ROUND THE CLOCK

RENEWABLE ENERGY

(RE-RTC)

RE-RTC

Features

- Continuous Power Supply with multiple Renewable Sources
- Reduced intermittency, Enhanced Grid Stability
- Meet Off-taker's demand only with RE
- Manage infirm nature of RE sources

Components

- Solar
- Wind
- Energy Storage (BESS, Pumped Hydro)

RE – RTC (General Requirements)

- Capacity should be from RE sources (Wind , Solar) including energy storage
- Developer to meet minimum monthly CUF as well as Annual CUF
- Same or Separate CUF for Peak / Off-peak hours
- Sources of generation may be co-located or may be located at different locations
- Single part tariff for RTC Contracted Capacity
- Actual installed capacity can be more than Contracted Capacity to meet committed CUF
- Excess power can be sold in the market.
- ESS can be in CAPEX or OPEX model
- ESS technology can be substituted during PPA

RE – RTC (Challenges)

- Over-sizing of the RE capacity (normal hybrid can meet up to 40-50% CUF)
- Significant excess power
- Risk of monetization of excess power (likely to be sold at much lower tariff)
- Complex management and accounting due to multiple sources
- Grid Integration issue due to large installed capacity

TARIFF WORKING - PROCESS FLOW

Requirement

- RTC Capacity
- Annual CUF
- Block-wise Availability (15 minute time block)
- Commissioning Timeline
- Penalty for shortfall

Site Selection

- Selection of Solar and Wind locations based on land and connectivity availability

Cost Input

- Input from Cost Engg
- Solar PV Module, BOS , Land & Evacuation
- Wind WTG, BoS, Land & Evacuation
- ESS cost
- Project Management, Contingency, exchange rate etc

TARIFF WORKING - PROCESS FLOW

Generation Profile

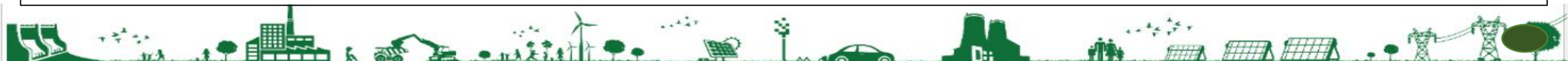
- Solar Generation profile – PVSyst or any other software
- Wind Generation profile- Available data
- Initial Wind – Solar tariff for working RE configurations

Configurations

- Inputs/constraints/generation given to software
- Multiple configurations suggested
- Optimum configuration selected based on tariff/excess generation/CUF

RTC tariff

- Surplus/shortfall power tariff
- Adjust for desired equity IRR
- Tariff calculation with selected configurations

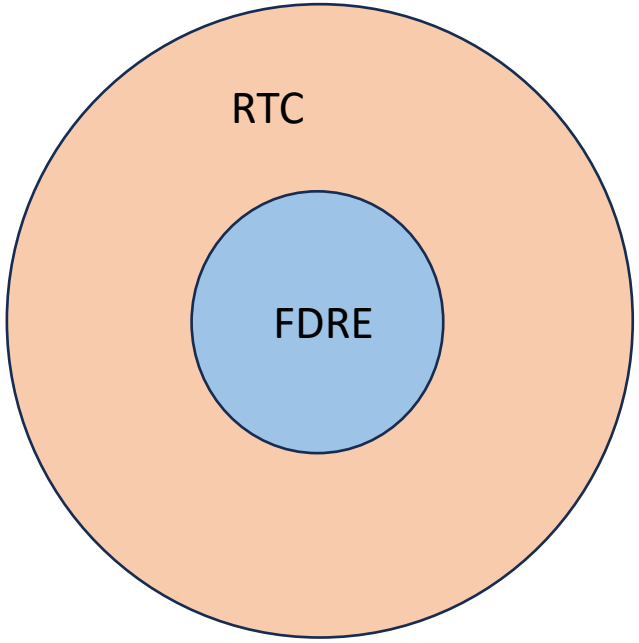


INPUTS FOR CONFIGURATIONS

S.n.	Parameter	Input
1	Generation Profile	15-minute time block generation of solar and wind (365x96)
2	Tariff of individual component	Solar , wind, ESS tariff
3	Capacity	RTC capacity, Min-Max Solar & Wind capacity, increment capacity
4	ESS usage criteria	% of capacity below which ESS to cut-in
5	Revenue from surplus power	Surplus power tariff
6	ESS charging source	Input power source for charging

RTC vs FDRE

- FDRE supply is essentially RTC with specific demand profile during particular time blocks such as peak hrs/off-peak hrs or different demand during different months.
- LD payable for shortfall during peak and off-peak hrs separately
- Generally with higher CUF requirement > =80%
- Higher excess generation w.r.t. RTC as system is designed to meet peak hour requirements
- Higher shortfall in catering demand fulfilment




THANK YOU