



City of Prescott

City Council - Study Session

January 14, 2025 | 1:00 PM
201 N Montezuma Street
City Council Chambers, 3rd Floor
Prescott, AZ 86301

AGENDA

The following Agenda will be considered by the **Prescott City Council** at its **Study Session** pursuant to the Prescott City Charter, Article II, Section 13. Notice of the meeting is given pursuant to Arizona Revised Statutes, Section 38-431.02. One or more members of the Council may be attending the meeting through the use of a technological device.

Viewing & Participation

This meeting may be viewed on Channel 64, Facebook Live or on the City's website: [City of Prescott Live Meeting Feed](#)

Public comments for Council may be submitted through the City website: [Public Comment Form](#)

1. CALL TO ORDER

2. ROLL CALL

3. DISCUSSION

- A. Presentation & Discussion Regarding Establishment of a Citizens Sustainability & Resiliency Advisory Committee.
- B. Presentation & Discussion Regarding a Potential Amendment to City Code Related to Gas-Powered Leaf Blowers.

4. ADJOURNMENT

Upon a public majority vote of a quorum of the City Council, the Council may hold an executive session, which will not be open to the public, regarding any item listed on the agenda but only for the following purposes:

- (1) Discussion or consideration of personnel matters (A.R.S. §38-431.03(A)(1));
- (2) Discussion or consideration of records exempt by law (A.R.S. §38-431.03(A)(2));
- (3) Discussion or consultation for legal advice with the city's attorneys (A.R.S. §38-431.03(A)(3));
- (4) Discussion or consultation with the city's attorneys regarding the city's position regarding contracts that are the subject of negotiations, in pending or contemplated litigation, or in settlement discussions conducted in order to avoid litigation (A.R.S. § 38-431.03(A)(4));
- (5) Discussion or consultation with designated representatives of the city to consider its

position and instruct its representatives regarding negotiations with employee organizations (A.R.S. §38-431.03(A)(5));

(6) Discussion, consultation or consideration for negotiations by the city or its designated representatives with members of a tribal council, or its designated representatives, of an Indian reservation located within or adjacent to the city (A.R.S. §38-431.03(A)(6);

(7) Discussion or consultation with designated representatives of the city to consider its position and instruct its representatives regarding negotiations for the purchase, sale or lease of real property (A.R.S. §38-431.03(A)(7)).

CERTIFICATION OF POSTING OF NOTICE

The undersigned hereby certifies that a copy of the foregoing notice was duly posted at Prescott City Hall on 1/9/25 at 12:00 p.m. in accordance with the statement filed by the Prescott City Council with the City Clerk.



Sarah M. Siep, City Clerk



TO: MAYOR AND CITY COUNCIL
AGENDA: January 14 Study Session
DATE: January 14, 2025
DEPT: City Clerk
ITEM #: 3.A
SUBJECT: Presentation & Discussion Regarding
Establishment of a Citizens Sustainability &
Resiliency Advisory Committee.

ITEM SUMMARY

This item was requested by Councilman Moore and Councilmember Rusing for discussion regarding the potential establishment of a Citizen Sustainability & Resiliency Advisory Committee as follow up based on the 2025 General Plan draft, 2024 Strategic Plan, and the energy audit, to discuss the necessity for the implementation of a Citizen's Sustainability and Resiliency Advisory Committee. This proposed Committee would meet quarterly to make recommendations to Council and the City Manager concerning increasing energy efficiency and other sustainability practices for the City, in order to save taxpayer dollars and to protect the community from climate impacts.

****All attached materials provided by Quad Cities Climate Collaborative President Patrick Grady****

BACKGROUND

None.

FINANCIAL IMPACT

None.

RECOMMENDED ACTION

This item is for discussion only. No formal action will be taken.

ATTACHMENTS

1. Sustainability & Resiliency Advisory Committee Presentation
2. Schneider Electric - City of Prescott Business Case 10.5.23

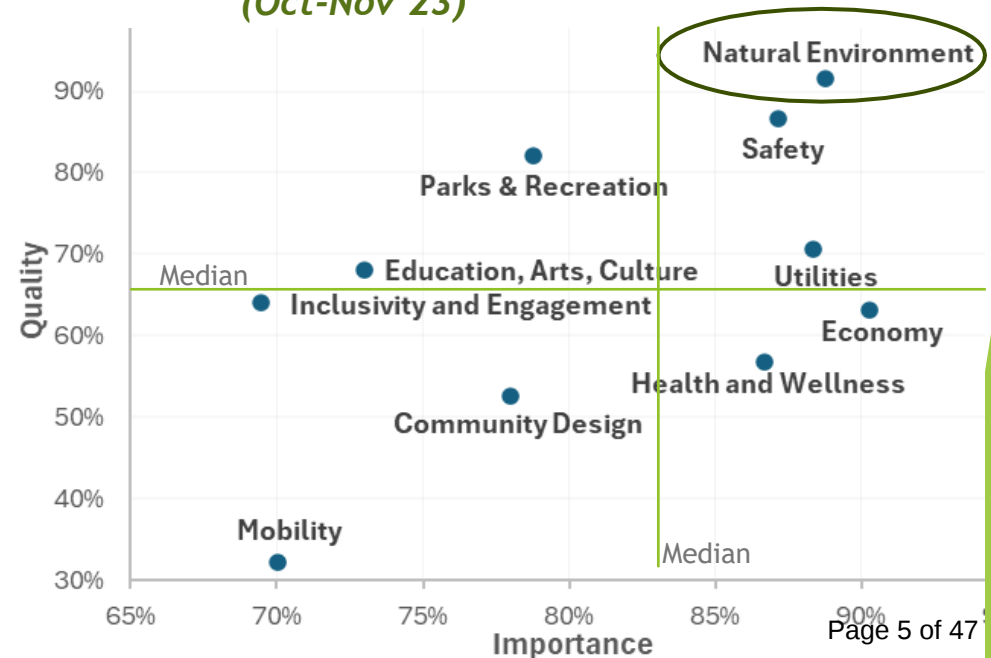
IMPLEMENTING SUSTAINABILITY and RESILIENCY: Citizens Advisory Committee

- ◆ Proposal: A Volunteer Committee with expertise in sustainable practices
- ◆ Purpose: Augment city resources and assist implementation of:
 - ◆ FY25 Strategic Plan priority on preserving our natural environment; and
 - ◆ 10 Year General Plan Chapters: Resiliency and Sustainability, Community Connected, Economic Competitiveness
- ◆ Genesis
 - ◆ Unanimous approval in 2022 to commission a climate profile for the Quad Cities
 - ◆ Climate Action Options Report in 2023 recommending creation of citizen multi-stakeholder group to research and recommend resiliency and sustainability strategies including economic benefits
- ◆ Discussion
 - ◆ Benefits of citizen working group to augment City strategy and staff
 - ◆ Requesting your support to create a Sustainability & Resiliency Advisory Committee or Working Group

Benefits

- ◆ Provide expertise in conservation, wildlife management, renewables/energy policy, community planning, low impact development, economic benefit analysis
- ◆ Provide consolidated inputs from multiple stakeholders
- ◆ Research best practices with data and facts
- ◆ Supplement staff resources
- ◆ Examine budget saving opportunities, particularly in the area of energy efficiency and conservation
- ◆ A formalized Committee/Working Group demonstrates responsiveness to top citizen Quality of Life input

*Community Survey Prescott Livability
(Oct-Nov'23)*



General Plan Benefits and Alignment

- ◆ Resiliency and Sustainability Chapter
 - ◆ Environmental Planning
 - ◆ Climate and Energy Use
- ◆ Community Connected Chapter
 - ◆ Wildlife Corridors & Open Space
- ◆ Economic Competitiveness Chapter
 - ◆ Recreational tourism
 - ◆ Workforce recruitment
 - ◆ Sustainable growth and development

Recruitment of Gen Z and Millennials:

- *75% want governments to push businesses to address climate change*
- *60% research company environmental policies before accepting a job*

Deloitte May '24

FY25 Strategic Plan Benefits and Alignment

- ◆ Priority #4 Preserving the Natural Environment
- ◆ Priority #2 Economic
 - ◆ Attract New Business: Environment is a key quality of life driver for workforce recruitment and tourism
 - ◆ Implement Municipal Energy Audit - Utility and M&O savings, Capital cost avoidance, Tax credits & rebates

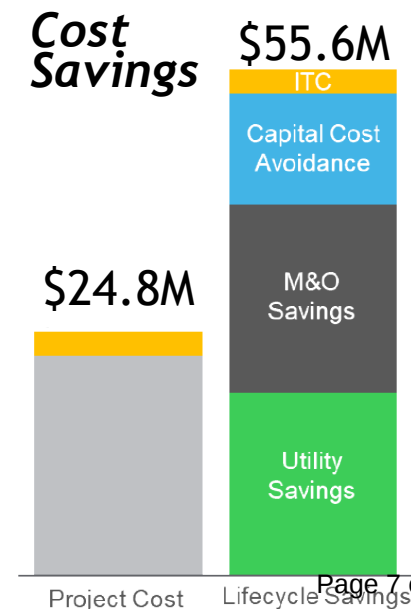
Energy Audit Example:

Flagstaff achieved 42% annual utility savings

Our peers Flagstaff and Sedona have Sustainability Offices / Directors

Improve our Economic Competitive Advantage

***Prescott Business
Case Analysis***
Schneider Electric, Oct'23



Engagement Concepts

- ◆ **Purpose:** research and review best practices; propose actions and projects in support of energy conservation, low impact development, nature-based tourism and wildlife management with focus on economic benefits as outlined in the Strategic and General Plan
- ◆ **Organizational Option 1: Mayor and City Council authorized Citizens Committee**
 - ◆ 7-11 members pursuant to Prescott City Code Chapter 1-13
 - ◆ City Staff appointed to support the mission and function
 - ◆ Official Committee creates credibility and accountability
- ◆ **Organizational Option 2: Citizens Working Group on Sustainability**
 - ◆ Delve into specific sustainability projects with City staff
 - ◆ Nimble: flexible schedule and reporting and timely responses to City priorities
- ◆ **Requesting your support** to create a Citizens Sustainability & Resiliency Advisory Committee or Working Group



City of Prescott

Business Case Analysis

October 5th, 2023

Life Is On

Schneider
Electric

Executive Summary

The City of Prescott is committed to providing a community where residents thrive. The City has been dedicated over the years to encouraging economic development and quality of life, and enabling well planned, moderate growth. This proactive approach and focused long-term vision have helped sustain the City and prepare it well for continued expansion and population growth.

Schneider Electric is proud to present this Business Case analysis to the City of Prescott, aiming to address unfunded needs, modernize infrastructure, maximize energy and operational savings, and align with the City's future plans and development needs.

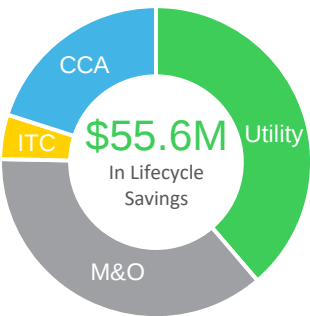
Our analysis of the City's energy usage and facility walkthroughs, along with feedback from City staff, led us to identify the four project priorities for the City of Prescott identified to the right:

Project Priorities

- Reduce Utility Costs & Consumption
- Modernize Infrastructure & Identify Innovative Opportunities
- Maximize Operational Efficiency
- Demonstrate Wise Financial Stewardship

Funding Innovation and Modernization for the City of Prescott

With the solution identified by Schneider Electric, the City will be able to address critical infrastructure and innovation needs funded entirely through the energy and operational savings we've identified. The recommended improvements within this Business Case:



- Reduce Prescott's overall utility costs by 10%
- Provides over \$1.1M in utility and M&O savings
- Stretch capital dollars further by leveraging untapped energy savings to self-fund almost \$25M in infrastructure improvements
- Generate lifecycle savings of over \$55.6 Million for the City
- Leverages over \$2.7M in strategically targeted grants and incentives for the preliminary scope identified

Taking the Next Step – Together

We would like to extend our appreciation to the entire City of Prescott team that has generously given their time to enable us to create this Business Case, as without their help we could not have developed the solution we're sharing with you today. Thank you and we look forward to continuing our partnership and further developing a solution for a more sustainable and innovative City of Prescott.



Sincerely,

Brandon Woodward
Arizona Team Leader
Schneider Electric, Sustainability Business

The Bottom Line

Schneider Electric's solution for the City of Prescott is projected to generate a 10% reduction in utility costs and over \$1.1M in annual savings. This translates to over \$55.6M in lifecycle savings and cost avoidance that can be reinvested back into modernizing infrastructure and creating a more efficient & innovative City of Prescott.

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1

Project Overview



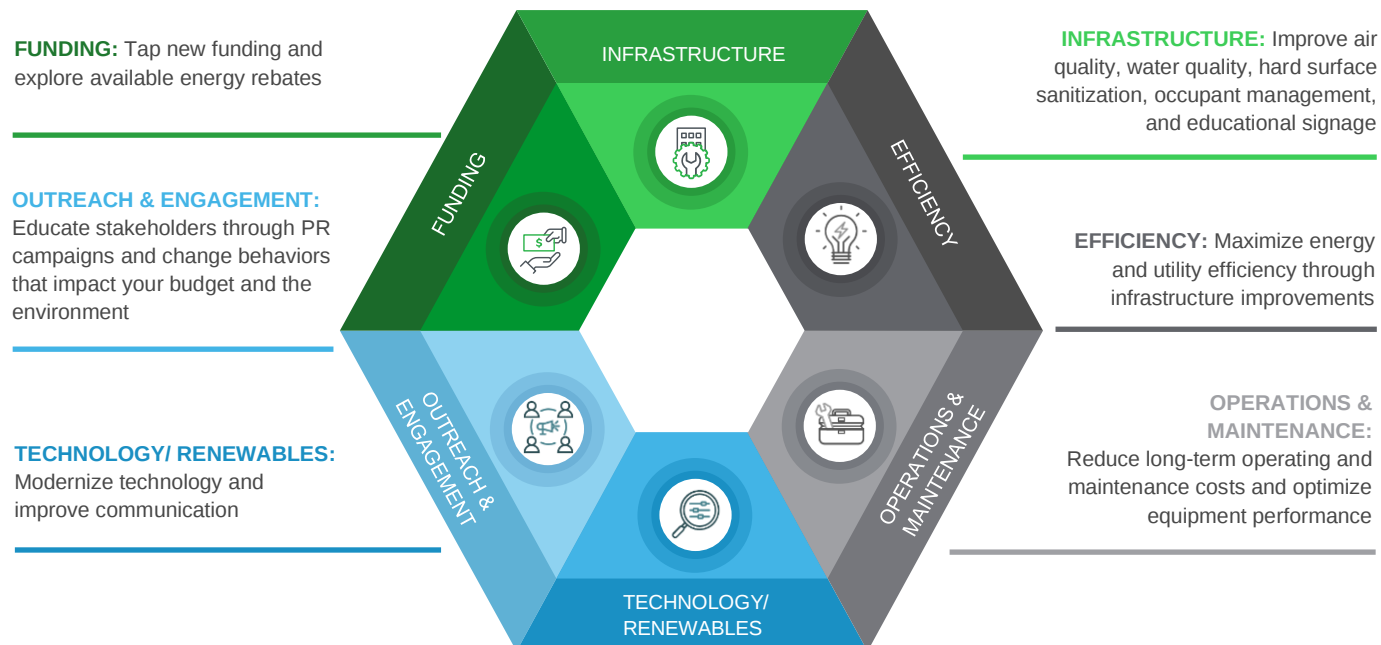
Section 1: Project Overview

A Vision for Your Community

A strategic partnership with Schneider Electric will not only help the City to achieve its energy efficiency and modernization goals but will enable you to leverage those efficiencies to achieve your bigger picture vision for the City. From the valuable input from City leadership along with on-site facility assessments, we've identified the following priorities that we focused on in this solution for the City of Prescott:

- 1 Reduce Utility Costs & Consumption
- 2 Modernize Infrastructure & Identify Innovative Opportunities
- 3 Maximize Operational Efficiency
- 4 Demonstrate Wise Financial Stewardship

Specific areas of focus for this program include:



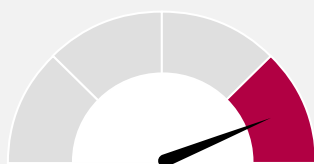
Project Opportunities and Solutions

Based on our conversations with City leadership along with our onsite assessment, we believe the following Energy Conservation Measures (ECMs) and modernization solutions will have the greatest impact on your facilities. Included in this section are the benefits of those measures and an Opportunity Matrix that presents all of the solutions identified by site.

Priority 1 - Reduce Utility Costs & Consumption

Challenge

Utility costs continue to rise, and the City's energy usage has also increased in recent years. The City of Prescott is currently spending \$4.6M a year on electric, gas, and water – which represents a significant untapped savings opportunity for the City by lowering those costs.



Priority Level: **Critical**

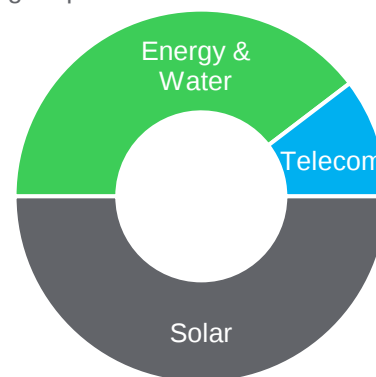
Solution

Schneider Electric's recommendations will not only modernize the City's facilities, but drastically reduce energy and water consumption in City buildings, parks, and the Airport wastewater treatment plant. **This huge leap in efficiency translates to over \$1/2M in energy, water and telecom savings each and every year.**

Benefits

Listed below are just a few of the 26 unique Energy Conservation Measures (ECMs) that Schneider Electric is recommending as part of this solution:

- City-wide LED Lighting Retrofit
- Occupancy Sensors + LED Exit Signs
- LED Streetlights
- WWTP Solar & Solar Covered Parking
- High Efficiency HVAC Replacement
- Telecom Optimization
- Utility Rate Optimization
- Artificial Turf and Smart Irrigation
- Retrocommission BAS



Annual Savings Distribution



Inefficient Lighting Systems



HVAC at the end of useful life



Old, inefficient sports field lighting with poor light quality

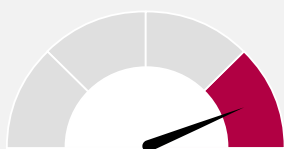


Solar Recommendation at Airport WWTP

Priority 2 - Modernize Infrastructure & Identify Innovative Opportunities

Challenge

As the City of Prescott continues to increase in age, so do your facilities, systems, and infrastructure. If not proactively addressed, these deferred maintenance and modernization needs develop into significant unfunded needs.



Priority Level: **Critical**

Solution

Schneider Electric identified 26 unique energy conservation and building modernization solutions for the City of Prescott. This solution helps to address several of the City's deferred maintenance needs while also providing the innovative improvements needed to advance the City's infrastructure.

Benefits

- **Electric Vehicle (EV) Charging Stations** – providing essential infrastructure for changing auto fuel needs ensures that the growing number of EV owners will continue to visit Prescott and all the City has to offer
- **LED Sports Field Lighting** – updating to bright, modern lighting makes Prescott an attractive option for additional sports tournaments – increasing both revenue generation and economic impact
- **Solar** – Both solar covered parking in a few areas across the City along with a large array at the wastewater plant will provide a renewable and more cost-effective energy solution for the City
- **Significant Wastewater Upgrades**
- **LED Streetlights**
- **Artificial Turf and Smart Irrigation**
- **Timed Smart Locks and Smart Benches**

TWENTY-SIX
UNIQUE ENERGY
CONSERVATION
AND BUILDING
MODERNIZATION
SOLUTIONS FOR
CITY OF PRESCOTT



EV Charging Stations



Modernized LED Sports Field Lighting

Additional Benefits - Marketing

More than just saving energy, our team can also provide comprehensive marketing and branding resources to help share the innovative and sustainable advancements the City of Prescott is making.



Priority 3 - Maximize Operational Efficiency

Challenge

With limited maintenance and operations resources, the need to maximize operational efficiency has evolved from a want to an absolute necessity. Bringing the City up to speed on system optimization and smart building technologies will enable staff to make quicker, better educated decisions on everything from energy efficiency to wastewater operations.



Priority Level: **High**

Solution

Provide staff the tools they need to provide quality public services in a responsible, efficient, and effective manner. New technologies ensure M&O resources aren't limited to supporting just the basics but can protect critical facilities and ensure proactive maintenance.

Benefits

The solutions identified for the City of Prescott have the potential to generate **over \$1/2M in annual maintenance and operations savings**. A few of these key solutions identified include:

- High Efficiency HVAC Replacement
- LED Lighting
- Significant Wastewater Upgrades
- Refrigerator/Freezer remote monitoring
- Smart Irrigation System
- Retrocommission BAS
- Schneider Suite of Services

\$520k
IN ANNUAL
MAINTENANCE
& OPERATIONS
SAVINGS



Capital Asset Planner and Resource Advisor solutions provide valuable data and insight for proactive facility management



Schneider's Suite of Services provide additional benefits to the City to optimize maintenance and operations

Priority 4 - Demonstrate Wise Financial Stewardship

Challenge

With the financial uncertainty of our current times, finding a modernization solution that also has a positive financial impact on the City is a top priority. So in addition to just finding efficiency and sustainability opportunities, it is the City's desire to ensure that those solutions demonstrate wise financial stewardship



Priority Level: **High**

Solution

Schneider Electric was challenged with identifying a solution for City of Prescott that addresses unfunded deferred maintenance needs, improves the image of the City, and provides a strong financial payback. Schneider Electric has identified a solution that is not only entirely self-funding, but generates positive cashflow each and every year.

Benefits

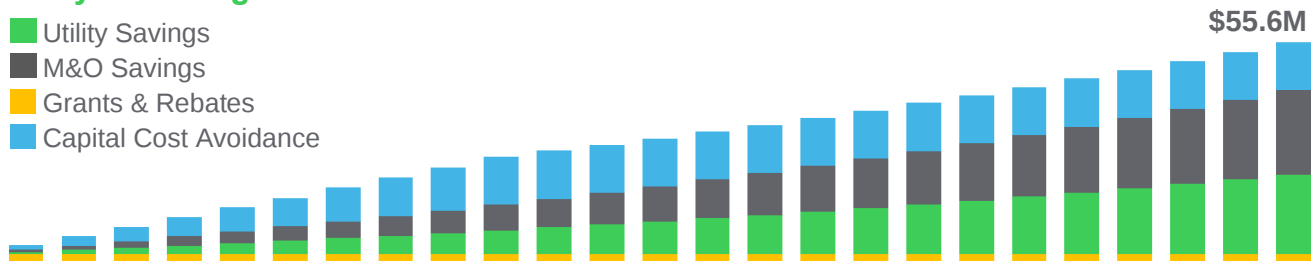
Schneider Electric has identified a solution that:

- Is 100% self-funding
- Generates \$55.6M in total lifecycle savings for the City
- Provides over \$550k in annual guaranteed utility savings and another \$520k in M&O savings
- Increases both economic development and revenue generation
- Leverages over \$2.7M in strategically targeted grants and incentives for the preliminary scope identified
- Provides approximately \$11M in avoided future capital costs for systems that will need to be budgeted for over the next 10 years
- Stretches budget dollars further by leveraging untapped energy savings to self-fund almost \$25M in infrastructure improvements

\$55.6M
IN TOTAL
LIFECYCLE
SAVINGS

Lifecycle Savings Potential

- Utility Savings
- M&O Savings
- Grants & Rebates
- Capital Cost Avoidance



Opportunity Matrix

Below is a matrix of the opportunities we have identified for the City of Prescott at each of the facilities we evaluated. Information about each ECM can be found in Part II of this report, A Closer Look.

	Public Library	Police Department	Fire Station 71	Adult Center	Airport Terminal	Parking Garage	Airport WWTP	Veteran's Memorial Island	City Parks	City-wide
LED Lighting										
LED Retrofit (w/ Occ Sensors & Exit Signs)										
LED Sports Lighting										
LED Streetlights										
Dynamic LED Lighting at City Hall										
HVAC & Building Automation										
High Efficiency HVAC Replacement										
Retrocommission of BAS										
Refrigerator/Freezer Remote Monitoring										
Renewable Energy & Electrification										
Solar Covered Parking & WWTP Solar										
EV Charger Pilot Program										
Wastewater Improvements										
Real Time Nitrification & Denitrification System										
HST Blower With Speed Control										
Convert From On-site Chlorine to Hypochlorite										
DryVac Plate and Frame Dewatering System										
Aerobic Digester Optimization System										
Miscellaneous Opportunities										
Artificial Turf and Smart Irrigation										
Timed Smart Locks										
Smart Benches										
Schneider Suite of Services										

Wastewater Opportunity Overview

In addition to the recommendations identified above, the following capital-intensive needs were identified for the Airport Wastewater Treatment Plant:

Recommendation: Installation of Real Time Nitrification / Denitrification with SRT Control System

Benefits:

- Controls blower output using ammonia-based aeration control
- Allows for discrete DO control per zone
- Controls SRT in real time and calculates ideal SRT
- Automates Internal Recycle Rate

Recommendation: Install right-sized High Speed Turbo Blower

Benefits:

- Ability to be controlled by output signal from the ABAC system
- Significant energy savings, integrated VFD
- Quiet and low maintenance

Recommendation: Replace on-site Chlorine Generation with purchase of 12% Hypochlorite Solution

Benefits:

- Eliminates high energy use associated with existing MicroChlor System
- Reduces overall cost of disinfection
- Improves disinfection system reliability

Recommendation: DryVac Plate & Frame Sludge Dewatering System

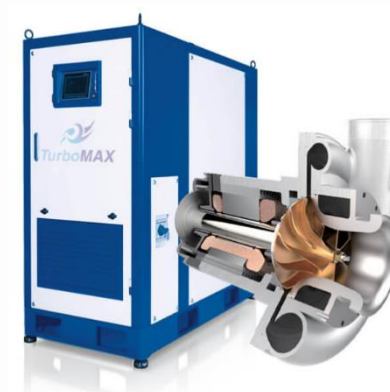
Benefits:

- Improve solids dewatering from 28% TS to 95% TS
- Class A biosolids can be used by the City, resulting in a 100% savings in biosolids disposal, while promoting sustainability
- Easy to maintain and reliable dewatering

Recommendation: Install Enviromix BioCycle D Aerobic Digestion Optimization System

Benefits:

- Allows for operation of the Aerobic Digester in Facultative Mode, separating mixing and aeration, while achieving 38% VS destruction
- The increased VS destruction will reduce Biosolids volume by 30%, resulting in corresponding cost reductions in sludge dewatering, transportation and disposal
- BioCycle D has the ability to bind phosphorus, promoting phosphorus removal during the dewatering process

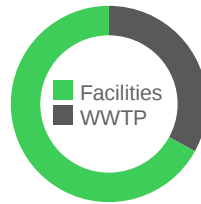


Financial Overview

Project Potential

\$24.8M

in self-funding energy efficiency and modernization improvements



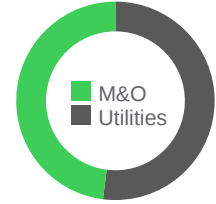
Savings and Funding Sources Identified

- Utility Savings - Energy, Water, and Telecom
- Significant M&O cost reductions
- Grants and utility rebates (ITC, EECBG, etc.)
- Capital budget

Annual Savings Potential

\$1.1M

annual reduction in utility and M&O costs



Additional Savings Opportunities

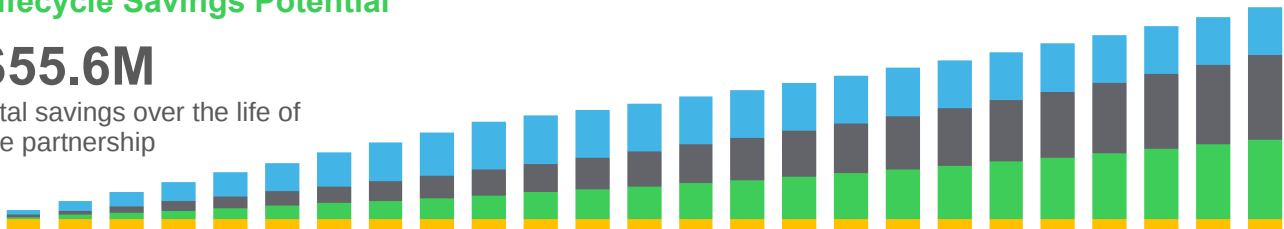
\$2.7M

In Solar Investment Tax Credit (ITC), EECBG, and Utility Rebates

Lifecycle Savings Potential

\$55.6M

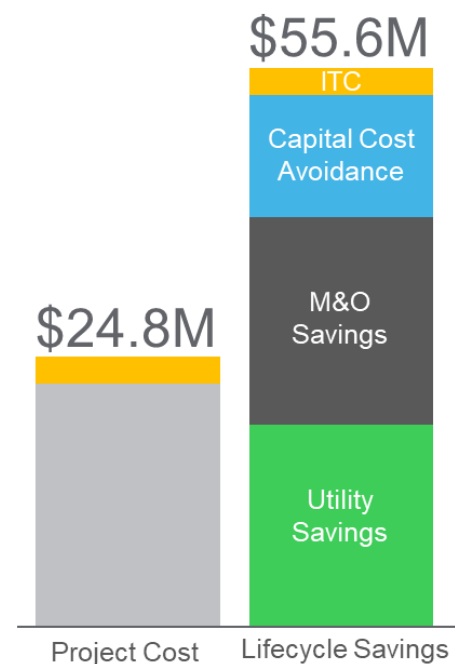
total savings over the life of the partnership



City-wide Improvements Include:

- LED Retrofit (w/ Occ Sensors & Exit Signs)
- LED Sports Lighting
- LED Streetlights
- Dynamic LED Lighting @ City Hall
- High Efficiency HVAC Replacement
- Retrocommission of Building Automation System
- Refrigerator/Freezer Remote Monitoring
- Solar + Solar Covered Parking
- EV Charger Pilot Program
- Artificial Turf and Smart Irrigation
- Plug Load Controls & PC Power Mgmt.
- Timed Smart Locks
- Smart Benches
- Schneider Suite of Services
- Real Time Nitrification & Denitrification System
- HST Blower With Speed Control
- Convert From On-site Chlorine to Hypochlorite
- DryVac Plate and Frame Dewatering System
- Aerobic Digester Optimization System

Project Cost/Savings Comparison:



Potential Grant Funding

Schneider Electric will work together with the City of Prescott to access and maximize federal grant funding dollars. Our dedicated grants and rebates team is able to provide federal funding reporting and consulting services, along with program and project management services all within a single organization. To-date, this approach has allowed Schneider Electric to capture over \$750M in grants and rebates for our customers.



1

COLLABORATIVE
APPROACH



2

MARKET
KNOWLEDGE



3

MAXIMIZE EVERY
DOLLAR



4

DESIGN WITH
FUNDING IN MIND

When working with our clients to go after grants and rebates, we have seen an 83.3% success rate, compared to the national average of 50%. Incorporating federal funds into our projects allows the City to maximize every dollar. And with Billions of dollars in federal funding opportunities, during the Investment Grade Audit we will work with the City to further investigate and apply to any applicable grants and rebates. Listed below are just a few of the current potential opportunities that may be worth pursuing:

Water	Electrification	Solar	Misc.
WaterSMART Grant Efficiency for water usage Max Funding: \$5,000,000	Charging and Fueling Infrastructure Grant Commuter and Fleet Charging Max Funding: \$ 20,000,000	Inflation Reduction Act (ITC) Solar PV Max Funding: Up to 60% of project - \$300B in avail. funding	Energy Improvements in Rural or Remote Areas Reduced energy usage Max Funding: \$500,000+
WIFA - Water Conservation Grant Fund Conserving AZ's water supply Max Funding: Up to \$3M	Bus and Bus Facilities Upgrade bus fleet, facilities, & infrastructure Max Funding: \$20,000,000	Deployment of Technology to Enhance Grid Flexibility Solar PV and Grid Resilience Max Funding: ~\$10,000,000	Safe Streets and Roads for All Street lighting, Smart Grid Max Funding: \$25M
	SEC. 11401 - Grants for Charging Infrastructure EV Charging Stations Max Funding: ~\$5M	DOE Grid Resilience and Innovation Partnerships Grid Resilience Max Funding: \$10.5B	USDA Community Facilities Program Develop essential community facilities in rural areas
	EPA Diesel Emissions Reduction Act Replacement of diesel fleet Max Funding: \$115M	EPA Solar for All Deployment of residential distributed solar energy Max Funding: \$7B	EDA Economic Adjustment Assistance Grant Job creation & private investment Max Funding: ~\$5M
			Energy Efficiency and Conservation Block Grants Any efficiency-related improvements Max Funding: \$76,750

Next Steps

BUSINESS CASE

☒	Project Priorities Workshop	Identify goals, initiatives, and visions at each level of the City to develop a customized solution	August 1 st
☒	Business Case Assessment & Report	Analyze facilities & operational data to identify opportunities and estimated impact	October 5 th
☐	IGA Discussion & Strategy	Discuss next steps of the Investment Grade Audit - identify IGA scope, cost, and timeline	October 16 th
☐	Council Study Session & IGA Approval	Share Business Case results with City Council – typically through a study session followed by IGA approval at same or subsequent meeting	October 24 th

INVESTMENT GRADE AUDIT

☐	Investment Grade Audit	Upon Council approval of IGA, Schneider Electric will develop & finalize scope, savings, cost, and funding method(s) for a turnkey project	Oct '23 – June '24
☐	Final Project Approval	The final co-authored project is presented to City leadership and Council for final approval	June '24
☐	Project Construction	Schneider Electric will manage the entire construction process around Prescott's schedule and priorities.	Summer '24 - TBD

Solution Recap

\$24.8M

in self-funding energy efficiency and modernization improvements

\$1.1M

annual reduction in utility and M&O costs

\$55.6M

in total lifecycle savings and cost avoidance

Business Case Debrief

- Did anything in our assessment surprise you or resonate with you?
- What questions do you have for us about the assessment?
- Are the results of our Business Case compelling enough to share with City Council and pursue an Investment Grade Audit?
- When is the best time to reconnect and discuss next steps?

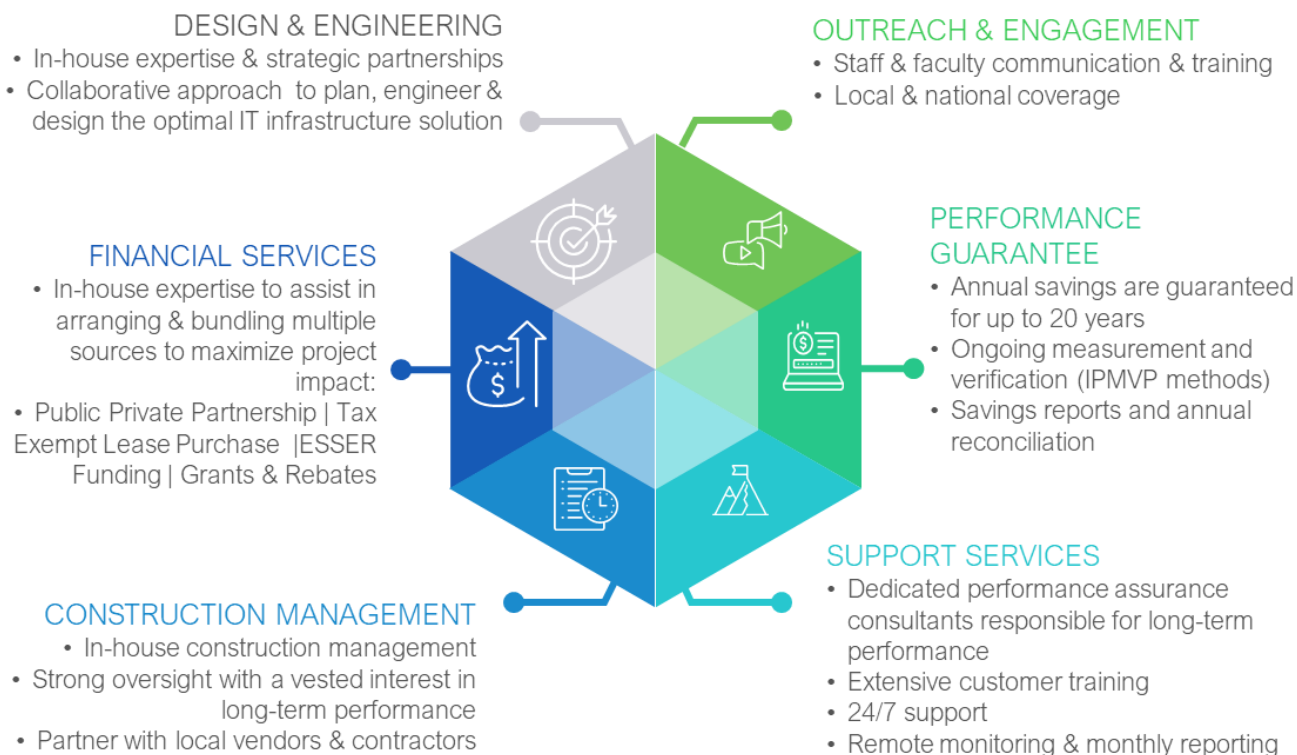
The Schneider Approach

Infrastructure projects are complex undertakings with many moving parts. At Schneider Electric, we believe our approach to your project is different than most other methods. While others may offer similar features, the personal touch we offer is unique. That's why over 60% of our work is repeat business with our existing customers.



KEY ATTRIBUTES OF OUR DELIVERY MODEL

Schneider Electric provides a partnership centered on guaranteed outcomes through a single point of accountability from the design phase through the ongoing performance period. The graphic below demonstrates all of the facets of our partnership and how this approach enables better alignment with the City's goals.



A scenic landscape photograph of a calm lake. In the foreground, the left side is framed by the dark green, needle-covered branches of a pine tree. The lake's surface is still, reflecting the sky and the surrounding forest. In the middle ground, a small peninsula or shoreline is dotted with several trees that have turned a vibrant yellow, contrasting with the surrounding green forest. A few cars are parked on this shore. The background consists of rolling hills and mountains covered in dense evergreen forests under a clear, pale blue sky.

2

A Closer Look

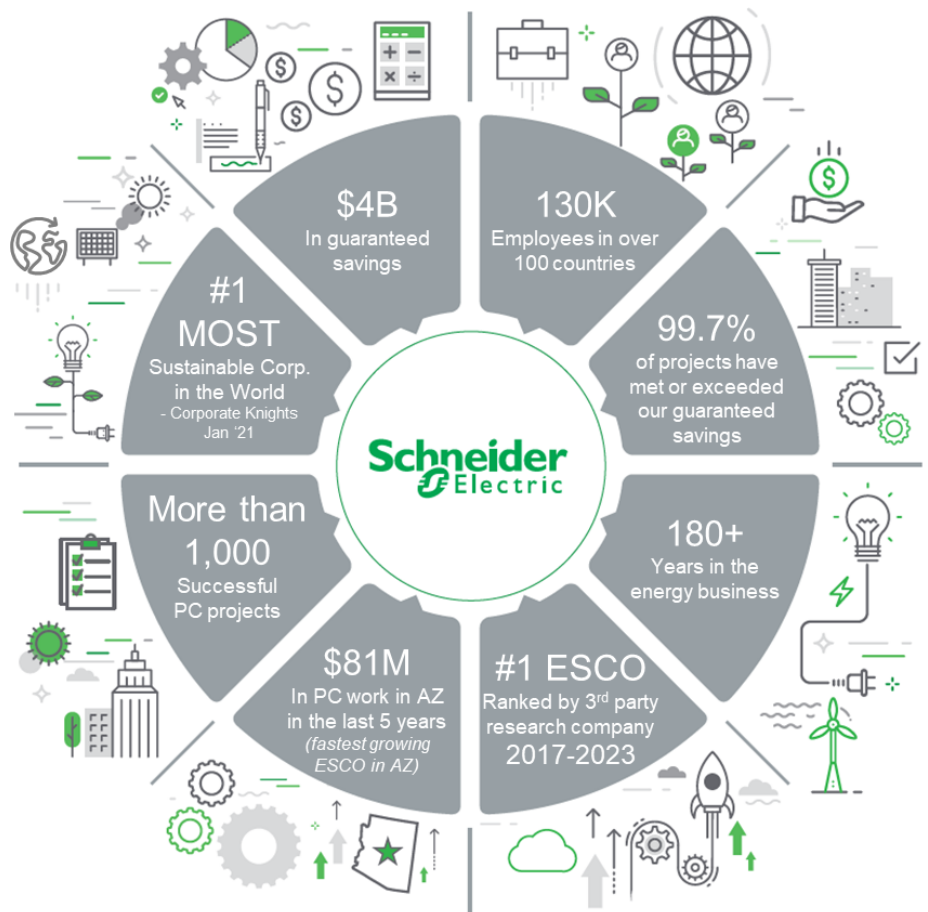
Why Schneider Electric?

Every Energy Service Company (ESCO) claims to be the best, but at Schneider Electric we are honored to be recognized and awarded globally in areas of innovation, sustainability, ethics, and safety. The image below highlights some of our most recent awards, including those we are most proud of. Please visit <https://www.schneider-electric.com/en/about-us/company-profile/awards.jsp> for a complete listing.

Third-party research company Guidehouse Insights evaluated the top ESCOs and **ranked Schneider Electric as the #1 ESCO in the Country for 7 consecutive years.** They reported that, “Schneider’s strengths align perfectly with current evolutions in both the efficient buildings and performance contracting markets, helping them to achieve deep energy savings for clients in both markets.”

Schneider Electric was also ranked as the #1 Energy as a Service (EaaS) company, #1 Intelligent Building Software Provider, and is accredited by NAESCO, the U.S. Department of Energy, and the U.S. Department of Defense.

In short, our credentials prove that we can do what we say we will do—whether it be for the federal government or for a city like yours.



References

A company’s references may be the most indicative gauge of performance. Schneider Electric relies heavily on our customers’ word of mouth to bolster our strong reputation in the industry. Our business approach is built around achieving 100% customer satisfaction. This is so important to us that we perform customer satisfaction surveys with several points of contact at various phases during a project’s lifecycle. If we receive a score that is less than perfect, we work with our clients to build that score back up and troubleshoot any issues.

The following pages represent just a few of the successful local projects completed in Arizona alone

CITY OF SIERRA VISTA

SIERRA VISTA, AZ

CONTACT INFORMATION

Victoria Yarbrough, Assistant City Manager
1011 N. Coronado Drive
Sierra Vista, AZ 85635
520-458-3315
victoria.yarbrough@sierravistaaz.gov



PROJECT COST

Phase 1: \$13,997,941

Phase 2: \$25,931,203

LIFECYCLE SAVINGS / REVENUE GENERATION

Phase 1: \$23.5M

Phase 2: \$32.3M

LIFECYCLE ECONOMIC IMPACT

Phase 1: \$41M

Phase 2: \$112M

ANNUAL PROJECT SAVINGS

Phase 1: \$847k

Phase 2: \$2.5M

PROJECT TERM & DATES

Both Phases: 25 Year Term

Project Beginning and End Dates

Phase 1: 2020-2045

Phase 2: 2022-2047

Construction Dates

Phase 1: September 2019 – July 2020

Phase 2: June 2022 – April 2023

PROJECT DESCRIPTION

In an effort to continue their commitment to sustainability, The City of Sierra Vista sought out to do an Energy Savings Performance Contract (ESPC). After an in-depth RFI period that included numerous meetings, interviews, site walks, and proposals from most ESCOs in the state, The City chose Schneider Electric as their long-term energy partner because of our ability to do so much more than just save energy. While environmental stewardship was an important part of the project, the City Council also had other strategic initiatives including economic development, community engagement and sports tourism. By aligning our strengths with City Council's strategic initiatives, we were able to launch their sports tourism initiative with artificial turf on 5 soccer fields and LED sports field lighting on all 17 of their fields and sports courts. The City also entered into a Phase 2 which included complete overhaul and revamp of land with an abandoned sports complex.

The solutions with both projects include:

- Solar Covered Parking at 4 sites
- City Hall Roof Replacement + Solar
- An EV Charging Station pilot program
- Over 3,500 interior/exterior LED replacements
- Significant HVAC upgrades at multiple sites
- Wastewater aeration control upgrades
- Environmental leadership branding and marketing initiative that focused on community pride and engagement
- Replacing the old inoperable wave machine with a new state-of-the-art system – making Sierra Vista one of only two municipalities in the state with this truly unique attraction
- Electrical infrastructure overhaul – allowing for more flexibility and event capabilities at the City's primary outdoor event space
- LED Airport Runway Light and Control Upgrades
- New Irrigation Lines & smart Irrigation System at 16 parks
- And about a dozen other small ECMs



August 13, 2020

To Whom It May Concern,

I rarely write letters of recommendation for vendors with whom the City has a business relationship, but over the course of the past two years a unique relationship developed with the team at Schneider Electric. Sierra Vista had never embarked on a project of the sort we planned and executed with the Schneider team, and it was a long process to get to where we are today which is just about wrapping up an almost \$14 million project. There were many internal staff, including the city manager and CFO, who were exceptionally skeptical of an ESCO project. The city had looked at various options for an ESCO project for years before entering into a contract with Schneider Electric in 2019.

Sierra Vista staff began our process by interviewing six ESCO companies from a cooperative purchasing contract. What set Schneider apart was their willingness to work with us on our vision for the project and the community as a whole by talking about all of our strategic plan goals and especially our economic goals – not just (although it was of course important) how they could save us money on energy. Schneider gave us more information up front than any other company, which also helped convince our skeptics that it was a good move for us. In the end, we were able to put together an incredible project that balanced energy savings with investments the City wanted to make to achieve other strategic plan goals that we would not have been able to afford otherwise.

It took well over a year to work through all the concerns our staff had before we even took the project to Council for approval. In the end, they were won over by the data and information Schneider provided, and the amazing working relationship and trust we developed with the Schneider team. At every point in the project the Schneider team exceeded our expectations to check in, meet deadlines, provide information, and address any and all concerns or issues raised. I am certain Sierra Vista would not have had the excellent experience we had with an ESCO if we had chosen another company. I have been impressed with the quality of their staff, their responsiveness, creativity, and willingness to construct the project of our dreams every step of the way.

Please do not hesitate to contact me with any questions on Sierra Vista's experience with Schneider Electric or our project.

Sincerely,

A handwritten signature in black ink, appearing to read "Victoria", followed by a stylized flourish.

Victoria Yarbrough

CITY OF SIERRA VISTA
1011 North Coronado Drive
Sierra Vista AZ 85635
520-458-3315
www.SierraVistaAZ.gov

TOWN OF PRESCOTT VALLEY

PRESCOTT VALLEY, AZ



CONTACT INFORMATION

Gilbert Davidson, Town Manager
7501 E Skoog Blvd
Prescott Valley, AZ 86314
928-759-3100

PROJECT COST

\$6,788,055

ANNUAL PROJECT SAVINGS

\$529,278

SCOPE OF WORK

- High Efficiency HVAC Replacement
- Upgrade Existing HVAC and seal ductwork
- New Building Automation System
- Low Flow Plumbing Fixtures
- Refrigerator & Freezer Monitoring
- Comfort and IAQ improvements
- Electrical Infrastructure Replacement
- Hosted Telecom Solution
- Additional Schneider Services

ROLE OF RESPONDER & METHOD OF M&V

Energy Services Company
M&V Option D

PROJECT TERM & DATES

25 Year Term

Construction Dates

Jun 2023 – Apr 2024

PROJECT DESCRIPTION

The Town of Prescott Valley is located in Northern Arizona and has experienced significant growth in the last two decades – growing to now over 50,000 residents. Recognizing that the Town was in need of major modernization and needing a partner to help them proactively address their growing needs, they issued an RFQ in early 2022. After receiving responses from most of the ESCOs in Arizona, the Town selected Schneider Electric as their long-term energy partner because of our ability to do so much more than just save energy.

In partnership with Town leadership, Schneider Electric was able to identify over 2 dozen cost-savings and efficiency opportunities for Prescott Valley, totaling almost \$40M in lifecycle savings.

The first phase of the project focused heavily on the large failing HVAC equipment at the Event Center and Civic Center. Our innovative solution was able to modernize existing infrastructure to accommodate growing community while maximizing Town resources, ARPA funding, and economic impact. This project also tangibly advanced Town Council's Strategic Plan and provided staff with the systems, tools, and resources needed to be as efficient and effective as possible.

Despite the bulk of the project being HVAC – which has a traditionally long payback due to its costly nature – this phase 1 project was able to not only address almost \$7M in Town infrastructure improvements but is projected to generate close to \$11M in lifecycle savings.

Now in construction on the first phase of work with Schneider Electric, the Town is already discussing the next few phases of work necessary to modernize their facilities and provide the much-needed innovation improvements required for their growing Town.

CITY OF SHOW LOW

SHOW LOW, AZ

CONTACT INFORMATION

Justin Johnson, Deputy City Manager
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Show Low, AZ 85901
928-532-4024
jjohnson@ci.show-low.az.us

PROJECT COST

\$712,575

ANNUAL PROJECT SAVINGS

\$84,624

SCOPE OF WORK

- Over 1,700 Interior & Exterior LED Lighting replacements that brightened City spaces and significantly reduced utility costs
- Installation of a Building Automation System at 13 City buildings that streamlined operations and increased both comfort and efficiency

ROLE OF RESPONDER & METHOD OF M&V

Energy Services Company
M&V Option A Lighting, RA/PAM

PROJECT TERM & DATES

15 Year Term

Construction Dates

Oct 2019 – Jun 2020



PROJECT DESCRIPTION

The City of Show Low and Schneider Electric partnered in 2019 with a focus on generating positive cashflow for the City. When conversations began, the City was dealing with troublesome, old lighting fixtures, and did not have any sort of centralized building automation system.

Through a strategic partnership, Schneider Electric and the City of Show Low were able to upgrade lighting fixtures at 15 City buildings and parks with over 1,700 new LED lights, creating uniform lighting and enhancing environments for both employees and residents. In addition, SE replaced old programmable thermostats with a City-wide building automation system that allowed for remote control, scheduling, & monitoring of City HVAC equipment for optimal comfort and efficiency.

This solution has surpassed the City's high financial expectations, providing positive cashflow and a Return on Investment of under 10 years and a lifecycle savings of over \$2.1M. The City of Show Low and Schneider Electric hope to continue their partnership to support the needs of the City and its residents in the future.

"Contracting with Schneider Electric was a huge success for the City of Show Low. Their solution provided energy savings that fully paid for much needed infrastructure modernization.

Schneider has a knowledgeable staff and we'd recommend partnering with them for your energy efficiency project needs."

Justin Johnson - Deputy City Manager

Solution Opportunities and ECM Details

Interior Lighting Improvements

SOLUTION OVERVIEW

Lighting systems are amongst the top energy users in most facilities. LED lighting technologies require about half of the power as conventional lighting systems to provide the same light output. Retrofitting or replacing lighting fixtures with LED provides multiple benefits including reduced energy consumption, modernized lighting technologies, improved light quality, and reduced maintenance costs.

ENERGY CONSERVATION OPPORTUNITIES

Schneider Electric proposes a comprehensive lighting study to analyze existing lamp, ballast and fixture configurations in conjunction with the lighting layout configuration, space and task type, light output and light level readings. Inefficient and outdated existing light fixtures will either be relamped, retrofit, or replaced with new LED technology.

- **LED Exit Signs**

Using Light Emitting Diode (LED) technology in exit signs offers a simple way to save energy. LEDs offer enough luminosity for visibility but use substantially less electricity than incandescent or compact fluorescent bulbs – typically running at only 4 watts of electric demand. Since exit signs operate all 8,760 hours of the year, the length of the payback period for retrofitting to LEDs is shorter than if the exit sign was used less frequently. This retrofit will also provide 100,000 hours of maintenance free operation with the longer life LED technology.

- **HID to High Bay LED Fixtures**

High bay areas with high intensity discharge (HID) lamps (which include metal halide, and high-pressure sodium) have the opportunity to be replaced with LED fixtures. The LED fixtures are designed to provide lighting quality at or above the current quality of the best HID systems. They have a superior CRI compared to metal halide lamps and a broad range of colors are available. Also, LEDs have instant on/off capabilities, eliminating the lengthy warm up period required of HID lamps. This allows the lights to be turned off when the space is not in use and instantly turned on when needed. Lastly, the longer life inherent in LED technology reduces the maintenance burden for replacing lamps in high bay fixtures.



Figure 1. CFLs at Police Dept
LED bulbs are a cost effective solution to improving light quality within conference rooms and other spaces



Figure 2. HPS High Bays at Airport WWTP
LED fixtures would provide energy savings as well as reduced maintenance hours

- **Incandescent/CFL to LED**

LEDs and compact fluorescent bulbs (CFLs) are intended to replace the common incandescent lamps used in so many applications. These technologies are much more efficient than incandescent bulbs, using about 15% as much energy while producing the same amount of light. The low energy use also results in much cooler operating lamps. The lamp life expectancy will increase from about 2,000 hours for incandescent to 10,000+ hours for CFLs or 25,000 hours for LED bulbs, resulting in reduced maintenance labor to constantly change burned out lamps. LED bulbs are available in a wide range of sizes, shapes, and output. They are also better suited for dimming than the CFL replacements that are also popular.

Where economically feasible, LED lighting should be used in common areas with track or display lighting and elevator car lighting to showcase energy awareness while efficiently meeting special lighting needs. Incandescent ornamental lighting will be replaced with either fluorescent or LED technologies. Other applications of incandescent lighting will be replaced with CFLs.

- **Fixture De-Lamping**

In cases where light levels exceed standards and recommendations set by the IES, fixtures will be de-lamped by retrofitting with fewer new lamps to reduce electrical demand and consumption. This opportunity not only reduces material cost but increases energy savings and takes advantage of the LED's superior directionality and delivered lumens to provide correct light levels. The existing luminaire chassis and lenses will also be reused.

Impact

The following highlights the key benefits of this solution:

- **Reduce Energy Spend** – More efficient lighting produces light with less energy and demand.
- **Reduce Maintenance Time** – Allow your maintenance staff to spend more time focused on your priorities and less energy on addressing day-to-day issues.
- **Improve Working Environment** – Better lighting quality improves moods and productivity.
- **Standardize Lighting** – Comprehensive lighting retrofits establish unified lighting colors throughout and allow for the bulk purchasing of unified lamps and ballasts.
- **Reduce Cooling Loads** – More efficient lighting puts less strain on space cooling systems.

Interior Lighting Control Strategies

SOLUTION OVERVIEW

Due to the varying occupancy load within a building, many of the lighting systems operate when no occupants are present. The lack of lighting control results in additional energy consumption and a greater burden on space cooling systems. The opportunity to reduce lighting hours of operation while maintaining continuity of service can be achieved through automated lighting controls.

ENERGY CONSERVATION OPPORTUNITIES

The City of Prescott facilities would benefit from the installation of lighting controls. Opportunities for lighting control strategies vary by space and application, as described below:

- **Occupancy Sensors**

Occupancy sensors are effective in controlling lighting operation in areas with variable occupancy, such as conference rooms and meeting areas, restrooms, corridors, private offices, large open offices, etc. Energy savings are obtained by turning lights off when occupants are not present within the space for a prolonged period. A lighting logger study can determine a more precise potential for reduction in burn hours associated with lighting controls. Occupancy sensors should be installed in areas where there are several controllable fixtures, intermittent occupancy and where a safety hazard will not be created if the sensor inadvertently turns the lights off.

Selecting the appropriate sensor technology, such as ceiling or wall-mounted and single or dual technology occupancy sensors, depends on the specific application.

Passive infrared detection works to turn on the light fixtures when motion is detected (using infrared detectors). Dual technology detection turns on the lights when either motion or sound is detected (using a combination of infrared and micro-sonic detectors). The use of dual technology would limit the number of nuisance switching in spaces such as restrooms. Schneider Electric will pay special attention to recommend ceiling sensors for places where wall sensors may be subject to vandalism.

Most traditional light sources have a diminished life span when constantly cycled from on to off, while LEDs are unaffected by cycling. LEDs are a great application for occupancy sensor areas with numerous cycles during the day.

- **Time Scheduling**

If a building is known to have set hours of operation, time-of-day scheduling of the lighting system allows for the lights to be turned on before occupants arrive in the morning and turned off just after the building is closed for the day for defined zones. The controls can be incorporated into the BAS or simplified using time clocks. An override can be provided in individual zones for after-hours use. This method, when



Figure 3. Typical Occupancy Sensors
Occupancy sensors are mounted to easily determine when an individual is either in or out of a space to control lighting.

installed alone without occupancy sensing, has the potential disadvantage of leaving the lights on when not needed.

- **Dimming Control**

Lighting retrofits can do only so much to achieve specific light levels through design and product selection. Dimming controls will allow light levels to be reduced to specific levels based on light level requirements and/or occupant preferences. Dimming systems can be fixed to establish a specific lighting level, programmed to different settings or controlled remotely with a dimmer to provide a full range of lighting levels.

Dimming lighting fixtures inherently saves energy, as less power is consumed by the fixture at reduced lighting output. The greater the dimming, the more energy is saved. In contrast, traditional on/off switches can only save energy when they are turned off. Furthermore, dimming control helps to extend the life of the lamp since it runs cooler at dimmed lighting levels compared to full lighting output. LEDs are uniquely suited for dimming, as they can ramp smoothly to any light output down to 10%.



Figure 4. Library Lighting

The 300+ stack lights would benefit from sensor technology and/or dimming capabilities based on occupancy

- **Advanced Control Strategies**

Advanced integrated lighting control strategies will employ several of the described control strategies described above to further reduce lighting burn hours when not required. A modular digital communicating system supports occupancy sensing, daylight harvesting, dimming, and personal control to freely configured groups of lights. The control functions listed above are typically implemented using hardwired standalone controls. These functions can be augmented with a digital lighting control system that adds scheduling and performance tracking capabilities, along with integration of HVAC control based on the occupancy status of the space, and demand limiting capabilities for setting peak electrical demand.

Impact

The following highlights the key benefits of this solution:

- **Reduced Energy Costs** – Interior lighting control strategies eliminate energy waste from lighting left on when spaces are unoccupied, from over lit spaces, and by reducing light generated heat loads on space cooling systems.
- **Convenient for Occupants** – Automated switching removes the responsibility of turning lights off from the space occupants.
- **System Flexibility** – Advanced controls will adapt to changes in occupant schedules and space needs.
- **Improved Comfort** – Better occupant control of interior lighting improves the level of comfort in the work environment and overall work performance.

Park and Ball Field Lighting

SOLUTION OVERVIEW

City of Prescott's park and ball field lighting systems show great potential for lighting improvements. Metal halide, mercury vapor and sodium vapor High Intensity Discharge (HID) lamps are an aging technology that has high lamp failures, low service life and increased energy consumption. The continuous maintenance and degrading light levels make consistent performance a challenge for most cities.

ENERGY CONSERVATION OPPORTUNITIES

Converting the HID fixture heads to LED fixtures will increase energy performance, increase lighting effectiveness and decrease maintenance/operation costs. The financial benefits of these types of retrofits are determined by evaluating the current rate tariffs and maintenance costs. Overall, the energy reduction in LED pole lighting can range from 40% to 80%, depending on design factors. The LED fixtures have a 10 to 15 year life expectancy, which is 3 to 5 years more than current technologies, reducing maintenance costs.

The performance of the LED fixtures is another area critical to implementing this type of solution. When designed properly, light levels can increase and provide a more even light between poles. Some HID lamp fixtures use a reflector to capture the light emitted upwards from the lamp and this can absorb some of the light. In addition, LED lamps have more accurate color rendering, thus making it easier for players to recognize field location and ball placement. LED fixtures do not have the problem of turning on and off immediately. Unlike HID lamps, LEDs come on with full brightness, instantly providing a more secure environment during a brief power failure. LEDs also reduce glare by directing the light downward onto the playing field, which reduces the amount of light that is directed into player's and viewer's eyes.



Figure 5. Heritage Park Baseball Field
LED stadium lighting offers multiple advantages of extreme power savings, impact resistance, long service life, low maintenance requirements and excellent light uniformity and quality.

Impact

The savings benefit with park and ball field LED lighting is significant. As stated above, the current rate structure and agreements with the utility company will determine the magnitude of financial impact. The energy savings will be substantial and most entities see a significant decrease in maintenance commitments. The local constituents will immediately notice the performance difference of the new fixtures and LED lighting can also produce unquantifiable benefits, including public image enhancement and public awareness.

The following highlights the key benefits of this solution:

- **Decrease Energy Spending** – Reduced energy consumption.
- **Reduce Maintenance** – Limit maintenance labor through longer equipment life.
- **Increase Performance** – Improved light levels and an even distribution of light.

Street Lighting Improvements

SOLUTION OVERVIEW

Metal halide, mercury vapor, and sodium vapor High Intensity Discharge (HID) lamps are an aging technology that suffers from high lamp failures, short effective operating life, and increased energy consumption. The continuous maintenance and degrading light levels make consistent performance a challenge for most cities. The City of Prescott is responsible for approximately 1600 “cobra head” style street lights located throughout the City. During the next phase of the project, the engineering team would like to evaluate the current fixtures’ lamp configurations, along with utility and maintenance expenditures of the street lighting systems. The cobra head street lighting shows great potential for energy efficient lighting improvements.

ENERGY CONSERVATION OPPORTUNITIES

Converting the HID fixture heads to LED fixtures will increase energy performance, increase lighting effectiveness, and decrease maintenance/operation costs. The financial benefits of these types of retrofits are determined by the current rate tariffs and responsibilities to maintain the systems. Each municipality varies on the way fixtures are maintained and the associated rate structure for street light energy usage. Overall, energy reduction in retrofitting with LED street lighting can range from 40% to 80%, depending on design factors. LED fixtures have a 10 to 15 year life expectancy, which is 3 to 5 years more than current technologies, reducing maintenance costs.

In addition to the energy benefits of retrofitting to LED street lighting, there are also associated performance benefits. Some HID lamp fixtures use a reflector to capture the light emitted upwards from the lamp, which absorbs some of the light and decreases its effectiveness. LEDs, however, are directional and do not require large reflectors. In addition, LEDs have a more accurate color rendering index (CRI), which makes it easier for drivers to recognize potential road hazards when streets are lit with LEDs. LED fixtures do not suffer the lengthy delays that HID fixtures do to achieve full lighting brightness when they are powered on. Unlike HID lamps, LEDs produce their full brightness instantly, providing a more secure light source in the case of a brief power failure. They also reduce glare by directing the light downward onto the roadway, reducing the amount of light that is directed into drivers’ eyes.



Figure 6. Example of LED Street Lighting
Retrofitting existing HID street lights to LED
can reduce energy costs from 40% to 80%
and extend useful life by as much a 50%.

Impact

The following highlights the key benefits of this solution:

- **Reduced Energy Costs** – LED fixtures consume up to 85% less energy than traditional HID lamps.
- **Reduce Maintenance** – Limit maintenance labor through retrofitting with long life span equipment.
- **Increased Performance** – Improved light levels and better color rendering.
- **Improved Aesthetics** – Whiter light and more uniform light distribution improves facility appearance.
- **Lessen Environmental Impact** – Improved fixture designs reduce light pollution by eliminating upward light emission.

HVAC Equipment Replacement

SOLUTION OVERVIEW

Aged unitary equipment has much to gain from improved cooling efficiency through replacement with high efficiency units. A majority of your HVAC equipment is original to the building construction, appears to be in poor condition, and is past normal life expectancy. Alternatives for equipment replacement can include a one-for-one replacement with high efficiency equipment or other system types could be explored. Schneider Electric will work with the City of Prescott to determine the best retrofit option based on life cycle cost considerations such as quality of equipment, energy efficiency, maintainability, and the delivery of the appropriate level of comfort to each part of the building.



ENERGY CONSERVATION OPPORTUNITIES

The HVAC equipment replacement measure seeks to replace aged and failing equipment while retaining any existing equipment with useable life. One-for-one equipment replacement is an economical and low first cost solution. New, high efficiency equipment can operate at 17 seasonal energy efficiency ratio (SEER) compared to an estimated 9.5 SEER rating for existing equipment. Additional efficiency improvements could include fuel conversions, heat recovery devices, air-side economizers, or variable frequency drives (VFDs). Load calculations will ensure proper sizing of heating and cooling, as well as ventilation rates for replacement equipment. The new equipment will also include direct digital controls (DDC) to incorporate additional control strategies not currently implemented. The new equipment would be selected to provide optimum interaction with the existing DDC system.

Figure 7. Example of a Unitary Commercial HVAC System

A unitary system combines heating, cooling and fan sections all in one or a few assemblies for simplified HVAC.

Alternative systems types, such as water-source heat pumps or variable refrigerant flow (VRF) systems, can be explored in more depth during an Investment Grade Audit (IGA) if a comprehensive HVAC equipment replacement project is desired.

Impact

The following highlights the key benefits of this solution:

- **Reduce Energy Costs** – High efficiency equipment and integrated control strategies will improve heating and cooling efficiency, thus lowering operating costs.
- **Reduce Maintenance** – New equipment will minimize maintenance calls currently experienced for aged and failing equipment.
- **Improve Occupant Comfort** – Equipment will operate more effectively to provide better building comfort.

Refrigeration Monitoring

SOLUTION OVERVIEW

Adding cooler and freezer temperature monitoring points and alarm functionality through the building automation system (BAS) is a good practice to avoid food spoilage. This monitoring provides valuable information to ensure food is kept at acceptable temperatures. If monitored temperatures exceed a set value, an alarm would be generated through the Direct Digital Controls (DDC) to alert building operators of an unexpected rise in temperature or a potential power outage.

ENERGY CONSERVATION OPPORTUNITIES

A potential for saving both energy and food costs occur if the monitoring/alarm functionality decreases the length of time the cooler/freezer doors are left open, or if temperatures are exceeding levels that cause food spoilage.

Impact

The following highlights the key benefits of this solution:

- **Save Food Spoilage Costs** – Alarms will alert staff of out of spec refrigeration temperatures before food is wasted.
- **Maintains Food Safety** – Monitoring refrigeration temperature will ensure proper food storage conditions.



Figure 8. Commercial Kitchen Refrigeration

Tying cooler and freezer temperature monitoring and alarming into the BAS avoids food spoilage.

Weather Smart Irrigation Controls

SOLUTION OVERVIEW

Weather smart irrigation systems provide a centralized control of irrigation systems that prevents over- and under-watering. The controllers are connected to a service with current and historical weather data to determine the amount of water required. These systems automatically adjust landscape water output based on daily local weather conditions and landscape parameters including soil type, plant variety, hours of sun received, and degree of slope. Watering adjustments are prompted by wirelessly delivered packets of local weather data, collected from a network of weather stations.

ENERGY CONSERVATION OPPORTUNITIES

While using time clocks to schedule irrigation is more efficient than manually turning on and off the irrigation system, a more sophisticated measure has been developed. The newly developed system is a weather driven evaporation-transpiration (ET) based control system. An ET-based control system matches irrigation with actual watering requirements. The system responds to local rain occurrences and balances the microclimate ET with only the amount of irrigation necessary to keep plants, grass and trees healthy. The weather data used is accurate, and resolute, to within one square kilometer (zip codes are not an acceptable method of defining microclimates). The weather data uses all of the following factors to properly construct watering schedules: temperature, solar radiation, relative humidity, precipitation, and wind.

Time clock based irrigation control equipment is less water-efficient than a true ET-based control system. Time-based systems are a rudimentary method of estimating how many minutes a sprinkler timer should run each day. This strategy does not take into account true plant needs, soil moisture holding capacity, or daily weather changes. When summer heat spikes require an increase to the amount of water applied, users may make adjustments and forget to reset them when cooler weather or rain events occur. This can cause unnecessary over watering.



Figure 9. Typical Weather Station for Smart Irrigation

Weather smart irrigation systems use weather stations and site data as a basis for scheduling irrigation.

Impact

The following highlights the key benefits of this solution:

- **Reduce Water and Waste Water Costs** – Less irrigation water consumed saves on water and waste water costs.
- **Environmentally Friendly** – Management of landscape water provides an intelligent use of natural resources. Improper water use and application (too much or too little) can be detrimental to vegetation growth.
- **Reduce Maintenance** – Water management can limit maintenance labor through the use of fewer mechanical irrigation systems and landscape upkeep.

Artificial Turf Fields

SOLUTION OVERVIEW

Artificial turf fields have been gaining popularity since the original “Astroturf” was installed in the Houston Astro Dome in 1966. Over the years, turf field technology has transformed from an abrasive carpet material with little cushioning to a synthetic grass that performs to the same standards as premium, natural grass surfaces. These new fields have numerous benefits including reducing serious injuries like concussions. These fields are also attractive due to their low yearly maintenance and durability through any type of weather condition. Utilizing artificial turf has become ubiquitous among new stadium or sports complex construction projects. Artificial turf can also be used for landscaping, shared areas, or playgrounds.

IMPROVEMENT OPPORTUNITIES

The benefits of artificial turf include:

- **Irrigation Reduction**
Artificial turf eliminates year around irrigation. This will significantly reduce the yearly water cost and out of pocket expenses needed to maintain the irrigation system.
- **Reduced Maintenance**
Many of the routine maintenance requirements of natural grass are no longer applicable. The following items will be eliminated from the maintenance budget, including:
 - Mowing & Equipment Maintenance
 - Seeding, Fertilizing, Aeration, and Re-Crowning
 - Re-painting field lines
- **Increased Safety**
In today's athletic landscape, there has been an increased focus on athlete safety. Modern day synthetic turf systems have been designed with a padding layer to reduce serious injuries by increasing the ability to absorb and redistribute impact shock. This greatly reduces the risk of concussions and other significant injuries to athletes.
- **Field Durability**
One of the greatest benefits of artificial turf is its ability to be used year-round. Natural grass can be used for a limited number of events and must be given “rest” time between events to maintain an acceptable playing surface. This flexibility gives the owner the opportunity to schedule more activities for each field. The marching band can practice in the morning, the football team can practice in the afternoon, and the field can still be ready for the game that same night. This flexibility also expands revenue options like field rentals for community activities or hosting tournaments. The superior ability of synthetic fields to drain water ensures the playability of the field, rain or shine.



Figure 10. Artificial Turf Stadium Field
Artificial turf not only helps reduce water usage but also has other cost saving benefits, such as generating additional revenue for the owner.

Impact

The following highlights the key benefits of this solution:

- **Water Savings** – Reduces the need for overall regular irrigation.
- **Reduced Maintenance** – Eliminates expensive routine maintenance of grass fields.
- **Increased Safety** – Provides safest environment for athletic participants.

Solar Photovoltaic System

SOLUTION OVERVIEW

On-site solar photovoltaic (PV) power generation is an alternative answer to the increasing demand for purchased energy. Moreover, solar PV uses a clean renewable energy source without emission impact on the environment. Schneider Electric provides a comprehensive turnkey solution for on-site solar power generation from design to startup, including engineering and monitoring services.

ENERGY CONSERVATION OPPORTUNITIES

Solar photovoltaic panels convert the spectrum of wave lengths of energy coming from the sun into electricity to offset the facility's grid power usage. In order to utilize solar energy for power production, several components will need to be installed in small packaged systems in order to meet local codes, utility interconnect requirements, and the special needs of each facility. Provided below is the general work that will be required for a successful solar PV installation.

- A detailed shading study will be completed to ensure the accuracy of PV power production estimates and to optimize the installation layout and design. PV panels installed near trees or building obstructions that can cast shadows on the PV arrays may present a significant negative impact on solar production.
- String inverters will be provided and installed to convert PV panel-generated direct current (DC) power into alternating current (AC) power to be used within the facility.
- The balance of the electrical systems will be provided in order to connect the new PV systems into the existing building electrical distribution networks and to meet all installation requirements.
- Metering and web-based dashboards will be provided to publish PV power production and performance information for the PV arrays.



Figure 11. Possible Ground-Mount Solar Location at Airport WWTP

Ground-mount solar is cost-effective and can help cover heavy process loads from water reclamation

Going solar helps protect your budget from volatile energy prices. Schneider Electric will maximize federal, state, and local incentive programs to help make solar affordable. We have expertise in negotiating production incentives, renewable energy credits and power purchase agreements (PPA) for our clients.

Impact

The following highlights the key benefits of this solution:

- **On-site Production** – Reduce reliability on the utility grid.
- **Save Energy Costs** – Reduce electrical consumption and costs.
- **Infrastructure** – Solar PV power can tie into the existing building electrical distribution system.
- **Clean Energy** – Solar energy provides a renewable energy source to offset current electric consumption.
- **Public Image** – Visible symbol of the City of Prescott's commitment to environmental stewardship.

Electric Vehicle Charging Station

SOLUTION OVERVIEW

Vehicle manufactures are shifting research and development spend to electric vehicles, in turn increasing vehicle ranges and improving batteries storage capabilities. In preparation for this new wave of cars, Electric Vehicle (EV) charging stations can be installed to meet the increased demands for charging as well as demonstrate the sustainability of your facility. With proper charging implementation, your facility can increase the convenience and affordability of driving electric vehicles for visitors and staff. Workplace charging can also help attract and retain a cutting-edge workforce and demonstrate leadership in adopting advanced technologies. Schneider Electric can help the City of Prescott create an advanced electric vehicle (EV) charging infrastructure by providing charging stations, designing electrical infrastructure upgrades, procuring grants and incentives, evaluating rate tariff penalties, integrating solar car ports and evaluating battery storage.



Figure 12: Electrical Charging Infrastructure. EV charging stations maximize convenience for EV drivers and station owners.

ENERGY CONSERVATION OPPORTUNITIES

The primary driver for this scope of work is demonstration of workplace sustainability and meeting the needs of publicly accessible charging stations. The installation of charging stations may in-fact increase electric load. Local or federal grants, incentives, tax exemptions, and/or lower electric rates may be available to incentivize charging station installations. Operation costs can also be offset by income realized from pay-for-use systems.

Impact

The following highlights the key benefits of this solution:

- **Public Image** – Electric charging stations are a visible symbol of the City of Prescott’s commitment to environmental stewardship to the public.
- **Environmentally Friendly** – Reduce greenhouse gases, carbon footprint and emissions with electric vehicles.
- **Advanced Infrastructure** – Increase local infrastructure with electric vehicle charging stations.
- **Revenue Generation** – Possibility of providing a user-fee based service.

Telecommunications Optimization

SOLUTION OVERVIEW

Telecom Procurement is a service that empowers an organization with the ability to materially lower telecommunications costs for their internet, landline, and mobility services in addition to associated equipment costs. Through strategic relationships developed within the telecom industry, Schneider Electric can quickly and efficiently audit your telecom costs and negotiate lower costs and better services.

Your telecommunications including voice, data, and video transmission can be a difficult expense to manage effectively. We recognize most IT departments are under-resourced and primarily focused on cybersecurity, troubleshooting, and ticketing on hardware/internal network issues. This can result in antiquated equipment hardware, and unfavorable contract agreements, that further burden IT organizations when they are being pressured to play a key role in innovation development.

OPPORTUNITIES

Schneider Electric can provide analysis, and subsequent implementation, for telecom service changes that will result in operational savings from better negotiated carrier fees and highlight any opportunities to replace telecom hardware infrastructure at minimal cost. The savings you can recoup from a lower cost Telecom procurement can help fund additional opportunities in your organization.



Fig... VoIP phone systems deliver voice communications and multimedia sessions over Internet Protocol (IP) networks.

Impact

The following highlights the key benefits of this solution:

- **Lower Telcom Expenses** – Immediate savings from lowered negotiated carrier fees.
- **Potential Capital Infrastructure Upgrades** – Audits can determine if equipment (phones, internet carriage) can be replaced which often increases bandwidth and reliability.
- **Increased Savings** – Operational savings that result from better telecom procurement can be used as a source of funding for other needs requiring immediate attention.

Capital Asset Planning Services

SOLUTION OVERVIEW

Do you currently track the age, type, and conditions of your buildings and system assets? With Schneider Electric's Capital Asset Planning (CAP) assistance, you can align your energy and resource plans to create a long-term comprehensive master plan that makes sense for the City of Prescott. This solution is perfect for forward-thinking municipalities, school districts, universities and hospitals that are looking to address issues before they become expensive problems. It includes extensive data collection and detailed analysis by a knowledgeable energy engineer of all your major systems like HVAC, building automation, building envelope and more. After the initial assessment and cataloging of your facilities into our managed cloud platform system, Schneider Electric will provide you with an analysis of current and future states for your facilities. Then, we will create comprehensive reporting with detailed recommendations for your future facility strategic plans.

ENERGY CONSERVATION OPPORTUNITIES

Capital Asset Planning is flexible and allows our clients who have complex, multi-layered systems with many interdependencies to strategically plan better future outcomes for their facilities; and, for those who have simpler systems but need more accurate inventories, we can scale our assessments to your needs. Our analytic services may yield savings from recommended retro-fitting or equipment replacement resulting in reduced energy usage, and will also include both safety and resiliency benefits, particularly on outdated electrical distribution infrastructure.

Impact

- **Control Costs** – You will have a trusted advisor at a high level within your institution to provide front-end guidance on anticipated facility needs so that your operational plans are developed and deployed consistently and efficiently.
- **Ensure Reliability** – You will be given efficient designs to right-size equipment and system purchases resulting in improved agility to manage costs and performance during occupancy changes.
- **Future Proof Your Facilities** – With accurate facility evaluation and operational prioritization, you will have better strategy development and expansion recommendations



Figure 14. Capital Asset Planning Services Report

Schneider Electric will provide you with detailed recommendations for your facility strategic planning.



TO: MAYOR AND CITY COUNCIL
AGENDA: January 14 Study Session
DATE: January 14, 2025
DEPT: City Manager
ITEM #: 3.B
SUBJECT: Presentation & Discussion Regarding a Potential Amendment to City Code Related to Gas-Powered Leaf Blowers.

ITEM SUMMARY

The purpose of this item is to discuss a potential amendment to the Prescott City Code regarding gas-powered leaf blowers.

BACKGROUND

Councilmen Moore and Montoya have requested a discussion on this topic based on community outreach that has been received. Staff has prepared general information comparing gas-powered leaf blowers and electric-powered leaf blowers (Attachment 1). Additionally, the current City Code Chapter 5-4 related to Unnecessary Noise, enforced by the Police Department, is provided for informational purposes (Attachment 2). Staff seeks direction from the City Council on this topic. If City Council desires further exploration of this topic, additional information would need to be prepared by staff related to the creation of an ordinance amendment, method of enforcement and penalty for violation of any approved ordinance amendment.

FINANCIAL IMPACT

None at this time.

RECOMMENDED ACTION

This item is for discussion only. No formal action will be taken.

ATTACHMENTS

1. Attachment 1 -Comparison of Gas and Electric Leaf Blowers
2. Attachment 2 - Prescott Unnecessary Noise Ordinance

Comparison of Gas and Electric Leaf Blowers

Component	Electric	Gas
Weight	4-10 lbs	10-15 lbs
Runtime	Corded: Unlimited Battery: 20-60 min	90-120 minutes per tank
Maintenance	Minimal – battery recharge, clean air vents	Regular – oil, spark plug, air filter
Noise Level	65-75 dB	90-100 dB
Power	200-550 CFM	350-800 CFM
Environmental Impact	Zero direct emissions, Battery Disposal	Direct Emissions - 212 pounds of CO2 per hour
Energy Cost	\$1/month	\$15-20/month
Useful Life	3-5 years (batteries)	10 years (with regular maintenance)

CHAPTER 5-4: UNNECESSARY NOISE PROHIBITED

SECTIONS:

5-4-1: LOUD NOISE PROHIBITED:

5-4-2: SPECIFIC ACTS PROHIBITED:

5-4-3: EXCEPTIONS:

5-4-4: STATUTORY CONSTRUCTION:

5-4-5: TEMPORARY EXCEPTIONS:

5-4-6: VIOLATIONS AND PENALTIES:

5-4-1 LOUD NOISE PROHIBITED:

The creating, permitting or allowing of any unreasonably loud and disturbing noise within the city limits is hereby prohibited. An "unreasonably loud and disturbing noise" is hereby defined as noise of such character, intensity or duration as to be detrimental to the life or health or well-being of any individual, or as to disturb the public peace and quiet of a neighborhood, family or person. (Ord. 4053, 11-14-2000)

5-4-2 SPECIFIC ACTS PROHIBITED:

(A) The playing of any radio, stereo, player, or other sound device, including, but not limited to, loudspeakers or other devices for reproduction or amplification of sound, from a public street, public property or public right of way, which can be heard seventy five feet (75') or more away.

(B) Noise emanating from the operation of portable machinery for stone crushing or grinding, or rock crushing or grinding at a temporary construction site, which disturbs the public peace and quiet of a neighborhood, family or person, unless specifically allowed by action of the city council, and in that event under such terms, conditions and limitations as set forth in the council's approval.

(C) The operation of a motor vehicle in such a manner as to cause the tire or tires to squeal or screech.

(D) The use of outdoor loudspeakers for the purposes of outdoor communication.

(E) Outdoor noise occurring during the course of construction at a temporary construction site which is generated by blasting, excavation, generators or heavy equipment (including, but not limited to, backhoes, tractors, concrete trucks, dump trucks, jackhammers and air compressors) shall only be allowed between the hours of six o'clock (6:00) A.M. through eight o'clock (8:00) P.M. Monday through Saturday, unless expanded hours of operation are specifically allowed by action of the city council, after a public comment meeting, and in that event under such terms, conditions and limitations as set forth in the council's approval. (Ord. 4053, 11-14-2000)

(A) In the event that it is necessary to produce or emit objectionable noise for a temporary, limited period of time, the city council, after a public comment meeting, may permit an exception to the provisions of this chapter, and in that event under such terms, conditions and limitations as set forth in the council's approval.

(B) In the event that it is necessary to produce or emit objectionable noise for a temporary, limited period of time, and the necessity of producing or emitting said noise is of an emergency nature affecting the health or safety of persons or property, city council approval pursuant to subsection (A) of this section shall not be required; provided, however, that if said noise is to continue for a period of more than twenty four (24) hours, then upon application to the city manager or his designee, the city manager or his designee may permit an exception to the provisions of this chapter, and in that event under such terms, conditions and limitations as set forth in the foregoing approval. (Ord. 4053, 11-14-2000)

5-4-6 VIOLATIONS AND PENALTIES:

(A) The remedies herein are cumulative, and the city may proceed under one or more such remedies.

(B) Any person who is convicted of a violation of this chapter shall be guilty of a misdemeanor, and upon conviction thereof shall be punished as provided in section 1-3-1 of this code.

(C) Any owner, responsible party or other person having control over a structure or parcel of land who causes, permits, allows, facilitates or aids or abets any violations of any provision of this chapter, shall be guilty of a misdemeanor, and upon conviction thereof shall be punished as provided in section 1-3-1 of this code.

(D) Any owner, responsible party or other person having control over a construction project or business who causes, permits, allows, facilitates or aids or abets any violations of any provision of this chapter, shall be guilty of a misdemeanor, and upon conviction thereof shall be punished as provided in section 1-3-1 of this code.

(E) A violation of this chapter is hereby declared to be a public nuisance. In the event of a continuing violation of this chapter, the city attorney is hereby authorized to pursue a request for injunctive relief in a court of competent jurisdiction. In the event that an injunction is issued pursuant to this subsection, the court may also award reasonable attorney fees in favor of the city. (Ord. 4053, 11-14-2000)