

3. Solar Study

Background

High level solar analysis

In Progress

- Preliminary Solar Site Selection
- Preliminary Cash Flow Analysis

Next Steps

- Letter of Intent for Final Design

Contracting Method

Power Purchase Agreement

Budget

\$0 down (Power Purchase Agreement)

Construction Timeframe

Summer 2023



Landis Run IS Back 40 (Field A & B) and adjacent to HS Stadium (Field C)



Reidenbaugh ES (Field D & E)

KEY



Potential Solar Field Locations



Solar Power Purchase Agreements (PPA) Background

- Federal Investment Tax Credit (ITC): The Investment Tax Credit of 26% has been extended to end of 2022 (22% in 2023).
- McClure Company will leverage its corporate tax liability and pass the credit onto the District—providing a significant cost reduction in the installation cost.
- Combine with other facility needs to maximize savings and right sizing solar field. Virtual metering available for entire campus – the array could offset all buildings.
- In order to capitalize on the credit, McClure must own and operate the system for a minimum of 5 years.
- After 5+ years, the District can purchase the system at Fair Market Value or proceed with McClure owning and operating the system.
- Ideally positioned due South for maximum production
- Panels are typically warranted for 30 years
- Low performance degradation - approximately 0.5% per year (86.5% after 30 years)
- Interactive education kiosks included for each facility
- PPL Rebate – up to \$500,000 per meter installation
- District responsible for mowing around panels



Case Study: Steelton-Highspire School District

Annual Payments: \$200,000 for first 10 years, approx.

\$60,000 for remaining 5 = \$2.3M over 15 years

20-Year Net Savings: \$2,950,423



Landis Run IS Back 40 (Field A & B) and adjacent to HS Stadium (Field C)



Reidenbaugh ES (Field D & E)

Location Considerations

- Field A is a good location because it can easily be screened with landscaping. A solar field in this location may also have educational value. Drawback is the location could be in a potential flood plain requiring further, sometimes lengthy, study.
- Field B would be a harder sell to the community due to its proximity/view to the neighbors to the south. Additionally, if we were to move forward with Field A- we would lose this field for our athletic venues. Although it is used infrequently- the impact of losing this field must be part of the evaluation. Additionally, the area could be in a potential flood plain requiring further, sometimes lengthy, study.
- Field C would be a viable location if the solar field could be incorporated into the MS & HS programs.
- Fields D & E would require landscape screening and most likely community pushback. A solar field in this location may also have educational value.

District utilizes approximately 12,746,000+ kWh of electricity at the High School (HS), Landis Run Intermediate School (LRIS), Reidenbaugh Elementary (RES) and Neff Elementary (NES) based on electricity bills from calendar year 2019. McClure has modeled (2) ground mounted solar options

Option 1: Field A and Field C Only

- Ground mounted solar arrays located on half of LRIS back 40 (north) and grass lot adjacent to HS Stadium
- Arrays totaling 1,343 kW (12%+ of annual electricity consumption at LRIS, HS, RES & NES)
- Modeled 30 Year Power Purchase Agreement totaling \$1.5M+ in net savings over 30 Years

Option 2: All Fields A through E

- Ground Mounted solar arrays located at all proposed fields
- Arrays totaling 3,368 kW (31%+ of annual electricity consumption at LRIS, HS, RES & NES)
- Modeled 30 Year Power Purchase Agreement totaling \$3.2M+ in net savings over 30 Years



Field A: Proposed Solar Array at LRIS Back 40, North



Field B: Proposed Solar Array LRIS Back 40, South



Field C: Proposed Solar Array near HS Stadium (map photo needs updated)



Field D: Proposed Solar Array at Reidenbaugh, Northwest



Field E: Proposed Solar Array at Reidenbaugh, Southeast

Option 1 – Field A & C Only**30-Year PPA Cash Flow**

Column 1: 30 Year PPA, \$0 down

Column 2: Generation of approximately 12% of District's Annual Electricity Usage at LRIS, HS, RES & NES with 0.5% annual system degradation

Column 3: Existing Electric Saving with a 3% annual escalation from solar production offset

Column 4: 30-Year Fixed PPA fee, including annual solar maintenance and inverter replacement in year 15. Fee also includes savings from PPL Act 129 rebate, Tax Credits, Accelerated Depreciation, Solar Renewable Energy Credits (SRECs), and Generated Electricity

Column 5: Annual Net Savings to District.

Column 6: Cumulative Savings to District resulting over 30 Years

Year	Annual Generation	Existing Electric Cost Savings	Fixed PPA + Maintenance Fee	Net Customer Savings	
				Annual	Cumulative
	(KWH)	(\$)	(\$)	(\$)	(\$)
1	1,579,558	\$132,179	\$120,411	\$11,768	\$11,768
2	1,571,660	\$135,464	\$121,768	\$13,696	\$25,464
3	1,563,802	\$138,830	\$123,143	\$15,687	\$41,151
4	1,555,983	\$142,280	\$124,537	\$17,743	\$58,895
5	1,548,203	\$145,816	\$125,949	\$19,866	\$78,761
6	1,540,462	\$149,439	\$127,382	\$22,057	\$100,818
7	1,532,760	\$153,153	\$128,833	\$24,319	\$125,138
8	1,525,096	\$156,958	\$130,305	\$26,653	\$151,791
9	1,517,471	\$160,859	\$131,797	\$29,061	\$180,852
10	1,509,883	\$164,856	\$133,310	\$31,546	\$212,398
11	1,502,334	\$168,953	\$134,845	\$34,108	\$246,506
12	1,494,822	\$173,151	\$136,400	\$36,751	\$283,257
13	1,487,348	\$177,454	\$137,978	\$39,476	\$322,733
14	1,479,911	\$181,864	\$139,578	\$42,286	\$365,019
15	1,472,512	\$186,383	\$141,201	\$45,182	\$410,201
16	1,465,149	\$191,015	\$142,847	\$48,168	\$458,369
17	1,457,823	\$195,762	\$144,517	\$51,245	\$509,613
18	1,450,534	\$200,626	\$146,211	\$54,415	\$564,028
19	1,443,282	\$205,612	\$147,929	\$57,682	\$621,711
20	1,436,065	\$210,721	\$149,673	\$61,048	\$682,759
21	1,428,885	\$215,958	\$151,442	\$64,515	\$747,274
22	1,421,740	\$221,324	\$153,238	\$68,087	\$815,361
23	1,414,632	\$226,824	\$155,059	\$71,765	\$887,126
24	1,407,559	\$232,461	\$156,908	\$75,552	\$962,678
25	1,400,521	\$238,237	\$158,785	\$79,452	\$1,042,131
26	1,393,518	\$244,158	\$160,690	\$83,468	\$1,125,599
27	1,386,551	\$250,225	\$162,623	\$87,602	\$1,213,200
28	1,379,618	\$256,443	\$164,586	\$91,857	\$1,305,057
29	1,372,720	\$262,816	\$166,579	\$96,237	\$1,401,293
30	1,365,856	\$269,347	\$168,602	\$100,744	\$1,502,037

Note:
Inverter
Replace-
ment in
Year 15