

# Integrated Water and Energy Planning in the City of Las Cruces, New Mexico

March 5, 2020 Workshop Outcomes Report



**Document Purpose.** On March 5, 2020, the City of Las Cruces Sustainability Office and Las Cruces Utilities co-hosted a water and energy goal setting workshop. The intent of this gathering was to:

- understand the relationship between water and energy resources and consumption patterns and build trust across sectors by identifying shared priorities and acting on mutually beneficial goals
- articulate community values and goals for the use of both resources, leverage community water conservation efforts for energy savings, and share social, economic, and environmental benefits
- determine collective next steps, such as investing in audits and infrastructure that conserve water and energy resources, and collecting, sharing, and assessing consumption data to inform decisions

This document summarizes discussion highlights and workshop outcomes from the following table topics.

**Table Topics.** Over 30 people were invited and organized into topical groupings based on: (1) survey responses that ranked interest on each topic, and (2) the sectors each participant represented:

- The **Water-Energy Conservation** group included representatives from:
  - Academic intuitions, with specialties in **engineering, energy, and the environment**
  - Local governments and utilities, with expertise in **education and energy management**
  - Local utilities, with expertise in **decision-making and project management**
  - Private businesses, with expertise in **residential green building construction, building inspections, environmental health and safety, and procurement**
- The **Water Reclamation** group included representatives from:
  - Academic intuitions, with specialties in **civil and environmental engineering**
  - Local governments, with specialties in **public land management**
  - Local and regional utilities, with specialties in **soil and water conservation, flooding, irrigation engineering, wastewater, and compliance**
  - Private businesses, with specialties in **engineering design, landscape architecture, and building construction**
- The **Renewable Energy** group included representatives from:
  - Academic intuitions, with specialties in **facilities management, economics, and environmental research**
  - Local governments, with specialties in **property management, community development, sustainability, and economic development**
  - Local and regional water and energy utilities, with specialties in **engineering and sustainability**
  - Private businesses, with specialties in **decision-making and customer relations**

**Workshop Design.** An overview was presented on: (1) water and energy interdependencies in Las Cruces, and (2) **cornerstones for collaboration**: build trust, leverage joint customers, share and optimize data, and invest in connecting infrastructure. Then, table groups talked through two worksheets that helped them

connect, align, and plan possible actions to advance resource conservation, water reclamation, and renewable energy production in Las Cruces.

### **Discussion Highlights and Potential Next Steps**

#### **Water-Energy Conservation discussion summary:**

- **Articulated concerns around:**
  - Future water availability and quality, in light of high agricultural use and salt build up
  - The cost to install innovative technology at scale, like circular irrigation systems
  - The need for better infrastructure, like more powerful pumps to access and move water
- **Identified opportunities to:**
  - Encourage zero scaping, increase shade cover, and plant drought tolerant species
  - Promote infill development to take full advantage of existing infrastructure
  - Grow the existing purple pipe network and educate around toilet-to-tap options
  - Expand geothermal and solar thermal systems as energy supplies for water treatment
  - Accelerate permitting and inspections, to incentivize green building practices
  - Create a joint repository for data and a mechanism to report annual consumption to users
  - Allow and pursue development of decentralized water and wastewater systems to reduce energy use in transport and treatment
- **Shared potential next steps:**
  - Understand infrastructure needs by:
    - Conducting engineering studies for infrastructure growth and expanded delivery options to supply water and energy needs
    - Liaising across agencies and engaging partners in short- and long-term planning:
      - Continue working with partners like the U.S. Department of Defense, the U.S. National Aeronautics and Space Administration, and the New Mexico State Energy Office, and bring in new partners, like community groups
  - Partner with pecan growers, a State of New Mexico economic driver, to encourage water and energy conservation in the agricultural sector:
    - Utilize infrastructure to store clean water in winter for agricultural use in summer
    - Consider incentives for agricultural water conservation
  - Focus on consumer education to foster a sense of shared responsibility and behavior change:
    - Consider using focus groups to identify barriers to change so that new and more efficient methods and technologies can be introduced effectively



- Do education and outreach to encourage water and energy conservation in low income households
- Offer finance mechanisms for efficiency measures and count these measures as assets in property appraisals
- Promote solar energy as a local and abundant resource
- Echo repetitively across media types for consistency in consumption messaging
- Collect data to see if water and energy consumption is being reduced as efforts launch
- Explore what is needed for micro-grid and micro-water treatment plant development

**Water Reclamation Discussion Summary:**

- **Articulated concerns around:**
  - Addressing negative health perceptions around reclaimed water use
  - The high expense incurred by the utility in offering reclaimed water
  - The lack of wintertime demand for reclaimed water
- **Identified opportunities to:**
  - Conduct water and energy audits and data verification in buildings to establish baseline use for decision-making
  - Identify who is responsible for infrastructure installation and maintenance
  - Investigate use of reclaimed water in other communities to explore options for residential sector use
  - Partner with developers, academics, and grade school officials to increase solar generation capacity, which can offset reclaimed water system energy use
    - Add solar capacity to offset water treatment/transport
  - Explore, design, and offer finance mechanisms to incentivize purple pipe connections to all utility customers:
    - Developers can typically incur less installation costs than government can
    - The goal is to get reclaimed water to the community at the subdivision level
  - Reduce vehicle miles traveled for water trucks by identifying real time uses for reclaimed water, such as fire hydrants/fire suppression systems, and construction dust control – both of which can be wintertime uses
- **Shared potential next steps:**
  - Develop a policy that requires the utility to extend purple pipes within a certain distance of subdivisions, and subdivisions to add and maintain purple pipe systems for residents, so that reclaimed water can be utilized at the household level



- Identify funding mechanisms, such as grants, rate adjustments, bond opportunities, and/or revised tax structures, to allow for purple pipe infrastructure expansion throughout the community
- Offer rebate and/or reimbursement programs for developers to add purple pipes to new construction, which is necessary to gain buy-in from developers
- Engage the community and schools so that reclaimed water begins to lose the “yuck” factor
- Regularly interface with local developers so that expansion and maintenance of the purple pipe system can be proactively encouraged and addressed
- Conduct an annual water usage and rate review to better integrate reclaimed water costs into existing rate structures
- Conduct an annual reclaimed water system energy audit to show the costs and benefits of expansion efforts
- Evaluate the acceptance and use of reclaimed water in the community over time



**Renewable Energy Group Discussion Summary:**

- **Articulated concerns around:**
  - Reliability, safety, affordability, and regulatory concerns as the grid decentralizes
  - Silos in planning and management that create barriers to becoming more resilient
  - The disconnect between the price and value of water and renewable energy
- **Identified opportunities to:**
  - Change the current structure of financing, moving away from grant-seeking and toward embedding cost recovery into ongoing structures, like rates and revolving funds
  - Identify pragmatic, scalable ways to reduce the amount of water used to generate energy, like expanding local renewable solar systems that use less water in energy production
  - Expand data collection efforts and transparency in data assessment to enable informed decision making, and to understand the actual value of water and energy resources
  - Turn research into useful things like best practices in renewable energy expansion to reduce the water footprint of local power production
  - Work to change the community’s perception of water and how they value it
  - Work toward a more comprehensive understanding of local water and energy interactions using modeling tools and pilot projects

- Articulate local renewable energy opportunities and water constraints together so that future generations are not negatively impacted
- Use both resources more responsibly and examine goal performance annually
- **Shared potential next steps:**
  - Develop a holistic model of showing how local water and energy system interact
  - See infrastructure planning as investment in the future, not just as high upfront costs
  - Price water based on use and do not subsidize heavy users; consider pay-for-use rates and include externalities like social, economic, and environmental costs
  - Use policies to incentivize infill development and disincentivize sprawl
  - Collaborate around policy development to reinforce the value of water and energy resources
  - Justify water/energy rates at the state level with data
  - Implement learning pilots on university property
  - Obtain the needed authority and resources from local decision makers and then refine standard operating procedures: changes should reinforce community values



**Common Themes Summary.** During introductions, participants identified opportunities and needs for education and knowledge exchange: research, data gathering, and modeling to understand actions that instigate change. They also identified the need to incentivize developers and homeowners to conserve water and generate energy. These themes were echoed during discussions, with education, outreach, collaboration, creative financing, and policy mechanisms rising to the surface as tools of choice.

At the close of this workshop, participants were asked if this kind of conversation was useful. There was general agreement that meeting together and having open discussions is helpful to articulating goals for a more resilient community. *It was agreed that another meeting will be scheduled. Co-hosts requested that participants send contact information for others who should be engaged in water and energy resource planning conversations. Reach out to [Lisa LaRocque](#), Sustainability Officer: 575.541.2177.*

In addition to wanting to further identify goals for both resources in an integrated way, there is also a desire for training opportunities that will help partners evolve thought processes together. This will serve to identify more pathways for collective communication and action. Participants agreed that they wanted more time together to understand the implications of local decisions on water and energy resources.

*For water-energy workshop design and facilitation, contact [Susanna Sutherland](#), Principle of [Sutherland & Associates](#).*