



# Engineer's Workshop:

A Simpson

## Project Development



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## EPC

- Many companies in the renewable energy industry and power sector commonly use Engineering, Procurement and Construction (EPC) contracts (or turnkey construction contracts) for complex infrastructure projects. This form of contract sets out the relationship between the owner and the contractor for the provision of professional or technical services. Under an EPC contract, the principal or owner enters into a contract with the EPC contractor, who will, in turn, enter into various subcontracts with subcontractors for the performance of specified portions of work. They will be responsible for not only the engineering aspects of the project, but also procurement of equipment and design and construction of the facility, plant or project.

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## IPP

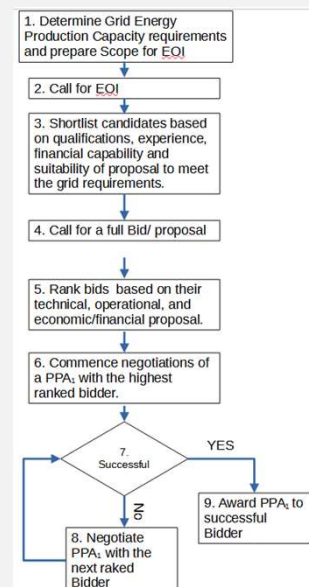
- IPPs are Independent Power Producers typically not owned by the power utility and generally a vehicle for investment of the private sector or other investors in the electricity sector.
- BOO the power plant under a Power Purchase Agreement (PPA).

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## Procurement of Capacity to be provided by IPPs

Three key stages

1. EOI:
2. Call for full bid.
3. Rank and commence negotiations.



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## PPA

A power purchase agreement (PPA) is a contractual agreement between energy buyers and sellers. Term of 10 to 20 years.

1. Commercial Structure: Baseload, annual, Baseload, monthly' Pay-as-produced without volume cap, Pay-as-produced with volume cap, Fixed Price for Fixed volume.
2. Risk Allocation: Price Risk, Liquidity Risk, Volume Risk, Profile Risk, Foreign Exchange Risk.
3. Duration: How is the start date defined? Fixed or COD with grace period; What are the consequences of a delay to the agreed start date? Grace Period, Penalties, Early Termination

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## PPA

4. Pricing Fixing: What are the conditions precedents to price fixing? Price Formulae, escalation. Is there a reference price defined?
5. CREDIT: Who is the direct Counterparty? In what ways can the PPA be assigned to another offtaker (e.g. form of Seller approval required)? Who is the Guarantor?
6. SETTLEMENT: Physical, Financial
7. Contract Jurisdiction
8. Adjustment – Economic, Legal/ Regulatory, Tax
9. Guarantees: Is Availability guaranteed? Is minimum volume guaranteed.

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# PPA

- 10. Termination: Triggers for potential termination of contract, Non-payment of invoices for certain period, Non-availability beyond certain thresholds, Non-performance of guaranteed volumes for certain periods, Delay of COD beyond certain date, Misrepresentations, Non-agreement on adjustment of contract after legal change, Others, Basis of the termination Amount.

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# Project Management

Technical: MS Project, The Gantt Chart.

People Management/ Capacity building

Exercise: Prepare a simple Gantt Chart for a small solar project using an excel template.

Project Management Tools Showing Gantt Chart with Task List



This slide is 100% editable. Adapt it to your needs and capture your audience's attention.

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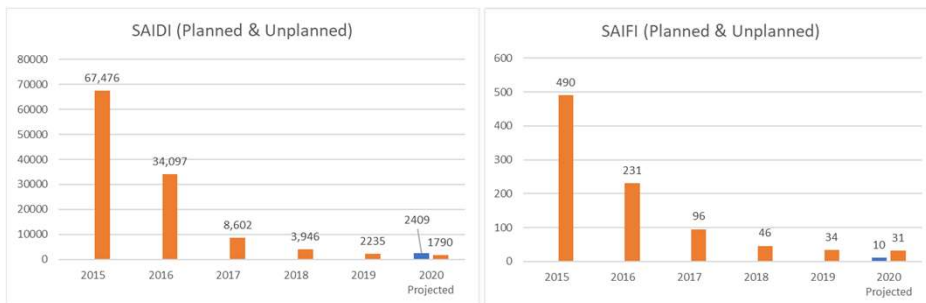
# Performance Management

Balance Score Card for Power Utility						
Vision:				Period:		
Mission:				Date:		
Values:						
Perspective	Strategic Intent	Strategic Objectives	Measures			Comments
			Previous Period	Current Period Progress	Target	
Government/Society						
Financial						
Customer						
Process						
Learning & Growth						
Notes:						

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## Performance Management - Rewards

- Long Term and annual target – RE Contribution
- Nauru Power Outages: Target Range: minimum = previous year’s results, Maximum = aspirational target



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## Performance Management - Rewards

How the obvious decision may not be the right decision!

When India was under British rule, there was a problem there. There were many snakes. They were so common that it was dangerous to go out. Snakes were everywhere. The risk of dying from the fatal bite of such a specimen was too great. Therefore, the government decided that something needed to be done to prevent the snakes from flooding the land. It was decided to financially reward people who brought in dead snakes. "It's a win-win situation," the government thought. People will get the money they need while reducing the snake population. That went really well for a while. Under the government's direction, people dutifully killed snakes in exchange for handsome sums of money. But people think for their own benefit when the situation permits. So some enterprising minds decided to breed snakes and then kill them and collect the money for it. Soon the government realized what these people were doing and immediately stopped the bounty program. The people who bred the snakes for money decided that the only thing that could be done with their now worthless snakes was to set them free. As a result, the snake population grew faster than ever before. This snake effect now also serves as a metaphor for when one state intervenes too much and therefore causes the opposite effect.

Story: Two sons Julian & Barry experience.

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## Performance Management - Rewards

- Monetary – Sufficient to incentivize, discriminate between good and poor performers. Too excessive may incentivize bad behaviours.
- Other rewards. Study opportunities, celebrations, compliments, etc.

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