

VGE technical  
services for  
solar and energy  
storage plants

One solution  
for each  
project stage



Advisory services



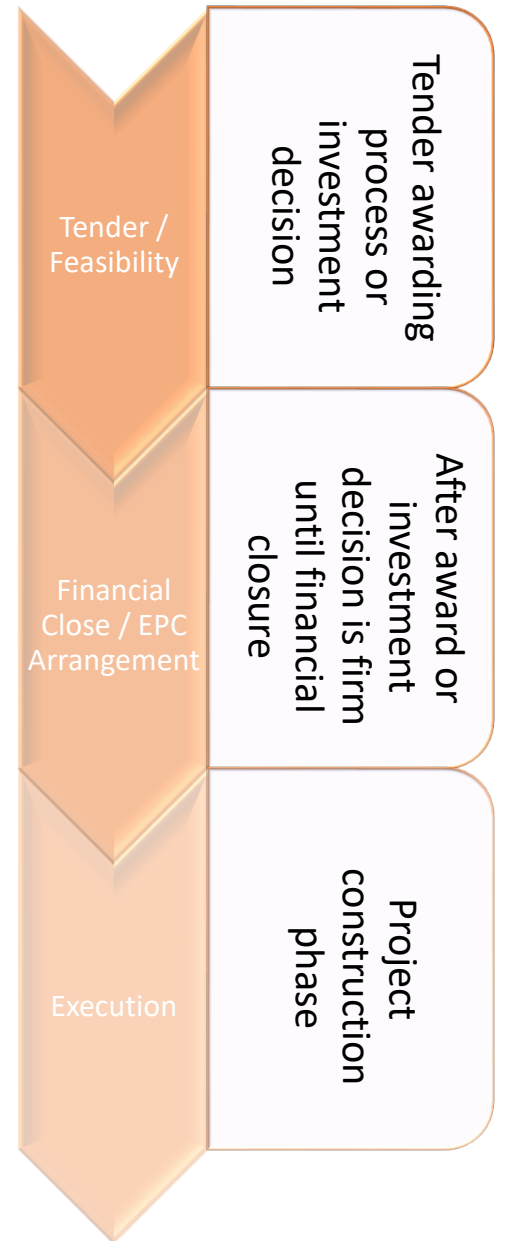
Engineering



Supply Chain



Financing



# Technical advisory services

Owner's-oriented services and third-party reports as well as bidding support to assure competitive and compliant proposals

## Feasibility study

First step of the project development is to initially assess his viability by a team of experts, who can thoroughly analyze various technical and commercial aspects in order to determine the cost-effectiveness of the project.

## Energy Yield Assessment

Calculation and analysis of the long-term energy production of a power plant using bankable modelling software packages. This study also includes uncertainties related to the energy estimation and related solar and meteorological data inputs.

## Owner's Engineer

Broadly includes providing assistance in EPC contractor selection, validation of designs, engineering review as well as offshore services like assurance of quality and expediting.

## Owner Technical Specification

Developing complete plant technical specification describing the EPC Contractor scope of work and minimum technical and functional requirements

## RFP review: Technical markups, clarifications, highlights

Complete revision of the request for proposal (RFP) technical requirements including site conditions and studies, solar resource, equipment technical requirements, track record and references, access to the site, interconnection facilities, grid requirements, etc.

## Bid documentation preparation

According to the requirements of the instructions to bidders and request for proposal, we prepare the technical documentation necessary to present a complete and compliant bid



# Engineering solutions

These engineering packages involve different activities and specialties with a common target and designing one or more scenarios. The outcome is a complete project design book matching the target including all necessary deliverables backing the design

## Conceptual Engineering

- Target. Finding the best case out according to Client's target
- When? During feasibility and tender phases
- How? Defining several scenarios with different equipment and finding the best case out

## Basic Engineering

- Target. Best case basic design development to get a more accurate project costing and schedule
- When? During financial closure and EPC engagement phase
- How? Drawings, reports, specifications, SLDs, etc. are developed as well as main equipment defined

## Value Engineering

- Target. Best case optimization
- When? During financial closure and EPC engagement phase
- How? Deep analysis of all project specifications and proposing changes even if they are not compliant with the rules of the project but add value

## Detailed Engineering

- Target. Complete design of the power plant for construction
- When? During execution phase
- How? Complete set of deliverables for construction. It can be done for all the plant components or defining main equipment and specialties packages



# Engineering standalone activities

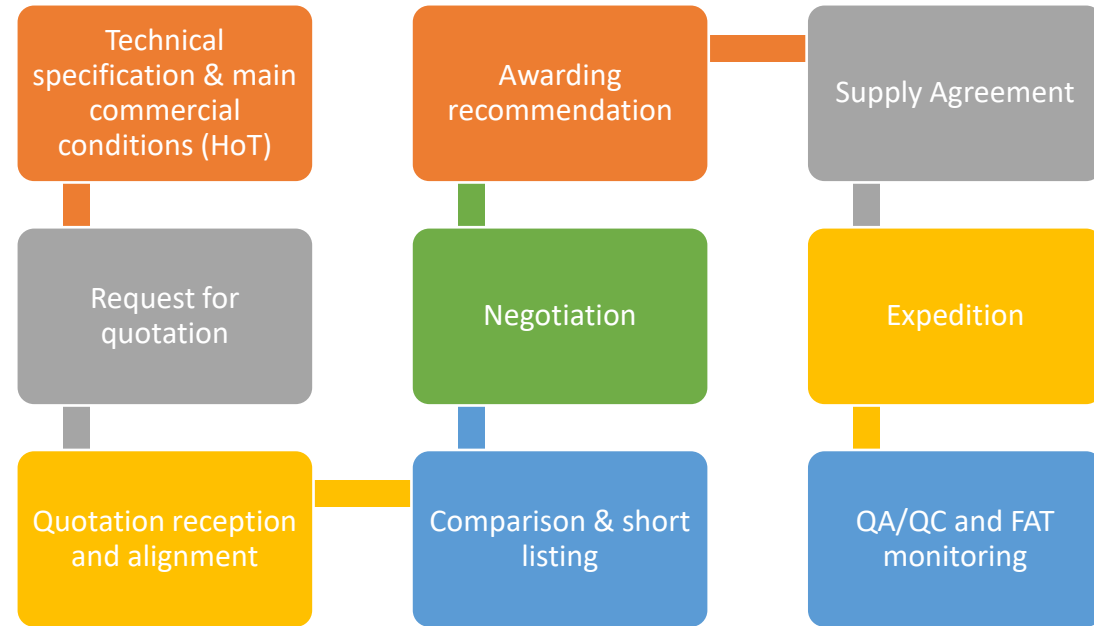
These engineering activities are simple deliverables where the design is given by our Clients

Layouts	Considering site conditions, client requirements, codes and standards, etc. we develop optimal layout and alternatives
Single line diagrams (SLD)	Of the power plant or storage system as well as the evacuation scheme. SLD also includes cabling sizing
Communication Scheme	Both wired or wireless and including all relevant elements of the power plant or storage system
Bill of Quantities (BOQ)	Complete list of materials with quantities as well as an estimation of other nonmaterial elements like transportation, insurances, overheads, etc. ready for the cost estimation
Cost Estimation	Using our pricing data base and market prices
Yield Estimation	Best possible generation of the power plant or energy throughput of the storage system using different bankable type of software
Performance Model	For complex systems where yield estimation is not enough like PV + batteries systems, we build the performance model in order to size and optimize all the different components of the plant
LCOE / LCOS comparison	Levelized cost of electricity and storage for alternative configurations in order to determine the optimal one. A stand-alone financial model must be used to calculate the real levelized costs



# Supply chain services

We can take care of the complete procurement process getting embedded in our client's procurement team as well as undertake single activities such as RFQs preparation or FAT witnessing



outsourcing  
Process



**Global sourcing** Our Global Sourcing procurement strategy, significantly expands the target sourcing market including suppliers operating in countries where manufacturing costs are much lower while regional teams ensure quality and delivery



**OEMs Qualification / Due Diligence / Factory Audits** Following client qualification criteria or our own procedures we qualify on behalf of our clients and perform due diligence on the selected suppliers including local factory audit



# Financial advisory and debt structuring

We provide a “**one stop shop**” financial advisory and debt structuring advisory service to our clients. Having a multidisciplinary team, we add differential value to our clients by providing them with a **tailor-made financial advisory** that covers all applicable requirements throughout the different stages of **project development, structuring and execution**



**WORKING CAPITAL**



**ASSET BACKED FINANCE**



**SUPPLY CHAIN FINANCE**



**PROJECT FINANCE**



**CORPORATE & STRUCTURED FINANCE**

## Development

- Asset valuations
- Debt sizing analysis
- Best financing sources and strategy in the form of syndicated bank deals, capital markets solutions, or institutional agency/ECA-backed-financings

## Structuring

- Financial Modeling running sensitivity and scenario analysis
- Design the definitive debt structuring strategy; non-recourse PF, limited recourse financing/bridge financing
- Prepare the necessary project teasers or infomemos
- Market penetration to present project and obtain offers
- Initiate, coordinate and complete due diligence procedures

## Execution / Implementation

- Conditions precedent compliance
- Facility obligations monitoring
- Analysis of derivative solutions and applications if required



# Our team

Our offices



## Background

Our team is formed by people with extensive experience in the main EPC and developers' companies in the world as well as financial and insurance institutions. Hence at VGE we have an extensive understanding of the developer and contractors' mindset



## Network



## Track record

- More than USD 3B supply agreement
- More than 10GW project engineering
- More than USD 5B of debt fund raising





# Our track record



- +5GW engineering and advisory services worldwide
- +20 project equipment supply
- +300 Purchase Orders outsourced
- +200 MUSD Funds raised for projects

