

Fresno may lead country in energy

City Council hears strategy to convert waste into hydrogen.

By Mark Grossi

The Fresno Bee, Monday, July 26, 2004

The way some people see it, Fresno each year loses 150,000 tons of energy-making fuel -- sewage sludge and residents' yard trimmings.

But that's not the worst part. The city pays more than \$3 million to have the sludge and the green waste recycled as compost.

A private technology developer in North Carolina asks: Why not stop spending money and start using these wastes to make clean energy -- hydrogen?

"Fresno could make hydrogen to produce electricity," said Dennis McGee, founder and chief executive officer of Enviro-Tech Enterprises Inc. "You would have an energy supply that would actually improve the environment."

The National Renewable Energy Laboratory, a research arm of the Department of Energy, adds that Fresno could become a model for the rest of the country.

"Now is the time, and this is the place," said Bob Evans, senior scientist at the lab. "The wastewater treatment site in Fresno is a great place to do this."

The Fresno Public Works Department scheduled time Tuesday to briefly describe to the City Council a strategy to build Fresno into a national center for clean-energy technology, such as hydrogen, biogas and solar power. Enviro-Tech's ideas fit into that strategy, officials say.

"There is a universe of technologies emerging," said Martin McIntyre, Public Works director. "We're excited about putting Fresno on the map with them."

But the bottom-line questions remain unanswered: How much will all this cost? And will it work for Fresno? Hydrogen, the most plentiful element in the universe, makes a power-packed fuel that is used on the space shuttle for the electrical systems. Instead of smog-making chemicals, hydrogen's byproduct is pure water, which the shuttle crews drink.

Hydrogen power production interests city officials, who are eager to attract businesses with Fresno's own electricity that might cost less than Pacific Gas and Electric Co.'s power. The city also could avoid paying recycling costs.

And clean-burning hydrogen would help clean the air in the San Joaquin Valley's largest city.

In the future, Fresno could become a major pit stop on a so-called hydrogen highway, the state's brainchild to establish clean-burning hydrogen fuel stations along California's highways.

Enviro-Tech estimates it will cost about \$200,000 for a feasibility study to investigate options and answer some financial questions.

The study would focus on the city's sewage treatment plant as the core of a cutting-edge power park. Green waste from residents' yards could be used in an energy plant to generate steam to power the treatment plant.

The energy plant also could be used to make hydrogen from the green waste and the sludge. Officials could use the clean-burning hydrogen to generate electricity.

In addition, fuel stations along Highway 99 and Interstate 5 could sell the hydrogen to motorists driving future fuel-cell vehicles.

The project could cost millions, but Fresno would not go it alone, McGee says. Part of Enviro-Tech's mission is to locate possible private investors as well as technical experts to form a team.

McGee says Fresno could become a proving ground, along with a few other areas of the country, including Michigan and North Carolina.

"Actually, hydrogen power production is being discussed all over the world," he said. "It needs to be based on the business model with a public-private partnership here."

Enviro-Tech has been visiting the city periodically over the past three years, ever since a Fresno marketing firm, the Rios Co., struck up a conversation with the development company about clean energy.

Rios spokesman Samuel Norman says sewage sludge and urban green waste are not the only possible sources of fuels for a hydrogen power producer. With several million acres of farmland, there are many thousands of tons of prunings, orchard removals and crop wastes available.

"This is the biggest agricultural place in the country," Norman said.

The Valley needs to dispose of agricultural biomass. Under legislation passed last year, farmers next year must start phasing out the burning of their crop wastes.

Nearly 2 million tons of prunings, orchard removals and crop wastes pile up every year in the Valley from Stockton to Bakersfield. In 2002, farmers burned about 1.1 million tons of agriculture waste, most of which was wood in the form of prunings or old trees.

To change the biomass into fuel, McGee says, would require a special oven that heats up the waste in the absence of oxygen. The biomass would turn into usable products -- a liquid, called bio-oil, and a solid charcoal, called bio-carbon.

Both the federal renewable energy lab and Enviro-Tech say hydrogen can be produced from bio-oil. Bio-carbon is used in filtering water.

Heat is the key in the hydrogen conversion of bio-oil, biomass or other fuels, McGee says.

"We have field tested the converting of peanut shells in Georgia," McGee said. "The heat changes the molecular structure without a flame. This process has no net impact on the gases that contribute to global warming. That's quite appealing."

FARM SCENE: California dairies are turning manure to money

JULIANA BARBASSA, Associated Press Writer

S.F. Chronicle, Monday, July 26, 2004
FRESNO, Calif. (AP) --

More than a dozen dairies in California are building contraptions to turn one of their least-valued products -- the gases that rise from decomposing manure -- into one of the state's most sought-after commodities -- energy.

The state's 1.72 million dairy cows, clustered heavily in the Central Valley, have made California the country's top dairy state. Their milk and cream sell for more than \$4 billion a year, and the industry brings jobs and tax revenue to counties with double-digit unemployment.

But according to air officials, the state's cows also contribute about 10 percent of the chemical compounds that combine in the atmosphere to produce ozone, a principal component in the smog that plagues the San Joaquin Valley's air.

By capturing the offending gases of dairy air, farmers are not only reducing the emissions that cloud the valley, but cutting their own electricity costs. The decidedly low-tech technology also has the potential to play a role, albeit a small one, in meeting the state's constant hunger for new power sources.

To produce energy, the farmer has to scrape up the manure, mix it with water, and pour it into a lagoon typically covered by an enormous plastic bag. When the mixture is heated, it produces methane, which is trapped by the bag, piped into a generator, and burned to create electricity.

The experiment comes a time when the agriculture industry is having to abide by air pollution regulations for the first time. By the end of the month, the local air district is expected to issue guidelines for clean-air technology that will be required in new dairies -- and so-called "methane digesters" are part of the solution, officials said.

"This is probably one of the best forms of emission control from dairies," said Dave Warner, who leads the San Joaquin Valley Air Pollution Control District's permit program.

But what really got farmers interested, they said, was that the machines literally turn manure into money.

Ron Koetsier, who has 1,200 dairy cows on 160 acres near Visalia in Tulare County, qualified for a matching grant from the state, and since 2002 has been saving about \$30,000 a year on energy costs -- about half his annual bill -- because he can now produce most of the energy he needs onsite.

Once his digester is hooked up to the local utility company, Koetsier said he'll be able to bank energy with the company. When he feeds excess energy into the system, his electricity meter will run backward.

Methane digesters won't produce enough energy to make a significant dent in the state's energy demand -- or even come close, experts said.

Manure from one cow can generate up to two kilowatts per day -- enough to brighten two light bulbs, said Warner, and it takes a dozen cows to power an average house.

Even if all of the 65 billion pounds of manure produced in California every year went into a methane digester, the energy generated could only power a medium-sized town like Modesto.

But the other advantages -- allowing farmers to save money, trapping gases and other chemicals that would have turned into harmful pollutants, and reducing the volume of animal waste -- make the machines an alternative supported by environmentalists as well.

"We've been advocating for years the use of anaerobic digesters, or other 'cover and capture' technology," said Brent Newell, with the environmental advocacy group Center on Race, Poverty & the Environment. "It's definitely beneficial."

As of July 1, all farms and dairies that emit more than 12.5 tons per year of gases that contribute to smog had to apply for local air quality permits and pay hundreds of dollars in annual fees. For the first time, 1,350 of the largest farms and dairies in the nation's most productive farm counties were asked to account for the air pollution they produce.

As long as cleaning the air is also economically feasible, farmers are ready to enlist in the struggle, they said.

"Yeah, it's going to clean the air," said Larry Castelanelli, a third-generation farmer who milks 1,500 cows near Lodi and pays an annual utilities bill that tops \$100,000. "Yeah, there's a concern there. But this is dollar driven. I'm competitive. I'm trying to survive in the dairy industry."

On the Net:

San Joaquin Valley Air Pollution Control District: www.valleyair.org <<http://www.valleyair.org>>

Methane digesters: www.suscon.org/dairies/methanedigesters.asp <<http://www.suscon.org/dairies/methanedigesters.asp>>

Idling of diesel vehicles restricted

Vanessa Hua, Chronicle Staff Writer

S.F. Chronicle, Friday, July 23, 2004; O.C. Register, Monday, July 26, 2004

State regulators voted Thursday to put a five-minute limit on the idling of hundreds of thousands of diesel trucks and buses statewide.

The California Air Resources Board has been targeting diesel exhaust for years because it contains more than 40 toxic air contaminants, including such carcinogens as benzene, arsenic, formaldehyde and dioxins. The board voted 8-0 in favor of the regulation.

The anti-idling rule will benefit public health, the environment and the economy, officials said, by reducing exposure to pollutants while curbing greenhouse gases.

Air Resources Board inspectors, California Highway Patrol officers and local air district workers can hand out \$100 citations to violators. The regulation will go into effect by late winter or early spring, said spokesman Jerry Martin.

About 67,000 trucks with sleeper berths -- including 40,000 from outside California -- would be exempt from the anti-idling rule during federally mandated rest periods for drivers. The exemption will last indefinitely, pending another vote in September 2005 that will take into consideration advances in technology.

Truckers sleep in sleeper berths to comply with federal rest requirements and to maintain security of the cargo, said Mike Tunnell, director of environmental affairs at the American Trucking Association, which supported the anti-idling ruling.

"This is good news for California's fight for clean air," said Jason Mark, director of clean vehicles for the Union of Concerned Scientists, an environmental research group headquartered in Washington, D.C., with an office in Berkeley. "The truckers who comply reduce pollution and the money that goes up in smoke up out their tailpipe."

The new rule affects the San Francisco Municipal Railway, AC Transit and Norcal Waste Systems -- the parent company of San Francisco's two licensed garbage collectors, Golden Gate Disposal Co. and Sunset Scavenger Co. -- as well as tour buses and U.S. Postal Service trucks.

AC Transit already abides by the rule, which limits idling to five minutes for maintenance in bus yards, three minutes while in service and, following existing state law, 30 seconds at schools.

Diesel pollution triggers allergic reactions, asthma attacks and premature deaths among those suffering respiratory and heart problems. Air pollution episodes increase hospital admissions and emergency-room visits, studies show.

New dairy plans await results of emission studies

By GRETCHEN WENNER, Californian staff writer
Bakersfield Californian, Sunday, July 25, 2004

For Kern County supervisors who'll decide whether to permit up to 16 new dairy-related projects here, the question might be this: What will they know, and when will they know it?

This much is certain: Right now, no one knows how much pollution dairies put out. The last data was collected in 1938, and some top agriculture scientists say erroneous interpretations of that data mean existing air district pollution estimates are bogus.

Information is on its way. But so are applications for 16 or so facilities that could bring more than 113,000 cows to the county -- increasing by more than a third the number of milk cows already here. County planners estimate there are now about 297,000.

It's unclear how the timing of incoming data and outgoing dairy permits will work.

Here are some of the major pieces in play:

- The EIR. Some big projects, including dairies, require a massive "environmental impact report," or EIR, stuffed with air, water, geology, wind, pest, archeological and other studies. Kern County planners have asked the Board of Supervisors to consider all proposed dairy projects under one report. They say a single report will make it easier for planners and supervisors to consider overall impacts of the projects. Supervisors will vote on the matter Aug. 24. Currently, all dairy applications are suspended until then.
- If approved, the report would likely take one-and-a-half to two years to complete, said Ted James, the county's head planner. Supervisors would approve or deny the projects only after the report is done.
- The data. Over the next two years, results from a dozen or so studies are expected to answer questions about air and water pollution from dairies.

Results from a key study at Fresno State will be ready for air officials in a month, said Charles Krauter, a crop and soil scientist who chairs Fresno State's plant science department.

Krauter and his staff have been firing lasers over dairy lagoons to figure out what types of emissions waft out. The process works something like shining a flashlight in the dark to illuminate dust particles, he said. Results will give solid numbers for emissions of so-called "volatile organic compounds," a concern of air regulators.

At UC Davis, a "bovine bubble" experiment will yield useful preliminary emissions results for regulators and decision-makers in about eight months, researchers said.

In the Davis project, 40 cows are housed in tented corrals. The cows' gases are captured and then analyzed later. Numerous test results will trickle out over the next two years.

Such studies will be incorporated into the county's impact report as they become available, according to James.

In addition, state air and water regulators will be imposing new rules and equipment requirements for dairy operators. Some are the result of new state laws that put big farms under oversight of air pollution officials. The dairy industry, however, is challenging the matter in court, saying the rules shouldn't apply until solid scientific results are available.

All the variables mean Kern planners and supervisors are in unusual territory, James said.

"There are some unknowns," he said, referring to what might happen with the dairy industry's suit against the air district. "How does that fit into the process of permitting? We don't know."

Rule sets limits on idling time for diesel transport

By Don Thompson, ASSOCIATED PRESS

San Diego UNION-TRIBUNE, Friday, July 23, 2004

SACRAMENTO - State air regulators banned heavy diesel trucks and buses yesterday from idling more than five minutes as part of the latest effort to clean up the nation's dirtiest air, although the regulation provides numerous exemptions.

"Cement mixers can certainly idle while mixing cement, for instance, or a truck can idle while using its lift," said Jerry Martin, spokesman for the California Air Resources Board. "But leaving the truck idling while running to grab a sandwich doesn't work anymore."

Other major exceptions allow buses to idle up to 10 minutes to keep heating or air conditioning running for passengers' comfort, and trucks with sleeper berths can idle during federally mandated rest periods.

By passing the regulation, California joins about 20 other states that restrict nonessential idling. Exhaust from the idling engines adds about 20,300 tons of smog-forming gases and 438 tons of exhaust particles to the state's air every year, nearly 10 percent of the total emitted by diesel engines in running and idling mode, the Air Resources Board estimated.

The rules will cut a fraction of those emissions, eliminating an estimated 6,600 tons of smog-forming emissions and 166 tons of soot pollution each year.

Ending the idling will also save vehicle owners up to \$113 million annually in fuel and maintenance costs, the board estimated. Idling engines burn about a gallon of diesel each hour. It will also reduce the amount of more than 40 toxic components spewed from diesel, including carcinogens and gases blamed for speeding global warming. The board estimates diesel exhaust accounts for 70 percent of the toxic air contaminants Californians breathe.

The regulation applies to about 409,000 publicly and privately owned diesel vehicles over 10,000 pounds. It will take effect in about six months if it withstands a technical review by the state's Office of Administrative Law.

While older model trucks often had to be kept running, that's not necessary with newer models and fuel mixes, said board Chairman Alan Lloyd. The board will launch a trucker education program to spread that message.

Both the California and American trucking associations supported the regulation. Trucking and mass transit operations said they try to keep idling to a minimum to save fuel and money.

"It saves trucks 125 to 130 gallons of fuel a year, which is immediate money for them," said Martin, plus the vehicles can idle when necessary. The fuel savings amount to about a million gallons a week statewide, the board estimated.

The air board, however, delayed action on a second staff proposal to ban trucks after 2009 from idling during mandated rest periods. The proposal was based on the expectation truck stops and

truck makers will add separately powered heating and air conditioning units making night-long idling unnecessary.

Truckers objected to the proposal, and the board decided to see how the technology develops before taking up the issue late next year.

High rate of asbestos deaths seen continuing in next decade

Insulation material killed 1,493 in 2000, CDC reports

By Daniel Yee, ASSOCIATED PRESS

San Diego Union-Tribune, Friday, July 23, 2004

ATLANTA - Asbestos deaths in the United States have skyrocketed since the late 1960s and probably will keep on climbing through the next decade because of long-ago exposure to the material, once widely used for insulation and fireproofing, the government said yesterday.

The Centers for Disease Control and Prevention said 1,493 people died from asbestos in 2000, compared with 77 in 1968.

In fact, in 1998, asbestos-related deaths overtook those of black lung disease, reflecting in part the decline of the coal mining industry, the federal agency said.

The CDC reached its findings by reviewing the death certificates of nearly 125,000 people who had lung conditions linked to inhaling dust or fibers from minerals such as coal or asbestos.

Asbestos use in buildings increased substantially after World War II and peaked in the late 1970s and early 1980s. Because asbestos-related illnesses are slow in developing - it can take up to 40 years between the time someone is exposed to the material and when they die from it - asbestos deaths probably will increase through the next decade, said Michael Attfield, a CDC epidemiologist.

"What you've got are folks in their 60s and 70s who might otherwise live longer, but because of the damage to their lung tissue, it leads to an early death," said Forest Horne, a Raleigh, N.C., lawyer who represents asbestos patients. "We're paying the price now for the use of this mineral in almost every construction insulation product used back in the '30s, '40s, '50s, '60s, all the way to the '70s."

Government regulations in the 1970s helped curb the use of asbestos. It is still used, though under heavy regulation. It is found in more than 3,000 products, including brake linings, engine gaskets and roof coatings, and is still present as insulation in older buildings.

"The disease that's being manifested now is basically the result of high exposures over a long period of time - 20, 30, 40 years ago - and don't reflect what current regulations requires," said Bob Pigg, president of the Asbestos Information Association of North America. "Today's products can and are being used safely."

Exposure can cause asbestosis, in which asbestos fibers get into the lungs and scar them. The lungs get stiff, and it becomes difficult for them to take in air or to transfer oxygen to the blood. This can lead to frequent lung infections and heart or respiratory failure. There is no effective treatment.

Whether someone will develop asbestosis depends on such factors as the intensity and duration of exposure, and the person's age when exposed.

For years, coal workers' pneumoconiosis, or black lung, was a much more common lung disease. But cases have been on the decline, possibly because fewer people are employed in the coal mining industry today, the CDC said.

Also, asbestos was probably listed on death certificates more often in recent years as health officials became aware of its dangers.

Tracy plant picks up slack

By Joe Tone
The Stockton Record, Friday, July 23, 2004

As Californians consume more electricity than ever, the power plant that once sparked controversy in Tracy now is helping the state avoid another energy crisis, state energy officials say.

The Tracy Peaker Plant on Schulte Road has operated three days this week, producing 170 megawatts of electricity each day, enough to power nearly 170,000 homes, said Doug Wheeler, vice president of GWF Energy, which runs the plant.

Hot weather across the state prompted Californians to consume more than 44,000 megawatts of power Monday, Tuesday and Wednesday, breaking previous consumption records. Cooler Bay Area weather gave the power grid a rest Thursday, but the state could break more records Monday when a statewide heat wave is expected, said Jim Detmers, chief operations officer for California Independent System Operator, which runs the electricity grid for most of the state.

Including the Tracy plant, the state has added about 6,000 megawatts since 2001, helping avert outages as consumption has soared, Detmers said.

During that time, with the state's energy supply under control, consumers have conserved less energy each year, being less careful to turn off appliances during peak hours, said Susanne Garfield, spokeswoman for the California Energy Commission.

As weather heats up this summer, she said, consumers should make sure to turn off lights and appliances when not in use, especially during the hottest part of the day.

"Consumers make a difference," she said. "It's all consumers that make the difference of having enough energy across the state."

The California Energy Commission approved the Tracy plant two summers ago amid concerns from environmentalists that it would worsen air quality in the already-polluted Central Valley.

The plant runs only during peak hours on the hottest days, Wheeler said. It has run 12 hours this week and 50 hours this year, he said.

Because of its minimal use and its relatively clean emissions, the plant poses only a minimal threat to air quality, said Anthony Presto, a public-education representative for the San Joaquin Valley Air Pollution Control District in Modesto.

"We're a lot more worried about the emissions coming from automobiles this time of the year," Presto said.

OUR VIEWS IN BRIEF

[Fresno Bee editorial, July 26, 2004](#)

Shut 'em off

The California Air Resources Board has adopted a new rule that requires the drivers of big-rig truck and interstate buses to shut off their engines after no more than five minutes of idling. The new rule will reduce smog-forming nitrogen oxide emissions by some 5,200 tons each year, and cause an annual reduction in particulate pollution of 166 tons. What's more, the rule will save the operators of more than 400,000 heavy-duty diesel trucks and buses registered in California about 125 gallons of diesel fuel per year. Collectively that amounts to saving more than 1 million gallons a week.

Diesel exhaust is a serious problem in the state, accounting for 70% of the toxic air contaminants Californians are exposed to daily. And the more we learn about diesel exhaust and its effects, the worse the picture gets. This new rule will help.

Environment still a major concern

In the midst of budget messes, economic worries, problems with schools, war and presidential electioneering, most Californians rank protection of the environment to have a top priority, according to a poll by the Public Policy Institute of California. Support for efforts to reduce air pollution, cut auto emissions and develop alternative energy sources ran across racial, ethnic, regional and political lines. Air pollution was the No. 1 environmental concern, with 35% saying it was a big problem in their region and 59% saying it posed "at least a somewhat serious threat to themselves or their families." That's good news for the Valley's fight to clean up the air here. Solving our problems begins with awareness.

Not a drop to spare in state

[Modesto Bee editorial, Sunday, July 25, 2004](#)

There is no more water in California today than there was when woolly mammoths sloshed through marshes 10,000 years ago. And there's no less. It's where you find the water that changes.

Consider the San Joaquin River, which splashes down from the Sierra above Fresno, growing ever larger as it gathers tributaries and hurries past the Port of Stockton into San Francisco Bay. Well, not exactly.

The mighty San Joaquin is nothing more than a dusty riverbed from Fresno to Merced most of the year. Farmers who once used the river's water for irrigation cut a deal that leaves that water behind Friant Dam and sends them irrigation water from a lake 200 miles north.

Water is the most important shared resource in the state, yet most residents seldom think about it. They should. As the state's population grows, water will become ever more precious. Through a series of occasional essays, The Bee hopes to help readers understand why.

Where does water come from?

It falls from the sky, flows into rivers, then collects in lakes until it is apportioned by lawyers and set in motion by technicians. Eventually, it is used by everyone. The water behind the dams and in the rivers is called surface water and accounts for 60 percent of what Californians use each year.

It's the easiest water to get and redirect. No dams have been built on rivers since the 1970s, meaning there is no more surface water now than there was

30 years ago. Legitimate environmental concerns make it unlikely any new dams will be built across rivers. Still, surface water storage must be a priority.

Instead of damming rivers, surface water can be captured by either building off-stream dams (creating reservoirs) or raising existing dams.

Rep. Richard Pombo, R-Tracy, has pushed a bill providing \$389 million for a host of joint federal and state projects through the House of Representatives -- including enough to move along some dam proposals.

"Common sense dictates that we need storage," said Brian Kennedy of Pombo's staff.

But there's a catch.

Pombo's bill "preauthorizes" certain project expenditures. The Senate doesn't like "preauthorizing" anything. Such procedural disagreements, unfortunately, lead to inertia.

Still, four projects are being discussed in earnest -- Sites Reservoir, an off-stream project near Chico; expanding Los Vaqueros Reservoir in Contra Costa County to hold more delta water; Temperance Flats Dam on the San Joaquin River above Fresno, a project talked about since the 1930s; and raising Shasta Dam to make the state's largest lake even bigger.

Any of them will take a long time to accomplish.

That's why the state's second source of water is so critical.

Each year, hundreds of thousands of private and public pumps draw 40 percent of California's total water needs from underground. It comes from an estimated 850 million acre-feet of water pooled in basins called aquifers.

In some areas, groundwater is so abundant it bubbles to the surface in springs. In other areas, there is none. Some groundwater is pure; some brackish. Some contains naturally occurring poisons such as arsenic, boron and uranium.

In most jurisdictions, owning the land above the water means you can drill a hole, connect a pump and suck out as much water as you want. Historically, that's how most valley residents got their drinking water; many rural residents still do.

That's changing. Modestans drink and wash with groundwater that is mixed with treated water from the Tuolumne River. Manteca, Tracy, Lathrop and Escalon will start doing something similar with water from the Stanislaus River (via Woodward Reservoir) by 2006. Turlock also has plans to augment groundwater with river water.

The valley's groundwater was once thought to be inexhaustible, since rain and irrigation replenish it. But in some areas, aquifers have been sucked dry.

Recent legislation requires studies of the state's aquifers to measure quality, location and quantity. These studies will determine basin structure, directions of flow and recharge rates. They also will show how one well affects another.

Getting this knowledge is extremely important. For instance, if there is a "plume" of arsenic contamination in one area, then a high-capacity pump drawing from the same basin could pull the arsenic through the aquifer, "dragging the plume" into another area. That movement could endanger the water of a neighbor. With the information in hand, officials could recommend putting the pump elsewhere.

"We'll know what areas will need protection, how water moves in and out according to the river and where we should make future withdrawals," said Walt Ward, the Modesto Irrigation District's representative to the recently formed Stanislaus and Tuolumne Rivers Groundwater Basin Association.

"It will help us site new wells so as not to interfere with other users ... so that you don't dry up somebody else's well."

Who owns the water?

In theory, water belongs to everyone. In practice, the right to use water has been granted to many entities, through doctrines that stretch back to the 17th-century Court of Alhambra in Spain and cases that have taken the U.S. Supreme Court a decade to decide.

Everyone gets their share, but some get more than others. Since most users put the water to good use, disagreements are ultimately worked out. But sometimes they've deteriorated to guns and dynamite, and they almost always involve lawyers.

Generally, the first entity to use the water has a right to continue using it. That's why the Turlock and Modesto irrigation districts -- formed in the 1890s -- have the strongest rights to the Tuolumne River. In 1913, when San Francisco wanted to dam the Tuolumne for its use, it had to recognize those rights and negotiate a deal with the TID and MID that is still in effect.

Literally hundreds of water districts and commissions hold rights to water. Essentially, all the state's water is spoken for. But water rights can change.

The Metropolitan Water District, which supplies water for much of Southern California, is considered the 800-pound gorilla of the state's water jungles. Metropolitan owns the water of Owens Valley, it diverts water headed to Mono Lake, it dips into the Colorado River and it has pipes to carry valley water over the Grapevine. Metropolitan constantly is looking for additional water sources -- even pulling water out of the Sacramento-San Joaquin Delta or out of valley aquifers.

How is water moved

Groundwater must be pulled to the surface, most often using diesel-powered pumps. Fuel is expensive and the exhaust creates pollution.

Surface water, once captured, is easier to deal with. It is released from dams or channeled through rivers into the delta -- the most important plumbing system in the state. The delta's 2,100 miles of sloughs and rivers carry water from the Sacramento and San Joaquin rivers into San Francisco Bay or to the pumps of the California Water Project and Delta-Mendota Canal. Water from behind the Shasta and Oroville dams flows down the Sacramento and into this system, as does water from behind New Melones, Don Pedro and most other dams. Some of the water ends up in a pool at the southern end of the valley, where a system of pumps and canals redirects it north to irrigate crops throughout the valley.

Trusting the state's well-being to a 150-year-old system of dikes and levees is a bit unnerving to water engineers.

"Each levee is in essence a dam," said Carl Hauge, chief hydrologist for the state's Department of Water Resources. "To make (the delta) secure would mean 2,100 miles of dam-building, and the expense for something like that is astronomical."

Most agree the delta needs help. The recent Jones Tract levee failure points to problems, as does the flooding that occurs throughout the delta every winter.

Where does water go?

Disposing of wastewater is one of the most highly regulated aspects of water use. Water from sewage can be placed on city-owned land to soak back into the aquifer or it can be released into rivers for more immediate reuse.

Runoff from city streets -- polluted with residues and oils -- is considered a growing problem and has been brought under stricter regulation. Cities are hurrying to find treatments for such runoff.

Runoff from farms -- especially dairies -- has been the subject of enforcement for years. Most farmers are conscientious about disposing of wastewater in properly lined lagoons and not into nearby ditches, where it can reach rivers and ultimately kill fish and other wildlife.

Pesticide- and fertilizer-laced runoff from row crops has long worried water officials. But new requirements for capturing and treating this water are allaying ecological fears.

Most farmers, who have long known the true value of water, are moving to deal with the coming crisis. They're learning better ways to use it and better ways to deal with what's left over.

Facing the future

Those who live in and around Stanislaus County have it good, said Allen Short, MID manager. Water is plentiful and the right to use it is well-established.

Still, California's history is one of water conflict and controversy. Thirty years ago, California's population was 20 million; by 2010, it will be at least 40 million. Twice as many people, same amount of water; there will be problems.

We can't make wise decisions about how to use that water unless we understand where it is, the economic and environmental costs of getting it, and what to do with it when we've gotten our water dirty.

We must preserve what we have, because there's no more out there.

We don't need Bay Area problems

[Merced Sun-Star editorial, Saturday, July 24, 2004](#)

First it was the smog. The Bay Area's vehicular excrement belches into the Central Valley at all hours, further dirtying the already unhealthy air we breathe in the mountainbordered bathtub we call home. There's nothing we can do about it -- the prevailing winds blow it here through Altamont Pass.

Then it was the University of California. For years, the Valley remained the largest region of the state that lacked a campus of the world-class university that is arguably the state's most

important economic engine. While budget prospects now look good for UC Merced, it didn't happen without some serious wrangling with powerful legislators in San Francisco and Los Angeles, who labeled it a boondoggle because it didn't benefit them.

And now the continuing saga of whether convicted Bay Area sex offender Cary Verse will move into a rental home just south of Merced's city limits has become yet another example of how the much larger and wealthier coastal areas use their political and economic muscle to bully the Valley.

Frankly, we're sick of it.

Our message to the Bay Area: Deal with your own problems. We have too many of our own. Consider this editorial a "cease and desist" letter.

We've written here many times before about how the Valley seems always to get pummeled in Sacramento.

Our political leadership lacks sheer numbers and the necessary clout to stand up to the wealthy power bases on California's coast.

As an example of this, the Bay Area -- home to more than a million vehicles -- was for years amazingly exempt from more stringent and costly motor emissions standards that were commonplace here.

It took years -- and considerable political pressure led by then-Assemblyman Dennis Cardoza, D-Merced -- to force Bay Area motorists to clean up their cars to limit smog spewed into the Valley. Indeed, we were bullied for too long.

And what about the "Verse curse?"

A San Jose-area landlord wants to lease out his Merced rental home for \$1,100 a month to Verse, a violent sex offender who has completed his sentence.

Since his release, Verse has bounced from location to location throughout the Bay Area in search of a home, at each juncture encountering resistance from prospective neighbors. Those neighbors were successful in getting him to look elsewhere for housing. Now, that "elsewhere" is the place we call home.

Enough is enough.

Let's look at the stats. As reported in this newspaper previously, Merced already has more than 600 sex offenders living here, three of whom are considered as nasty as Verse. That's too many, we think.

And then there's the socioeconomics. Last time we checked, Merced's unemployment clocked in at around 14 percent, making it one of the nation's highest rates of joblessness. That's way too high, we think.

We're one of the poorest counties in the state, yet we'd be forced to incur additional expense if Verse comes here.

It's hard to predict how much it will cost the county with expenses related to a Verse relocation, including such things as increased patrols around the home.

We don't want Verse. We don't believe that he's no longer a threat. We can't afford him socially or financially.

The Contra Costa judge who will rule on Verse's potential move would do the right thing if he keeps Verse where he belongs -- where he committed his crimes.

We don't deserve to be a dumping ground.

Ready, set, gasp

Triple-digit temperatures mean the sun starts brewing up summer smog.

[Fresno Bee editorial, July 23, 2004](#)

By at least one standard, we've had a pretty good run of air quality in the Valley this summer. Hope you enjoyed it while it lasted.

Forecasters say we're probably in the first major string of 100-degree temperatures of the year. That means bad air ahead. Smog forms in the Valley when the sun's heat cooks up chemicals from vehicle emissions and other sources into a blistering and deadly toxic soup.

Ozone, the main ingredient in smog, can damage human lungs, eyes and skin. It can cause attacks of asthma and bronchitis, and is a factor in other respiratory ailments.

Until Tuesday, we'd had only five 100-degree days in Fresno, compared with 23 by the same date last year. By this time a year ago, we'd already recorded 15 violations of the one-hour, or peak, standard for smog. Until this week, we'd only had one such violation this year.

Using the more stringent eight-hour measurement, the Valley has been in violation of federal standards 44 times this year, compared with 39 for Los Angeles, the former bad air capital of the nation. Children, the elderly and those with respiratory problems are at the greatest risk, though smog causes damage to everyone and everything in the Valley.

The most vulnerable people are advised to stay indoors as much as possible, at least until the evening, when the problem abates somewhat. Indoor air typically contains far less ozone than the outdoors, and what is there is usually rendered harmless fairly quickly.

Other suggestions include driving as little as possible, and not using gas-powered lawn equipment during the worst hours of the day.

Valley smog will get worse as the summer moves along, and it will continue to be a deadly and damaging problem until we begin to get serious about reducing the various emissions that cause it -- mostly from our vehicles.

We've made a useful start on some of the solutions, but only a start. There is so very much more to do before we can really begin to clean up the Valley's dirty air. And the more we learn about the mechanisms of air pollution, the worse the problems appear.

That makes it a grindingly frustrating set of problems to deal with, but we really have no choice, if we wish to go on breathing.

Moratorium good idea

[Letter to the Bakersfield Californian, Sunday, July 25, 2004](#)

The recent articles regarding the proposed dairies near Wasco contained one amazing fact: That local air quality officials were unaware of the huge amounts of dairy manure being trucked into Kern County is hard to believe. One only needs to ask a fertilizer dealer or soil amendment salesperson, and they could have told them it's been going on for years.

Kern County has very strong opinions about Southern California biosolids being brought to the county for agricultural use. These biosolids provide an economic gain to the county as farmers are paid to land apply or compost them. Dairy manure brought into the county by Southern California costs area farmers \$7 per ton in trucking. That's approximately \$945,000 that Kern County is sending to Southern California to help pay for their air quality problems.

Kern officials need to be aware that there are over 300,000 dairy cows in the Chino area that are being forced to relocate due to housing developments and air quality problems. Three hundred thousand cows produce over one million tons of manure per year. Supervisor McQuiston is on the right track in wanting to declare a moratorium on new dairies until a comprehensive environmental impact report is done.

New dairies will create jobs and tax revenue. Kern County needs to make sure those revenues won't be overshadowed by the loss of federal funds and potential fines incurred because of poor air quality.

-- LES MULLER, Porterville

Testing Cow emissions a silly idea

[Letter to the Modesto Bee, Saturday, July 24, 2004](#)

I usually respect scientific endeavors, but I seriously question the antics of the goofy professor at UC Davis who is trying to measure gaseous emissions from dairy cows in an effort to clean our air.

Are we humans next? Will we soon be required by a goofy Legislature to be herded periodically into a bubble to check our emissions? Will dairy cows soon be required to take "Beano" tablets by the ton to improve our air quality? Followed by horses, mules and all other barnyard creatures?

It is time to put a halt to this silliness. We've been testing cars at personal expense for years and we still cough and wheeze violently when we visit Los Angeles or Sacramento in the summertime.

Let us all wear surgical masks as the Japanese do. It's a lot cheaper.

HARRY J. CROMPE

Modesto

No wonder image bad

[Letter to the Bakersfield Californian, Friday, July 23, 2004](#)

Seems to me that city and county planners are more concerned with the money from land developers and an increased tax base, rather than the rights of the existing majority of the populace.

They ignore environmental and increased population issues, such as air pollution, traffic congestion (especially the bottleneck on Highway 178, west of Fairfax), increased sanitation needs and water use, as well as greater demands on an already stretched to the limit police and fire agencies.

Kern County in general is a dumping ground for the south's sewage and the dairies' manure; then they wonder about their image.

-- DIANE WILLIAMSON, Bakersfield