

Renewable Regulatory Fund (RRF):- Implementation Mechanism

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Outline

- **Chronology of Events**
- **Objectives at a Glance**
- **Approach**
- **Role of Stakeholders**
- **Enabling Actions**
- **Related Issues and Possible Avenues**

RRF: Chronology of events

- **IEGC Regulations, 2010 notified on 28.04.2010**
- **Clause 5 and Clause 7 of Annexure 1 of IEGC :**

UI charges arrived at due to the variation of generation by wind and solar shall be shared amongst all the states through 'Renewable Regulatory Charge' to be operated through 'Renewable Regulatory Fund'.
- **Clause 9 of Annexure 1 of IEGC :**

NLDC shall prepare a detailed procedure for implementation of the mechanism of Renewable Regulatory Fund and submit the same for approval by the Commission.
- **CERC examined the proposal submitted by NLDC and the modified procedure was notified on 18.02.2011**
- **Implementation of RRF to be effected from 01.01.2012**

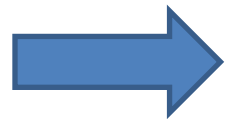
RRF: Objectives at a glance

- **Forecasting of generation by Wind/Solar generators**
- **Encourage them to participate in scheduling**
- **Promote bilateral trading of power by renewable generators**
- **Investment in Renewable to be more attractive**
- **Assist States in meeting RPOs**
- **Better System Operation**

RRF: Approach

- **Develop weather forecasting tools for better prediction**
- **Immune wind generators from paying deviation in UI charges upto a certain level of variation**
- **No UI charges payable/receivable by Solar Generator**
- **Share the deviation charges arrived due to variations amongst different state utilities**
- **Develop a self sustaining mechanism towards better acceptance of intermittent generation**

Role of different stakeholders towards RRF Implementation



Role of Wind Farms/Solar Generators

Wind farms – 10 MW and above and Solar plants - 5MW and above, connected at 33 KV and above :

- Connectivity details to concerned RLDC/NLDC**
- Declaration about agreement if any**
- Provide details of Contracts and Contracted path to the concerned SLDC →RLDC→RPC**
- To provide Data Acquisition System (DAS) facility to SLDC/RLDC**
- Generation forecast with periodic updates to SLDC/RLDC**

Role of SLDCs

- **Scheduling on daily basis with periodic revisions**
- **Installation of special meters at the boundaries of the intra-state entities at their cost**
- **Schedule and 'actual generation meter data' to be sent to RLDCs and RPCs on weekly basis**
- **Settlement of accounts with RRF**
- **Payments/receipts to concerned Generators**
- **Monitoring and performing checks**

Role of RLDC

- **Processed data of energy meters along with final schedule to be sent to RPCs on weekly basis**
- **Vetting of solar generation schedule**
- **Direct co-ordination with Regional entities (Wind/Solar Generator) for contracts and contracted price & energy meter data**
- **Inter-state scheduling**
- **Coordination with SLDCs/RPCs/NLDC**
- **Monitoring and performing checks**

Role of RPC

- **Issuance of Statement of Energy Accounting on Weekly basis**
- **Data handling of contracts and contracted price for issuance of energy account**
- **To work out details towards Capping, Additional UI charges etc. if any.**
- **Coordination with SLDCs/RLDCs/NLDC in this regard**
- **Co-ordination with RLDCs/RPCs of other regions**

Role of NLDC

- **Issuance of monthly statement for Renewable Regulatory Charge**
- **To maintain and operate RRF**
- **Disbursement of payments from RRF to Various Wind/Solar power plants/ States/ UTs / DVC**
- **Work out contribution by each state utility towards RRF, based on last month 'peak demand met data' available at CEA website**
- **Disburse and recoup surpluses or deficit in RRF to/from state utilities.**

RRF: Enabling Actions

- **Scheduling and Forecasting software at Control Centres /SLDC/RLDC**
- **SCADA and telemetering facilities**
- **SEM at inter-connected points**
- **Compatible metering**
- **Collection of Renewable Regulatory Charge from States/UTs/DVC**
- **Capacity building of stakeholders**
- **Dedicated group in load dispatch centers**
- **Institutional Mechanism in place**

RRF: Related issues and possible avenues

- **Declaration of PPAs and details thereof**
- **Specific Information to be furnished by Wind Farms/Solar generators** →
- **Disbursement of money to numerous Generators from RRF**
- **Collection/Disbursement of money from/to large number of states by NLDC towards/ from RRF** →
- **Part collective and part bilateral sale of power**
- **A Wind/Solar Generators having part capacity under past PPA and part new capacity**

RRF: Related issues and possible avenues

- **Forecasting and scheduling of wind generation**
 - 14989 MW installed capacity as on 31st Aug 2011
 - 2349 MW and 833 MW capacity installed in 2010-11 & 2011-12 respectively
 - 3182 MW possible candidate for RRF (~20% of installed capacity)
 - **Section 6.5.23 (i).....extend scheduling for all wind generators**
- **Real time monitoring**
 - Availability of real time data wind-farm wise at SLDCs/RLDCs
 - Communication between SLDCs and wind-farms.
 - Updated forecast data available
 - **Ancillary services market**

RRF: Related issues and possible avenues

- **Accounting**

- Purchaser in different region from host state
- Meter data flow across regions
- Inter dependency between RPCs
- SLDCs already handling meter data
- **Possibility of accounting in a hierarchical manner**

- **Administration of RRF**

- Parties to RRF spread across the entire country (state utilities, wind generators and other open access users required to fulfill RPO).....>50
- Minimizing the number of parties might be preferable (host state only).....no of parties less than 10
- Periodic audit of accounts
- **Sources of meeting shortfall..... from other pool accounts and/or other means**

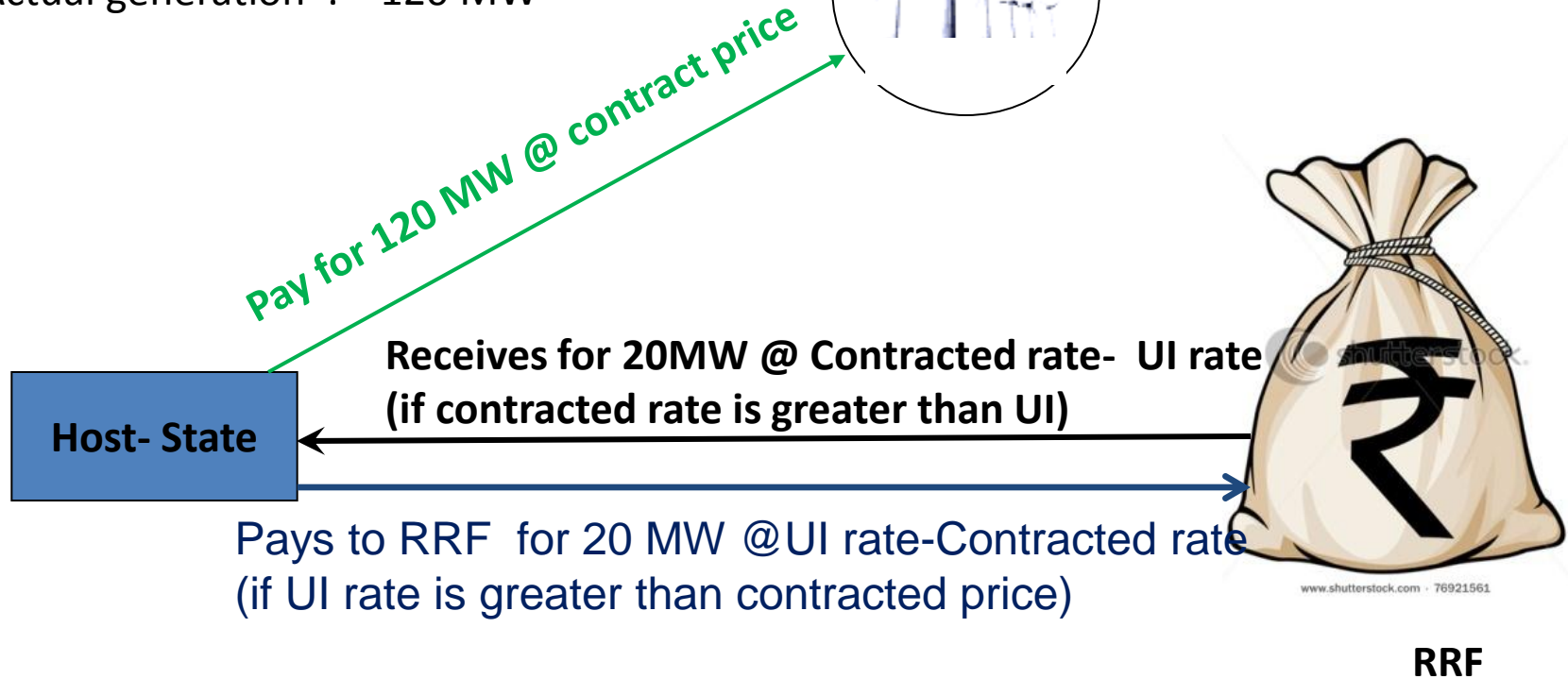


Thank You

Intra-state Wind Generators

Wind Generator (Intra-State) +ve UI by RE upto 30% (Case-I)

Generation Schedule: 100 MW
Actual generation : 120 MW



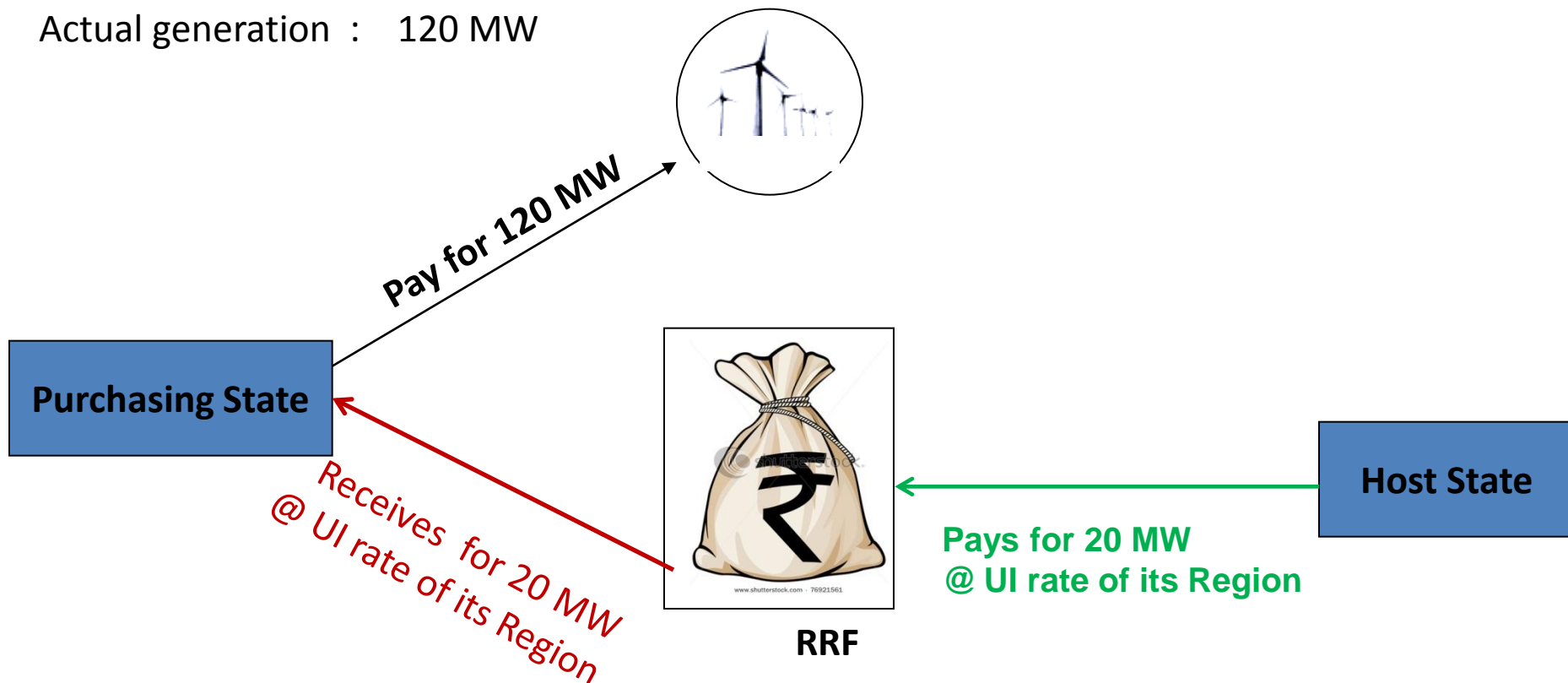
Any loss to Host state on account of Capped rates for Under-drawal on account of over generation by Solar /Wind generators to be compensated by RRF

Inter-State Wind Generators

Wind Generator +ve UI by RE upto 30% (Case-I)

Generation Schedule: 100 MW

Actual generation : 120 MW



Any loss to Host state on account of Capped rates for Under-drawal on account of over generation by Solar /Wind generators to be compensated by RRF



State/UT/DVC share in Renewable Regulatory Charges (% Contribution) (July 2011-Actual)

S. No.	State/Uts/DVC	Peak Demant Met (MW)	Contribution to RRF (%)
1	Maharashtra	15028	12.3
2	Uttar Pradesh	10857	8.9
3	Andhra Pradesh	10542	8.6
4	Tamil Nadu	10275	8.4
5	Gujarat	10203	8.3
6	Punjab	8701	7.1
7	Karnataka	6907	5.7
8	Rajasthan	6399	5.2
9	Haryana	6259	5.1
10	West Bengal	6105	5.0
11	Madhya Pradesh	5116	4.2
12	Delhi	4819	3.9
13	Orissa	3313	2.7
14	Kerala	2888	2.4
15	Chattisgarh	2736	2.2
16	DVC	2018	1.7
17	Jammu & Kashmir	1545	1.3
18	Bihar	1486	1.2
19	Uttarakhand	1361	1.1

State/UT/DVC share in Renewable Regulatory Charges (% Contribution) (July-Actual)

S. No.	State/Uts/DVC	Peak Demant Met	Contribution to RRF
20	Himachal Pradesh	1139	0.93
21	Assam	986	0.81
22	Jharkhand	827	0.68
23	Dadar Nagar Haveli	562	0.46
24	Goa	422	0.35
25	Puducherry	311	0.25
26	Daman & Diu 3	276	0.23
27	Chandigarh	263	0.22
28	Meghalaya	262	0.21
29	Tripura	168	0.14
30	Sikkim	95	0.08
31	Manipur	95	0.08
32	Arunachal Pradesh	94	0.08
33	Nagaland	90	0.07
34	Mizoram	56	0.05
35	Andaman- Nicobar	32	0.03
36	Lakshadweep	7	0.01
	TOTAL	122243	100

