

# Workshop - Optimization of Levelized Cost of Green Energy

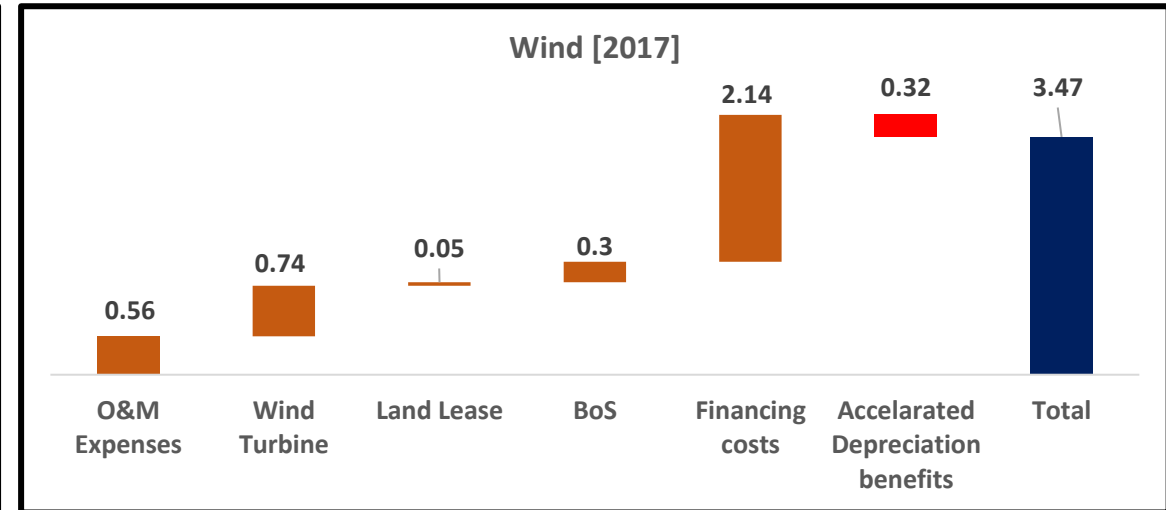
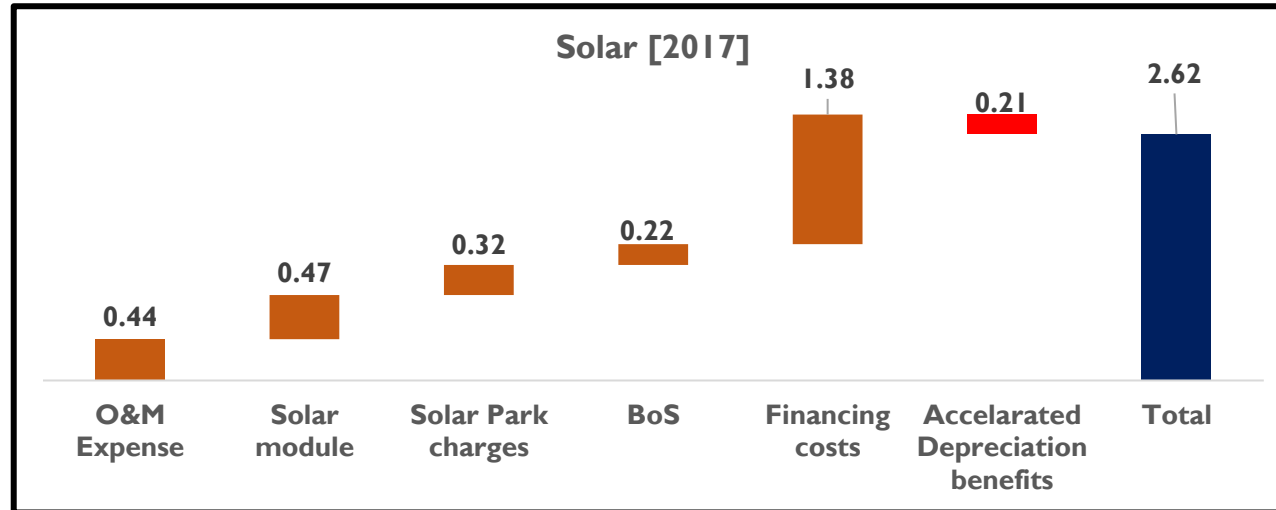
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# LCOE – Energy Transition Context

- Mission criticality
  - align with 2030 COP 27 targets, SDG7 goals
- Market contestability
  - enable volume and price participation in deeper power markets
- Business continuity
  - set off against impact spread @ higher integration to increase demand side participation
- Technology compatibility
  - economise EV charging, V2G and BESS integration, green H<sub>2</sub> production

# LCOE – Indian Context

## Anatomy of Solar and Wind Tariff [CEEW analysis]



- Cost of finance 50-65% for the largest share of historically low solar tariff in India – HDR 2020, average 62% for wind tariff
- Tariff falls sharply when bids are backed by government guarantees and credible off-takers – Discom financial health a dampener
- Digital solutions to optimise plant and grid operations – improving availability, hence bankability

# LCOE – Project and Operations Context

- Investor perspective of
  - factor costs of land, labour, logistics, power
  - regulatory costs of permits, approvals, clearances, compliances, contracts enforcement
  - social costs of law and order, stakeholder engagement, public legitimacy
- Operational challenges of
  - technology adoption – solar cells and module designs, ACC for BESS, repowering of wind turbines etc. to improve CUF
  - process adaptation – digital solutions in build / O&M phase to improve asset utilisation, deployment of advanced computational power and optimisation modelling software with digital twins
  - enabling framework and ecosystem – policy support, manpower skilling, balance between domestic manufacturing capacity and imports
  - market readiness and expansion – securing demand side participation, new off-take arrangements under virtual PPA and CfD
  - optimisation of hybrid solutions – considerations of flatter generation pattern, complementarity of resources for RTC power, economic choice of transmission system

# Thank You

*For discussions/suggestions/queries email: [www.indiasmartgrid.org](http://www.indiasmartgrid.org)  
[www.isgw.in](http://www.isgw.in)*

*[Links/References \(If any\)](#)*

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