Hussam Technology Company (HTC), Muscat, Oman - Summary:

At HTC, I am responsible for design engineering of all projects, starting from rooftop, carpark to tracker based ground-mount solar projects. I have managed projects from Clients like Petroleum development oman (PDO), SHELL, Total Energies, Majid Al Futaim (MAF Group) and projects from management facilities of Sultan of Oman. The size of projects that I have managed ranging from few multiple of 10kWs for residential clients to upto 3MW for clients like Al Zain LLC as a single projects. Apart from this, I have managed the pre-sales and post-award engineering process for projects like 5MW Smart City project by PDO, 4MW+ mall rooftop projects for MAF, 1MW single axis tracker project for PDO, several carparks ranging from 50kW, 100kW to upto 2MW for clients like PDO and big MNCs in Oman. Worked with Total Energies where Total Energies acted like Private Power Purchaser and developer for commercial Solar rooftop and car par projects ranging from 300kW to upto 2MW projects inside Oman, mainly for cities like Muscat, Sur, Sohar etc. Directly managing the entire engineering process for prestigious PDO Noor project which aims to install Solar PV system in 1000 Omani Villas across the country. Apart from these grid-connected Solar PV Projects, I have worked on BESS or Battery Energy storage Systems. I have designed, prepared BOQ, did technical assessment of potential vendors, did the energy yield simulations and proposal writing for the potential clients. At HTC, I have also involved in electric vehicle charging infrastructure development. I have designed and coordinated the first electric car charging station for SHELL in Oman and designed, and provide support during on-site installation and commission of first of its kind Solar powered electric-car charging station for The Sustainability City – YITI project Office in Muscat, Oman. At HTC, I directly manage a team 3 Engineers who are tasked with the responsibility of drafting plant layout, Single line diagram, structural drawings and necessary drawing submittals, pre-sales helioscope modelling and sketch-up based 3D modelling of PV projects. I directly prepare BoP, detailed BOQ, cable sizing, circuit breaker sizing, earthing sizing, PVsyst based energy modelling, pre-feasibility studies, project costing and financial analysis for both pre-sales and post-award projects. Along with these tasks, my responsibility is to check and validate the design and drawing works of my team members. In cross-functional role, I directly communicate with procurement and project roll-out team. With procurement and logistics team, I coordinate mainly to check the status of availability of certain products/items before finalizing the BOQ during tender submission and post-award of the project so that design of the project remains optimum and promise a scheduled delivery for a timely completion. Coordinating with project rollout team helps in conveying the design methodology that we have followed during the design engineering phase, also communicating during site survey with rollout team helps in designing the optimum PV system. Sometimes during project execution, if project rollout team face any challenges and limitation due the nature of the site or project design, its my responsibility to update the design and provide solution to the challenges on immediate basis for smooth and timely commission of the project. Directly – indirectly, involvement with accounts and finance team help in optimizing the budget of the project during design engineering finalization. Here at HTC, I use tools like pvsyst, helioscope, autocad, sketchup mainly for major portion of design engineering works. Apart from these tools, we frequently use excel based in-house developed tools/sheets for cable sizing, breaker sizing and system earthing calculations. We use Monday.com for project planning, project management and pre-sales tracking internally for our team. As I have good command over python programming, machine learning, AI and Data science app development, I recently developed few web apps for simplifying the engineering calculation works like DC, AC cable sizing, system earthing calculations, 25 years long-term financial analysis of the projects, creating techno-commercial reports for pre-sales offers etc. Also its my responsibility to compare and finalize vendors for major components like Solar Panel, Solar Inverters, Cables, Breakers, Transformers etc. By going through the equipment's specifications, doing technical

due diligence with vendor manufacturer and supplier, conducting meetings with them help me for assessment of vendors and to build a long term business relation with the suppliers.

AMPL Cleantech Pvt Ltd, Kolkata, India - Summary:

I have joined AMPL cleantech, a reputed Indian Solar PV Developer company, in October of 2016 as Assistant Design Engineering Manger for their Renewable Energy Division. I was reporting directly to Engineering Head of the Company. My primary my responsibilities include project site feasibility studies, Energy Yield modelling using tools like PVSyst, Helioscope and SolarGIS, Metenorm Data Sources, engineering design & review, vendor assessments, preparation of RFP, producing techno-commercial reports, review of the techno-commercial offers and finalizing the EPC contractors, equipment suppliers and consultants for Solar projects ranging from 10MW to 500MW in capacity. I have closely worked with tier1 contractors like L&T ECC, Sterling & Wilson, Juwi Renewables, TATA Power, Mahindra Susten etc. I used to design PV plants using PVsyst to check the energy yield in long term basis and coordinate with finance team to help them see the profitability of the project by putting the energy yield values in their financial model and check the IRR, Payback period etc. Being a part of 1GW+ Solar Projects (both in Pre & Post Tender stage), I have conducted Responsibilities of potential Site **Feasibility** Study, Plant **Design**, Predictive **Energy Yield** Analysis, **RFQ** Finalization, Vendor & Contractor-**Scope Assessment** & Awarding of Contracts to contractors based on their bided technical commercial specification. I used to assess all the EPC contractors' submitted technical proposal and prepare a list based on their technical offering from best to worst or H1 to L1. Similarly I did the task for Solar Panels, Solar Inverters and Transformer selection.

Over the time, I took up the responsibilities of asset management of 190MW PV projects, worth more than $150 Million, with focus on highest uptime and maximum revenue (modelled at P75). My major responsibilities were Regular Health Checkup & constant monitoring of performance metrics - Daily Plant **PR**, **Specific yield**, system **losses** & **degradation**. While managing these operating PV plants, I have Devised and implemented a proprietary online platform to access & remotely monitor all the operational Plants into a Single **Real-time Dashboard** – to reduce complexity & **increase operational efficiency** by many folds. I have also Implemented Metric based approach to **compare** and **evaluate** potential Project sites for Utility PV plants, conducted onsite **Plant Acceptance Tests.** I have implemented drone-based thermography, deploying the state-of-the art mobile lab with sun-simulators and I-V testing facilities. These actions resulted in saving over $2.5 million every year for next 20 years in revenue, particularly from 25MWp assets where the PV modules were degrading heavily. I have also participated in technical due diligence works with the internal finance team to raise funds for 214MWp Solar PV project in pipeline. During this course of action, I have directly interacted with leading financial agencies like Edwelsis, ILFS etc. to raise around $140 Million as equity. Actively participated in **Merger-Acquisition** and **technical due diligence** activities of brownfield Solar Projects over **250 MWp** in capacity. Conducted in **Inline Inspection** of Solar PV Module Manufacturing Process – have done on-site factory and production inspection and quality check of Market Leaders' facilities across India, few of them are Vikram Solar, Goldie Green Solar, Emmvee Solar etc. I worked in this company till January 2020. During this tenure, I have also worked in Solar- BESS utility scale projects which are mainly in Round The Clock Mechanism projects and these are mainly in pre-bid stage. One of such project was 100MW Solar PV with 100MWh Energy storage project where the battery technology was lithium-ion. My role was to evaluate the globally tier-1 LiF4 battery suppliers, Inverter technologies that can be coupled with Solar PV and Battery Storage and the Battery Management System. While doing so I evaluated products from companies like Sungrow, ABB, SMA for their Inverters and BMS products mainly and for lithium Battery tech, I evaluated LG Energy, Panasonic, Samsung mainly. At AMPL cleantech there was team of one senior design Engineer and one Project Engineer who were the part of my team and also the plant Engineers who were deputed at various operating

plants across India were also share the daily reports with me when I took up the charge of asset management of 190MW Solar PV portfolio.

Kirti Solar Ltd, Kolkata, India – Summary:

I joined kirti solar limited (KSL) in the month of March, 2016 and worked there till October, 2016. I took up the charge of Technical Lead at this company with responsibilities of managing design engineering, energy yield simulation using pvsyst, helioscope and SAM, preparing site layout, SLD, preparation of tender documents, meeting with clients, internal and external stakeholders of PV projects to keep them updated, address their queries – both technical and non-technical. I was also managing a team of 2 junior engineers under me who are mainly looking project execution and tender submission process and directly coordinated with me. Apart from that I have been involved in concept to commission of few commercial solar projects while working at that company. One of them was 1MWp solar Rooftop system installed at Sharda University Campus, Delhi NCR. Other one was a 100kW rooftop PV system for a Community Center in New Town, Kolkata under New Town Kolkata Development Authority (NKDA). Apart from grid-connected PV projects, I have done a number of small to medium scale commercial Off-grid and Hybrid Solar with Battery storage projects during my tenure at KSL. One of them is 35kW-100kWh Solar BES project in a Hospital at UP, India.

O3 Energy Solutions, LLC, Chandigarh remote office, India – Summary:

I joined this company in December, 2015 and worked till March, 2016. Though the tenure was very short but I got a chance to work on a number projects as Senior Design Engineer. This is a Dallas, Texas US based Solar EPC company and it had an offshore remote office in Chandigarh, India. Initially I was hired to work from their Chandigarh office for the on-going and upcoming solar PV projects. My major task was to prepare the complete Design Permit Package which are required for approval for company's upcoming Solar PV projects. I have done projects ranging from 100kW to 3MW rooftop projects, mainly commercial shed rooftop, carparks and community solar PV rooftop projects. These projects are from Dallas, Florida and Guam. The design permit package includes preparation of Site Layout, System 3-line diagram, Structural drawings, DC & AC Cable sizing, system earthing sizing, breaker selection to site labels creation. Sometimes for large scale solar projects, I used to create PVsyst based system design and energy yield for long-term techno-economic analysis. I used to create the design the system and share with the US team and coordinate with them for any updates and changes.

Ohm Solar & Technologies, Burdwan, India – Summary:

Being a problem-solver at core, I co-founded this start-up in May, 2014 where we were initially providing technology consulting at affordable cost to Solar projects and businesses around the world. And my dream was to develop a Solar Design Engineering App (cloud-Software-As-A-Service) which would help small business owners, Residential and institutional clients who are interested to install solar but couldn't afford a 3rd Party consultant OR Owner's Engineer to help them design, validate and finalize best quality Solar PV solutions. So, the Main objective was to create an App which would be very Easy to Use, hardly any technological skills required and still would be producing high quality output which would be helping the users to decide whether to Go with Solar PV integration and from which EPC company to work with.

Our start-up had won Award for being Best 40 Start-ups of Year in West Bengal, India for 2014-1015. Consulted businesses across 18 countries (Includes Australia, USA, Africa, EU, MENA & APAC Region) in a capacity of Design Engineering, management consulting to help Entrepreneurs establish New Solar PV Business. I was working on Building a **SAAS based** Online Platform to **Automate** Solar PV Design and a B2C Marketplace – Aimed to **capture** the **$100 Billion** Solar Market.

At OhmSolar & Technologies, I did prepare Design engineering documents for projects ranging from 1MW to 140MW in capacity. Projects from USA, 1MW to 140MW ground-mount utility scale project in Isfahan, Iran. There were projects from South Africa, 30MW, Nigeria 10MW, Rwanda, 50MW, 100MW from Rajasthan India, 50MW from Madhya Pradesh and many more – all these projects I worked as Engineering consultant, starting from doing pre-feasibility studies using pvsyst, doing long-term techno-economic analysis, preparation of BOQ, selecting and assessing the right fit of brands and their model for specific projects with a certain budget and preparing the Detailed Project report – all of these were my tasks in the company. And obviously from addressing the query, meeting with the clients and make them understand what are the pros and cons of the projects that they are planning to get into are my day to day responsibilities. At OhmSolar & Technologies, I was managing a team of 3 Engineer, 1 were Junior engineer and 2 were engineering intern along with my co-founder. I took exit from the company on November, 2015.

Annapurna Export, Kolkata, India – Summary:

In December of 2013, I joined Annapurna export as Project Engineer. The company was focused into mainly Small scale private PV projects and government tenders for Solar powered Street lights, residential Solar Pv systems mainly. My role was to prepare the BOQ, project cost estimation, vendor assessment, planning and managing, deploying the project rollout team across the Eastern part of India where these projects were located, coordinating with onsite and office team for timely delivery and completion of such projects. Also, I was delegated the tasks of System design, drawing preparation, coordinating with clients (mostly the government agencies and their appointed consultants) for quality assurance and quality checks and providing support to sales team in bidding and pre-sales engineering. I worked there till April, 2013.

ONergy, Kolkata, India – Summary:

I joined onergy (punam energy pvt ltd) immediately after graduating from my Bachelors of Technology in Electrical engineering course. This was July of 2013. I joined there as project coordinator. Primarily, my day-to-day tasks were preliminary system design, BOQ preparation, vendor assessment, and coordinating between project site team and office team for smooth progression of the project. Most of time, I was deputed at site for on-site project execution. The company was mainly focused into small scale Solar PV system installation for both government agencies and private households. They were also associated with TERI and world bank for development of lifestyle of people living in rural and remote villages across India. One such project was to establish a mini grid Solar PV system in remotely located villages of Jharkhand. There were total 3 villages that we identified and installed 3 separate PV mini grid system. It was 25 to 30 village houses in each villages. And we designed and installed a Solar PV with battery storage solution where we used SMA inverters and lead-acid based deep cycle Low maintenance batteries. Another significant project I have done at that time was installation and commissioning of a Solar PV powered Water irrigation system in a remote village of West Bengal.

Now, upto this, it is my professional career journey I have mentioned. Academically, I did Bachelors in electrical engineering from St Thomas College of Engineering and technology (STCET) under West

Bengal University of Technology (WBUT) which is also known as Maulana Abul Kalam Azad University of Technology (MAKAUT) in 2013. It was from 2009 to 2013, a total 4 years professional course which is internationally recognised. I strongly believe in continue learning process. I did enroll for Advanced Solar Energy course by Technical University of Delft (**TUDelft**), offered online on EdX platform in August, 2013 and achieved the passing certificate with 80% grade. In January of 2017, I had enrolled for and achieved completion certificate (Micro-Masters) on General Business Management from Indian Institute of Management, Bangalore (**IIMB**). The course started in February of 2017 and completed on Jan of 2018. Also completed certificate courses on Financial Modelling offered by **Wharton Business School** in 2018 and Data Science course by **Harvard X** on EDX and Coursera platform in 2018.

Currently I am working with Hussam Technology Company (HTC), an Oman based Solar EPC contractor. I joined this company in January of 2020. I was based out of Muscat, Oman from Jan, 2020 till Oct 2021. After that I am continuing working for HTC in work from Home mode, so currently I'm located at my home in Kolkata, India since then.

I am ready to relocate to any part of the world. My current notice period is 2 months. I am married and I have a kid. Currently, Only me will be relocating and my family will stay back at home in india. Later after couple of years, I may relocate my family with me.

My current salary is around 2500 US Dollars per month, My salary expectation is 600000 INR or 5500 British Pounds or 7200 US Dollars per month as net salary. It may change for locations like Singapore, Dubai, New York, London, Hong kong.

The reason I am looking for a job change is to get into higher leadership position with more responsibilities so that it can help me in my professional and personal growth.

In the dynamic realm of Python-based AI/ML and data science, my passion and proficiency have been the driving forces behind my innovative web app developments. My enthusiasm for leveraging Python in creating cutting-edge solutions is not just a professional pursuit but a personal passion, allowing me to explore the endless possibilities in artificial intelligence and machine learning. My achievements in this field include developing several intuitive web apps that simplify complex data science calculations, bringing AI-driven insights to a wider audience. These apps not only demonstrate my technical skills but also my commitment to making technology accessible and user-friendly. My journey in AI/ML has been marked by a continuous learning curve, where each project has added a new dimension to my expertise. As a testament to my dedication, I have successfully integrated advanced data science methodologies into practical, real-world applications, showcasing my ability to translate complex concepts into tangible, impactful solutions.

My letter of Motivation:

I come from a very small town from the Eastern Part of India where I was born and raised. My childhood days were spent almost without electricity with daily average power cuts of 10 hours. This triggered my passion towards the alternative sources of electricity since my childhood. During my high-school days, I had participated in a regional science competition and presented a solar photovoltaic (PV) powered auto irrigation model which won the 2nd position.

In my 10+ years of professional career, I have been involved in solar & BESS projects over 2.5 GW in capacity, from 18 different countries. From project coordination to Management consulting, site engineering to Performance Analysis, plant Modelling & Simulations, overall engineering management, I have put myself in various job roles and responsibilities. I continuously thrive for opportunities where I can contribute my skills to upscale the business profitability from operational aspects and by exploring sustainable technologies which can be coupled with existing processes and eventually drive high revenue into the organization.

Being a problem-solver at core, I co-founded a start-up in early 2014 where we were initially providing technology consulting at affordable cost to Solar projects and businesses around the world. And my dream was to develop a Solar Design Engineering App (cloud-Software-As-A-Service) which would help small business owners, Residential and institutional clients who are interested to install solar but couldn't afford a 3rd Party consultant OR Owner's Engineer to help them design, validate and finalize best quality Solar PV solutions. So, the Main objective was to create an App which would be very Easy to Use, hardly any technological skills required and still would be producing high quality output which would be helping the users to decide whether to Go with Solar PV integration and from which EPC company to work with.

Our start-up had won Award for being Best 40 Start-ups of Year in Kolkata, India for 2014-1015.

Currently I'm working for Hussam Technology Company, operating from Muscat, Oman, it's an established Market Leader in Oman's Renewable Energy industry. My role is to Design & Manage Solar Projects independently with shared resources. Recently the company won a project where we have to provide solar PV systems to 1000 Omani Villas spread across Oman. For that, I have developed a **Python** based **web-App** to optimize the time taken for Pre-engineering & Site Surveys of these villas. The profit Margin for each villas has increased by 15%, which is almost **$350,000 USD** for the entire project. We are planning to use this app for our future residential and institutional projects further. It has potential to reduce cost of each business leads by **$100**, and annually saves over **$12,000** based on current leads' traction. Eventually the aim is to save in operational expenses, increase functional performance by reducing response-time, cancel out the current bottleneck situation and above all, creates a stronger and premium brand uniqueness.

Along with the above-mentioned web-app, I have developed 2 other Solar Energy related Apps, One is Solar 8760 Data Analytics Dashboard App and the other one is Sub-Hourly Solar GHI & GII forecasting Web-App. Links to the apps are given below for your kind reference.

1. **kPVIZ** – Solar 8760 Data Analytics Dashboard App: https://kpviz.herokuapp.com/
2. HTC-Noor **Site-Survey** App: https://htc-noor.herokuapp.com/
3. **Sub-Hourly Irradiance Forecaster App:** https://irradiance-forecaster.herokuapp.com/

I manage a YouTube channel under the name "Minutes 2 Energy" as well where I post tutorials and informative videos on Solar PV and related software like PVSyst, SolarGIS, SAM etc. Below are TWO links to the video tutorials on how to export Synthetic meteo data from SolarGIS and How to Import Synthetic Meteo data into Pvsyst.

1. How to Export Monthly Meteo Data from SolarGIS: https://youtu.be/Jh5DhatyrpQ
2. How to Import SolarGIS Monthly Meteo Data into PVsyst: https://youtu.be/ZqY9Eq0pjtM