



County of Los Alamos

Los Alamos, NM 87544
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Staff Report

July 15, 2020

Agenda No.: 7.B
Index (Council Goals): DPU FY2021 - 5.0 Achieve Environmental Sustainability
Presenters: James Alarid, Deputy Utilities Manager - Engineering
Legislative File: 13106-20

Title

Presentation by the Conservation Committee

Recommended Action

None

Staff Recommendation

None

Body

In preparation for updating the Water and Energy Conservation Plan the DPU began recruiting members of the community to participate in a conservation committee in February of 2020. The purpose of the committee was to gather input on conservation initiatives, activities and actions that DPU could implement. The input from the committee would be valuable to the Utility Board and staff as the Water and Energy Conservation Plan is revised.

The committee met four times in March and continued to work remotely during April through June remotely. The committee has come up with some conservation goals and a number of conservation ideas for education and promotion that DPU can evaluate in the conservation plan, assist in goal planning and include in the conservation program.

The DPU expresses its gratitude to the following volunteers who made up the conservation committee:

Kathleen Taylor	Utility Board Chairperson
Carrie Walker	Utility Board Vice-Chairperson
Heather Ward	LAC Sustainability Board
Curtis Terrill	LAPS Staff Sustainability
Ryan Foster	LAC Community Development - Planner
Michael Arellano	LAC Community Development - Building Official
William Willis	Renter/ Los Alamos
David North	Homeowner / White Rock
Tamara Massong	Homeowner / White Rock
Amanda Thom	Homeowner / White Rock
Jesse Deringer	Homeowner / Los Alamos
Lorraine Renta	Homeowner / Los Alamos
Matthew Allen	Local Business / Landscaping & Irrigation

A summary of the committee's goals and conservation initiatives are provided in the attachment. The work completed by the conservation committee will be presented to the Utility Board by committee members Tamara Massong and David North.

Alternatives

None

Fiscal and Staff Impact

None

Attachments

A - Conservation Committee Recommendations

GOALS

1. Eliminate use of natural gas. (See note below)
2. Find ways to accommodate a massive increase in residential and local solar.
3. Reduce water use by at least 1/3.

The natural gas goal above is what was originally provided to the Board of Public Utilities at their meeting on July 15th. However, this was not the goal the committee agreed upon, and at the meeting, a correction was made verbally.

Revised Goal:

Reduce residential gas usage by 20%, with a long term goal to eliminate residential gas usage by 2040.

RECOMMENDATIONS FOR EDUCATION AND PROMOTION:

1. Customer use of Advanced Metering Infrastructure (AMI) data

The installation of smart meters will eventually allow customer access to AMI data. This could revolutionize individual utility use as customers learn how much they use with various activities. But to be effective, the AMI data presentation must be simple and easily understood. This means there is a need to ensure people have adequate education on how the AMI system works, and some assistance with figuring out what it means. The county should provide interpretation: how is this supposed to work and how does the individual customer make changes?

Advantages: Knowledgeable customers will modify behavior to increase conservation.

Drawbacks: Cost of presentation software and customer access. Some county labor involved with interpretation.

2. Promote "Conservation Will Happen and Will Mean Increased Unit Costs"

If people understand that conservation is inevitable, and that it will mean unit costs will increase, it will inoculate people against a commonly known issue while encouraging a modest race to save both resources and money. Of course, unit costs will probably go up anyway, maybe even more without conservation. See appendix "Cost of Conservation" for further explanation.

Advantages: No cost. Is honest. Provokes conservation on all fronts.

Drawbacks: Will probably open brief heated debate on conservation.

3. Add "Residential Avg Usage" to Electricity, Gas and Water on Utility Bills

Allows each customer to know how their usage compares to residences of similar size. Usage at all single-family homes would be averaged and compared, while duplex- and apartment-style units would have their own comparisons. (Albuquerque does this on their water bills) See appendix "Residential Average Usage" for further explanation.

Advantages: lets above-average users know they can do better.

Drawbacks: Some programming and data processing time.

4. Encourage Programmable Thermostats and Controllers

Should be installed in new construction. County could supply information about energy and cost savings from using these relatively simple and low-cost devices.

Advantages: Decreases usage when appropriate. Saves money and resources.

Drawbacks: Very minor cost increase for device, compensated by savings.

5. Publish Standards on Thermostat/Controller Settings and Energy Savings

Explain how devices are used (all features, etc.) and how do they maximize efficiency? Use ASME standards and area-specific input from the New Mexico Technical Resource Manual to indicate proper settings and explain results. Compare new/suggested measures with previous/baseline measures.

Advantages: Sets baseline to encourage use of improved controllers.

Drawbacks: Some research and writing.

6. General Energy Efficiency Education

Provide information in monthly bill statements or monthly mailings on energy efficiency. Since not everyone gets a bill in the mail, there should also be online media information feeds.

Advantages: Educated customers generally conserve.

Drawbacks: Some county time and possibly printing costs.

RECOMMENDATIONS THAT MAY INVOLVE REBATES:

7. Pursue Grants for Appliance Rebates and Publicize Existing Local State and Federal Rebates and Tax Breaks

Typically affected appliances are water heaters, furnaces, ranges, washers, dryers, refrigerators, lighting fixtures, evaporative coolers, air conditioners, heat pumps, and smart thermostats. Information could be part of one of the current DPU bill inserts.

Advantages: Replacing older inefficient appliances with newer highly efficient versions should reduce consumption.

Drawbacks: Some investment of time and resources from county staff.

8. Reduce Outdoor Water Use with Xeriscaping Education, Rebates and/or Incentives

With a warming climate, water use on residential landscapes will only increase, and it is already the highest seasonal water use for most residences. Smart plantings and removal of unused turf can greatly reduce the amount of water use. Also, the storage of rainwater and snow melt on the residential property can improve plantings and reduce wear and tear on stormwater runoff infrastructure. This is the biggest bang for the effort--as water use clearly increases during hot months.

Advantages: The county already contracts with an education center, and education is low cost treatment. Easy changes through rebates (removing turf rebate) can result in large water savings almost immediately.

Drawbacks: Rebates or incentives cost money, but only using education can be a slow process

RECOMMENDATIONS ABOUT COUNTY SERVICES:

9. Coordinate and support efforts with Los Alamos Public Schools (LAPS)

LAPS is generally cooperative and certainly wants to save money. There are indications they could save at least 10% on water bills by altering their schedule, and there are probably many other ways to cut utility use and save money.

Advantages: Utilities conserved, LAPS saves money

Drawbacks: Time and effort from both county and LAPS.

10. Free delivery of tumbled glass or mulch when replacing turf

Remove a common obstacle to xeriscape conversion (homeowner doesn't have access to an appropriate truck). Same thing could be accomplished with a loaner truck.

Advantages: Saves water.

Drawbacks: Labor cost if delivered, truck cost if a loaner.

11. Accommodate Purchase-power-only Hybrid Solar

It is now possible to set up residential solar systems that use modest battery backup and do not feed back into the grid, only using county electricity when the battery system is depleted. This solves the county's problem of trying to use the unpredictable electricity produced.

Advantages: Less load on county electrical system without need to adjust grid.

Drawbacks: Some revenue loss, some code and rate complications.

12. Eliminate Most Street Lights

Some (not all) research indicates that streetlights only increase safety at main intersections. This is a complex issue full of wild claims on both sides, but it's certain that removing streetlights saves a lot of energy and improves the night sky.

Advantages: Cuts costs, eliminates substantial CO2, improves night.

Drawbacks: Makes some people feel less safe.

RECOMMENDATIONS INVOLVING CONSTRUCTION:

13. Solar-ready roofs and siting for new construction

Encourage or require new structures to have solar-friendly attributes

Reducing roof penetrations and shading on south-facing areas, aligning structure for southern exposure, installing conduit for future solar infrastructure, enabling passive solar design features such as summer-shaded south facing windows. It is much less expensive to include these features during initial design and construction than add them in the future and can provide long-term energy benefits.

Advantages: Reduce cost of future improvements and improve efficiency.

Drawbacks: Additional construction cost. Perception of government overreach. Restriction of architectural design freedom.

14. Stop issuing natural gas hookups to new construction

Natural gas is primarily used for heating homes and water, and secondarily for stoves. Most homes will probably develop greater electricity capabilities (solar, etc.) and incorporate more energy-saving design. La Senda Unit B used this approach and potentially be a pilot program.

Advantages: Reduces greenhouse gasses.

Drawbacks: May initially be more expensive to heat. Some folks are very attached to gas stoves despite their inefficiency.

RECOMMENDATIONS INVOLVING BILLING OR FEES:

15. No Property Assessment Increase for Building Improvements That Increase Water, Gas or Electric Efficiency

Stop charging people indefinite tax for conserving. Already in effect for solar installations.

Advantages: Removes a roadblock to conservation.

Drawbacks: Very minor revenue deferral. Possible legal issues?

16. Waive building permit fees for improvements that cut water use or energy consumption

Window replacements, solar hot water, rain collection systems, etc.

Advantages: Removes a roadblock to conservation improvements.

Drawbacks: Possible increase in staff work, loss of some revenue.

17. Eliminate fees to set up off-grid solar

The county has difficulty using the solar power produced by small home systems. Much goes to waste since it is not delivered to the grid at a time that it can be used. Off-grid solar does not create this problem while it conserves resources. If these homes never use county electricity, and are self-sufficient, then the county does not need to plan on providing it and can reduce the amount of power that is purchased.

Advantages: solar electricity does not go to waste. County doesn't need to try to store this solar energy in County-owned batteries. County does not need to purchase as much electricity. Roof-top solar does not input to the County's electrical infrastructure, and therefore does not 'tax' the infrastructure

Drawbacks: New County Building Codes may be needed to assure that solar owners build to safe standards. Adds a County Building inspection. County loses some homes as customers

18. Granular Tiered Water Rates

Use small, easily understood tiered water rates that start quickly. For example, first 100 Gallons is 50 cents, second 100 gallons 51 cents, etc. When costs increase slightly for every unit used the system is easily understood and immediately effective. Plus, there is no low "dead zone" where consumers feel they have implicit permission to use the amount in the lowest tier.

Advantages: Easy to understand and implement. Initial rate would be lower. No additional cost. Avoids "Implied Permission."

Drawbacks: Some up-front programming cost.

19. Eliminate Service Charge for Water Usage

Remove "In for A Penny" tendency to use water while rewarding the most stringent conservation. The service charge gives the impression that first few thousand gallons of use only increases cost slightly. If all usage is a direct cost, even more conservation is encouraged.

Advantages: Maximizes cost advantage of conservation

Drawbacks: Requires slight adjustment to rates to be value neutral

20. Convert Electric and Gas Services Charges to Minimum Charges

Remove a regressive tax. Virtually everyone uses enough gas and electricity to surpass current service charges. A direct usage-to-cost relationship simplifies understanding of conservation advantages while simultaneously benefiting lowest income bracket.

Advantages: Simplifies rate and saves money for super conservers

Drawbacks: Requires slight adjustment to rates to be value neutral

Appendix:

Cost of Conservation

Most people who consider conservation issues understand that conserving utilities will inevitably lead to higher unit costs, such as price per thousand gallons of water. Further, many otherwise uninterested folks have noticed this effect over the years.

So far, it has not been openly acknowledged or promoted, perhaps because there is a suspicion that it would lead to resistance toward conserving.

However, if it becomes a "meme" it would probably have the opposite effect. Presented as "conservation will happen" and therefore "unit prices will go up" it should provoke a modest Race To The Bottom. Meaning, it would encourage people to cut back on their use to avoid paying more for their utilities. Even more interesting, it means the more aggressive conserver may end up saving quite a bit as time goes by.

It has several advantages, not the least being that it's true. Conservation will happen whether we like it or not. And it will lead to higher unit costs.

Probably it would be best to avoid any heavy-handed or over serious approach. An even-tempered statement that 'this is inevitable' should be enough.

It could also be pointed out that this does not mean the average bill would necessarily go up. Using water as an example, if we all used half as much water, the infrastructure would be less strained, water treatment would be cheaper, the cost of pumping would probably go to less than half due to the longer recharge period in the wells, and it probably would mean far less need to sink new wells. While the cost advantages are muzzy at best, it is in fact possible that under the 1/2-use scenario we would all pay a little less on our water bill.

Finally, it should also be noted that unit prices will probably go up anyway, with or without conservation. And there are scenarios where gas, electricity or water prices would go up even faster without conservation.

The cost of taking this approach would be nearly zero. Basically, zero compared to current methodologies, since it's normal to include flyers in the utility bills -- it would just be additional content.

Residential Average Usage

People naturally compare themselves to their neighbors. If you are the high water/electricity user, and you know it, you are more likely to make changes to reduce your usage. This information works best with an education plan, promoting conservation throughout the community. It effectively and privately guides residents into conforming and conservation.

It's easy data to compile since the county already collects it. It's easy to put this data on utility bills, next to the 'actual' usage from the past year (using two columns in the graph). The county can easily watch the yearly average usage, as this number will decrease from year to year if residents are conserving.

A new routine will need to be written for the Utilities to calculate the information. This may need funds to accomplish, if the county does not have a programmer on staff to write the script. The statements need a new format to add the average data to the graphs.