

2020

VISIONS FOR THE CENTRAL VALLEY



EDITED BY

AMY MOFFAT

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Edited by Amy Moffat

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Introduction

Amy Moffat

California's Great Central Valley is changing. The region, which consists of nineteen counties and stretches over four hundred and fifty miles, from Redding to Bakersfield, is rapidly growing. From 1995 to 2005, the Valley gained more than one million residents. A decade from now, the Valley's population is expected to be 8.7 million, a 52 percent increase from 2000. Though agriculture is giving way to urban uses, the Valley still accounts for more than \$23 billion in agricultural revenue—more than any state in the nation. Wealth for some is building while poverty for many worsens. Traffic delays are increasing and so is pollution. Asthma and obesity are on the rise. Neighborhoods are becoming more diverse as housing, energy, jobs, education, and health needs shift.

In preparation for this growth, today's leaders and residents are at a critical junction in balancing economic, social, and environmental priorities. Whose idea of the future will come to pass? Who stands to gain and what will be lost? What is the path to a better future in the Valley, and what are the resources needed to travel it successfully? Do we want to continue to be among the poorest regions in the nation and in danger of having a standard workforce, short of water, and long on chronic medical problems? The stakes are enormously high and in the coming years many people will advocate for competing interests and different visions.

In May 2009, the Great Valley Center convened its annual conference in Sacramento, themed "20/20 Foresight: A View of the Great Valley in

a Decade.” A dynamic gathering of people listened and interacted with thought leaders and experts who attempted to address these and other timely questions about health, community well-being, agriculture, transportation, land use, energy, water, and natural resources. The idea was to look ahead to the future rather than dwell on the past. As David Hosley, the Great Valley Center’s president, put it, “A look ahead to the year 2020 will help chart the path to a better future and provide information about trends and positive steps that might be taken in the next decade.” The conference provided vital insights into the current social, economic, and environmental conditions in California’s Great Central Valley, and though speakers urgently warned of the consequences of maintaining the status quo, they also gave hope for a prosperous future.

This book features edited transcriptions of five keynote speeches given at the conference. In “The Sustainability Imperative,” L. Hunter Lovins, president and founder of Natural Capitalism Solutions, shares insights on how businesses can invest in energy efficiency and get their biggest return on investments. Quentin Kopp, chair of the California High Speed Rail Authority, describes the plan for high-speed rail service to be built through the Central Valley to connect Los Angeles and the San Francisco Bay Area in his speech “Designing the Transportation of the Future.” “A Thriving Agriculture in the Twenty-First Century” presents insights by A. G. Kawamura, secretary of California’s Department of Food and Agriculture, about the current conditions of California agriculture and the importance of putting together an agricultural plan for the state. In “The Delta’s Age of Reason,” Jeff Mount, director of the Center for Watershed Sciences at UC Davis, uses humor and hard science to explain controversial water issues in the Sacramento–San Joaquin Delta. Last, Richard Pan, a pediatrician at UC Davis and founder of Communities and Physicians Together, explores how many different types of environments, physical and social, affect key health disparities in “A Community Approach to Health and Health Care.” At the end of each chapter a “Valley-Wise Living” section provides key actions that you, as an individual, can take between now and 2020 for a sustainable Valley; a “Resources” section lists different books and reports to read on the subject, as well as websites to browse; and a “Food for Thought” section offers questions that you can bring to your organization, agency, or business to facilitate discussion and strategic planning. These compilations provide you the opportunity to apply this information to your own work, now, to

see results in a decade—a time frame within which most of you will still be able to be active participants.

While the individual chapters may seem isolated in the focus of their topics, many threads tie the topics together. One key theme is choice and the privilege of having choices, whether they consist of what foods to buy or how we address difficult issues, like water management. Another common focus is on the predictability of the region's problems; the past might be a predictor of the future, but we can make changes so that the future is not dictated by the past. These speakers frequently dispel common myths that affect the general public's ideas about certain issues: both Kawamura and Mount are concerned that the public has inaccurate information about how much water is used by agriculture and other sectors, for example, and Lovins points out that the common idea that it is bad to turn computers off and on not only is an urban myth but has serious energy consequences. Several speakers caution against allowing general opinion, rather than empirical evidence or evidence-based research, to drive policy. Not all the speakers agree with each other. Some of the statements across the chapters contradict and conflict. The purpose is not to define the answers, but to provide information so you can make your own informed choices.

Though the speakers often point out discouraging trends and serious challenges that the region and its residents face, each is also deeply optimistic about our capacity to address these issues in creative and innovative ways. Without the active participation of informed policy makers and residents alike, a bleak future seems set in stone. But the Valley is as rich in social resources—people, ideas, traditions, and cultures—as it is in natural ones, and, as Richard Pan points out, “it is also going to be about people coming together in their communities, saying this is what we want for our community, and then working together to move that forward.” L. Hunter Lovins powerfully sums it up: “The future of this Great Valley is in your hands. It is not fate. There are drivers of change that are coming at you... How you respond to them will determine whether or not your children are going to want to live in this Valley.”



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The Sustainability Imperative

L. Hunter Lovins

It may seem to outsiders that the Central Valley is obsessed with the concept of sustainability. But we live in a fast-growing area where problems will only be exacerbated by going forward with the status quo. The next decade will be critical to balance the economic, social, and environmental priorities to plan and achieve long-term community well-being.

The Central Valley of California is at a critical juncture in energy consumption. The Valley is growing 50 percent faster than the rest of California, yet the cost of energy is outpacing that growth. We are seeing significant changes in the Sierra snowpack and that is affecting hydroelectricity, and a great deal of electricity in the Valley is used just to move water. Unless we can significantly change the way people in the region do business and conduct their personal lives, at-risk families and even moderate-income people will be unable to have the quality of life we experience today. By nearly every indicator, the economic health of Valley residents lags behind that of our state and nation. More than a third of the population does not speak English as their first language. Few of those living in poverty are focused on renewable energy. But they represent, along with rural residents, an important opportunity to reduce energy consumption.

In the Central Valley, the huge growth coming in the decades ahead requires new approaches to energy conservation, and a much higher commitment on the part of organizations and individuals to live differently. Incremental improvement will not suffice when it comes to renewable resources. In this chapter L. Hunter Lovins asserts that it is imperative that everyone start living and operating their businesses in more sustainable ways, the good news being that sustainable measures are surprisingly cost-effective and make good business sense.

L. Hunter Lovins is president and founder of Natural Capitalism Solutions in Colorado. Natural Capitalism Solutions works to educate senior decision makers in business, government, and civil society to restore and enhance natural and human capital while increasing prosperity and quality of life. Trained as a sociologist and lawyer, Ms. Lovins also cofounded the California Conservation Project and Rocky Mountain Institute, and has consulted for scores of industries and governments worldwide. Lovins's areas of expertise include natural capitalism, sustainable development, globalization, energy and resource policy, economic development, climate change, land management, and fire rescue and emergency medicine.

Lovins received her Juris Doctorate from Loyola University School of Law, has taught at dozens of universities, including an engagement as the Henry R. Luce Visiting Professor at Dartmouth College, and is currently a founding professor of business at the Presidio School of Management, one of the first accredited programs offering an MBA in sustainable management. She has coauthored nine books and dozens of papers and articles, some of which have recently appeared in *World Link*, *World Business Academy Review*, *American Prospect*, and the *Los Angeles Times*. She has been the recipient of several honors, including *Time* magazine's Hero of the Planet in 2000.

The Sustainability Imperative

You have an opportunity with the future of the Great Valley. The Great Valley has been the breadbasket of America, and it could be the breadbasket of the world if you decide not to pave it over. These are not questions of fate, they are questions of choice.

The economic woes are well known. The Chinese curse: May you live in interesting times.

California is one of the leading states now in the country for unemployment, fourth highest.¹ Housing prices are collapsing, and what are we going to do about a state budget? The *Wall Street Journal* wrote not too long ago about the “end of excess,” pointing out that we’ve been losing, in the nation, over six hundred thousand jobs a month for the last two or three months. Fifty trillion dollars gone! Where did it go? I asked this question the other night and a woman

said, “Money heaven.”

That may not be a bad answer. Consumer spending contract-

ing, construction spending contracting. The International Monetary Fund recently said that thirty of the thirty-four advanced economies are expected to shrink in the greatest collapse since World War II, and the U.S. continues shrinking through 2010.

It was Edward Abbey who said it best: “Growth for the sake of growth is the ideology of the cancer cell.” It is sunk into our minds, particularly if we are local businesspeople, or local government people, that we have to grow. Grow or we die. And yet that is not true of any healthful organism on

**“These are not questions of fate
they are questions of choice.”**

the planet. So this debate about growth needs to come up and be a topic of polite conversation. In many communities if you raise this question, you will be shot, run out of town on a rail, stoned, or perhaps worse, laughed at. And I expect many of you know what I am saying. So let us reframe the debate. What is it that we want more of? Growth. Well, what does growth mean? What do we want to have grow? Some people say the GNP. What is the GNP? A divorcing cancer patient that gets in a car wreck has added to the GNP, but is she any better off? Clearly not. So in our communities, let

“...what we want more of: fun, health, time with our families, education, learning, culture, music, art. There are a lot of things that we can have more of, that do not run down the natural or human capital of the planet.”

us start a conversation about what we want more of: fun, health, time with our families, education, learning, culture, music, art. There are a lot of things that we can have more of, that do not run down the natural or human capital of the planet. We can also enlarge

this conversation by asking, “What are the constituent elements of wealth?”

We are facing some fairly formidable **drivers of change**. This is a term Royal Dutch Shell uses when it does scenario planning, when it tries to understand plausible stories about how the future could evolve. When you find a driver of change you know that business as usual will not endure. We are facing some formidable ones. We are losing every major ecosystem on the planet. We live in a carbon constrained world, if not a global climate crisis. We have economic instability, volatile energy prices (they are now back above fifty dollars a barrel and headed north). Every bit of our infrastructure is vulnerable. China and India, “Chindia,” are in the world market for eventually everything. Remember a year ago today, gas prices were over five dollars a gallon and China and India buying, essentially, every commodity? Water. This is your lifeblood but it is the lifeblood of the entire planet and it is in short supply. Food. We have had food riots on three continents. And then what I call the **sustainability imperative**. Collectively, these are going to change everything about your life, your business, and life in this Great Valley.

Lester Brown² points out that if China continues to grow at a rate that it is believed it must to avoid revolution, by 2030 it will need ninety-nine million barrels of oil a day—that is more oil than the world now lifts or probably can ever lift—and more cars and cotton and concrete. And at that point the future is not possible. When you realize the future is not possible, you are staring at a driver of change. We are going to change the way we do business.

Climate change. It is very much for real. My particular concern is for the rivers that come out of the Himalaya that water about two-thirds of the people on Earth. The glaciers in the Himalaya are already retreating. If you want to see the face of climate change, look at Australia, where the Murray-Darling Basin used to run bank to bank but now runs dry and can no longer support the growing of rice. So farmers in Australia are starting to commit suicide.

You have water constraints here. Farming is a good use of the state's water and climate models show that the availability of water is going to be dropping: a 20 percent reduction in runoff by 2050 means nearly nine out of every ten water deliveries will be missed. Steven Chu³ says that agriculture in California may cease to exist and he is not quite sure how the cities will survive. We almost saw that this year, but thank God for the rains. But the rains under the climate modeling are going to be less predictable. Jim Hansen,⁴ the great NASA scientist, said, "Don't ask what's possible, ask what's necessary."

What is necessary is 350. This is 350 parts per million concentration of carbon in the atmosphere. This is the level the scientists are now saying may be what they call "safe level." That means there is a fifty-fifty chance we will not have a catastrophe. That is not what you or I would consider safe. We are now at 387, which means we are going to have to cut back on the amount of carbon that is already in the atmosphere. Scientists like Holmes Hummel⁵ say, "No more carbon emissions." And Dr. Hansen says that if the U.S. fails to act in the next year it may become impractical to prevent "disastrous climate changes that spiral dynamically out of humanity's control." This is sobering.

We need a miracle. If you look at the weight and magnitude issue, how fast it takes to turn over a stock—ask our utility friends how fast big infrastructures turn over—it is about fifty years. We do not have fifty years. That means we are going to get very creative.

Bill Becker⁶ said, “If we insist on ruining the planet, we’re going to have to stop claiming we’re a superior species.” And Ray Anderson⁷ asked, “What’s the business case for ending life on Earth?”

The science is uncertain. We do not know how bad it is going to be; we do not know how fast it is coming at us. Scientists are scrambling to get the models to match up with observed reality. The science does not matter, and I say this with all deference to the scientists who are working very hard on these issues. But let us assume the skeptics are right. Frankly, do not go to Vegas on those odds, but if all you care about is being a profit-maximizing capitalist, you will do exactly the same thing you would do if you were scared to death of climate change, because we know how to solve this problem at a profit. The smart companies are starting to do it.

Ten years ago or more, DuPont announced they were going to cut their emissions of greenhouse gases 65 percent below their 1990 levels by 2010. This is somewhat more ambitious than what our past federal administration said we could not possibly do—that it would bankrupt the economy to try to cut American emissions 7 percent below 1990 levels. Has DuPont joined Greenpeace? They made this announcement in the name of increasing shareholder value, and they have done rather well. They are already down 80 percent below their 1990 levels for a savings (from 2000 to 2005) of three billion dollars. Andrew Winston,⁸ author of the book *Green to Gold*, points out that DuPont’s efforts to squeeze out waste are adding up to \$2.2 billion a year. Guess what their profitability is: \$2.2 billion a year. This is a company that is profitable because it is squeezing out waste.

STMicroelectronics committed to zero net CO₂ emissions by 2010, carbon neutral, with a forty-fold increase in production over 1990 by 2010. When Pasquale Pistorio⁹ made this announcement, he had no earthly idea how to do it. Figuring it out is driving their corporate innovation, taking ST from being the number-twelve chip maker in the world to number six. They are winning awards (2004 Best Industrial Renewable Energy Partnership from the EU). They recognize that by the time they become climate neutral, they will have saved about \$900 million.

The insurance industry is getting involved. The European reinsurers—they insure the insurance industry—are starting to say, “If your company does not take its carbon footprint seriously, maybe our company does not want to insure you, or your officers and directors.” Imagine doing business without D&O insurance.

The banks are starting to issue an index of bond issuances based on companies' carbon footprints. The Carbon Disclosure Project out of the United Kingdom six or eight years ago sent out to the Financial Times 500—the five hundred biggest companies on earth—a little survey asking, “What’s your carbon footprint?” For a few years everybody ignored it, until about three years ago, when 60 percent of the biggest companies on Earth answered. Last year, over 77 percent of the now FT 1,800 companies answered. Why? For one thing the Carbon Disclosure Project represents institutional investors with over \$50 trillion in assets. If you are going to go to the capital marketplace, we might want to answer their questions. And for another, under the Sarbanes-Oxley Act of 2002—the new U.S. corporate ethics law that emerged from the Enron and Worldcom scandals—if as a manager you fail to disclose to the shareholders information that can materially affect the value of stock, you can be personally criminally liable. So, what is your carbon footprint?

We walked into a company that had sixty-three hundred computers and printers they left on twenty-four hours a day, seven days a week. They had urban myths that if you turn them off and then turn them on, it shortens the lifetime of the computers. No, not true. IT has to have them left on all the time. No, not true. Turning them off except for one night a week would save the company \$700,000 in the first year. In this country, we waste \$2.8 billion a year leaving computers on when we are not using them. And this is about a quarter of the cost of energy in a modern office building.

We walked into another company, a distribution center (I know you have a few of those in the Central Valley). This was a seven-million-square-foot center that had five-hundred-watt lightbulbs shining down on the tops of boxes, because that is what a distribution center is—it is floor-to-ceiling boxes. The guys down below had task lighting so they could see where they were going. We said, “Y’all have a switch?” \$650,000 was saved in the first year.

At UC Davis you have the California Lighting Technology Center,¹⁰ which can help any of you—whether you are a homeowner, a business, a government—replace lights with LED lights with more efficient lighting schemes. And they have got the science behind it and they have got the numbers behind it. Check it out.

I consult for very big businesses, but the businesses in your towns are the lifeblood of our economy. Small business is roughly half the economy, 90 percent of the nongovernmental employers, and nobody is really working

with them. At Natural Capital Solutions we are in the process of bringing out a manual for small businesses, a web-based learning tool called “Solutions at the Speed of Business”¹¹ that would be like having a personal tutor moving at your pace, enabling you to cut carbon emissions profitably. Commercial buildings use 18 percent of the total energy in the U.S. Just take lighting: changing out incandescent lightbulbs to compact fluorescents—never mind going all the way to LEDs—will save you about 75 percent of your lighting energy. There is a whole array of measures, which are also included in the Great Valley Center’s Energy Primer. Take advantage of this. These are dollars that are leaving your community.

For example, a Re/Max real estate office down in Ft. Lauderdale was doing a remodel, so while they were at it they put in energy saving measures and mostly used a caulk gun. I mean, this is not rocket science here, folks. All exterior windows and doors were sealed and caulked and the ductwork was resealed. They saved \$7,900 the first year, largely from eliminating unnecessary air-conditioning.

“Investing in energy efficiency is your biggest return on investment.” The return on investment (ROI) of climate protection measures is enormous. Fluorescent lamps and fixtures: 40 percent return on investment. You tell me where your

401(k) is going to get that kind of an ROI. Investing in energy efficiency is your biggest return on investment. Where? Buildings. Most of us spend 90 percent of our time in buildings and they are responsible for a lot of energy use, a lot of electricity use—about 70 percent in the country, and 30 to 60 percent of greenhouse gas emissions, depending on where you are, and a lot of other waste. We can take any existing building and make it three- or four-fold more efficient, new ones ten times as efficient, and they work better. PG&E has shown that if you put features like daylighting into schools, you will get 20 to 26 percent higher test scores. Wal-Mart found that by putting daylighting into Wal-Marts, they get higher retail sales by 40 percent. And you will also get higher labor productivity—6 to 16 percent increased labor productivity—and you get decreased worker absenteeism from sick time. Improving indoor air quality could save U.S. businesses \$58 billion in avoided sick time each year, and another \$200 billion earned in increased worker performance.¹² What you pay for people is about one hundred times

what you pay for energy, but how you manage your energy is what enables you to get that productivity boost from people.

The environmental radicals at McKinsey, the big consulting firm, did a little study in which they put all of the measures to cut carbon, all the energy saving measures, various supply measures on the same piece of paper, and surprise! The energy saving measures will about pay for the supply measures, which is to say that we can begin to de-carbonize the economy at no cost if we are smart about it, if we use these saving measures to pay for the new supply.

Now if I have not convinced you that there is an opportunity here, let us start to look at some of the threats.

If you really want to give yourself nightmares, go read the book *Twilight in the Desert* by Matthew Simmons, a Houston oil banker.¹³ He points out that the extraction history of the super giant oil fields looks very like a theory put forth by a man named M. King Hubbert in the 1950s.¹⁴ Hubbert was a Shell geologist who said that if you have a finite resource—and it is a corollary of the round earth theory that oil is finite—and you have exponentially growing demand, 90 percent of the oil ever used by people has been since 1958, half of it since 1984; you fall off the production curve as steeply as you went up when you are halfway through the resource, not when you have exhausted the resource. Hubbard said the U.S. would hit peak oil around 1970; it appears we did. He said the world would hit its peak about now; we may be hitting it. Remember those Chinese and Indians behind them wanting more oil than the world now lifts? If your economy, if your life, if your business, if your community depends on petroleum...think about this. Last year when the oil prices were at \$150 per barrel, this country was borrowing \$2 billion a day, largely from the Chinese, to buy imported oil. We are running out. We are running out of time, and we are running out of oil. If we use oil at our current global consumption rate, we will run out in thirty-three years. If the U.S. uses only oil left in U.S. fields, that is three years' worth. If the U.S. uses all of Iraq's oil, it will run out in fifteen years. If the whole world consumes at the U.S. rate, that is six years.

There are answers. We used to be able to go from Boston to St. Louis never leaving a trolley car. In Europe, people commute by bicycle. How about high-speed trains? If you still want to drive a car, we know how to make cars that get one hundred miles to the gallon. This is not a red or a blue issue.