Annexure – I: Interview Questionnaire

Name (Optional)........................................................................................................................................

Company Represented (Optional) ............................................................................................................

Solar company’s major focus (Choose One) –

Solar Developer  □
Solar EPC Contractor □
Solar product Distributor □

Role is solar company (Choose One) –

Central Planning □
Procurement Planning □
Senior Management □

Interview Questionnaire

Q: 01:01: How do you determine demand & Supplies of your solar cells, modules and Balance of Systems in present global sourcing environment?

FQ1: What global and local supplier’s inputs you consider to plan and decide the delivery of raw material and finished goods from your suppliers?

FQ2: What procurement attributes your organization considers for source of material.

FQ3: What is the most prominent single attribute for sourcing material?

Q: 01:02: What global factors influence planning decision complexities?

FQ: Who takes decisions in complex situation arising out of such factors?

Q: 01:03: What are similarities or differences in planning objectives of planners, senior management and state?


Q: 01:05: How demand of solar product and planning is matched at a place of consumption and from source of delivery? Is local or nationalized level of planning more effective since demand of type of product vary from place to place?

Q: 02:01: What state regulation (central and state government) impacts the supply chain planning of solar material.

FQ1: What are salient central and state policies impacting solar demand in India.
FQ2: Please help how each of such policies decided growth of volume of solar energy deployment in country.
FQ3: Please help with an elaboration how does it work affecting planning process?
FQ4: Which part of planning you feel impacting more- short term or long term solar deployment in country?
FQ5: What are major challenges being posed for your planning process for solar installation?
FQ6: How any other country’s regulatory or support policies affect your domestic solar planning?

Q: 02:02: In a situation of no support mechanism by state, do you feel solar installation in India would have been grown to the extent today?

FQ1: Why presence of natural demand without support mechanism seems weak?
FQ2: Is there any change in need of support has occurred, which helps in pushing natural demand phenomenon in recent past?
FQ3: Does factor like customer duty changes or antidumping duty affects demand? If yes how?
FQ4: How level playing field support is being seen by manufacturers, developers and EPC contractors of solar energy.
FQ5: How planners factors in various state and central regulations? Please elaborate?
FQ6: How adding or reducing solar module and cell manufacturing capacities are decided by planners?

FQ7: What horizon of visibility is available to planners in present support framework being announced by state from time to time?

FQ8: In smaller roof top project how policy frame work is different than large scale solar project deployment?

Q 03:01: What aspects in solar industry caused more number of iteration?

FQ1: To what extent solar design and engineering causes number of iterations & Why?

FQ2: Please elaborate, how demand hit in solar is compared to a FMCG industry?

FQ3: Do you see any difference between a “demand hit” and “cash collection” in solar and FMCG industry supply chain?

FQ4: How you plan safety stocking for your solar product?

Q 03:02: What is the sequence of material receipt from supplier’s vis-à-vis planned sequence by planners in first iteration.

FQ1: What is an ideal sequence in terms of requirement for solar installation?

FQ2: To what extent this sequence is adhered to?

FQ3: What are reasons for deviation is supply sequence?

Q 03:03: What point of commitment, during the order winning from developers or customers, do your planners start planning and placing orders on suppliers?

FQ1: What are major stages of an order winning process?

FQ2: Do you firm up planning at later part of commitment for all developer or it varies from developer to developer?

FQ3: What are the broad reasons for late planning of supplies?

FQ4: What is a stage when probability of order cancellation is highest?
Q 03:04: Most of projects under government support program have a commissioning deadline of March end of financial year. Do you see number of planning revisions from such a specific deadlines?

FQ: All projects – small or large, anywhere in India had deadline of March end. Is this trend causes any supply chain planning problem?

Q 03:05: What are financial issues faced by industry?

FQ: Is there any correlation between fund availability of supply chain planning iterations?

Q 03:06: What norms are being followed to declare as an excess or obsolete inventory in your organization?

FQ1: What is the difference in norms varying from for a solar products or projects?

FQ2: How frequently do your organization analyze to excess and obsolete inventory position?

Q 03:07: Does supplier contracted credit period affects number of planning iterations?

FQ1: What credit duration from suppliers is in practice for solar material procurement?

FQ2: What is the impact of credit duration on way material planning takes place?

Q 03:08: Is there any effect on in-house manufacturing of solar products and planning iterations?

FQ1: Is there any relationship of large proportion of in-house manufacturing and planning process.

FQ2: In case of large value of out-sourced manufacturing, how planning iterations gets affected?

Q 03:09: Based on your experience do you see solar segment to segment variations in planning iteration?

FQ: What are segments which derived the large difference in planning iterations?
Q 04:01: What are skill sets required by a solar industry planner?

FQ1: What skill are lacking at present among these planners?

FQ2: What planning skills are being substantiated by senior management planners?

FQ3: What specific customer segment specific skills are required in planners?

FQ4: What is required by planner in manufacturing of solar cells and modules?

FQ5: What regulatory environment related knowledge is required by a solar planner?

FQ6: What are sales and operation planning (S&OP) related attributes specific to solar industry?

FQ7: How planner handles such sales and operation planning (S&OP)
Annexure – II: Survey Questionnaire

Name (Optional)………………………………………………………………………………………

Company Represented (Optional) …………………………………………………………………

Solar company’s major focus (Choose One) –

Solar Developer ☐
Solar EPC Contractor ☐
Solar product Distributor ☐

Your role is solar company (Choose One) –

Central Planning ☐
Procurement Planning ☐
Senior Management ☐

Survey Questionnaire

Q: 01:01: On a scale of 1-5 (1 is least preferred and 5 is most preferred), please give your organization’s preference to following attributes to plan your procurement.

Ease of Availability………………… 1 2 3 4 5
Price………………………………… 1 2 3 4 5
Quality and/or technology of product…. 1 2 3 4 5

FQ: Based on the above procurement attributes, do you prefers domestic or global supplies

Ease of Availability ………………………Global ☐ Domestic ☐
Price …………………………………Global ☐ Domestic ☐
Quality and/or technology of product ………Global ☐ Domestic ☐

x
Q: 01: 02: Whose decision is most prominent in influencing purchasing decision under following material categories?

**Solar Cells and Modules** –

Material Planner □  Senior Management □  Decides based on state policy □

**Solar BOS** -

Material Planner □  Senior Management □  Decides based on state policy □

**Solar Products**–

Material Planner □  Senior Management □  Decides based on state policy □

Q: 01: 03: Primary decision influencer for supply chain planning, in solar company is by

a) Planners & Senior Management to achieve objective of Supply Chain Leverage
   Yes □  No □

b) State in ensuring sustainability of solar Supply Chain
   Yes □  No □

Q: 01: 04: Since single most important decision of sourcing is easy availability globally, which supplier’s base has high tendency to have ex-stock availability?

a) More probable ex-stock availability from global suppliers stocking
   Yes □  No □

b) More probable ex-stock availability from domestic suppliers stocking
   Yes □  No □

Q: 01: 05: Which level of planning is most effective for solar products?

Local □  National □

FQ1: If the source of supplies is out of country planning level more effective

Local □  National □

FQ2: If the source of supplies is within country planning level more effective

Local □  National □
Q: 03:01: Please help in estimating supply chain planning iterations are expected under following situations. Please provide estimated number in the box provided.

a) How many supply chain planning iterations are expected in a FMCG industry
b) How many planning iterations are expected in small solar project, less than 1 MW
c) How many planning iterations are expected in large solar project, less than 1 MW
d) How many planning iterations are expected in small solar products
e) Expected number of iterations due to design changes in following project
   a. Small Projects
   b. Large Projects
   c. Solar Products
f) Expected number of iterations due to non-availability of material in supply chain following project
   a. Small Projects
   b. Large Projects
   c. Solar Products
g) Expected number of iterations due to cost reduction changes in supply chain following project
   a. Small Projects
   b. Large Projects
   c. Solar Products
h) Expected number of iterations due to customer requirement changes in supply chain following project
   a. Small Projects
   b. Large Projects
   c. Solar Products

Q: 03:02: Do supplies to solar project site follow a planned sequence?

Yes ☐ No ☐ Sometimes ☐

Q: 03:03: Based on your best estimates, how many number of times changes (Iterations) are made in planning under following circumstances when…..(Please write estimated number in the box provided)

a) Supplier orders are placed at the stage of “order under discussion” with customer/developer
b) Supplier orders are placed at the stage of receipt of “Letter of Intent” from customer/developer
c) Supplier orders are placed at the stage when “customer/developer has signed contract” with contractor
d) Supplier orders are placed at the stage when advance is received from customer/customers
Q03:04: How many estimated number of planning changes (iterations) is being observed in following projects? (Please write estimated number in the box provided)

   a) Large Projects (more than 1 MW) 
   b) Small Projects (less than 1 MW) 
   c) Solar Products 

Q03:05: Fund shortages with a solar company increase planning iterations

   Yes [ ]       No [ ]   Does not affect [ ]

Q03:06: Please estimate number of iterations

   a) in case of following excess and obsolete norms

   Greater than 60 days old [ ]
   Greater than 90 days old [ ]
   Greater than 120 days old [ ]

   b) How many times do you anticipate inventory with following number of changes in planning iteration? (Please write estimated number in the box provided)

   Less than 10 iterations [ ]
   11-20 iteration [ ]
   21-30 iteration [ ]
   More than 30 iterations [ ]

Q 03:07: Please estimate number of iterations in case of following credit duration from suppliers to buyers

   30 days [ ]
   60 days [ ]
   90 days [ ]
Q 03:08: Please estimate number of planning changes (iterations) in following cases.

a) Number of iterations increases in case of in-house manufacturing
   Yes [ ] No [ ]

b) Number of iterations increases in case of outsource manufacturing
   Yes [ ] No [ ]

c) What is number of estimated iteration in case of more than 50% of value in-house manufacturing (Please write estimated number in the box provided)
   [ ]

d) What is the number of estimated iterations in case of more than 50% of value is outsources manufacturing (Please write estimated number in the box provided)
   [ ]

Q 03:09: How many estimated planning iterations you have experienced in following customer segments. (Please write estimated number in the box provided)

Large Project Installation Planning [ ]
Small Project installation planning [ ]
Solar Product Planning [ ]
Research Publications

Research Thesis includes four umbrella hypotheses, divided further into fourteen sub-hypotheses. Each of the four umbrella hypotheses is published in internationally refereed research journal in full along with all sub-hypotheses to ensure uniqueness and sanctity of research findings.

**PAPER - 1**

**An alternate Hypothesis (HA 01):** Supply chain planning process for solar manufacturer/supplier need a wider view of global & domestic supplies, as critical inputs for effective planning.

*Published as title* INDIAN SOLAR INDUSTRY SUPPLY CHAIN PLANNING – A GLOBAL SUPPLY VIEW


http://www.scholarshub.net/ijms/vol5/issue1/Paper_04.pdf

**PAPER - 2**

**An alternate Hypothesis (HA 02):** National and state level policy support to solar energy, to grow the sector, is a major width variable in supply chain planning.

*Published as title* SOLAR ENERGY DEMAND – A FACTOR OF STATE SUPPORT


**PAPER - 3**

**An alternate Hypothesis (HA 03):** Existing practices of supply chain planning need more number of iterations to protect interest of buyers and sellers (Stakeholders) than existing in practice.

*Published as title* UNCERTAINTY AND PLANING ITERATIONS IN SOLAR SUPPLY CHAIN


**PAPER - 4**

**An alternate Hypothesis (HA 04):** Roles of supply chain planners need to be strengthened with specialized skill mapping for effectiveness of solar energy companies.

*Published as title* PLANNING SKILLS FOR SOLAR SUPPLY CHAIN MANAGEMENT


Bibliography/References


43- Technology - Pursuing the Competitive Edge: John Wiley & Sons. Hoboken, NJ.


49- Ivanov Dmitry, Sokolov Boris (2010). A multi-structural framework for adaptive supply chain planning and operations control with structure dynamics considerations: Department of Economics, Chemnitz University of Technology, 09126 Chemnitz, Germany, Institute for Automation and Informatics, Russian Academy of Science, Saint Petersburg, Russia.


83-Papallo Luca .Procurement as a leverage to Recover EPC project deviations. pp14-15


Texas. pp-27.


