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 2004)

CIRCLE KADAPA
BILL DATE 03-08-23 11:36
BILL NO. [illegible]

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 03.08.23 03.07.23

	PRESENT	PREVIOUS
MTR STATUS	01	01
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 CHRGS		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		195856.00
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 payments 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 04-09-23 14:30
BILL NO. [illegible]

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 04.09.23 03.08.23

	PRESENT	PREVIOUS
MTR STATUS	01	01
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 :		1034.0
RECORDED M.D :	14.0	MF :1
MIN/ENERGY CHRGS		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 payments using Web/Mob

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

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

ileapp

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 NO	232010310124338 11023
NAME	THE PRINCIPAL
USC NO	2324401011136
Aadhar Number	XXXXXXXXXXXX
Mobile Number	85XXXX9106
Social Catgeory	0
SECTION	RAJAMPET SOUTH
Bill Method	Manual
METER NO	16499238
Meter Type	SOLA
DTR Code	306311130025
POS	GENERAL PURPOSE
CAT:LT4 SUB CAT:14 PH :3	
CONTRACTED LOAD	12
BILL PERIOD	03.10.23 04.09.23

	PRESENT	PREVIOUS
MTR STATUS	01	01
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 CHRGS		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
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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 NO	232010311111150511123
NAME	THE PRINCIPAL
USC NO	2324401011136
Aadhar Number	XXXXXXXXXXXX
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	03.11.23 05.10.23

	PRESENT	PREVIOUS
MTR STATUS	01	01
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 CHRGS		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(16/36)		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
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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	2320203011146091124
NAME	THE PRINCIPAL
USC NO	2324401011136
Aadhar Number	XXXXXXXXXXXX
Mobile Number	8500009106
Social Catgeory	0
SECTION	RAJAMPET SOUTH
Bill Method	Manual
METER NO	16499238
Meter Type	SOLAR
DTR Code	306311130025
POS	GENERAL PURPOSE
CAT:I I4 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 CHRGS		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 :36307 on 31-07-2023		
SD Available		11400.00
AEE Contact		9440811967

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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 NO	23202020210203612 24
NAME	THE PRINCIPAL
USC NO	2324401011136
Aadhar Number	XXXXXXXXXXXX
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	86765
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/Mobileapp

solar unit's = 413

consumed units = 610

net billed units = 197

2-2-2024

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