RAYSTEEDS ENERGY

Delivering Excellence for Sustainable Future!

ROOFTOP SOLAR POWER PLANT ANALYTICS FOR UTTARAKHAND PROJECTS

Delivering Excellence for Sustainable Future!

www.raysteedsenergy.com

Raysteeds Energy's Diverse Solutions for a Sustainable Future

Rooftop Solar Power Plant Analysis for Uttarakhand projects

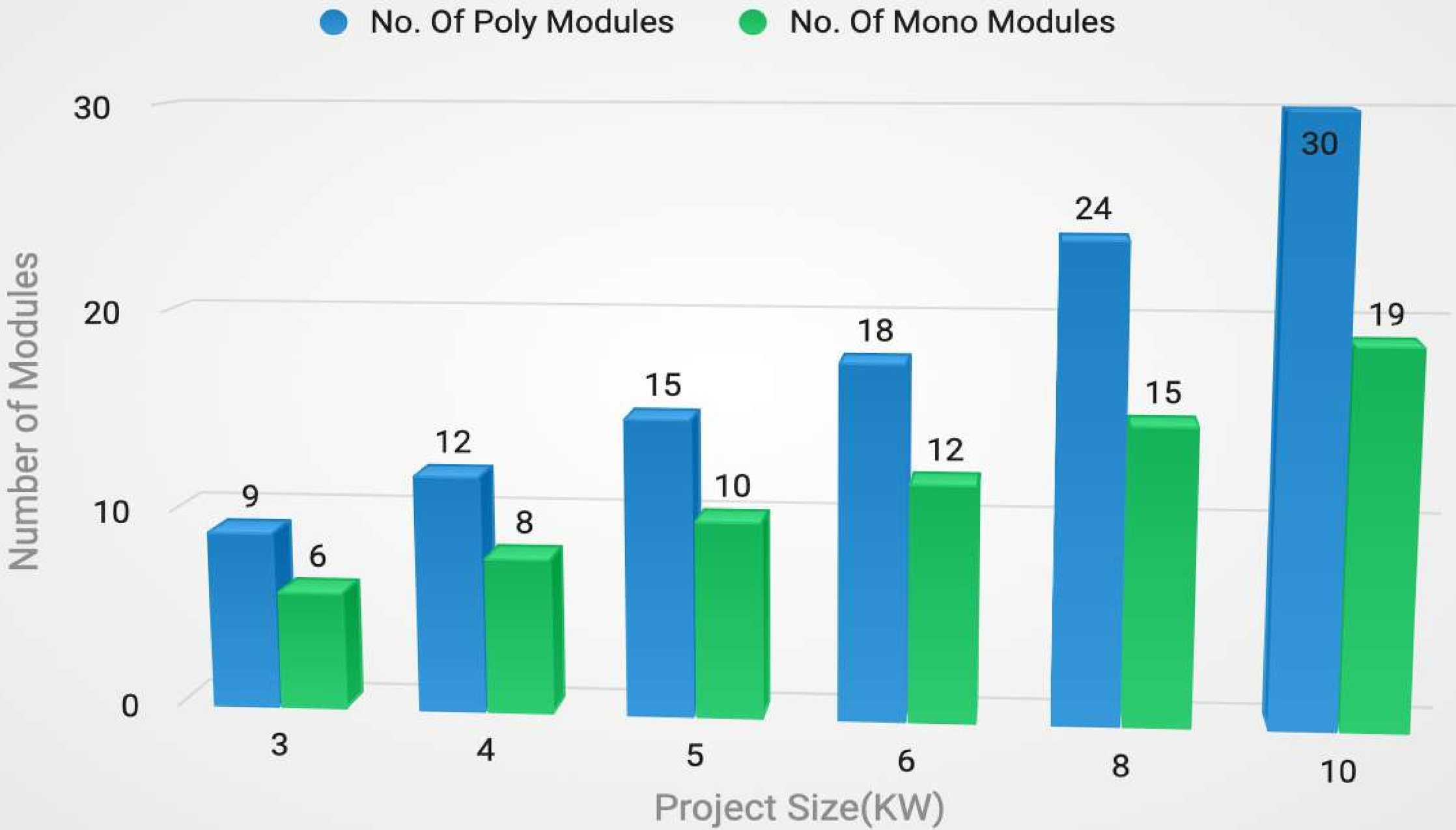
In this report, the data analysis has been conducted leveraging a comprehensive understanding and expertise in the field of renewable energy. Our extensive experience within the industry, encompassing the successful execution of numerous projects, forms the foundation of this analysis. Additionally, our insights are fortified by referencing pertinent data sheets, ensuring the reliability and accuracy of our findings.

In this report, we meticulously conducted a comprehensive comparison between the technologies of poly modules and mono modules. Additionally, we have undertaken thorough return on investment assessments to provide a well-rounded analysis.

Wondering How much space is required at Rooftop for Installing Rooftop Grid connected Solar Power Plant ?

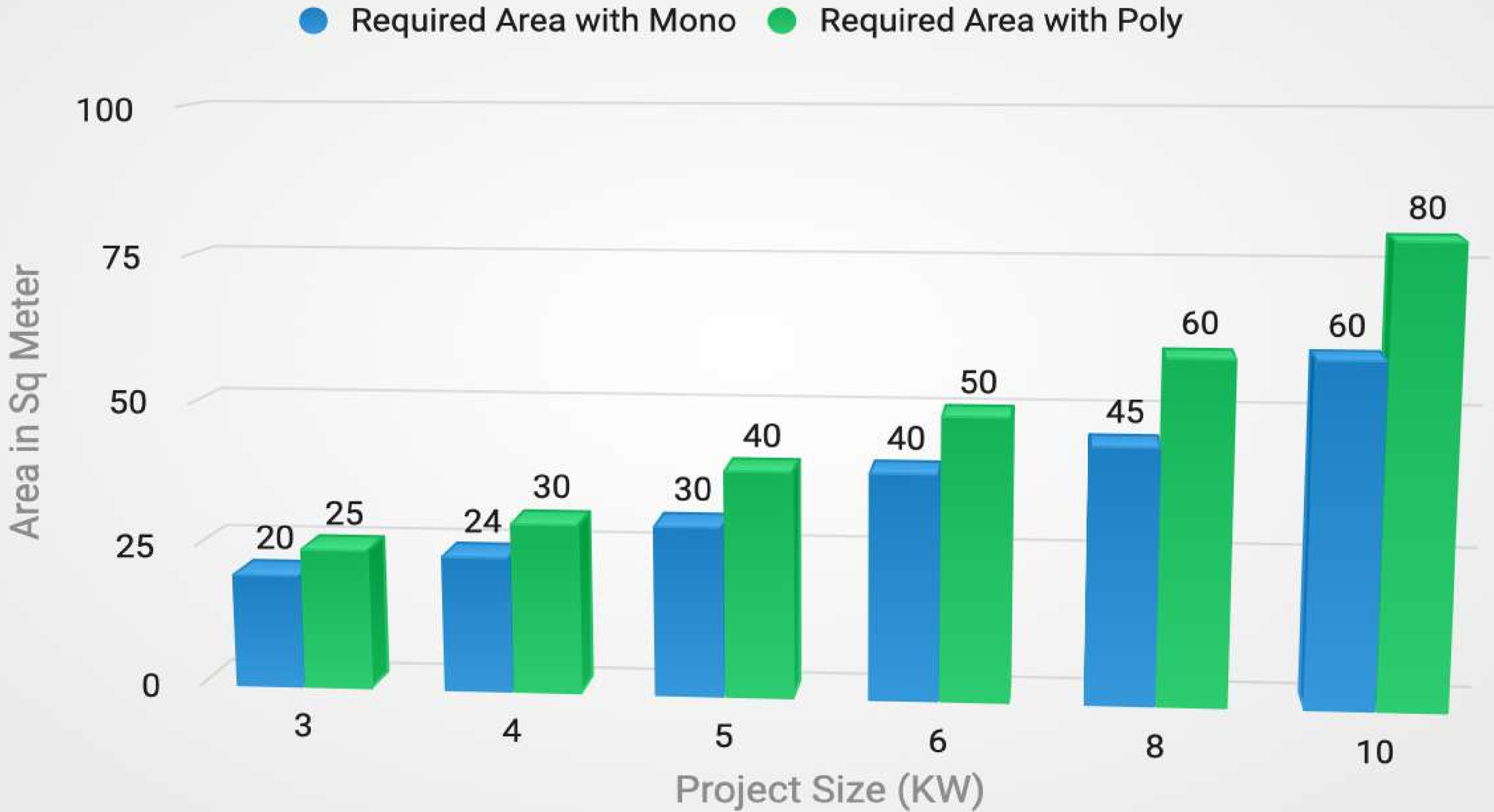
	Solar Plant with Poly 335 Watt			Solar Plant with Mono 535/540 Watt			
Project Size(KW)	No. Of Poly Modules	Required Area with Poly (Sqm)	Table Size Poly	No. Of Mono Modules	Required Area with Mono(Sqm)	Table Size Mono	% Area saving with Mono
3 KW	9	25	2X5	6	20	2X3	25.00%
4 KW	12	30	2X3 & 2X3	8	24	2X4	25.00%
5 KW	15	40	2X5 & 2X3	10	30	2X5	33.33%
6 KW	18	50	2X5 & 2X4	12	40	2X3 & 2X3	25.00%
8 KW	24	60	2X5 & 2X4 & 2X4	15	45	2X5 & 2X3	33.33%
10 KW	30	80	2X5 & 2X5 &2X5	19	60	2X5 & 2X5	33.33%

No. of Modules in Various Projects Size

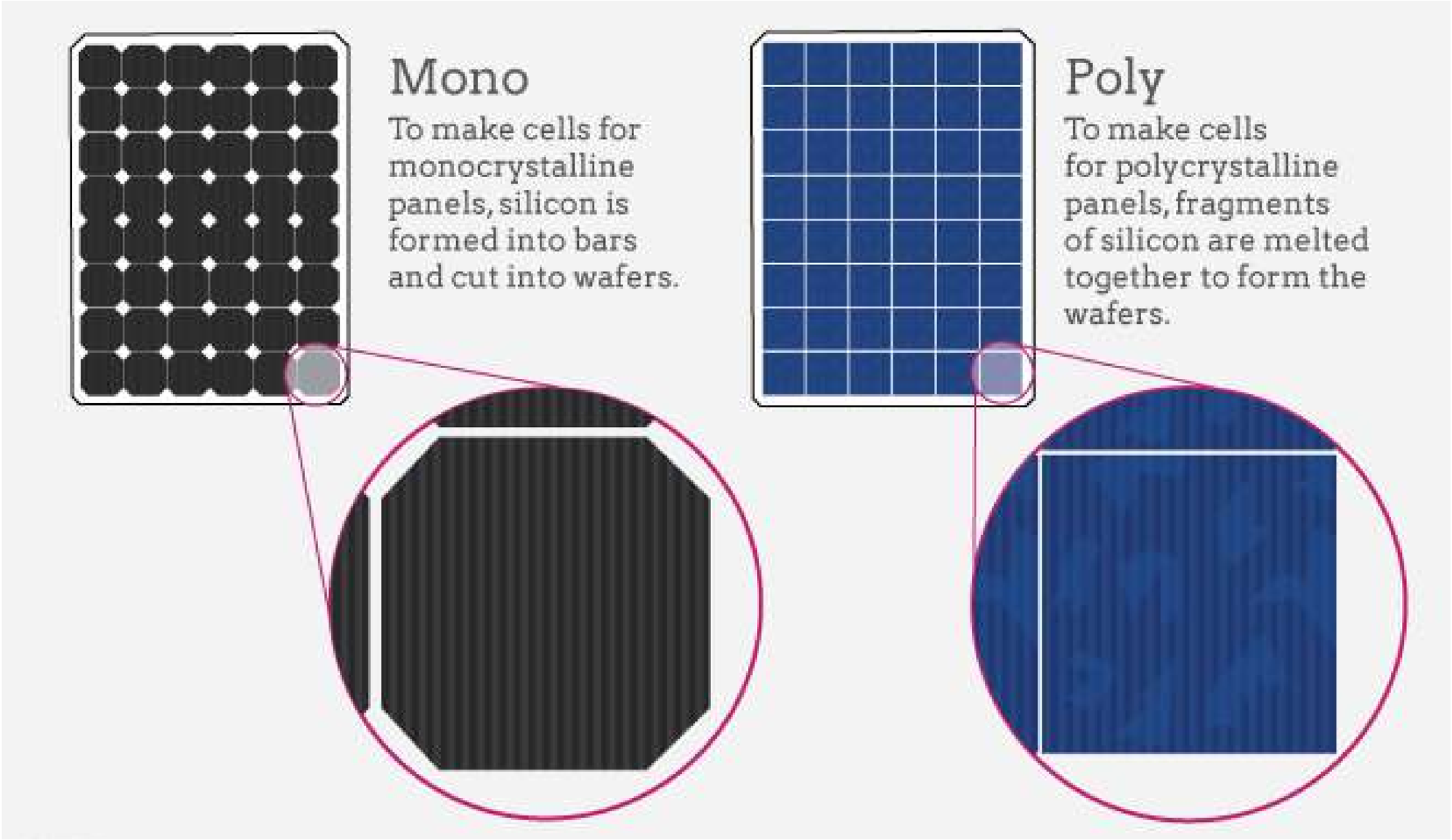


Rooftop space Requirement in Sq Meter

For Rooftop Solar Power Plant



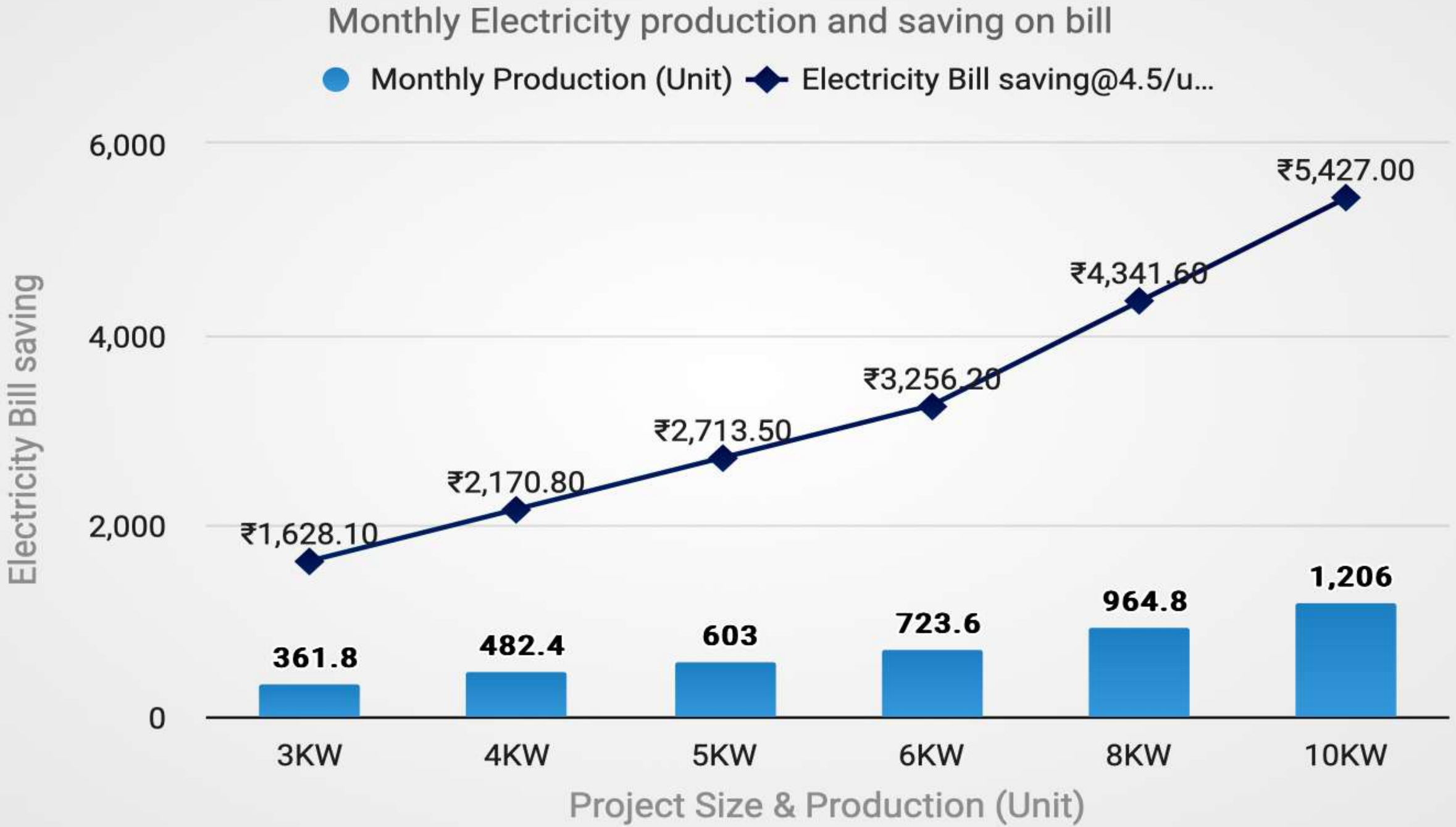
MONO-PERC & POLY CRYSTALLINE SOLAR MODULES



Wondering How much Electricity Production will happen and How much it saves on Electricity Bill with Poly Modules?

Project Size (Kilo Watt)	Number of Modules	Each Module Size(Watt)	Total DC Capacity(Watt)	Per Day Production. Assuming 4 unit per day per KW	Monthly Production (Unit)	Electricity Bill saving@ 4.5/unit	Avg generation of Total Project per Year	Annually Save Electricity Bill @4.5 (Assumed Avg Tariff rate)
3KW	9	335	3015	12.06	361.80	₹1,628.10	4341.60	₹19,537.20
4KW	12	335	4020	16.08	482.40	₹2,170.80	5788.80	₹26,049.60
5KW	15	335	5025	20.10	603.00	₹2,713.50	7236.00	₹32,562.00
6KW	18	335	6030	24.12	723.60	₹3,256.20	8683.20	₹39,074.40
8KW	24	335	8040	32.16	964.80	₹4,341.60	11577.60	₹52,099.20
10KW	30	335	10050	40.20	1206.00	₹5,427.00	14472.00	₹65,124.00

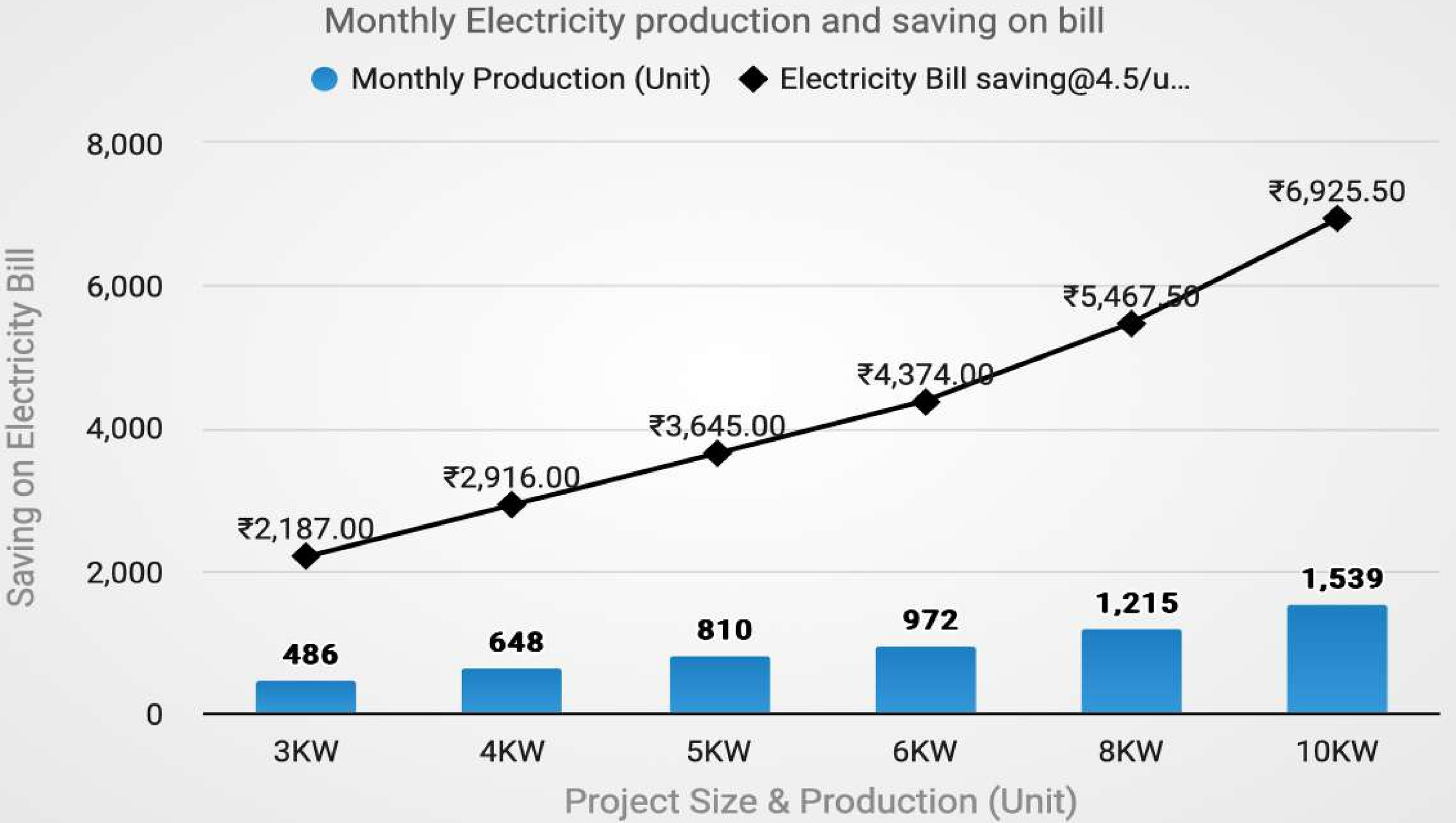
Production Analytics Monthly with Poly Modules



Wondering How much Electricity Production will happen and How much it saves on Electricity Bill with Mono Modules?

Project Size (Kilo Watt)	Number of Modules	Each Module Size(Watt)	Total DC Capacity(Watt)	Production Per day Assuming 5 unit per day per KW	Monthly Production (Unit)	Electricity Bill saving@4.5/unit	Avg generation of Total Project per Year	Annually Save Electricity Bill @4.5 (Assumed Avg Tariff rate)
3KW	6	540	3240	16.20	486.00	₹2,187.00	5832.00	₹26,244.00
4KW	8	540	4320	21.60	648.00	₹2,916.00	7776.00	₹34,992.00
5KW	10	540	5400	27.00	810.00	₹3,645.00	9720.00	₹43,740.00
6KW	12	540	6480	32.40	972.00	₹4,374.00	11664.00	₹52,488.00
8KW	15	540	8100	40.50	1215.00	₹5,467.50	14580.00	₹65,610.00
10KW	19	540	10260	51.30	1539.00	₹6,925.50	18468.00	₹83,106.00

Production Analytics Monthly with Mono Modules

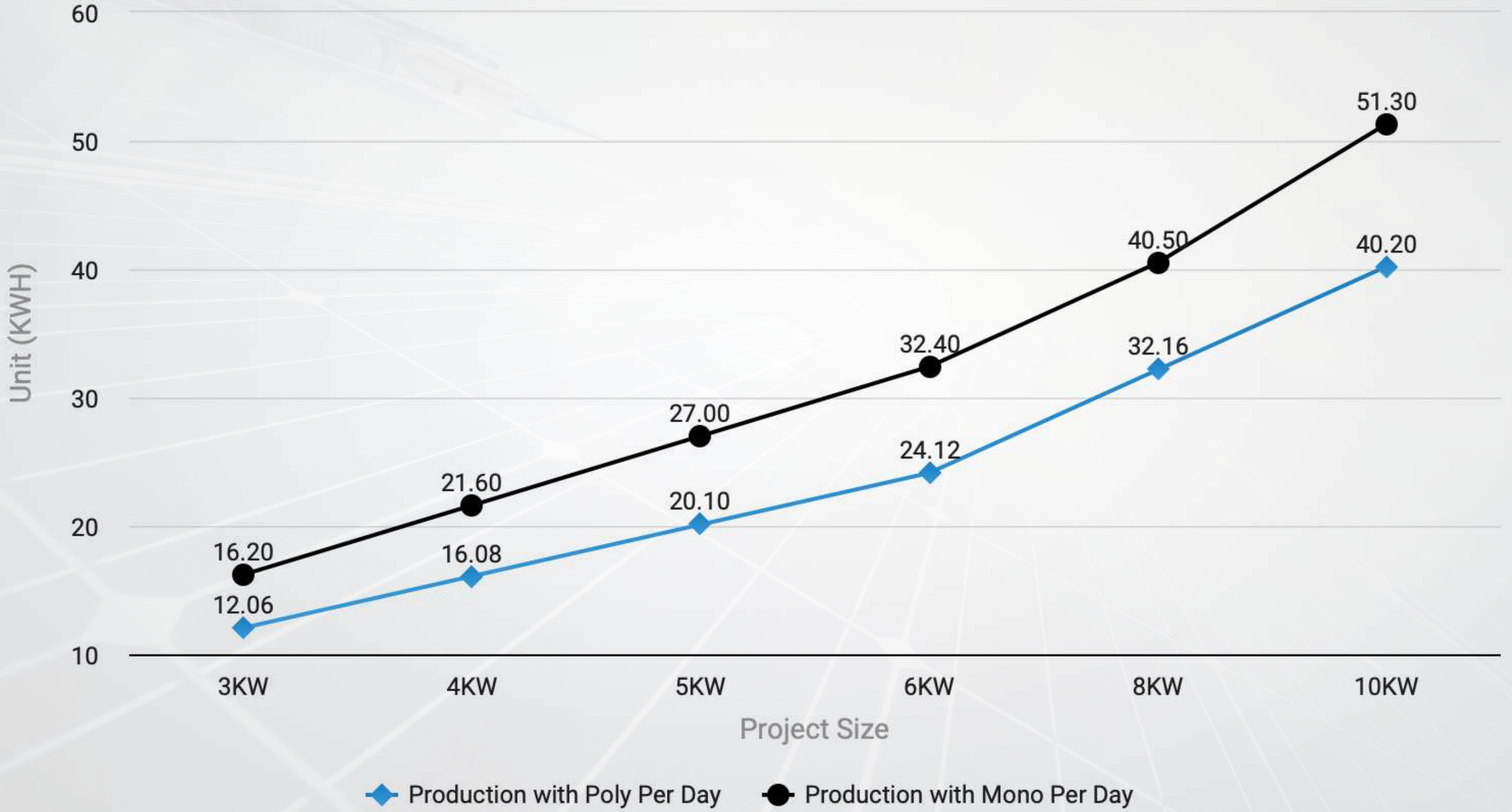


Comparision of Electricity Production with Mono Vs Poly Modules

	Poly 335 Watt (Assuming 4kwh/KW/Day					Mono 540 Watt (Assuming 5kwh/KW/Day)					
Project Size(KW)	No. Of Poly Modules	Poly Modules Size	Total DC Capacity with Poly	Daily Production	Monthly Production	**No. Of Mono Modules**	**Mono Module Size**	**Total DC Capacity with Mono**	**Daily Production**	**Monthly Production**	**Production differences**
3KW	9	335	3015	12.06	361.80	**6**	**540**	**3240.00**	**16.20**	**486.00**	**34.33%**
4KW	12	335	4020	16.08	482.40	**8**	**540**	**4320.00**	**21.60**	**648.00**	**34.33%**
5KW	15	335	5025	20.10	603.00	**10**	**540**	**5400.00**	**27.00**	**810.00**	**34.33%**
6KW	18	335	6030	24.12	723.60	**12**	**540**	**6480.00**	**32.40**	**972.00**	**34.33%**
8KW	24	335	8040	32.16	964.80	**15**	**540**	**8100.00**	**40.50**	**1215.00**	**25.93%**
10KW	30	335	10050	40.20	1206.00	**19**	**540**	**10260.00**	**51.30**	**1539.00**	**27.61%**

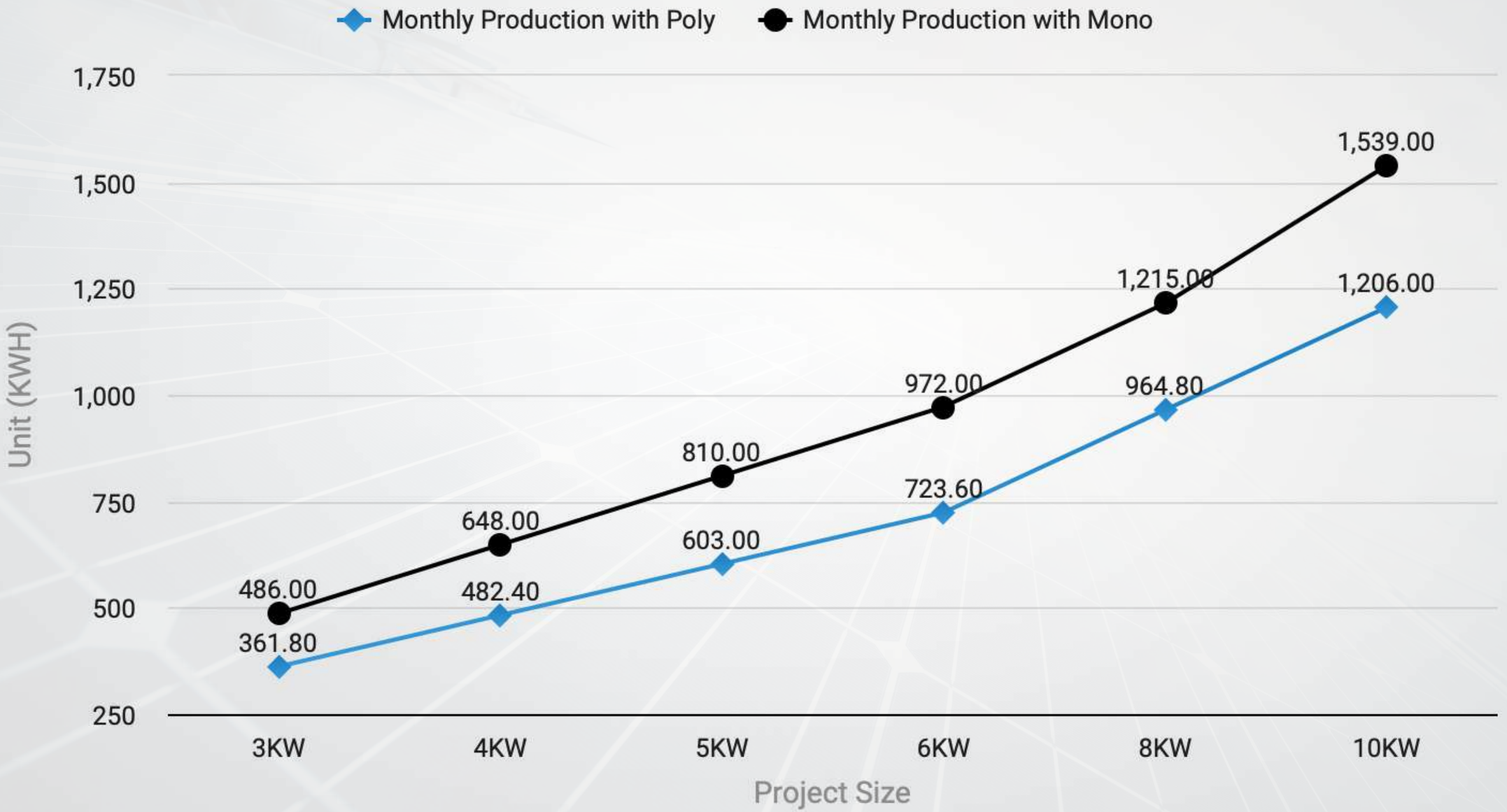
Per Day Production Comparision

Generation with Mono Vs Poly Modules with various projects size



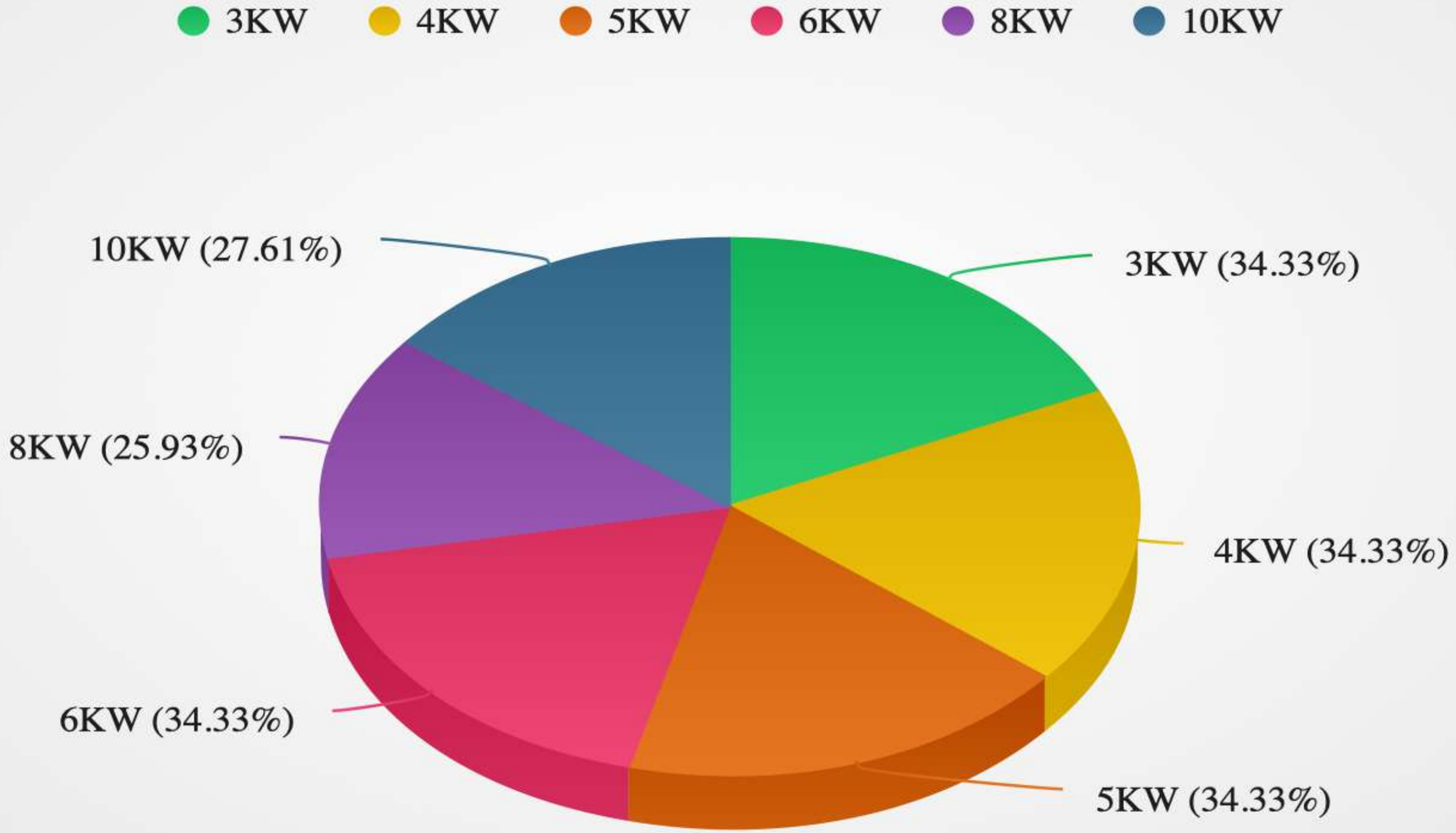
Per Month Production Comparision

Generation with Mono Vs Poly Modules with various projects size



Electricity Production différences

Mono Modules Generation Higher in percentage in comparison to Poly Modules for …



Raysteeds Energy's
Delivering Excellence for sustainable future

RETURN ON INVESTMENT

Return on Investment (ROI) is a crucial financial metric used to evaluate the profitability and efficiency of an investment, including solar rooftop projects.

Importance of ROI in Solar Rooftop Projects:

- **Financial Decision-Making**
- **Comparative Analysis**
- **Project Feasibility**
- **Payback Period**
- **Risk Assessment:**
- **Planning and Budgeting**
- **Long-Term Savings:**

UNDERSTANDING RETURN ON INVESTMENT FOR ROOFTOP SOLAR POWER PLANT WITH MONO PERC TECHNOLOGY

Project Size (Kilo Watt)	Project Cost(Including Everything)	Central Govt Incentives	State Govt Incentives	Net Project Cost	Data Assumption	
3KW	₹210,000.00	₹52,986.00	₹51,000.00	₹106,014.00	Energy Charges Tarrif Per Unit	4.5
4KW	₹262,670.00	₹61,817.00	₹51,000.00	₹149,853.00	Per Day Production (Average) in Unit	5
5KW	₹360,000.00	₹70,648.00	₹51,000.00	₹238,352.00	Days in a Month	30
6KW	₹405,000.00	₹79,479.00	₹51,000.00	₹274,521.00	Reduction of Co2 Emission Per KW (in KG)	0.8
8KW	₹517,505.00	₹97,141.00	₹51,000.00	₹369,364.00	Equivalent to Planting no. Of trees in 30 Year	500
10KW	₹625,000.00	₹114,803.00	₹51,000.00	₹459,197.00		

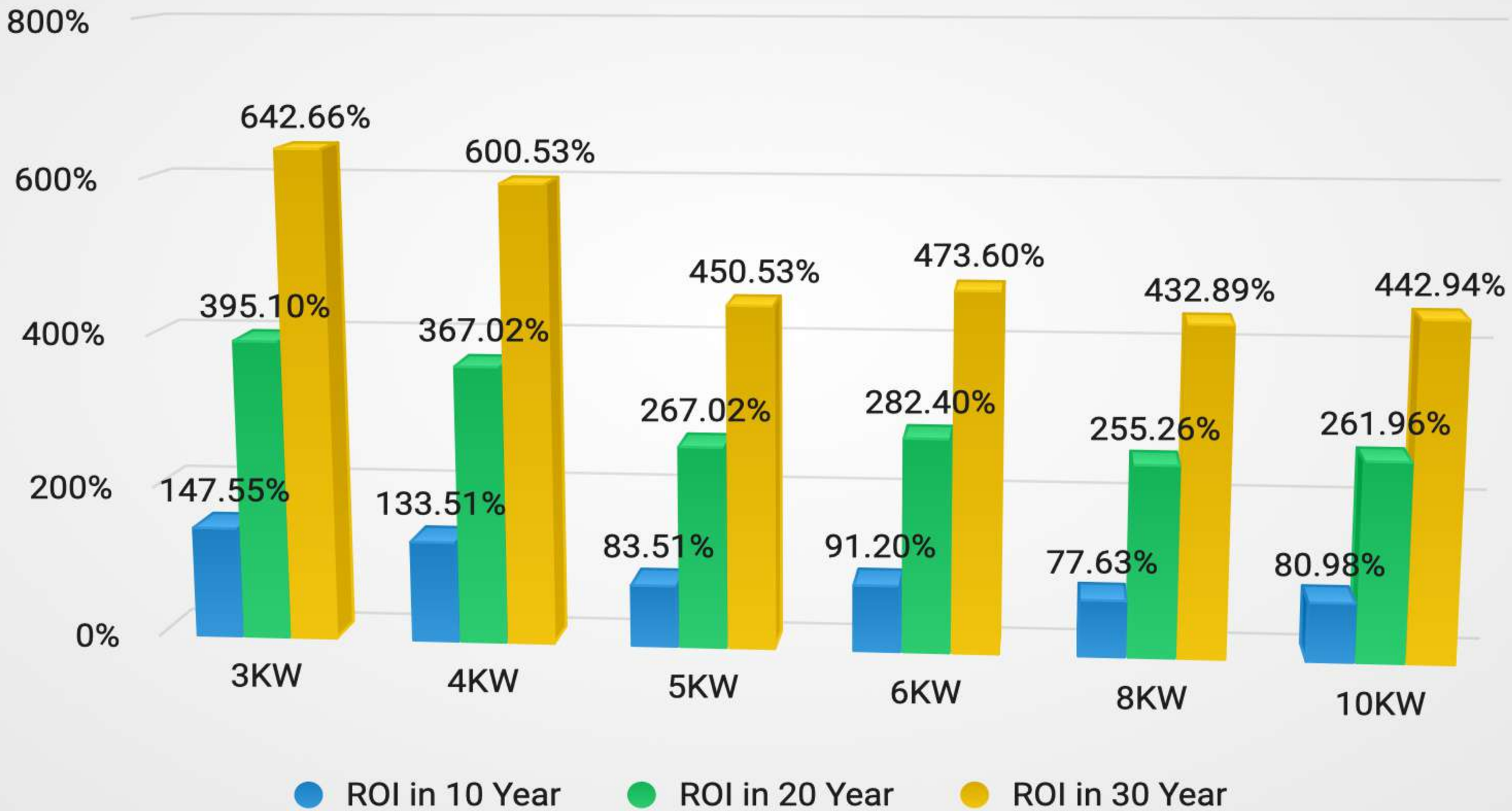
Project Size (Kilo Watt)	Module Size(Watt)	Number of Solar Modules	Total DC Capacity(Watt)	Per Day Production (Unit)	Monthly Production (Unit)	Monthly Energy Charges Saving
3KW	540	6	3240	16.20	486.00	₹2,187.00
4KW	540	8	4320	21.60	648.00	₹2,916.00
5KW	540	10	5400	27.00	810.00	₹3,645.00
6KW	540	12	6480	32.40	972.00	₹4,374.00
8KW	540	15	8100	40.50	1215.00	₹5,467.50
10KW	540	19	10260	51.30	1539.00	₹6,925.50

Project Size (Kilo Watt)	Annual Production (Unit)	Annual Energy Charges saving	Saving on Energy Charges in 5 Year	Saving on Energy Charges in 10 Year	Saving on Energy Charges in 20 Year	Saving on Energy Charges in 30 Year
3KW	5832.00	₹26,244.00	₹131,220.00	₹262,440.00	₹524,880.00	₹787,320.00
4KW	7776.00	₹34,992.00	₹174,960.00	₹349,920.00	₹699,840.00	₹1,049,760.00
5KW	9720.00	₹43,740.00	₹218,700.00	₹437,400.00	₹874,800.00	₹1,312,200.00
6KW	11664.00	₹52,488.00	₹262,440.00	₹524,880.00	₹1,049,760.00	₹1,574,640.00
8KW	14580.00	₹65,610.00	₹328,050.00	₹656,100.00	₹1,312,200.00	₹1,968,300.00
10KW	18468.00	₹83,106.00	₹415,530.00	₹831,060.00	₹1,662,120.00	₹2,493,180.00
Project Size (Kilo Watt)	Investment Payback Tenure in Years	Return on Investment in 10 Year	Return on Investment in 20 Year	Return on Investment in 30 Year	Reduction of Co2 Emission Per KW (in KG)	Equivalent to Planting no. Of trees in 30 Year
3KW	4.04	147.55%	395.10%	642.66%	2.59	1620
4KW	4.28	133.51%	367.02%	600.53%	3.46	2160
5KW	5.45	83.51%	267.02%	450.53%	4.32	2700
6KW	5.23	91.20%	282.40%	473.60%	5.18	3240
8KW	5.63	77.63%	255.26%	432.89%	6.48	4050
10KW	5.53	80.98%	261.96%	442.94%	8.21	5130

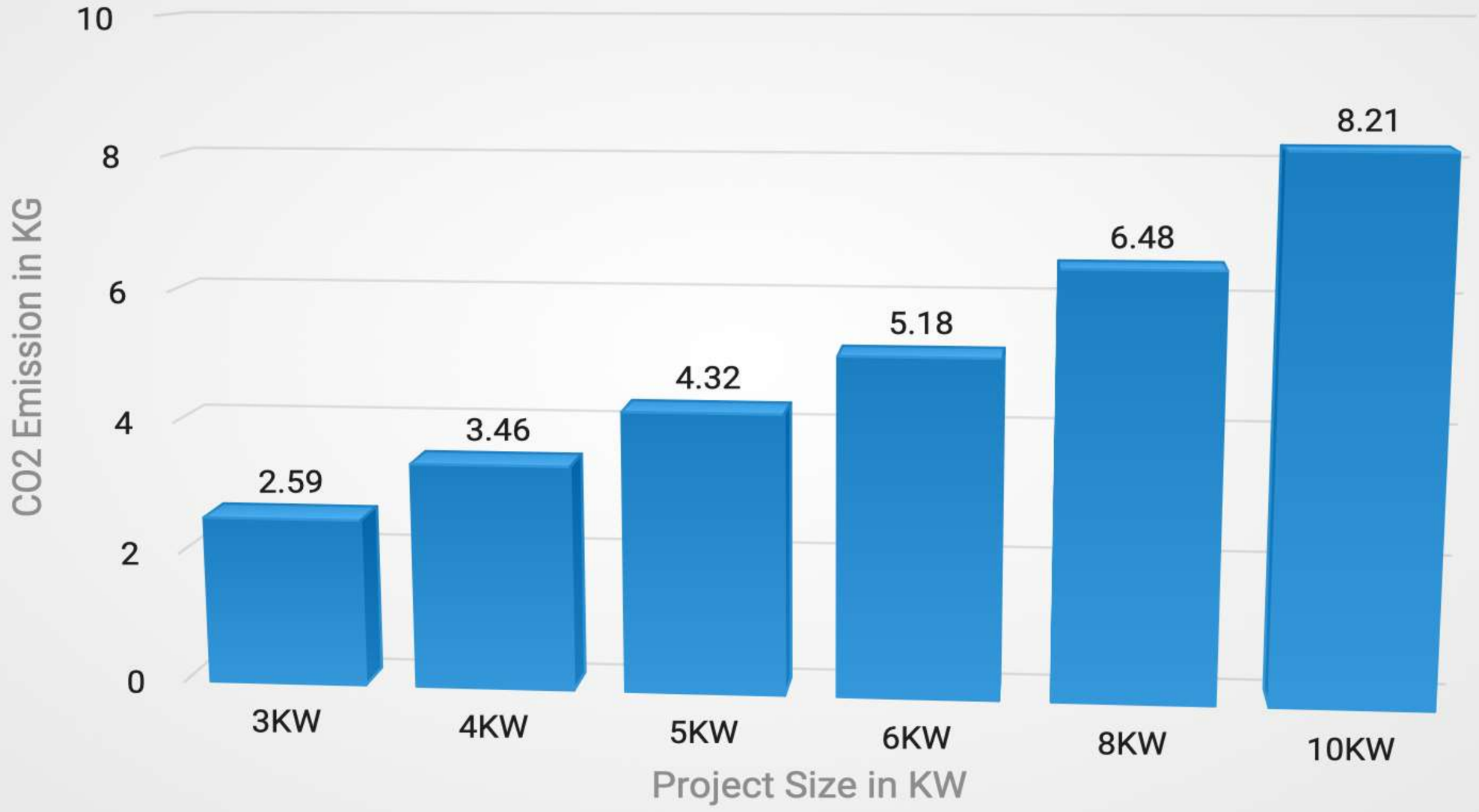
Investment Payback Tenure in Years

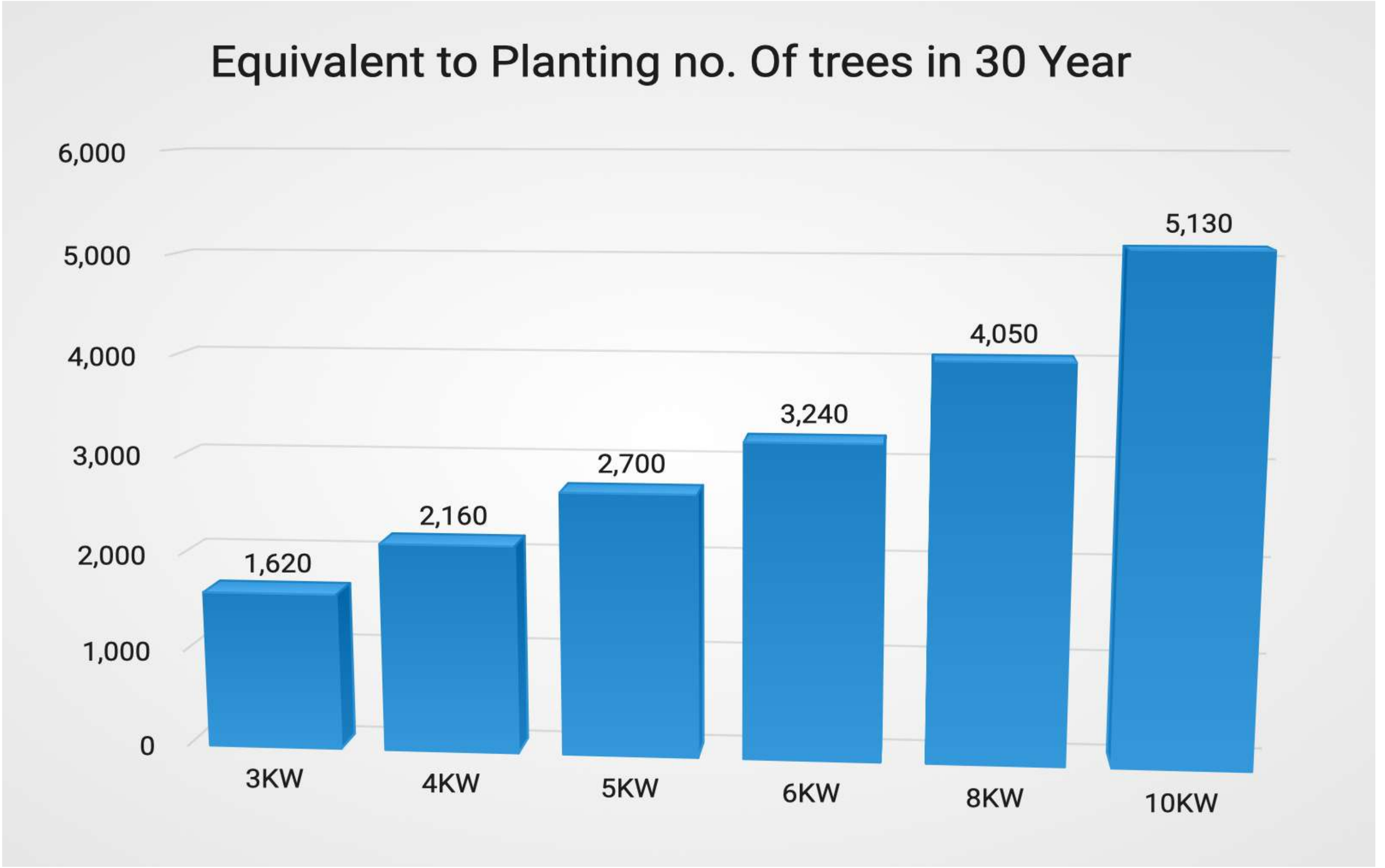
RETURN ON INVESTMENT OVER THE TIME

ROI on Rooftop Solar Power Plant with Monoperc Modules



Reduction of Co2 Emission Per KW (in KG)




Equivalent to Planting no. Of trees in 30 Year
6,000
5,000
4,000
3,000
2,000
1,000
0
1,620
2,160
2,700
3,240
4,050
5,130
3KW
4KW
5KW
6KW
8KW
10KW

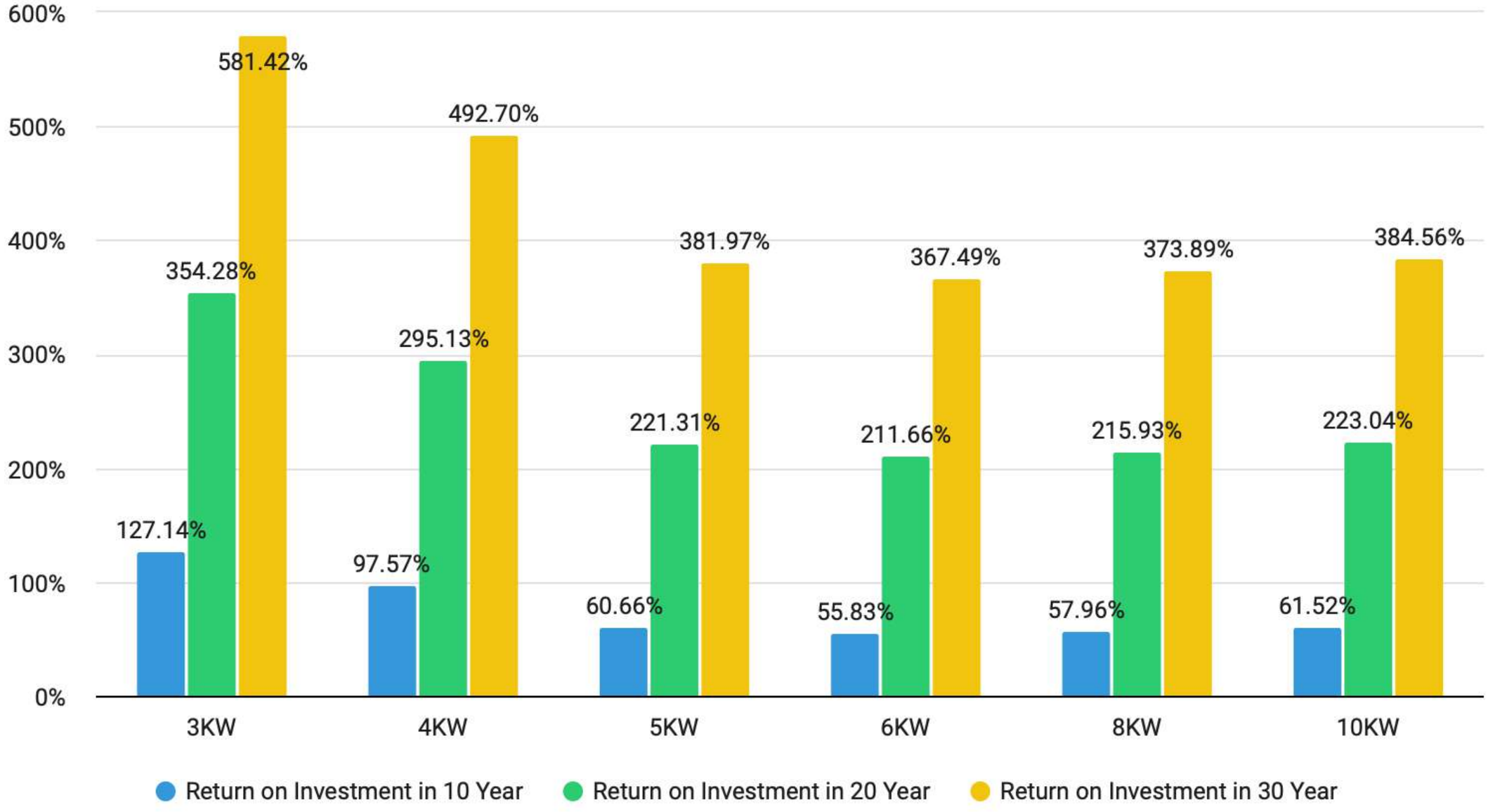
UNDERSTANDING RETURN ON INVESTMENT FOR ROOFTOP SOLAR POWER PLANT WITH POLY MODULES TECHNOLOGY						
Project Size (Kilo Watt)	Project Cost(Including Everything)	Central Govt Incentives	State Govt Incentives	Net Project Cost	Data Assumption	
3KW	₹190,000.00	₹52,986.00	₹51,000.00	₹86,014.00	Energy Charges Tarrif Per Unit	4.5
4KW	₹244,670.00	₹61,817.00	₹51,000.00	₹131,853.00	Per Day Production (Average) in Unit	4
5KW	₹324,330.00	₹70,648.00	₹51,000.00	₹202,682.00	Days in a Month	30
6KW	₹381,230.00	₹79,479.00	₹51,000.00	₹250,751.00	Reduction of Co2 Emission Per KW (in KG)	0.8
8KW	₹477,960.00	₹97,141.00	₹51,000.00	₹329,819.00	Equivalent to Planting no. Of trees in 30 Year	500
10KW	₹569,000.00	₹114,803.00	₹51,000.00	₹403,197.00		
Project Size (Kilo Watt)	Module Size(Watt)	Number of Solar Modules	Total DC Capacity(Watt)	Per Day Production (Unit)	Monthly Production (Unit)	Monthly Energy Charges Saving
3KW	335	9	3015	12.06	361.80	₹1,628.10
4KW	335	12	4020	16.08	482.40	₹2,170.80
5KW	335	15	5025	20.10	603.00	₹2,713.50
6KW	335	18	6030	24.12	723.60	₹3,256.20
8KW	335	24	8040	32.16	964.80	₹4,341.60
10KW	335	30	10050	40.20	1206.00	₹5,427.00

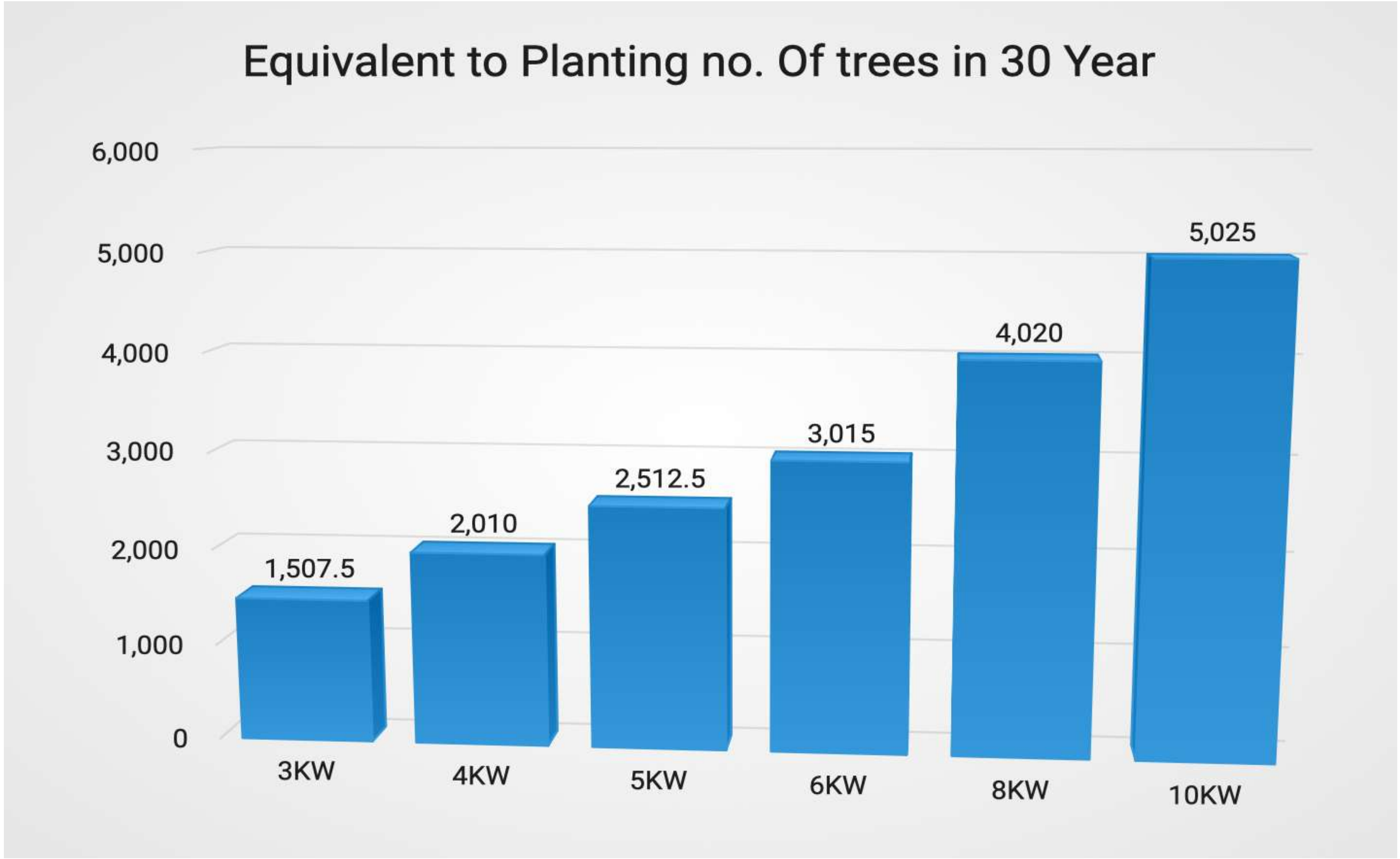
Project Size (Kilo Watt)	Annual Production (Unit)	Annual Energy Charges saving	Saving on Energy Charges in 5 Year	Saving on Energy Charges in 10 Year	Saving on Energy Charges in 20 Year	Saving on Energy Charges in 30 Year
3KW	4341.60	₹19,537.20	₹97,686.00	₹195,372.00	₹390,744.00	₹586,116.00
4KW	5788.80	₹26,049.60	₹130,248.00	₹260,496.00	₹520,992.00	₹781,488.00
5KW	7236.00	₹32,562.00	₹162,810.00	₹325,620.00	₹651,240.00	₹976,860.00
6KW	8683.20	₹39,074.40	₹195,372.00	₹390,744.00	₹781,488.00	₹1,172,232.00
8KW	11577.60	₹52,099.20	₹260,496.00	₹520,992.00	₹1,041,984.00	₹1,562,976.00
10KW	14472.00	₹65,124.00	₹325,620.00	₹651,240.00	₹1,302,480.00	₹1,953,720.00
Project Size (Kilo Watt)	Investment Payback Tenure in Years	Return on Investment in 10 Year	Return on Investment in 20 Year	Return on Investment in 30 Year	Reduction of Co2 Emission Per KW (in KG)	Equivalent to Planting no. Of trees in 30 Year
3KW	4.40	127.14%	354.28%	581.42%	2.41	1507.5
4KW	5.06	97.57%	295.13%	492.70%	3.22	2010
5KW	6.22	60.66%	221.31%	381.97%	4.02	2512.5
6KW	6.42	55.83%	211.66%	367.49%	4.82	3015
8KW	6.33	57.96%	215.93%	373.89%	6.43	4020
10KW	6.19	61.52%	223.04%	384.56%	8.04	5025

Investment Payback Tenure in Years

RETURN ON INVESTMENT OVER THE TIME

ROI with Rooftop solar Power plant with Poly Modules




Equivalent to Planting no. Of trees in 30 Year
6,000
5,000
4,000
3,000
2,000
1,000
0
1,507.5
2,010
2,512.5
3,015
4,020
5,025
3KW
4KW
5KW
6KW
8KW
10KW

Reduction of Co2 Emission Per KW (in KG)

The sun's power brings happiness!

Contact Us

+91-7830777735

+91-7830777735

info@raysteedsenergy.com

raysteedsenergy@gmail.com

https://www.facebook.com/raysteedsenergy

https://www.linkedin.com/company/raysteedsenergy

https://www.instagram.com/raysteeds_energy

https://www.indiamart.com/raysteedsenergy

Corporate Office: Dehradun, Uttarakhand

https://www.raysteedsenergy.com