SAMPLE CONTENTS OF DPR

Sl. No.	Particulars	Page No.
A	**Abbreviations**	
B	**Executive Summary**	
C	**Salient Features** Project site, District, State, Project location (Latitude, Longitude and Altitude), Irradiation details considered, type of PV module and specifications, proposed capacity, Grid Connectivity from Project site to nearest substation, capacity of each module proposed, invertors capacity, type of array mountings (Fixed, seasonal tracking etc.), projected energy production per year, plant load factor (PLF), total project cost, cost per MW, debt equity ratio, equity, debt, project owner, customer of the power, tariff considered, expected life of power plant, expected plant commissioning date, project IRR, project payback period, debt service coverage ratio etc.	
D	**Introduction**	
	Background of the Project	
	Global and Indian energy scenario	
	Power scenario in the state / region	
	Renewable Energy Scenario in India & Solar Energy Mission	
	Scope of Renewable Energy in the state / region	
	Solar Potential in the state / region	
	Objective of the project and its socio-economic benefits	
	Barriers in development of the project	
E	**Project location and Site description**	
	Brief description of project area/region, type of project lands	
	Area location descriptions with detailed map showing State, District, Town, Village and specific project site and its surroundings.	
	Site Parameters: Site address, site longitude-latitude, Array tilts angle, Azimuth, solar radiation, obstacle, shadow, distance of nearest sub-station / evacuation systems and grid status of substation, approach road to site/ connectivity by road, train and air, distance from urban infrastructures, terrain, levelization degree, soil strength, brief report on topographical survey, availability of water, drainage system, security, availability of labours, social support for power plant, temperature and temperature variation of the site, rainfall data, highest flood records, highest	

	wind speed at array level, Seismic data/record etc.	
	Detailed Soil test report and other tests reports.	
	Hourly metrological data/Weather Data	
	Historical weather data of the project area	
	Technology Selection for the proposed site	
F	**Power Potential studies & Simulation results**	
	Solar Radiations from multiple Sources	
	Comparative Studies and reasons/justifications for selection of data	
	Typical System specifications considered	
	Estimated Energy generation and its justification/basis of calculations	
	Actual generation data in the state/region in last couple of years/months/days	
	Clean Development Mechanism (CDM) Benefits	
G	**Technical Aspects**	
(i)	**Solar PV plant design and Systems Integrations**	
	Solar PV technologies, advantages and disadvantages. Comparison of Crystalline Technologies, Comparison of Thin Film Technologies. Market share of technologies	
	Complete design of plant, General Project Layout, schematic diagram and brief description of each component.	
	Criteria for selection of units	
	Technical features and other special design aspects of the plant	
	Solar PV generation report considering system losses	
	Shadow Analysis	
	Integrations of SPV modules/array, systems components and grid interfacing	
	Descriptions of Balance of systems and choice of technology	
	Power generation scheme and schematic operation	
	Metering & Instrumentations including SCADA systems etc	
(ii)	**Main plant equipment Design criteria and Specifications**	
	Solar Photovoltaic(SPV) Module types	
	Module mounting structures	
	Tracking Systems and controls	
	Power conditioning unit (PCU)	
	Grid connection arrangements	
	Monitoring systems	
	Control room	
	Balance of systems	
	Water for cleaning	

	LT power interfacing panel	
	Computer aided data acquisition systems and monitoring systems	
	Lightning and over voltage protections	
	Earthing systems	
	Energy meters and Protective relays	
	Cable and connectors	
	etc	
(iii)	**Power evacuation and Grid interconnections systems**	
	Suitability of SPV power plant units to operate in parallel with grid	
	Erection and installations of power evacuation arrangements	
	Power evacuations diagram	
	Grid synchronization systems with grid with schematic diagram	
	Transformers, Instrument transformers, Circuit Breakers etc	
	Protection, Lightning Arrestors, Metering and Control cubicles etc	
	Isolators and insulators etc	
	Steel Structures, towers and pools etc	
	Safety and Earthing systems, lightening protections etc	
	AC & DC auxiliary power supply arrangements	
	Grid interconnection arrangements at 33 kV and above feeder line or station	
	Power requirement arrangement during construction	
	Safety regulations	
(iv)	**Specifications and relevant Standards**	
	Specification of major items	
	Relevant standards	
	Photovoltaic module testing	
	Photovoltaic products quality assurance	
	Typical specifications of cables and connectors	
H	**Warranty and Performance Guarantee**	
	Performance warranties of the plants	
	Mode of performance measurement & penalties	
I	**Supply and Contracts**	
	Bills of Materials	
	Type of Procurement/Contract procedures & Process	
	EPC contract/Turnkey contract, multiple contracts etc	
	Services offered, Qualification and experience criteria etc	

J	**Operation and Maintenance Requirement**	
	Overview and systems design philosophy	
	Standard Operation requirements	
	Standard Maintenance plan and scheduled maintenance	
	Preventive maintenance and its guidelines	
	Spare parts & management system	
	Training of O & M Staff and availability of O & M Manual	
	Special Tools & Machines, Servicing kits etc	
	Checklist & Protocol	
	Manpower for operation, maintenance and administrative staff for the plant	
K	**Social and Environmental Issue**	
	Social impact assessment and management plan	
	Environmental Impact Assessment and management plan	
	Compliances and clearances	
L	**Project Implementation Schedules**	
	Project implementation strategy & progressing reporting mechanism	
	Phase-I Project Development	
	Phase-II Finalization of the Equipment and Contracts	
	Phase-III Procurement and Construction	
	Phase-IV Erection and commissioning phase	
M	**Scope of Works**	
	Civil Works including site leveling, mounting structures, transmission lines, Power House, Switchyard, Approach Road, Staff Quarters, Fencing/boundary wall, power evacuation facilities, cablings, lightings etc.	
N	**Organizational Arrangement**	
	Staff structures and key personals	
	Skill and unskilled staffs	
	Training programmes	
O	**Project Cost Estimates and Financial Analysis**	
	Project Costing	
	Financial Analysis Assumptions	
	Cash flow	
	Sensitivity Analysis	
	Financial Results/Indicators	
P	**SWOT Analysis**	

Q	Annexures	
	Mean global solar radiation data and other sources	
	Pattern of energy generation (month wise)	
	Pattern of variation and capacity utilization factor (CUF) –month wise	
	Technical specifications of the modules	
	Specifications of PCU and all other main components	
	Detailed Bill of materials and costing details	
	Energy yield calculations	
	Construction schedule/PERT chart	
R	**Exhibits**	
	Location of the site map and plant area	
	General project Layout plan	
	Single line diagram of the plant.	
	General arrangement of the SPV panels/arrays with detailed drawings	
	Solar Power plant area drawing with details on all sides	
	Installation arrangement of SPV panels and systems sizing with detail drawings	
	Photograph of the proposed site	
	Power evacuation diagram	
	Seismic Zone – Map of India	