

***Best Practices
Adopted
by
Rajasthan
to Achieve UDAY Goals***

29th March, 2017

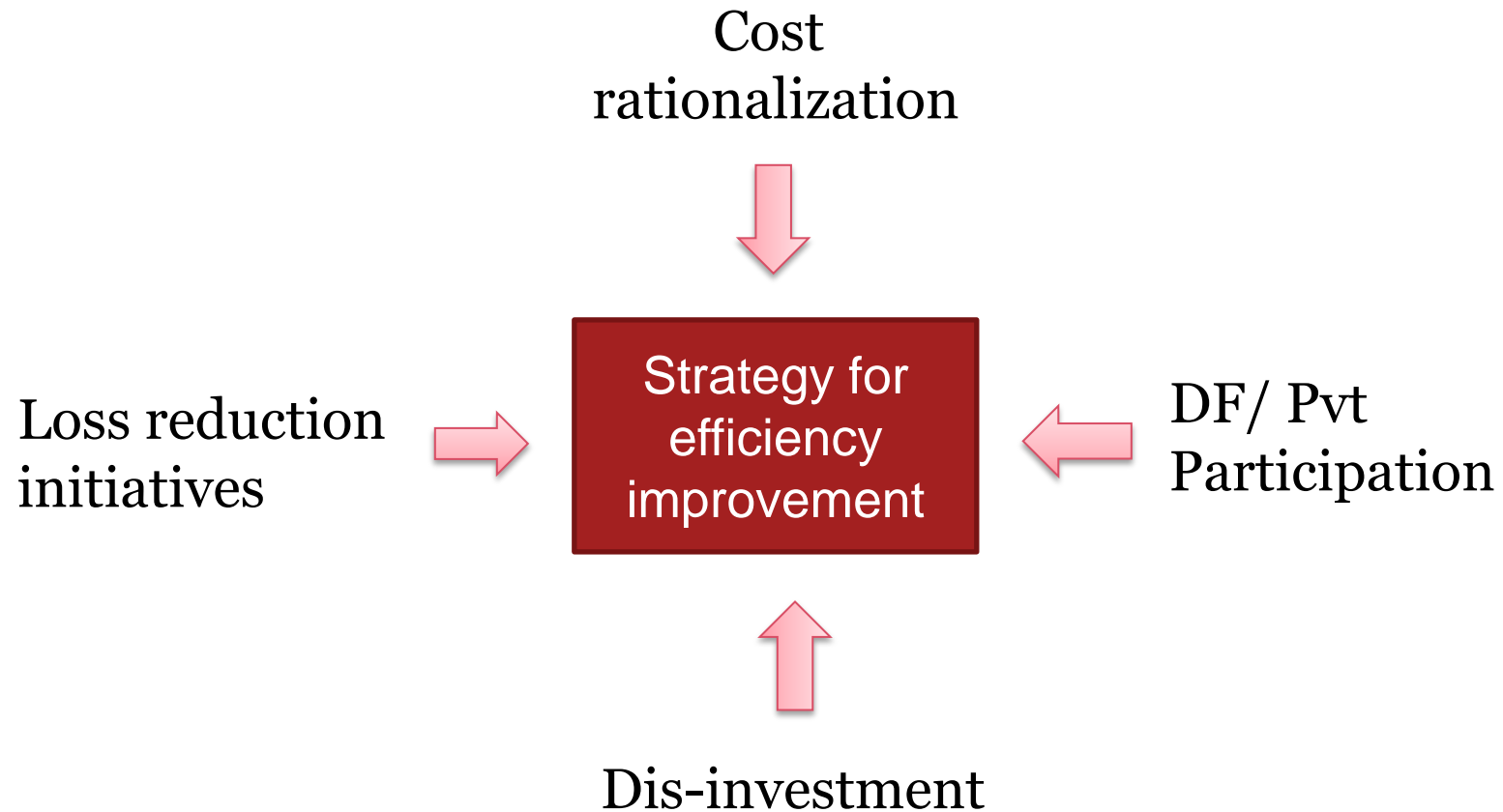
Achievements under UDAY

- ✓ Rs. 62,422 Cr debt out of Rs. 80,530 Cr. Taken over by GoR
- ✓ AT&C loss expected to reduce by 5% in FY17 (achieved 2.71 % reduction up to Dec'16 through implementation of MMVSA)
- ✓ ACS –ARR gap reduced from Rs. 2.36 FY15-16)to Rs. 0.87 FY 16-17 per unit (Rs. 3.65 gap in FY13-14)
- ✓ 100% feeder metered
- ✓ 18.33 lac connections to HH against 30 lac
- ✓ Supply of 22-24 hours achieved to rural HHs
- ✓ Appoint DF in Kota, Bharatpur, Bikaner & Ajmer
- ✓ New company – RUVNL formed for effective power management

Challenges faced by Rajasthan Discom

- High average power purchase cost per unit (Rs 4.12/kWh) in comparison to national average of Rs 3.74 per unit;
- Highest share of agriculture consumers (45%) ;
- Geographical constraints

Strategy by Rajasthan Discoms



Best practices in Loss Reduction

State Initiative: AT&C Loss Reduction

Hon'ble CM visit to Bhimpura

- CM visit to Bhimpura
- Communicate importance of AT&C loss reduction



Involvement of District Administration

- Work identified for AT&C loss reduction
- Constituted feeder management committee

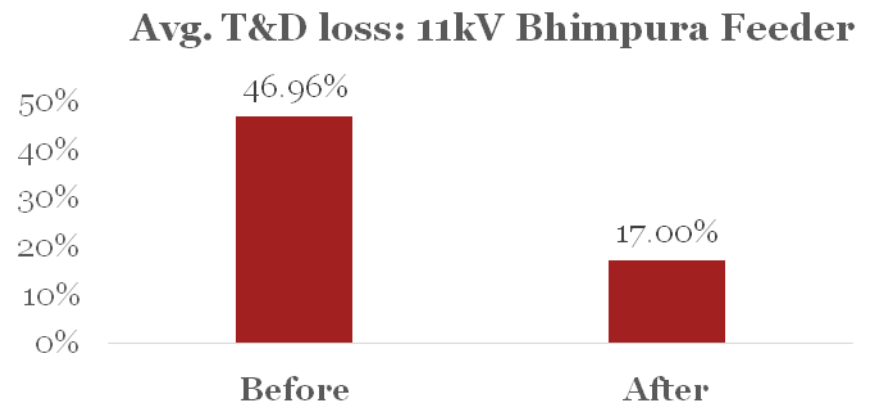


Community Participation

- Pledge by community to support loss reduction initiatives
- Support to curb theft



Results – Reduction in T&D Losses



- **Hon'ble CM held discussions with all MLAs twice to support the program**
- **GoR has also started scheme 'Mukhyamantri Vidyut Sudhar Abhiyan'**

State Initiative : ***Mukhya Mantri Vidyut Sudhar Abhiyan***

■ Key Objectives:

- 24 x 7 uninterrupted and quality power supply
- Improvement in consumer services
- Electrical Safety
- Reduction in AT&C Loss

■ Main Features:

- Technical measures
- Effective vigilance activities
- Public participation
- Effective Monitoring
- To complete the work in 3 phases

Mukhyamantri Vidyut Sudhar Abhiyan

✓ **Monitoring Mechanism**

- State Advisory Committee – CM Level
- Task Force Committee – CS Level
- District Level Committee – Zila Prabhari Mantri Level
- District Level Committee – District Collector Level
- Block Level Committee – SDO Level

Reduction in AT&C Losses

In Rural Areas

**Rural areas
Target 15% by Mar'18**

- 11 kV Feeder to be smallest unit for measurement

- One Feeder In charge for each feeder
- Public Reps. & District Admn. to be involved
- Feeder Management Committee being constituted

- Each JEN to identify 33 kV S/S in phases
- Identification of technical interventions on each feeder
- Timeline for completion of technical interventions:
 - 1st Phase – Upto December'2016
 - 2nd Phase – Upto June'2017
 - 3rd Phase – Upto December'17
- Feeder vigilance squad - after technical interventions
- Workshops have been conducted

Reduction in Losses

In Urban and Industrial Areas

Urban areas

Reduction in AT&C Losses

- ✓ **Target – < 15%**
- ✓ XEN to be responsible
- ✓ DT-wise EA in high loss areas
- ✓ Implement scheme like undergrounding or overhead AB cable, system
- ✓ Timely replacement of defective meters
- ✓ Necessary vigilance

Industrial areas

Reduction in Dist. Losses

- ✓ **Target – < 2%**
- ✓ XEN to be responsible
- ✓ Feeder wise energy audit
- ✓ Suitable technical interventions
- ✓ Necessary vigilance

Responsibilities of XEN (O&V) have been redefined

Effective Vigilance Activities

Three Pronged Strategy

- 1 Regular Vigilance** – AENs / JENs
- 2 Focussed Vigilance** – XENs (O&V) in urban & Industrial areas
- 3 Anti Theft Vigilance Squad (ATVS)**
 - JEN/AEN/Feeder Manager to head ATVS for rural feeders
 - XEN to head ATVS for DHQ/MT/IA
 - Target for group of 3 ATVS - 13 rural feeder per month
 - Discoms target – 500 rural feeders per quarter

Mukhya Mantri Vidyut Sudhar Abhiyan

Action taken for Loss reduction in Rural areas

Feeder wise Loss Reduction Programme Progress up to Feb'17 (Phase I)

Discom	No. of Total Rural Feeders	No. of Feeders covered	Work Completed	Feeders Having T&D <15%	Expected Completion Date
Jaipur	4991	1641	1216	563	Mar'17
Ajmer	6619	2217	1234	664	Mar'17
Jodhpur	8193	2727	1780	880	Mar'17
Total	19803	6585	4230	2107	

Mukhya Mantri Vidyut Sudhar Abhiyan

Action taken for Loss reduction in Rural areas

Feeder wise Loss Reduction Programme Progress up to Feb'17 (Phase II)

Discom	No. of Total Rural Feeders	No. of Feeders covered	Work order issued	Work started	Expected Completion Date
Jaipur	4991	1669	700	358	Jun'17
Ajmer	6619	2232	1251	345	Jun'17
Jodhpur	8193	2186	393	70	Jun'17
Total	19803	6087	2344	773	

Mukhya Mantri Vidyut Sudhar Abhiyan

AT&C Loss reduction V/s Last Year in Sub-Div

S. No.	Name of Discom	No. of Sub-Divisions except JCC	No. of Sub-Divisions having decreasing trend	No. of Sub-Divisions having AT&C < 15 %
1	2	3	4	4
1	Jaipur	143	112	7
2	Ajmer	187	152	49
3	Jodhpur	155	97	36
Sector as a whole		485	361	92

Mukhya Mantri Vidyut Sudhar Abhiyan

Action taken for Loss reduction in Towns

Urban Areas : Phase- I,II&III

S. No.	Name of Discom	Total No. of DHQ & MTs	Status of implementation of work in MTs/DHQtrs in Phase- I (by Jan'17)					Status of Ph-II (by Jun'17)		Coverag e of MTs/DH Q in Ph=III by Dec'17
			Towns covered	Work complete d in	AT&C below LFY	AT&C Below 15%	Committ ed date	Towns Covered	Targeted date	
1	2	3	4	5	6	7	8	9	10	11
1	Jaipur	64	43	13	39	5	Mar'17	10	Jun'17	11
2	Ajmer	65	32	5	27	11	Mar'17	15	Jun'17	4
3	Jodhpur	55	21	5	19	8	Mar'17	8	Jun'17	2
Sector as a whole		184	96	23	85	24	Mar'17	33	Jun'17	17

AT&C losses of remaining MTs/DHQ are reported below 15% as on Mar'16

Mukhya Mantri Vidyut Sudhar Abhiyan

Action taken for Loss reduction in Industrial Feeders

Loss Reduction Programme Progress in Industrial areas (Phase I)

S. No.	Name of Discom	Total No. of Industrial Feeders	No. of Industrial Feeders covered in Ist Phase > 2%	No. of Ind. Feeders having decreasing trend out of Col 4	No. of Ind. Feeders having T&D <2 %
1	2	3	4	5	6
1	Jaipur	303	22	21	15
2	Ajmer	143	21	11	10
3	Jodhpur	178	32	27	13
Sector as a whole		624	75	59	38

Mukhya Mantri Vidyut Sudhar Abhiyan

AT&C loss reduction: Status upto Jan'17

Loss Reduction Sector as a Whole

Metric	Jaipur			Ajmer			Jodhpur			Overall		
	Up to the reporting month			Up to the reporting month			Up to the reporting month			Up to the reporting month		
	Last Year	This year	differ ence	Last Year	This year	differ ence	Last Year	This year	differ ence	Last Year	This year	differ ence
1	2	3	4	5	6	7	8	9	10	11	12	13
% Distribution Losses	29.85	25.71	-4.14	24.53	21.35	-3.18	20.06	18.82	-1.24	25.19	22.22	-2.97
% Collection Efficiency	92.94	92.85	-0.09	95.84	95.64	-0.20	94.04	93.99	-0.05	94.12	94.00	-0.12
% AT&C loss	34.80	31.02	-3.78	27.67	24.77	-2.90	24.82	23.70	-1.12	29.59	26.88	-2.71

Target for AT&C reduction for FY17 – JVVNL -25%, AVVNL – 22% and JdVVNL – 19%



Improvement over last year



Increase in AT&C loss

Promoting Public Private Partnership

Promoting Public Private Partnership

- ✓ **Distribution Franchise**

- Kota, Bhartpur, Bikaner city DF given to CESC
- Ajmer DF is given to Tata Power

- ✓ **Meter, Billing & Collection Model**

- Bhilwara city under bidding process, Finalised by Apr'17
- RFP for Jodhpur city to be done after Bhilwara

- ✓ **Management operator model**

- RFP developed to implement in Karauli district

- ✓ Target to finalise MBC/MO by May'17

Thank You

Activities for Loss Reduction

AT&C loss reduction strategy

Activity chart for improvement of the feeder (1/6)

Augmentation

1. Checking of maximum current on the feeder and action plan for suitable augmentation looking to the current carrying capacity of the conductor.
2. Checking of end point voltage regulation of the feeder and suitable augmentation strategy for improvement of VR.
3. Installation of GO switches at suitable locations on the 11KV feeders for isolation purposes to avoid shut down of entire 11KV feeder at a time.
4. Assessment of genuine load on the single phase transformers for augmentation of the capacity either by replacing it with higher capacity or by installation of additional transformer.

AT&C loss reduction strategy

Activity chart for improvement of the feeder (2/6)

Power factor improvement/ Checking of load

5. Checking of power factor on the feeder and action plan for the improvement of power factor.
6. For updation of connected load details of Ag. consumers, Load Survey/ checking of load must be done.

AT&C loss reduction strategy

Activity chart for improvement of the feeder (3/6)

Repair and maintenance of 1 Phase and 3 Phase Transformer

7. Replacement of welding broken/defective meter / 3 phase agriculture transformers by healthy transformer. Healthy transformer will have MCCB of suitable size, LPR meters with connections intact, capacitors and complete body welding of the cubical.
8. Replacement of single phase transformers without MCCB/welding broken by healthy single phase transformer which will have MCCB and robust welding body of the cubical.
9. Removal of GO & DO on the primary side of the 3 phase transformers and jumpering with the insulated cables from line direct to 11KV bushing.
10. Putting m-seal at the 11VK bushing on the open terminal connected with the jumpers.
11. Earthing of single phase transformers.
12. Installation of single phase transformers on the pole height.

AT&C loss reduction strategy

Activity chart for improvement of the feeder (4/6)

Repair and maintenance of AB cable

13. Putting m-seal on the connection points of service line and the ariel bunch cable.
14. Tightening of AB cable wherever necessary.

Repair and maintenance of service line

15. Repair of cable/cuts on the AB cables or replacement of the cable where it has become obsolete.
16. Tightening of loose service line wherever necessary.
17. Replacement of service line by armoured cable.
18. Release of service line connections through piercing connectors and to make it a practice.

AT&C loss reduction strategy

Activity chart for improvement of the feeder (5/6)

Installation of meter on self finance & Janta Jal 1 Phase Transformers

19. Installation of meters in the single phase transformers for self-finance schemes.
20. Installation of meters in the single phase transformers being used for Janta Jal Yojna.

Change of defective meters

21. Replacement of burnt/defective meters of other than Ag. Category.

AT&C loss reduction strategy

Activity chart for improvement of the feeder (6/6)

Providing of new connections

22. Release of genuine single phase domestic connections or other connections pending on the feeder in respect of Abadi area and Dhanies.

Others

23. Any other action as may be suggested by Feeder Managers for improving of the feeder and reduction of losses.

24. If domestic load is significantly higher as compared to Ag. Load on the feeder, separation of single phase domestic load be done.

Duties & Responsibilities of Feeder Incharge

फीडर इंचार्ज के कर्तव्य व जिम्मेदारियां

1. बाधित विद्युत आपूर्ति की शिकायतों का निवारण करना
2. विद्युत सम्बन्ध विच्छेद, नवीन कनेक्शन, मीटर परिवर्तन व जले हुए ट्रांसफॉर्मर बदलने के आदेशों की निर्धारित समयावधि में पालना कराना।
3. 11 केवी फीडर्स की फॉल्ट को दूर कर विद्युत प्रवाह बहाल करना।
4. मीटर रीडिंग, बिल वितरण एवं संग्रहण का कार्य कराना।
5. फीडर वार बाइन्डर का संधारण करना।
6. नवीन कनेक्शनों का तकमीना बनाना।
7. ट्रांसफॉर्मर के जलने व क्षतिग्रस्त होने की सूचना देना व रिपोर्ट बनाकर प्रस्तुत करना।

फीडर इंचार्ज के कर्तव्य व जिम्मेदारियां

8. विद्युत आपूर्ति बंद होने, ट्रांसफॉर्मर फेल होने व MCCB ट्रिप होने सम्बन्धि समस्याओं के लिए उपभोक्ता शिकायत रजिस्टर का संधारण करना।
9. आवश्यकतानुसार फीडर का शट डाउन लेना व वापिस करना।
10. निर्धारित आवश्यक रजिस्ट्रों का संधारण करना।
11. फीडर प्रबंधन समिति की मीटिंग माह में एक बार फीडर के किसी एक गांव में आयोजित करना।
12. फीडर से हटाये गये/स्क्रेप सामान को एकत्रित कर कार्यालय स्टोर में जमा करवाये।
13. फीडर पर विभिन्न कार्यों के लिए प्राप्त सामान का लेखा-जोखा रखना।

फीडर इंचार्ज के कर्तव्य व जिम्मेदारियां

14. फीडर को दुरुस्त व अच्छी स्थिति में रखना।
15. यदि कोई लूज लाईन हो तो, टाइट करना, टेढ़े पोल सीधा करना।
यदि किसी प्रकरण में कनिष्ठ अभियंता की मदद की आवश्यकता हो तो मदद प्राप्त कराना।
16. उपभोक्ता संतुष्टि के क्रम में यदि किसी प्रकार के सर्वे की आवश्यकता हो तो उसमें सहयोग करना।
17. सतर्कता जांच अधिकारियों के द्वारा की जाने वाली सतर्कता जांच कार्य में सहयोग करना।
18. उच्च अधिकारियों के द्वारा फीडर पर निरीक्षण दौरे के दौरान उनके साथ जाना।

फीडर इंचार्ज के कर्तव्य व जिम्मेदारियां

19. वितरण निगम के विभिन्न अभियानों का प्रचार-प्रसार करने के लिए पर्चे बांटना एवं जारी बिलों को सम्बंधित उपभोक्ताओं को वितरित करना
20. केबल में खुले बिन्दुओं की संख्या, केबल कट्स की संख्या, घरेलू कनेक्शनों में संभावित मीटर बाईपास प्रकरणों की संख्या, बिना MCCB व टूटी वेल्डिंग वाले ट्रांसफॉर्मरों की संख्या, कम ऊंचाई पर लगे 1-फेज ट्रांसफॉर्मर, बिना अर्थिंग वाले सिंगल फेज ट्रांसफॉर्मर, बन्द खराब सिंगल फेज व थ्री फेज मीटर्स की संख्या फेज स्प्लिटिंग करने वाले कृषि कनेक्शनों की संख्या की जानकारी करना, चिन्हित करना व उच्च अधिकारियों को सूचित करना।
21. बिन्दू सं. 20 के अनुसार ज्ञात कमियों को दुरुस्त करने हेतु सहयोग करना।

फीडर इंचार्ज के कर्तव्य व जिम्मेदारियां

22. समय-समय पर फीडर पर होने वाले कार्यों में सहयोग करना।
23. फीडर रजिस्टर में दर्ज सूचनाओं को प्रतिदिन दूरभाष पर कनिष्ठ अभियंताओं को सूचित करना।
24. अन्य कोई सूचना जो कि निगम प्रबंधन द्वारा या उसके उच्चाधिकारियों द्वारा चाही गयी हो, देना एवं मासिक सूचनाएं, प्रपत्र 2A, 2B व 2C में प्रस्तुत करना।
25. विद्युत चोरी रोकने के लिए सूचना देना।
26. फीडर का स्पष्ट नक्शा बनाना, जिसमें तीन फेज तथा सिंगल फेज ट्रांसफॉर्मर स्पष्ट रूप से दर्शाये गये हो तथा समय-समय पर उन नक्शों को अपडेट करना।

फीडर इंचार्ज के कर्तव्य व जिम्मेदारियां

२७. ठेकेदार के स्थान पर फीडर इंचार्ज के द्वारा निम्न कार्य कराने पर बस्त्व में निर्धारित दर का 50 प्रतिशत भुगतान फीडर इंचार्ज को किया जावेगा। इस में से आधी राशि कार्य करने पर व शेष राशि विद्युत छीजत कम होने पर दी जावेगी।

- मीटर परिवर्तन
- ट्रांसफॉर्मर परिवर्तन
- बिल की राशि का संग्रहण
- बिल वितरण
- मीटर रीडिंग
- नया कनेक्शन

नोट: जिन कार्यों को फीडर इंचार्ज स्वयं करने में सक्षम है वे स्वयं करेंगे, अन्य कार्यों के लिये कनिष्ठ अभियंता द्वारा अन्य उपलब्ध कर्मचारियों को कार्य हेतु उपलब्ध कराया जावेगा अथवा सहायक अभियंता द्वारा CLRC पर कार्यादेश अनुसार ठेकेदार से कार्य फीडर इंचार्ज की देख-रेख में कराया जावेगा।

Compliance Status of UDAY

Introduction

- ✓ UDAY Scheme notified by MoP, GoI on 20.11.2015 ;
- ✓ ***Objective of the scheme:*** To improve the operational and financial efficiency of the Power Distribution Companies (DISCOMs) to enable their financial turnaround;
- ✓ Operational improvement of the DISCOMs to be measured through:
 - Reduction in AT&C losses of the DISCOMs; and
 - Elimination of ACS- ARR gap
- ✓ The tripartite MOUs amongst ***State Government, each Rajasthan Discom and Government of India (GoI)*** signed on 27.01.2016;
- ✓ MoU stipulates the responsibilities of the three stakeholders viz. GoI, GoR and Discoms for achieving operational and financial milestones.

UDAY Scheme

✓ Financial restructuring

- Govt. has taken over Rs. 62,422 Cr. of Discoms Debt
 - Rs. 2700 Cr. prior to 30.09.15 in FY16
 - Rs. 37350 Cr. after 30.09.15 in FY16
 - Rs. 20,807 Cr. in Jun'16
 - Rs. 1564.87 Cr. in Feb'17
- Discoms bonds of Rs. 12368 Cr. issued to Banks
- Discoms to issue Bonds for remaining eligible loans of Rs. 4030 Cr and OFR of Rs. 8185 Cr
- Trust India and Axis Bank (JV) have been appointed as Merchant Bankers

Progress Under UDAY

Goal 1: AT& C Loss Reduction

Target:

- Target under UDAY by FY 18-19: 15%
- Target under UDAY for FY 16-17: 20%
- Actual AT&C loss for FY 15-16: 28.36%
- Target Revised to realistic values in Task Force for FY16-17: 22.16%

Measures Taken:

- Implement MMVSA in 3 phases to be completed by Dec'17; Aims to:
 - 24 x 7 uninterrupted and quality power supply
 - Improvement in consumer services
 - Electrical Safety
 - Reduction in AT&C Loss
- Involvement of public representative and local administration

Achievement:

- Reduction in AT&C loss levels by 2.91% up to Dec'16 Vis-a-Vis Last year
- Expected Reduction in AT&C losses: 5% by Dec'17

Goal 2: Eliminate ACS-ARR Gap by FY19

Target:

- Target of ACS-ARR Gap under UDAY for FY 16-17: Rs. 0.56 per unit
- Actual ACS-ARR Gap for FY 15-16: Rs. 2.36 per unit

Measures Taken:

- Tariff hike by 9.5% in Sept'16
- Interest burden reduced due to debt taken over by GoR under UDAY amounting to Rs. 62, 422 Cr (75% of Rs. 80,530 Cr.)
- Petition filed for FY 16-17 & FY 17-18 in Jan'17
- Promote Public Private Partnership

Achievement:

- ACS & ARR gap reduced to Rs. 0.90 per unit by Dec'16
- Interest burden reduced by Rs.1.04 per unit by Dec'16
- New Company, RUVNL is formed for effective management
- DF appointed in Kota, Bharatpur, Bikaner & Ajmer City

Goal 3: Metering at All Levels

Target:

- 100% feeder metering up to June'16
- DT level metering in RAPDRP towns (as per Discom's policy)
- AMR metering for high value consumers (LIP+MIP)

Measures Taken:

- Implement sub station improvement programme providing metering equipment at all 11kV feeders
- Providing DT Metering and AMR under RAPDRP-A

Achievement:

- 100% 11kV feeder metered
- 9149/22045 DT metered in Go-Live towns
- AMR metering provided to 12637/31136 high value consumers

Goal 4: Energy Audit

Target:

- 100% energy audit at 11kV feeders by Sept'16
- DT level energy audit in RAPDRP towns

Measures Taken:

- Energy audit through centralised billing system
- DT level energy audit through centralised billing system

Achievement:

- Energy audit started for all 11kV feeders w.e.f. Sept'16
- Validation is under process through feeder incharge appointed for each feeder
- Energy audit for 66% feeders validated, remaining to be validated by June'17
- Energy audit started for 9149 DT's in RAPDRP towns (under Validation)

Goal 5 : Connection to Un-connected Households

Target:

- 30 lac household by FY 19

Measures Taken:

- Regular monitoring under 24x7 Power for All Scheme
- 20.5 lac rural household covered under 12th Plan RGGVY and DDGUVY Schemes, remaining to be covered under State Plan

Achievement:

- 18.33 lacs households electrified in last 3 years
- 5.15 lacs (up to Jan'17) in current financial year

Goal 6: Demand Side Management

Target:

- Provide LED under DELP/UJALA Programme
- Consumer Awareness
- Replacing at least 10% existing agriculture pumps with energy efficient pumps by March'19

Measures Taken:

- Programme undertaken with EESL under DELP/UJALA
- Feeder Management Committee constituted at 11kV feeder level for consumer awareness & to support in implementation of Loss Reduction Programmes
- Bijli Chaupal conducted regularly on 2nd & 4th Saturday at sub-division level

Achievement:

- 1.26 Cr LED distributed under UJALA
- Replacement of 28 pump sets under pilot project
- DPR prepared by EESL for installation of 1 lac pump sets

Goal 7: Increase Employee Engagement

Target:

- Capacity Building of employees
- Devising KPIs
- Customer Service Strategy
- ERP Implementation

Measures Taken:

- Use of Centralised call centre has been popularised
- DPR for ERP submitted to PFC for sanction

Achievement:

- Various trainings conducted for capacity building of employees at senior level at corporate office and for subordinate staff at district level
- KPI's for O&M offices have been finalised and issued
- Average 1 lac complaints registered monthly and more than 97% resolved within time

Position of O/s Debt of the DISCOMs

Particular	JVVNL	AVVNL	JdVVNL	TOTAL
O/s debt as on 30.09.15	28056	26597	25877	80530
Add: Bonds issued under FRP 2012	855.60	1006.20	838.20	2700.00
50% debt to be taken over by GoR in FY 16	14455.98	13801.57	13357.41	41614.96
Less: Bonds taken over by GoR in May, 2016 under FRP	855.60	1006.20	838.20	2700.00
50% debt taken over in FY 2015-16	12914.87	12662.22	11772.68	37349.77
Balance 25% Debt taken over in FY 17 (June 2016)	7227.94	6900.73	6678.65	20807.32
Shortfall taken over by GoR in Feb'17	685.39	133.05	746.43	1564.87