

## City of Fremont Update

Date: April 2, 2021

To: City Employees/ City Boards/ Mayor & City Council

### April is National Safe Digging Month

Each April utilities across the U.S. promote the national 811 services put in place to safeguard anyone planning to dig from hitting underground lines and pipes. By placing a call or filing an online request with Nebraska811, loss of life and injuries as well as damage to underground utility lines can be prevented.

Nebraska811 is a FREE service for anyone who is planning a digging project, including homeowners and professional excavators. Nebraska State law requires anyone who digs to place a locate request at least two full business days before digging. Once your request is submitted, utilities will locate and mark their lines.



### Are LED Lightbulbs Worth the Investment?

We have all heard “replace your lightbulb with a Light-emitting Diode (LED) lightbulb”, but how much can you save by switching? Is the price for a LED bulb worth the investment?

Below, we compare LEDs with Compact Florescent Lights (CFLs) and incandescent bulbs.

- Light on for 10 hours per day (cost is per bulb)
  - 60w Incandescent: \$2.00/month
  - 15w CFL: \$.60/month
  - 6w LED: \$0.25/month
- Cost per bulb - Life of bulb
  - Incandescent: \$1.00 – 12-18 months
  - CFL: \$2-3.00/bulb – 4-7 years
  - LED: \$4-6/bulb – 10-15 years



The payback period for an LED is less than one year or in other words, you will pay off the cost of the LED from the savings versus an incandescent bulb in 3 months and 9 months when compared to a CFL bulb. In turn, it could cost you more than 10 CFL bulbs during the life of one LED light, on average, not including the increased cost of a CFL bulb.

Also, a 60-watt incandescent light bulb uses approximately \$30 worth of electricity per year and provides about 800 lumens of light. An equivalent CFL bulb uses less than 15 watts of power and costs only about \$7 of electricity per year. A LED bulb that emits similar lumens uses less than 6 watts of power and only costs around \$3 per year. It also lasts more than five times longer than a CFL bulb.

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**There is no job so important and no service so urgent that we cannot take the time to do the work safely!**

## Pledging to Use 100 Percent Renewable Energy

Several tech giants have pledged to use 100 percent renewable energy to mitigate the carbon impact of their operations. These companies' efforts to lower their carbon footprints usually



have two major energy goals: (1) decrease the total energy usage of the centers, and (2) increase the amount of renewable energy used by those facilities. Google, Facebook, and Microsoft are all planning or have already achieved 100 percent renewable portfolios. Google, the world's largest corporate buyer of renewable energy, announced in 2018 that its worldwide operations are now 100 percent powered by wind and solar, making it the first public company of its size to achieve this feat.

In 2018, Google purchased more than 3 GW of renewable energy, followed by Facebook (2 GW), and Microsoft, Amazon, and Apple (1 GW each). The tech sector continued to lead with strong levels of renewable energy corporate procurement in 2019, with Google as the top renewable buyer, signing 2.7 GW, trailed by Facebook (1.1 GW), Amazon (0.9 GW), and Microsoft (0.8 GW). In 2020, according to available data, thus far Amazon has purchased 1.2 GW of renewable PPAs, followed by Microsoft (600 MW), and General Motors (500 MW).

## The Race to Green Your Next Car

The race is on to decarbonize the transportation sector. Two leading technologies to replace the dominant fossil fuel-fired internal combustion engine (ICE) are battery electric vehicles (BEVs) and fuel cell electric vehicles (FCEVs). Both have strengths and weaknesses, and both promise zero emissions if the power used is carbon free.

BEVs use electricity stored in rechargeable batteries to power electric motors, which produce propulsion to power the vehicle. There is no emission in this process. However, the electricity that is used to recharge the battery may not necessarily be carbon free; it may be produced by coal- or natural gas-fired electric generation.

FCEVs employ a process called reverse electrolysis that uses hydrogen stored in onboard tanks and oxygen from the ambient atmosphere to generate electricity that is directed to an electric motor to propel the vehicle. The only emission from this process is water and heat. The Toyota Mirai, which is currently sold in the U.S., is an example of an FCEV. Hyundai also recently launched a model called the Nexa. Here are how examples of three FCEV, BEV, and ICE vehicles measure up:

	Toyota Mirai	Tesla Model 3 Long Range	Toyota Corolla SE
Technology	FCEV	BEV	ICE
Max Range	402 Miles	353 Miles	500 Miles
Cost to Fill Up	\$80	\$22	\$39 <sup>1</sup>
Time to Fill Up	5 minutes	20-30 minutes (Level 3 Charger) 60-70 minutes (Level 2 Charger)	5 minutes
Acceleration (0-60 MPH)	9 Sec	5 Sec	7.9 Sec
Cost	Starts at \$49,500	Starts at \$46,490	Starts at \$22,500

<sup>1</sup> \$3/Gallon, 13.2 Gallon Tank

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