

# **SOLID WASTE MANAGEMENT COMMISSION OF MARSHALL COUNTY**

**P.O. BOX 217, MARSHALLTOWN, IA. 50158 PHONE: 641-752-0646 FAX: 641-752-4562**  
[www.marshallcountylandfill.org](http://www.marshallcountylandfill.org)

Final report for  
Agreement # 22-G550-06EMS

This Green House Gas project was prepared with the support of the Iowa Department of  
Natural Resources 22-G550-06EMS.

However, any opinions, findings, conclusions, or recommendations expressed herein are  
those of the author and not necessarily reflect the views of the IDNR.

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The Solid Waste Management Commission of Marshall County, on behalf of Marshall County Landfill, was awarded an EMS Grant for \$24,999 to purchase solar panels for Marshall Co. Landfill. The project started January 1, 2022, and the final report is due January 15<sup>th</sup>, 2024, with the information gathered through December 2023.

The Commission was awarded funds to convert to solar energy in the amount of \$24,999 with a cost share of \$49,666 for a total cost of \$74,665.

The landfill purchased the solar panels in January 2022. In March of 2022 the solar panels were installed on site at 3 locations.

Scale house: (20) LG 405W panels and (1) 7.6kW Solar Edge Inverter

Warehouse: (26) LG 405W panels and (1) 10.0kW Solar Edge HD Inverter

Lagoon: (22) LG 400W panels and (1) 10.0kW Solar Edge HD Inverter

In June 2022 the panels were wired by an electrician to the buildings. During the installation staff had many customers asking questions about the solar system and how well it worked. Staff informed customers there would be information available after the panels were completely operational. The solar panels were operational in July and 2 of the 3 units started to generate electricity. After multiple calls to the solar company and the electric company the third panel unit (lift station/lagoon) was operational by January 2023. Facebook posts and newspaper articles were written about the new project to draw public attention to the idea of going solar.

This project started with a goal of using only 5,000 kWh from the utility company in one year's time. Later it was discovered the Alliant usage also included security lights through the landfill which are rented from Alliant and were not included in the solar power grids. The landfill was successful in dropping usage by 50% from 41,486 kWh/year in FY 2021 to 20,675 kWh/year in FY2023. With the one grid not producing for 6 months the landfill was still able to generate 92% of the energy that was used in FY2023. For 6 months of FY2024 8,431 kWh was used.

Once the panels were producing effectively the landfill felt it would be a good time to hold an open house for the public to show off the solar panels and invite 1Source Solar to present to the public the technical aspects of how they work. The open house was held on October 25<sup>th</sup>, 2023. Attendees were able to speak directly to the solar representative and get answers to questions they had on solar.

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The positive impact of this program was the decrease in the cost of monthly electric bills. The funds that would have been spent on electric bills are now being able to be used to educate the public on recycling efforts, start an E-waste recycling program, and to purchase equipment for litter clean up and prevention.

The negative impact of this program was the time it took for the panels to generate enough power. Winter months during 2022-23 did not produce as much as was expected by the team. Data collection was difficult as Alliant bills listed our kWh consumed and kWh generated. According to 1 Source Solar those numbers were not accurate representation of our usage/generation. This was confusing and would not be data consistent with previous data collected in 2022. Therefore we continued to use the Alliant data to keep it consistent.

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<b>EMS Objective, Target and Action Plan</b>					<b>Document No.</b>	
<b>EMS Participant Name</b>				Marshall County Landfill		22-G550-06EMS
<b>Common Name for Objective/Target</b>				Electrical Usage		
<b>Objective Description</b>						
<b>Action</b>		<b>Subject</b>		<b>Aspect</b>	<b>Adoption Date</b>	
reduce		Greenhouse Gas Emissions		landfill use of electricity	5/1/2020	
<b>Target 1 Description</b> (Add sections for additional targets as needed.)						
<b>Action</b>		<b>Subject</b>		<b>Qty to</b>	<b>Metric</b>	
reduce		electricity from utility at landfill facility by installing solar		14,500	KWH	
<b>Time Period</b>		<b>Time Period Type</b> (Select)		<b>Component Area</b> (Select)		
FY2023		Annual		Greenhouse Gas Reduction		
<b>Results/Baseline</b> (Update periodically, including each fiscal year by June 30th. Add rows for additional results as needed.)						
<b>Criteria</b>	<b>Applicable Time Period</b>	<b>Qty for Period</b>	<b>Qty for Target To Date</b>	<b>% from Baseline (Calculated)</b>	<b>Narrative Description</b>	<b>Date of Update</b>
Baseline	FY2021	41,486			ELECTRONIC USAGE FOR FY2021 for entire facility	7/1/2021
1 Results Update	FY2022	29,941			alliant usage for entire facility	7/1/2022
2 Results Update	FY 2023	20675.00			alliant usage for entire facility	7/1/2023
3 Results Update						
4 Results Update						
<b>Closure/Final</b>						
<b>Closure Status</b> (Select)		Not Met				
<b>Action Plan Task/Milestone Descriptions</b> (Add rows for additional tasks/milestones as needed.)						
1	<b>Task Description</b>	<b>Time Period</b>	<b>Responsibility</b>		<b>Key Resources</b>	
	ENERGY AUDIT	6/1/2020	JENN		ALLIANT	
	<b>Notes</b> ALLIANT WOULD NOT DO AUDIT. DID SELF AUDIT					
2	<b>Task Description</b>	<b>Time Period</b>	<b>Responsibility</b>		<b>Key Resources</b>	
	SWITCH TO ENERGY EFFICIENT ITEMS	6/30/2020	JENN		CONTRACTOR	
	<b>Notes</b> CONTRACTORS INSTALLED ENERGY EFFICIENT ITEMS AND APPLIANCES					
3	<b>Task Description</b>	<b>Time Period</b>	<b>Responsibility</b>		<b>Key Resources</b>	
	EDUCATE STAFF	CONTINUOUS	OFFICE STAFF		ALL STAFF	
	<b>Notes</b> LIGHTS ARE KEPT OFF IN ROOMS THAT NOT IN USE					
4	<b>Task Description</b>	<b>Time Period</b>	<b>Responsibility</b>		<b>Key Resources</b>	
	MAINTAIN TEMPERATURE	CONTINUOUS	OFFICE STAFF		ALL STAFF	
	<b>Notes</b> PROGRAMABLE THERMOSTATE IS BEING USED					
5	<b>Task Description</b>	<b>Time Period</b>	<b>Responsibility</b>		<b>Key Resources</b>	
	INVESTIGATE SOLAR	1/1/2022	DON		SOLAR CO, CARROLL CO.	
	<b>Notes</b> grant approved for \$24,999. 12/21/22 waiting on commission approval or denial					
6	<b>Task Description</b>	<b>Time Period</b>	<b>Responsibility</b>		<b>Key Resources</b>	
	Complete Grant	2/1/2022	JENN		Laurie Rasmus	
	<b>Notes</b> Grant approved for \$24,999. need final paperwork					
7	<b>Task Description</b>	<b>Time Period</b>	<b>Responsibility</b>		<b>Key Resources</b>	
	Contact 1 Source to start project	4/1/2022	Don		1 source	
	<b>Notes</b> Don has started project					
8	<b>Task Description</b>	<b>Time Period</b>	<b>Responsibility</b>		<b>Key Resources</b>	
	data collection	7/1/2023	jenn		1 source, alliant energy	
	<b>Notes</b> dec 22-metric target adjusted to accommodate electrical usage at 6 months totalling 6,211 kWh					
9	<b>Task Description</b>	<b>Time Period</b>	<b>Responsibility</b>		<b>Key Resources</b>	
	create Media	7/1/2023	jenn		facebook, website, signage	
	<b>Notes</b>					

12-2022: changed qty from 4,149 kWh to 14,500 kWh due to solar not producing all the energy we are billed for from Alliant.

Some of our bill comes from the security lights we "Rent" from alliant and is not using solar



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Meter Number: 500516718 FY 2022			Meter Number: 500516719 FY 2022			Meter Number: 500514825 FY 2022		
ty: 2313 MARSHALLTOWN BLVD <b>WORKSHOP</b> (78452)			ty: 2313 MARSHALLTOWN BLVD <b>OFFICE</b> (25472)			y: 2313 MARSHALLTOWN BLVD <b>LIFTSTA.</b> (8402)		
Month, Year	Units Consumed (kWh)	Units Generated	Month, Year	Units Consumed (kWh)	Units Generated	Month, Year	Units Consumed (kWh)	Units Generated
Jul-22	15		Jul-22	1592		Jul-22	320	
Aug-22	15	1190	Aug-22	794	421	Aug-22	10	0
Sep-22	269	1206	Sep-22	816	455	Sep-22	54	0
Oct-22	231	1001	Oct-22	605	585	Oct-22	15	0
Nov-22	630	433	Nov-22	717	299	Nov-22	128	0
Dec-22	881	258	Dec-22	865	284	Dec-22	943	0
Jan-23	1259	174	Jan-23	1212	175	Jan-23	628	0
Feb-23	1102	195	Feb-23	922	289	Feb-23	37	493
Mar-23	924	445	Mar-23	893	386	Mar-23	1422	607
Apr-23	418	1110	Apr-23	613	617	Apr-23	515	1144
May-23	370	1263	May-23	605	525	May-23	31	1396
Jun-23	211	1662	Jun-23	607	639	Jun-23	6	1703
	6325	8937		10241	4675		4109	5343

Meter Number: 500516718 FY 2023			Meter Number: 500516719 FY 2023			Meter Number: 500514825 FY 2023		
ty: 2313 MARSHALLTOWN BLVD <b>WORKSHOP</b> (78452)			ty: 2313 MARSHALLTOWN BLVD <b>OFFICE</b> (25472)			y: 2313 MARSHALLTOWN BLVD <b>LIFTSTA.</b> (8402)		
Month, Year	Units Consumed (kWh)	Distributed Generation	Month, Year	Units Consumed (kWh)	Distributed Generation	Month, Year	Units Consumed (kWh)	Distributed Generation
Jul-22	15		Jul-22	1592		Jul-22	320	
Aug-22	15	1190	Aug-22	794	421	Aug-22	10	0
Sep-22	269	1206	Sep-22	816	455	Sep-22	54	0
Oct-22	231	1001	Oct-22	605	585	Oct-22	15	0
Nov-22	630	433	Nov-22	717	299	Nov-22	128	0
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Jun-23	211	1662	Jun-23	607	639	Jun-23	6	1703
	6325	8937		10241	4675		4109	5343

Meter Number: 500516718 FY 2024			Meter Number: 500516719 FY 2024			Meter Number: 500514825 FY 2024		
13 MARSHALLTOWN BLVD <b>WORKSHOP</b>			313 MARSHALLTOWN BLVD <b>OFFICE</b> (25472)			2313 MARSHALLTOWN BLVD <b>LIFTSTA.</b> (8402)		
Month, Year	Units Consumed (kWh)	Distributed Generation	Month, Year	Units Consumed (kWh)	Distributed Generation	Month, Year	Units Consumed (kWh)	Distributed Generation
Jul-23	217	1406	Jul-23	758	454	Jul-23	7	1485
Aug-23	216	1313	Aug-23	837	441	Aug-23	42	1462
Sep-23	275	1214	Sep-23	876	543	Sep-23	6	1564
Oct-23	375	748	Oct-23	758	402	Oct-23	8	1037
Nov-23	515	473	Nov-23	700	337	Nov-23	1024	337
Dec-23	922	230	Dec-23	800	255	Dec-23	95	739

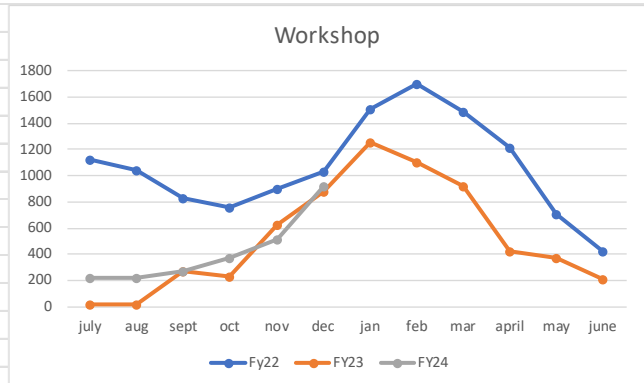


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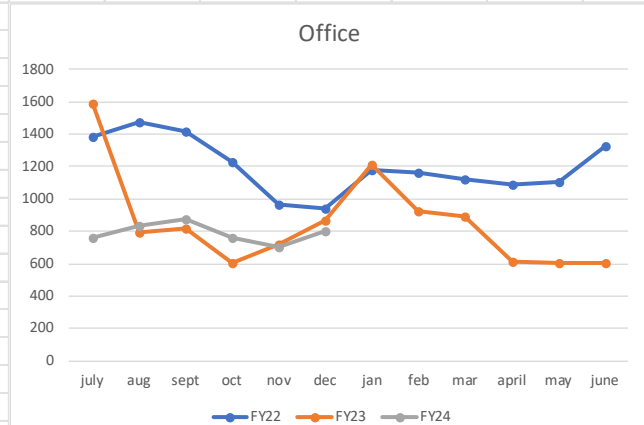
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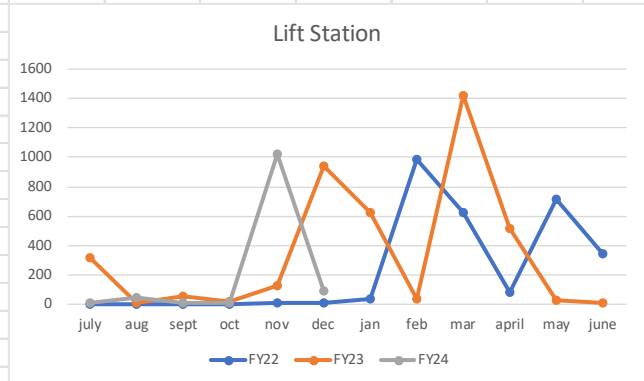
Workshop	Fy22	FY23	FY24
july	1121	15	217
aug	1039	15	216
sept	832	269	275
oct	761	231	375
nov	897	630	515
dec	1035	881	922
jan	1507	1259	
feb	1699	1102	
mar	1490	924	
april	1219	418	
may	702	370	
june	418	211	



OFFICE	FY22	FY23	FY24
july	1388	1592	758
aug	1479	794	837
sept	1418	816	876
oct	1227	605	758
nov	969	717	700
dec	941	865	800
jan	1183	1212	
feb	1165	922	
mar	1118	893	
april	1092	613	
may	1104	605	
june	1331	607	



IFT STATIO	FY22	FY23	FY24
july	0	320	7
aug	0	10	42
sept	0	54	6
oct	0	15	8
nov	6	128	1024
dec	13	943	95
jan	39	628	
feb	987	37	
mar	620	1422	
april	84	515	
may	712	31	
june	345	6	



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## **Marshall County landfill goes solar**

APR 28, 2022

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Managing Editor

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T-R PHOTO BY ROBERT MAHARRY Marshall County Landfill Manager Don Ballalatak, left, and local 1 Source Solar Specialist Mike Dunn, right, stand in front of the new solar array outside of the landfill's office. In all, three arrays have been constructed on the property, and they are expected to be fully operational within the next two to three weeks.

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Visitors to the Marshall County Landfill will likely notice a few large, shiny new additions on the property the next time they come by, and before long, these solar arrays will be producing enough electricity to power the entire facility.

Don Ballalatak, the manager at the landfill, said Mike Dunn, a local representative with 1 Source Solar, an Ankeny-based company, first reached out to him back in November and asked if he had ever considered installing solar panels at the

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facility just west of Marshalltown. After the initial conversation, Dunn put a quote together, and Ballalatak took it to his executive board. A bit of “back and forth” ensued before the board eventually accepted 1 Source’s quote.

“We just kind of got the ball rolling from there,” Ballalatak said. “It’s kind of neat for us. We’re not really looking for any pats on the back or anything. But we’re the landfill. We try to do a lot of good environmental things, and it kind of made sense for us to make that step.”

With an investment of \$60,000 — \$25,000 of which was funded through an Iowa Department of Natural Resources (DNR) grant — the landfill has added a total of three arrays: one for the main office, one for the lagoon and one for the warehouse. Dunn said this is the first landfill project he has worked on as a solar specialist (and the company’s second), and he estimates it will be paid off in about eight years.

“Basically, what I want to do is go after 100 percent of their bill, completely offset it to get them saving as much as they can and not being affected by the natural rising cost of utilities that’s inevitably going to happen,” he said. “There’s no sign of it coming the other way.”

Dunn hopes the word will spread and convince more large businesses and government entities within Marshall County to consider solar energy with the landfill serving as a catalyst. Ballalatak agreed and said he would be happy to answer questions for anyone who might be curious.

“If we can help get the word out a little bit, that’d be a good thing,” Ballalatak said.

Construction on the array was completed about a week ago, and Dunn expects it will be turned on and fully operational within the next two to three weeks as they wait for Alliant Energy to give the green light.

“They’ll start saving right away, and once that sun starts shining, their bill offset will start slowly,” Dunn said. “The sun’s coming. It’s a lot better doing it now, especially versus March or November or something like that.”

With its cost saving potential and environmental benefits as a renewable energy source, Dunn sees a bright future for solar both locally and across the state.

“It’s just a rising thing. The future is pretty much solar. As things keep rising and inflation is out of control, it’s the only thing people are going to be looking forward to,” he said. “It’s projected to be one of the busiest solar seasons in Iowa.”

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Contact Robert Maharry at 641-753-6611 ext. 255 or

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