The National Energy Solution

By James M. Lane

Introduction

"Los Angeles is presented in most literature as an aberration. My view was of a Los Angeles that was America taken to its furthest, and at the same time most logical and perverse extreme."
American novelist Steve Erickson

7.30 am, Santa Monica.

In the mountains last night the rains came, but after midnight it was too cold for the rain and it began to snow. All through the San Bernardinos and high San Gabriels there was no let up for six hours. The trees are snowflocked in the foothills, and at the summits of Old Baldy and Greyback Mountain, rising over 10,000 feet over the ranges that divide the Los Angeles Basin from the Mojave Desert, the snow is four feet deep, and will charge up the rivers to their fullest when springtime brings on the melt.

But I am 60 miles west of the mountains, driving eastbound on Ocean Park Boulevard in Santa Monica, just two miles mile from the sea. On normal mornings, the car will complete the three hundred foot ascent from the State Beach and at the edge of a minor bluff near Centinela Avenue, the usual view of downtown will appear. It is dominated by the 933-foot tall US Bank Tower — fictionally destroyed, in the film *Independence Day*, by a death ray operated by aliens bent on destroying the human race. As if we needed the help.

In real-life the tower is a reliable skyline anchor, but this morning it has acquired a rival for the eyes. The snow and rain have knocked all the soot and haze out of the sky and the ozone is doused by the cold. For a few hours near dawn while the sun is low, the bluish-whitish haze behind the city transforms into a massive two-mile high snowcapped

mountainscape, dwarfing the skyscrapers in front and far below.

Suddenly, Los Angeles has become again a mountain town.

I am glad to see it, for my purpose in coming has been to see the invisible Los Angeles, or rather the former Los Angeles or what is left of it, because as Santayana wrote in *The Life of Reason*, "those who cannot remember the past are condemned to repeat it."

I write about energy, and there is no place like Los Angeles to things worth remembering in the development and use of energy, so that we will not repeat choices that ultimately revealed themselves to be mistakes.

L.A. was founded in 1762 but made its reputation in the 20th century, when it became home to Hollywood dream factories who valued its low costs and good lighting. It was the first great, post-modern city, rising up in the era of the automobile, and inviting and permitting all comers to reinvent themselves in a spectacle of extroversion neatly summed up, in all its highs and lows, in the career of O.J. Simpson.

But in a time out of mind, before the history of Los Angeles was memorable enough to write down and care about, it was based less on celluloid fantasy and more on water and oil. The place became a town and then a city on the back of a resources boom. The Los Angeles River and the Signal Hill oil field transformed LA from a low-key pueblo into the major city of Southern California, long before the arrival of Cecil B. DeMille to scout locations for his 1910 film *The Squaw Man*.

Los Angeles was once the source of 23 percent of the world's petroleum production, and remains its most conspicuous consumer. California remains the fourth largest oil producing US state (after Texas, Louisiana and Alaska). If any of the hundreds of proposed “national energy solutions” are to work, they will have to work here. Here in the nation’s

runaway leader in the consumption of transportation fuels and its poster child for smog and traffic and urban sprawl. LA became what it became not out of willful stupidity, but out of real economic and social drivers, and out of choices between options that were hotly debated at the time — and had a cartful of unintended consequences.

My purpose in writing then, is to examine the concept of a national energy solution - not simply to describe or critique a series of possible or preferred scenarios - but to understand and describe those things in the culture that led us to the situation in which we now find ourselves.

For the way out of a dense jungle is *found with a map*, but is *found by people* - who have learned how to plan a journey, set directions, and know why to follow them, and when. For solutions to become effective, "we, the people" must also become effective.

I have read a hundred plans for a national energy solution, and I have come to disbelieve and discount all of them. They are written by well-meaning people, many of them friends and all of them people that are to be admired, and I do admire them.

Their flaw is that they prescribe, and I have come to believe that the solution will not be a work of prescriptive science, but a collection of solutions discovered from life rather than made in the lab. Solutions that prescribe percentages and schedules and specific technologies have a raft of unintended consequences.

So I propose to discover and describe, rather than posit and prescribe.

In seeking to understand, I have chosen a path I know well, the road from Santa Monica to Las Vegas, which passes over more variety and abundance than any other I have seen in many years of hard and easy travel. There are sidetrips along the way where we will discover people, ideas, technologies and values: the Imperial Valley, the Mojave Desert,

the San Bernandino Mountains, the Colorado River, the Coachella Valley wind farms, and the Salton Sea.

In Southern California, I believe we can see it all in a concentrated dose. The staggering complexity of the problem: immense emissions, legislative paralysis, an economy in shock, a debt finance system adverse to the very risk that might save it, the weakening dollar, desertification, freshwater shortages, the problems of trade, sprawling freeways, congested cities, and the stunning imbalance between the wealthy and the poor. Not to mention a continuing love affair with the car.

It is home to the undocumented immigrant, the staggeringly wealthy entertainer — here are the most famous people and the most obscure. There are more people holding PhDs in California than any other state in the Union, and more people who have not completed the eighth grade.

Also, all the options that one could ask for to meet the challenge: algae, jatropha, coal, petroleum, solar, wind, hydro, nuclear, geothermal, a fertile soil, an educated people, a sense of urgency and mission, a biotechnology, energy and technology industry second to none, and an aggregation of equity accustomed to risk and reward in new technology. Not to mention a love affair with all that is new and better.

Along the way there are cities, suburbs, outer suburbs and exurbs. Air strips and strip malls and strip mines and strip shows. Winds farms and solar arrays and biofuel acreage and geothermal plants. Oil refineries and coal plants and gas burners and nuclear reactors. The thickest forests of ponderosa pine, and lonely yucca in canyons where rainfall is hardy known.

Few places have more, and few places have less, and no place known to me has so much change in so little space. The most conservative voices, the most liberal. Rich and poor, people of every color and creed. Agriculture, heavy and light industry, and a massive service sector — all

dependent for light, transport, heat, food, water, and employment on scarce energy resources in this vast, shared pueblo of California.

Evidence of the California conflict over energy abounds. The Los Angeles basin has more solar rooftop installations than any place in the world, and 97 operating oil wells in Beverly Hills including one in operation on the campus of Beverly Hills High.

The national energy solution must not only work for well-heeled lawyers in Brentwood and Pacific Palisades, but for everyone right down the line. Prescribing a solution is the work of a few, but making it a living thing, and sustainable for all time, is the work of all.

And so we begin a journey via small roads and large - from dusty county roads and massive interstate highways. Our subject is energy but really is our highways and homes, and the transmission and distribution of energy and commerce, as anything itself. For the biggest use of energy is moving stuff around, and creating liveable human conditions in all the places we have moved ourselves to in this beautiful, precious Republic of ours. In the end, energy is a resource problem, and a distribution problem, but it is also a people problem. There is nothing easier to destroy than a habitat, and nothing harder to destroy than a habit.

So I have set myself behind the wheel, and am ready to take to the road, to learn and relate — and along the road, to uncover what once was; to see what Arnold Palmer used to call “the opportunities in the land”; to find underneath the glitter and asphalt those solutions that agree with the land and the people, and thereby are sustainable by a free and self-interested democracy.

I see no point in the Stalinist doctrine that so often passes for environmental policy, that I cannot think is either good or will endure in the Republic, no matter how urgently supported by my brothers and

sisters in the environmental movement. The dictatorship of mandates is as easy to demand as it is difficult to make successful. Too many chant "all power to the Soviets!" as if we had no idea of whither that line of action will lead us.

The forced imposition of solutions carries with it an underlying assumption of how market forces, and political forces, and social forces, will evolve. Too hard for anyone in a society that cannot even predict the price of oil accurately more than a few days or weeks out. There's no evidence in Los Angeles that leaders in the late 20th century had any more foresight than leaders in the early 20th century, and as far as the 19th century goes, dusty history are filled to bursting with lessons from pre-1900 Los Angeles but I can't think of anyone in a position of authority who can articulate them.

A friend of mine once called Los Angeles "the most obvious city in the world", which raises the question of whether he had visited Las Vegas at the time. I don't agree with him, but I know why he said it. There is much in the city that is bland and trite. But surely no city has so thoroughly bulldozed, and buried and forgotten its past, and the evidence of the choices that made it the queen city of Southern California long before the arrival of Hollywood. Today may be obvious, and yesterday may be remembered, but the day before yesterday is neither.

As the novelist Steve Erickson once remarked to me: "I live in a section of town which is old Los Angeles. That means that the buildings were built in the 1930s. There is no past. History is a blank slate. The up side of that is that you can basically write on the slate what you choose. The downside is that you better damn well know who you are here, because if you don't you'll end up one of the crazy people wandering Hollywood Boulevard, or you'll wind up somebody sitting in a hot tub in Pacific Palisades. All the people who come here, and I made the point in *Rubicon Beach*, who come here hating the city and what it stands for: four months later they confirm every stereotype you've ever seen or

heard about Los Angeles, because they came here looking for Los Angeles to tell them who they were."

I am not looking now for Los Angeles to tell me who I am, but rather to tell me who it was, and to explore thereby what it could one day be. In that way we might not only define a national energy solution that will make the "shining city on a hill" into something that will shine on safely and brightly for a long, long time: better, to construct a practical map of how to get there. But all the while remembering that California is a Hip city in the sense that the term carried in the 1950s — which Norman Mailer defined as having an "emphasis is on the Self rather than Society." In the self-interested society, solutions that have been proposed will have to work not only for "the people", but for the infinitely more important and difficult category of "the persons".

And so, from Santa Monica, I enter the eastbound Interstate 10, with downtown Los Angeles ten miles ahead.

8:10am. I-10 Eastbound. Two hundred yards west of Centinela Avenue, where I turn from Ocean Park Boulevard towards the on-ramp, a sign identifies Interstate 10 as the "Christopher Columbus Transcontinental Highway", a designation awarded by the California Legislature in 1976, enshrined in this one road sign, and nowhere else repeated along the 2460 miles leading to Jacksonville, Florida. Elsewhere, other competent authority has designated various sections of the highway the Rosa Parks Freeway, the San Bernardino Freeway, the Veterans Memorial Highway and a Blue Star Memorial Highway, just to name a few, but I like the Columbus name more than the rest.

There's something apt in it, because in his voyages Columbus was seeking a faster route to the Indies, while this same stretch of freeway was originally built in the 1940s in search of a faster route downtown.

When I ask people what they think the freeways replaced, they usually say it replaced the old two-lane arterials, or dirt roads, or Indian trails. But it is not strictly true, for the freeways replaced the rails. In the early 1920s Los Angeles had more miles of light-rail track than any other city in the world.

Thought I can't see it quite from the right hand lane of the Centinela on-ramp, just on the north side of the freeway, along Exposition Boulevard, is the old Pacific Electric light rail track that led from Santa Monica Pier to downtown. Unlike modern systems, it ran more traffic on the weekends than the weekdays, for in an older age people lived closer to work, and farther from the beaches and parks and views and entertainments. The automobile changed all that.

The track between Santa Monica and downtown was popular enough that it was built without government grants or incentives of any kind, and flourished for several decades, but traffic melted away when the Model T

arrived. It carried its last passengers in the 1950s, and shut down as a freight line in the 1980s. The old rail line is mostly obscured by roadway asphalt that has been laid over the line, but every so often a several-block stretch of it re-appears.

The track looks completely out of place, like some old disused freight line that connected a few factories to the port in a bygone day. It is nearly impossible to imagine the hordes that would take the rails from the city to the shore on weekends at the Santa Monica Pier and State Beach, and walked the bluff overlooking the waves, or taking a crack at the surf.

What exactly happened?

The rail system did not shut down because the city's planners were unaware that once superabundant California petroleum reserves would dwindle just as the population exploded, creating a dependence on foreign oil whether from Texas or Bahrain. The alarm over foreign oil was not originally raised in the 70s, it was raised in the 20s, and in Los Angeles.

You see, the Model T killed a lot of traffic for the Pacific Electric lines, but it created unintended consequences that were recognized at the time. For a while, Standard Oil of California was glad to have an outlet for gasoline, a byproduct of petroleum refining that had few valuable uses aside from firing automobile engines. Though planners looked at the rate of discovery of new California oil reserves and the rate of population increase and worried about where the fuel would come from in the future, it was auto traffic that ironically doomed the railways.

Though the City of Los Angeles had initially planned to expand the light rail system to respond to growing traffic congestion in the 1930s and 40s, the success of the Arroyo Seco Parkway convinced planners and public alike to develop a freeway system instead.

It was an interesting success, the Arroyo Seco, popularly known as the Pasadena Freeway. Originally it was proposed in 1906 as part of the "City Beautiful" project, but languished due to lack of funds. It was revived in the 1930s because of pressure from growing populations in Pasadena and Glendale for better access to downtown, and supported by a syndicate of Los Angeles businessmen. The downtown business people hoped to attract more shoppers and income from outlying Pasadena to supplement their trade with city residents. From 1870 through 1930, the population of L.A. had doubled every ten years, but grew only 10 percent in the 1930s, and the opportunity to connect Glendale's 81,000 population and Pasadena's 82,000 with downtown was a tempting avenue for growth.

The project succeeded brilliantly, and backfired at the same time. The Parkway opened in December 1940, and by February 1941 the *Los Angeles Times* was running aerial photographs of backups on the Parkway all the way to Figueroa Boulevard in downtown. The 27,000 daily vehicle capacity was overwhelmed by demand (though, today, the parkway carries nearly 140,000 vehicles per day).

By 1954, every major thoroughfare in downtown Los Angeles was reporting overcapacity, and residents began to flee to the suburbs to escape the traffic. It drove away more retail business than it brought in, and added more commuter capacity in rush hour to a route that was inadequately provisioned with alternative transit.

The solution? More capacity. Planners of the era were not able to foresee that added capacity created light traffic, which in turn opened up new, cheap farmland that could be converted to provide homes for commuters. Planners were for more capacity, developers too, and businessmen saw dollars in developing suburban shopping. Highway construction was popular, profitable and a visible sign of progress.

In the 1940s, the four largest cities in the Los Angeles Basin – outside of

LA (which included the incorporated San Fernando Valley), Pasadena and Glendale — were Santa Monica, the harbor city of Long Beach, and the inland agricultural center of San Bernardino, and Santa Ana, the hub of Orange County. Small wonder then, that the system proposed was the Harbor Freeway, the Santa Monica Freeway, the San Bernardino Freeway, the Santa An Freeway, and the Hollywood Freeway — connecting downtown to its major satellites, and relieving capacity from surface streets downtown.

By 1960, all major city streets in downtown Los Angeles were once again carrying traffic below their capacity. But the freeway system simply carried development farther and farther out to where cheap farmland could be converted to real estate. By 1989, the downtown streets were over capacity, and so were all the original freeways.

By 1992 the idea that a public bus traveling from Santa Monica to downtown Los Angeles could maintain 50 miles per hour along the Santa Monica Freeway had become so widely recognized as an absurdity, that it formed the premise of the internationally acclaimed (and ironically named) motion picture *Speed*. The Keanu Reeves and Sandra Bullock vehicle grossed $350 million worldwide in the process of inventing a series of hair-raising methods for getting around Los Angeles at high speed.

As I made the entrance onto I-10 proper from the Centinela Avenue onramp, and carefully swung across two lanes of traffic to get some clear road for driving, it occurred to me that the security problem posed by a bomb-happy “madman” in Speed was but one dimension of a security problem. *Centinela* is a Spanish word meaning “sentinel” or “sentry”, and is derived from the original rancho *Aguaje Centinela* to the south of I-10.

The entire US interstate system was conceived as a sort of sentinel, a means of guarding the nation. President Eisenhower referred to the

network as the National Defense Highway System, and federal investment in the system (and the Feds picked up 90 percent of the tab) was justified in part on the grounds of national security,

The champion of the Interstate system was President Dwight Eisenhower, who had proposed a federally funded National Interstate and Defense Highways system late in his first term in office, picking up on failed proposals going back as far as a generation. There had been a number of attempt to get legislation for highways through Congress between 1954 and 1956, but finally Eisenhower made it a centerpiece of his 1956 State of the Union Address, and by August the legislation was hammered out, and signed.

Eisenhower was inspired by the success of the German autobahn system, and by the horrific experience of the 1919 Army Convoy, which traveled from Washington DC to San Diego along the old Lincoln Highway in a test of the military effectiveness of US roads. Eisenhower participated as a young major in the Convoy, which took two months of 19-1/2 hour workdays to make the coast-to-coast trip, losing nine vehicles to accidents, 21 men to injury, and having an encounter with quicksand in Nevada and Utah that nearly swallowed the convoy entire.

The system that was ultimately built is a wonder of the world, and a problem. The system carried 713 billion miles of traffic in 2008, according to the Department of Transportation, or 2370 miles per man, woman and child in the United States. Pumping more than 270 million tones of carbon dioxide into the atmosphere, or about 20 percent of all US emissions – just on the interstates.

As a system of transport supply, it is a success beyond its developers' greatest hopes.

By now, it is welded into the fabric of American life and the economy in ways that are supremely difficult to amend. The system of US roads are

the greatest single contributor to America's great single strategic security weakness, its dependence on foreign oil. Nothing has undone American national security more comprehensively in the past 50 years than the American romance with the car.

I pass the National Boulevard exit of I-10, the gateway to the suburb of Westwood and the leafy domain of UCLA, former home to the Atomic Energy Commission lab, which supervised analysis of many results from Nevada nuclear weapon tests in the 1950s. It reminds one that no one would have been more surprised than Dwight Eisenhower to find the US increasingly dependent on foreign oil in 2009. In 1956, he had warned King Saud that Middle Eastern oil might become worthless because of the rise of atomic power.

Oops.