

System 25Y Cashflow Template

General Template Instructions

This template is intended to guide Developers in including all minimum System 25Y cashflow analysis requirements in Contract with Applicant.

Cashflow must be signed by Applicant Authorized Representative

Developers may choose to conduct a separate cashflow analysis, but must provide transparency in assumptions utilized, including explanations for Applicant.

(1) Financial Modeling Inputs / Brief Justification: Edit the modeling input values and brief justifications as necessary, including the expanded justifications (text populated as examples and guidance).

(2) 25Y System Production and Electric Rate Savings: DO NOT MANUALLY EDIT Table will autopopulate based on values input into the red highlighted cells in (1); cells are all protected . Add details in 'Additional Notes' box as necessary.

(3) Expenses and Income / Savings: Items listed in these tables serve as examples; Developers should edit existing items, add new ones, and delete N/A ones (but keep items with a \$0 value where relevant). Expenses must list values prior to incentives/grants (included in the Income/Savings table). **DO NOT EDIT: Total Expenses, Total Income/Savings, System 25Y Cashflow, and Electric Savings cells.** They will autopopulate (cells are protected).

Questions on how to complete should be directed to SolarForSchools@state.mn.us.

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Financial Modeling Inputs		Brief Justification
Snow Loss	5%	Snow Loss Expected Using NREL Research
Total Losses	18.37%	Using PVwatts base loss assumptions, increasing for snow loss above
Y1 Production (kWh)	125,785	Using PVwatts (or other modeling program) at install site, with above losses for system size
DC to AC ratio	1.200	100kWdc / 83kWac
Y1 Electric Rate	0.0500	Calculated from Applicant electric utility bill (less demand charges)
Degradation	0.50%	NREL research on median rates / this rate sourced from module spec sheet
Rate Escalator	2.00%	Range of 2-3% is solar industry standard. Detail justification for selected value below with utility / other input.
Solar ITC % To School	30.00%	If value other than 30%, provide justification below.
Values and Input Expanded Explanations and Justifications:		
<p>To model energy production, and obtain Y1 Energy Production, Developer used PVWatts software, which estimates System annual energy production using site-specific historical solar resource data; actual energy production will vary year to year. Modeling inputs used in PVWatts include snow losses, shade losses, total losses, and DC to AC ratio, detailed and justified above.</p> <p>Each year, the energy production is decreased by Degradation Rate. Electric Rate is Applicant's specific utility \$/kWh charge; it <u>doesn't</u> include demand charge savings. While demand charge savings are likely in some capacity, they aren't guaranteed. Each year's Electric Rate beyond Y1 is increased by the Rate Escalator. Multiplying each year's production by its Electric Rate gives that year's Electric Savings value. Totalling all 25 years, gives the \$106,590 25Y Electric Savings.</p>		
<p>Inverter replacement cost is an estimate value based on market pricing.</p>		
<p>O&M Costs Y1 O&M provided by Developer at no cost. For Y2-Y25, Applicant has indicated they will take over System O&M through Facilities team at no additional cost to them. Applicant declined Developer O&M contract that would have been \$5,000/year.</p>		
<p>Rate Escalator range of 2-3% is solar industry standard. Electric utility declined to provide historical/anticipated future rate increase average percentage. For valuing future electricity production of the solar PV system, an escalator rate assumption of 2% was decided upon because it represents the conservative end of the industry average.</p>		
<p>Removal and Recycling costs totalling \$21,000 are based on current costs of recycling of \$20/panel (which includes transportation fees). These values, especially the recycling cost, will likely change by the end of the System's life, as the recycling market in MN and the USA expands. Applicant will be fully responsible for end of life removal and recycling costs.</p>		
<p>Nonprofits (including schools) are now eligible for the Solar ITC valued at 30% of the cost of the system. Reason school is not pursuing ITC [if applicable]: _____ . Value of \$0 or 0% of ITC being signed over to Developer (listed in Expenses table).</p>		

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25Y System Production and Electric Rate Savings	Year	System Production (kWh)	Electric Rate (per kWh)	Electric Savings
	1	125785.00	\$ 0.0500	\$6,289.25
	2	125156.08	\$ 0.0510	\$6,382.96
	3	124530.29	\$ 0.0520	\$6,478.07
	4	123907.64	\$ 0.0531	\$6,574.59
	5	123288.10	\$ 0.0541	\$6,672.55
	6	122671.66	\$ 0.0552	\$6,771.97
	7	122058.31	\$ 0.0563	\$6,872.87
	8	121448.01	\$ 0.0574	\$6,975.28
	9	120840.77	\$ 0.0586	\$7,079.21
	10	120236.57	\$ 0.0598	\$7,184.69
	11	119635.39	\$ 0.0609	\$7,291.74
	12	119037.21	\$ 0.0622	\$7,400.39
	13	118442.02	\$ 0.0634	\$7,510.66
	14	117849.81	\$ 0.0647	\$7,622.57
	15	117260.57	\$ 0.0660	\$7,736.14
	16	116674.26	\$ 0.0673	\$7,851.41
	17	116090.89	\$ 0.0686	\$7,968.40
	18	115510.44	\$ 0.0700	\$8,087.12
	19	114932.88	\$ 0.0714	\$8,207.62
	20	114358.22	\$ 0.0728	\$8,329.92
	21	113786.43	\$ 0.0743	\$8,454.03
	22	113217.50	\$ 0.0758	\$8,580.00
	23	112651.41	\$ 0.0773	\$8,707.84
	24	112088.15	\$ 0.0788	\$8,837.59
	25	111527.71	\$ 0.0804	\$8,969.27
Cumulative	2,962,985		\$188,836	



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Expenses:	Item	Details/Notes	Value (\$)
	School Install Cost	Directly Purchased by School	\$200,000
	Replace Inverters	Estimate	\$6,000
	O&M Y1	1Y O&M provided by Developer	\$0
	O&M Y2 - Y25	School Facilities Conducting own O&M	\$0
	PPA Payments (total)	N/A	\$0
	Removal/Recycling	Estimate of Future Costs	\$6,500
	Solar ITC Loss	Value of ITC Going to Developer	\$0
Total Applicant 25Y Expenses			\$212,500

Income/ Savings	Item	Details	Value (\$)
	Solar for Schools	Grant	\$150,000
	Rent Income	N/A	\$0
	Solar ITC	Estimated Federal Tax Credit	\$60,000
	Other	N/A	\$0
	Utility XXXX Incentive	N/A	\$0
	Electric Savings	Savings	\$188,836
Total Applicant 25Y Income/Savings			\$398,836

System 25Y Cashflow	\$186,336
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X _____

School Authorized Representative Name

Title

As Applicant Authorized Representative, my signature signifies comprehension of this analysis, an understanding that *System 25Y Cashflow* represents a potential 25Y System cashflow as designed, and indicates Applicant's authorization in moving forward with the System as designed.