

## City of Fremont Update

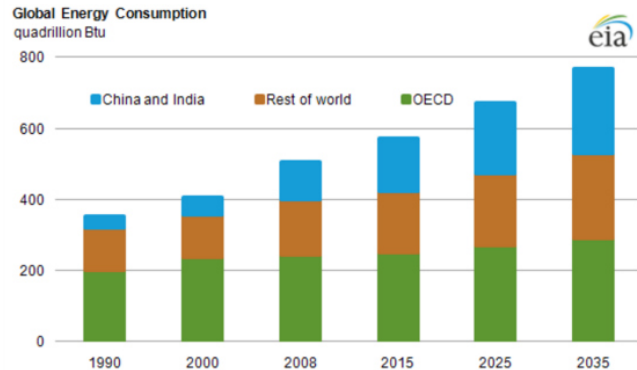
Date: July 9, 2021

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

### China is Largest, U.S. is Second Largest World Energy Consumer

In 2019, U.S. energy usage (90 quadrillion Btu) was second in the world behind China (134 quadrillion Btu), followed by India (32 quadrillion Btu), and Russia (28 quadrillion Btu). But, when it comes to per capita energy consumption, China and India still lag behind the U.S. (and other major world economies). Comparing energy usage scaled on a population

basis, the U.S. consumed 273 million Btu per person in 2019 — far above China (93.6 million Btu per person) or India (23.6 million Btu per person). The world average per capita consumption in 2018 was 71.75 million Btu per person. This contrast in per capita consumption stems from the high standard of living in the U.S., which translates to greater use of energy for transport and home. As emerging economies close the wealth gap, the per capita energy consumption gap is anticipated to shrink.



Energy consumption in many major world economies is expected to stagnate in the next few decades due to energy efficiency, decarbonization goals, and in some cases, declining populations. Future trends for global energy usage will likely be guided by emerging economies — especially Asian countries, which are predicted to have the highest gains in energy usage. Developing countries will have to meet growing energy demands while also achieving emissions reduction goals: While consumption is anticipated to increase, the additional energy will come predominantly from low emission and zero-emission sources — principally renewable energy.

### What to do if Your Car Hits an Electric Pole

If you can safely drive out from under the power line or away from the source of electricity, do so. Travel the length of a bus - about 30 feet - before stopping. Then dial 911.

If you can't drive the vehicle - if you're injured, if the vehicle is inoperable, or there are obstacles in your way - dial 911 and stay where you are until help arrives. Unless there's a secondary emergency, such as a fire in the vehicle - you're safer where you are.

If you absolutely must get out of the vehicle (e.g. because of a fire), remember you must not touch the vehicle and the ground at the same time with any part of your body or clothing. Be sure to follow these steps:

1. Use the handle to open the door
2. Stand at the opening of your door with your elbows tucked into your stomach and your hands held close to your chest



3. Jump out and away from the vehicle. As you exit, don't touch the door and the ground at the same time. Land with your feet together – don't stumble
4. Calmly shuffle with your feet together. Keep your feet touching each other as you shuffle. The heel of one foot should still be touching the toe of the other when you start moving the other leg. Also, never lift either foot off the ground
5. Keep shuffling until you are at least 30 feet or a bus-length away from the vehicle
6. Call 911 for help

### **Alkali-silica Reaction in Concrete**

Alkali-silica reaction (ASR) in concrete is a chemical reaction between the alkali hydroxides, which originate mainly from the portland cement, and certain types of aggregate. This reaction and the development of the alkali-silica gel reaction can, under certain circumstances, lead to abnormal expansion and cracking of the concrete. The picture on the right shows the first sign of ASR in concrete. Please notice the cracks and hairline cracks in the concrete particularly near saw cuts.



Problems due to ASR were first identified in the State of California in the 1930s and reported by Thomas Stanton of the California State Division of Highways in 1940. Stanton's studies demonstrated that the expansion of mortar was influenced by the alkali content of the cement, the type and amount of the reactive silica in the aggregate, the availability of moisture, and temperature. ASR was diagnosed as the cause of abnormal cracking in a number of dams operated by the U.S. Bureau of Reclamation, such as the Parker Dam in Arizona, and in the 1940s a number of agencies -initiated studies on ASR including the Army Corps of Engineers, Bureau of Public Roads, and the Portland Cement Association. ASR is now recognized as a major cause of concrete deterioration in the US. There are few options available for mitigating ongoing ASR problems in concrete. In other words, once concrete has alkali-aggregate reaction, it is very difficult to stop the reaction.

In Fremont, we are seeing the effects of ASR in concrete on many streets as well as on the runway at the airport. ASR damage is quite visible on 23<sup>rd</sup> Street, especially around the intersection of Diers Parkway and on Diers Parkway. Most of the damage from ASR is cracking and the potholes that eventually occur around the saw cuts and cracks in the concrete where moisture gets into the concrete. As said above, there is not much that can be done to prevent or eliminate ASR. Instead, the concrete must be replaced, like what was done at the round-a-bout at the intersection of 16<sup>th</sup> Street and Diers Parkway. Eventually, all ASR affected concrete will need to be replaced.

### **By the Numbers**

\$70 Million - The extortion amount that hackers, suspected to be behind a mass attack that affected hundreds of companies worldwide late on Sunday, are demanding to restore the data they are holding ransom, according to a posting on a dark web site.

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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!**