

Dept.of Physics GOVT.DEGREE,COLLEGE,
RAJAMPET,ANNAMAYYA Dist.-516115.

BEST PRACTICE

SOLAR PANELS CLEANING PROGRAMME



7 Reasons Why Solar Panels Need to be Cleaned Regularly

1.Improve efficiency

There is no doubt that cleaning your panels will increase their overall efficiency. According to many statistical observations, this efficiency and performance improvement can be dramatic, up to 21% in residential arrays and up to 60% in commercial installations. So it's the best way to ensure that your panels are prepped for maximum efficiency. Regular cleaning can make a huge difference!

2. Warranty

Many solar panel installation companies as well as manufacturers have specified regular cleaning as a warranty condition. You may not be covered by the warranty if there is no proof of regular cleaning. That's why regular cleaning is recommended if you want to be on the safe side in case there is a malfunction at some point.

3. Rainwater doesn't do it for you

Most solar panel owners don't clean their panels after it rains because they think they don't need to because the rain water will do it for them. But that's not true. Similar to how you need to clean your car's windshield more often during the rainy season, your solar panels need to be cleaned more often as well. So, it is recommended that you don't rely on rain water to clean your panels automatically, because it just doesn't happen.

4. Increase durability

There are lots of soft grains of sand, dust particles, and debris in the environment. These will eventually build up and contribute to wear and tear when you don't clean your solar panels regularly. While it may not be obvious at first, over time your panels' efficiency will decrease and you also risk ending up having equipment that fails much sooner.

5. Aesthetic appeal

Nobody wants an aged-looking, dirt-covered panel adorning their rooftop. Similar to how important it is to clean the rest of your home, it is also essential to take proper care of your solar panels and clean them regularly. This kind of proper maintenance will make your home more aesthetically appealing to both you and your visitors.

6. Inspection

When you clean your solar panels, you get an opportunity to inspect them as well. Cleaning time is a perfect time to inspect and evaluate the condition of your panels.

7. Improve ROI time

Solar panels are not cheap, you spend a significant amount of money to have them installed in your home, so you want to ensure that you get ROI (return on investment) as soon as possible. If you don't clean your panels regularly, it can dent your ROI time. On the other hand, cleaning them improves their efficiency as more light reaches the cells, and you get improved ROI. In conclusion, cleaning your solar panels regularly does not take a lot of time and is very affordable, so make sure that you don't leave this important investment in your home grinning with dirt.

Objectives of the Practice:

- To reduce our college Electricity bill through proper cleaning of “ **SOLAR PANELS** ”.
- To reduce pollution and create a positive impact on environment.
To protect bio-diversity for the well-being of nature which helps people to lead a life that is healthy and serene.
- To protect environment and sustain its natural resources for present and future generation.

THE CONTEXT : As our college is located near by fly over so many dust and pollutants released by vehicles, these dust particles cover the surface of the SOLAR PANELS due to this the absorptive power of panel is reduced. The Dept. Of physics faculty members decided to clean the SOLAR PANELS every month with the help of students.

Actually in the month of **July 2023** our college Solar power System produced **167 units**, because so many dust particles and dry leaves are covered on the surface of the solar panels. The Dept. Of physics faculty members and students starting cleaning process first time on **7th AUGUST 2023** due to this cleaning of SOLAR PANELS the subsequent month our SOLAR SYSTEM produced **257 units**. Next month September our college solar system producing units decreased from **257 units** to **230 units** because of cleaning process is not conducted during the month. After 2 months Solar Panels are cleaned by the students on **13-10-2023** under the supervision of the physics Dept. Faculty members. Due to cleaning of solar panels the production units increased from **230 units** to **293 units**.

After 2½ months on **4th January 2024** Solar Panels cleaned by our students due to this the next month Production of SOLAR UNITS is increased from **200 units** to **413 units**.

Evidence of Success:





CALL 1912
CUSTOMER CARE 24/7
APSPDCL

Demand / Disconnection notice
 (As per APERC Reg No.5 of 2014)

CIRCLE KADAPA
 BILL DATE 03-08-23 11:36
 BILL NO: 2320204051136191123

NAME THE PRINCIPAL
 USC NO 2324401011136

Aadhar Number XXXXXXXXXX
 Mobile Number 85XXXX9106
 Social Category 0
 SECTION RAJAMPET SOUTH
 Bill Method Manual
 METER NO 16499238
 Meter Type SOLAR
 DTR Code 306311130025
 POS GENERAL PURPOSE
 CAT: L14 SUB CAT: 14 PH: 3
 CONTRACTED LOAD 12
 BILL PERIOD 03.08.23 03.07.23

MTR STATUS	PRESENT	PREVIOUS
KWH	77174	76191
KVAH	80848	79852
SOLAR	15905	15738
OLD MTR KWH		0
OLD MTR KVAH		0
BILLED UNITS	983.0/996.0	
AVERAGE UNITS	1871	
SOLAR UNITS	167.0	
NET UNITS :	816.0	
RECORDED M.D. :	9.0	MF: 1
MIN/ENERGY CHRG	5803.00	
FIXED CHARGES	900.00	
CUSTOMER CHARGES	45.00	
ELECTRICITY DUTY	49.74	
FPPCA(2021_07)	638.83	
FPPCA(2023_06)	684.00	
INTEREST ON ED	10.63	
SURCHARGE	2707.16	
OTHER CHARGES	150.00	
ADJUSTMENTS	0.00	
TrueUp Charges(13/36)	639.20	
AP GOVT SUBSIDY	0.00	
Loss/Gain (+ / -)	0.44	
BILL AMT	Rs. 11628.00	
ARREARS	19586.00	
TOTAL DUE	Rs. 207484.00	
AGL Demand	0.00	
ACD Amount	0.00	
Development Charges	0.00	
DUE DATE	18-Aug-2023	
DISCONNECTION DATE	04-Sep-2023	
LAST PAID : 25000 on 16-03-2023		
SD Available	11400.00	
AEE Contact	9440811967	
Make Digital Payment using Web/Mob		

CALL 1912
CUSTOMER CARE 24/7
APSPDCL

Demand / Disconnection notice
 (As per APERC Reg No.5 of 2014)

CIRCLE KADAPA
 BILL DATE 04-09-23 14:30
 BILL NO: 2320204051430531503

NAME THE PRINCIPAL
 USC NO 2324401011136

Aadhar Number XXXXXXXXXX
 Mobile Number 85XXXX9106
 Social Category 0
 SECTION RAJAMPET SOUTH
 Bill Method Manual
 METER NO 16499238
 Meter Type SOLAR
 DTR Code 306311130025
 POS GENERAL PURPOSE
 CAT: L14 SUB CAT: 14 PH: 3
 CONTRACTED LOAD 12
 BILL PERIOD 04.09.23 03.08.23

MTR STATUS	PRESENT	PREVIOUS
KWH	78435	77174
KVAH	82140	80848
SOLAR	16162	15905
OLD MTR KWH		0
OLD MTR KVAH		0
BILLED UNITS	1261.0/1292.0	
AVERAGE UNITS	1424	
SOLAR UNITS	257.0	
NET UNITS :	1064.0	
RECORDED M.D. :	14.0	MF: 1
MIN/ENERGY CHRG	7245.00	
FIXED CHARGES	1050.00	
CUSTOMER CHARGES	45.00	
ELECTRICITY DUTY	62.10	
FPPCA(2021_08)	774.81	
FPPCA(2023_07)	398.40	
INTEREST ON ED	9.91	
SURCHARGE	2353.09	
OTHER CHARGES	150.00	
ADJUSTMENTS	0.00	
TrueUp Charges(14/36)	639.20	
AP GOVT SUBSIDY	0.00	
Loss/Gain (+ / -)	0.49	
BILL AMT	Rs. 12728.00	
ARREARS	171177.00	
TOTAL DUE	Rs. 183905.00	
AGL Demand	0.00	
ACD Amount	0.00	
Development Charges	0.00	
DUE DATE	19-Sep-2023	
DISCONNECTION DATE	05-Oct-2023	
LAST PAID : 36307 on 31-07-2023		
SD Available	11400.00	
AEE Contact	9440811967	
Make Digital Payment using Web/Mob		

OCTOBER MONTH SOLAR PANELS CLEANING DATE :13-10-2023



55J2+8MC, Rajampet, Andhra Pradesh 516115, India

Rajampet
Andhra Pradesh
India

2023-10-13(Fri) 11:35(AM)

33°C
91°F



55J2+8MC, Rajampet, Andhra Pradesh 516115, India

Rajampet
Andhra Pradesh
India

2023-10-13(Fri) 11:31(AM)

33°C
91°F



55J2+8MC, Rajampet, Andhra Pradesh 516115, India

Rajampet
Andhra Pradesh
India

2023-10-13(Fri) 11:35(AM)

33°C
91°F



55J2+8MC, Rajampet, Andhra Pradesh 516115, India

Rajampet
Andhra Pradesh
India

2023-10-13(Fri) 11:35(AM)

33°C
91°F



55J2+8MC, Rajampet, Andhra Pradesh 516115, India

Rajampet
Andhra Pradesh
India

2023-10-13(Fri) 11:32(AM)

33°C
91°F



55J2+8MC, Rajampet, Andhra Pradesh 516115, India

Rajampet
Andhra Pradesh
India

2023-10-13(Fri) 11:34(AM)

33°C
91°F

SEPTEMBER MONTH SOLAR UNITS = 230 <-----> OCTOBER MONTH
SOLAR UNITS = 293

CALL 1912
CUSTOMER CARE 24/7
APSPDCL
Demand / Disconnection notice
(As per APERC Reg No.5 of 2004)
CIRCLE KADAPA
BILL DATE 03-10-23 12:43
BILL NO23201031012433811023
NAME THE PRINCIPAL
USC NO 2324401011136
Aadhar Number XXXXXXXXXXXX
Mobile Number 85XXXXX9106
Social Category 0
SECTION RAJAMPET SOUTH
Bill Method Manual
METER NO 16499238
Meter Type SOLAR
DTR Code 306311130025
POS GENERAL PURPOSE
CAT:LT4 SUB CAT:14 PH :3
CONTRACTED LOAD 12
BILL PERIOD 03.10.23 04.09.23
MTR STATUS PRESENT PREVIOUS
KWH 79511 78435
KVAH 83228 82140
SOLAR 16392 16162
OLD MTR KWH 0
OLD MTR KVAH 0
BILLED UNITS 1076.0/1088.0
AVERAGE UNITS 1333
SOLAR UNITS 230.0
NET UNITS : 846.0
RECORDED M.D : 11.0 MF :1
MIN/ENERGY CHRG 6006.00
FIXED CHARGES 900.00
CUSTOMER CHARGES 45.00
ELECTRICITY DUTY 51.48
FPPCA(2021_09) 714.73
FPPCA(2023_08) 516.80
INTEREST ON ED 10.61
SURCHARGE 2401.44
OTHER CHARGES 150.00
ADJUSTMENTS 0.00
TrueUp Charges(15/36) 639.20
AP GOVT SUBSIDY 0.00
Loss/Gain (+ / -) -0.26
BILL AMT Rs.11435.00
ARREARS 183905.00
TOTAL DUE Rs.195340.00
AGL Demand 0.00
ACD Amount 0.00
Development Charges 0.00
DUE DATE 18-Oct-2023
DISCONNECTION DATE 03-Nov-2023
LAST PAID :36307 on 31-07-2023
SD Available 11400.00
AEE Contact 9440811967
Make Digitalpayment using Web/Mob

CALL 1912
CUSTOMER CARE 24/7
APSPDCL
Demand / Disconnection notice
(As per APERC Reg No.5 of 2004)
CIRCLE KADAPA
BILL DATE 03-11-23 11:15
BILL NO23201031111150511123
NAME THE PRINCIPAL
USC NO 2324401011136
Aadhar Number XXXXXXXXXXXX
Mobile Number 85XXXXX9106
Social Category 0
SECTION RAJAMPET SOUTH
Bill Method Manual
METER NO 16499238
Meter Type SOLAR
DTR Code 306311130025
POS GENERAL PURPOSE
CAT:LT4 SUB CAT:14 PH :3
CONTRACTED LOAD 12
BILL PERIOD 03.11.23 05.10.23
MTR STATUS PRESENT PREVIOUS
KWH 80675 79511
KVAH 84414 83228
SOLAR 16685 16392
OLD MTR KWH 0
OLD MTR KVAH 0
BILLED UNITS 1164.0/1186.0
AVERAGE UNITS 1125
SOLAR UNITS 293.0
NET UNITS : 871.0
RECORDED M.D : 15.0 MF :1
MIN/ENERGY CHRG 6251.00
FIXED CHARGES 1125.00
CUSTOMER CHARGES 45.00
ELECTRICITY DUTY 53.58
FPPCA(2021_10) 622.80
FPPCA(2023_09) 435.20
INTEREST ON ED 12.13
SURCHARGE 2622.06
OTHER CHARGES 150.00
ADJUSTMENTS 0.00
TrueUp Charges(15/36) 639.20
AP GOVT SUBSIDY 0.00
Loss/Gain (+ / -) 0.03
BILL AMT Rs.11956.00
ARREARS 195340.00
TOTAL DUE Rs.207296.00
AGL Demand 0.00
ACD Amount 0.00
Development Charges 0.00
DUE DATE 18-Nov-2023
DISCONNECTION DATE 04-Dec-2023
LAST PAID :36307 on 31-07-2023
SD Available 11400.00
AEE Contact 9440811967
Make Digitalpayment using Web/Mob

JANUARY MONTH SOLAR PANELS CLEANING DATE:04-01-2024



3.1.24

CALL 1912
CUSTOMER CARE 24/7
APSPDCL
Demand / Disconnection notice
(As per APERC Reg No.5 of 2004)
CIRCLE KADAPA
BILL DATE 03-01-24 11:46
BILL NO:320203011146091124
NAME THE PRINCIPAL
USC NO 2324401011136
Author Number XXXXXXXXXX
Mobile Number 85XXXX9106
Social Category 0
SECTION RAJAMPET SOUTH
Bill Method Manual
METER NO 16499238
Meter Type SOLAR
DTR Code 306311130025
POS GENERAL PURPOSE
CAT:14 SUB CAT:14 PH:3
CONTRACTED LOAD 12
BILL PERIOD 03.01.24 06.12.23
PRESENT PREVIOUS
MTR STATUS 01 01
KWH 82999 82181
KVAH 86765 85935
SOLAR 17013 16813
OLD MTR KWH 0
OLD MTR KVAH 0
BILLED UNITS 818.0/830.0
AVERAGE UNITS 1265
SOLAR UNITS 200.0
NET UNITS : 618.0
RECORDED M.D : 5.0 MF:1
MIN/ENERGY CHRG 4410.00
FIXED CHARGES 900.00
CUSTOMER CHARGES 45.00
ELECTRICITY DUTY 37.80
FPPCA(2021_12) 486.00
FPPCA(2023_11) 557.20
INTEREST ON ED 14.45
SURCHARGE 2897.38
OTHER CHARGES 150.00
ADJUSTMENTS 0.00
TrueUp Charges(18/36) 639.20
AP GOVT SUBSIDY 0.00
Loss/Gain (+ / -) -0.03
BILL AMT Rs.10137.00
ARREARS 222415.00
TOTAL DUE Rs.232552.00
AGL Demand 0.00
ACD Amount 0.00
Development Charges 0.00
DUE DATE 18-Jan-2024
DISCONNECTION DATE 03-Feb-2024
LAST PAID :30302 on 31.07.2023
SD Available 11400.00
AEE Contact 9440811967
Make Disconnection using Web/Mob

CALL 1912
CUSTOMER CARE 24/7

APSPDCL

Demand / Disconnection notice
(As per APERC Reg No.5 of 2004)
CIRCLE KADAPA
BILL DATE 02-02-24 10:20
BILL NO2320202021020361224

NAME THE PRINCIPAL
USC NO 2324401011136
Aadhar Number XXXXXXXXXXXXX
Mobile Number 85XXXX9106
Social Catgeory 0
SECTION RAJAMPET SOUTH
Bill Method Manual
METER NO 16499238
Meter Type SOLAR
DTR Code 306311130025
POS GENERAL PURPOSE
CAT:LT4 SUB CAT:14 PH :3
CONTRACTED LOAD 12

BILL PERIOD 02.02.24 03.01.24

	PRESENT	PREVIOUS
MTR STATUS	01	01
KWH	83609	82999
KVAH	87393	88765
SOLAR	17426	17013
OLD MTR KWH		0
OLD MTR KVAH		0
BILLED UNITS	610.0/628.0	
AVERAGE UNITS		1179
SOLAR UNITS		413.0
NET UNITS :		197.0
RECORDED M.D :	8.0	MF :1
MIN/ENERGY CHRGs		1505.00
FIXED CHARGES		900.00
CUSTOMER CHARGES		45.00
ELECTRICITY DUTY		12.90
FPPCA(2022_01)		314.07
FPPCA(2023_12)		252.00
INTEREST ON ED		15.93
SURCHARGE		3063.89
OTHER CHARGES		150.00
ADJUSTMENTS		0.00
TrueUp Charges(19/36)		639.20
AP GOVT SUBSIDY		0.00
Loss/Gain (+ / -)		0.01

BILL AMT Rs.6898.00
ARREARS 232552.00

TOTAL DUE Rs.239450.00
AGL Demand 0.00
ACD Amount 0.00
Development Charges 0.00

DUE DATE 17-Feb-2024

DISCONNECTION DATE 04-Mar-2024

LAST PAID :36307 on 31-07-2023

SD Available 11400.00

AEE Contact 9440811967

Make Digitalpaymentusing Web/Mob
ileapp

Solar unit's = 413
confirmed unit's = 610
Net billed = 197
unit's

2-2-2024

DEC : 2023 SOLAR UNITS = 200 <-----> JAN : 2024 SOLAR UNITS = 413