

Los Alamos County Department of Public Utilities Outreach Service Agreement AGR16-033

2019 Calendar Year Report August 27, 2020



Prepared by Elizabeth Watts, Educator
Pajarito Environmental Education Center
2600 Canyon Road, Los Alamos, NM 87544
(505) 662-0460
elizabeth@peecnature.org

Table of Contents

PROGRAM SUMMARY	3
YEAR AT A GLANCE	4
2019 OUTREACH SUMMARY	5
BUDGET SUMMARY	9
2019 TASK ORDER OVERVIEWS	12
CURRICULUM OVERVIEW	15
WATER FESTIVAL INFORMATION	18
COMMUNITY EVENTS OVERVIEW	23
EVALUATIONS	34

Program Summary

In February 2016, Pajarito Environmental Education Center (“PEEC”) entered into a contractual agreement with the Los Alamos County Department of Public Utilities (“DPU”) to provide educational services to DPU customers about water and energy conservation in Los Alamos County.

This contract continues the work started under a previous contract between DPU and PEEC, carried out between 2012 and 2015.

The period covered by this report is calendar year 2019. During this time, PEEC engaged in outreach efforts through Los Alamos Public Schools (“LAPS”) and at public venues, including at the Los Alamos Nature Center, which is operated by PEEC.

This report contains a summary of outreach efforts and results, budget summaries for 2019, and overviews of each of the task orders, including a brief summary of work completed and plans for continuation of each project. A summary of lesson plans is provided. Finally, the report includes a list of teacher contacts, publicity materials and teacher evaluations.

Complete curricula, materials, activities, exhibits, giveaways and other materials are stored at the Los Alamos Nature Center and may be viewed there. If you would like to observe a lesson, please contact Elizabeth Watts at elizabeth@peechnature.org.

Cover photo: Los Alamos Fourth Grade students at the 5th Annual Water Festival learn about pumping water from DPU’s Clay Moseley. Photo by Rachel Landman.

Year at a Glance

2019 Outreach Summary

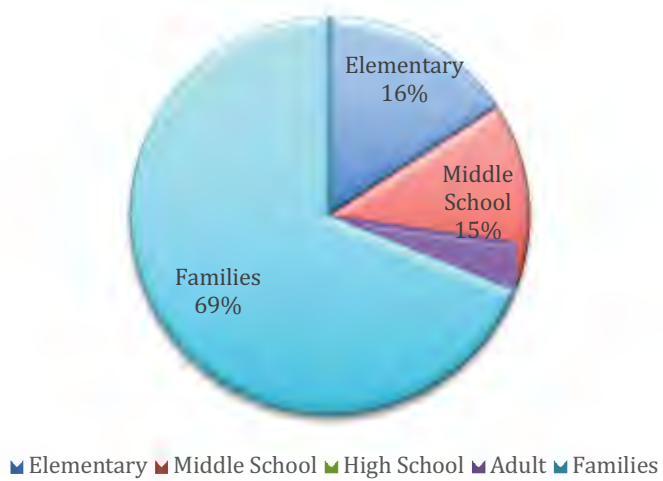
- **5685 connections** made with community members about energy and water conservation through interpretive lessons, workshops and events
- **4958 visitors** learned about solar energy and water-wise gardening through exhibits at the Nature Center
- **1770 student contacts** allowed Los Alamos Public School students to engage with water and energy in hands-on lessons
- **3300 people** participated in water and energy conservation activities at the Los Alamos Science Fest, Trick or Treat Main Street, and other community venues
- **305 4th graders, teachers, and parents** took part in interactive demos about water at the 5th annual Los Alamos Water Festival
- **200 visitors** attended the Electric Vehicle show to learn and experience all types of electric vehicles



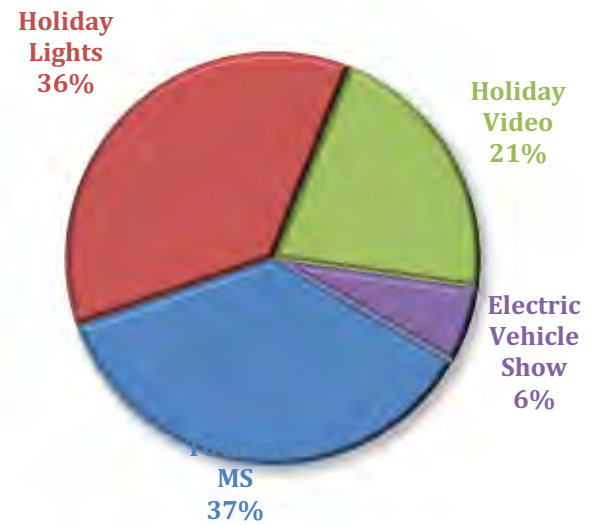
Above: Visitors learn about the many different types of electric vehicles at the 2019 Electric Vehicle Show that was held in conjunction with Los Alamos County ScienceFest. Photo by Rachel Landman

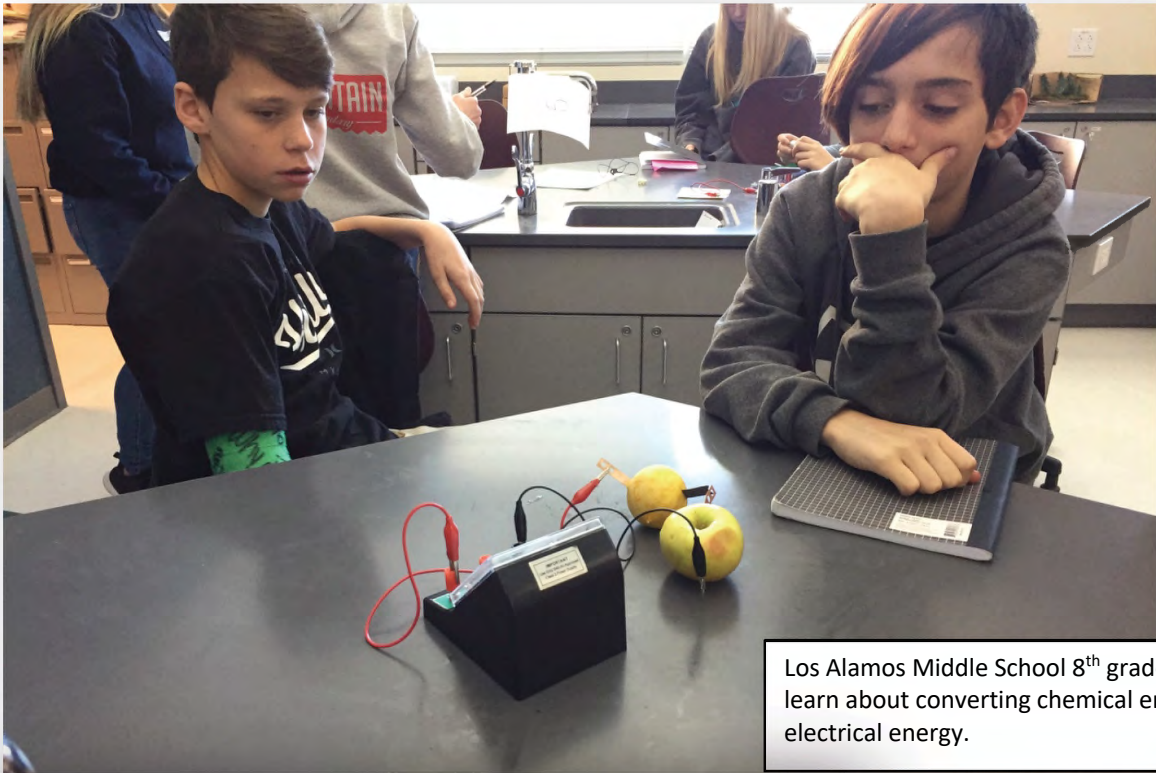


2019 Audience By Age



2019 Residential Events





Los Alamos Middle School 8th grade students learn about converting chemical energy into electrical energy.



A solar powered Tesla in the Holiday Light Parade educated people about solar holiday lights.

Participant Feedback:

This was a perfect lesson for third grade because of all the hands-on activities. All three classes loved it! I heard many children saying things like, "What happens if you do this?" and "Let's try it another way."

- 3rd -grade teacher

Students using energy vocabulary during skit! Awesome!! Always a joy to have you in the classroom to help our students learn!

- 4th-grade teacher

Clay Moseley is awesome - every time!

- 4th-grade teacher at the Water Festival

It was great to have Tyler from DPU there to respond to questions about solar collectors, etc. He was very knowledgeable. The materials Sandra prepared really helped us respond to questions.

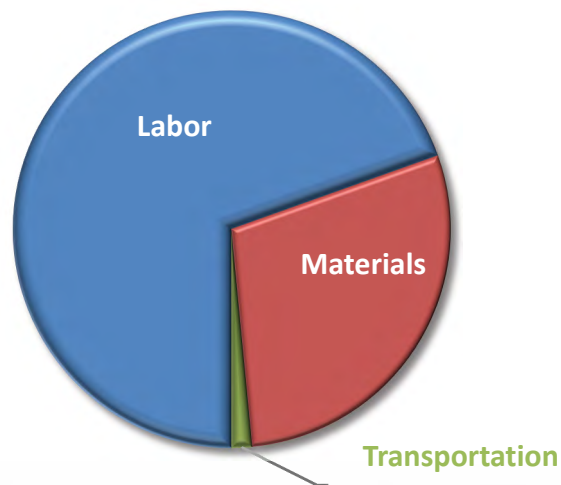
- Comment on Electric Vehicle Show

Budget Summary

Budget Overview January – December 2019

Task Order	Visitor Contacts	Hours	Category	Budgeted	Spent
5&7: LAPS & Community	2385	341.25	Advertising	\$500	\$0.00
			Labor	\$24,000	\$14,915.73
			Materials	\$11,500	\$8,071.85
			Transportation	\$2,000	\$516.36
			Total	\$38,000	\$23,503.94
6&8: Residential E & W	8262	243.25	Advertising	\$1,200	\$0.00
			Labor	\$7,200	\$10,195.10
			Materials	\$3,600	\$2,060.96
			Transportation	\$0	\$0.00
			Total	\$12,000	\$12,256.06
All Task Orders	10647	584.50	Total	\$50,000	\$35,760.00

SPENDING BY CATEGORY



Invoice Summary January – December 2019

MONTH	PEOPLE	HOURS	COST
JANUARY	830	50	\$2,253.46
FEBRUARY	380	17.50	\$910.24
MARCH	597	37.00	\$5,815.20
APRIL	559	70.00	\$5,253.17
MAY	691	58.25	\$3,037.53
JUNE	520	24.50	\$1,138.87
JULY	1341	90.50	\$4,705.60
AUGUST	458	5.00	\$286.55
SEPTEMBER	420	20.25	\$1,684.05
OCTOBER	1783	70.50	\$3,890.60
NOVEMBER	793	66.50	\$3,467.47
DECEMBER	2275	74.50	\$3,317.26
TOTAL	10647*	584.5	\$35,760.00

* Includes visitors to the water-wise gardening and solar energy exhibits, calculated as a percentage of nature center visitors during 2019.

2019 Task Order Overviews

Los Alamos County Public Schools and Community Outreach

Task Order 5 and Task Order 7

Goal:

Educate Los Alamos students about energy and water and the importance of conservation through hands-on instruction in K-12 classrooms and at community events.

Scope:

Modify and implement classroom curricula that include hands-on in-class activities and field trips that meet New Mexico State curriculum and Common Core standards. The instruction should focus on energy and water especially as they relate to Los Alamos County; understanding energy conservation; and/or other topics deemed appropriate by agreement between PEEC and DPU staff. A PEEC representative will present the curricula, on invitation from the classroom teachers, in Los Alamos schools. Organize a water festival for 4th-grade students including water-themed activities and giveaways. Bring energy and water themed exhibits to community events.

Year-End Comments:

1) Accomplishments:

- We brought energy and water conservation lessons to 7th and 8th grade classes at the Los Alamos Middle School.
- We hosted the fifth annual 4th-grade water festival. The festival featured presenters from around the community, and received positive feedback from participating teachers and from students.
- We continued revising lessons, especially for 3rd and 8th grades.
- We brought energy-conservation activities and exhibits to community events, including Los Alamos Science Fest.

2) Plans for future work:

- We will continue offering lessons, especially energy lessons for 8th graders. However, the school situation in the fall is unknown at this time so we will do our best to adapt to teacher needs.
- We would like to work with 7th grade teachers to find out how to help them better meet their learning needs.
- We are planning a Conservation Camp in the summer of 2020 for 4th-6th graders to educate them on conservation and sustainability issues.
- We plan to continue bringing energy and water-conservation activities to school science nights and community events.

Los Alamos/White Rock Residential Energy and Water Efficiency Outreach

Task Order 6 and Task Order 8

Goal:

Educate Los Alamos County residents and homeowners about energy and water conservation at home.

Scope:

Organize events, programs, and initiatives to demonstrate energy and water efficient solutions to Los Alamos residents and homeowners. Create signage or other types of exhibits to be displayed at the Los Alamos Nature Center highlighting energy and water conserving features such as photovoltaics, water harvesting and water-wise gardening.

Year-End Comments:

1) Accomplishments:

- We organized and hosted the second electric vehicle show to coincide with the Los Alamos Science Fest. This show featured electric vehicles of all types as well as information about Los Alamos County's electric grid and solar projects.
- We participated in Trick-or-Treat on MainStreet by distributing insulation for electrical outlets and switches and information on winterization.
- We had a Tesla covered in solar lights in the county's Holiday Light Parade to educate county residents about solar-powered holiday lights.
- We continued supporting the solar energy exhibit and the water-wise gardening exhibit at the Los Alamos Nature Center.

2) Plans for future work:

- Update the solar energy exhibit with real-time data from Los Alamos as well as an interactive portion on local monsoons.
- Due to the pandemic restrictions, ScienceFest will be virtual in 2020. However we still hope to provide a Virtual Electric Vehicle Show.
- Install a drip-irrigation system in a new demonstration garden with signage to inform people about the benefits for water conservation at home.

Curriculum Overview

2019 Lesson Summaries

Complete lesson plans are stored at PEEC.
Contact elizabeth@peechnature.org to see them.

Elementary

Grade/Topic	Academic Standards	Lesson Overview
3/Energy	Electricity & Magnetism	Students explore electricity and magnetism, and find out how electromagnetic generators are used to produce our electricity.
3/Water	Weather & Climate	Students learn how specific traits allow plants to survive in our arid climate, and design a garden with plants selected for our climate.
4/Energy	Energy conversion, fuels	Students observe how energy changes form, and role-play the energy transformations in a coal-fired power plant.
4/Water	Human-natural environment interaction	Students demonstrate human impacts on the water cycle through an active game.
5-6/Energy	Science can be used to protect resources	Students discover factors affecting passive solar energy by building and testing a model house.
5-6/Water	Locations of water on Earth	Students build a model aquifer and design and test solutions to extract the water.

Middle School

Grade/Topic	Academic Standards	Lesson Overview
7	Water & carbon cycles	Students do experiments to explore human impacts on the water and carbon cycles.
8	Energy sources and transformations	Students perform laboratory experiments to discover how energy changes form, and how energy transformations are used to produce electricity.

2019 Teacher Contact List

(some teachers organize lessons for others at their school)

Teacher	School	Email
Tammy Moore	Aspen	t.moore@laschools.net
Amy Gilbert	Aspen	a.gilbert@laschools.net
Jane Reichman	Aspen	j.reichman@laschools.net
Laura Haynes	Barranca	l.haynes@laschools.net
Angela Lopez	Barranca	an.lopez@laschools.net
Monica Koski	Barranca	m.koski@laschools.net
Samantha Waidler	Barranca	s.waidler@laschools.net
David Parsons	Chamisa	d.parsons@laschools.net
Mitzi Mann	Chamisa	m.mann@laschools.net
Katie Tauxe	LAHS	k.tauxe@laschools.net
Adrienne Hetrick	LAMS	a.hetrick@laschools.net
Curtis Terrill	LAMS	c.terrill@laschools.net
Eva Abeyta	LAMS	e.abeyta@laschools.net
Lindsey Fullop	LAMS	l.fullop@laschools.net
Megan Rains	LAMS	m.rains@laschools.net
Sarah Blom	LAMS	s.blom@laschools.net
Brent Collom	LAMS	b.collom@laschools.net
Donna Schaefer	Mountain	d.schaefer@laschools.net
Kim Clayton	Mountain	k.clayton@laschools.net
Fabian Smith	Mountain	f.smith@laschools.net
Lindsay Gibson	Mountain	l.gibson@laschools.net
Barbara Kress	Piñon	b.kress@laschools.net
Herb Siegel	Piñon	h.siegel@laschools.net
Kristen Martines	Piñon	k.martines@laschools.net
Whitney Holland	Piñon	w.holland@laschools.net

Water Festival Information

Water Festival Summary

Date: April 12 and May 3, 2019

Location: UNM-LA

Time: 9 AM – 2 PM

Description

We hosted Los Alamos 4th-grade students at our fifth annual Los Alamos Water Festival at UNM-LA. During the day, students participated in several mini-lessons about water presented by community experts, and then created a water-themed art project to help them summarize their learning.

Giveaways (all items with DPU logo)

- String backpacks for all students
- Totes and water-related books for all teachers
- Water-conservation-themed water bottles for all participants
- Color-changing pencil for all participants

Attendance

All 4th grade classes in the district took part, however no homeschool students attended this year. In total 305 students, teachers, IA's and parents/chaperones attended this event.

Post-Event Comments

- Almost all of the presenters came back from previous years unless they had a date conflict.
- We had enough presenters to be able to split some classes for a better small-group experience.
- We tried to alternate when classes saw a hands-on presentation and a model.
- Teachers commented that their students were very engaged and that students were able to participate frequently during most presentations.
- PEEC volunteers were experienced from previous years and were therefore a huge help in logistics.
- UNM-LA was a wonderful location for the event. Betsy was very helpful, especially with last minute problems like snow!
- Teachers, IAs, and presenters appreciated that lunch was provided.
- The April festival did have snow at lunch time. Teachers would prefer both dates in May after testing is completed. However, that is typically a busy time for field trips to the Nature Center. One teacher suggested September instead, when there is less going on at school.

Community Presenters

Organization	Contact Name	Email	Presentation Title
LANL	Michelle Bourret	bourret@lanl.gov	Groundwater
LANL	Sanna Sevanto	ssevanto@gmail.com	Plants, Water & Climate
DPU	Jennifer Baca Joshua Silva	Jennifer.baca@lacnm.us	Water Distribution/Wastewater Collections
DPU	Clay Moseley	tclaynm@gmail.com	Pump Power
NM Environment Department	Megan Green	Megan.green@state.nm.us	Pollution and the Water Cycle
City of Santa Fe	Patricio Pacheco	pmpacheco@santafenm.gov	Enviroscape Watershed/Non-point Source Model
NMSU	Rossana Sallenave	rsallena@nmsu.edu	Water Quality: How Do We Measure It?
PEEC	Denise Matthews	denise@peechnature.org	Surface Tension



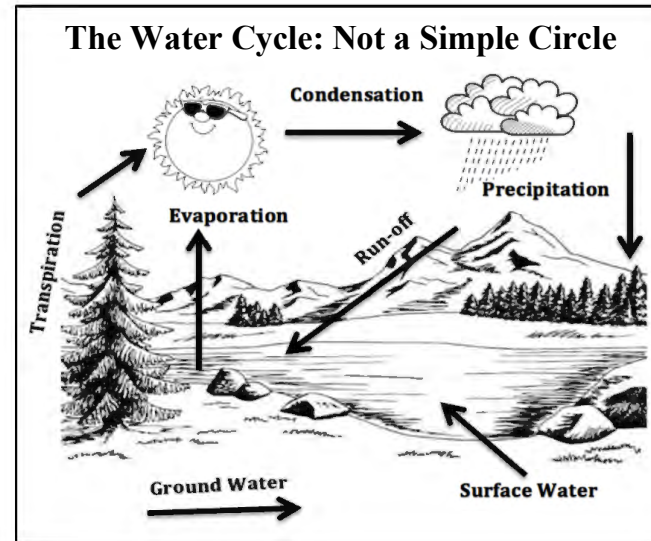
Water Festival 2019 Schedule

Date: Friday, April 12, 2019

Location: UNM-LA

Schedule Overview

8:30 AM Presenter Set-up
 9:15 – 9:30 Buses arrive at Sullivan Field
 9:30 – 9:40 Introduction (Student Center)
 9:45 – 10:10 Lesson 1
 10:15 – 10:40 Lesson 2
 10:40 – 10:55 Snack/Recess Break on Mesa Field
 11:00 – 11:25 Lesson 3
 11:30 – 11:55 Lesson 4
 12:00 – 12:40 Lunch on Mesa Field
 12:45 – 1:15 Closing Project
 1:20 – 1:40 Closing Session (Student Center)
 1:40 – 1:45 Buses Depart from Sullivan Field
 1:45 – 2:15 Clean-up spaces



April 12th Lesson Schedule

Class	Lesson 1 9:45-10:10	Lesson 2 10:15-10:40		Lesson 3 11:00- 11:25	Lesson 4 11:30-11:55		Art Project 12:45-1:15
Cortez	312	230	Snack/Recess Break On Mesa Field 10:40-10:55	624	631	Lunch Break on Mesa Field 12:00-12:40	606
Schaefer	624	312		230	625		610
Ziomek	610	624		312	230		625
Mann	631	610		Kiva/606	312		230
Parsons	625	631		610	Kiva/606		230
Hayes	Kiva/606	625		631	624		631
Siegel	230	Kiva/606		625	610		631

Water Festival 2019 Schedule

April 12th Presentations and Locations

Room Number	Title	Presenter	Organization
312	Water quality: how do we measure it?	Rossana Sallenave	New Mexico State University
624	Pollution in our Watershed	Megan Green and Seva Joseph	New Mexico Environment Department
610	What is groundwater, and why is it so important for New Mexico?	Michelle Bourret	Los Alamos National Lab
631	Process of drinking water and wastewater	Jennifer Baca and Evelyn Maestas	Los Alamos County
625	Plants, water and climate	Sanna Sevanto	LANL
230	Surface Tension	Denise Matthews	PEEC
Kiva/606	All About Pumping Water	Clay Moseley	Los Alamos County DPU

Notes

- Today's theme is the Water Cycle: Not a Simple Circle
- Student takeaways:
 - Water moves through many complex processes on Earth
 - Most of the water on earth is not available for us to use/consume (it's stored in the ocean, frozen in glaciers, and found underground), so it's important to conserve what we do have!
- Each presenter will be assigned to one space and will stay there as classes rotate.
- Each class will attend 4 lessons, and each presenter will give 4 lessons.
- The project will be a circle book to help the students synthesize what they have learned and will be led by teachers and PEEC educators and volunteers.



Community Events Overview

2019 Public Event Summaries

Date	Title	Description	Attendees
5/20/19	Nature Playtime: Garden Water Conservation	Families learn techniques for conserving water in their home gardens, including mulching soil and using water-conserving plant nannies.	40
7/13/19	ScienceFest	Visitors of all ages did hands-on activities relating to solar energy.	450
7/13/19	Electric Vehicle Show	Provided an opportunity for people to learn about electric vehicles through direct observation and discussion with electric vehicle owners.	200
10/25/19	Trick-or-Treat on MainStreet	Distributed 1200 foam inserts for insulating electrical outlets and light switches.	1200
12/7/19	WinterFest	Participated in Holiday Light Parade with a focus on solar-powered holiday lights.	1200
12/2019		Video of parade served to educate viewers about availability of solar-powered lights	704

ELECTRIC VEHICLE SHOW



The Electric Vehicle Show showcased various types of electric vehicles owned by people in Los Alamos County. It provided the public with a chance to talk directly to owners of a variety of electric vehicles. It includes both cars and bikes. While most of the vehicles were commercially made, there were a few that were home-built. There was even a report of someone ordering a Tesla after talking with one of the owners at the show! Information was provided about the DPU's LA Green program for renewable energy as well. On the following page is the handout that gave details for all the varied vehicles at the show. In 2019 we were able to move the show from the Nature Center to Central Avenue which resulted in more people being able to participate. Photo above by Rachel Landman.

E-Bikes

LOS ALAMOS
SCIENCE FeST
2019

2019 Electric Vehicle Show

Made possible by
LOS ALAMOS
Department of Public Utilities
Electric, Gas, Water, and Wastewater Services

	Make	Model	Year	Category	Quotometer (miles)	Top speed (miles per hour)	Range per charge (miles)	Electricity provided (kWh)	Electricity provided (gallons of CO ₂ / 100 miles)	Electricity provided (gallons of CO ₂ / 100 miles)	Electricity provided (gallons of CO ₂ / 100 miles)	Other things the owner loves about this vehicle	Other things the owner would change about this vehicle	If this vehicle were an animal, it would be a...	The most unique or notable about this vehicle	The most interesting place this vehicle has been	Notes
	Elley		2018	EV	325	20	25 – 70	1497 – 4191	< 2	0		It's fun and it makes riding a bike in hilly Los Alamos something I enjoy. I probably would not ride a bike in Los Alamos, especially on Diamond Drive or up steep Berrance hill, without the extra assist of the electric motor. It gives me a boost of confidence in traffic.	Can't think of anything	Puma	My bike is unique because it was designed from the ground up to be electric, not just a modified standard bike.	Exploring the streets of Los Alamos	
	iZip	E3 Viber	2017	EV	666	20	1 – 35	1264 – 2765	< 2	0		Maximum fun!	Needs more storage so I can haul groceries, etc.	Really fast, red bird	She's beautiful! It's amazing how many compliments I get. Green is the new black :-)	She has led a pretty sheltered life.	
	Magnum	Cruiser	2017	EV		20	30 – 60	1610 – 1320	< 2	0		The electric motor makes getting around town easy.	Upgrade some of the cheap parts.	Meerkat	The cruiser style is more comfortable than a traditional mountain or street bicycle.	The very interesting town of Los Alamos.	
	Pedego	Stretch	2019	EV		20	25 – 50	1254 – 2507	< 2	0		The Stretch can carry up to 400 pounds and is super zippy while doing so, even going uphill.	The kickstand is a real piece of work. It's hard to flip it up without feeling like you're going to break a toe. I will change the kickstand at some point.	Camel	The side and back racks can be moved around to accommodate different sizes and shapes of cargo.	All over town!	
	Rad Power	RedCity 16"	2018	EV	375	20	25 – 45	1254 – 2257	< 2	0		All electric, five levels of pedal assist, and regen in the hub so it recharges when going downhill.	Make it a little less heavy. The frame is also a tad too big for a 5'8" person, but that is how these bikes are built. There is a snap-through model, which is better for people <5'8". It also needs a water bottle cage.	Mustang	Designed and assembled in and shipped from Seattle (from parts made in China though). Mention my name (Elizabeth Cooper) if you order one, and we both get a \$50 Amazon card.	Smith's	
	Rad Power	RadWagon	2019	EV		20	26 – 68	1404 – 2808	< 2	0		It allows me to commute to work and drop off my two-year-old twins at daycare along the way—without breaking a sweat. This bike can handle up to 350 pounds and make hauling stuff around town a piece of cake.	The front wheel tends to wobble when going uphill with a full load in back. Mostly, it just takes some getting used to, using the throttle to maintain speed uphill also helps.	Yak	The price. This bike costs \$1,500 (although with accessories such as the front rack and child seats, the price increases). If you're not looking to spend a ton on an e-bike, consider RadPower (they make regular e-bikes in addition to cargo e-bikes).	All over town!	
	Tern	GSD 500	2019	EV		20	124	2792	1	0		With the seamless gear twisting, I can dial in the right amount of resistance and never worry about dropping a chain. And, if I need to cover some serious distance, the dual batteries have me covered.	This bike is expensive! \$3,800 for the dual-battery option.	Pack mule	The back rack doubles as a stand if you want to store the bike vertically, and the handlebars fold down if you want to fit the bike in a small space such as a car. An integrated lock on the front wheel means you'll always have a way to keep the bike secure. It has 20-inch wheels that accelerate faster than bigger wheels. This lower center of gravity also makes the bike feel more stable with a heavy load in the back.	All over town!	
	Yuba	Spicy Curry Bosch	2018	EV		20	30 – 60	2500 – 5000	< 1	0		It's fun to ride.	None	AT/BC Fox	It can carry three kids on the back or up to 300 pounds.	Around Los Alamos	

*These are estimates for charging/fueling in Los Alamos. References: Los Alamos County and USEIA.

**They offer different types of batteries. These calculations used a 10 kWh battery.

As a reference, 1 gallon of gasoline produces 20 lbs of CO₂.

Street-Legal Vehicles

[illegible]

ScienceFest



In addition to the Electric Vehicle Show, we also had a booth at ScienceFest with hands-on solar energy activities. The most popular was the solar oven that we used to make s'mores!

Photo by
Rachel
Landman

Trick-or-Treat on MainStreet



At Trick-or-Treat on MainStreet we distributed 1200 outlet insulation kits with instructions on how to reduce energy usage at home.



It's easy to start weatherizing with outlet and light switch draft stoppers!

Drafty outlets can account for up to 20% of the air leakage in your home. Easily installed, these items can reduce drafts and save money!

INSTRUCTIONS:

All you need is a screwdriver! Turn off power to the outlet or switch at the circuit breaker. Remove the cover plate. Punch out pre-cut holes on the gasket. Place the gasket in position and replace cover plate. For best results, install on exterior walls.



SCAN THIS CODE
FOR MORE ENERGY
SAVING TIPS!

HOLIDAY LIGHT PARADE



We had a solar powered Tesla in the Holiday Light Parade to educate Los Alamos county residents about solar powered holiday lights. All the lights used were solar powered. We also put together a video of the car for people to view online which received more than 700 views.

EXHIBITS

DPU sponsors two conservation exhibits at the Nature Center: one on solar energy, and the other on water-wise gardening.

Powering Our Planet

The sun provides energy for life on Earth.



How does life on Earth depend on the sun? Plants survive by turning sunlight into food through photosynthesis while also creating the oxygen we breathe. Animals survive by eating plants—or eating other animals that eat plants. Energy for our planet begins with the sun.

The sun drives Earth's weather patterns and shapes ecosystems. It changes our landscapes and determines how and where humans thrive across the planet.

Energy for Our Homes

From ancient cliff dwellings of the Pajarito Plateau to the nature center where you stand, humans design structures considering the sun's energy. Discover more about how we use solar power by touching the screen below.



LOS ALAMOS
Department of Public Utilities
Electric, Gas, Water, and Wastewater Services

The solar energy exhibit has an informational panel about the sun and an interactive touch screen component for visitors to explore.

Throughout history, humans have taken advantage of the sun's power.

Modern Solar Power

Today, architects do the same things by designing houses with big windows facing south and may add an overhang to keep the hot summer sun from hitting them. However, we also have technology that captures the sun's energy and converts it to electricity. The panels on the nature center do just that.

Tap Here to learn more about current solar power!





Water is a precious resource in our high-elevation desert. Given our challenging growing conditions, choosing plants adapted to our climate is the best way to grow a successful and water-wise garden. Native plants thrive without added care in local wild areas. They add color to your garden and are the preferred food sources of native pollinators. Once established, drought-tolerant plants survive on little water. While exploring our gardens, look for other water-saving measures including mulches and soil amendments, irrigated oasis zones, and drip irrigation.

LOS ALAMOS
Department of Public Utilities
Electric, Gas, Water, and Wastewater Services

Explore nature.



Los Alamos Nature Center is operated by the
Pajarito Environmental Education Center
for Los Alamos County

2600 Canyon Road
Los Alamos, New Mexico 87544
505-662-0460, losalamosnature.org



PEEC is a non-profit organization founded in 2000 to connect people with nature. Los Alamos County hired PEEC in 2015 to operate the Los Alamos Nature Center. PEEC's Mission: Enriching people's lives by strengthening their connections with our canyons, mesas, mountains, and skies.



PEEC
Pajaro Environmental
Education Center

Native/Wildflower Garden

Shrubs:

- 1.* Curl Leaf Mahogany (*Cercocarpus ledifolius*)
2. Golden Currant (*Ribes cereum*)
- 3.* Three Leaf Sumac (*Rhus trilobata*)

Grasses:

4. Indian Rice Grass (*Achnatherum hymenoides*)
5. Little Bluestem (*Schizachyrium scoparium*)

Perennials:

6. Antelope Sage (*Eriogonum jamesii*)
7. Bitterweed (*Hymenoxys richardsonii*)
8. Blue Flax (*Linum lewisii*)
9. Butterflyweed (*Asclepias tuberosa*)
10. Cardinal Penstemon (*Penstemon cardinalis*)
11. Chocolate Flower (*Berlandiera lyrata*)
12. Dotted Gayfeather (*Liatris punctata*)
13. Firewheel (*Gaillardia aristata*)
14. Hooker's Evening Primrose (*Oenothera elata*)
15. Indian Paint Brush (*Castilleja integra*)
16. James's Penstemon (*Penstemon jamesii*)
17. Little Red Columbine (*Aquilegia triternata*)
18. Mexican Hat (*Ratibida columnifera*)
19. Missouri Evening Primrose (*Oenothera macrocarpa*)
20. Nodding Onion (*Allium cernuum*)
21. Prairie Sagewort (*Artemisia frigida*)
22. Purple Geranium (*Geranium caespitosum*)
23. Perky Sue (*Tetranneuris* or *Hymenoxys argentea*)
24. Rocky Mountain Columbine (*Aquilegia caerulea*)
25. Santa Fe Phlox (*Phlox nana*)
26. Scarlet Bugler (*Penstemon barbatus*)
27. Showy Four O'Clock (*Mirabilis multiflora*)
28. Spreading Fleabane (*Erigeron divergens*)
29. Sun Drops (*Calylophus hartwegii*)
30. Vining Four O'Clock (*Mirabilis oxybaphoides*)
31. Winter Fat (*Krascheninnikovia lanata*)
32. Whipple's Penstemon (*Penstemon whippleanus*)

*Outside the raised bed, on the south side.

Water-wise Garden

Shrubs:

1. Burkwoods Broom (*Cytisus scoparius* 'Burkwoodii')
2. Creeping Sumac (*Rhus trilobata* 'Autumn Amber')
3. Giant Purple Sage (*Salvia pachyphylla*)
4. Hedge Cotoneaster (*Cotoneaster lucidus* 'Peking')
5. Lavender Cotton (*Santolina chamaecyparissus*)
6. Shrubby Cinquefoil (*Dasiphora fruticosa*)
7. Spanish Broom (*Cytisus purgans* 'Spanish Gold')

Perennials:

8. African Daisy (*Osteospermum* 'Avalanche')
9. Ava's Hummingbird Mint (*Agastache* 'Ava')
10. Baby Tears Stonecrop (*Sedum album chloroticum*)
11. Bearded Iris (*Iris germanica*)
12. Daylily (*Hemerocallis* 'Frans Hals')
13. Daylily (*Hemerocallis* 'Fooled Me')
14. Golden Clematis (*Clematis tangutica*)
15. Ice Plant (*Delosperma floribundum* 'Starburst')
16. Ice Plant (*Delosperma* 'Fire Spinner')
17. Lavender (*Lavandula x intermedia* 'Grosso')
18. Meadow Sage (*Salvia nemorosa* 'May Night')
19. Mexican Feather Grass (*Nassella tenuissima*)
20. Mullein Southern Charm (*Verbascum phoeniceum*)
21. Red Hot Poker (*Kniphofia* 'Starks's Early Hybrid')
22. Rocky Mountain Penstemon (*Penstemon strictus*)
23. Spreading Fleabane (*Erigeron divergens*)
24. White Creeping Phlox (*Phlox subulata*)

Pollinator Garden

Shrubs:

1. Blue Mist Spirea (*Caryopteris clandonensis*)
2. Butterfly Bush (*Buddleia davidii* 'Nanho Blue')
3. Fernbush (*Chamaebatiaria millefolium*)
4. Red Lake Currant (*Ribes rubrum* 'Red Lake')

Grasses:

5. Little Bluestem (*Schizachyrium scoparium*)

Perennials:

6. Bee Balm or Mint-Leaf Bergamont (*Monarda fistulosa* var. *menthifolia*)
7. Black-Eyed Susan (*Rudbeckia hirta*)
8. Blue Sage (*Salvia sylvestris* 'Caradonna')
9. Blue Hyssop (*Hyssopus officinalis*)
10. Coronado Hyssop (*Agastache aurantiaca*)
11. Creeping Oregon Grape (*Mahonia repens*)
12. Double Bubble Min (*Agastache cana*)
13. Firewheel (*Gaillardia aristata*)
14. Hairy Golden Aster (*Heterotheca villosa*)
15. Mexican Hat (*Ratibida columnifera*)
16. Pineleaf Penstemon (*Penstemon pinifolius*)
17. Purple Coneflower (*Echinacea purpurea*)
18. Prairie Wine Cups (*Callirhoe involucrata*)
19. Red Salvia (*Salvia greggii* 'Furman's Red')
20. Sulfur Flower (*Eriogonum umbellatum* 'Kannah Creek')
21. Threadleaf Coreopsis (*Coreopsis verticillata* 'Zagreb')

Evaluations

Teacher/Parent Evaluation Summary

(original evaluations are stored at PEEC;
contact elizabeth@peecnature.org to see them)

DATE	GRADE	HOW SATISFIED (1-5)	COMMENTS
3/5/19	3	5	Everyone was engaged! The use of cooperative centers meant that even my learners that didn't fully "get" it were able to participate and feel successful.
4/2/19	3	4	Questioning strategies that got my kids thinking and engaging. Retention of information from visit to visit. Participation from all learners.
4/3/19	3	5	This was a perfect lesson for third grade because of all the hands-on activities. All three classes loved it! I heard many children saying things like, "What happens if you do this?" and "Let's try it another way." They were able to experiment and discover how magnets work (that magnets are not only fun, but useful too!) The worksheet helped them to express their discoveries in words or pictures. Thank you!
4/12/19	4	5	The students' conversation focused on working in the lab. They enjoyed the experiments on acidic and alkali.
4/12/19	4	5	My class was very engaged. They (mostly) listened and had questions and comments to share. May would be so much better. Not only is it cold but we are also preparing for testing.

4/12/19	4	5	Lots of open-ended questions that facilitated great answers!
4/12/19	4	5	The kids were engaged with the different workshops. Program real smooth and transitions from each were pleasant. Would like to see something about how to better save our forest.
4/12/19	4	5	Great job! Awesome program!
4/12/19	4	4	Program went well. My class was engaged. Do it later in the year like May.
5/3/19	4	4	Clay Moseley is awesome - every time! He is great with the kids. My only suggestion or comment is that often times the presenters from LANL are experts in their field, but are not able to communicate that information easily to a 4th grader. Some of the discussions/vocabulary were above their heads.
5/3/19	4	5	
5/3/19	4	5	I liked attending [the water festival] in May. The weather was better and it was a good end of the year field trip.
5/3/19	4	4	Exhibits and activities should be large enough or have enough so students can see/participate.
5/13/19	4	5	I would love having materials (literature) sent via email to our class beforehand so I could prep the kids before coming. It

			would be great to work with PEEC throughout the year through class presentations or field trips. Maybe scaffold the curriculum to complement our common core objectives.
12/1/19	4	5	Students using energy vocabulary during skit! Awesome!! Always a joy to have you in the classroom to help our students learn!

Feedback from Electric Vehicle Show participants:

<https://www.surveymonkey.com/results/SM-HQBTH5YSL/>

What worked? What didn't work?

- It was nice to be located right next to the solar charged battery. As someone who was setting up a stand without an electric vehicle, I felt a bit rushed to move my car while unloading. Overall the event was great!
- Organization was terrific, steady stream of interested residents, shade tent for bikes was much appreciated!
- The whole thing worked. Great turn out
- The placards were a great idea, and I liked how you had a dedicated test drive area. This was the best EV show I've been in, I don't have any opinions on what could be better!
- It was good when they set up the shade for the e-bikes, since the batteries are exposed directly to the sun. But then we were all a bit crowded. A little more space under the shade would be good.
- The overall setup worked well. Some important EVs, PHEVs were missing. I would be willing to help solicit new showings in a follow up event.
- I wish we had had the turnout of Earth Day, but we didn't. We did have interest in the e-bikes, though, and part of that may have been the differing models. People could really do a little comparison between the bikes.
- I wondered if we'd get many people with ScienceFest going on at the same time, but the car show had a lot of publicity and I thought we got very good attendance. I'm curious how well the test drives went. I didn't get a chance to get up there and even see what they had available. The ice cream booth was much appreciated. It was hot! It was great having the wide range of vehicles. I liked looking at everything, the bikes, motorcycles, and cars of all sizes and types, and talking with all the owners and comparing notes.
- Nice venue, plenty of space for people to get into cars, I wouldn't change anything.
- Everything seemed fine. Better than expected and very well organized.
- Well organized. I had a place to exhibit my vehicle.
- It would have been nice to have more dealer participation, especially tents. It was hot out there!
- It was a little hectic with having it the same time as ScienceFest, but I also think that is what made it work.
- Great variety of vehicles. More shade would have been nice.
- I think it was well organized and well publicized and the posters and handout materials were excellent.

Any other comments or suggestions for the organizers?

- It was a great show. Thanks for inviting us to vend.

- Well done! Great to see this sort of sustainability event in Los Alamos. Perhaps make it even more visible next year by moving it downtown (library or Justice Center parking lot?)... Overall, terrific!
- I thought it was really cool to be next to the tiny VW Bus guy, his car was a great way to explain to people how my Tesla works, since everything's out in the open in his bus. He was a really cool dude, too :) The Positive Energy solar trailer was only used by the ice cream freezer by the co-op. It would have been a neat message if someone had been able to plug their car into it too, even if the truck isn't outputting much electricity. Also it would have been cool to have cars plugged into the Nature Center's charging station. I got a ton of questions about where I could charge, and it would have been neat to point to somebody actively using it.
- An additional educational component would be good. Maybe there could be a couple of guided walk-throughs that point out representatives of the different technologies and highlight their features. About half of the people that showed up at my plug-in hybrid did not understand what it was.
- I thought there was a great selection of cars also. Good opportunity for people to see the variety of vehicles on the market.
- Nice job!
- There didn't seem to be much interest in test driving most of the cars in the [overflow] lot. Not sure why, though the reps mostly hid out somewhere...
- Thanks. I think its important to get the word out about electric vehicles.
- Keep doing this. It would be great if the dealerships would take it more seriously and really have a big showing. This is the future after all :)
- Good job to PEEC organizers and staff.