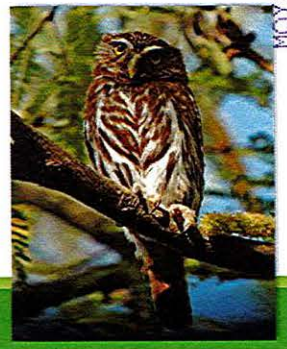
Sustainable Action Plan for Pima County Operations Update

Office of Sustainability & Conservation
May 3, 2022

FY21 IMPLEMENTATION AUDIT RESULTS &
RECOMMENDATIONS FOR NEXT STEPS



IN THIS PRESENTATION

1. SAPCO & the 2022 IPCC Assessment Report
2. Current Progress: Carbon, Water, Landscapes, Materials, Workforce
3. Results of the recently conducted Implementation Audit
4. Summary of implementation challenges/obstacles
5. Big Fixes & Funding opportunities
6. Comparative review of sustainability programs in other jurisdictions
7. Recommendations for a Pima County Climate Action Plan

SAPCO & the 2022 IPCC Assessment Report 6

- The Intergovernmental Panel on Climate Change (IPCC) issues periodic Assessment Reports to inform policy–makers about risks and costs.
- Since 2007, the Board of Supervisors has acknowledged these findings.
- The IPCC AR6 concludes that *"accelerated action is required to adapts and to make rapid, deep cuts in greenhouse gas emissions."*
- The United States has updated its carbon reduction goals to 50 to 52 percent below 2005 levels.

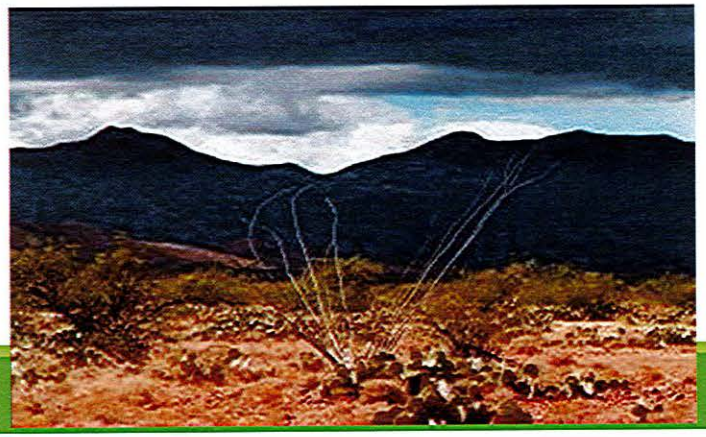
2018-2025 SAPCO Current Progress

- ✓ Carbon Target 1 – Buildings + WWTF - Reduction from Baseline ca. 7%.
- ✓ Carbon Target 2 – Non-electric Vehicles - Reduction Exceeds Goal of 10%
- ✓ Carbon Target 3 – Replace 120 ICE with Electric - Achieved 81% of Goal
- Water Target 5 - Reduce Water Use 15% - Increase from baseline of 145%
- ✓ Landscapes 11 - Plant 10,000 Trees – Achieved 44% of Goal
- ✓ Landscapes 12 - 40 Acres of Green Infrastructure – Achieved 67% of Goal
- Materials 22 - Reduce landfill waste 20% -Increase from baseline of 85%
- Materials 24 – Increase use of preferred products – Decreased use of 39%

To Meet U.S. Carbon Reduction Goal by 2030 Pima County Reduction Targets

Emissions Reduction of 50% - Annual average reduction of 5%
(4,704 MT CO2e/yr)

Emissions Reduction of 100% - Annual average reduction of 11%
(10,530 MT CO2e/yr)



Results of the SAPCO Implementation Audit

- 34 Departments responded
- 26 Targets: 11 Hard Targets + 90 Strategies to Reach Targets
- The most accessible strategies for departments to implement:
  - Increase recycling of office and industrial materials 29
  - Improve waste reduction education 26
  - Improve employee energy conservation practices 24
  - Buy reusable/refillable items 18
  - Implement safety trainings and educational campaigns 17

Observations & Challenges to Implementation

- **CURRENT EFFORTS FAVOR THE 'LOW HANGING FRUIT'**
  - Recycling, waste reduction, education, etc.

- **NO PRIORITIZATION OF STRATEGIES**

-90 strategies are too many. Need "Big Fix" high-return strategies

- **LACK OF FUNDING, PERSONNEL, ASSIGNED RESPONSIBILITY**

- Cost, staff, not a directed program, not my responsibility

Review of Sustainability Programs in 20 Other Western Jurisdictions

- Most have *Climate Action Plans* that mitigate climate change and reduce greenhouse gas emissions.
- Some have broad *Sustainability Plans* that include the community.
- City/County leadership adopt Plan and assign implementation.
- Diversity of organizational structures work to implement
- Big Fixes implemented over time to reduce carbon emissions.
- Innovative financing: taxation, GO bonds, carbon tax, general fund, etc.

County "Big Fixes" Recommended in 2017

- **Solar Installations:** Add 40-42 MW of solar PV, combined with battery storage where feasible.
- **Energy & Water Efficiency:** Increase energy and water efficiency in buildings
- **Fleet Vehicles:** Replace gasoline sedans with EV's and improve employee driver behavior (reduction in idling, efficient routing, etc.).
- **Green Infrastructure & Low Impact Development with Trees (GI-LID+Trees):** for carbon sequestration, reduction in urban heat island effects, stormwater management, and flooding abatement.

Wastewater Treatment Energy Use as a Utility

- RWRD is a utility that will be reported separately going forward.
- 95% of RWRD 2021 GHG emissions derive from electricity use.
- 2021 Energy Master Plan identified the highest energy using processes:
  1.Aeration at 55% 2.Dewatering biosolids at 13% 3.Headworks at 8%
- These highest use processes are the focus of greatest energy reductions.
- RWRD is engaged in a focused energy reduction program with the Department of Energy through their Better Plants program. Our Better Plants agreement with the DOE is to obtain a 25% reduction in energy intensity over ten years.

Wastewater Biosolids & Biogas

- RWRD screening processes now remove more unwanted materials such as inorganic materials that are sent to the landfill.
- RWRD is delivering clean renewable natural gas made from biogas to homes and businesses in partnership with SW Gas.
- RWRD's facility is the first of its kind in Arizona to connect into a gas delivery grid, generating revenue for the County and bringing major benefits to our environment

Some Wastewater Treatment "Big Fixes"

Opportunity	Description	Benefits	Implementation Cost
Anammox	Side-stream ammonia reduction	• 17% reduction in aeration energy at Tres Rios • Improved water quality • Increased treatment capacity	$8,200,000 (2020)
Aeration Header	Common Header at Tres Rios	• Provides much needed redundancy • Reduces peak energy demand • Reduces overall energy usage	$1,500,000 (2020)
ABAC	Ammonia Based Aeration Control	• 5% reduction in aeration energy	$1,200,000 (2020)
NIMLR	Nitrate Based Mixed Liquor Return	• 3% aeration energy reduction • Increased treatment capacity • Improved water quality	$750,000 (currently piloting one train at Tres Rios and soon at Agua Nueva via a WRF sponsored research project)
Thermal Energy Storage	Waste Heat Recovery	• Reduces MTCO2e by 1,771 • All hot water needs and digester heating with renewable energy • dewatering of biosolids with renewable energy	$3,500,000

Funding Opportunities - Grants

- Environmental Protection Agency (EPA)
- Department of Transportations (DOT)
- USDA - Forest Service
- FEMA
- Department of Energy: Office of Clean Energy Demonstration
- Department of Interior: Bureau of Reclamation
- Army Corps of Engineers

Recommendations for a Pima County Climate Action Plan for County Operations

1. Extend the plan to 2030
2. Increase carbon reduction target to 50% below 2005 levels
3. Restructure annual reports, redefine targets, RWRD report
4. Align the County Climate Action Plan to ICLEI LGOP methodology
5. Identify best big fixes and conduct cost-benefit analyses
6. Launch Pima County's employee–Green Stewards
7. Publish THRIVE, self-paced climate 101 training
8. Create a Sustainability Dashboard