

# THE FUTURE IS MADE OF BIG IDEAS BORN HERE

## ANDREW LITTLEFAIR, 52

**President & CEO of Clean Energy Fuels in Newport Beach**

**Bio:** A former advancement man for President Ronald Reagan, Littlefair became a top aide to Texas oilman T. Boone Pickens. In 1997, with Pickens' backing, he founded Clean Energy Fuels to sell compressed and liquefied natural gas.

**Why he's a game changer:** Diesel, much of which is made from imported oil, is the dominant fuel in trucks, buses and trains. Littlefair aims to convert the transportation industry to natural gas, a domestic fuel.



**Biggest challenge:** More than 200,000 heavy-duty trucks are sold annually in the U.S.; next year, analysts predict, about 5 percent will run on

cheaper, cleaner-burning natural gas. Littlefair is pushing for far more, but the higher price of natural-gas trucks and a rise in gas prices could undercut the effort.

**What's next:** International pollution regulations are forcing ships to abandon bunker fuel. Littlefair is promoting liquefied natural gas as an alternative to a cleaner form of diesel. Meanwhile, rail companies are testing LNG-run locomotives.

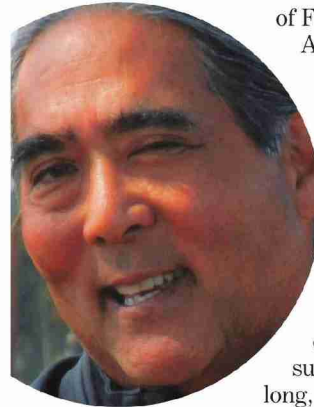
**Quote:**

**"This year, GE finance agreed to lend money for natural gas trucks on the same basis as for diesel models. That had never been done before. It removed one of the last remaining obstacles to widespread adoption. We are at the tipping point."**

## A.G. KAWAMURA, 57

**Co-owner of Orange County Produce LLC in Irvine**

**Bio:** A third-generation fruit and vegetable grower and shipper, A.G. Kawamura is also a past president of the Orange County Farm Bureau and former Secretary of the California Department of Food and Agriculture.



**Why he's a game changer:**

Kawamura has been experimenting with a method of farming that could allow him to efficiently grow crops on top of almost any surface. He's using long, black woven plastic tubes called GardenSoxx, made by Filtrexx. The Soxx can be filled with various growing media, and both Kawamura and Filtrexx place an emphasis on using locally sourced compost made from green waste such as landscape trimmings.

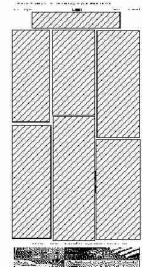
Kawamura has lined up the Soxx on a couple plots of land at the Great Park and enlisted **Erik Cutter**, managing director of Alegria Farm, in an effort to scale up for commercial farming. In addition to eking out extra growing space, the technique could boost yields by eliminating the need to till after each harvest. The Soxx could also limit organic crops' exposure to weeds and conserve water.

**Biggest challenge:** Figuring out the right materials to use inside the Soxx. Kawamura says he made a big mistake earlier with an incompatible blend of compost and sand.

**What's next:** Kawamura and his collaborators have only looked at a handful of crops, including cabbage, kale, beets, peppers, tomatoes and basil. Once they establish that the Soxx can be a viable system in places that previously wouldn't support tractor-driven ground-based agriculture, it opens the door for investigating other crops.

**Quote:**

**"If some small part of the food supply can come out of the urban sectors consistently, with quality, with efficiencies and as a job creator as well - those are pretty exciting things."**



## STEPHEN D. MILLIGAN, 50

**President & CEO of Western Digital in Irvine**

**Bio:** Milligan left Western Digital in 2007 and joined Hitachi Global Storage Technologies. In 2012, he orchestrated a \$4.3 billion acquisition of that company by WD. He's now chief executive officer of WD.

**Why he's a game**

**changer:** Under

Milligan's leadership the company is pumping helium into the casing of spinning drives so there is less air resistance and they can stuff more of the spinning disks into the same amount of space.

He's also buying a string of companies that make a competing technology -

solid-state or chip-based memory,

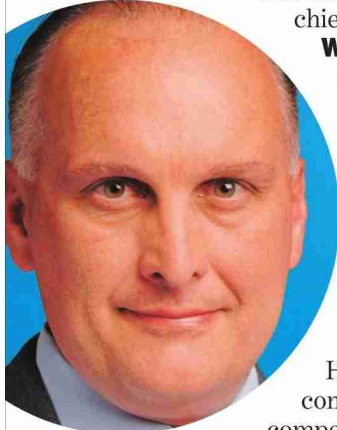
where data is stored with no moving parts. And WD is producing new drives that can be set up from an iPhone and store videos and other data remotely and wirelessly.

**Biggest challenge:** WD's traditional business of selling spinning disk drives is threatened as PC sales dramatically shrink and more processing moves to smartphones and remote servers, or the "cloud." Each kind of technology calls for different kinds of storage solutions, requiring WD to venture into unfamiliar waters.

**What's next:** Hybrid products combining spinning drives and drives with no moving parts will offer the benefits of both technologies - vast terabytes of storage as well as superior speed.

**Quote:**

**"We're becoming less and less of a PC story and more of an overall digital data story. While we are affected by the PC business, it's becoming less and less."**



## JOHN RAYMONT, 62

**President and vice-chairman of Kurion Inc. in Irvine**

**Bio:** While it's an exaggeration to say that he saved Japan, Raymont and his tiny, Irvine-based company have been critical players in helping the island nation cope with the aftermath of a magnitude 9 earthquake and tsunami. That 2011 disaster created the greatest atomic crisis since Chernobyl: a meltdown of the Fukushima Daiichi nuclear plant on the coast north of Tokyo. Before founding Kurion and serving as its top official for international operations, Raymont, whose degrees include a master's in physical oceanography from City College of New York, was president of Nukem Corp., a nuclear-waste management company in Columbia, S.C.

**Why he's a game changer:** Raymont flew to Japan in time to experience two powerful aftershocks and persuaded Japanese authorities that Kurion could design and deliver a filtration system to process tons of highly radioactive water trapped inside the reactor walls. Kurion's system, capable of stripping radioactivity from 320,000 gallons of water per day - enough to fill 15 backyard swimming pools - went into operation three months after the meltdown and has been running ever since.

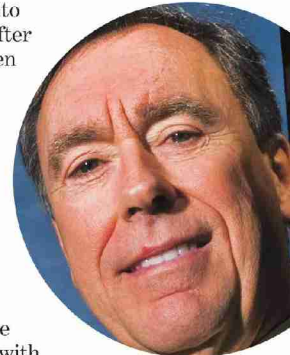
**Biggest challenge:**

The crippled reactor faced a new crisis in October when a series of typhoons battered Japan, dumping torrential rains into the facility. "You have buildings with no roofs," Raymont says. "They were being completely flooded with this rainwater," which immediately became contaminated. Kurion's system prevented a new radiation spill into the ocean.

**What's next:** Kurion expects to announce a number of new international contracts in 2014, Raymont says. The company hopes to aid long-range cleanup at Fukushima Daiichi by deploying a technology that melts radioactive waste into a form of glass. Kurion is working to sell the same process at the Hanford nuclear site in Richland, Wash., where millions of gallons of radioactive sludge remain from World War II atomic weapons development.

**Quote:**

**"It's the most massive operation you can possibly imagine. (Nuclear fuel) is literally melted into the structures of the reactor itself. How do you go in and remove this? We've come to them and said, 'You know what guys, we can actually vitrify the ground around the plant, turn it into glass.' It would be stabilized for geologic time."**



## KATHERINE PORTER, 39

### UCI professor and California monitor of the national mortgage settlement

**Bio:** A graduate of Yale University and magna cum laude at Harvard Law School, Porter was a professor at UC Irvine, specializing in commercial and consumer law when state Attorney General Kamala Harris tapped her to be California monitor for the \$25 billion national mortgage settlement. The pact required the nation's largest mortgage servicers to address mortgage servicing and foreclosure abuses.

**Why she's a game changer:**

To oversee compliance with the settlement, Porter founded the Consumer Protection Clinic at UCI, where staffers and law students educate and field complaints from homeowners, negotiate with banks to keep people in their homes, and do community outreach. Porter's group also assists lenders in adopting the settlement's



numerous mortgage servicing reforms and helps them to more clearly communicate with confused homeowners. Her office also helped California borrowers receive more than \$18 billion in mortgage relief, including more than \$1.5 billion that went to Orange County homeowners in loan principal reductions and short-sale help.

**Biggest challenge:** The speed at which Porter needed to get her operation up and running after the settlement was announced. A deluge of homeowners sought help, and Porter needed to quickly pull together resources and a staff and come up with strategies to manage complaints from all over the state.

**What's next:** When the fallout from the housing crisis fades, Porter will continue her academic and policy work on a variety of consumer-related laws and issues.

**Quote:**

**“My goal is not to point a finger at a problem. My goal is to reach out with a problem and a solution. I don't want consumers needing legal help or who have questions about the law to get a generic form letter when better help is possible.”**

## CHARLES DUNLOP, 41

**Founder, CEO and chairman of Ambry Genetics in Aliso Viejo**

**Bio:** After graduating from U.C. San Diego with a concentration in math and physical sciences, Dunlop worked in laboratories at the Scripps Research Institute and Gen-Probe, a diagnostic kit manufacturer, and he managed the biology and pharmacology group of Biophysica. He founded Ambry Genetics – named after his family dog – in 1999.

**Why he's a game**

**changer:** Dunlop's company is on the cutting edge of genomic science, examining large numbers of genes to help diagnose or determine predispositions to numerous illnesses, including many cancers. It is a leader in exome testing, which examines every gene in the body to find mutations that cause diseases, many of them extremely rare. Earlier this year, Ambry was one of the first companies to sell a low-cost version of the BRCA breast cancer test after the U.S. Supreme Court invalidated a monopoly held by its much larger rival, Myriad.

**Biggest challenge:** Hiring geneticists and adapting quickly to a science that changes constantly.

**What's next:** Ambry wants to reduce turnaround times on its tests to help increase market share, and it plans to move more into neurological diseases, including epilepsy. It has leased a building next door and will move its administrative offices there, converting its current headquarters into a laboratory.

**Quote:**

**"The future of this industry is definitely entering into our gold period right now. This science is going to unfold in the next decade, and we are ideally positioned to be a leader in that movement."**

