

Fayetteville Wastewater Solar Power & Storage

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Joint Energy Committee
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<http://www.fayetteville-ar.gov/Sustainability>

Energy Action Plan

ENERGY ACTION PLAN CITY COUNCIL MEETING, 19 DECEMBER 2017



The following goals were determined through a process of peer city research, community input, City staff alignment, expert stakeholder guidance, and administrative review.

COMMUNITY GOALS



CROSS-SECTOR:

- Reduce average housing and transportation costs to 45% of area median income
- Develop and expand Fayetteville's reputation as a hub for socially and economically responsible businesses, entrepreneurship, and green jobs
- Build local support for national carbon emissions reduction and carbon capture strategies



BUILDINGS:

- Complete periodic feasibility analyses of building energy code updates
- Achieve 3% annual reduction in overall energy use in buildings
- Improve the health, distribution, coverage, and effectiveness of Fayetteville's urban forest



ENERGY SUPPLY:

- Achieve 50% community-wide clean energy by 2030
- Achieve 100% community-wide clean energy by 2050



TRANSPORTATION:

- Reduce per capita vehicle miles traveled to 2010 levels by 2030
- Achieve 25% bike/walk/transit mode share by 2030



WASTE:

- Achieve 40% total waste diversion from the landfill by 2027

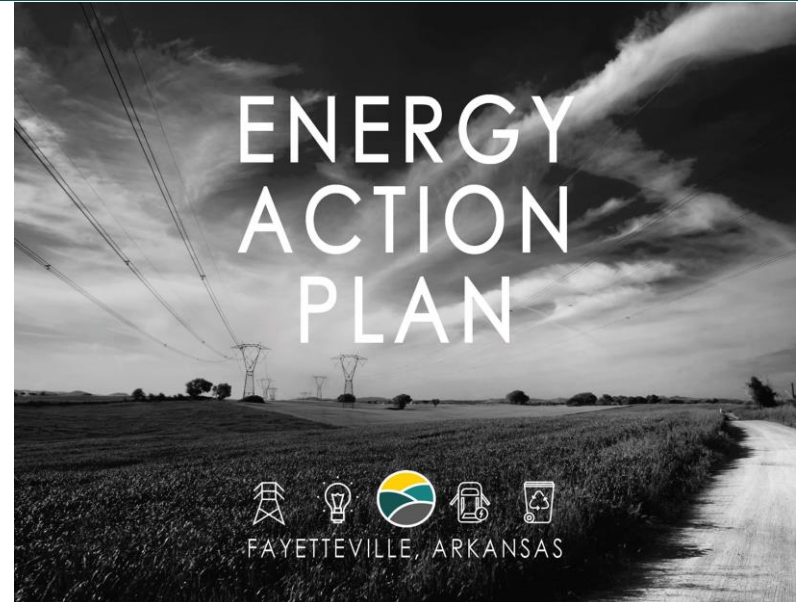


GOALS FOR CITY GOVERNMENT OPERATIONS:

- Achieve 40% reduction in GHG emissions by 2030, from baseline year of 2010
- Achieve 80% reduction in GHG emissions by 2050, from baseline year of 2010
- Achieve 100% clean energy by 2030
- Achieve 3% annual energy use reduction in City facilities

MORE INFORMATION AVAILABLE AT WWW.FAYETTEVILLE-AR.GOV/ENERGYACTIONPLAN

"Climate change poses a very serious threat, but also a significant economic opportunity for our City and our nation. Fayetteville is committed to working with leaders of other cities, states, universities, and businesses to combat climate change by supporting a low-carbon economy and creating good jobs in energy efficiency and renewable energy." -Mayor Lioneld Jordan



COMMUNITY-WIDE GHG INVENTORY: 2010-2016



Adopted on Jan 2, 2018

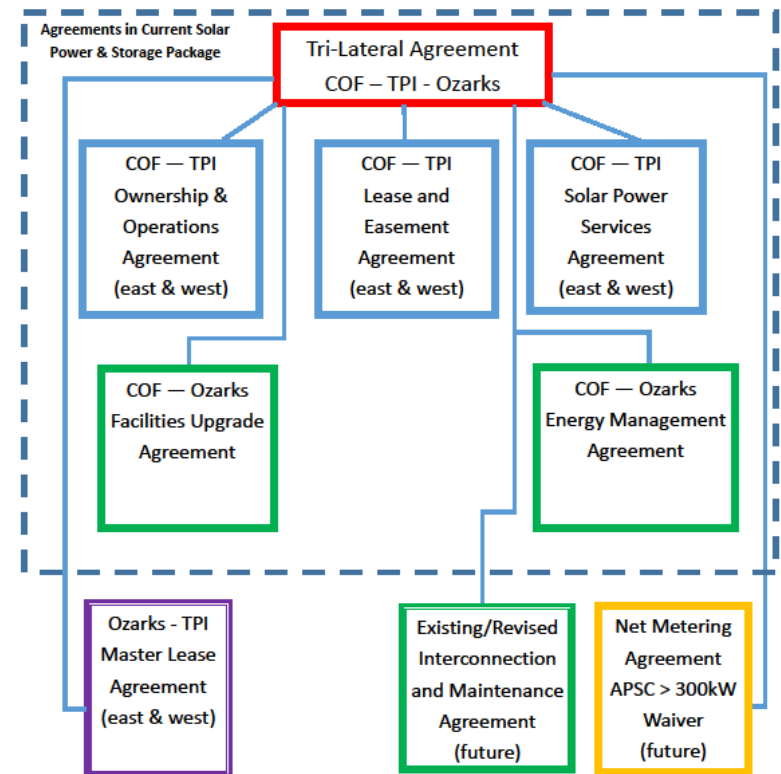
Wastewater Treatment Plants



- 66% of total energy consumption
- \$1.1M per year in Electricity
- 18M kWh per year
- 300 acres west & 1200 acres east



Project Agreements



Legend

- Agreements between City of Fayetteville & Today's Power, Inc.
- Agreements between City of Fayetteville & Ozarks Electric
- Agreement between Today's Power, Inc. and Ozarks Electric
- Agreement between City of Fayetteville, Ozarks Electric and the Arkansas Public Service Commission

Project Summary



Trilateral Agreement between City, Ozarks Electric and Today's Power, Inc.

10 MW (AC) of Solar Power Generation

- 5 MW of Solar Panels at each WWTP
- 87 acres (total of both sites)
- Sun Tracking ~15% production increase
- 18,300,000 kWh/yr
- ~103% of WWTP electricity consumption
- City owns 1% & TPI owns 99%
- \$0.048/kWh for 20 yrs



24 MWh of Power Storage

- 12 MWh of Batteries at each WWTP
- Allow OEC to manage peak demand
- Adds ~ \$139k savings per year
- Unique in Arkansas

Project Schedule



Trilateral Agreement – Nov 20, 2018

Ground Breaking – March 4, 2019

Operations Start – July 20, 2019

Flip Switch – September 4, 2019



Solar Layout - Eastside



Solar Layout - Eastside



Solar Layout - Westside



Solar Layout - Westside



Economics

Average current cost of electricity ~ \$0.0513/kWh
Solar Service Agreement Cost = \$0.0480/kWh



	Annual	One Time
<i>ITEM</i>		
Electricity Bill Savings	\$ 939,717	
Battery HVAC & Lighting Payment	\$ 2,500	
Generator Fuel Cost Savings	\$ 60,000	
Generator Management Payment	\$ 75,000	
Battery Storage Loss Payment	\$ 1,152	
TOTAL SAVINGS	\$ 1,078,369	
COSTS		
Solar Electricity Cost	\$ 874,348	
Solar Maintenance Agreement	\$ 20,116	
Loss of Hay & Sludge Spreading Revenue	\$ 22,000	
TOTAL COSTS	\$ 916,464	
NET ANNUAL SAVINGS	\$ 161,905	
Capital Cost - site elect improvements		\$ 716,946
	ROI (yrs)	4.4

20 yr savings ~ \$6M

100% Clean Energy Goal



Goal is 100% Clean Energy by 2030

Previously at 16% Clean Energy

With WWTP Solar the City moved to 72% Clean Energy

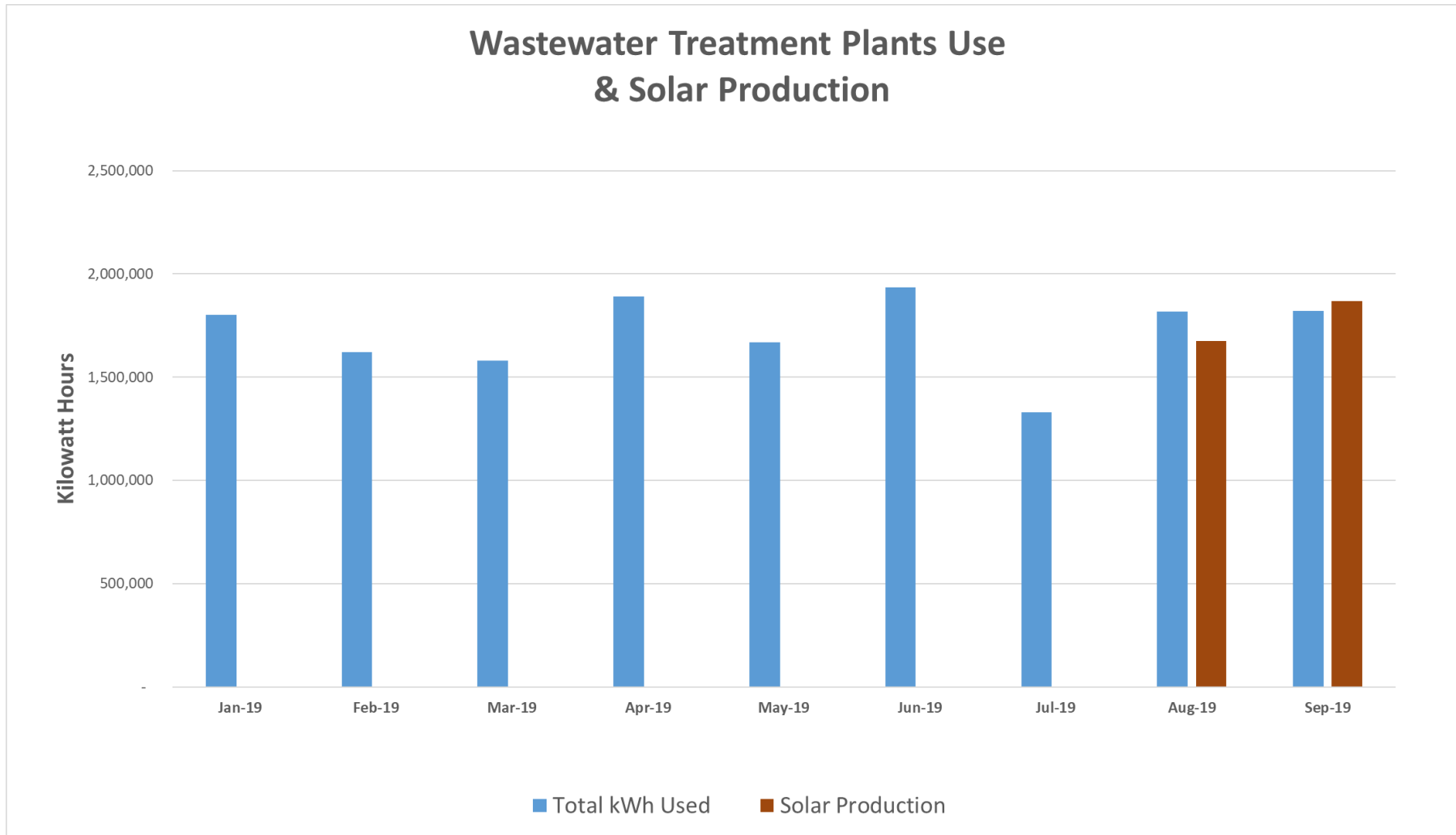
- 18,300,000 kWh/year of new clean energy

Summary



- Trilateral Agreement between City, Ozarks Electric and Today's Power, Inc.
- Project Specs
 - 10 MW of Solar Generation
 - 24 MWh of Battery Storage
 - 18,300,000 kWh/year of new clean energy
- Economics
 - \$717k Capital Investment
 - \$161k/yr Savings
 - 4.4 yr ROI
 - 20 yr savings = \$6M
- City will move from 16% to 72% Clean Energy

Results(early)



QUESTIONS?

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An aerial photograph of Fayetteville, Arkansas, showing a mix of urban buildings, green trees, and surrounding hills under a cloudy sky. The text "City of Fayetteville, Arkansas" is overlaid in white.

City of Fayetteville, Arkansas