Curriculum Vitae

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Summary of experience:

Senior Management Professional with 28+ years of total experience out of which last 11 years in solar sector where as rest is in managing manufacturing operations of high technology, clean room, fully and semi-automated manufacturing plants in Consumer Electronics sectors.

My latest and current field of interest is in the solar sector. I would like to highlight my experiences in solar sector as follows –

) I started working in Solar sector in early 2007 onwards with MOSER BAER SOLAR.
J I started with solar manufacturing i.e. solar cells and solar modules production, efficiency
improvements, material developments etc., and then moved to Solar Power plant design and
engineering.
Played key engineering role in some of early rooftop solar plants in and around Delhi.
) Very well exposed to National and State level policies, net metering policies and well
connected in the industry in the supplier community as well as in solar EPC community.
) Hands on with ground mounted MW scale and rooftop system design and simulation tools e.g.
PV Sys, Helioscope and RET Screen.
Developed teams and design capabilities at 02 of my employers for EPC of solar projects, both
at MW scale as well as rooftop KW scale projects.
) In my present job, I'm working with a solar EPC Company which focuses on providing
turnkey EPC services to MW scale clients as well as rooftop solar plants in India. In last
02 years I had spearheaded projects more than 130 MW on ground mounted MW scale
projects and around 12 MW rooftop solar plants for captive use.
My current role includes project development from pre-sales till handing over to client
overseeing design, procurement / ordering and project planning, management of
Resources to run multiple projects at the same time.
Besides above, I'm also focussing on creating Quality Systems, check lists, Site personnel
training programs so that to improve efficiency in execution of these projects.

Career Highlights:

At Addwatt Power (From May'2016 till date)

- o Hands on practical experience of designing and executing rooftop solar as well as MW scale ground mounted solar plants.
- Business development and techno-commercial feasibility of solar plants, pre-sales and post sales customer management.
- o In less than one year period, lead to 10 fold increase in top line in both ground mounted MW solar plants as well as rooftop sectors.

As Freelance consultant in solar sector (From Jan'13 till date)

- Working with a Solar EPC Company in pre-sales and business development role. My role focuses on initial techno-commercial feasibility to get project sanction and then follow-up support as Owner's engineer till the project is actually executed on the ground.
- Also, assisting Clients in technology selection for Solar poly-silicon manufacturing and solar cell & module manufacturing plants and multiple new product applications using solar as basic source of energy.

At Jain Solar Energy

- Created Organisation, Systems & Procedures and Team to establish Jain Group's in to
 C-Si Solar Cell manufacturing as well as Solar Power generation.
- Successfully lead techno-commercial negotiations for technology transfer agreement to manufacture 400 MW high efficiency solar cell manufacturing with a leading European technology company.
- o Established Solar EPC capability and team and successfully commissioned **5 MW grid** connected plant in Rajasthan. Also, won EPC orders for 30 MW solar plants.

At Moser Baer Solar

- Successfully spearheaded Solar Cell and Module line capacity enhancement projects, resulting in increase of manufacturing capacity from a level of 40MW to 80MW. These projects contributed to generate additional Revenues of USD 80 million in one year. This was executed in record time and required perfect co-ordination with SCHMID, Germany and Commercial, Finance, Procurement, Utilities and Sales & Marketing teams.
- Lead cross-functional team to manage Cell Efficiency Improvement Program with ISE, Fraunhofer, Germany to demonstrate an absolute increase of 0.9% in Cell Efficiency by optimising and redefining process/product parameters without any significant capital expenditure.
- o Improved **Cell to Module conversion** efficiency from **12.5% to 14.5%** by modifying solar cell binning strategy and by improving bill of materials in solar module line.
- o Improved solar module manufacturing process by applying 6 sigma tools to improve line rejection rates and field failure rates.
- Team selection and team development to undertake solar EPC to undertake rooftop Solar projects as well as developing capabilities for upcoming MW scale solar projects under JNNSM.

At Moser Baer India

- Successfully established manufacturing and operations of Dual layer & Blu Ray DVD formats in commercial production thru technology transfer from RICOH and MITSUBISHI of Japan.
- o Added to top line growth of the Company by receiving commercial orders worth **USD 50** million within **03 months** of these new product launches for global market.

At SAMTEL

Successfully completed commercial production and market introduction of **02 nos. new products** with 100% indigenous effort and without any technical help from Japanese collaborator.

- o Spearheaded technical knowhow and design capacity building in the Organization.
- Successfully developed and established design capability to indigenously design display tubes and employed this know-how in commercial production of specialized products with significantly higher margins.
- O Commercially successful products launched in Indian market using this knowhow not only saved then precious foreign currency required for importing the technical know-how, but also added to the bottom line and top line growth of the Company with significant higher margins in comparison to products manufactured with imported know-how.

EXPERIENCE DETAILS (in reverse order)

Since May.'16 till now: Addwatt Power Solutions as Vice President, Project Development

- Working with this Solar EPC Company in engineering design of MW scale ground mounted projects as well as turnkey EPC of captive rooftop solar projects. My role is to guide the design team in developing detailed designs as well as procurement and site executing industrial clients to promote rooftop solar projects for captive use. I am responsible from converting the leads in to orders and then over see design, procurement and project execution till handing over.
- Also, assisting Clients in technology selection for Solar poly-silicon manufacturing and solar cell & module manufacturing plants and multiple new product applications using solar as basic source of energy.

July'12 to Jan'13: JCT Electronics, Vadodara as SBU Head and Senior General Manager Manufacturing & New Projects

- Overall responsibility for P & L of Manufacturing Plant with annual turnover of INR 500 Cr+ and a direct work force of 1200+ as SBU Head.
- \$ To spearhead efforts to diversify in to new LCD module assembly business in next 2-3 years with an objective to have maximum sync with existing resources, capabilities and skills.

May'10 to May'12 date: Jain Group as General Manager & Head (Solar Business)

Accountabilities

- \$\ As SBU Head, overall responsibility for establishing 400MWp crystalline Silicon solar cell manufacturing operations.
- ♦ Spearhead & Establish Jain Group's foray in to Solar Power generation.
- \$ Establish Organization structure and develop team for technology absorption and operations ramp-up.

Assignments Handled

- Generation of Detailed Project Report (DPR) for putting up state of the art facility of 400 MWp per annum production of Solar cells for the purpose of term loan syndication.
- Representation as Technical Head along with the Finance team to various banks and private equity ventures for project funding.
- Developed detailed draft Contract for Technology Transfer after in-depth discussions with Top Management and Legal Consultant and negotiated it with German counter part for common understanding and agreement for signatures.
- Developed Organization structure for managing complete operations of this facility and to work for creating and developing the team in phased manner maintaining project timeline as well as cost budgets.
- Liaison with Department of Information Technology, Government of India for capital subsidy under SIPS and other Central and State level agencies for various approvals and certifications.
- Created organization set-up and tie-ups with EPC companies with an objective to take up Solar Power Generation projects for both On-Grid and Off Grid applications.
- Studied National and State level Solar policies and incentives by Government of India for pushing Solar Power generations in India.
- Participated in Reverse Bidding process in Batch 1 and Batch2 by NTPC Vidyut Vypaar Nigam (NVVN) for award of Grid connected solar projects under Jawaharlal Nehru National Solar Mission (JNNSM).

- Study and evaluation of EPC technology suppliers, cost-benefit analysis and IRR for Power generation projects, simulation studies and estimation of generation losses.
- Study of REC scheme viz. reverse bidding and follow-up of CERC regulations in India in this regard.

The above efforts lead to development and crystallization of blue prints for setting up India's largest, single location, fully automated, state of the Art manufacturing plant for Solar cells with technical knowhow from leading German Company. On Solar EPC front, the Company received early Orders for 30MWp of Solar Power Plants in states of Rajasthan and Maharashtra.

April'07 to May'10: Moser Baer Photo Voltaic Ltd., Greater Noida as Deputy General Manager Engineering & Technology)

<u>Accountabilities</u>

- \$ Responsible for top-line growth of C-Si vertical, spearheading efforts for adding up new capacities for cells and modules production.
- In fast changing technology of Solar Cells, I was responsible for technology scanning, benchmarking and to keep track of new, alternate processes & materials with a view for Cell efficiency improvements.
- § Tie-up and collaboration with leading Solar Research Lab in Germany for driving efficiency improvement and cost reduction initiatives in Cell as well as Module lines.

Assignments Handled

- boubling the capacity of existing 40MW C-Si Cell Line to 80MW and installation and Ramp-up of 20MW Module Line
 - Production capacity of existing Cell Line was doubled by updating Line with incremental modifications in process, jigs & tools. Lead and completed the project in record time with minimal downtime.
 - A new, completely automated Line to produce C-Si cell based modules was installed on turnkey basis. Ramped up the production to full capacity and developed a competent team to manage Operations.
- 🔖 Technology selection and Technology Transfer agreement for high efficiency C-Si Cell Line
 - Leading a cross functional team to manage the complete program for installing 100 MW high efficiency Cell Line, first of its kind in the world.
- Spearheading efforts for studying technical feasibility and commercial viability in 3rd generation renewable energy alternative based on photo sensitive Dyes and a solid state electrolyte entailing all the ground work, identifying commercial as well as academic organisations in India and worldwide and developing collaborative projects.
- \$ Lead the "Efficiency Improvement Project" in Cell Line with Institute of Solar Engineering (ISE)", Freiburg. We demonstrated absolute 0.5% increase in cell efficiency with process fine-tuning and minor capital expenses.
- Alternate vendor development in India to take up commercial production of Receiver Assemblies for indigenization as well as to develop competencies and knowledge base for strategic requirements of future value engineering efforts.
- **\\$** Developing dual axis Sun Tracker System and approving an Indian vendor with similar objectives as above.

Oct'04 to March'07: Moser Baer India Ltd., Greater Noida as Assistant General Manager

(New Product Development)

<u>Accountabilities</u>

- Primarily responsible for introduction of higher density formats in optical media business. This included technology selection, developing technology transfer agreements and Contract and managing complete technology transfer, setting up of new production lines, customer qualifications and ramping up to installed capacities.
- Selecting and developing the team, competencies, skills and knowledge to work on future formats like BDR, BDRE, HD-DVD and Dual layer DVD.
- Establishing a lab facility to carry out development work on new formats.
- Initiating tie-up with educational institutes and government labs of repute to identify and pursue development projects for material research and process innovations.
- Sesponsible for creating IP Cell in Moser Baer to create capabilities to fight infringement notices as well as to document and create our own intellectual property.

Assignments Handled

- \$ Established independent business sub-unit to mass produce higher density optical storage disc formats namely dual layer, blu disc and HD-DVD.
- ♥ Installation, ramp-up and handling of mass production of dual layer 1P discs thru technology transfer from RICOH, Japan. The production Line installed for this format is under mass production and product is giving highest margin among the entire product portfolio of MBI with significant additional revenue generations.
- Specifically For another competing dual layer format, namely 2P, Four lines were installed under this project and was responsible for all the activities, systems and procedures, developing Operations & Maintenance
 - team and manage complete business cycle for Dual layer format discs. MBI is exclusive supplier for these unique and exclusive proprietary products to respective Japanese brand for their global demands.
- \$ Besides adding to the top-line growth, this technology and know-how will make MBI capable in developing future multi-layer higher density formats.

Nov'87 - Sept'04: Samtel Color Ltd., Ghaziabad

Growth Path:

Joined SAMTEL as Graduate Engineer Trainee and left as the SBU Head, responsible for design, development, customer approval and commercial production of highly specialized color tubes for Cockpit displays in AIRBUS Aircrafts used in civilian domain. As head of technology group, I was responsible for defining, developing and acquiring new technologies, skills and competencies, devise plans for cost reduction and quality/efficiency improvements across the entire value chain.

Accountabilities

- ♦ As Head of Technology department, responsible for design & development and mass production build up of new colour picture tubes in accordance with the Business plan.
- ♦ To lead efforts to improve the bottom line by developing alternative vendors for key materials, alternate process & components with significant opportunity for cost reduction.
- Solution Capability enhancement by forging alliance and work with leading institutes and government labs to utilise knowledge sources as well infrastructure available with them to lead development work.
- \$ Enhancing the technical competencies of Engineers to reduce Development Time, First Time Right and Design for Six Sigma for meeting the new challenges.
- Sexual Executing continuous scanning and bench marking for latest technical developments in the field as well as for the best management practices utilized by the global leaders.

Assignments Handled

- 🔖 Established and managed SBU for manufacturing & supply of Color Avionics tubes.
- \$ As a key member of Design & Development Team in SAMTEL, I developed the in-house capabilities to design and develop Color picture tubes without any technical input from Japan.
- SAMTEL is the only Company in the country with this capability.
- § I successfully introduced 03 new tubes, namely 20", 29" for Color TV application and 6by6 inch tube for commercial aviation cockpit displays.
- \$ These new products without the need to pay Royalty to Japanese Collaborator, not only added to top line growth but gave maximum profit margin.
- Also, with such in-house capability to design tubes, SAMTEL bought 2nd hand production lines from Abroad and we could modify the equipment design and processes to mass produce tubes at a much reduced CAPEX.

SCHOLASTICS

- 🔖 BSc Engineering (Electrical) from Dayalbag Educational Institute, Agra in 1987.
- 🔖 Master of Science (Software Systems) from Birla Institute of Science and Technology, Pilani in 1990.