RUMSL
Indian Railway Transaction

4th September, 2018

Strictly Private
and Confidential

Agenda

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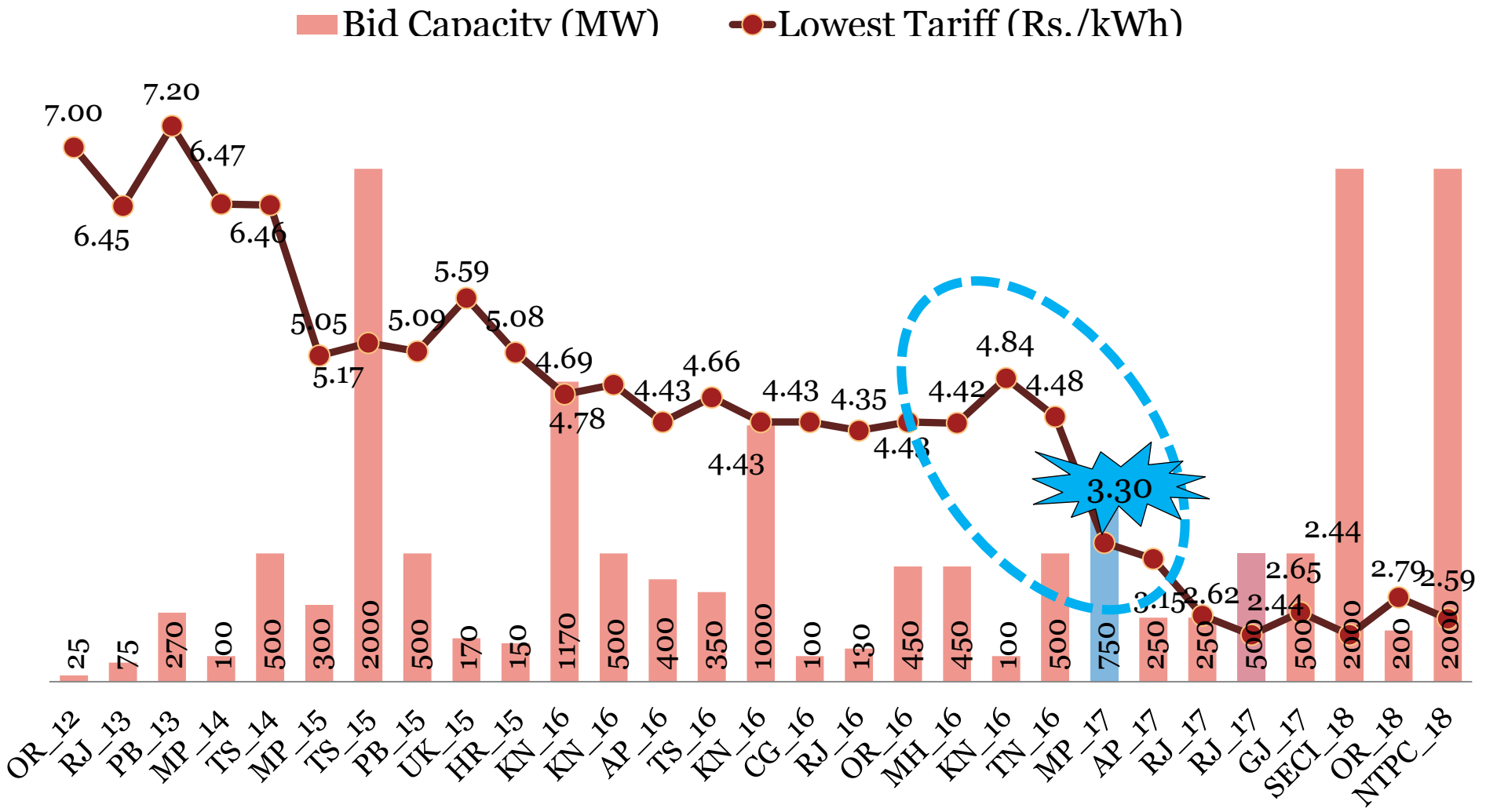
Background

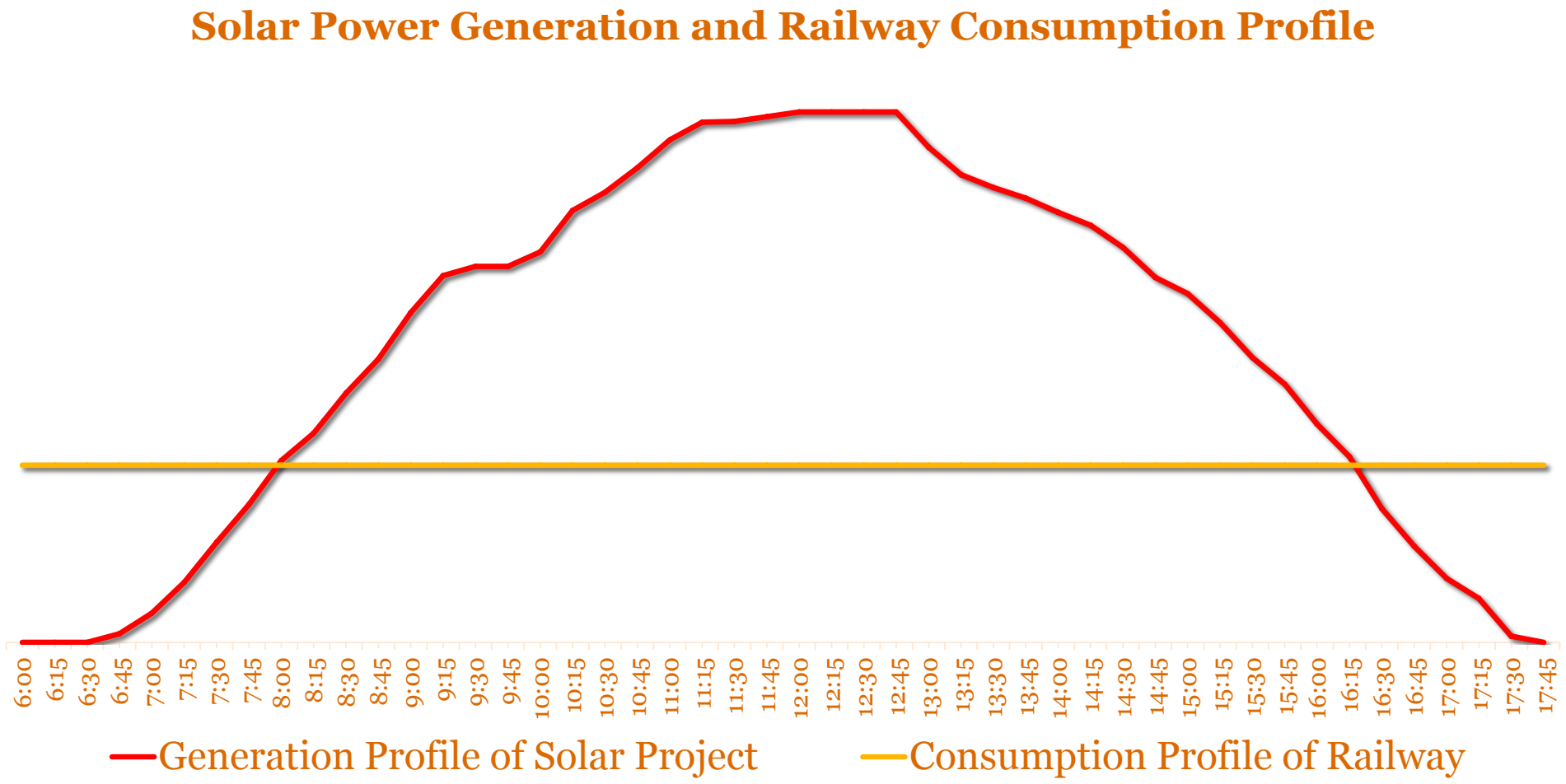
INDC Target of India

- India to reduce the "Emission Intensity" of its GDP by 33 to 35% by 2030 from 2005 level;
- India's share of non-fossil fuel in the total installed capacity is projected to change from 30% in 2015 to about 40% by 2030;
- Installation of Renewable Energy of 175 GW by 2021-22 including 100 GW of Solar Energy;

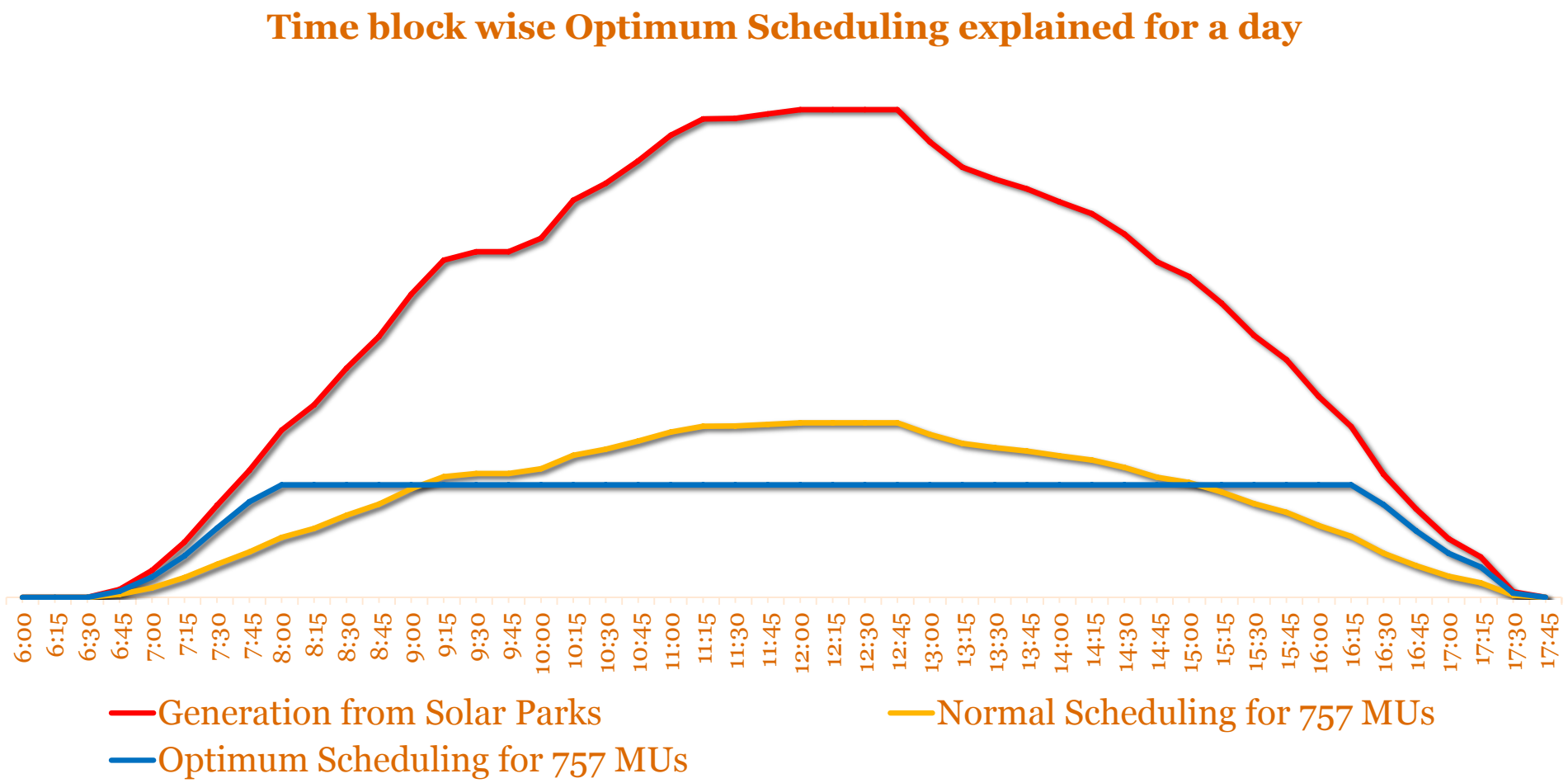
Impact of Rewa Transaction



Generation and Consumption Profile



Optimum Scheduling



Details of Transaction

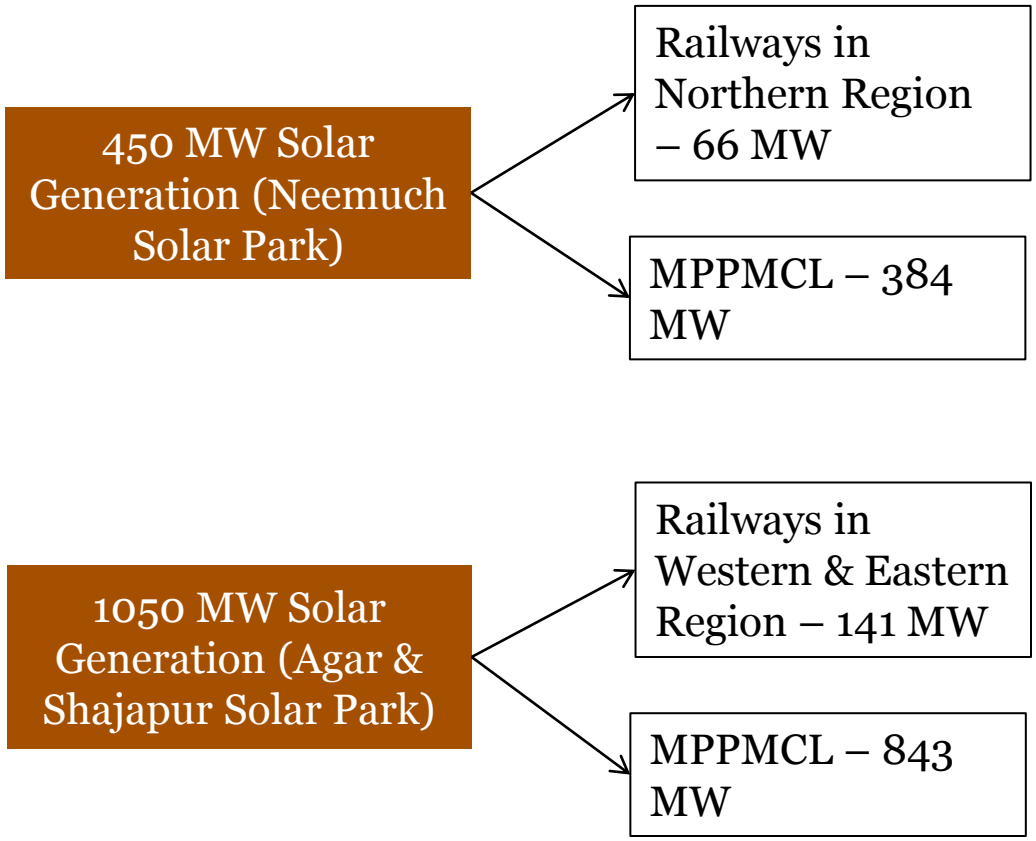
Solar Parks and its preparedness

Solar Park	Capacity	Land Required	Land Identified
Neemuch-Mandsaur	450	1,050	1,091
Agar	550	1,150	1,400
Shajapur	500	1,050	1,245

- Rewa Ultra Mega Solar Limited will be an implementing agency for all three solar parks.
- Allotment of revenue land (GoMP land) to RUMSL is under process.
- IFC as a Transaction advisor has been appointed by GoMP for this transaction.
- RUMSL has applied for Stage-I connectivity for each solar park.
- RUMSL is in discussion with World Bank for loan towards expenses of internal evacuation infrastructure of each solar park.
- RUMSL is in discussion with PGCIL to appoint them as a PMC for construction of internal evacuation infrastructure.
- RUMSL has appointed PwC for making of DPR of each solar park.

Solar Park Scheduling

1500 MW Optimal Scheduling



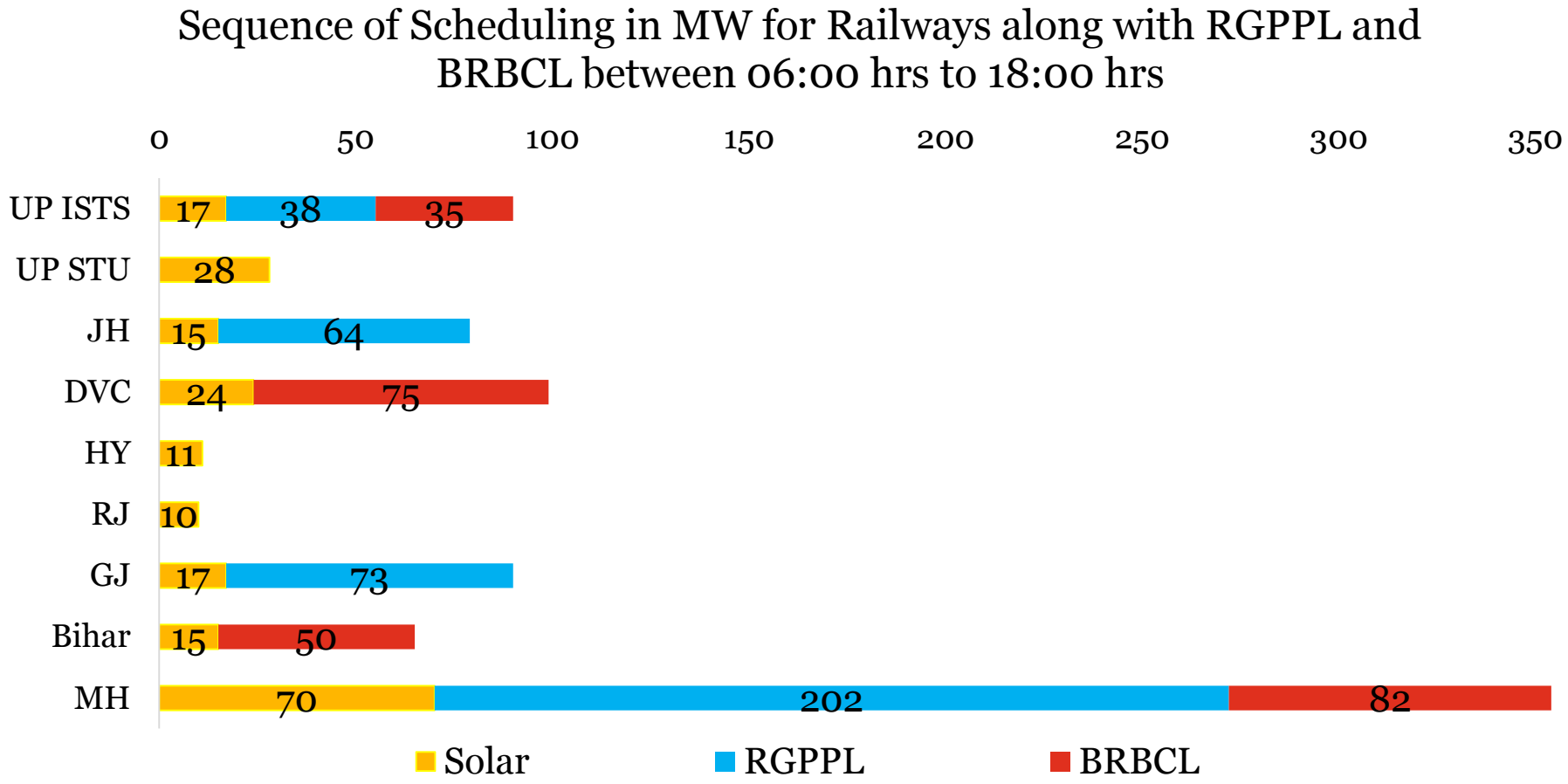
1500 MW	MW (LTA with ISTS)	MUs
MPPMCL	1293	2630
Indian Railway	207	782

Existing supply arrangement of IR and supply of solar power

State	MW requirement at Drawl point	Railway OA (MW) tied up	Solar Park OA (MW) to be tied up
UP – ISTS	140	85	17
UP - STU	115	100	28
Jharkhand	79	70	15
DVC	125	75	24
Haryana	48	40	11
Rajasthan	51	55	10
Gujarat	87	90	17
Bihar	76	50	15
Maharashtra	354	340	70
	1075	**905**	**207**

Note: Drawl point will be @ STU for all states and in UP drawl point is at both STU and CTU.

Scheduling for Indian Railways post commissioning of MP Solar



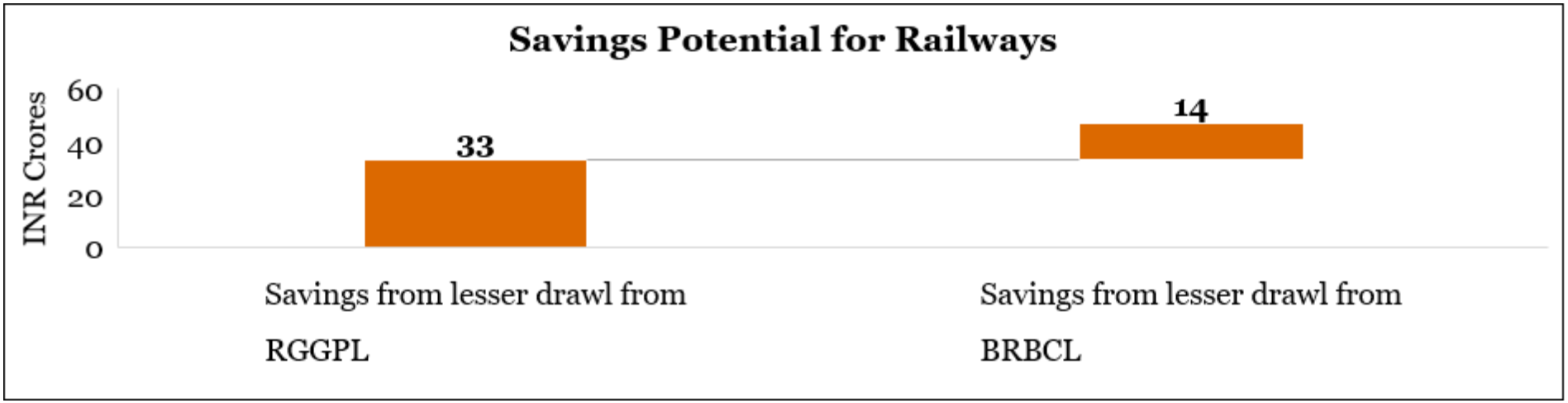
Scheduling sequence based on merit order for solar, gas and coal power plant for Indian railways under this transaction for 782 MUs or 207 MW capacity.

Savings due to Transaction

Benefits of Transaction

If power is procured to comply with RPO

Major advantage is replacement of costlier thermal power under open access arrangement through ISTS by cheaper solar power.



Other benefits due to Optimum Scheduling are:

- Lower STU charges on account of optimum scheduling (since lower LTA required as compared to normal solar power procurement transactions). Approximate saving would be INR **19 crore**.
- Stable supply during day time.
- Eliminating the risk of time required by STU for approval of LTA since lower capacity can be accommodated conveniently.

Benefits of Transaction

If IR procuring solar power over and above RPO requirement

Comparing landed cost of solar power and DISCOM tariff:

- Discom tariff for Railway traction is varies from INR 4.6/kWh to INR 8.8/kWh.
- Average Discom Tariff in all the given States is around **~ INR 6.0/kWh**.
- IR's saving on procurement of solar power over and above RPO requirement is ***~ INR 37.7 crore***.

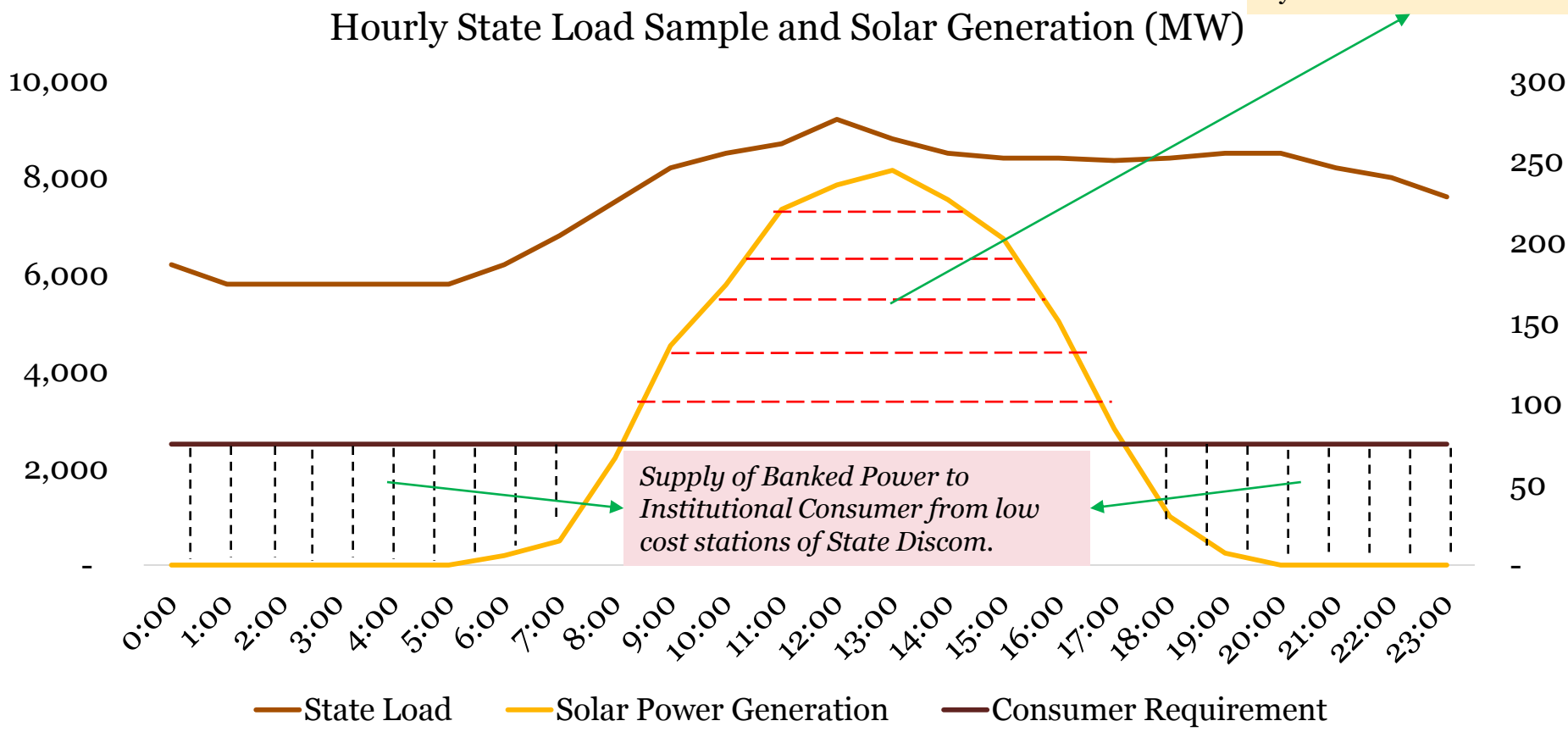
Comparing landed cost of solar power and thermal power under OA arrangement:

- Average power procurement cost of IR from RGPPL and BRBCL is ~ INR 5.17/kWh.
- IR's saving on procurement of solar power over and above RPO requirement is ***~ INR 10.2 crore***.

A Concept, for thought and can be implemented, together

Savings to MPPMCL from banking facility

Banked Power: Avoided generation from high cost stations for power purchase by State Discom.



Towards cleaner and greener future….

Thank you