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**State Auditor Review Finds Local Government Solar Energy Projects
Save Taxpayer Funds**

Today, State Auditor Rob Sand announced a review of solar energy projects at Iowa's schools, cities and other public entities. A total of 80 communities are currently using solar energy installations across the state. Those participating in this review reported annual savings as high as \$80,000. The average annual savings was more than \$26,475, and the average savings over the lifetime of the installation was \$716,437.

If each county, each county seat, and each school district created a solar installation of the average size of these installations, over the installations' lifetimes Iowa taxpayers could expect to net over \$375 million in savings.

Local entities describe their solar energy programs as cost-effective, environmentally sound and a source of pride. In one school district, the savings equaled a teaching position. In another, the savings allowed the district to keep the school open and avoid consolidation. Cities like Knoxville teamed up with their school district for joint savings, freeing up dollars in the General Fund for other uses. Mason City calls its solar program a "win-win" by reducing its carbon footprint and operation costs.

The solar recommendation report is available for review on the Auditor of State's web site at <https://www.auditor.iowa.gov/pie/pie-reports/>.

Investments in energy efficiency can compound savings from renewable energy sources. Interested in other ways to save taxpayer funds through efficiency? Check out our new Public Innovation and Efficiency (PIE) program at: <https://www.auditor.iowa.gov/pie/pie-online>.

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**A REVIEW OF THE FINANCIAL IMPACTS OF
PUBLIC ENTITY SOLAR ENERGY INSTALLATIONS**

February 25, 2021

Financial Impacts of Public Entity Solar Energy Installations



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Officials of Local Government Entities Across Iowa

Dear Honorable Officials:

I am pleased to submit to you a review report on the Financial Impacts of Public Entity Solar Installations.

In conducting this review, our Office searched for media coverage of different communities that have adopted solar energy. After finding several, we reached out to the entities and asked them to provide additional information. We then reached out to Iowa Solar Energy Trade Association and received a list of all public sector solar projects. We then randomly selected 27 projects from that list of over 100. Of those, 13 responded to the questions and gave their approval to be published. We then compiled all the information with the media reports and data obtained from the survey. We then used the base figures to calculate cost savings that cities are seeing or will be seeing in the future.

The procedures described above do not constitute an audit of financial statements conducted in accordance with U.S. generally accepted auditing standards. Had we performed additional procedures, other matters might have come to our attention that would have been reported here.

I appreciate the cooperation and courtesy extended by officials and employees throughout the review. If I or this office can be of any further assistance, please contact me or my staff at (515)281-5834.

Sincerely,

A handwritten signature in black ink that reads "Rob Sand".

Rob Sand
Auditor of State

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State of Iowa Solar Power

Detailed Findings and Recommendations

Most of the solar projects highlighted in the report have recently been installed after the 2014 *Eagle Point Solar v. Iowa Utilities Board* decision from the Iowa Supreme Court, which allowed Public entities to utilize Power Purchasing Agreements. In such cases, entities buy the electricity produced by the solar installation on their property from a third party that owns the installation. Owning the equipment is another method available to public entities. Public entities should thoroughly research both to see which makes more financial sense for their position. They should issue a Request for Proposals (RFP) to get as many bids as possible and invite bidders to visit and consider their location(s). School districts can often pay for solar energy through PPEL or sales tax dollars, lowering or even eliminating electricity costs to their general fund.

An electrical generation system is an investment typically expected to last twenty to thirty years. If an entity owns the system, the entity assumes the responsibility of operating and maintaining the system. An entity could pay for the system up front or finance it through a financial institution. Leasing a system generally requires less capital investment up front. You may or may not be responsible for operation and maintenance costs. There may also be lease-to-own options. Entities should review the terms of any lease agreement carefully to make sure you understand your rights and obligations, as well as the services provided by the Lessor. For more information, see [IUB Informational Guide Distributed Generation.pdf \(iowa.gov\)](#)

Iowa has 99 counties, and each county has a county seat, with Lee County having two county seats. Iowa has 330 school districts. If each of these entities created a solar installation matching the average installation in this report, that would total 528 installations. Using the average estimated savings figures from this report, these installations would net Iowa taxpayers over \$375 million in savings over the lifetimes of the installations.

Project Procurement and Cost Savings Chart
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(All numbers in Thousands)

	Procurment Process	Approximate Savings Per Year	Projected 20 Year Savings	Projected Lifetime Savings
Black Hawk County	Purchase	\$62	1,200	1,559
Cedar Rapids	PPA	5	100	125
Hiawatha	PPA and Purchase	37	737	-
Knoxville	PPA	13	250	375
Knoxville CSD	PPA	33	660	990
Letts	PPA	2	37	28
Lisbon	PPA	8	160	-
Peosta	PPA	9	172	172
Independence	PPA	1	25	-
Iowa Falls CSD	PPA	51	1,028	1,286
Morning Sun CSD	Lease	16	320	-
Mason City	PPA	82	1,632	2,040
Sigourney CSD	Purchase	10	200	-
Bennett CSD	Purchase	53	1,060	-
WACO CSD	Lease	40	800	-
		Average Per Year	Average 20 Years	Average Lifetime Savings
		\$28	559	717

PPA=Power Purchase Agreement

All numbers in thousands

Benefits/Cost Savings

Counties

Black Hawk County (Pop. 131,090)

Installed: Not yet installed

Project Estimated Cost: \$1.23 Million for panels on 8 county-owned buildings.

Estimated Cost Savings: \$62,348 per year; decreased the electrical cost for the 8 buildings to \$960.

Estimated time to pay off project: 14 to 16 years with a 25-year warranty on the panels.

- Additional Information: https://wfcourier.com/news/local/govt-and-politics/black-hawk-county-advances-solar-energy-project/article_35668e2a-b415-5257-a2ee-7bb46c25723e.html

Cities

Knoxville, Iowa (Pop. 7,313)

Installed: 2019

Project Cost: [third party purchase entity] owns the solar panels. The company installed and maintains it, while the city buys back the power generated from the company at a reduced rate from what they would otherwise pay. This arrangement is generally called a third-party purchase agreement. The Iowa Supreme Court upheld such arrangements in its 2014 *Eagle Point Solar* decision.

Projected savings: Approximately \$12,500 a year, or \$380,000 over the expected 30 year lifetime.

- Article: https://www.journalexpress.net/news/local_news/big-progress-on-solar-project-for-city-of-knoxville-kcsd/article_363917ba-ce96-11e9-87e1-db3c86f5414c.html

Lisbon, Iowa (Pop. 2,152)

Installed: 2017

Estimated Cost: [third party purchase entity] operates Lisbon's facility in the same manner as it does Knoxville's, through a third-party purchase agreement.

Projected Savings: Approximately \$8,000 per year. However, they noted their total budget is just 2 million a year, so this does make a sizeable difference.

- Additional Information: <https://www.kcrg.com/content/news/Lisbon-finishing-major-solar-project-439970473.html>

Mason City, Iowa (Pop. 27,093)

Installed: 2020

Estimated Cost: Power Purchase Agreement

Projected Cost Savings: \$82,000 a year and \$2 million over 25 years.

- Additional Information: https://globegazette.com/news/mason-city-council-approves-solar-power-plan-storm-water-project/article_8b0c494a-09ab-5b16-b4f5-90796ea7b9f8.html

Schools

WACO CSD – Wayland, Iowa (Enrollment. 500 Students)

Installed: 2014

Projected Savings: Approximately \$40,000 - \$50,000 on electricity costs per year, the equivalent to saving a teaching position.

Production amount: Provides about 90 percent of the electricity used by the district.

- Additional Information: <https://www.cfra.org/news/170713/rural-iowa-school-sets-shining-example-how-reduce-electricity-costs>

Bennett CSD – Bennett, Iowa (Enrollment. 88 Students)

Installed: 2015

Projected Savings: Approximately \$53,000 a year.

Actual Savings: FY15 compared to FY17 saw a decrease of \$52,977 due to oil and electric costs dropping.

Projected Cost: \$500,000 that can be paid for in part from PPEL and Capital Project Funds, while allowing the savings to free up money in the school's general fund.

- Additional Information: <https://www.kcrg.com/content/news/Solar-Panels-Provide-Solution-to-Low-State-Education-Funding-Issues-366261051.html>

Iowa Falls CSD – Iowa Falls, Iowa (Enrollment. 1,200 Students)

Installed: 2016

Projected Savings: Approximately \$35,000.00 per year.

Actual Savings: Approximately \$51,000 per year.

Production amount: "Through its agreement with [third party purchase entity] the district paid 8.5 cents per kilowatt hour the first year of operation. That rate will increase by 2.5 percent annually. After seven years, the Board has the option to negotiate the district's purchase of the solar panels, or it can continue with the power purchase agreement for up to 25 years."

- Additional Information: http://www.timescitizen.com/kifg/solar-is-big-savings-for-iowa-falls-schools/article_e364060c-fba2-11e7-84fd-e3ad54054ef8.html

Morning Sun CSD – Morning Sun, Iowa (Pop. 130 Students)

Installed: 2015

Projected savings: Approximately \$10,000 per year.

Actual savings: Over \$15,000 per year.

Projected cost: We make monthly lease payments of \$2,500 for per month for 6 years (\$180,000). After six years of leasing, we have the option to purchase for an additional \$60,000. Total cost, if we purchase, would be \$240,000 while the savings to monthly utilities averages \$1,300/month.

- Additional Information: <http://mscsd.org/district-information/solar-information/>

Knoxville CSD – Knoxville, Iowa (Pop. 1,750 Students)

Installed: 2019

Projected Savings: Approximately \$33,000 a year. Up to \$990,000 over the next 30 years.

Estimated Cost: [third party purchase entity] owns the solar panels. The company installs them and maintains it, while the school district buys back at a reduced rate the power generated.

- Additional Information: https://www.journalexpress.net/news/local_news/big-progress-on-solar-project-for-city-of-knoxville-kcsd/article_363917ba-ce96-11e9-87e1-db3c86f5414c.html

Survey Q&A

(Information from interviews with local officials)

1. What has been the feedback from the public with this move?

Bennett CSD – Nothing but positive, it has helped with the cost savings to keep our school open.

Black Hawk County - There has been strong support from the community. I credit this to consistent and clear communication over the financial and environmental benefits. We had many work sessions, many press hits, and I did a lot of work on social media promoting the benefits.

City of Knoxville – We have not had a lot of feedback yet, but the project is still in process. One thing I've heard is a concern that the city made a large upfront investment to bring the project in, which is not the case.

Iowa Falls CSD – To be honest there has not been a lot of feedback recently, but during the project there was approval from the community to look at ways to dive into the renewable energy arena. For a district that has declining enrollment in recent years, this cost savings does help us free up General Fund money to help with other Instructional Expenses. The community was very supportive of the project and showed initial interest in the data (we had a web link for them to check out production levels).

City of Lisbon – The public was worried at first not knowing the cost but after we educated the public everyone was in favor of it.

Morning Sun CSD – Honestly, we haven't had a great deal of public feedback. We have pockets of supporters and pockets of skeptics, but not large numbers in either camp.

City of Mason City – Very positive. It is reducing our carbon footprint while reducing our cost of operations. This is a win/win regardless of an individual's values. We have actually been asked to consider further implementation even before this first round is complete.

City of Letts – Very Positive, forward thinking.

City of Cedar Rapids – We have received minimal comments in total. Regarding one of the four sites, we received a few comments that the panels looked unsightly. We planted trees around the perimeter of that site as a result.

City of Peosta – Residents haven't had any comments regarding the switch to solar.

City of Hiawatha – Have not heard much from the public but what we have heard is positive.

Independence CSD – It's been a positive one. We have several people in our community that are really pushing renewable energy and this is a source of pride for us.

Sigourney CSD – We had positive feedback from our community, especially after we explained how this will help us save money so we could use it towards the educational needs of our students.

Waco CSD – Very positive, our district had to have an election to increase the PPEL tax, and it passed by over 90%.

2. What cost savings has the entity seen with this project?

Bennett CSD – Eliminated our electric bills and fuel oil bills. Help to save our General Fund.

City of Knoxville – No hard numbers yet, as the project is still being installed across city facilities, but early project was a modest savings (about \$400k over 20 years or something like that). This is not game changing money, but I don't think that's the point. We want to show that we can be forward thinking from an environmental standpoint in a cost-effective way, bringing renewable energy without costing taxpayers.

Iowa Falls CSD – We have seen a total savings of \$154,289 in the three years we have had them up and operational.

City of Lisbon – In the first partial year, we saved over \$4,000. I'm assuming we are saving double that now since we have all locations up and running. We would love to place solar panels at our sewer plant since it is the biggest energy user but due to limited space, we have not figured out how to do so yet.

Morning Sun CSD – Electric bill before = \$1543.63. Electric bill after = \$247.14 a month

City of Mason City – The estimates are 2,039,660 over 25 years.

City of Letts – 2017-2018 our sewer lagoon bills were \$1847.48. 2018-2019 the bill was \$3.41.

City of Cedar Rapids – Our first project was a 90kW array on our transit garage. Consultant fees were roughly \$10k. Since 2016, net savings are \$7,000. Future annual savings are projected to be \$5,000. Our second project included solar installations on three water booster stations – all part of one contract. These totaled 170kW. Consultant fees were roughly \$10,000. These projects have produced net-savings of \$4,500 since 2017. Future annual savings are projected to be \$8,000.

City of Peosta – We were able to get rid of the demand charge for our largest building after we installed solar, this translates into a Fiscal 2020 YTD savings of \$3304.67. In our other solar locations, we were able to save approximately \$8600 between FY18 and FY19.

City of Hiawatha – This is very new for us with installation only in December. (Provided a Memo showing purchasing and entering into a PPA with a net savings of \$921,157.38 over 25 years.)

Independence CSD – We save approximately \$1,225 annually with the 3 small units that we run.

Sigourney CSD – We entered in a PPA with [third party purchase entity] to install our system. We are currently seeing between \$10,000 and \$14,000 saving on our electric bill. We are planning on purchasing the system in the 6th year and we will see the entire savings, and this was estimated over \$50,000 at the time, if I remember correctly.

Waco CSD – It's hard to determine a savings because we don't know what the electric bills would be if there wasn't solar offsetting them. One huge benefit for the school district is we are leasing a portion of the solar panels, which means the lease can be paid out of PPEL, which saves money in the general fund.

3. What advice would you tell communities that are looking at moving toward this?

Bennett CSD – If mounting on roofs, put on new roofs first. We had to take all of our panels down after 3 or 4 years and put on a new roof. Lost a lot of harvesting of the sun.

Black Hawk County – Figure out a way to do it because whether you outright or by them or do a power purchase agreement the benefits both financially and environmentally are there. Do not look at just your roof tops, but make sure you consider ground space as well. We almost did not get the largest portion of this project considered because the company doing the analysis was not aware that we own all of the land around the building. I brought them to them and asked them to look again. It turned out to be the most viable and largest portion of our project. Be very careful with your RFP. Some companies will try to get you the low bid by underestimating your power needs.

City of Knoxville – There will be opposition, so be prepared. For us, [Energy Utility] was adamantly opposed to this and they had representation at council meetings who were loudly and publicly very against this project. I met with them several times where they tried to talk me out of this project. Also be careful to scale your project appropriately because in Iowa it is not worth producing more energy than you can use (selling back to the utilities is a joke).

Iowa Falls CSD – I think the best advice is to be thoughtful about placement and how many you want to add. There was an obvious cost savings that we have seen recently, but some panels were placed initially that do not get maximum sun exposure (shade from trees, snow build-up, etc.). I am sure the engineers will find the best locations, but we ended up adding panels on a few buildings and our bus barn after realizing the savings potential.

City of Lisbon – Don't be afraid. Find a good company like [third party purchase entity].

Morning Sun CSD – Do your financial homework. We were able to pay for the project using SAVE funds. If we had used general fund dollars, it would not have been a good investment. The break-even date far exceeds the expected life of the solar panels.

City of Mason City – Use a consultant like [third party purchase entity] as an advocate in this process to vet the developers and ensure the community is getting the best deal. This requires a high level of understanding of the solar/energy world and oftentimes that expertise is not a skill set possessed by public sector staff. The RFP process ensured we answered all the questions and had a competitive process.

City of Letts – Go for it, only positive.

City of Cedar Rapids – Ensure project participants understand the tariffs and regulations associated with doing solar. Keep your electric utility apprised and involved. Building and evaluating RFPs for these projects can be complex; engage a consultant if needed.

City of Peosta – I would recommend if you are able to purchase the solar panels with reserves, that is your best option to reduce your electricity costs. We weren't in a situation where we had a lot of cash reserves, so we entered into a PPA with [third party purchase entity], we pay them a lower rate per kilowatt hour than we are charged by Alliant Energy resulting in a savings.

City of Hiawatha – It is important to have a mindset that is willing to find ways to reduce our energy consumption with utilization of green energy.

Independence CSD – I would encourage it because it continues to work well for us, we're saving energy costs, (General Fund \$) and there is little or no maintenance.

Sigourney CSD – Communities should look at ways to improve the efficiency of their systems prior to going forward with a project. IE – Replacement of outdated HVAC systems or other big users of electricity. This really needs to start two year prior so the improvements can be made and get 12 months of usage to determine the correct size of the system. I see this would have increased our savings over the initial 6 years.

Waco CSD – Have the community support and be able to explain the cost savings. It's a lot of money up front, and the payback may not be great, but if it's a way to save money in the general fund, it's well worth it.

4. What do you wish you could change about the process?

Bennett CSD – Wish we would have done the project years earlier.

Black Hawk County – Iowa code does not match well with solar projects. Having the low bid trump other important factors is problem some and could have resulted in us getting an inferior product just. Luckily for us we were able to show that the lesser bid which had lower capacity did not meet our RFP and we were able to go with the 2nd lowest bid that had many things better in it than the lowest.

City of Knoxville – As a city we should have done better explaining the financing (no upfront cost) to residents. I also wish we could have worked better with [Energy Utility] as I still consider them an important community partner, but they were against the project, and will not pay anything remotely like market rate for an energy sold back through excess production. Seems like a backward step for a company trying to be renewable and was much easier and competitive in Arizona (where I worked before coming to Iowa).

Iowa Falls CSD – I was not heavily involved in the process as it was mostly completed when I came here as the HS principal 3.5 years ago. In talking to our Board Secretary, everything went very smoothly and has turned out to be a very positive experience for our district.

City of Lisbon – Nothing, it went smoothly. It is a timely process because of all the paperwork and approval from [Energy Utility].

City of Mason City – Utility companies are very difficult to work with on this process, and I believe they are not focused on assisting with these projects as it is not a revenue generator. Furthermore, I have heard directly from [Energy Utility] that the facilitation of distributed generation is not a priority. They should be tasked with being a partner in distributed generation as it is a benefit to our state, and they are publicly regulated investor-owned utility.

City of Letts – Nothing.

City of Cedar Rapids – No suggestions on what to change.

City of Peosta – The installation wasn't quite as smooth as I wish it would have been, but other than that, the solar contractor was pretty responsive when we had issues before, during and after the signing of the PPA.

City of Hiawatha – I wished city governments could take advantage of energy saving programs at the State level and that it is promoted at both the State and Federal level.

Independence CSD – I wish those who started the project would have gone bigger!

Sigourney CSD – I would not change a lot. We were supported through this process from our representative and they worked with our energy provider to make for a smooth installation.

Waco CSD – I don't think I'd change anything; the whole process went very well and was supported well.

5. What was the project cost/time it will take to pay back or how long does the lease go through?

Black Hawk County – Make sure you have an independent set of eyes look at your RFP and your bids.

City of Letts – The city had no out of pocket up front cost. We pay back in 15 years.

City of Cedar Rapids – The Power Purchase Agreement for each project is 25 years. There were no hard costs (e.g. equipment) upfront. We pay the agreed upon price for the solar power we generate, which is less than the price we pay for electricity from our utility otherwise. For both projects we hired a consultant to help us with the bid process. Minus that upfront consultant cost (soft cost), both projects have yielded full paybacks of under two years.

City of Peosta – The term of our PPA is 20 years, we pay nothing for the lease of the panels, we pay per kilowatt that the panels capture and at the end of the 20 years we will purchase the panels for \$1.00 each.

City of Hiawatha – Total amount of \$268,616.50. Authorize an additional \$188,616.50 of available LOSST funds and to enter into a standard interconnection agreement with [third party purchase entity].

Sigourney CSD – There was \$0 upfront cost and an immediate savings. The purchase is an option and not required. So, this is really a no out-of-pocket, immediate savings scenario. We have the option to purchase the system after six years or continue to work with [third party purchase entity]. We are looking at purchasing the system for around \$300,000. The payback time will be dependent on the cost per Kw, but my rough math is we will save our initial purchase price in 6-7 years.

City of Mason City – As it is a power purchase agreement, we will see saving in year 1 and it is a 25-year lease.