City of Franklin

109 3rd Ave S
Franklin, TN 37064
(615) 791-3217

Meeting Agenda

Sustainability Commission

Friday, August 9, 2024 | **8:00 AM** | **Development Services Room**

CALL TO ORDER

CITIZEN COMMENTS (Open for citizens to be heard on any issue or concern, including those related to items on the agenda. Please submit a Speaker Card at the beginning of the meeting if you would like to address the Commission. If you would like to speak on an agenda item, the Chair will hold your comment until the public comment period associated with the item. As provided by law, the Commission shall make no decisions or consideration of action of citizen comments for items not on the agenda, except to refer the matter to the Planning Director/Staff for administrative consideration, or to a schedule the matter for consideration at a later date. Those addressing the Commission are requested to come to the microphone and identify themselves by name and address for the official record. The Chair may restrict the period for public comment, including the length of the public comment period, the number of individuals who can speak and the length of time each individual may speak. When time allows, the standard individual public comment time is two minutes.)

Comments on agenda items may be made in person at city hall or by emailing planningintake@franklintn.gov before noon on the day of the meeting. Emailed comments will be provided to the Commission and included in the minutes, but not read aloud in their entirety during the meeting.

APPROVAL OF MINUTES

1. Consideration Of Approval Of Minutes

NEW BUSINESS

2. Consideration of Solar Expansion Options

3. Bee City USA Update

OTHER BUSINESS

ADJOURN

Anyone needing accommodations due to disabilities please contact the ADA Coordinator at 615-791-3277 at least 24 hours prior to the meeting.

109 3rd Ave S
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City of Franklin

Meeting Minutes

Sustainability Commission

Friday, July 12, 2024 | **8:00 AM** | **Development Services Room**

CALL TO ORDER

Chair Cassity called the meeting to order at 8:00 AM.

Board Members Present: Mike Cassity, Jon Brevard, Keith Gordon, Brian Stone, Christina Christiansen, Alderman Beverly Burger, and Eric McElroy

Board Members Absent: Anna Timme and Al Pramuk

Staff Members Present: Blake Harper, Andrew Orr, Mark Hilty, Tia Holden, and Trevor Hannon

Others: Ron Merville, Steve Seifried, and Ned Dannenberg

CITIZEN COMMENTS (Open for citizens to be heard on any issue or concern, including those related to items on the agenda. Please submit a Speaker Card at the beginning of the meeting if you would like to address the Commission. If you would like to speak on an agenda item, the Chair will hold your comment until the public comment period associated with the item. As provided by law, the Commission shall make no decisions or consideration of action of citizen comments for items not on the agenda, except to refer the matter to the Planning Director/Staff for administrative consideration, or to a schedule the matter for consideration at a later date. Those addressing the Commission are requested to come to the microphone and identify themselves by name and address for the official record. The Chair may restrict the period for public comment, including the length of the public comment period, the number of individuals who can speak and the length of time each individual may speak. When time allows, the standard individual public comment time is two minutes.)

Chair Cassity asked for citizen comments. There were none.

Comments on agenda items may be made in person at city hall or by emailing planningintake@franklintn.gov before noon on the day of the meeting. Emailed comments will be provided to the Commission and included in the minutes, but not read aloud in their entirety during the meeting.

APPROVAL OF MINUTES

1. **Consideration Of Approval Of Minutes**

Sponsors:

A motion was made by Commissioner Stone, seconded by Commissioner Gordon, to Approve the Minutes from the May 10, 2024, meeting. The motion carried 6-0 (Alderman Burger arrived after vote).

NEW BUSINESS

2. **200 kW Solar Expansion Recommendation**

Sponsors:

Ron Merville, Energy Source Partners. The City of Franklin and Energy Source Partners (ESP) currently have a 20-year contract which ends in 2032. ESP built the project at the wastewater treatment plant at their own expense in return for property rights at the plant. Currently, the City of Franklin is getting 80% of the revenue created from the solar project. ESP is looking for land necessary to build a new project, where the revenue split will be 80% to ESP and 20% to the City until the

project is paid for, and will be maintained for the entire contract length. Mr. Merville then displayed the existing solar project's carbon reduction benefits. Mr. Merville proposed using solar panels plus battery storage. The battery storage would come through GridStar Flow technology, which is a long-duration battery with large capacity energy storage. The batteries consist of water-based, non-flammable engineered electrolytes made from common materials. Mr. Merville wants to reduce demand charges from Middle Tennessee Electric through battery usage. He then displayed a performance report with Heila Solar. Solar and storage offset 50.7% of energy consumption during the displayed billing period. With the existing 200 kW solar panels, the City will make over $216,000 over the next 9 years if no changes are made. Mr. Merville then detailed 3 options for upgrading the solar project.

Option 1:

- Add 1 MW of solar power to be directed into the waste water treatment plant
- Revenue and savings will be shared until the project costs are recouped by ESP
- Projected estimated savings are over $10,000 per month
- Generated over $432,000 in savings to the City in 9 years

Opion 2:

- Add 3 MW of solar power to be directed into the waste water treatment plant
- Revenue and savings will be shared until the project costs are recouped by ESP
- Projected estimated savings are over $30,000 per month
- Generated over $864,000 in savings to the City in 9 years

Mr. Merville mentioned the project would make over 4 million in 20 years.

Alderman Burger asked what the time period would be to make the 4 million.

Mr. Merville clarified that 4 million would be made altogether, without energy increasing in price, after the initial 9 years, or over an 18-year period.

Option 3:

- Add 3 MW of solar power to be directed into the waste water treatment plant with a long duration battery system
- Revenue and savings will be shared until the project costs are recouped by ESP
- Projected estimated savings are over $45,000 per month
- Generated over $1,188,000 in savings to the City in 9 years

Alderman Burger asked what the pros and cons of batteries were.

Mr. Merville said he can get more electricity with batteries and will pay off the project quicker.

Commissioner Stone stated he would like to see the 3 options, with and without batteries, on a single display. He wants to see how quickly the City can get to 80% of revenue and savings after costs are recouped by ESP.

Mr. Merville responded that the numbers are just projections, but it would be possible to create a display. The final bids for the project have not yet been presented, so a specific number would not be known until then. Mr. Merville hopes to have the solar project completed by the end of the year in order to get the necessary tax incentives.

Chair Cassity agreed he would like the commission to see a diagram of the 3 options with and without batteries.

Mr. Merville said the numbers would depend on the megawatt and how much land could be used for the solar arrays.

Commissioner Gordon asked for clarification on what the commission was voting for at the meeting.

Mr. Orr said staff appreciates detailed direction from the commission. The Board of Mayor and Alderman is looking for direction from the Sustainability Commission on how to move forward with the project.

Mr. Hilty reiterated that the commission is recommending what direction the city should continue in for the solar array project.

Mr. Harper said the Sustainability Commission is a recommending board while BOMA would make final decisions.

Alderman Burger stated BOMA would want to see a comparison cart between the three options. She told Mr. Merville to prepare something soon to present to BOMA.

Commissioner Christina commented on utilities being regulated and her company being required to report projected numbers. She believes it's possible for Mr. Merville to display the information the commission is asking for.

Commissioner Stone replied he is not asking ESP what their cost per watt is. He would like to see a real, conservative cost per watt for each option so the commission could gain an understanding of how quickly the 80% can be achieved.

Chair Cassity agreed with Alderman Burger and would like to see a diagram and projection chart.

Alderman Burger stated BOMA would want to know the downsides of not upgrading the project.

Mr. Merville agreed he would put together an estimate for all 3 options and display them on a chart.

Motion
A motion was made by Commissioner Christiansen, seconded by Commissioner Stone, to Defer to the August meeting.

Discussion
Alderman Burger wants to educate BOMA on the three options at their next meeting.

Commissioner Stone asked if all options included the pollinator field.

Mr. Merville said he did not have an answer at the time.

Mr. Orr commented that the Sustainability Commission will be presenting to BOMA towards the end of August, making it good timing for them to discuss the solar project.

Mr. Hilty agreed the options should be presented to BOMA.

Motion to defer carried 7-0.

Chair Cassity noted good progress has been made since the last meeting.

3. Bee City USA Next Steps

Sponsors:

Andrew Orr. An internal committee has been created for Bee City USA. This includes staff from the planning, engineering, stormwater, parks, and streets departments. The Sustainability Commission will still be reported to on any updates. There was a recent site visit at a local house with 80 different native plants growing in a pollinator garden. The internal committee will meet again near the end of June. The planning department is working with local fire departments to plant pollinator gardens.

Alderman Burger stated her first priority is getting a pollinator garden planted at the Cool Spring interstate exchange.

Commissioner Gordon asked if the interstate exchange is sprayed with pesticides.

Mr. Orr responded that streets department staff is working with TDOT to identify larger areas for pollinator gardens. Currently, the City is focusing on easier projects such as those at the fire departments. Getting one project started would be a beneficial learning experience.

Commissioner Christiansen commented on her experience with the pollinator garden at a local library. Signs are vital for the success of pollinator gardens so they are not mowed over.

Commissioner Brevard stated right of ways could be utilized for pollinating plants.

Commissioner Gordon said pollinator gardens do not have to be at parks but could be used at fire departments and post offices.

OTHER BUSINESS

Chair Cassity asked if there was any further business.

Commissioner Stone asked if the commission needed to prepare anything to the BOMA presentation.

Mr. Orr said planning staff will commission chair will present and prepare anything for BOMA which he can share with the commission before presented.

ADJOURN

A motion was made by Alderman Burger, seconded by Commissioner Stone, to Adjourn. The motion carried 7-0.

There being no further business, the meeting adjourned at 8:52 AM.

_____ _____

Chair Date

Energy Source Partners
Renewable Energy Solutions

City of Franklin
Solar Photovoltaic Proposal
July 2024

Existing Solar Project

- 200 kW Ground-mounted Solar Array
- Solar Earnings as of October 2021: **$492,112.50**
- Solar Earnings to date in excess of **$550,000.00**
- Existing 20-year contract with TVA ends April 29, 2032
- Public/Private Partnership

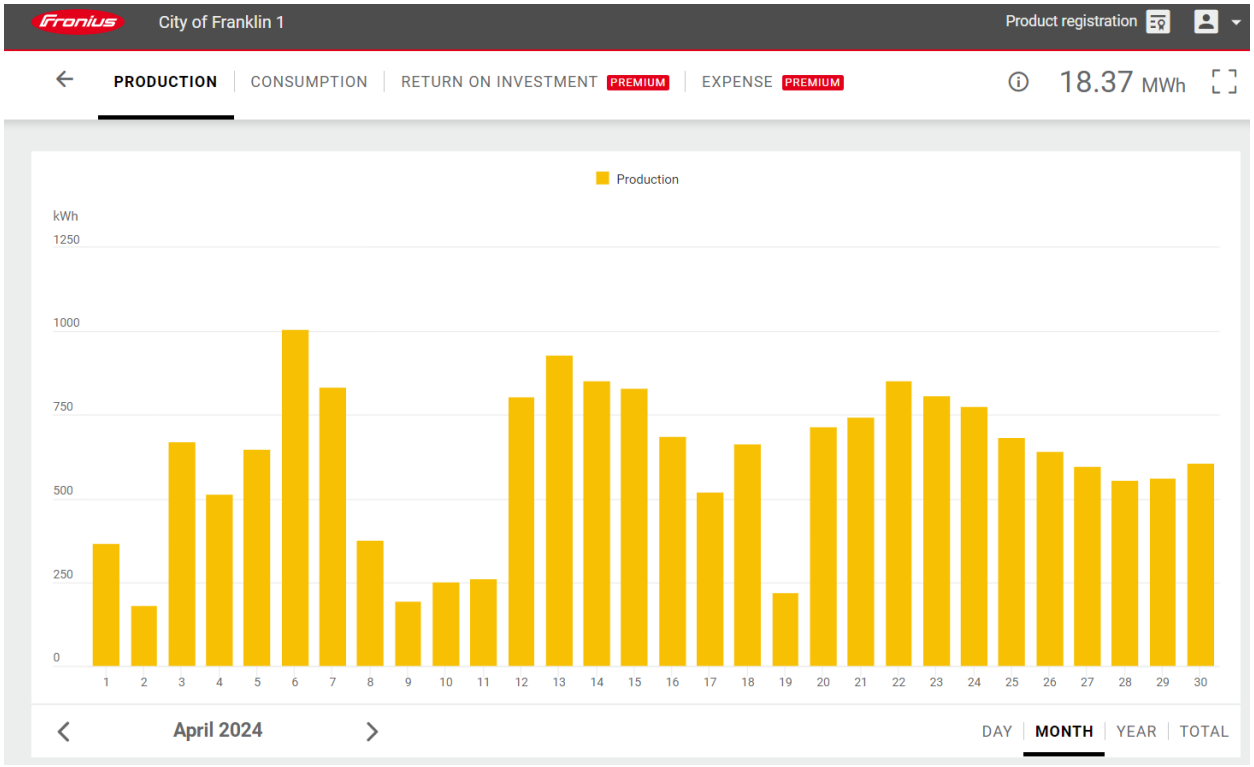
Energy Source Partners
Renewable Energy Solutions

Existing Solar Project

City of Franklin currently pays over **$1,500,000.00** in energy costs per year to MTEMC for electrical power at the WWTP. This Solar Project helps reduce those costs.

Energy Source Partners
Renewable Energy Solutions

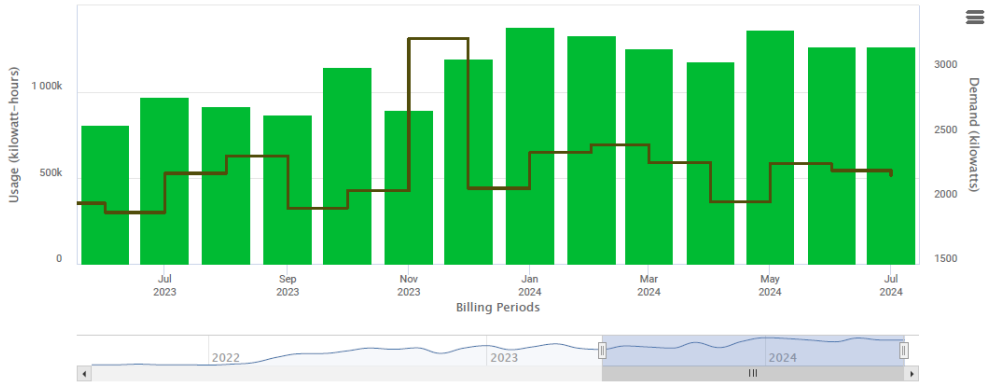
Existing Solar Project Production Report



Energy Source Partners
Renewable Energy Solutions

City of Franklin
Electrical Billing (WWTP)

MONTHLY USAGE - Jun 2023 - Jul 2024 | Customer Since: August 18, 2020



Meter: T6416900 - kWh ☑

Meter: T6416900 - kW ☑

Usage	
Meter	T6416900
High	1,374,189.00
Low	803,314.00

Temperatures	
Average	65 ° F
Average High	87 ° F
Average Low	41 ° F

Energy Source Partners
Renewable Energy Solutions

Battery Storage

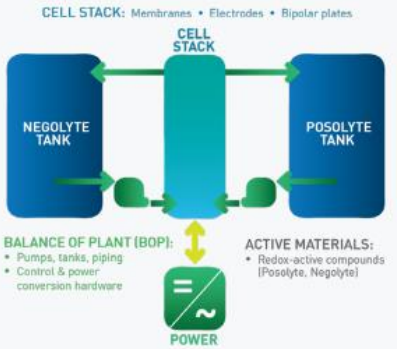
GridStar Flow

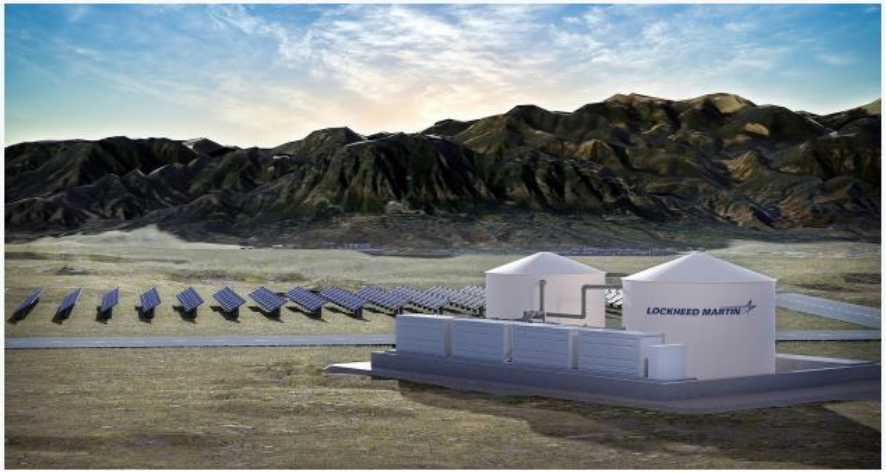
FLEXIBLE, LONG-DURATION, ENERGY STORAGE TO ENABLE LOW-CARBON, RELIABLE,RESILIENT ELECTRICITY

GridStar Flow is an innovative redox flow battery designed for long-duration, large-capacity energy storage applications, to address the new, disruptive challenges faced by the electric sector and enable clean, reliable, and secure energy.

Flow batteries differ from sealed batteries (e.g., lead acid, lithium-ion) in that they separate the power and energy portions of a battery system and allow each to be independently sized. Energy is stored in a liquid electrolyte which is flowed through a stack of electrodes.

Developed in the US, GridStar Flow is based on a novel and protected redox flow battery chemistry that consists of water-based, non-flammable engineered electrolytes made from commonly available materials that enable durability, flexibility, safety and a competitive total cost of ownership.





APPLICATIONS

- Renewable generation bulk shifting (large amounts of energy for many hours)
- Large-scale transmission & distribution deferral
- Peaking unit replacement
- Day-ahead, real-time and ancillary market optimization
- Resiliency, particularly in microgrids, islands, and military installations

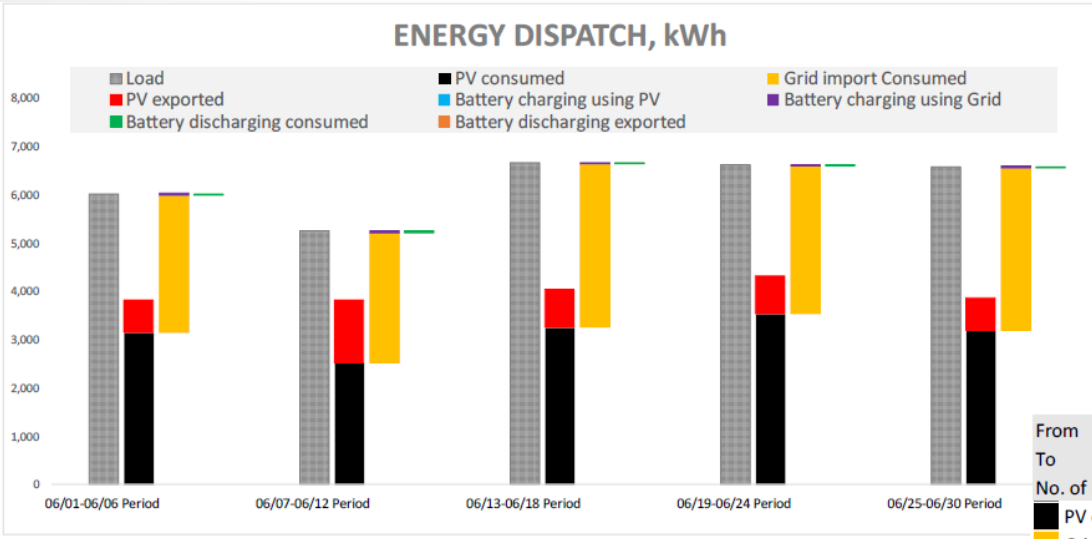
ADVANTAGES

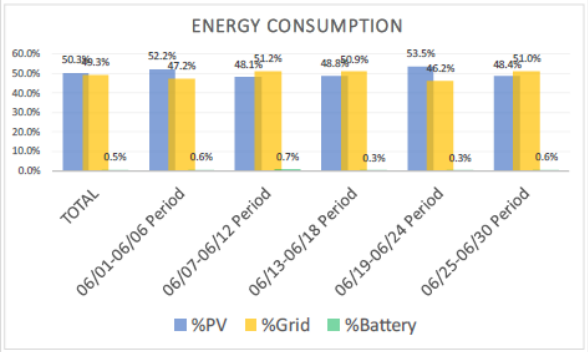
- Designed for daily-cycling and optimized for 6+ hours of flexible discharge
- Flexibility to switch between applications to maximize revenue
- 100 percent depth-of-discharge with minimal degradation
- Design life of 20 years
- Ability to size energy and power independently
- Non-flammable, water-based electrolytes
- Competitive total cost of ownership

Heila Solar/Battery Report

Performance Report | CED – Franklin Fixtures

Report Date:	Period:	End User:	Location:	System Description:	Use Case:
07/05/22	06/01/22 – 06/30/22	Energy Source Partners	Cookeville, Tn 38501	120kW PV System 48kWh Battery Storage System	Economic Optimization





- 19,932 kWh of total solar produced during this billing period
- Solar and storage offset **50.7%** of energy consumption this billing period.

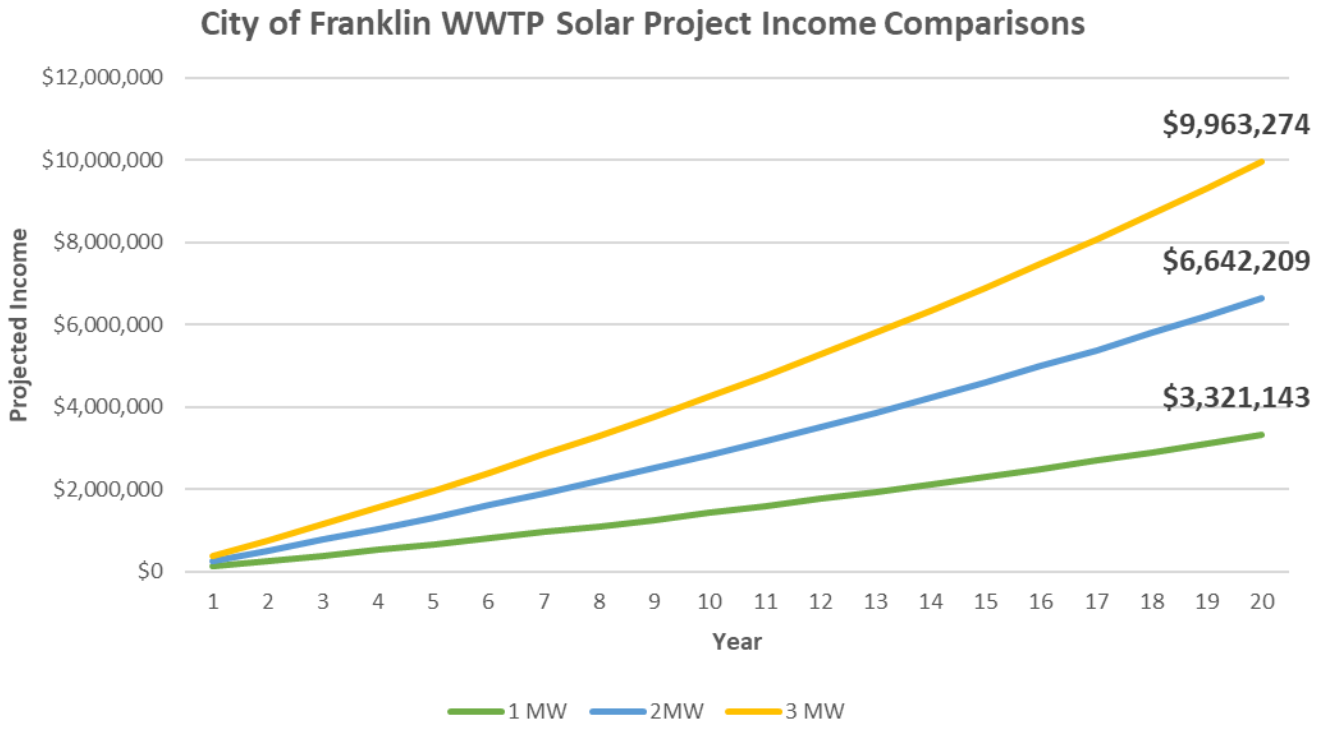
	TOTAL	Last Period
From	**6/1/2022**	6/25/2022
To	**6/30/2022**	6/30/2022
No. of Days	**30**	6
PV consumed, kWh	**15692.68**	3196.30
Grid import consumed, kWh	**15385.01**	3368.95
Battery discharging consumed, kWh	**149.02**	36.75
PV exported, kWh	**4239.77**	676.95
Battery discharging exported, kWh	**0.00**	0.00
Battery charging using PV, kWh	**0.00**	0.00
Battery charging using Grid, kWh	**219.17**	52.57
Load, kWh	**31226.71**	6602.01

Energy Reduction Plan
Existing 0.2 MW – TVA Contract

- Existing 200 kW Solar Panels to continue production under the current TVA Solar Contract with the City.
- Benefits:
  - The City's share of 80% of the original 200 kW Solar revenue remains the same.
  - The City's share is approximately $2,000/month and will continue until April 2032, increasing approximately 3% per year as power costs rise.
  - Anticipated project income to the City to exceed $216,000 over the next 9 years.

Energy Source Partners
Renewable Energy Solutions

Energy Reduction Plan
Solar Project Income



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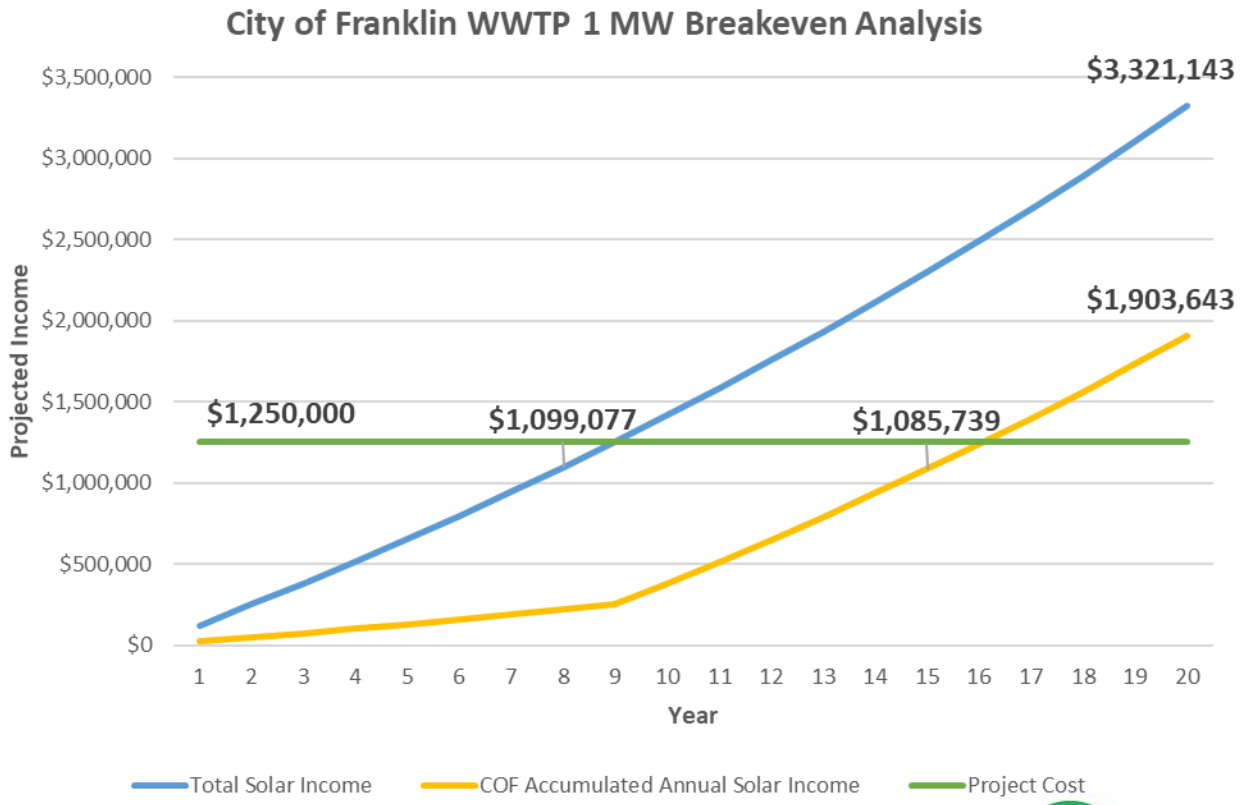
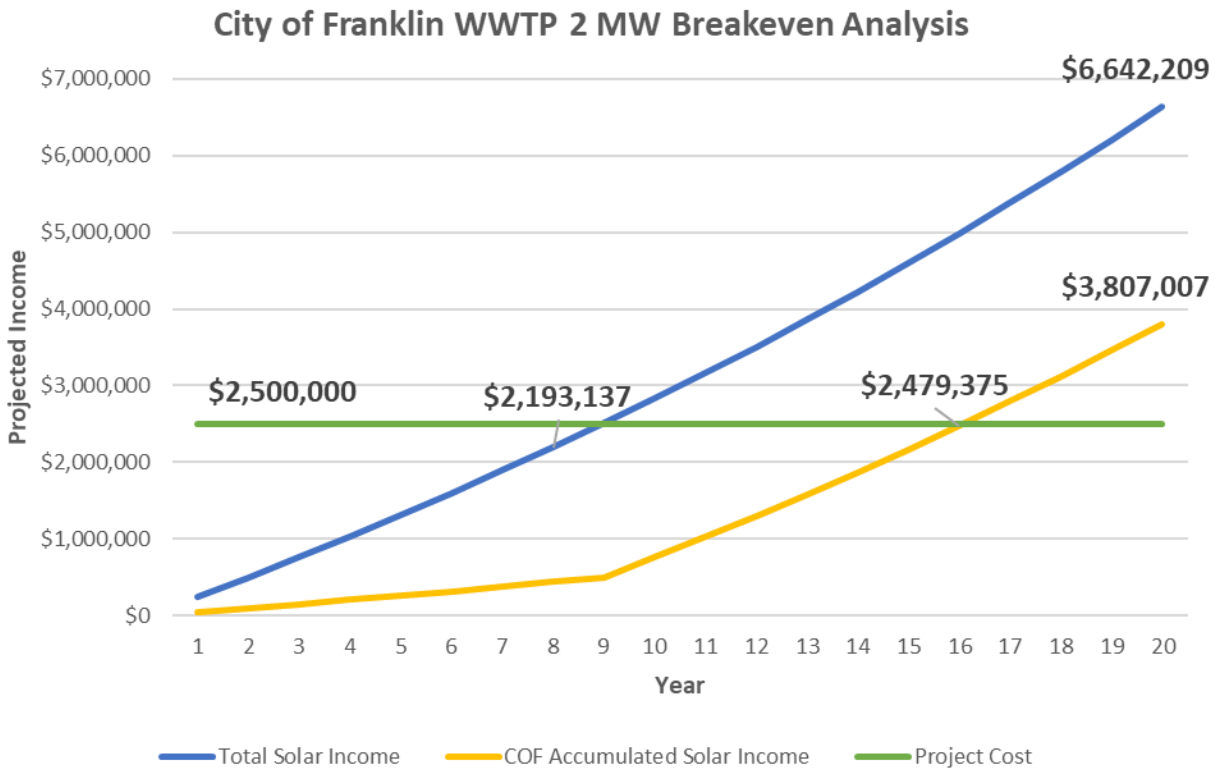
Energy Reduction Plan
Solar Project Income



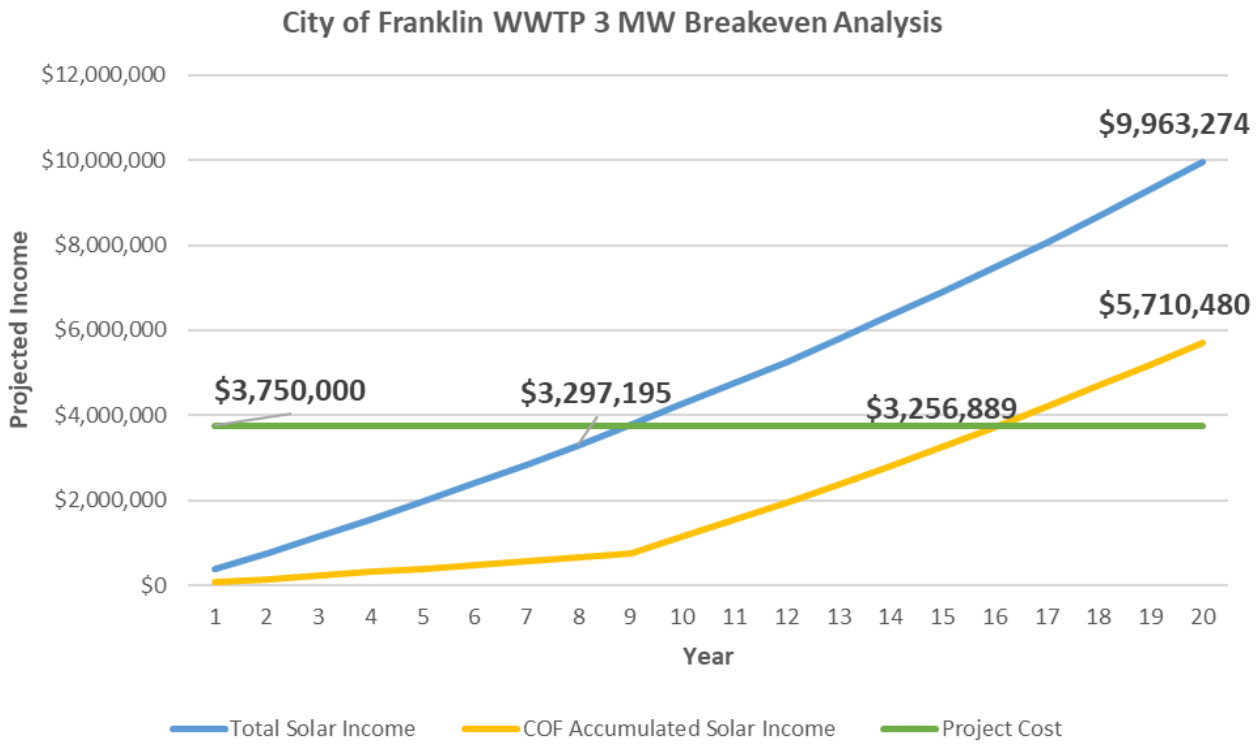
Energy Source Partners
Renewable Energy Solutions

Energy Reduction Plan
Solar Project Income



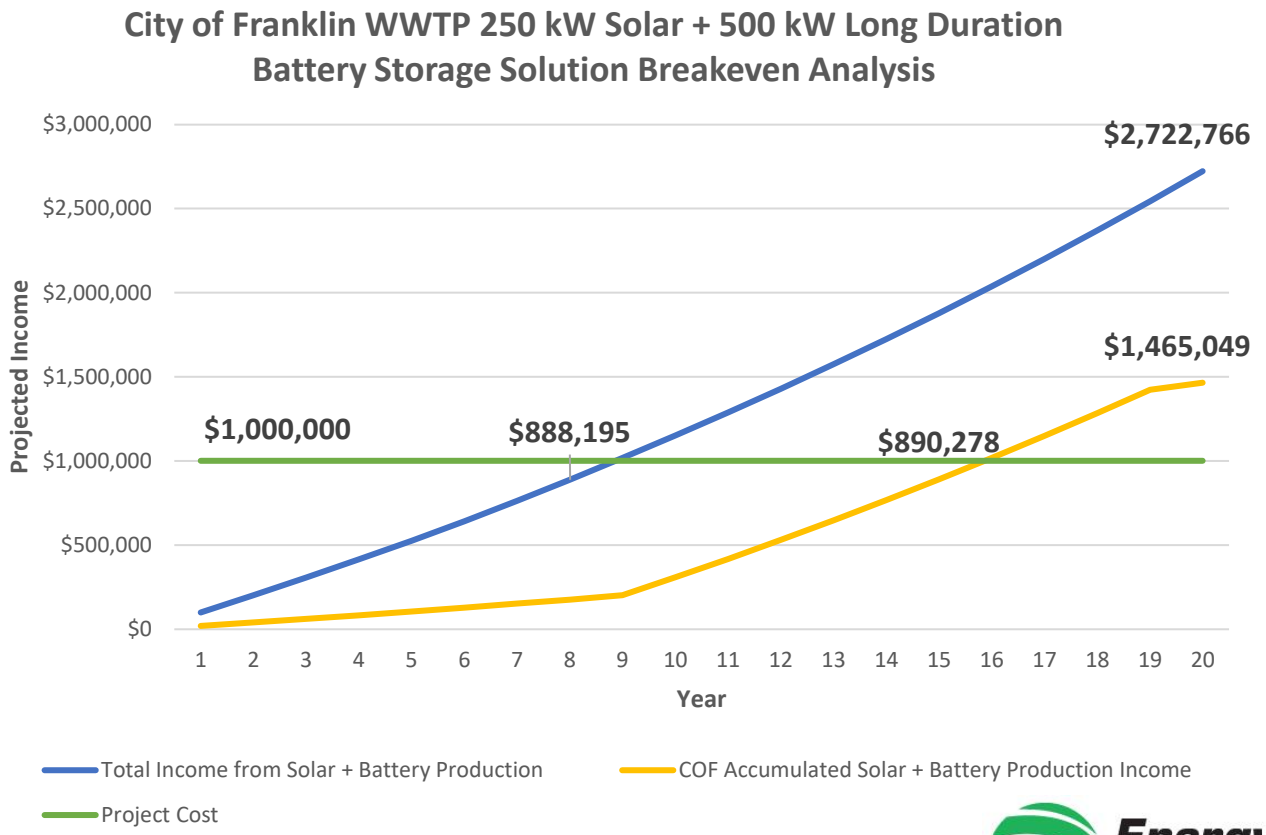
Energy Source Partners
Renewable Energy Solutions

Energy Reduction Plan
Solar Project Income



Energy Source Partners
Renewable Energy Solutions

Energy Reduction Plan
Solar + Battery Storage



Energy Source Partners
Renewable Energy Solutions

Energy Reduction Plan

Solar Options and Estimated Cost Savings

Option	Size of System	Total Savings to City to 2035	Total Savings to City 2035-2045	Total Energy Savings to City over 20 years	Acreage Required
1	1 MW	$250,000	$1.65 million	$1.9 million	1 acre
1A	1 MW + Batteries	$200,000	$1.264 million	$1.465 million	1.25 acres
2	2 MW	$500,000	$3.3 million	$3.8 million	2 acres
2A	2 MW + Batteries	$200,000	$1.264 million	$1.465 million	2.25 acres
3	3 MW	$1 million	$4.7 million	$5.7 million	3 acres
3A	3 MW + Batteries	$200,000	$1.264 million	$1.465 million	3.25 acres
4	250 kW Solar + 500 kW Batteries	$250,000	$1.2 million	$1.465 million	0.25 acres already added to each option
5 No Change 200 KW	0.2 MW	$216,000 through 2032		$216,000 through 2032	1.0 acres in existing TVA Contract

Energy Source Partners
Renewable Energy Solutions

Discussion

- Consider amending the City of Franklin/ESP contract to add:
  - (Option 1) 1 MW Solar Project with or without stand alone battery storage project
  - (Option 2) 2 MW Solar Project with or without stand alone battery storage project
  - (Option 3) 3 MW Solar Project with or without stand alone battery storage project
  - (Option 4) – 250 kW Solar + 500 kW Long Duration Batteries
- Begin construction of the selected renewable energy solar/battery project in 2024.

Energy Source Partners
Renewable Energy Solutions

Contact Information

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Energy Source Partners

Renewable Energy Solutions