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An Open Spot for Green Parking

PROVIDING BETTER, GREENER OPTIONS FOR PARKING CAN SAVE ENERGY, TIME, MONEY AND DRIVER FRUSTRATION.

The U.S. automotive industry's embrace of green initiatives has made the dream of cleaner, more fuel-efficient vehicles a reality. These earth-friendly automobiles—which include plug-in hybrid electric vehicles that utilize rechargeable batteries, and fuel cell vehicles that create electricity using hydrogen and oxygen from the air—can help decrease air pollution, lessen noise emissions and reduce the U.S. reliance on foreign oil.

The automotive industry's decision to become more sustainable has garnered much attention. However, many Americans remain unaware of the green efforts of another industry that's closely linked with automobiles: parking. Recently, many parking professionals have become more focused on the environment and are creating facilities that fully embrace sustainability.

Solar carports can generate electricity and reduce heat island effect.

IMAGE COURTESY OF WALKER PARKING CONSULTANTS

In an effort to accommodate electric cars, many parking owners and operators are installing car-charging stations for electric vehicles in their facilities. There aren't many users yet, but this answers the "chicken and egg" question of which will come first, the electric car or the electronic car-charging station. Seeing this infrastructure in place may encourage a faster adoption rate of electric cars.

The following are some other green initiatives being applied in parking structures and surface lots across the U.S.

SOLAR CARPORTS

Solar carports are one of the parking industry's most cutting-edge solutions. How they work is fairly straightforward: Parking lots are outfitted with canopies that feature photovoltaic panels. The power generated by the panels is used to meet the parking facility's energy needs. On days in which a surplus of electricity is produced, that surplus can be returned to the municipality's power grid or sold to a provider.

Solar carports also combat urban heat island effect, a phenomenon in which a metropolitan area is significantly warmer than surrounding rural areas due to building materials retaining more heat

Dynamic signage at parking garages helps prevent motorists from circling completely filled levels.

IMAGE COURTESY OF WALKER PARKING CONSULTANTS

than open land. The canopies reflect sunlight and absorb less heat than an uncovered surface lot. Urban heat island effect can have several negative consequences, including increased air conditioning use (and the associated air pollution), greenhouse gas emissions and brownouts. The carports also provide shade, which reduces heat-related illnesses in the summer and offers protection from the elements all year long.

According to the U.S. Census Bureau, there are approximately 105 million commercial parking spaces in the country. Converting just a fraction of these spaces into small-scale solar power plants will result in tremendous environmental benefits.

OTHER SUSTAINABLE CHOICES

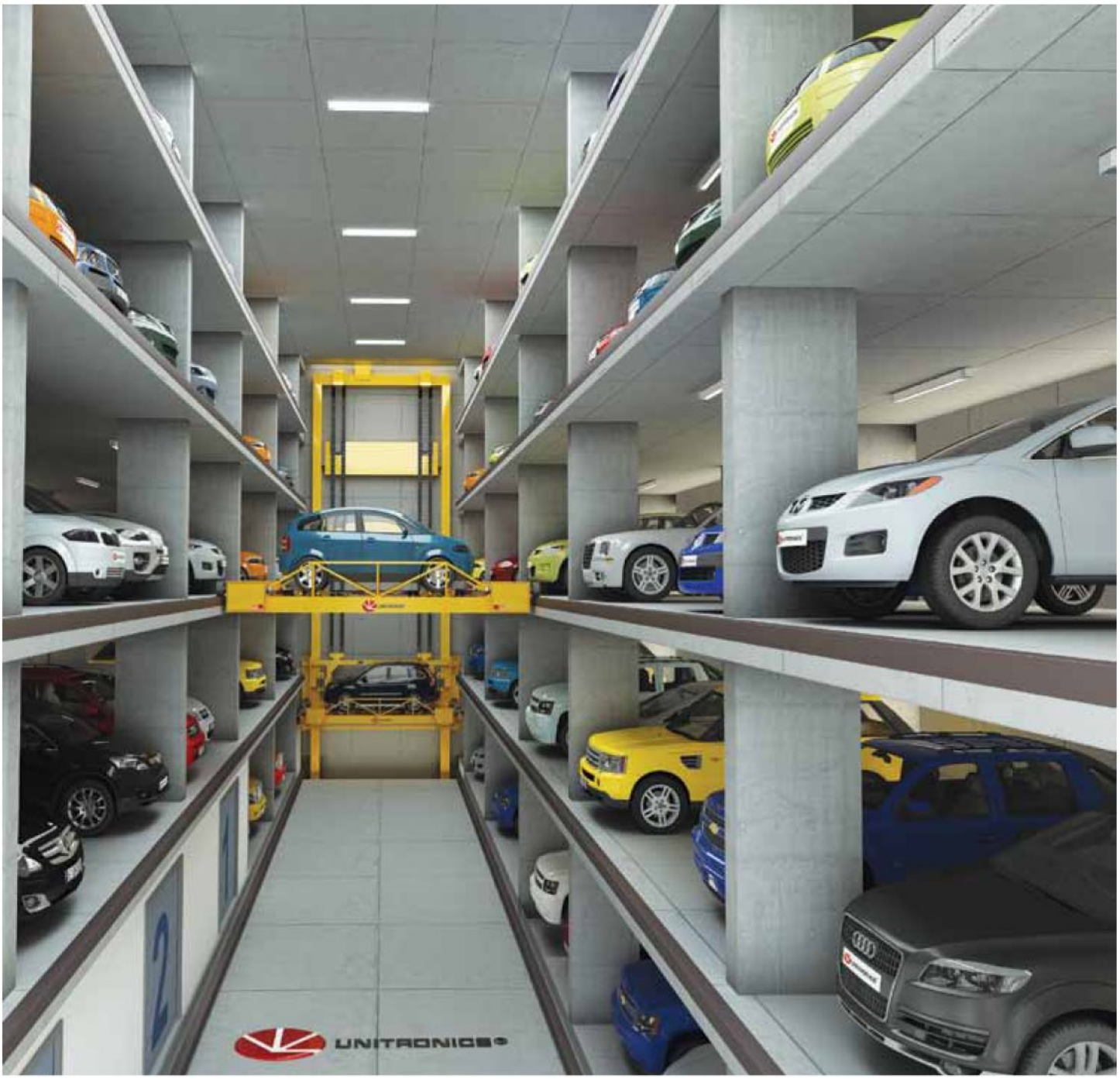
Parking guidance systems (PGS) are another cutting-edge technology that promotes sustainability. PGS monitors parking occupancy and guides drivers to the closest available parking facility. Dynamic signs are strategically located along freeways and arterials, and provide information to motorists regarding parking spaces in various facilities, enabling motorists to make informed decisions about where to park. Once drivers have entered a facility, additional signage informs them of space availability at key decision points, helping them avoid circling a fully occupied level. Color-coded LED sensors can be installed above each parking space (green for available and red for occupied) so drivers can quickly and easily identify available spaces. Reducing the time spent looking for a place to park not only reduces carbon emissions and fuel consumption, it also reduces driver frustration.

Another popular technology is the pay-on-foot station, which allows patrons to pay for parking before they return to their vehicles to exit a garage or surface lot. This shortens cashier lines when leaving a facility, minimizing the time spent waiting in idling automobiles. When cars wait to exit a parking structure, they unnecessarily emit carbon dioxide, nitrogen dioxide and carbon monoxide. The U.S. Environmental Protection Agency (EPA) has found that idling vehicles emit 20 times more pollution than those traveling at 30 mph.

Updating garage lighting systems can also contribute to enhanced sustainability. High-efficiency fluorescent and/or LED light fixtures provide significant energy and cost savings during their lifespans—sometimes as much as 40 to 70 percent per month. There are often federal and/or state grants available to supplement the costs, thereby improving the return on investment and, in some cases, enabling these systems to practically pay for themselves.

AUTOMATED GARAGES

Automated or robotic parking garages may prove to be the parking industry's greenest parking solution. These systems utilize motorized, computer-controlled devices such as platforms, lifts, convey-



Automated garages may represent the pinnacle in current green parking solutions.
IMAGE COURTESY OF UNITRONICS®

ors and shuttles to transport vehicles to and from their parking spaces without any human assistance. Motorists drive onto a platform, lock and exit their vehicle, and the car is whisked away and stored on a "shelf" until they return.

These garages can store more cars on a much smaller footprint than conventional garages since there are no drive lanes, ramps, customer stairwells or elevators. The cars are never running in the facility, which lessens carbon emissions, as well as reduces the requirements for air, water and waste management systems typically required for conventional garages.

ON-DEMAND PRICING

For the parking industry, making sustainable decisions involves more than just embracing cutting-edge technology; it also means embracing forward-thinking ideas. One such idea is demand-based pricing, a concept detailed in Donald Shoup's book, "The High Cost of Free Parking." Demand-based pricing strives to reduce congestion and pollution by using market conditions to maintain 85 percent parking occupancy on every street, that way parking is always available. This helps reduce the 15 minutes of "cruising" we spend looking for a parking space, and thus polluting our environment.

On-demand pricing dictates that occupancy rates help determine a community's on-street parking fees, which vary by time, location and day. For example, if half the metered

"WHICH WILL COME FIRST, THE ELECTRONIC CAR OR THE ELECTRONIC CAR-CHARGING STATION?"

spaces on a particular block are empty, the town or city will lower the price on that block. If all the spaces on a block are full, the price is raised. The goal is to have one or two available spaces on every street at all times. Shoup, who is an economist and professor of urban planning at the University of California, Los Angeles, says that an 85 percent occupancy rate of on-street spaces is the most efficient use of public parking.

In San Francisco, on-demand pricing has been implemented under a federally funded program aptly titled SFpark. In-ground wireless sensors were installed beneath thousands of parking spaces to monitor occupancy and determine demand. SFpark periodically adjusts prices up or down to match the demand in the area. Base prices range from $.50 to $6. To minimize confusion and ease people into the concept, prices do not fluctuate more than 50 cents an hour and are not changed more than once a month. There are three different price periods: before noon, noon to 3 p.m., and after 3 p.m. San Francisco's program also sets the cost of garage parking based on parking availability on the streets. The public is alerted to changing prices via dynamic signs. Users can also track real-time parking availability online and with smartphone applications.

One of the frequent criticisms of on-demand pricing is that drivers will be confused if rates vary from block to block. However, Shoup contends that fluctuating parking rates are no different from fluctuating gasoline prices, which vary from gas station to gas station (and from week to week).

The parking industry as a whole has made a definitive commitment to sustainability. In 2010, the Green Parking Council was founded "to foster green parking practices through developing certification and credentialing programs, open-sourced standards, professional leadership, and educational development and training for organizations and individuals in the parking industry." In 2012 the International Parking Institute published "Framework on Sustainability," with a goal of "balancing economic feasibility, public health and welfare, and consideration of environmental effects."

GREEN IN MORE WAYS THAN ONE

Across the country, the parking industry is discovering that green decisions are not only good for the environment, but good for the bottom line since they provide significant cost savings and efficiencies. Who knows, maybe environmentally-minded motorists will become loyal to "green garages," rewarding them with their business. The jury's still out on that one, but these actions are positioning the parking industry as a shining example of how to be environmentally responsible and economically savvy at the same time.

To borrow a phrase from a popular marketing campaign: Finding a parking space quickly and easily? "Priceless." edc