotiations will take place.
2. **2. Exchange information:** This is the part of the negotiation when both parties exchange their initial positions. Each side should be allowed to share their underlying interests and concerns uninterrupted, including what they aim to receive at the end of the negotiation and why they feel the way they do.
3. **3. Clarify:** During the clarification step, both sides continue the discussion that they began when exchanging information by justifying and bolstering their claims. If one side disagrees with something the other side is saying, they should discuss that disagreement in calm terms to reach a point of understanding.
4. **4. Bargain and problem-solve:** This step is the meat of the process of negotiation, during which both sides begin a give-and-take. After the initial first offer, each negotiating party should propose different counter-offers for the problem, all the while making and managing their concessions. During the bargaining process, keep your emotions in check; the best negotiators use strong verbal communication skills (active listening and calm feedback; in face-to-face negotiation, this also includes body language). The goal of this step is to emerge with a win-win outcome—a positive course of action.
5. **5. Conclude and implement:** Once an acceptable solution has been agreed upon, both sides should thank each other for the discussion, no matter the outcome of the negotiation; successful negotiations are all about creating and maintaining good long-term relationships. Then they should outline the expectations of each party and ensure that the compromise will be implemented effectively. This step often includes a written contract and a follow-up to confirm the implementation is going smoothly.

Negotiation plans For example

Plan (1):

1- Negotiate with the Saudi Energy Company to supply the materials used in the production and manufacturing process

Goals:

Supplying raw materials for the manufacture of panels, supplying materials used in the production and delivery of cables and batteries used in the project, and any materials needed by the project for its success.

- **Location for negotiation:**

- Negotiation location in Riyadh

- **The team of negotiation:**

- 1- Experts
- 2- Managers
- 3- Engineers
- 4- The router
- 5- The negotiator
- 6- Coordinator
- 7- Recorder

- **Negotiating position**

- 1- Contract duration: 5 years
- 2- Contract components:
 - solar panels
 - batteries
 - the cable
 - Transformers
- 3- Delivery 30 days after ordering
- 4- Payment 60 days after receipt of supply
- 5- Every week delay in the supply process, 1% of the supply invoice is deducted

- **Negotiation status:**

The negotiation process is successful and the contract was concluded with the company

Plan #2:

2- Negotiating with customers to sell the project's products, deliver and install solar panels, and distribute the largest amount to users.

- **Goals:**

- 1- Convincing customers of products and installing them in the largest segment of users
- 2- Marketing of products to customers
- 3- Signing agreements with customers to install and use products within two years of signing the contracts
- 4- Ease of signing with companies to finance the customers the amounts for using the products

- **Location for negotiation:**

- Negotiation location in Saudi Arabia

- **The team of negotiation:**

- 1- Experts
- 2- Managers
- 3- Engineers
- 4- The router
- 5- The negotiator
- 6- Coordinator
- 7- Recorder

- **Negotiating position**

- 1- Contract duration: 2 years
- 2- Contract components:
 - solar panels
 - batteries
 - the cable
 - Transformers
- 3- Delivery to customers location with in 30 days after payment.
- 4- Installation within 20 days after deliver the materials to location.

- **Negotiation status:**

The negotiation process is successful and the contract was concluded with the costumers.

SCOPE STATEMENT:

The purpose of this scope statement is to define, document, approve, and control the scope of a 100MW Solar Energy Project of Green Sun Group. The appointed project team shall plan, execute, control, and close the project according to this document.

Overview of the project

- Project Name: Green Sun
- Location: KSA
- Time: 5 years after project initiation date
- Cost: 400,000,000.00 SAR

The renewable energy sector has experienced significant growth in recent years fueled by EU energy policy, technological innovation, and rising fossil fuel prices. On April 25, 2007, the Hellenic Regulatory Energy Authority (REA) issued a National Program for the Development of Power Stations in , which state that by the end of 2010, 21% of Electric Energy consumed must be from Renewable Energy sources as per commitments to EU Strategic Development. Encouraged by the policy and the continuous investment return and low operating risk nature of Solar Power Project, the Green Sun Group decide to establish a 100MW Photovoltaic Power Plant named “Green Sun Solar Energy Plant” in KSA .

PROJECT SCOPE

The green sun Solar Farm will be a ground-based very large scale photovoltaic power plant consisting of 10 inter-connected solar farms, each capable of producing 10 MW of electricity within a margin of 5%. Once completed, it shall cater for the electricity needs of over 1,500,000 solar panels which can annually

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generate 100,000 MWh electricity to fulfill the needs of approx. 30,000 family homes, and save around 50,000 Tones CO2 per year.

PROJECT OBJECTIVES

- To design and to construct the Photovoltaic Power Plant.
- To be profitable not only for the shareholders but also the final users.
- To have efficient communication and organization through all the project development.
- Dismantle the entire complex at the life cycle's end (35 years after construction).
- Capitalize on any technological breakthroughs take place during the design/build and construction phase of the project within the fields of Architecture, Engineering, Sociology and Business.

The initial planning budget for this project is 400,000,000.00 SAR .

PROJECT REQUIREMENTS:

- Provide Project Management services throughout the project's life-cycle.
- Provide maintenance services for a period of 35 years after finishing construction.
- Define business units for the performance of the project as logistics, purchasing, engineering, marketing, accounting and finance and so on.
- Determine the policies for the project development as the foundation.
- Acquire funding, sponsorships and strategic partnerships by means of Business Development.
- Environment research.
- To set up logistical routes to enhance effective and low cost material transportation.
- Planning for overall the project such as materials, human resources, etc.

- Quality controls.

PROJECT ASSUMPTIONS:

1. Stable long term investment return.
2. Improve quality of life.
3. World's biggest photovoltaic power plant.
4. Long term benefits for economy and environment.

PROJECT CONSTRAINTS:

1. A negative position in the public's mind as activism, monopolies, traditionalist ideology, corruption.
2. Mega Project scale.
3. A risk of snowball effect when small problem might occurred but without been detected because the magnitude of the project.
4. Lack of material or skilled labor.
5. Global economic situation.
6. Lack of sponsor and/or client commitment.
7. Supply Chain shortfalls.
8. Limited Logistics capacity of selected location.

PROJECT DELIVERABLES:

- 100MW Photovoltaic Power Plant delivered 5 years following Project Initiation.
- Connection to main power grid.
- To provide sustainable facilities according to Eco- friendly policies.
- Conformance to relevant Standards, Codes of Practice (CoP), HAZMAT and Health and Safety guidelines.
- Plant decommissioning at the end of the projected life cycle.

- Provide Operation and Maintenance (O&M) Manuals.

PROJECT ACCEPTANCE CRITERIA:

- The Project will be delivered within the agreed time and budget.
- Everything has to be test and should fulfill the highest quality standards according to the established criteria.
- Paperwork should be submitted at delivery time.
- Periodical Auditing/Quality checks carried out in regular intervals throughout the Project.
- Reports and status progress should be delivered in the team meetings.
- Semi-independent operational status for each division to ensure flexibility.
- Divisions should operate according to project needs and requirements but have to adhere to the following constraints:

1) Project Management

- Provide Project Services throughout the project's life cycle.
- Conduct Risk Assessment on a quarterly basis.
- Provide Time and Cost management services.
- Implement QMS
- Perform QA in accordance with implemented QMS.

2) Supply Chain Division

- All tasks should be accomplished and performed according to the shipment policies and products specifications.
- Freight quotes agreements and contracts should be specify at the beginning of the project for the project duration, price increases should be regulated with a matrix and % limits in order to overpass the budget.
- Constant supervision and tracking transportation performance in order to avoid delayed material.

- To hire a customs agencies in order to fulfill the import regulations and to prevent extra costs.
- Warehouse forecast and cycle counts.
- Customs and taxes verification completed before the imports.

3) Engineering

- Design and Build according to current world Codes and Standards, amend if necessary.
- Complete Pilot project prior to initiation of the Design Phase.
- Provide full set of drawings.
- Technical Specifications should adhere to current world Codes and Standards.
- Use of 'green' materials and techniques where applicable.
- Risk analysis
- Compile Health and Safety Manuals.
- Provide decommission plan in compliance with current Hazmat Codes and Standards.

4) Human Resources

- Personnel salaries should conform to current international treaties and regulations, with annual readjustments.
- Roles and responsibility description documentation should have done before starting the project.
- Detailed HRM will be performed by each Division semi-autonomously.
- Detailed and clear Union agreements should be signed and documented before starting the construction or hiring according to current laws and regulations.
- Conflict resolution always has to be guided by the established policies.

5) Business Development

- Budgets and reports has to be accurate and be done by using the latest information and reliable data including external factors like tax rates, possible changes in taxes or any other variable covering a range of 12 to 15 years within reasonable forecasting capabilities..
- Liaison duties following project initiation phase up to 3 years before completion to ensure political and public support, forming of strategic alliances/partnerships in inter-governmental and international organization level.
- Perform a Feasibility Study prior to initiation of Design Phase.
- Publicity campaign strongly oriented into the positive positioning.
- Contra-marketing plan in order to fight negative public opinion.

Initial Work Breakdown Structure

- **Politic statement**
- **Purpose:**

Provide guidance for planning and handling negotiations with land owners and authorities in concern of Helios Solar Farm project.

- **Scope:**

This statement provides guidance for purchasing/leasing land, communication with public authorities.

- **Land Purchasing/Leasing Policy:**

All activities involve purchasing and/or leasing of land during the project life cycle shall be reported to the project Management Board and must be conducted in accordance with the following procedure:

- I. An application and a report containing the complete details of the land (location, environment, legal owner, value, term of use, applicable laws or regulations, and etc.) must be filed and submitted to the Management Board by the Project Manager.
- II. If the application is approved by the Management Board, the board will grant an operating budget as state in the application to the Project Team, and will have

authority to make expenditures within that budget. The project manager will be charged with the responsibility of preparing and executing legal agreement with land owner(s), and ensuring appraisal of land selected in terms of cost and suitability.

III. The Management Board has right to deny an application, and the denied application shall not be submitted again.

IV. While dealing and negotiating with the landowner and any relevant third party, the project team shall bear in mind the matter of confidentiality of the project.

- **Public Communication Policy**

While communicating with any public authority, the project team shall keep in mind that:

I. All external communication shall be documented.

II. Communication shall be effective and efficient.

III. Develop sustaining effective relationships with authorities.

IV. Promote company image and reputation.

V. All communications that may influence the project must be reported to the Project Manager.

Environment statements

- **Purpose:**

State the environmental objectives of the green sun Solar Farm Project.

- **Scope:**

This statement provides a guidance to manage the environment throughout the Project Life Cycle. .

- **Environmental Policy:**

I. The Project Manager shall educate, train and motivate staff to conduct their activities in an environmentally responsible manner.

II. All activities in the project shall conform to most international environmental regulations and standards.

III. Conduct an environmental impact assessment of each project phase, and act accordingly.

- **Quality Policy**

Green sun Group is committed to uphold the following quality statements:

1. Achieve or exceed customer expectations.
2. Maintain and expand employee competencies.
3. Strive for constant improvement.
4. Take all necessary steps to achieve project goals.
5. Probable quality issues during the course of the project
6. Quality involves everyone and all activities in the projects, any mistake or constrain can affect the whole project quality.

- **Examples of lack of quality are:**

- Lack of skilled labor.
- Mistake in management process.
- Low quality material.
- Delay in product delivery.
- Customer requirement not fulfilled.
- Installation shortfalls
- Capacity limits of harbor in selected location.

Quality criteria of the project

Customer Satisfaction:

- Customer and stakeholders requirements are fulfilled.
- Product and service quality data collection processes are well established.

Business planning criteria:

- The project planning process is well established.
- All plans are reviewed regularly for progress and corrective actions taken when necessary.

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- The business planning process includes managing the linkage to other areas of the value delivery chain.
- The vision and planned strategic are achieved.
- Business results are achieved as a result of good business planning.

Management criteria:

- Project objectives, goals and schedules are clearly defined.
- There is a good data collection, analysis and understanding of root cause.
- Alternative solutions are reviewed and results have been achieved.
- Reviews are standardized and future plans are made.
- Key processes or activities are monitored and controlled.
- The key processes or activities are managed systematically.
- The project performance method has routinely been improved and documented.

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- The project performance method has routinely been improved and documented

Employee development criteria:

- Project and quality team are well managed.
- Employee training programs are implemented and sustained.
- Employees are empowered to make decisions and proposals.

Quality audits system

Follow the instruction of ISO 10011-1 Standard for Planning and Performing Quality Audits, we suggest similar project in the future shall follow the procedures listed below to perform the quality audit to improve its quality:

Prepare an audit plan, this should be prepared by the audit manager and approved by the customer before the audit begins. "The plan will define the objectives and scope of the audit, explain how long each phase of the audit will take, specify where and when the audit will be carried out. It will also introduce the lead auditor and his team members, identify the quality elements, the groups and areas that will be audited, list the documents and records that will be studied and the people who are responsible for quality and whose areas and functions will be audited. The plan has to explain when meetings will be held with auditee's senior management, and clarify who will get the final audit report and when it will be ready." (ISO 10011-1)

Perform the audit plan. This step starts with having an open meeting with the auditee's senior management to introduce the audit team and the audit plan, confirm that the auditee is ready to support the audit process. Then, the auditors have to Prepare audit working papers, such as quality management checklists and forms for record observations and collect evidence. The evidence can be collected by interviewing personnel, reading documents, reviewing manuals, studying records, reading reports, scanning files, analyzing data, observing activities and examining conditions. Evidence shall be confirmed by more objective means. Clues can be found through investigate evidences; the auditors must study the evidence and document their observations; key nonconformities which are supported by the evidence and cross-referenced to the standards that

are being violated must be listed. Auditors must draw conclusions about how well the quality system is applying its policies and achieving its objectives, and discuss evidence, observations, conclusions, recommendations, and nonconformities with senior managers of auditee before they prepare a final audit report. (ISO 10011-1)

Prepare the final audit report. The audit report should be dated and signed by the lead auditor. This report should include the detailed audit plan, a review of the collected evidence, a discussion of the conclusions that were drawn, a list of the nonconformities that were identified, a judgment about how well the quality system complies with all quality system requirements, and an assessment of the quality system's ability to achieve

quality objectives and apply the quality system policy. The final report shall be sent to the client by lead auditor, and the client should send it to the auditee. (ISO 10011-1)

The final step is to take remedial actions to correct or prevent nonconformities; and a follow-up audits should be scheduled in order to verify that corrective and preventive actions were taken. (ISO 10011-1)

WBS

Coding	Activity	activity description
1	Commercial Register from the Ministry of Commerce and Investment	
2	Attach the required certificates and documents to the Ministry's website	We enter the required information on the site
3	General Insurance Corporation	
4	Inventory of employee information	Recall employee data through the database
5	Upload evidence and official papers	The data entry uploads the required documents to the General Organization for Insurance
6	Chamber of Commerce membership certificate	
7	Pay the membership issuance fee	The project manager pays the membership fees by paying government bills. The Ministry of Commerce
8	Issuance of a license from the Ministry of Energy	The project manager must obtain a permit from the Ministry of Energy to start work
9	The permit from the Saudi Electricity Company	The project manager must obtain approval from the Saudi Electricity Company
10	Ministry of Municipal and Rural Affairs license	The project manager must obtain a license from the Ministry of Municipal and Rural Affairs
11	Lease contract for the company	
12	Documentation of the establishment's lease contract in the Ajir program	The project manager documents the inclusion of the bonds in the Ager program
13	Contracting with a main supplier	Contracting with suppliers of solar panels, transformers and cables used for the project by the project manager
14	Searching for a backup resource	It is used in crises if there is a problem with the main supplier
15	Cooperation with a consulting office	
16	Nomination of consultants	The Contracts Administration Department selects the candidates under the supervision of the project manager
17	Upload a presentation for a consulting service	

17	Determining the scope of work for the consultant	Organizing the scope of work in coordination with the project manager
19	schedule planning	Schedule planning in coordination with the project manager
20	cost estimate	Submit the financial study provided for the service
21	visit the site to make a plan	It is a field survey of the site you want to work on, and it shortens a lot of work for you so that you work clearly
22	start the project	Implementation must be as planned in order to work properly and be completed quickly
23	Work Monitor	It is to monitor and control the work of the project manager
24	project end	Handing over the project to the clients By the project manager and the final payment of the project value will be received

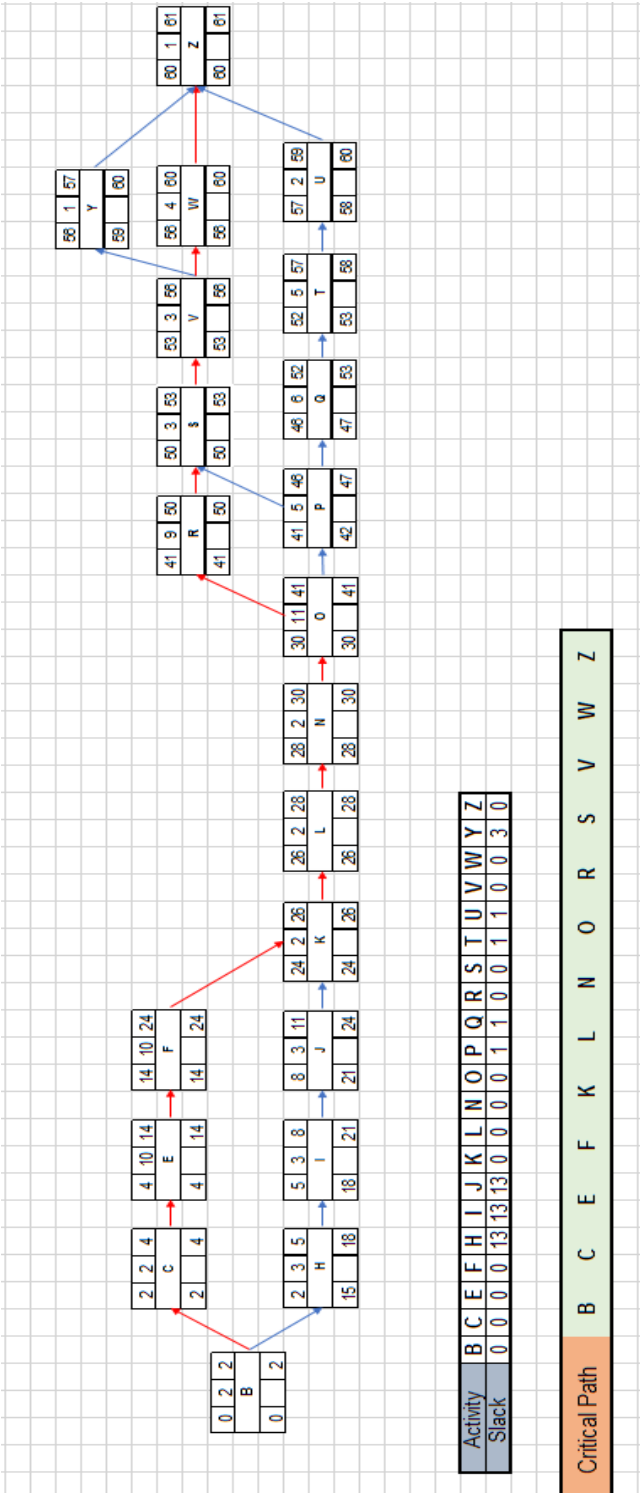
The activities relationship:

#	Activity	Start Date	End Date	Duration	Linked to	Linked From	Assigned to
Solar System Project		70 Days					
A	Contracts	24 Days					
B	Client EPC Contract Signing	7/1/2022	7/2/2022	2 Days			
C	LNTF	7/3/2022	7/4/2022	2 Days	B		
E	Ministry of Municipal & Rural Affairs Approval	7/5/2022	7/15/2022	10 Days	C		
F	Saudi Electricity Company Approval	7/15/2022	7/25/2022	10 Days	E		
G	Procurements	15 Days					
H	PV Module Purchasing	7/26/2022	7/29/2022	3 Days	B		
I	Galvanized Steel Structure	8/1/2022	8/4/2022	3 Days	H		
J	Solar Inverters	8/5/2022	8/8/2022	3 Days	U		
K	Cables	8/9/2022	8/11/2022	2 Days	J		
L	Circuit Breakers and Fuses	8/12/2022	8/14/2022	2 Days	K		
N	Cable Tray And Ladders	8/15/2022	8/17/2022	2 Days	L		
M	Construction	29 Days					
O	PV Structure Installation	8/20/2022	8/31/2022	11 Days	N		
P	Inverters and MDB Structure Installation	8/20/2022	8/25/2022	5 Days	O		
Q	Cable Trays Installation Works	8/26/2022	9/1/2022	6 Days	P		
R	PV Modules Installation	8/31/2022	9/9/2022	9 Days	O		
S	Inverters Installation	8/26/2022	8/29/2022	3 Days	P		
T	DC Cables Works	9/2/2022	9/7/2022	5 Days	Q		
U	Installation of MDBs	9/8/2022	9/10/2022	2 Days	T		
V	AC Cabling Works	9/11/2022	9/14/2022	3 Days	S		
W	Weather Station and Monitoring System Installation	9/15/2022	9/19/2022	4 Days	V		
X	Project Closing	2 Days					
Y	SEC Commissioning Approval	9/20/2022	9/21/2022	1 Day	V		
Z	Signing of Commissioning Certificates	9/22/2022	9/23/2022	1 Day	Y		

	Task	Start	End	Duration
Client EPC Contract Signing	B	7/1/2022	7/2/2022	2
LNTF	C	7/3/2022	7/4/2022	2
Ministry of Municipal & Rural Affairs Approval	E	7/5/2022	7/15/2022	10
Saudi Electricity Company Approval	F	7/15/2022	7/25/2022	10
PV Module Purchasing	H	7/26/2022	7/29/2022	3
Galvanized Steel Structure	I	8/1/2022	8/4/2022	3
Solar Inverters	J	8/5/2022	8/8/2022	3
Cables	K	8/9/2022	8/11/2022	2
Circuit Breakers and Fuses	L	8/12/2022	8/14/2022	2
Cable Tray And Ladders	N	8/15/2022	8/17/2022	2
PV Structure Installation	O	8/20/2022	8/31/2022	11
Inverters and MDB Structure Installation	P	8/20/2022	8/25/2022	5
Cable Trays Installation Works	Q	8/26/2022	9/1/2022	6
PV Modules Installation	R	8/31/2022	9/9/2022	9
Inverters Installation	S	8/26/2022	8/29/2022	3
DC Cables Works	T	9/2/2022	9/7/2022	5
Installation of MDBs	U	9/8/2022	9/10/2022	2
AC Cabling Works	V	9/11/2022	9/14/2022	3
Weather Station and Monitoring System Installation	W	9/15/2022	9/19/2022	4
SEC Commissioning Approval	Y	9/20/2022	9/21/2022	1
Signing of Commissioning Certificates	Z	9/22/2022	9/23/2022	1
		44743.00	44827.00	

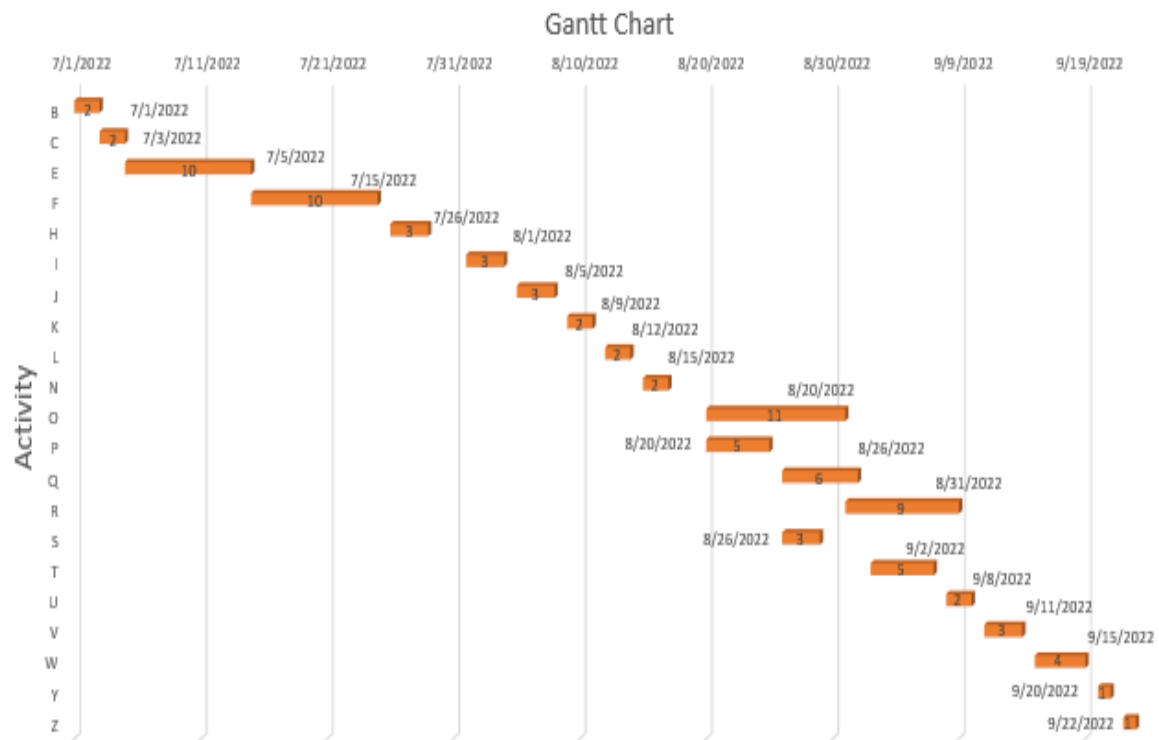
Project Logical Diagram:

Activity List									
ES	D	EF				0	2	2	
Activity Name									
LS	F	LS				0		2	
2	2	4				4	10	14	
C									
2		4				4		14	
14	10	24				2	3	5	
F									
14		24				15		18	
5	3	8				8	3	11	
I									
18		21				21		24	
24	2	26				26	2	28	
K									
24		26				26		28	
28	2	30				30	11	41	
H									
28		30				30		41	
41	5	46				46	6	52	
P									
42		47				47		53	
41	9	50				50	3	53	
R									
41		50				50		53	
52	5	57				57	2	59	
T									
53		58				58		60	
53	3	56				56	4	60	
V									
53		56				56		60	
56	1	57				60	1	61	
T									
59		60				60		61	



Gantt Chart

Activity		Predecessor	Duration
Client EPC Contract Signing	B		2 Days
LNTP	C	B	2 Days
Ministry of Municipal & Rural Affairs Approval	E	C	10 Days
Saudi Electricity Company Approval	F	E	10 Days
PV Module Purchasing	H	B	3 Days
Galvanized Steel Structure	I	H	3 Days
Solar Inverters	J	I	3 Days
Cables	K	J	2 Days
Circuit Breakers and Fuses	L	K	2 Days
Cable Tray And Ladders	N	L	2 Days
PV Structure Installation	O	N	11 Days
Inverters and MDB Structure Installation	P	O FS	5 Days
Cable Trays Installation Works	Q	O FS	6 Days
PV Modules Installation	R	O FS	9 Days
Inverters Installation	S	P FS	3 Days
DC Cables Works	T	Q FS	5 Days
Installation of MDBs	U	T	2 Days
AC Cabling Works	V	S	3 Days
Weather Station and Monitoring System Installation	W	V	4 Days
SEC Commissioning Approval	Y	V	1 Day
Signing of Commissioning Certificates	Z	Y	1 Day



Distribute human resources to functions

It is necessary to distribute the human resource to various functions. The reason is that each function requires a set of human resource skills and competencies and a hierarchy. It is set out on the basis of the hierarchical philosophy of the organization.

In this case, the human resource is distributed to various functions in the following way.

The functions, marketing, human resource, finance, and engineering are managed by the manager. The respective managers collaborate with the human resource department to identify the gaps in existing and needed skills. Those skills are then planned and hired by the human resource department.

In addition to that, every function has to assign roles and responsibilities to employees. It is mainly managed by functions based on their needs. The roles and responsibilities are determined on the basis of already set job descriptions and given roles and responsibilities.

The engineering department is one of the most technical departments in the company. This function needs engineers as well as other collaborators to communicate with other departments. The distribution of human resources in this function is entirely based on technical requirements. This function will have a number of engineering working with each other. The manager will be responsible to collaborate within the function and with other functions.

Analyze the influence of conducting the Crashing and fast-tracking process

In the crashing process, more resources are added, hence more cost is incurred in order to complete the given tasks. There are various benefits that are attached to crashing processes. One of the biggest benefits of this approach is that it reduces the completion time of projects which is essential in this highly dynamic business environment. Many times, it is considered important to meet deadlines in order to keep the project relevant or maintain customer satisfaction levels. On such occasions, increasing costs is acceptable for a company.

However, an increase in cost is not always desirable and the project manager may decide to apply another process which is called fast-tracking. In this process, activities are run parallel instead of sequential. The biggest problem with this approach is that if the one activity goes wrong in doing parallel work, a lack of integration may lead to doing the whole work from scratch and it is true both for physical projects and software projects. Doing parallel activities reduces the overall time of project

completion hence there are chances of reducing costs. However, in the case of any project, the costs may increase two-fold eradicating all cost savings.

Hence both of the projects have huge implications for a company. That is why companies consider this very carefully when making such decisions about whether to use crashing or fast tracking. The final decision is made on the basis of the needs of customers.

Clarify the Deming model for quality :

There are four stages of the Deming model which are plan, do, check, and act. In order to maintain quality, it is very important to follow this cycle on a continuous basis.

In the first stage Plan, problems and the areas where improvement is possible are identified and studied. Goals and objectives are set that will be achieved at the end of this cycle. An action plan is created. In this business, the installation of solar panels and internal business activities will be assessed and an action plan will be devised. The next stage is done. At this step, the devised action plan is started to implement. It is necessary that all the team members doing work on making change successful are fully aware of the goals, objectives, and proposed plan in order to fully understand the overall purpose and process of this change.

The third stage is check. At this stage, the process is monitored as well as results are assessed whether the outcomes are in line with the proposed goals and objectives or not. If goals and objectives are met, the methods of improvement are evaluated when the same cycle will be repeated.

A last stage is an act. The failures of the previous cycle are evaluated and on the basis of those factors, changes are made when the cycle will be repeated. Due to the highly dynamic nature of the engineering business, it is expected that every time when the cycle will be repeated, there will be new things to add. So, the cycle will never become obsolete or useless.

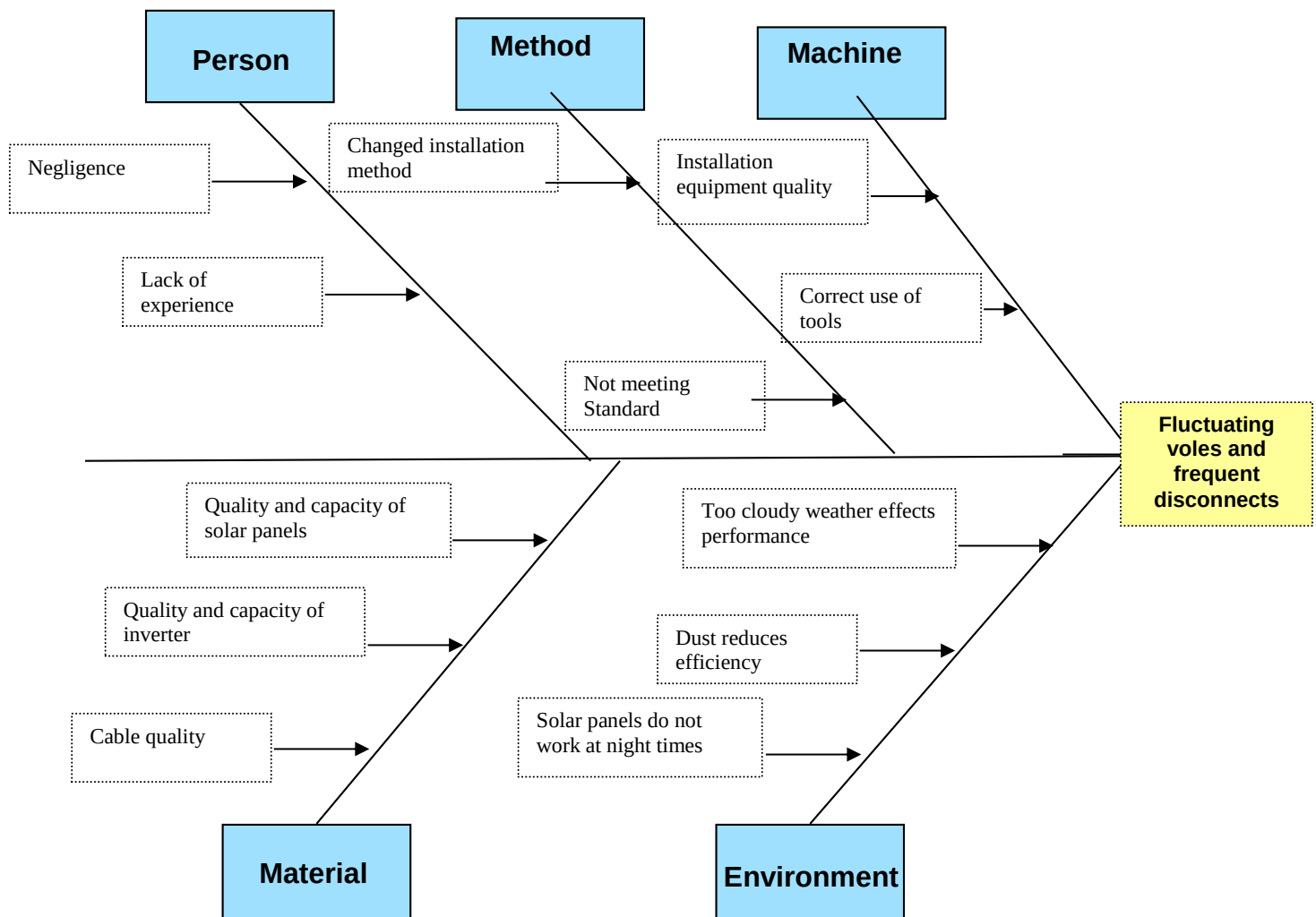
SIPOC Model :

SIPOC stands for Suppliers, Inputs, Processes, Outputs, and Customer.

The model is given below

Suppliers	Input	Processes	Output	Customers
•Chinese solar panel makers •Chinese equipment manufacturers •German solar panel equipment manufactu	•Solar Panels •Cables •AC to DC Inverter (if required at premises) •dry batteries for electricity backup	•Installation of solar panels •Different time to install for different customers based on their commercial or domestic customer type •Solar panels vary in efficiency based on the selection of solar panels and other equipment •Customer selects solar panel installation package or customize as per needs • Price quoted •installation date is communicated •site visit •installation occurs •revisits for quality assurance	•Solar panels installed •Different capacity based on customer requirement •backup batteries conencted to solar panels	•Commercial sector customers such as factories, offices and trading houses •residential customers

The problem with the Ishikawa diagram is that there is a constant disconnect with the solar panels and the fluctuating at three locations where solar panels were installed. Ishikawa diagram is given below



WBS:

	project name	Green sun			#NAME?				
level	Stages of work breakdown structuring	details	Phase reliability WBS	Responsible for the stage	resources	Task completion percentage	Planned cost	Actual cost	Planned start date
	1	government measures							1/1/2022
	1.1	Commercial Register							
1		Commercial Register from the Ministry of Commerce and Investment	external mandatory	Commercial department + stakeholder manager	financial resources	100%	1500	1500	1/12/2022
2		Attach the required certificates and documents to the Ministry's website	external mandatory	Commercial department + stakeholder manager	physical resources	100%	350	350	1/14/2022
3		Ministry of Labor and Social Development	external mandatory	Commercial department + stakeholder manager	physical resources	100%	250	250	1/16/2022
4		General Insurance Corporation	external mandatory	HR	physical resources	100%	200	200	1/18/2022
5		Inventory of employee information	external mandatory	HR	physical resources	100%	300	300	1/20/2022
6		Uploading employee data and official papers	external mandatory	HR	physical resources	100%	250	250	1/22/2022
7		Chamber of Commerce affiliation certificate	external mandatory	Admin + stakeholder manager	physical resources	100%	200	200	1/24/2022

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8		Pay the membership issuance fee	external mandatory	Admin	physical resources	100%	300	250	1/26/2022
9		Zakat and Income Authority file	external mandatory	Finance	physical resources	100%	1500	1500	1/28/2022
	1.2	Issuance of a license		HR					
10		Issuance of a license from the Ministry of Energy	external mandatory	Admin + Operation	physical resources	100%	1500	1500	2/12/2022
11		Permit from the Saudi Electricity Company	external mandatory	Admin	physical resources	100%	1500	1500	2/16/2022
12		Ministry of Municipal and Rural Affairs license	external mandatory	Operation+ Stakeholder manager	physical resources	100%	1500	1500	2/18/2022
	2	building rent		Admin					
	2.1	Location		Admin					
13		lease	external mandatory	Admin	physical resources - infrastructure	100%	150000	150000	3/12/2022
14		Documentation of the establishment's lease contract in the Ajir program	external mandatory	Admin	physical resources - infrastructure	100%	5000	5000	3/14/2022
15		Receipt of the building from the lessor	external mandatory	Admin+ legal	physical resources - infrastructure	100%	2800	2800	3/16/2022
	2.2	Contracting with a main supplier							
16		Contracting with suppliers of solar panels, transformers and cables used for the project by the project manager	external mandatory	Admin+ legal	physical resources - Human resources	100%	1000000	1000000	4/12/2022
17		backup resource	external mandatory	Facility + Finance	physical resources - Human resources	100%	250000	250000	

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18		Storage of materials in warehouses	external mandatory	Admin	physical resources - Human resources	100%	100000	100000	4/15/2022
	3	Recruit							
19		employee salaries	internal mandatory	HR	Human resources	100%	500000	49000	
20		Renewable energy engineer	internal mandatory	Admin	Human resources	100%	90000	90000	
21		civil engineer	internal mandatory	Admin	Human resources	100%	90000	90000	
22		Renewable energy technician	internal mandatory	Admin	Human resources	100%	240000	240000	
23		Receptionist	internal mandatory	Admin	Human resources	100%	60000	60000	
	4	Operating							
24		Planning, implementation, and operation	internal mandatory	Operation + Strategy	physical resources - Human resources	100%	175000	175000	

تكاليف التأسيس

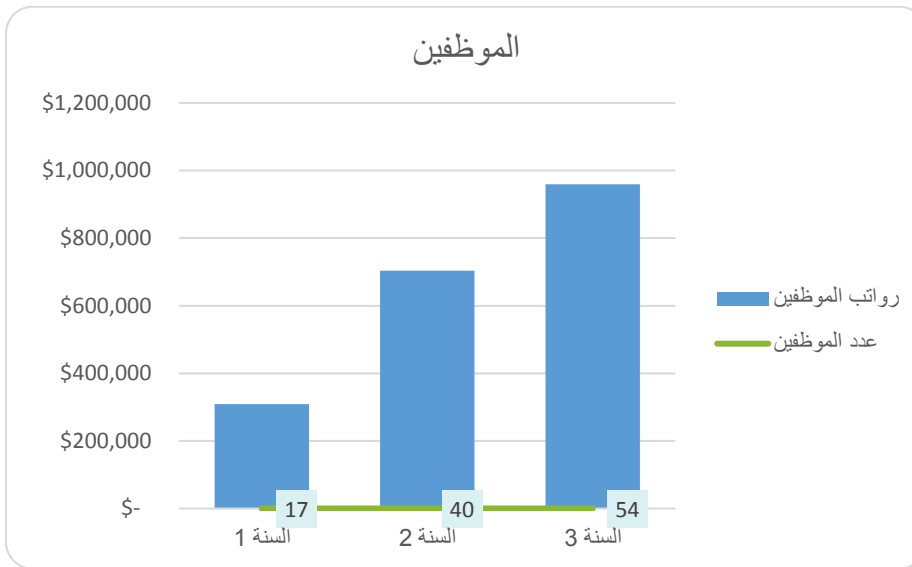
الأصول الثابتة	المبلغ	الاهلاك
		بالسنوات
الأراضي	\$ -	0
المباني	\$ 500000	1
ترميم مبنى مستأجر	\$ -	-
الآلات والمعدات	\$ 350,000	7
الأثاث	\$ 150,000	5
السيارات	\$ 240,000	5
أصول ثابتة أخرى	\$ -	5
اجمالي الأصول الثابتة	1,240,000	

مصاريف التشغيل قبل الافتتاح	
رواتب الموظفين ما قبل الافتتاح	\$ 56,000
دفع رسوم التأمين الصحي (مقدم سنة)	\$ 40,000
المخزون	\$ 150,000
المصاريف القانونية والمحاسبية	\$ 25,000
مبلغ الأيجار (مقدم 6 اشهر)	\$ 250,000
تأسيس الخدمات (كهرباء، انترنت، ماء)	\$ 25,000
الموردين	1,000,000
مصاريف التسويق قبل الافتتاح	\$ 40,000
الرخص الحكومية	\$ 100,000
مصاريف تأسيس أخرى	\$ 25,000
اجمالي مصاريف التشغيل قبل الافتتاح	1,711,000

مصادر رأس المال لبدء المشروع			النسبة من رأس المال	المبلغ الإجمالي	نسبة الفائدة	مدة السداد (بالأشهر)	الدفعات الشهرية
مستثمر خارجي	30%						
قروض او ديون إضافية	-						
قرض بنك	0%				4%	60	\$ -
قروض او ديون أخرى	0%				0%	12	\$ -
اجمالي مبلغ رأس المال	2,500,000		H 30 لازم تساوي خلية H 41 الخلية	\$ -			\$ -
			تحتاج رفع رأس المال (مبلغ) <<	\$ 2,500,000			
رأس المال العامل				\$ 2,500,000			

اجمالي رأس المال لبدء المشروع	\$ 2,500,000
-------------------------------	--------------

	رواتب الموظفين	عدد الموظفين
السنة 1	\$309,136	17
السنة 2	\$703,488	40
السنة 3	\$959,328	54



السنة الأولى-اجمالي الرواتب السنوية	السنة الثانية-اجمالي الرواتب السنوية	السنة الثالثة-اجمالي الرواتب السنوية
\$ 56,000	\$96,000	\$144,000
\$ 56,000	\$96,000	\$144,000
\$ 18,648	\$31,968	\$63,936
\$ 42,624	\$95,904	\$127,872
\$ 45,288	\$127,872	\$159,840
\$ 42,624	\$95,904	\$159,840
\$ 47,952	\$159,840.00	\$159,840
\$ 309,136	\$703,488	\$959,328

اكمل هذا الجدول		شهر 1	شهر 2	شهر 3	شهر 4	شهر 5	شهر 6	شهر 7	شهر 8	شهر 9	شهر 10	شهر 11	شهر 12
نوع الوظيفة	الرواتب	عدد الموظفين خلال كل شهر (السنة الأولى)											
engineer	\$ 1,600	\$ 400	2	2	2	2	2	2	2	2	2	4	4

GREEN SUN

engineer	\$ 1,600	\$ 400	2	2	2	2	2	2	2	2	2	2	4	4
Receptionist	\$ 1,066	\$ 266	1	1	1	1	1	1	1	1	1	1	2	2
technician	\$ 1,066	\$ 266	2	2	2	2	2	2	2	2	2	2	6	6
technician	\$ 1,066	\$ 266	2	2	2	2	2	2	2	2	2	2	6	8
technician	\$ 1,066	\$ 266	2	2	2	2	2	2	2	2	2	2	6	6
technician	\$ 1,066	\$ 266	2	2	2	2	2	2	2	2	2	2	6	10
عدد الموظفين			13	13	13	13	13	13	13	13	13	13	34	40

	شهر 1	شهر 2	شهر 3	شهر 4	شهر 5	شهر 6	شهر 7	شهر 8	شهر 9	شهر 10	شهر 11	شهر 12
نوع الوظيفة	قيمة الرواتب الموظفين الشهرية (السنة الأولى)											
engineer	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	8,000	8,000
engineer	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	8,000	8,000
Receptionist	1,332	1,332	1,332	1,332	1,332	1,332	1,332	1,332	1,332	1,332	2,664	2,664
technician	2,664	2,664	2,664	2,664	2,664	2,664	2,664	2,664	2,664	2,664	7,992	7,992
technician	2,664	2,664	2,664	2,664	2,664	2,664	2,664	2,664	2,664	2,664	7,992	10,656
technician	2,664	2,664	2,664	2,664	2,664	2,664	2,664	2,664	2,664	2,664	7,992	7,992
technician	2,664	2,664	2,664	2,664	2,664	2,664	2,664	2,664	2,664	2,664	7,992	13,320
اجمالي رواتب الموظفين	\$ 19,988	\$ 19,988	\$ 19,988	\$ 19,988	\$ 19,988	\$ 19,988	\$ 19,988	\$ 19,988	\$ 19,988	\$ 19,988	\$ 50,632	\$ 58,624

			شهر 1	شهر 2	شهر 3	شهر 4	شهر 5	شهر 6	شهر 7	شهر 8	شهر 9	شهر 10	شهر 11	شهر 12
نوع الوظيفة	الرواتب	البدلات	عدد الموظفين خلال كل شهر (السنة الثانية)											
engineer	\$ 1,600	\$ 400	4	4	4	4	4	4	4	4	4	4	4	4
engineer	\$ 1,600	\$ 400	4	4	4	4	4	4	4	4	4	4	4	4
Receptionist	\$ 1,066	\$ 266	2	2	2	2	2	2	2	2	2	2	2	2
technician	\$ 1,066	\$ 266	6	6	6	6	6	6	6	6	6	6	6	6
technician	\$ 1,066	\$ 266	8	8	8	8	8	8	8	8	8	8	8	8
technician	\$ 1,066	\$ 266	6	6	6	6	6	6	6	6	6	6	6	6
technician	\$ 1,066	\$ 266	10	10	10	10	10	10	10	10	10	10	10	10
عدد الموظفين			40	40	40	40	40	40	40	40	40	40	40	40

	شهر 1	شهر 2	شهر 3	شهر 4	شهر 5	شهر 6	شهر 7	شهر 8	شهر 9	شهر 10	شهر 11	شهر 12
نوع الوظيفة	قيمة الرواتب الموظفين لكل شهر (السنة الثانية)											
engineer	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000
engineer	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000
Receptionist	2,664	2,664	2,664	2,664	2,664	2,664	2,664	2,664	2,664	2,664	2,664	2,664
technician	7,992	7,992	7,992	7,992	7,992	7,992	7,992	7,992	7,992	7,992	7,992	7,992
technician	10,656	10,656	10,656	10,656	10,656	10,656	10,656	10,656	10,656	10,656	10,656	10,656
technician	7,992	7,992	7,992	7,992	7,992	7,992	7,992	7,992	7,992	7,992	7,992	7,992
technician	13,320	13,320	13,320	13,320	13,320	13,320	13,320	13,320	13,320	13,320	13,320	13,320
اجمالي رواتب الموظفين	\$ 58,624	\$ 58,624	\$ 58,624	\$ 58,624	\$ 58,624	\$ 58,624	\$ 58,624	\$ 58,624	\$ 58,624	\$ 58,624	\$ 58,624	\$ 58,624

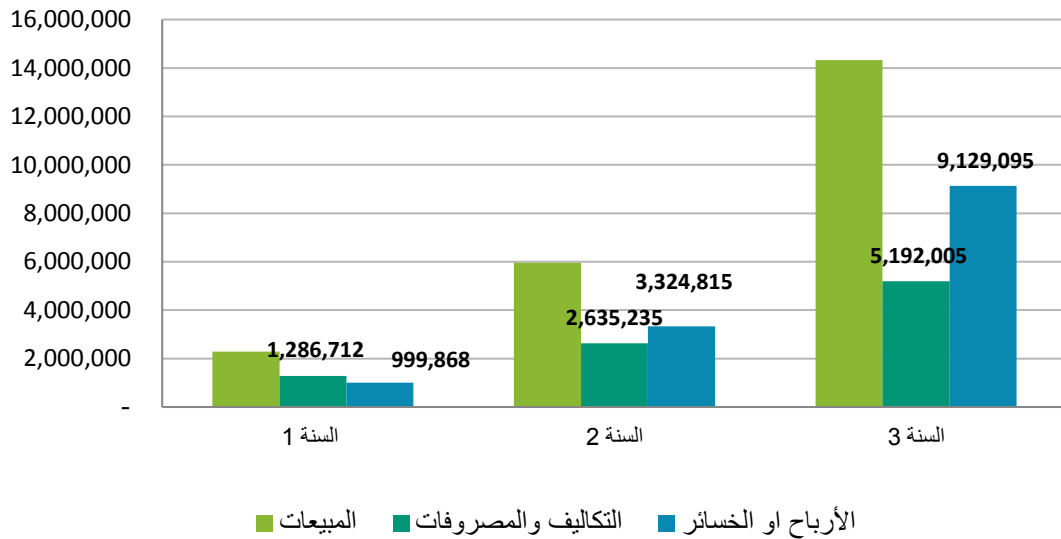
			شهر 1	شهر 2	شهر 3	شهر 4	شهر 5	شهر 6	شهر 7	شهر 8	شهر 9	شهر 10	شهر 11	شهر 12
نوع الوظيفة	الرواتب	البدايات	عدد الموظفين خلال كل شهر (السنة الثالثة)											
engineer	\$ 1,600	\$ 400.00	6	6	6	6	6	6	6	6	6	6	6	6
engineer	\$ 1,600	\$ 400.00	6	6	6	6	6	6	6	6	6	6	6	6
Receptionist	\$ 1,066	\$ 266.00	4	4	4	4	4	4	4	4	4	4	4	4
technician	\$ 1,066	\$ 266.00	8	8	8	8	8	8	8	8	8	8	8	8
technician	\$ 1,066	\$ 266.00	10	10	10	10	10	10	10	10	10	10	10	10
technician	\$ 1,066	\$ 266.00	10	10	10	10	10	10	10	10	10	10	10	10
technician	\$ 1,066	\$ 266.00	10	10	10	10	10	10	10	10	10	10	10	10
عدد الموظفين			54	54	54	54	54	54	54	54	54	54	54	54

			شهر 1	شهر 2	شهر 3	شهر 4	شهر 5	شهر 6	شهر 7	شهر 8	شهر 9	شهر 10	شهر 11	شهر 12
نوع الوظيفة	قيمة الرواتب الموظفين لكل شهر (السنة الثالثة)													
engineer	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000
engineer	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000
Receptionist	5,328	5,328	5,328	5,328	5,328	5,328	5,328	5,328	5,328	5,328	5,328	5,328	5,328	5,328
technician	10,656	10,656	10,656	10,656	10,656	10,656	10,656	10,656	10,656	10,656	10,656	10,656	10,656	10,656
technician	13,320	13,320	13,320	13,320	13,320	13,320	13,320	13,320	13,320	13,320	13,320	13,320	13,320	13,320
technician	13,320	13,320	13,320	13,320	13,320	13,320	13,320	13,320	13,320	13,320	13,320	13,320	13,320	13,320
technician	13,320	13,320	13,320	13,320	13,320	13,320	13,320	13,320	13,320	13,320	13,320	13,320	13,320	13,320
اجمالي رواتب الموظفين	79,944	79,944	79,944	79,944	79,944	79,944	79,944	79,944	79,944	79,944	79,944	79,944	79,944	79,944

Financial statement

	السنة الأولى	السنة الثانية	السنة الثالثة
المبيعات			
اجمالي المبيعات	2,286,580	5,960,050	14,321,100
تكلفة البضاعة المباعة	1,143,060	2,386,850	4,773,700
اجمالي هامش الربح	1,143,520	3,573,200	9,547,400
اجمالي هامش الربح %	50%	60%	67%
مصاريف التشغيل			
اجمالي مصاريف التشغيل	127,920	207,840	319,776
مصروفات أخرى			
اجمالي المصاريف الأخرى	15,732	40,545	98,529
الأرباح أو الخسائر			
صافي الربح أو الخسارة	999,868	3,324,815	9,129,095
هامش صافي الربح %	44%	56%	64%

الأرباح والخسائر



	المبيعات	التكاليف والمصروفات	الأرباح أو الخسائر
السنة 1	2,286,580	1,286,712	999,868
السنة 2	5,960,050	2,635,235	3,324,815
السنة 3	14,321,100	5,192,005	9,129,095

الأرباح والخسائر للسنة الأولى

	شهر 1	شهر 2	شهر 3	شهر 4	شهر 5	شهر 6	شهر 7	شهر 8	شهر 9	شهر 10	شهر 11	شهر 12	الإجمالي السنوي
المبيعات													
solar panel	26,600	39,900	53,200	66,500	66,500	79,800	93,100	106,400	106,400	119,700	119,700	133,000	\$ 1,010,800
inverter	6,570	9,855	13,140	16,425	19,710	22,995	26,280	32,850	32,850	39,420	39,420	42,705	\$ 302,220
charge controller	2,660	3,990	5,320	6,650	7,980	9,310	10,640	13,300	13,300	15,960	15,960	17,290	\$ 122,360
batteries	13,300	26,600	39,900	53,200	53,200	66,500	79,800	93,100	93,100	106,400	106,400	119,700	\$ 851,200
منتج 5	-	-	-	-	-	-	-	-	-	-	-	-	\$ -
منتج 6	-	-	-	-	-	-	-	-	-	-	-	-	\$ -
منتج 7	-	-	-	-	-	-	-	-	-	-	-	-	\$ -
منتج 8	-	-	-	-	-	-	-	-	-	-	-	-	\$ -
منتج 9	-	-	-	-	-	-	-	-	-	-	-	-	\$ -
منتج 10	-	-	-	-	-	-	-	-	-	-	-	-	\$ -
اجمالي المبيعات	\$ 49,130	\$ 80,345	\$ 111,560	\$ 142,775	\$ 147,390	\$ 178,605	\$ 209,820	\$ 245,650	\$ 245,650	\$ 281,480	\$ 281,480	\$ 312,695	\$ 2,286,580
تكلفة البضاعة المباعة	\$ 24,560	\$ 40,165	\$ 55,770	\$ 71,375	\$ 73,680	\$ 89,285	\$ 104,890	\$ 122,800	\$ 122,800	\$ 140,710	\$ 140,710	\$ 156,315	\$ 1,143,060
اجمالي هامش الربح	\$ 24,570	\$ 40,180	\$ 55,790	\$ 71,400	\$ 73,710	\$ 89,320	\$ 104,930	\$ 122,850	\$ 122,850	\$ 140,770	\$ 140,770	\$ 156,380	\$ 1,143,520
اجمالي هامش الربح %	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
مصاريف التشغيل													
مصاريف التشغيل قبل الافتتاح	-	-	-	-	-	-	-	-	-	-	-	-	\$ -
الرواتب	19,988	19,988	19,988	19,988	19,988	19,988	19,988	19,988	19,988	19,988	50,632	58,624	\$ 309,136
-	-	-	-	-	-	-	-	-	-	-	-	-	\$ -
-	-	-	-	-	-	-	-	-	-	-	-	-	\$ -
-	-	-	-	-	-	-	-	-	-	-	-	-	\$ -
-	-	-	-	-	-	-	-	-	-	-	-	-	\$ -
-	-	-	-	-	-	-	-	-	-	-	-	-	\$ -

GREEN SUN

-	-	-	-	-	-	-	-	-	-	-	-	-	\$ -
-	-	-	-	-	-	-	-	-	-	-	-	-	\$ -
اجمالي مصاريف التشغيل	\$ 19,988	\$ 19,988	\$ 19,988	\$ 19,988	\$ 19,988	\$ 19,988	\$ 19,988	\$ 19,988	\$ 19,988	\$ 19,988	\$ 50,632	\$ 58,624	\$ 309,136
مصرفات أخرى													
الاهلاك	-	-	-	-	-	-	-	-	-	-	-	-	\$ -
فوائد قرض البنك	-	-	-	-	-	-	-	-	-	-	-	-	\$ -
فوائد قروض وديون أخرى	-	-	-	-	-	-	-	-	-	-	-	-	\$ -
الديون المعدومة	-	-	-	-	-	-	-	-	-	-	-	-	\$ -
الزكاة	\$ 338	\$ 553	\$ 768	\$ 982	\$ 1,014	\$ 1,229	\$ 1,444	\$ 1,690	\$ 1,690	\$ 1,937	\$ 1,937	\$ 2,151	\$ 15,732
اجمالي مصرفات أخرى	\$ 338	\$ 553	\$ 768	\$ 982	\$ 1,014	\$ 1,229	\$ 1,444	\$ 1,690	\$ 1,690	\$ 1,937	\$ 1,937	\$ 2,151	\$ 15,732
الأرباح والخسائر													
صافي الربح	\$ 4,244	\$ 19,639	\$ 35,034	\$ 50,430	\$ 52,708	\$ 68,103	\$ 83,498	\$ 101,172	\$ 101,172	\$ 118,845	\$ 88,201	\$ 95,605	\$ 818,652
هامش صافي الربح %	9%	24%	31%	35%	36%	38%	40%	41%	41%	42%	31%	31%	36%

الأرباح والخسائر للسنة الثانية

	شهر 1	شهر 2	شهر 3	شهر 4	شهر 5	شهر 6	شهر 7	شهر 8	شهر 9	شهر 10	شهر 11	شهر 12	الإجمالي السنوي
المبيعات													
solar panel	66,400	99,600	132,800	166,000	199,200	232,400	265,600	298,800	298,800	332,000	365,200	365,200	\$ 2,822,000
inverter	16,420	24,630	32,840	41,050	49,260	57,470	65,680	73,890	73,890	82,100	90,310	90,310	\$ 697,850
charge controller	6,640	9,960	13,280	16,600	19,920	23,240	26,560	29,880	29,880	33,200	36,520	36,520	\$ 282,200
batteries	33,200	66,400	99,600	132,800	132,800	166,000	199,200	232,400	232,400	265,600	298,800	298,800	\$ 2,158,000
منتج 5	-	-	-	-	-	-	-	-	-	-	-	-	\$ -
منتج 6	-	-	-	-	-	-	-	-	-	-	-	-	\$ -
منتج 7	-	-	-	-	-	-	-	-	-	-	-	-	\$ -
منتج 8	-	-	-	-	-	-	-	-	-	-	-	-	\$ -

GREEN SUN

منتج 9	-	-	-	-	-	-	-	-	-	-	-	-	\$ -
منتج 10	-	-	-	-	-	-	-	-	-	-	-	-	\$ -
اجمالي المبيعات	122,660	200,590	278,520	356,450	401,180	479,110	557,040	634,970	634,970	712,900	790,830	790,830	5,960,050
تكلفة البضاعة المباعة	\$ 49,120	\$ 80,330	\$ 111,540	\$ 142,750	\$ 160,660	\$ 191,870	\$ 223,080	\$ 254,290	\$ 254,290	\$ 285,500	\$ 316,710	\$ 316,710	\$ 2,386,850
اجمالي هامش الربح	\$ 73,540	\$ 120,260	\$ 166,980	\$ 213,700	\$ 240,520	\$ 287,240	\$ 333,960	\$ 380,680	\$ 380,680	\$ 427,400	\$ 474,120	\$ 474,120	\$ 3,573,200
هامش الربح %	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%
مصاريف التشغيل													
الرواتب	\$ 17,320	\$ 17,320	\$ 17,320	\$ 17,320	\$ 17,320	\$ 17,320	\$ 17,320	\$ 17,320	\$ 17,320	\$ 17,320	\$ 17,320	\$ 17,320	\$ 207,840
-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
اجمالي مصاريف التشغيل	\$ 17,320	\$ 17,320	\$ 17,320	\$ 17,320	\$ 17,320	\$ 17,320	\$ 17,320	\$ 17,320	\$ 17,320	\$ 17,320	\$ 17,320	\$ 17,320	\$ 207,840
مصروفات أخرى													
الاهلاك	-	-	-	-	-	-	-	-	-	-	-	-	\$ -
فوائد قرض البنك	-	-	-	-	-	-	-	-	-	-	-	-	\$ -
فوائد قروض ودبيون أخرى	-	-	-	-	-	-	-	-	-	-	-	-	\$ -
الديون المعدومة	-	-	-	-	-	-	-	-	-	-	-	-	\$ -
الزكاة	844	1,380	1,916	2,452	2,760	3,296	3,832	4,369	4,369	4,905	5,441	5,441	\$ 41,005
اجمالي مصروفات أخرى	844	1,380	1,916	2,452	2,760	3,296	3,832	4,369	4,369	4,905	5,441	5,441	\$ 41,005

الأرباح او الخسائر

صافي الربح او الخسارة	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
	55,376	101,560	147,744	186,000	220,440	266,624	312,808	358,991	358,991	405,175	451,359	451,359	4,560,668
% هامش صافي الربح	45%	51%	53%	54%	55%	56%	56%	57%	57%	57%	57%	57%	62%

الأرباح والخسائر للسنة الثالثة

	شهر 1	شهر 2	شهر 3	شهر 4	شهر 5	شهر 6	شهر 7	شهر 8	شهر 9	شهر 10	شهر 11	شهر 12	الإجمالي السنوي
المبيعات													
solar panel	159,600	239,400	319,200	399,000	478,800	558,600	638,400	718,200	718,200	798,000	877,800	877,800	\$ 6,783,000
inverter	39,360	59,040	78,720	98,400	118,080	137,760	157,440	177,120	177,120	196,800	216,480	216,480	\$ 1,672,800
charge controller	15,960	23,940	31,920	39,900	47,880	55,860	63,840	71,820	71,820	79,800	87,780	87,780	\$ 678,300
batteries	79,800	159,600	239,400	319,200	319,200	399,000	478,800	558,600	558,600	638,400	718,200	718,200	\$ 5,187,000
منتج 5	-	-	-	-	-	-	-	-	-	-	-	-	\$ -
منتج 6	-	-	-	-	-	-	-	-	-	-	-	-	\$ -
منتج 7	-	-	-	-	-	-	-	-	-	-	-	-	\$ -
منتج 8	-	-	-	-	-	-	-	-	-	-	-	-	\$ -
منتج 9	-	-	-	-	-	-	-	-	-	-	-	-	\$ -
منتج 10	-	-	-	-	-	-	-	-	-	-	-	-	\$ -
اجمالي المبيعات	294,720	481,980	669,240	856,500	963,960	1,151,220	1,338,480	1,525,740	1,525,740	1,713,000	1,900,260	1,900,260	14,321,100
تكلفة البضاعة المباعة	\$ 98,240	\$ 160,660	\$ 223,080	\$ 285,500	\$ 321,320	\$ 383,740	\$ 446,160	\$ 508,580	\$ 508,580	\$ 571,000	\$ 633,420	\$ 633,420	\$ 4,773,700
اجمالي هامش الربح	\$ 196,480	\$ 321,320	\$ 446,160	\$ 571,000	\$ 642,640	\$ 767,480	\$ 892,320	\$ 1,017,160	\$ 1,017,160	\$ 1,142,000	\$ 1,266,840	\$ 1,266,840	\$ 9,547,400
% هامش اجمالي الربح	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%
مصاريف التشغيل													

GREEN SUN

الرواتب	26,648	26,648	26,648	26,648	26,648	26,648	26,648	26,648	26,648	26,648	26,648	26,648	\$ 319,776
-	-	-	-	-	-	-	-	-	-	-	-	-	\$ -
-	-	-	-	-	-	-	-	-	-	-	-	-	\$ -
-	-	-	-	-	-	-	-	-	-	-	-	-	\$ -
-	-	-	-	-	-	-	-	-	-	-	-	-	\$ -
-	-	-	-	-	-	-	-	-	-	-	-	-	\$ -
-	-	-	-	-	-	-	-	-	-	-	-	-	\$ -
-	-	-	-	-	-	-	-	-	-	-	-	-	\$ -
-	-	-	-	-	-	-	-	-	-	-	-	-	\$ -
اجمالي مصاريف التشغيل	\$ 26,648	\$ 26,648	\$ 26,648	\$ 26,648	\$ 26,648	\$ 26,648	\$ 26,648	\$ 26,648	\$ 26,648	\$ 26,648	\$ 26,648	\$ 26,648	\$ 319,776
مصروفات أخرى													
الاهلاك	-	-	-	-	-	-	-	-	-	-	-	-	\$ -
قوائد قرض البنك	-	-	-	-	-	-	-	-	-	-	-	-	\$ -
قوائد قروض وديون أخرى	-	-	-	-	-	-	-	-	-	-	-	-	\$ -
الديون المعدومة	-	-	-	-	-	-	-	-	-	-	-	-	\$ -
الزكاة	2028	3316	4604	5893	6632	7920	9209	10497	10497	11785	13074	13074	\$ 98,529
اجمالي مصروفات أخرى	2,028	3,316	4,604	5,893	6,632	7,920	9,209	10,497	10,497	11,785	13,074	13,074	\$ 98,529
الأرباح او الخسائر													
صافي الربح او الخسارة	\$ 167,804	\$ 291,356	\$ 414,908	\$ 538,459	\$ 609,360	\$ 732,912	\$ 856,463	\$ 980,015	\$ 980,015	\$ 1,103,567	\$ 1,227,118	\$ 1,227,118	\$ 9,129,095
هامش صافي الربح %	57%	60%	62%	63%	63%	64%	64%	64%	64%	64%	65%	65%	64%

الزكاة والضرائب	
15%	ضريبة القيمة المضافة (VAT)
2.5%	الزكاة

في حال البيع للأجل للعملاء			
السنة 3	السنة 2	السنة 1	نسبة التحصيل من العملاء
25%	25%	25%	يدفع العميل خلال 30 يوم
25%	25%	25%	يدفع العميل بين 30 الى 60 يوم
25%	25%	25%	يدفع العميل أكثر من 60 يوم
25%	25%	25%	تعثر العميل عن السداد
100%	100%	100%	لازم هذا الرقم يساوي 100%

في حال الشراء من الموردين بالأجل			
السنة 3	السنة 2	السنة 1	نسبة السداد للموردين
25%	25%	25%	تدفع للموردين خلال 30 يوم
35%	35%	35%	تدفع للموردين بين 30 الى 60 يوم
40%	40%	40%	تدفع للموردين أكثر من 60 يوم
100%	100%	100%	لازم هذا الرقم يساوي 100%

السنة الأولى

أصول ثابتة إضافية (تريد شرائها بعد تشغيل المشروع)														
اجمالي السنة	شهر 12	شهر 11	شهر 10	شهر 9	شهر 8	شهر 7	شهر 6	شهر 5	شهر 4	شهر 3	شهر 2	شهر 1	الأهلاك (بالسنوات)	الأصول الثابتة
\$ -													-	الأراضي
\$ -													50	المباني
\$ -													10	ترميم مبنى مستأجر
\$ -													7	الآلات والمعدات
\$ -													5	الأثاث
\$ -													5	السيارات
\$ -													5	أصول ثابتة أخرى
\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		اجمالي الأصول الثابتة

السنة الثانية

أصول ثابتة إضافية (تريد شرائها بعد تشغيل المشروع)														
الاصول الثابتة	الأهلاك (بالسنوات)	شهر 1	شهر 2	شهر 3	شهر 4	شهر 5	شهر 6	شهر 7	شهر 8	شهر 9	شهر 10	شهر 11	شهر 12	اجمالي السنة
الأراضي	-													\$ -
المباني	50													\$ -
ترميم مبنى مستأجر	10													\$ -
الألات والمعدات	7													\$ -
الأثاث	5													\$ -
السيارات	5													\$ -
أصول ثابتة أخرى	5													\$ -
اجمالي الأصول الثابتة		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

السنة الثالثة

أصول ثابتة إضافية (تريد شرائها بعد تشغيل المشروع)														
الاصول الثابتة	الأهلاك (بالسنوات)	شهر 1	شهر 2	شهر 3	شهر 4	شهر 5	شهر 6	شهر 7	شهر 8	شهر 9	شهر 10	شهر 11	شهر 12	اجمالي السنة
الأراضي	-													\$ -
المباني	50													\$ -
ترميم مبنى مستأجر	10													\$ -
الألات والمعدات	7													\$ -
الأثاث	5													\$ -
السيارات	5													\$ -
أصول ثابتة أخرى	5													\$ -
اجمالي الأصول الثابتة		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

التدفقات النقدية للسنة الأولى

	شهر 1	شهر 2	شهر 3	شهر 4	شهر 5	شهر 6	شهر 7	شهر 8	شهر 9	شهر 10	شهر 11	شهر 12	الإجمالي
الكاش الي دخل للمشروع													
المبيعات													\$
بالنقد	12,283	20,086	27,890	35,694	36,848	44,651	52,455	61,413	61,413	70,370	70,370	78,174	571,645
المبيعات													\$
بالأجل		12,283	32,369	47,976	63,584	72,541	81,499	97,106	113,868	122,825	131,783	140,740	916,573
ضريبة القيمة													\$
(VAT)المضافة	7,370	12,052	16,734	21,416	22,109	26,791	31,473	36,848	36,848	42,222	42,222	46,904	342,987
اجمالي الكاش	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
الي دخل	19,652	44,421	76,993	105,086	122,540	143,983	165,427	195,366	212,128	235,417	244,375	265,818	1,831,205
المشروع													
الكاش الي طلع من المشروع													
الأصول													\$
الثابتة	-	-	-	-	-	-	-	-	-	-	-	-	-
تكلفة البضاعة													\$
المباعة	6,140	18,637	37,824	53,429	65,709	76,659	86,944	103,126	115,636	127,278	133,546	144,611	969,540
مخزون إضافي													\$
مصارف													\$
التشغيل	10,660	10,660	10,660	10,660	10,660	10,660	10,660	10,660	10,660	10,660	10,660	10,660	127,920
الزكاة +													\$
الضريبة				36,155			70,316			105,168			211,639
(VAT)													
دفعات سداد													\$
القروض	-	-	-	-	-	-	-	-	-	-	-	-	-
اجمالي الكاش	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
الخارج من	16,800	29,297	48,484	100,245	76,369	87,319	167,920	113,786	126,296	243,106	144,206	155,271	1,309,099
المشروع													
اجمالي الكاش في البنك													
الكاش الي	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	
يدخل البنك	2,852	15,123	28,509	4,842	46,171	56,664	(2,493)	81,581	85,832	(7,689)	100,169	110,547	
شهريا													
إضافات مالية													
من صاحب													
المشروع													
رصيد الكاش													
في البنك	2,852	17,975	46,484	51,326	97,496	154,160	151,667	233,248	319,079	311,391	411,559	522,106	522,106
رصيد													رصيد البنك نهاية
البنك													السنة
بداية													
السنة													

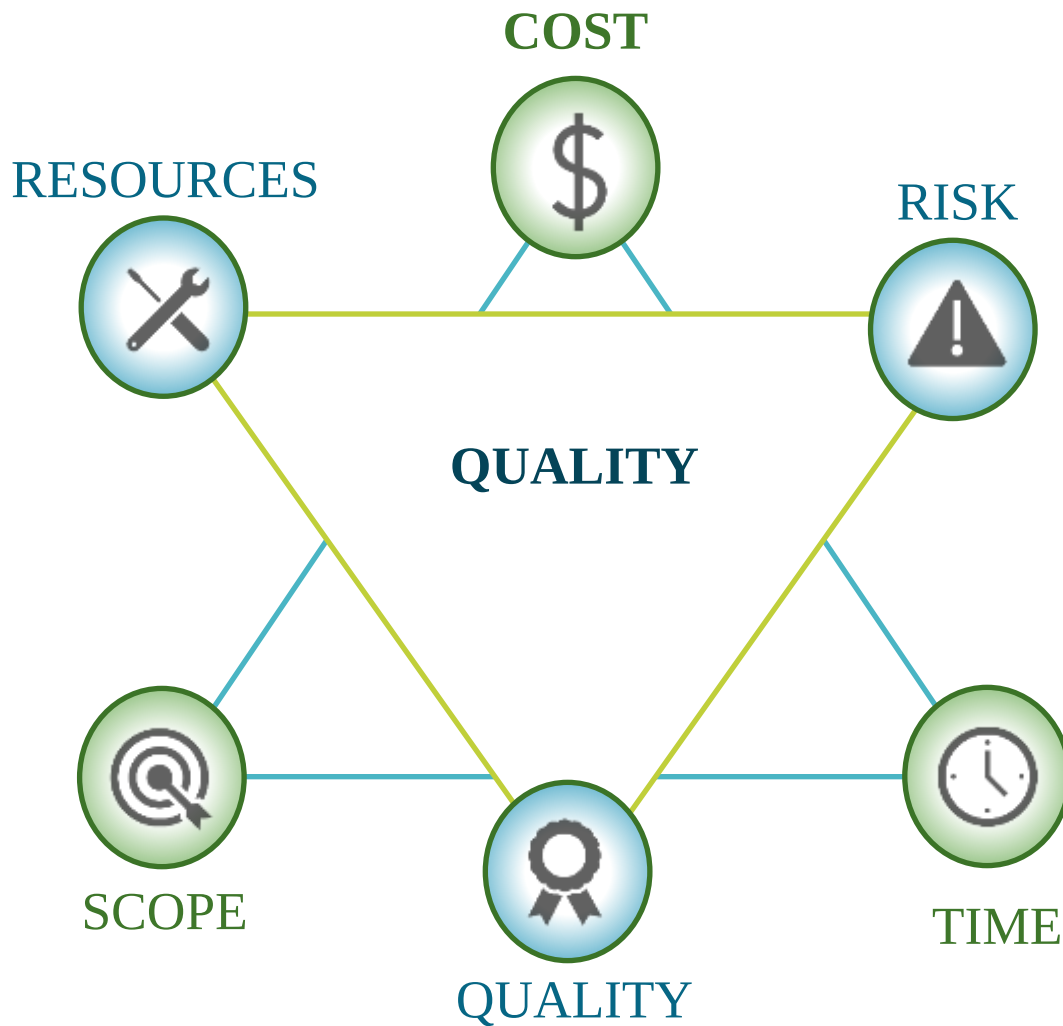
التدفقات النقدية للسنة الثانية

	شهر 1	شهر 2	شهر 3	شهر 4	شهر 5	شهر 6	شهر 7	شهر 8	شهر 9	شهر 10	شهر 11	شهر 12	الإجمالي
الكاش الي دخل للمشروع													
المبيعات بالنقد	30,665	50,148	69,630	#VALUE!	100,295	119,778	139,260	158,743	158,743	178,225	197,708	197,708	#VALUE!
المبيعات بالأجل		30,665	80,813	119,778	#VALUE!	#VALUE!	220,073	259,038	298,003	317,485	336,968	375,933	#VALUE!
ضريبة القيمة المضافة (VAT)	18,399	30,089	41,778	53,468	60,177	71,867	83,556	95,246	95,246	106,935	118,625	118,625	\$ 894,008
اجمالي الكاش الي دخل المشروع	\$ 49,064	\$ 110,901	\$ 192,221	#VALUE!	#VALUE!	#VALUE!	\$ 442,889	\$ 513,026	\$ 551,991	\$ 602,645	\$ 653,300	\$ 692,265	#VALUE!
الكاش الي طلع من المشروع													
الأصول الثابتة	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
تكلفة البضاعة المباعة	12,280	37,275	75,649	106,859	134,744	161,299	187,189	218,399	241,806	262,093	280,819	304,226	\$ 2,022,634
مخزون إضافي													\$ -
مصارف التشغيل	17,320	17,320	17,320	17,320	17,320	17,320	17,320	17,320	17,320	17,320	17,320	17,320	\$ 207,840
الزكاة + الضريبة (VAT)	172,353			90,266			185,511			274,047			\$ 722,177
دفعات القروض + القوائد	-	-	-	-	-	-	-	-	-	-	-	-	\$ -
اجمالي الكاش الخارج من المشروع	\$ 201,953	\$ 54,595	\$ 92,969	\$ 214,444	\$ 152,064	\$ 178,619	\$ 390,020	\$ 235,719	\$ 259,126	\$ 553,460	\$ 298,139	\$ 321,546	\$ 2,952,650
اجمالي الكاش في البنك													
الكاش الي يدخل البنك شهريا	\$ (152,889)	\$ 56,307	\$ 99,252	#VALUE!	#VALUE!	#VALUE!	\$ 52,869	\$ 277,307	\$ 292,865	\$ 49,186	\$ 355,161	\$ 370,719	
إضافات مالية من صاحب المشروع													
رصيد الكاش في البنك	369,217	425,523	524,775	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
رصيد البنك بداية السنة													رصيد البنك نهاية السنة

التدفقات النقدية للسنة الثالثة

الإجمالي	شهر 12	شهر 11	شهر 10	شهر 9	شهر 8	شهر 7	شهر 6	شهر 5	شهر 4	شهر 3	شهر 2	شهر 1	
الكاش الي دخل للمشروع													
\$	475,065	475,065	428,250	381,435	381,435	334,620	287,805	240,990	214,125	167,310	120,495	73,680	المبيعات بالنقد
\$	5,735,355	903,315	762,870	716,055	622,425	528,795	455,115	381,435	287,805	194,175	73,680		المبيعات بالأجل
\$	2,148,165	285,039	256,950	228,861	228,861	200,772	172,683	144,594	128,475	100,386	72,297	44,208	ضريبة القيمة المضافة (VAT)
\$		\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	اجمالي الكاش
11,463,795	1,663,419	1,569,789	1,448,070	1,326,351	1,232,721	1,064,187	915,603	767,019	630,405	461,871	266,472	117,888	الي دخل المشروع
الكاش الي طلع من المشروع													
\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	الأصول الثابتة
-	-	-	-	-	-	-	-	-	-	-	-	-	
\$	608,452	561,637	524,185	483,612	436,797	374,377	322,597	269,487	213,717	151,297	74,549	24,560	تكلفة البضاعة المباعة
\$													مخزون إضافي
-													
\$	26,648	26,648	26,648	26,648	26,648	26,648	26,648	26,648	26,648	26,648	26,648	26,648	مصارف التشغيل
319,776													
\$			658,494			445,752			216,891			442,713	الزكاة + الضريبة (VAT)
1,763,850													
\$	-	-	-	-	-	-	-	-	-	-	-	-	دفعات القروض + الفوائد
-													
\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	اجمالي الكاش الخارج من المشروع
6,128,893	635,100	588,285	1,209,327	510,260	463,445	846,777	349,245	296,135	457,256	177,945	101,197	493,921	
اجمالي الكاش في البنك													
	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	الكاش الي يدخل البنك شهريا
	1,028,319	981,504	238,743	816,091	769,276	217,410	566,358	470,884	173,149	283,926	165,275	(376,033)	
													إضافات مالية من صاحب المشروع
6,586,950	6,586,950	5,558,631	4,577,127	4,338,384	3,522,293	2,753,017	2,035,607	1,469,249	365,998	825,216	541,290	376,033	رصيد الكاش في البنك
رصيد البنك نهاية السنة													رصيد البنك بداية السنة

The Triple constraint of the project:



Scope:

- Scope of Work
 1. Contractor shall provide all labor, materials, tools, equipment's, transportation; hoisting, rigging, insurance, etc. for all work herein specified and or required to complete the project to the IOM representative (Technical Officer) satisfaction.
 2. All work shall be in accordance with Uniform Building Code, National, and South Sudanese Local Codes.
 3. All work under this contract shall be guaranteed for a period of 5 year after completion, as determined by IOM representative (technical officer)

4. The contractor shall submit shop drawings for the IOM technical officer review and record drawings for all work provided under this contract for his use.

* 1.01.1 Basic Principles to Follow When Designing a Quality PV System

1. Ensure the roof area or other installation site is capable of handling the desired system size.
2. Specify sunlight and weather resistant materials for all outdoor equipment.
3. Locate the array to minimize shading from foliage, vent pipes, and adjacent structures.
4. Design the system in compliance with all applicable building and electrical codes.
5. Design the system with a minimum of electrical losses due to wiring, fuses, switches, and inverters.
6. Ensure the design meets local utility interconnection requirements.

* 01.2 Basic Steps to Follow When Installing a PV System

1. Ensure the roof area or other installation site is capable of handling the desired system size.
2. If roof mounted, verify that the roof is capable of handling additional weight of PV system.
3. Properly seal any roof penetrations with roofing industry approved sealing methods.
4. Install equipment according to manufacturer's specifications, using installation requirements and Procedures from the manufacturers' specifications.
5. Properly ground the system parts to reduce the threat of shock hazards and induced surges.
6. Check for proper PV system operation by following the checkout procedures on the PV System Installation Checklist.
7. Ensure the design meets local utility interconnection requirements
8. Have final inspections completed by the Authority and the utility (if required).

COST:

Cost to Install a Solar Panel:

Cost by Watt	Cost by Acre	Cost by Megawatt
\$0.80–\$1.36	\$400,000–\$500,000	\$800,000–\$1 million+

Installing a solar home will cost about **\$0.80 to \$1.36 per watt**. Solar home costs can be estimated by energy output (megawatts) or size (acres). One megawatt is the power equal to **1 million watts**, and one megawatt will power about **164 homes**.

Community Solar homes:

Community solar homes offer higher energy output than simply installing solar panels on your rooftop. Solar farms are also more cost-effective, as they run between **\$0.80 to \$1.36 per watt**, as residential solar installations cost about **\$2.50 to \$3.50 per watt**. These large-scale projects usually provide **5 megawatts or less**, and a megawatt can power an average of **164 homes**.

Utility-Scale Solar home:

As governments work toward a more sustainable energy future, utility-scale solar homes become more commonplace to power hundreds or thousands of homes. Utility-scale solar homes may span **1 megawatt to 2,000 megawatts**.

The total cost for the project is 2,500,000 SAR

TIME:

The duration for the project is 5 years after project initiation date.

Set up a list of the project success factors.

Factors in Success

1. Experienced Project Managers & Professional Project Team Leaders
2. Methodic Approach
3. Proper Planning
4. Adhere to the Best Practices
5. Monitoring & Control
6. Use a Professional Software
7. Effective Communication





8. Work with Committed People
9. Careful Management of Risks
10. Strong Closure of Project

Explain the concept of resources Leveling and smoothing

Resource Leveling vs. Resource Smoothing



In fact, these techniques often go hand in hand when a project or resource manager has to

optimize resource allocation and utilization. In this case, resource smoothing is applied after resource leveling. [1]

Finally, let's consider the examples of both techniques.

Resource Leveling example:

When a team member is required for two tasks simultaneously, he or she won't be able to complete both of them at high quality and without being overloaded. In this case, a project manager should decide which of the tasks can be performed later.

Resource Smoothing example:

When a team member has to spend 20 hours on certain work within 3 days and 4 hours of work in the next two days, a project manager can apply resource smoothing to balance this uneven distribution of hours.

Benefits of applying resource leveling

1. It prevents employees from overload.

It sometimes happens that employees have to work some extra hours to get the work done. However, overloading resources on a regular basis is a dangerous trend with negative consequences. Resource leveling aims to make sure that team members' workload as well as a project's timeline are realistic.

2. It increases employees' productivity and quality of their work.

In contrast to overallocated employees, those who have manageable workload will show much better results of their work.

Therefore, resource leveling allows a project/resource manager to utilize available resources in the most efficient way, which in turn will contribute to better project outcomes and keep employees engaged.

Resource Leveling Methods

How does resource leveling resolve resource conflicts? According to the definition, it is a technique of adjusting a project's timeline, i.e., delaying a project's end date or extending its duration. Also, the following measures can be taken to level resources:

- Removing some less important tasks,
- Allocating additional resources,
- Splitting the tasks up,
- Bringing the tasks forward,
- Assigning alternative resources (those who have more skills and expertise if they are available). [1]

Sometimes, resource leveling requires the application of schedule compression techniques – fast tracking and crashing – that make it possible to perform the defined scope of work faster. For example, they can be applied to complete some tasks earlier, because a necessary employee will be unavailable later. Let's take a closer look.

Fast tracking

It's a "technique in which activities or phases normally done in sequence are performed in parallel for at least a portion of their duration", which makes it possible to complete the project or a certain series of tasks earlier. This only refers to the activities of the critical path. You can fast-track sequential activities by 33%, which means that a team member can start work on the next task after two thirds of the previous one have been completed.

At the same time, this technique should be employed carefully as it can sometimes result in unexpected problems, rework, and even delays. The possibility of making mistakes while trying to complete the task faster increases.

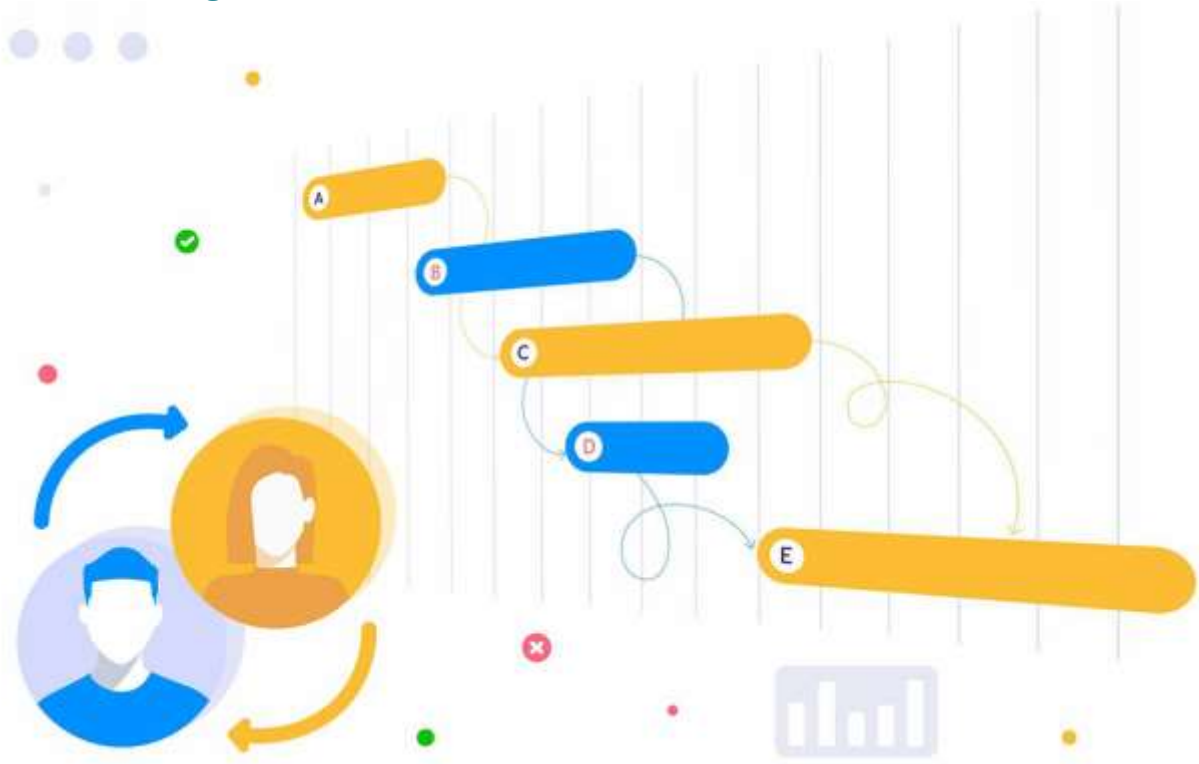
Crashing

"a technique used to shorten the schedule duration for the least incremental cost by adding resources." In other words, a project manager adds extra resources to reach a milestone or a project's due date earlier. This technique works only for the tasks in the critical path – performing them faster will affect the project's timeline.

It should be kept in mind that crashing is accompanied by risks, too. First, schedule crashing at the expense of engaging extra resources can be costly and exceed the planned budget. Second, assigning employees "from outside" who are new to the team and aren't familiar with the specific character of the work may lead even to delays. [3]

Finally, let's examine what helps project/resource managers make resource leveling simple and efficient.

Resource Leveling Tools



Most project and resource management solutions have in-built algorithms that automatically perform resource leveling (and resource smoothing if necessary). Also, they provide other solutions to resolve resource conflicts and optimize employees workload. Let's explore how they work through the example of Epicflow, a multi-project resource management tool. It's designed to ensure successful orchestration of multiple projects running concurrently, where resource conflicts and overallocation are inevitable. How does Epicflow help overcome these roadblocks?

Gantt Chart for scheduling

It takes into account all dependencies between tasks across a multi-project setting and creates a sequence of assignments to be completed. Epicflow's Gantt Chart is interactive, so, if necessary, you can edit the schedule, set dependencies, or assign resources at your own discretion.

Project leveling

This function makes it possible to create a task execution sequence depending on their priority or business value. You can set a necessary parameter (priority or business value) and the system will automatically determine dates for these tasks and create a corresponding Gantt Chart.

Automatic prioritization

Epicflow's algorithms analyze all existing constraints (including shared resources between multiple projects) and calculate project and task priorities. It means that in case of resource conflicts, a project or resource manager should assign a resource to a project/task of higher priority, which will automatically resolve this conflict.

Resource allocation advisor

Epicflow's Competence Management feature analyzes employees' skills, availability, and capacity and suggests an employee who is a perfect candidate to complete a necessary task.

Predictive capabilities

Epicflow's What-if Analysis makes it possible to try out various resource allocation scenarios, analyze their impact on a project's outcomes, and choose the best possible option.

These functions facilitate making the right resource allocation decisions to utilize the available resources to the full and at the same time overcome resource conflicts and prevent people from being overwhelmed. To learn more about Epicflow's contribution to maximum efficient project and resource management.

Conclusion

Let's summarize the most important facts about resource leveling.

1. Resource leveling is a resource optimization technique that involves adjusting a project's timeline with the aim of matching resource demand with the available supply.
2. Its main purpose is to resolve resource conflicts and prevent employees' overallocation.
3. The following activities are used to level project resources: shifting a project's start date, extending its duration, removing some unimportant tasks or splitting them up, allocating alternative resources, and applying schedule compression techniques – fast tracking and crashing.
4. Project and resource management tools provide a variety of solutions for resolving resource conflicts and making efficient resource allocation decisions – from automatic resource leveling to task prioritization and assistance in resource allocation decisions.

The procurement execution process and contractor selection

Procurement Process:

There are numerous classifications for procurement. Depending on how the organization intends to use the things purchased, it can be categorised as direct or indirect procurement. Depending on the commodities being purchased, it can alternatively be classified as goods or services procurement.

1. Direct Procurement

The acquisition of the inputs that a company needs to make its end product is known as direct procurement. This is the raw material that is often required in the manufacturing industry.

The profitability and performance of a corporation are heavily influenced by the cost and efficiency of direct procurement. When the direct procurement procedure is stalled, the company's capacity to create its goods is harmed.

2. Indirect Procurement

Indirect procurement refers to the acquisition of services or inputs that aren't directly utilized in the production of a company's product but are necessary for day-to-day operations. It might be office supplies or equipment upkeep. The running of the firm is hampered by delays in indirect procurement.

3. Goods procurement

The procurement of tangible goods is the most common type of procurement, but it may also involve software subscriptions.

Good supply chain management procedures are often required for effective commodities acquisition. Both direct and indirect purchases may be included.

4. Purchasing services

Procuring people-based services is the emphasis of services procurement. This might involve employing individual contractors, contingent labor, law firms, or on-site security services, depending on the organization. Both direct and indirect purchases may be included.

What is the procedure for procuring goods and services?

So, how does one go about procuring something? Businesses identify and perform particular processes to guarantee they can buy products and services to satisfy their criteria and accomplish their goals through the procurement process.

Procurement is crucial since it determines how much money a company can save. Businesses may guarantee that their objectives are realized by frequently evaluating the

procurement process. When a process isn't performing as it should or when business issues arise, changes might be made to it. Because the primary goal of procurement is to increase efficiency, companies must ensure that they get the most out of their process.

Because each company's demands differ, the procurement procedure is not the same for everyone. Each company has its unique set of requirements, thus its procurement process will be distinct from that of another company with similar demands.

The 7 Steps to a Successful Procurement Process

The next stage is to develop the purchase process after determining its importance. **The seven steps to a successful procurement process are as follows :**

The 7 Steps to a Successful Procurement Process



Step 1: Determine all business divisions' needs for products and services.

When any of an organization's business units require goods or services from an external supplier, the procurement cycle begins. As a result, the first stage in the procurement process is to identify and consolidate the needs of various business divisions within a company. This gives you visibility into your spending areas and categories, allowing you to use spend analysis to find cost-cutting opportunities.

Step 2: Make a list of potential providers and analyze them.

Following the identification of the business units' requirements, the following stage is to develop a list of possible suppliers who might provide the goods/services. A basic online search or more formal measures such as RFPs, RFQs, and RFIs are used in this procedure.

The goal of this procedure is to assess potential suppliers. Pricing, service quality, industry reputation and recognitions, warranty and guarantee provisions, and customer service are some of the evaluation measures. Following the evaluation, the agreement is awarded to the provider that provides the most value and the best market pricing.

Step 3: Work out contracts with the chosen vendor.

The contract procedure begins when a provider has been chosen to meet an organization's needs. For optimum value generation and to stimulate buyer-supplier collaboration, contracting is a critical step for every firm. This procedure entails evaluating important elements such as price structure, the scope of work, terms and conditions, and delivery dates, among others. More cost reduction options, including dynamic discounting, can be discovered through detailed contract analysis and negotiation.

Step 4: Create a purchase order and release it.

The next stage is to create a buy requisition after a company has finalized its contract with a supplier (PR). A PR provides a description of the product/service, pricing and quantity, information about the provider, and the approval process.

When a PR is accepted, the finance team sends the supplier a purchase order (P)O, which contains information such as the PO number, payment conditions, and supplier information.

Step 5: After getting an invoice, finish the payment procedure.

When a supplier receives a PO, he sends an invoice with the price of the desired products or services. The procurement team matches the Pos to assure quality and quantity when the business receives and invoices the PO.

Payment is issued either before or after delivery, depending on the payment conditions agreed upon by the organization and its suppliers.

Step 6: Receive and inspect goods/services that were requested.

The provider provides the goods/services based on payment and contractual terms. Companies should audit their suppliers upon receipt to confirm that they have satisfied their quality requirements.

Step 7: Keep meticulous invoicing records.

Following receipt of the delivery, it is critical to properly preserve all invoices to keep track of spending and the various expenditure categories within the company.

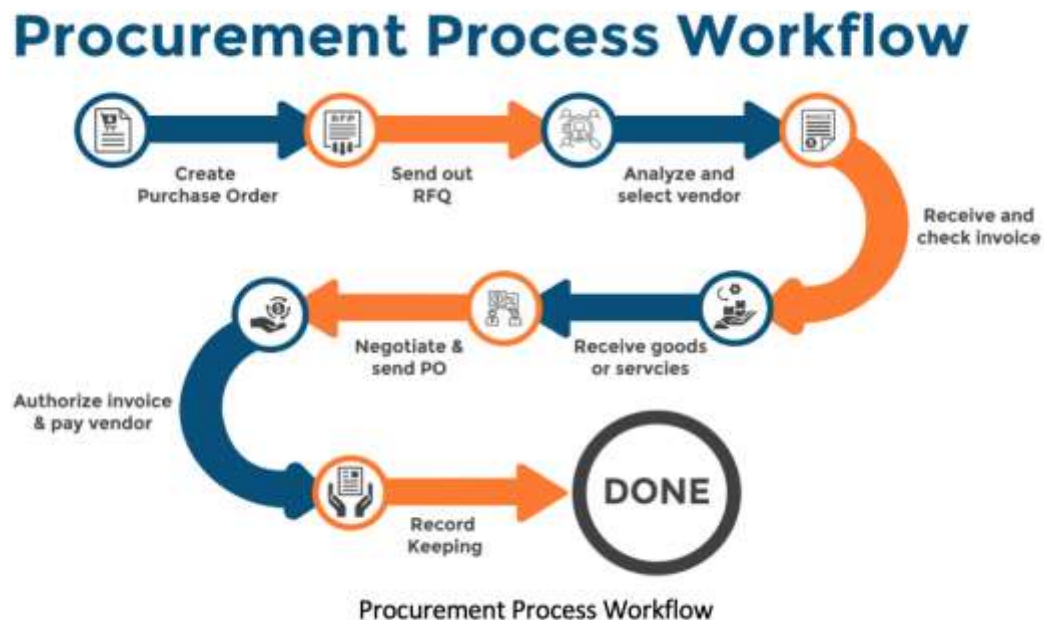
The Procurement Process Flow

Every company's buying procedure is different. In business, however, procurement often begins with the identification of a need and the creation of a buy order that specifies all of the needs' specifications. The purchase order will be forwarded to the relevant procurement or finance team for approval in a purchase when there is already an approved supplier for the demand. If it's refused, you'll get a letter explaining why. The purchase order is converted into a buy requisition once it has been approved.

The procurement team puts out numerous RFQs (Request for Quotations) specifying the parameters provided in the purchase order for purchases that do not have a pre-approved supplier or vendor. The obtained quotations are examined, and a suitable vendor is chosen. After that, the procurement team negotiates a favorable deal with the chosen vendor and issues a buy order.

When the bought products are received, a three-way matching verification is performed on the vendor's invoice. The comparison and verification of the purchase order, vendor's invoice, and the actual delivery of the products are known as three-way matching.

This stage verifies that the organization made the order with the designated vendor and that the vendor has delivered and billed the goods in accordance with the purchase order. The receipt of the products is then compared to verify if the order was received as requested and as invoiced. The vendor's invoice is authorized and payment is sent to the vendor when the three-way verification is complete. The finance department is in charge of accounting for the money.



Procurement Workflow Steps

Organizations must take specific steps to ensure that their procurement strategy is successful, beneficial, and ultimately secures their market position. A creative and effective procurement process workflow is the solution to all of these criteria, from determining what sort of goods and services a firm requires, their quality, and pricing, to keeping track of all the required papers and files. Let's take a closer look at each stage.

Step 1: You Must Be Recognized

Companies must first identify and acknowledge the demand for certain items in all sectors of their organization before they can begin the process of buying goods and services.

This is the first stage of the procurement cycle, and it is at this stage that businesses must strategize and, as a result, develop an effective plan for what goods and services they should purchase from an external supplier.

Business divisions inside a firm will also need to devise a strategy for determining how much they are willing to pay for items, as well as when and how they will need them.

Another thing to remember at this stage of the cycle is to keep all important stakeholders up to date on what's going on to minimize any disputes later on.

Step 2: Create a Purchase Requisition

A buy requisition process is initiated when an employee of a firm files a procurement request or when clients seek the marketing team's assistance in acquiring a certain product.

As a result, purchase requisitions are basically paperwork (digitized in today's world) that allows businesses to collect information on what items they need to buy when they need to buy them, how many of them they need (demand and supply), and so on.

Step 3: Review the Requisition

At this point in the procurement cycle, the purchase procedure formally starts. A buy order may only be issued when a purchase request has been validated, approved, and examined for budget reasons by procurement managers, financial controllers, or persons responsible for procurement within an organization.

Essentially, the procurement team goes over a request package and determines whether there is valid demand for the products or service at this point. Employees also take steps to study and analyze the product's parameters, such as the number of units necessary and the product's technicalities, as well as ensuring that the organization has adequate finances to complete the purchase.

The procurement team must also take the appropriate safeguards to ensure that all departments engaged in the acquisition are kept up to date on what is going on, to avoid costly mistakes later on.

Step 4: Solicitation

The organization sets out to build a particular and thorough procurement strategy with an associated solicitation process soon after the procurement team approves a buy request and the following purchase order has been placed.

Based on the intricacy of the demand, the team will decide where the procurement strategy should go. After determining the budget for the purchase, procurement professionals will issue Requests For Quotation (RFQ) to a variety of external vendors.

While some businesses have an authorized supplier catalog with a list of vendors who have previously completed the selection process, others must compare quotes from suppliers to identify which vendors they may approach for their current needs.

Step 5: Assessing and Choosing

Following the completion of the solicitation procedure, financial controllers and the evaluation committee can begin analyzing and assessing vendor bids. Businesses can choose which vendor is most suited for their present need at this point in the procurement procedure.

Businesses often consider other characteristics of a supplier's worth when determining whether or not they are a good fit for them.

Organizations would already have a supplier list on hand if the purchase order is just a duplicate of past buys. As a result, firms would not have to worry about obtaining high-quality supplies. Companies would also save a lot of time since they wouldn't have to evaluate providers.

However, if a purchase order is relatively new, with new goods on the list, firms must devote time and effort in researching suppliers to see whether they can be trusted for quality and cost, as well as their reputation and timeliness of service.

Accountability, ease of communication, manufacturing skills, ethicality, and how they prioritize relationship creation and maintenance are some of the other characteristics that firms seek in a supplier.

Step 6: Finalize the price and terms of the contract by negotiating it.

Financial controllers and procurement teams decide on a provider for the current demand at this point in the cycle. In most cases, businesses choose a provider based on at least three bids. Businesses make their ultimate decision after closely examining the quote based on cost-effectiveness, product quality, delivery speed, and so on.

If the firm has started a bidding process to identify a supplier, the vendor will be picked based on the bid's conditions and criteria. This selection procedure is open and transparent for businesses to choose vendors that can provide high-quality items at the greatest pricing.

Companies can sign contracts once the terms of the contracts have been agreed and negotiated, taking into consideration delivery schedules and other factors. Following that, the supplier receives a copy of the purchase order. When a vendor accepts and recognizes a purchase order, a legally binding contract is formed with the customer.

Step 7: Managing Orders

Order management occurs when a provider provides the requested products and services within the agreed-upon deadline. When the items are in the buyer's hands, the firm conducts a comprehensive examination of the order and notifies the supplier of any inconsistencies discovered throughout the process.

Businesses ensure that they have the purchase order, packaging slips, and supplier invoices (the three-way matching system) on hand when doing so, making order administration a simple, straightforward, and smooth procedure.

Step 8: Approval of Invoices and Disputes

Companies will go on to approve the invoice and evaluate documentation relating to the transaction once they have accepted the order and its subsequent investigation has satisfied the buyer.

The papers are evaluated and compared for inconsistencies once an organization is happy with the purchase requirements and content with the delivery of things and payment request invoices. The invoice is accepted, and payment is made according to pre-existing terms if the firm is satisfied that there are no anomalies.

Step 9: Keeping and Reviewing Records

Businesses retain a thorough record of all necessary papers to simplify things for taxation, the auditing process, and bookkeeping. This is the situation once a purchase order's payment procedure is finished.

Purchase orders, order receipts, and previously authorized invoices are all kept in one place. Because record-keeping is a continual process, these papers are checked regularly to avoid any potential disagreements between a firm and its supplier.

A comprehensive assessment of data may also help firms and vendors avoid repeating mistakes, helping them to be more efficient in the process. Accounting automation is an excellent approach to streamline the process while also collecting and storing vital financial data.

The Process of Purchasing?

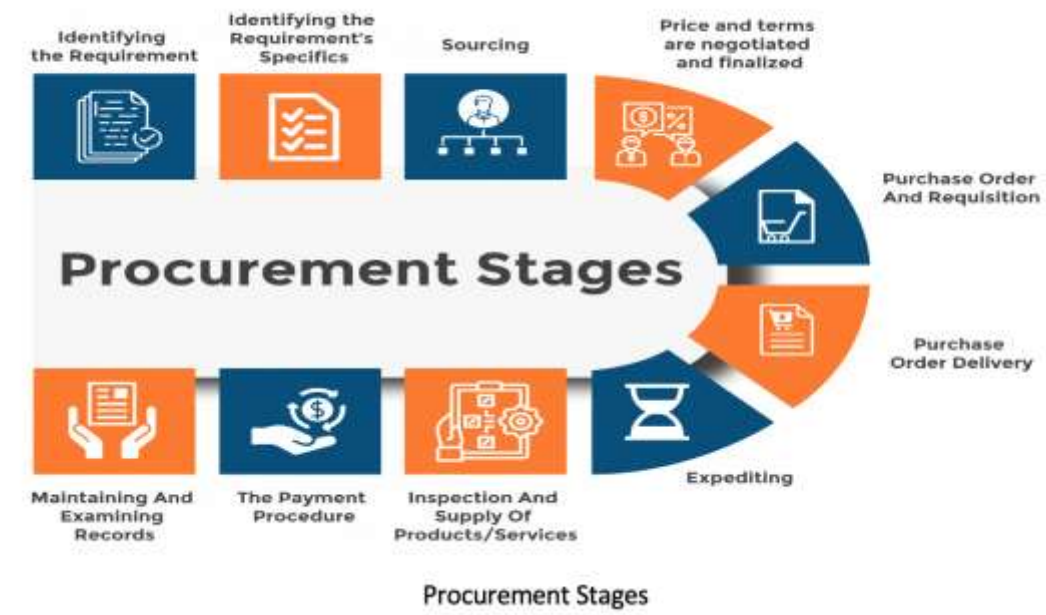
There are several phases to the procurement process in general. The corporation determines the goods and/or services it requires, then seeks suppliers who can assist it in achieving its goals, negotiates terms and pricing, and finally acquires and gets the commodities.

In a small business, the procurement of all goods and services may be handled by a single individual. Larger businesses may have a staff dedicated to working with various suppliers or supporting certain internal business units. In order to assess the company's overall requirements, the team may need to get feedback from many business groups on some things.

Procurement is a continuous process, not a collection of individual activities. Businesses, for example, typically want to create connections with important suppliers to acquire the best service and lowest costs possible, which translates to larger profit margins. To ensure that suppliers continuously fulfill expectations, companies may need to undertake frequent quality assurance tests and performance analyses.

Procurement Stages

The following are the steps involved in procurement :



1. Identifying the Requirement

The first step in purchasing something is to recognize that it is required. This might include determining the need to purchase a new item or restocking an item when it is needed or falls below a specific stock level. In most firms, this will entail a requisition procedure. To avoid problems later in the procurement process, all stakeholders must be consulted at this point.

2. Identifying the Requirement's Specifics

Once a need has been established, the specifications of the product or service required must be determined. Technical specs or component numbers are examples of this type of information. If the item has never been purchased before, a list of specifications is created with the input of all technical personnel concerned. Preventing costly mistakes later in the procurement process requires detailed specifications and good collaboration with all departments involved.

3. Sourcing



When a certain item or service is decided to be purchased, the procurement team must conduct the necessary research to identify the various suppliers. A pre-existing vendor list for recurring orders is frequently available. Identifying and then evaluating vendors for a new item takes longer. Working with a pre-existing vendor who has previously shown to be a good provider is more efficient. New suppliers must be extensively explored to assess their reputation, speed, quality, dependability, and costs. During this period, companies like Beroe can assist procurement departments by providing market intelligence data that would allow them to make better judgments.

The procurement department must next research providers, acquire estimates for the required item, and choose a vendor. This is a crucial step since reputation, pricing, service speed, and dependability must all be considered before making a final pick. The general norm is to obtain at least three estimates, although this is a best practice that will be chosen by your company. Based on the **sourcing** alternatives and prices involved, approval from the appropriate levels of management will be required. The request for proposals, bids, or tenders will have to be publicized if the order involves a bidding or tendering procedure.

4. Price and terms are negotiated and finalized.

Requests for bids will be addressed to the merchants who have been chosen for direct purchasing. Before making a decision, it is standard practice to obtain at least three bids. The price and speed of the quote will be compared. The firm to purchase from will be chosen based on promptness, dependability, and quality, in addition to pricing.

If the procurement is subject to a bidding or tendering procedure, the qualifying offers will be chosen according to the terms and circumstances established. The chosen provider shall be picked and announced in accordance with the established procedure, ideally in a transparent way.

To guarantee that the buyer receives the greatest value and quality of supply, the process of selecting among the numerous bidders must be fair and transparent. When the selection process is tainted, the value of the goods or services provided may be tainted as well.

The buyer must now choose between having a single high-volume provider and selecting several vendors. The increased number of orders affords stronger bargaining leverage when negotiating pricing when using a single supplier. However, if a single supplier fails to fulfill an order, the entire production process would be disrupted. Having many suppliers for a given item lowers risks while also limiting the amount of flexibility for rate negotiation. Multiple suppliers can sometimes aid in the development of price and quality competition.

5. Purchase Order And Requisition

The relevant authority will authorize a purchase request that is created within the firm. This will generate a purchase order containing all of the order's details as well as the terms and conditions. Some businesses include the buyer in the process of creating the

order's specifications, ensuring that both the buyer and the supplier are aware of the order's details. To avoid making any errors, the requirements must be carefully matched to the purchase request and the supplier's offer.

6. Purchase Order Delivery

Wherever possible, the customer is notified about the shipping. The buyer's and seller's procedures determine how quickly the purchase order is delivered. It can be done face to face, through fax, or via email. This is also per the buyer's and seller's agreed-upon specifications.

7. Expediting

This entails planning a timeframe for the timely delivery of the desired products or services, taking into account any unexpected delays. It might also include payment and delivery schedule information.

8. Inspection And Supply Of Products/Services

The buyer receives the finished product or service when it is ready. It is the buyer's obligation to verify the provided things extensively to see if they match the purchase order that was agreed upon. It might be approved or rejected by the buyer. Both selections will cause events to occur by the terms and circumstances that have been agreed upon. When the customer accepts the merchandise, the payment procedure begins.

9. The Payment Procedure

The paperwork pertaining to the order is evaluated in preparation for payment. The original purchase order, item receipt, and payment request invoice are all compared. Any discrepancies are ironed out before payment is made. Payment is made according to the agreed-upon payment methods once payment has been accepted.

10. Maintaining And Examining Records

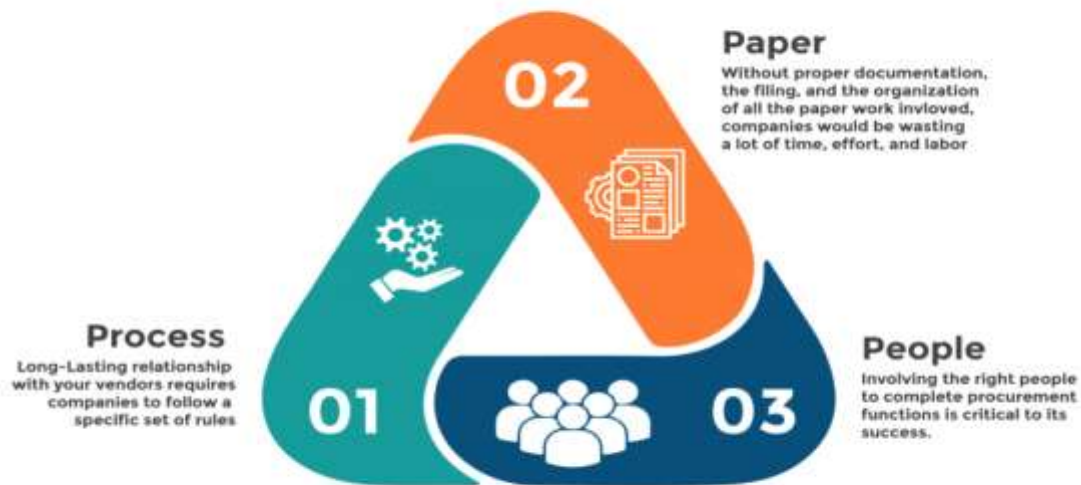
For auditing and taxes purposes, both entities, the buyer and seller, keep records. The entire procedure should be reviewed regularly to enhance and resolve any potential conflicts. Reevaluation improves the efficiency of the procurement process and avoids disagreements from recurring. The procurement stages outlined above differ from company to company, but the logical flow is consistent. Procurement processes that are efficient ensure that products and services are delivered quickly and without delay.

It is also the job of those participating in the process to stay on top of discussions at all stages to guarantee that the goods and services bought to meet the exact specifications, are of the best quality, and are offered at the most competitive price. Excellent record-keeping aids not only in record audits but also in restocking the same things. A fair supply of high-quality merchandise is ensured via ethical vendor selection.

Components of Procurement

Procurement is divided into three components :

3 P's of Procurement



3 P's of Procurement

1. People

The number of persons participating in the procurement process is determined by the sale of the product and the number of procurement orders. Procurement personnel are in short supply at a small firm.

Each stage of the procurement process is overseen by a separate staff in larger firms. In addition, the number of approvals is lower when the things being ordered are of low value. The degree of approval for the buy requisition in the management order is greater for high-value or highly critical procurements.

2. Process

To work successfully, the procurement process must be well-designed and managed. When a procurement department is chaotic, it leads to inefficiencies and inconsistencies across the process, which can result in delays and difficulties with purchases and payments. At every level of the process, transparency assures that there is no corruption or manipulation.

3. Records or paperwork

It is critical to retain records at every stage of the purchase process. Although practically every step of the process has been digitized, both the buyer and the seller benefit from the

efficient capture of all information at each level, as well as the coordination and comparison of all relevant data at each stage.

The 6-Step Process To select the vendor:

1. Kick-off and requirements definition

First of all it makes sense to form a project team of people that have a common interest in the vendor selection process. Together with this team you have to define the requirements to the product or service. Generally speaking (this step could be a book on its own) it makes sense to make the difference between functional and non-functional requirements if you look for a product, or to further define a service specification including service levels if you are looking for a service requirement.

2. Market research and first vendor filtering

The goal of this step is to get a first short list of vendors, for which you want to start a Request for Proposal (leading to step 3). Scan the market for possible vendors that could match your requirements. Sometimes this can be very easy – in case the players in the market are well-known. In other instances this might be more difficult, for such cases specialized market research companies can be a good help or alternatively look for an independent external consultant, which has done similar vendor selections already before. Last but not least google it, it can give you answers to almost everything you are looking for. If you require additional information from vendors to be able to create a short list, you might perform a so-called ‘Request for Information’ (RfI).

3. Request for Proposal (RfP)

Based on the requirements in step one you make a formal request to the selected vendors (-> step 2) to respond to your requirements. In order to make sure that you can compare apples with apples later on, the RfP needs to have a clear structure and make it clear to the vendors to what and how to respond. An RfP should contain the following elements:

- Introduction and Executive Summary
- Instructions to the vendor (!): Mandatory structure of the proposal that will be submitted to you, proposal language, contact for questions, deadlines
- Numbered list of requirements (derived from step 1)
- Optional: Information regarding Proof of Concept

4. Evaluate responses

Before reviewing and evaluating the responses of the vendors, build an evaluation sheet based on the RfP (which again reflect your requirements). By weighting each of the criteria and evaluating each vendor response against these criteria, you will get a total score per vendor. On top of the criteria derived from the Requirements and RfP, include additional criteria like ‘Price’ and ‘Overall vendor impression’. Some of the criteria should be defined as ‘Killer Criteria’ (typically: price and key requirements). Below generic example gives you some illustration on this:

The purpose of this step is not only to get an evaluation based on objective criteria, it's purpose is also to avoid political games and minimize human emotions, which can happen in this phase very often.

5. Optional: Proof of Concept (PoC)

With a PoC you can check the vendor's actual capability to deliver and on top of this it is also a good instrument to get an overall impression of the vendors and check the 'soft factors'. This is why I always recommend to include – whenever possible – a PoC in the selection process. If you choose to do so, you should mention this in the RfP, including the time when you will issue the PoC Scenarios to the vendors.

6. Select vendor

Now it's time to make your choice. The base for this should be the evaluation sheet (-> step 4). Based on the results from the PoC you might also revise some of the scores (-> step 5). Look at the total scores and the killer criteria and make a ranking of the vendors. In practice it happens often that they are close together and in this case the price and general vendor impression will be the determining factor.

The scoring Model

Scoring Criteria for Projects

The most common scoring criteria for projects include overall cost, time, and risk level. Projects are more complicated than simple tasks, so it is essential to create a holistic view of a venture when considering what criteria to include.

Keep things simple: Choose no more than five criteria when creating your model. Most scoring models use a scale numbering between 0-5 to represent the importance of each criteria to the organization.

The following are categories of criteria you may consider in your scoring model:

1. Cost
2. Risk
3. Delivery schedule
4. Quality
5. Work Plan
6. Return on investment

The Weight values to Criteria:

1. Cost: 25%
2. Risk: 10%
3. Delivery Schedule: 10%
4. Quality: 25%
5. Work Plan: 15%
6. Return on investment: 15%

Weighted Scoring Chart:

Requirement Score					
Criteria	Weight %	Star Company	EGS Company	RE Company	sun Company
Cost	25%	65	72	40	48
Risk	10%	55	84	70	20
Delivery Schedule	10%	61	52	60	65
Quality	25%	78	80	72	67
Work Plan	15%	30	41	48	33
Return on investement	15%	76	65	70	56
Weighted Scores	100%	63.25	67.5	58.7	50.6

Award Vendor: ESG Company

Final step issued letter of Award (LoA)

Virtual meeting:

Invitation

Details:

- Date: July 29th 2022
- Location: Zoom meeting
- Call-in Details: Web Link
- Please Read: should all attendees
- Please Bring: Laptop and Network

Attendees:

- CEO
- General Manager
- Marketing Manager
- Sales Manager
- Finance Manager
- Project Manager

Agenda:

- Discuss about what is the plan for marketing the materials
- Discuss what we need to increase the sales.
- Discuss we need new investment because we supply new city in Saudi Arabia.
- New event in Dubai next month for energy engineering should be ready to visit.
- Conclusion:
- Make the plan for marketing for expansion.
- Found new investment from Bank to expansion to new city.
- Make a plan to visit the event in Dubai.

Performance

KPI:



Develop a change Request model:

PROJECT CAHNGE ORDER REQUEST:

Project name:

Riyadh Camp

Requested by:

Site Project Engineer

Request name:

Mohmmmed Ahmed

GREEN SUN

Date :

20/07/2022

Request number :

100022

Change description:

Change date for installation

Change reason :

Some works in Camp and the manager reschedule the date

Impact of change

Timeline

Proposed action:

Reschedule for installation

Associated cost:

Free

Approved by :

Site project engineer

Date:

21/07/2022

Marketing

The solar energy is an electric source type that is unknown to the public and therefore difficult to market.

Material availability

The solar energy panel is not available in every shops so difficult to find distributors

Maintenance

The system required a special maintenance time to time so no more education to explain to the worker.

Legal & code

The system is not an option in Ministry of Municipal and housing building.

Qualitative Risk analysis

Marketing

Likelihood	Low
Consequence	Low

Material availability

Likelihood	High
Consequence	Low

Maintenance

Likelihood	Low
Consequence	High

Legal & code

Likelihood	High
Consequence	High

		Risk Matrix					
		Consequence					
		Low				High	
Material availability	High	+				+	Legal & code
Likelihood							
Marketing	Low	+				+	Maintenance

Risk Response Strategy :

marketing, Sharing

By share the information about the system and announce to public we will have more marketing

material availability, Retaining

By retaining the material in many shops it will be available to the customers

maintenance, Reduction

Keep more easier system by reduction the requirement of the maintenance so the user will move to collect the solar product.

Legal & code, Avoidance

Avoided to use any system not legally but in case the product is usable safety can be endures by the ministry and move forward.

Stakeholder	Unaware	Resistant	Neutral	Supportive	Leading
Municipality				D	D
Electrical Compony				D	
Ministry of Commerce			C		
Custom			C		
Telecom Company	C				

تم بحمد الله

البريد الإلكتروني	اسم عضو الفريق رباعي باللغة العربية
arwaalawwad@hotmail.com	أروى
Ybahatti@hotmail.com	يوسف
muhannadalsabilah2@gmail.com	مهند
mahmoud.ren97@gmail.com	محمود
rani80@gmail.com	راني
Abdulrahman.s.alshahrani@gmail.com	عبدالرحمن
Archhasan82@gmail.com	حسن
s0509999616@gmail.com	سليمان
amjad.aldwichry@gmail.com	امجاد
elsayed.nofal90@gmail.com	نوفل السيد

الاسبوع السابع 16/7	الاسبوع الثامن 23/7	الاسبوع التاسع 30/7	الاسبوع العاشر 6/08	الاسبوع الحادي عشر 19/08
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