



e-Learning Workshop: Solar Policy Intrepretation & Project Implementation Process

Techno Commercial, Financing and Interacting with Customer

By Pulkit Dhingra
Director, AHASolar Pvt. Ltd



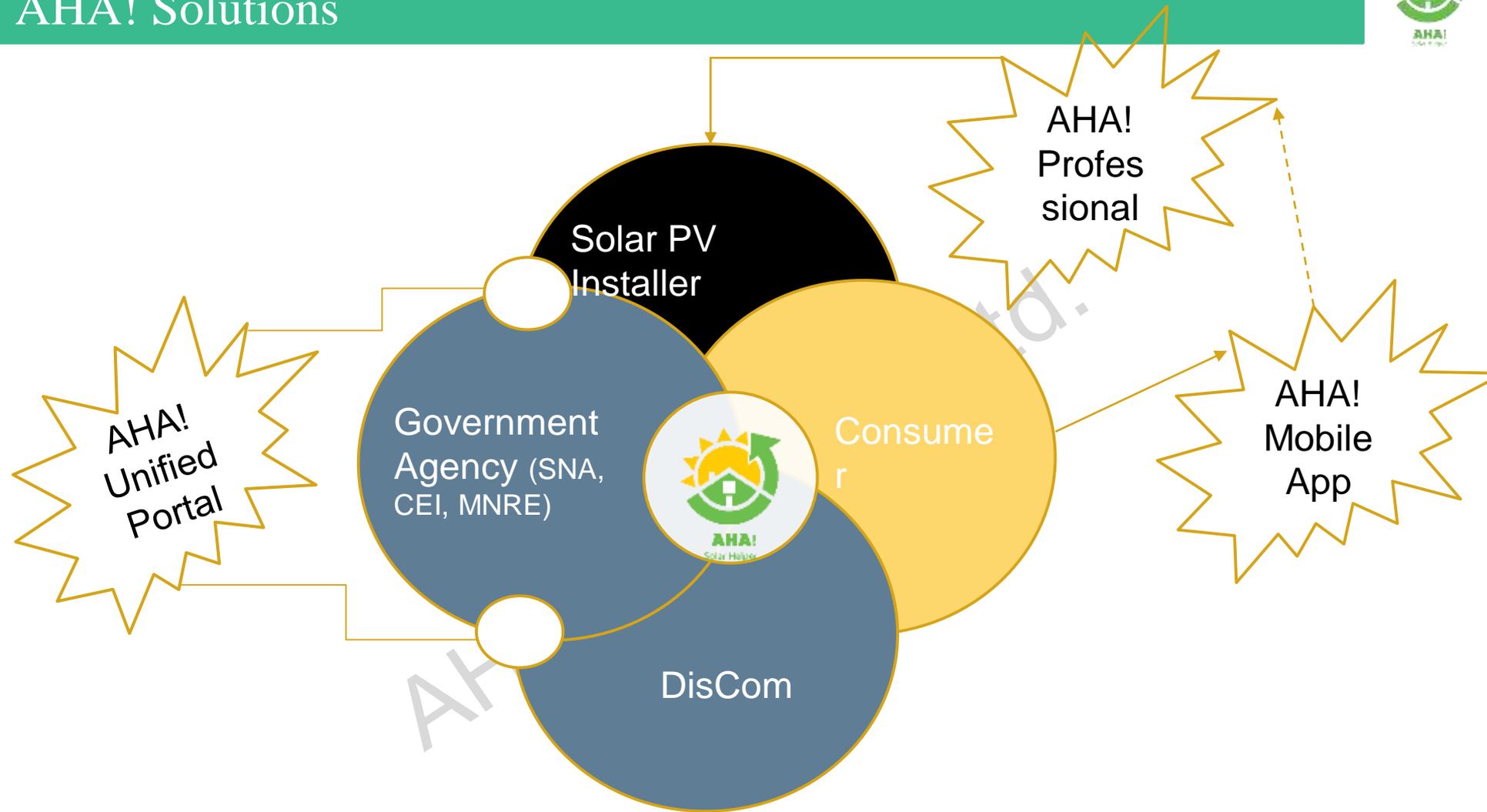
- ▶ Needs of Financing
- ▶ Banks providing funds for Solar
- ▶ Objective of Techno-commercial Report
- ▶ Content of Techno-commercial Report
- ▶ Works Scheduling
- ▶ Project Monitoring

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▶ “It is not the strongest of the species that survives, nor the most intelligent that survives. It is the one that is the most adaptable to change”

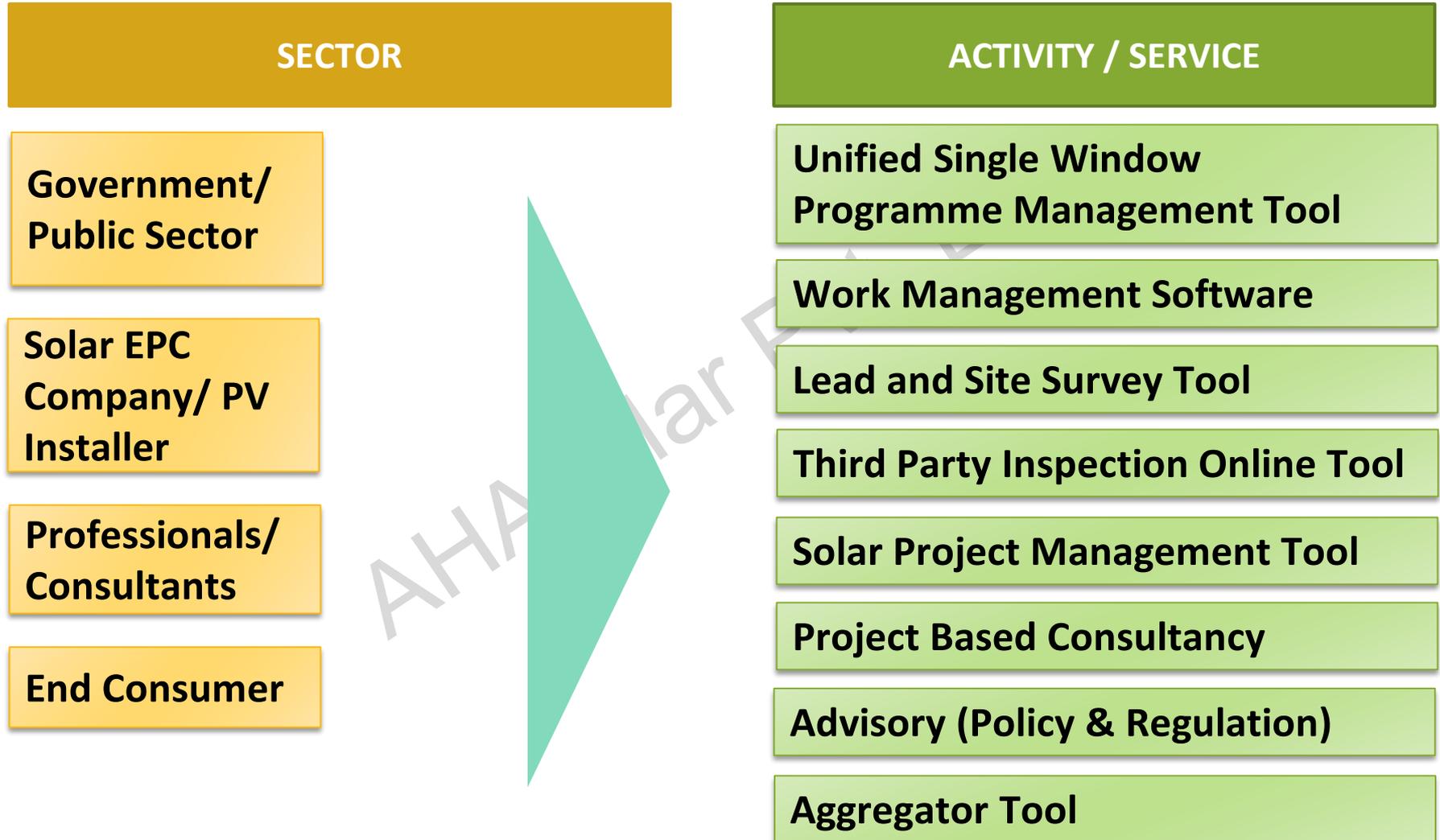
- **Charles Darwin**



AHA! Solar's Timeline

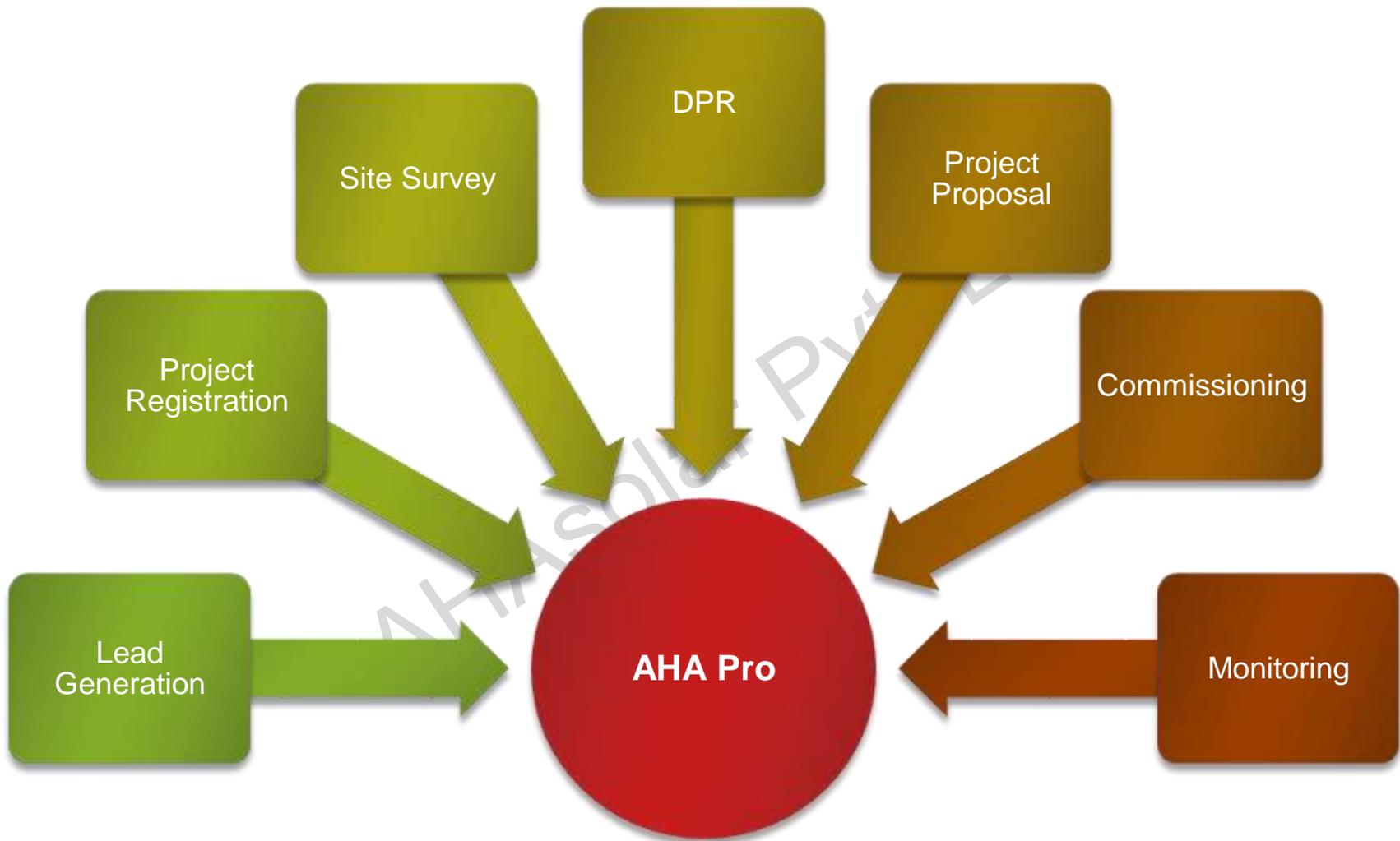
EVENTS	DATES
Inception of Idea of AHA! Rooftop Solar Helper	October, 2015
Research Project of "AHA! Rooftop Solar Helper" Mobile App made live	March, 2016
Launch of Beta version of AHA! Rooftop Solar Helper Mobile App by Joint Secretary, MNRE, GoI	September, 2016
Inauguration of "AHA! Solar Jharkhand" Mobile App/ Portal by Secretary, Energy Department, GoJ	June, 2017
AHA! Solar Incorporated as Private Limited Company	July, 2017
Inauguration of "AHA! Solar Gujarat" Portal by Gujarat Energy Development Agency (GEDA)	September, 2018
Received Start-up India recognition by Department for Promotion of Industry and Internal Trade (DPIIT), GoI	March, 2019
Surya Gujarat Portal Developed	March, 2019
Launch of AHA! Solar Helper Pro for EPC Company and Consultants	December, 2019





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AHA Rooftop Solar Helper Pro Software



Financing Needs of Solar Projects

	CAPEX Model		RESCO Model	
	Consumer	Developer	Consumer	Developer
Pre-construction	Advance	Ernst Deposit Money (EMD)	Nil	<ul style="list-style-type: none"> Ernst Deposit Money (EMD) Performance Bank Guarantees
Construction	Milestones based payment	Working Capital <ul style="list-style-type: none"> Cash based Non Cash based 	Nil	Milestones based payment (Equity + Debt)
Post Construction	Final Payment	Performance Bank Guarantees	Letter of Credit	Nil
O&M	Regular O&M Payment	Regular O&M Expense	Nil	Regular O&M Expense

Consumer

- Long term funds needed for funding project
- Fund projects with their own funds (Equity) and Loans (Debt)
- Loans are available from banks like Punjab National Bank (PNB), State Bank of India (SBI), Small Industries Development Bank of India (SIDBI)
- Usually extension (top up) loans on Housing Loans for residential consumers or on Corporate loans for Industrial and Commercial consumers

Developer

- Short term funds needed for project
- Fund projects with own funds and Working Capital Loans

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Consumer

- No investment required
- Would need working capital limits for Revolving Letter of credit

Developer

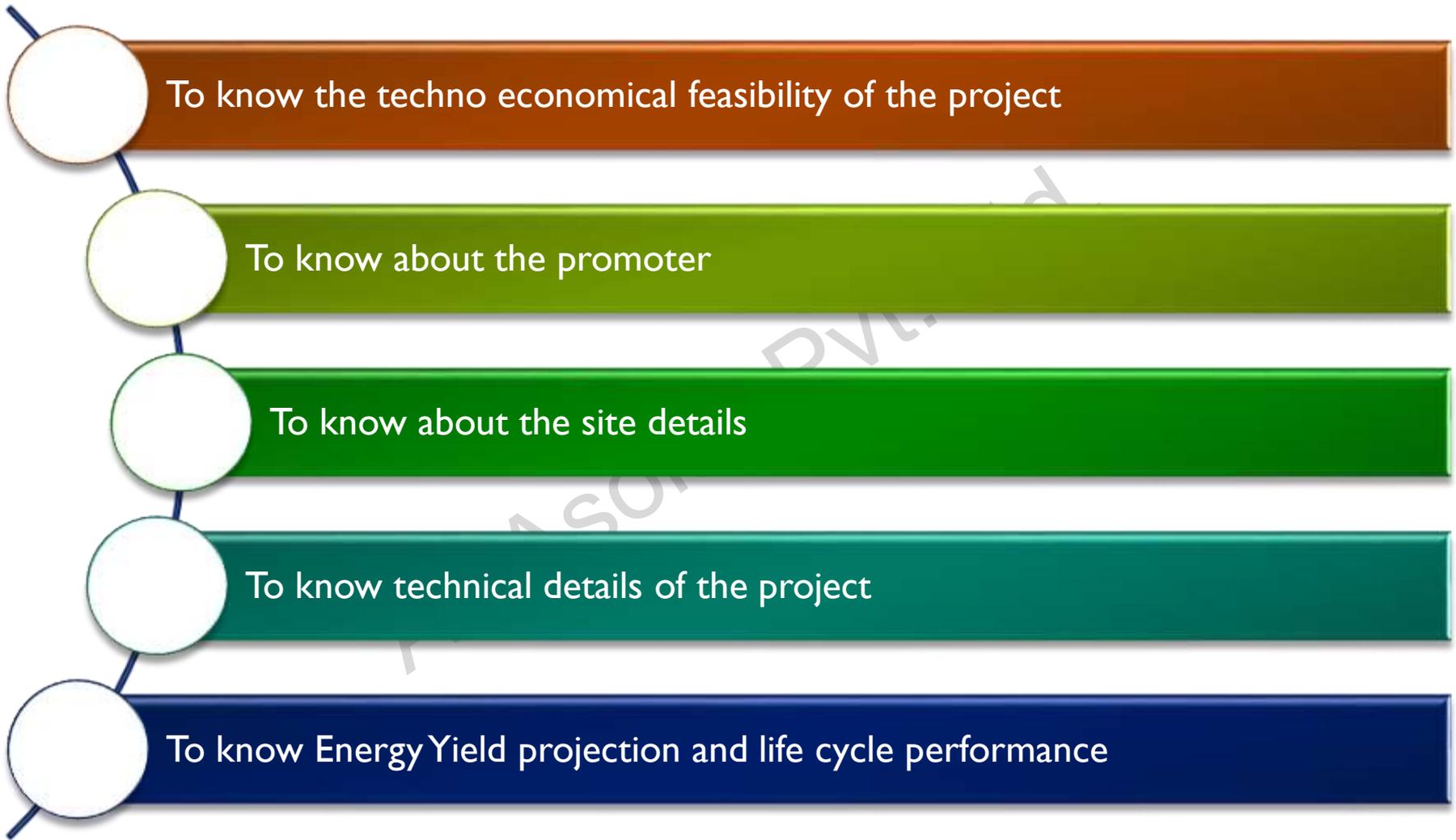
- Long term funds needed for funding project
- Fund projects with their own funds (Equity) and Loans (Debt)
- RESCOs are funded through funds from promoters or private equity so far
- Currently, most of the projects are funded through equity alone (no term loan)
- Loans are available from banks like Punjab National Bank (PNB), State Bank of India (SBI), Small Industries Development Bank of India (SIDBI)

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Banks Providing Funding for Solar Projects

- ☀️ **Canara Bank – Housing cum Solar Loan**
 - ☀️ Loan - 20% of eligible quantum under Housing Loan Component OR 80% of the Cost of the Solar system OR Rs. 10.00 Lacs Whichever is less.
<http://canarabank.com/english/bank-services/personal-banking/loan-products/housing-cum-solar-loan/>
- ☀️ **Syndicate Bank – Syndsolar Jyothi Scheme**
- ☀️ **IREDA – for 1 MW and above project capacity / aggregated capacity**
<http://ireda.gov.in/forms/contentpage.aspx?lid=1496>
- ☀️ **Bank of Maharashtra - Mahabank Renewable Energy Equipments**
http://www.bankofmaharashtra.in/bom_marathi/renewable_equipments.asp
- ☀️ **Punjab National Bank: <https://www.pnbindia.in/Rooftop-Solar-Power.html>**

Objective of Techno-Commercial Report



Objective of Techno-Commercial Report



Content of Techno-Commercial Report

- ▶ About the Promoter
- ▶ About the Site
- ▶ Solar Resource Assessment
- ▶ Selection of suitable SPVRT Technology
- ▶ Plant Layout & Technical specifications
- ▶ Power Systems & Grid Interface
- ▶ Statutory requirements & Compliance

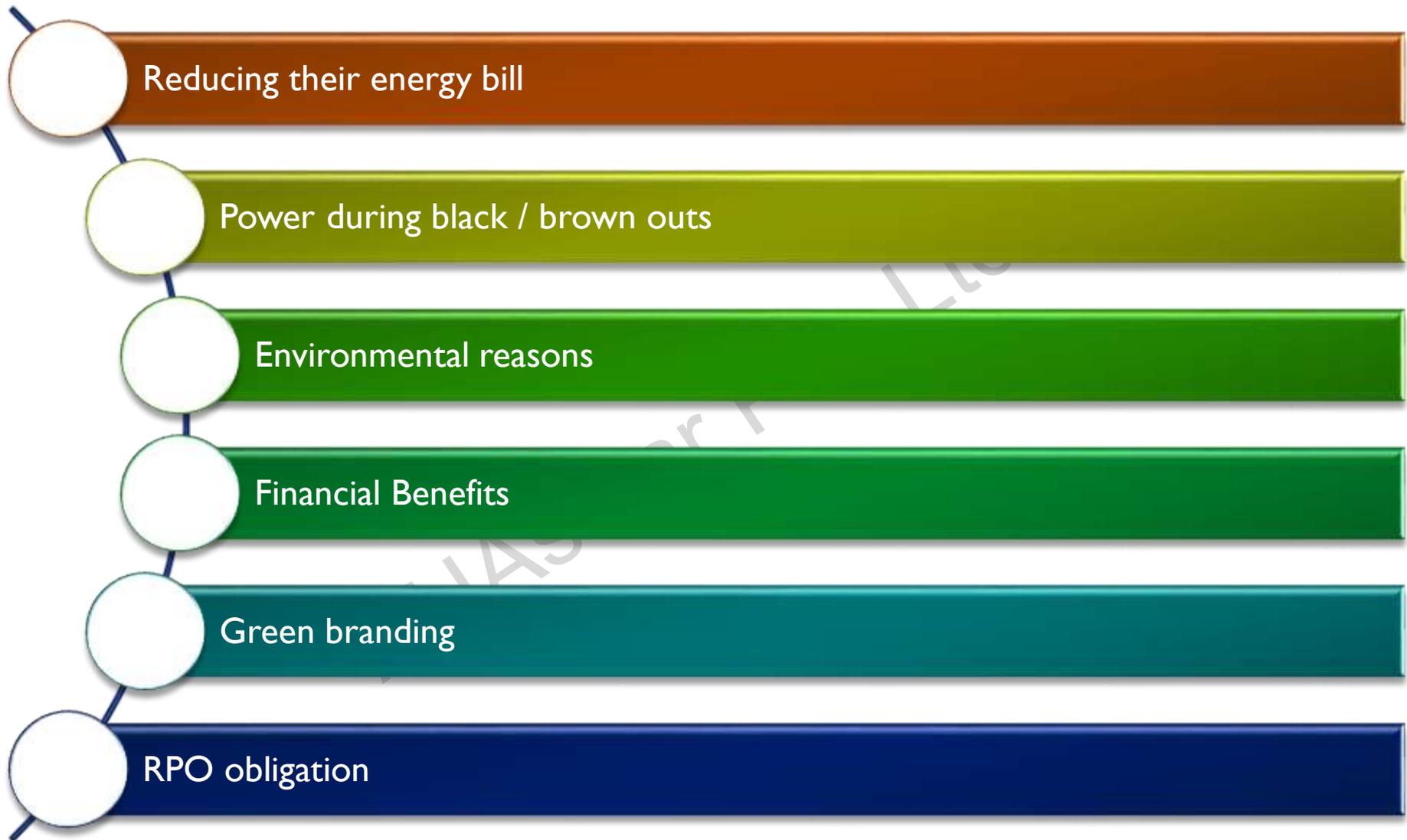
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Content of Techno-Commercial Report

- ▶ Project Implementation Schedule
- ▶ Operation & Maintenance (O&M) Plant
- ▶ Economic Assessment & Financial Analysis
- ▶ Risk Assessment
- ▶ Sensitivity Assessment
- ▶ Recommendations

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Motivation for Going Solar



First, convince yourself on the benefits of solar



Provide references of past projects



Arrange finance by having tie-ups with banks and /or investors



Convince the client on the financial benefits like payback, IRR, AD benefit etc.

Provide Solution as per Client's need

A client's motivation for installing their PV system will play an important role in the design process

- ✿ The system should be designed to meet customer's needs
- ✿ Understand the client's expectations of their system and make sure they are given correct information
- ✿ A customer must understand that
 - ✿ The 'income' from a system is often only manifest as a reduction in energy bills rather than a cheque
 - ✿ A conventional grid-connected system does not provide power during blackouts
 - ✿ Government financial incentives are highly variable - what a household's neighbours received 6 months ago may no longer be available

Recommended Information to Client

- ✦ Estimation of average daily electricity production
- ✦ Estimation of Annual Yield (annual electricity production)
- ✦ Estimation of electricity production in the best and worst months of the year
- ✦ Fraction of solar energy in his / her annual energy consumption
- ✦ The financial benefits derived from this reduction in annual energy consumption
- ✦ The greenhouse gas savings in tonnes or kg of CO₂ equivalent

Do's & Don't of Selling Solar

- ✦ Understand the market
- ✦ Explain the limitations of SPVRT system
- ✦ Streamline the sales process
- ✦ Conduct a Site Inspection
- ✦ Follow Standards and Industry Guidelines
- ✦ Understand the Laws, Regulations and Standards
- ✦ Explain the Quote
- ✦ Build a Reputation as a Market Leader
- ✦ Discuss Comparative Offers

- ✿ Use incorrect terminology and jargon
- ✿ Size and quote a system without conducting an onsite assessment
- ✿ Make unsupported claims
- ✿ Advertise a system by its yield
- ✿ Advertise financial benefits without context
- ✿ Relate energy production to energy use without evidence

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Benefits of Streamlining Business Process

Time-Saving

Time is precious! Make efficient use of your most important resource by streamlining the work that has to be carried out on a day to day basis.



Cost Efficiency

Long gone are the days when you have to print loads of paper and assign a clerk to transfer it to the next department. Everything is digital these days, and the workflow automation software will allow you to get work done with a minimal workforce



Identifying Bottlenecks

Time is precious! Make efficient use of your most important resource by streamlining the work that has to be carried out on a day to day basis.



Better Communication

Streamlined communication saves time, avoids hassles and ensures every member in different teams can seamlessly stay connected with one another.

The advantage of doing digital things is that you can always save documents in the cloud, more convenient to access anytime and has timestamps to categorize them. The workforce can no longer play the blame game, and everyone has to take individual responsibility for documents that need his or her timely attention.

Clear Documentation





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Communication with Client" 23 Apr. 2020

