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
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
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.
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.
<table>
<thead>
<tr>
<th>Opportunity</th>
<th>Description</th>
<th>Benefits</th>
<th>Implementation Cost</th>
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</thead>
<tbody>
<tr>
<td>Anammox</td>
<td>Side-stream ammonia reduction</td>
<td>• 17% reduction in aeration energy at Tres Rios</td>
<td>$8,200,000 (2020)</td>
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<td></td>
<td></td>
<td>• Improved water quality</td>
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<td></td>
<td></td>
<td>• Increased treatment capacity</td>
<td></td>
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<tr>
<td>Aeration Header</td>
<td>Common Header at Tres Rios</td>
<td>• Provides much needed redundancy</td>
<td>$1,500,000 (2020)</td>
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<tr>
<td></td>
<td></td>
<td>• Reduces peak energy demand</td>
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<td></td>
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<td>• Reduces overall energy usage</td>
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<tr>
<td>ABAC</td>
<td>Ammonia Based Aeration Control</td>
<td>• 5% reduction in aeration energy</td>
<td>$1,200,000 (2020)</td>
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<td>NIMLR</td>
<td>Nitrate Based Mixed Liquor Return</td>
<td>• 3% aeration energy reduction</td>
<td>$750,000 (currently piloting one train at Tres Rios and soon at Agua Nueva via a WRF sponsored research project)</td>
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| 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 |

**Some Wastewater Treatment “Big Fixes”**
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