



**ALBUQUERQUE
ENERGY COUNCIL**
FY 2023 Annual Report
July 1, 2022, to June 30, 2023



THE CITY OF ALBUQUERQUE ENERGY COUNCIL

Established in 2003, the City of Albuquerque Energy Council (AEC) serves as an advisory committee comprised of professionals in the energy and environmental areas. The committee has responsibility for working with City staff to affect energy conservation programs within the residential, commercial, industrial, city government, energy conservation interest groups, transportation, and utility sectors of the community.

Part of the AEC's responsibilities includes oversight of the Capital Improvement Program (CIP) monies for energy conservation projects. In 2001, the City of Albuquerque provided a 1 percent set aside for energy conservation and renewable energy capital improvements. This amount was increased to 3 percent in 2007. Energy conservation projects must adhere to strict guidelines to ensure their cost-effectiveness. The return on investment of the CIP set aside funds must be below the life expectancy of the equipment.

The previous investment made by the City of Albuquerque to fund energy projects has been highly effective in reducing the City's energy use and operating costs at City facilities. Since early in the program, the City has accomplished the following:



Energy Data Sets 12/2009 – 12/2017
 Projects Funded with CIP GO Bond Cycles 2007-2015

Totalized Energy Conservation and Environmental Data Sets Reported - **As of March 2024**

Energy Project Stats

Number of Energy Projects (completed) to date = **125**
 Total Project Costs to date = **\$20,879,237**
 PNM Rebates Received to Date = **\$1,371,413.77**
 Average Return on Investment* = **5.22 (Years)**

Total (Estimated) Savings Based on Equipment Life Expectancy

Estimated Energy Savings: = **\$54,379,135**
Estimated Maintenance And Operations Savings: = **\$18,923,790**
Estimated Electricity Savings: = **239,636,194 (KWh)**
Estimated BTU Savings: = **26,991,481 (mm BTU)**
Estimated Metric Tons of Co2 Savings: = **169,902 (Metric Tons)**
Estimated Equivalent Number of Trees Planted and Grown for 10 years: = **2,831,701 (Trees)**
Estimated Number of Cars Taken off the Road: = **36,910 (Cars)**
Estimated Number of Homes Energized for 1 year: = **20,470 (Homes)**
Estimated Barrels of Oil Saved: = **395,121 (55 Gal. barrels)**

Total (To Date) Energy Savings Stats

Total Energy Savings to Date* = **\$46,771,450**
 Total Maintenance and Operations Savings to Date* = **\$22,001,301**
 Electricity Saved to Date*: = **356,191,237 (KWh)**
 BTU Savings to Date* = **22,879,087 (mm BTU)**
 Co2 Footprint Reduction** = **252,540 (Metric Tons)**
 Equivalent Number of Trees Planted and Grown for 10 years** = **4,208,993 (Trees)**
 Equivalent Number of Cars Taken off the Road** = **54,886 (Cars)**
 Equivalent Number of Homes Energized for 1 year** = **30,426 (Homes)**
 Equivalent Number of 55 Gal. Barrels of Oil** = **587,301 (55 Gal. Barrels)**



CITY OF ALBUQUERQUE ENERGY COUNCIL MEMBERS (CURRENT)

- **Alex Montano, Yearout Energy**
- **Ali Bidram, University of New Mexico**
- **Carlos Lucero, PNM**
- **Gabriel Pacyniak, University of New Mexico School of Law**
- **Mayane Barudin, Vote Solar**
- **Sandra McCardell, Current-C Energy Systems**
- **Adam Harper, OE Solar**

CITY OF ALBUQUERQUE STAFF

- **Saif Ismail, Energy and Sustainability Division Manager, Department of General Service**
- **Nelson Montoya, Construction Project Manager**
- **Michael Aultman, Automated control specialist**
- **Michael Nguyen, System Analyst**





ENERGY EFFICIENCY AT THE CITY

Hundreds of energy-saving projects have been completed since an original 1 percent, then the increased 3 percent set aside, was put into place in the City. In the past two years, these projects have resulted in 220,178,023 kWh savings of electricity; since the program's inception, the City has saved more than 855 thousand kWh savings of electricity.

In this report, the AEC highlights a few recently completed projects that are excellent examples of initiatives that are reducing the City's energy use, saving the City money (ultimately saving taxpayer money), and reducing greenhouse gas emissions to protect the environment.

1. Los Volcanes Senior Center—complete in August 2022

The Los Volcanes Senior Center in northwest Albuquerque encompasses multipurpose classrooms, an arts and crafts room, computer laboratory, game room, social hall, fitness center, showers and lockers, kitchen, total **19,434**, and an 8,000 square foot gymnasium. Los Volcanes Senior Center provides meeting space for community organizations, neighborhood groups, and continuing education programs.

Project:

All lighting fixtures throughout the inside of the facility and the exterior part of the facility, including the parking lot and exterior lighting, were replaced with LED lighting and new lighting controls.

Project Results:

- Total project cost - \$300,000
- 402 lighting fixtures were replaced.
- Reduced lighting energy consumption by 84 percent, avoiding 156,952 kWh of energy usage annually.
- The projected avoided annual energy cost is \$17,265.
- With rebates and energy savings, the estimated return on investment is 5.52 years.
- The project will reduce annual maintenance costs, including \$19,196 in staff time, \$879 in avoided lamp disposal costs and \$1,749 in avoided ballast disposal costs.

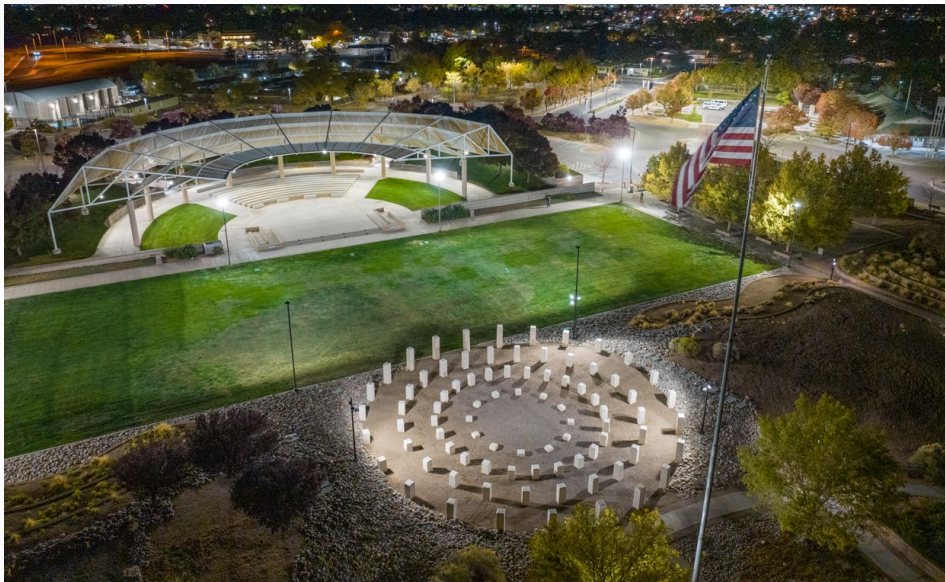


2. Veterans Memorial Park LED Lighting and controls upgrade (Complete December 2023)

The Veterans Memorial needed improved lighting, but we wanted to make sure that the brighter lights were also more efficient. With the help of the B.R.A.I.N. we are now able to see the savings in real-time and also monitor the conditions of the lights,” said Saif Ismail, Energy & Sustainability Division Manager for the City of Albuquerque.

Thanks to the B.R.A.I.N., Ismail calculates that the new lighting will save the city \$73,965 annually. The B.R.A.I.N. takes data from connected devices like lights, air conditioning systems, water taps, gas meters and more to help Ismail and his team find ways to save energy in nearly every building the City owns. At the Veterans Memorial Park, for example, the City sees substantial energy and cost savings:

- **Total project cost \$532,550**
- **Previous annual kWh used: 373,938**
- **New annual kWh used: 65,194**
- **Total electric kWh reduction: 83%**
- **Annual cost savings: \$73,965**





3. Isotopes Field LED Lighting and controls upgrade (Complete March 2024)

Albuquerque – New lighting at Isotopes Park will bring vibrant energy to the Rio Grande Credit Union Field.

The City of Albuquerque owns Isotopes Park and to improve the field, the Energy and Sustainability Management Division has installed 186 new LED fixtures to light up the entire park, from the field to the concession stands. These new LEDs use electronic controllers that allow the lights to change colors, flash, sparkle, and dance, bringing a new experience to every 'Topes homerun or New Mexico United goal.

The new lights use 750 watts of power each, yet will provide even more light than the old 1,500-watt bulbs that the park used. The lights are tied to the Musco Show-Light Pro system, which will help create major-league lighting shows. All lights have a 24 year warranty with a total payback 14 years.

4. Brightin up Albuquerque (Estimate to be completed Fall 2024)

The Energy and Sustainability Management Division is embarking on a project to upgrade 960 old HPS 400-watt lights to energy-efficient LED 75-watt lights. This initiative will not only enhance lighting levels across city exterior facilities but also lead to significant energy savings total of 120k a year.

Brighten Up Albuquerque!
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Facility Category	COA Costs	PNM Rebate
Parks & Recreation	\$312,424	\$219,888
Family & Community Centers		
Fire Stations		
Police Departments		

Annual Saving: 1,234,679 kWh
ROI: 3.4





THE FUTURE OF ENERGY SAVINGS AT THE CITY OF ALBUQUERQUE

The City of Albuquerque has a roadmap to achieve a 100% Renewable goal by 2025. City staff is currently working on building efficiency and renewable projects as well as implementing smart building technologies which would impact all City government facilities. The City will also be working on Purchase Power Agreements and other mechanisms to achieve its 100 percent renewable goal.



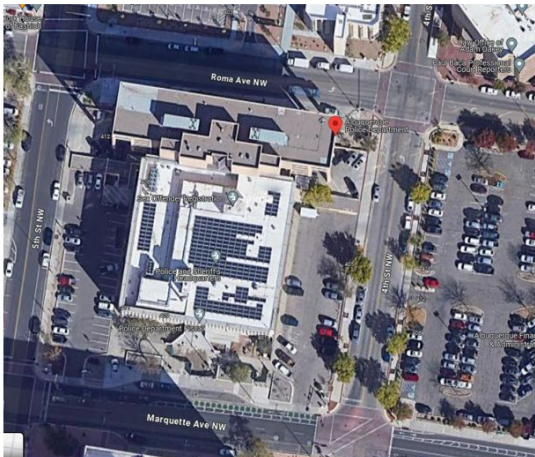
ON GOING RENEWABLE PROJECTS ENERGY AT THE CITY OF ALBUQUERQUE

1. Gibson Geal Hub (Under Disgn and engineering)



- 5400 Gibson Blvd SE
- Installation Type: Carport
- System Size: 403.7 Kilowatts
- Approximate Gross System Cost: \$1,300,000.00
- Approximate Net System Cost: \$910,000.00
- Estimated Energy Offset: 7%
- Estimated 30 Year savings: \$3,009,286.00

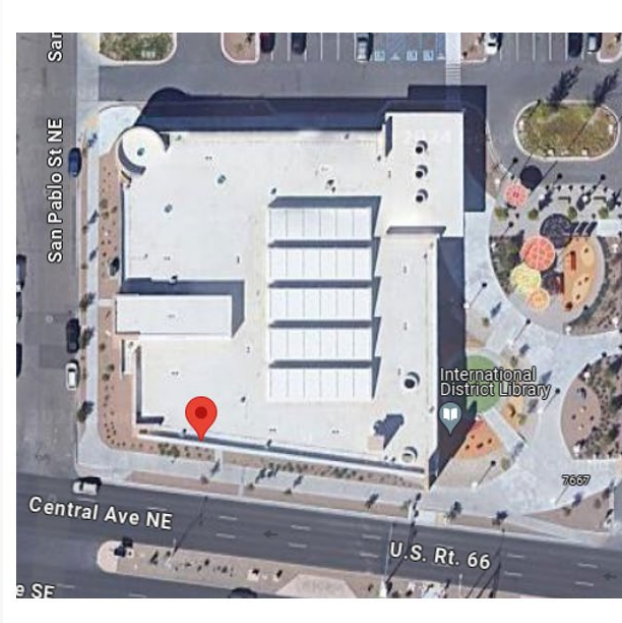
2. Law Enforcement Center



- 5400 Gibson Blvd SE
- Installation Type: Existing APD Rooftop
- System Size: 40.15 Kilowatts
- Approximate Gross System Cost: \$189,808.00
- Approximate Net System Cost: \$132,865.00
- Estimated Energy Offset: 10%
- Estimated 30 Year savings: \$423,789.00



3. Internationa Distric Library



- 7601 Central Ave NE
- Installation Type: Rooftop
- System Size: 166.5 Kilowatts
- Approximate Gross System Cost: \$428,687.00
- Approximate Net System Cost: \$300.080
- Estimated Energy Offset: 58%
- Estimated 30 Year savings: \$1,564,810.00

BALANCED RESOURCE ACQUISITION INFORMATION NETWORK (BRAIN)

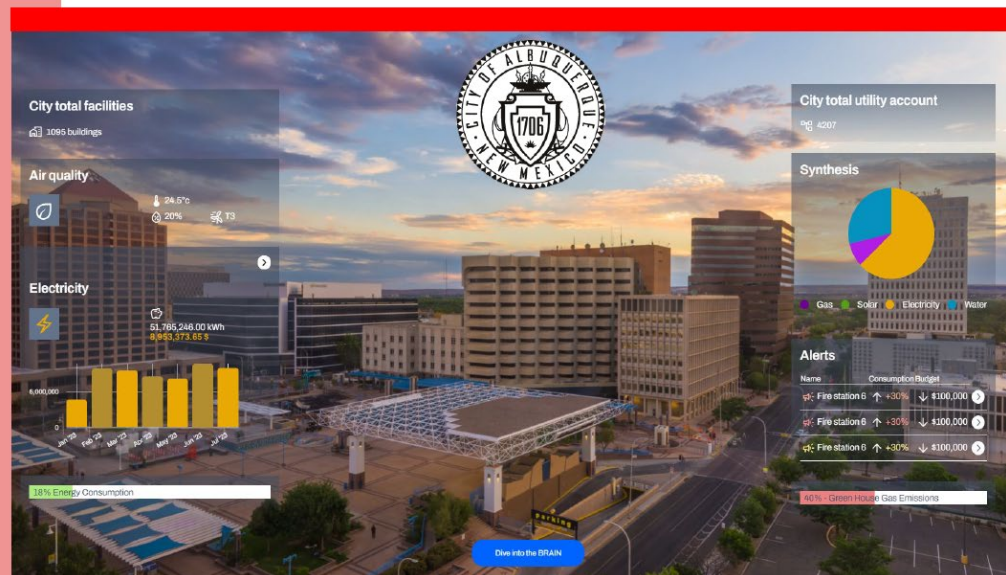
On October 18th, 2021, City of Albuquerque (CABQ) Energy and Sustainability Management Division (ESMD) and State of New Mexico Energy Minerals and Natural Resources Department's (EMNRD) Energy Conservation and Management Division (ECMD) agreed to establish the Balanced Resource Acquisition and Information Network (BRAIN). The defined Scope of Work is to establish the BRAIN data center and computer platform that enables real-time interaction with CABQ's current and historical utility-related data streams to enable real-time visibility, flexibility and responsiveness with our existing and future storage, generation and building controls resources to benefit the public, our critical systems and infrastructure, the State of New Mexico and the Public Service Company of New Mexico (PNM). We are providing this first quarterly report as requested on 11/22/2021 with a final due date of 06/21/2022.



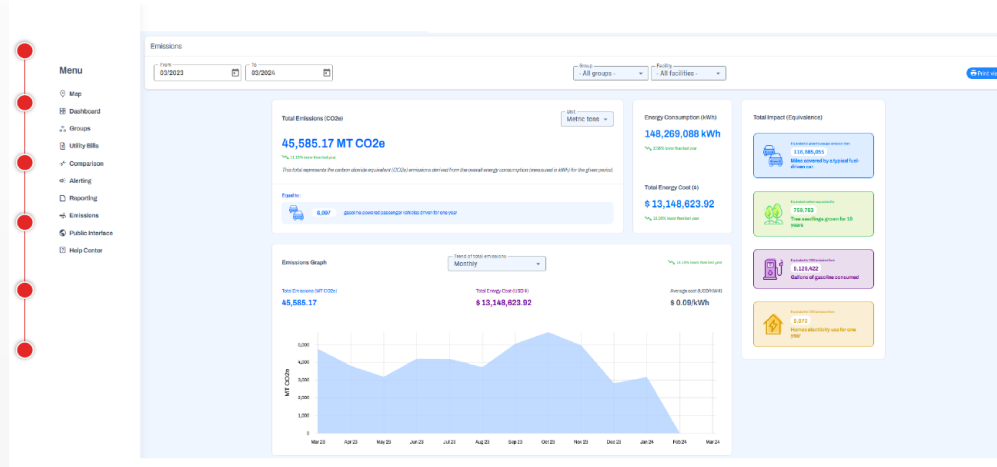
Our flexible energy resources will participate with PNM during critical peak demand periods as we opt into current and future demand side market instruments like demand response and future firm dispatchable market instruments. Our vision with the BRAIN is to build an integrated data lake, machine learning 'neural network based' predictive models and both internal and public-facing dashboards that are easy to use, outcome oriented, scalable, and easily adopted by other New Mexico public entities, residing behind each entities' secure firewalls.

CABQ Gets Smart with Unveiling of the BRAIN

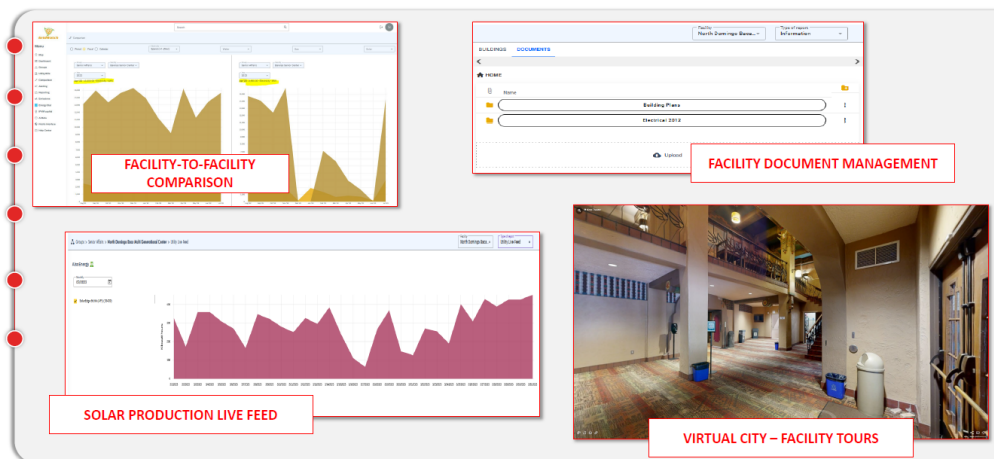
CABQ
BRAIN



Real-Time GHG Emission Capture



Additional BRAIN Functionality



FACILITY-TO-FACILITY COMPARISON

FACILITY DOCUMENT MANAGEMENT

SOLAR PRODUCTION LIVE FEED

VIRTUAL CITY - FACILITY TOURS



RECOMMENDATIONS

Projects, both ongoing and completed, have successfully fulfilled the AEC's -cost-effective, innovative energy management, energy, education, and community involvement mission. Given this success and the need to meet robust goals and improve the quality of life for Albuquerque residents, the AEC recommends the following:

- **City to increase the CIP from 3% to 5% for energy conservation and renewable energy capital improvements. Furthermore, the current 3% allocation was set in 2006, 16 years ago. Increasing the CIP from 3% to 5% will allow for the ability to accomplish the City's resolution to have 25 percent of its energy come from solar resources by 2025 and Mayor Keller's commitment to using 100 percent renewable energy for all municipal operations by 2025.**
- **Expand the eligibility of CIP projects to include water conservation**