## Frito-Lay plant in Modesto pledged to go lighter on the planet. See how it's doing

By John Holland

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Frito-Lay reports that its Modesto chip plant has cut climate-changing emissions in half since 2019, and could approach zero by year's end.

The company has switched from diesel to electricity or natural gas for 59 trucks and forklifts, a news release said. Another 15 electric semis from Tesla could join them by the end of 2021, completing the fleet's makeover. And solar panels now supply all of the electricity for the plant, up from about 50%

The upshot: Less guilt for consumers about the effect on the planet as their Cheetos, Doritos, Ruffles and other products are made and shipped.

The plant employs about 760 people on Garner Road in the Beard Industrial District, turning out about 162 million pounds of products each year.

Frito-Lay covered half of the $30.8 million cost with a grant from the San Joaquin Valley Air Pollution Control District.

"We applaud the progress Frito-Lay has achieved thus far with its Modesto site project ...," said Sydney Vergis, chief of the Mobile Source Control Division at the California Air Resources Board. It helped arrange the grant.

The effort launched in October 2019 at the 500,000-square-foot plant. It is one of several around the nation where Frito-Lay makes its many flavors of potato and corn chips, along with multi-grain SunChips.

The new vehicles include:

- 38 Volvo tractor-trailers fueled by compressed natural gas for local and regional hauling. This gas still contains carbon but is more climate-friendly than other fossil fuels.
- 12 electric forklifts made by Crown Equipment
- Six electric box trucks from Peterbilt
- Three electric trucks from BYD Motors for use in the plant yard.

Frito-Lay also installed a CNG fueling station for the vehicles, and batteries to store the solar electricity. The power comes from panels on the site, as well as from outside producers through Frito-Lay's purchase of renewable energy credits.

The work so far has brought a 53% drop in emissions of carbon and other climate-changing emissions, said Steve Hanson, senior director of fleet operations, engineering and sustainability for Frito-Lay. They will get close to zero but not vanish entirely because CNG has some carbon content.

Frito-Lay also has cut diesel use by 78% and will use none of this fuel once the electric semis are in use, Hanson said.

Frito-Lay is based in Plano, Texas. It is part of PepsiCo, which makes sodas and many other products and is based in Purchase, N.Y.

"Frito-Lay and PepsiCo are dedicated to reducing our environmental impact, especially in the more than 200 communities where we operate," Hanson said.

The Modesto plant opened in 1990. It has made previous efforts at saving energy and water and reducing landfill-bound waste. In 2008, Gov. Arnold Schwarzenegger helped unveil a system using sunlight to heat the SunChip cooking oil.

## Future of Sierra, Sequoia forests being decided now. How Creek Fire figures into plans

By Carmen George

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New forest management plans that could be in effect for the next 15 years in California's Sierra Nevada are almost complete – using public comments made prior to the catastrophic Creek Fire that burned nearly a third of Sierra National Forest.

The aftermath of that wildfire – the largest single fire in California's history – isn't prompting big changes in national forest plan revisions that have been in the works for years, federal land managers said.

Officials said that's because a previous draft released in 2019 already factored in the probability of future mega wildfires.

"The Creek Fire just validates what's in there ... it puts an exclamation point on the need to get this plan in place," said Sierra National Forest Supervisor Dean Gould.

The final forest plans for Sierra and Sequoia national forests, and their shared environmental impact statement, are expected to be released later this spring or summer. Key goals include reducing catastrophic wildfires, improving ecosystem health and making recreational use sustainable.

The popular forests sit between Yosemite National Park in the north and Sequoia & Kings Canyon National Parks in the south.

Forest plans set the "overall management direction and guidance for each national forest" and not site-specific direction, "such as where to put a recreation trail or what timber will be harvested," the draft environmental impact statement reads.

U.S. Forest Service staff were still sifting through thousands of public comments received in late 2019 about revised draft plans for Sierra and Sequoia when the Creek Fire and SQF Complex hit last summer.

The largest was the Creek Fire (nearly 380,000 acres) in Sierra National Forest, more than double the size of the SQF Complex (over 174,000 acres) which burned a portion of Sequoia National Forest. The Creek Fire destroyed more than 850 structures, most of them homes.

The plans are being looked at again because of those fires.

When that's done, there will only be an "objection phase" – different from the 90-day public comment period in 2019.

Both national forests are operating under old forest plans finalized over 30 years ago. Sierra National Forest's plan was signed in 1991. Sequoia National Forest's was signed in 1988. The regional forester issued an amendment in 2004 in an effort to reduce the risk of catastrophic wildfires.

National forests are asked to revise their plans within 15 years, making the final revisions expected this year long-awaited.

Aside from air quality, these forests directly affect the lives of millions of people in California most prominently via billions of gallons of water that annually flow from these forests into the central San Joaquin Valley.

**WHAT WILL NEW SIERRA NATIONAL FOREST PLAN LOOK LIKE?**

Sierra National Forest's 1.3 million acres extend from around 1,000 feet in elevation to nearly 14,000 feet and include 469 lakes – many of them popular recreation areas, like Bass Lake. The forest is visited by nearly 1.5 million people each year.

Marc Meyer, a Southern Sierra ecologist based in Bishop with the Forest Service's Pacific Southwest Region, is among those working on the forest plan revisions.

People can expect increased work in three areas, Meyer said:

- "Mechanical thinning," removing vegetation to reduce density within a stand of trees, including removing smaller trees.
- Prescribed burns, which are low-intensity fires lit and managed to reduce undergrowth.
- Managed wildfires for resource benefits, such as allowing a lightning fire to burn in the wilderness if it's not a significant threat to structures or air quality.

Supervisor Gould said specifics will depend on which alternative within the planning process is chosen, and that he's able to combine aspects of different alternatives into one.

Forest Service spokespeople highlighted Alternative B and Alternative B modified, which call for the treatment of roughly 175,000 acres over 15 years. Officials said that's roughly 28% of the forest in Sierra National Forest – about the same as what was in the 2019 revision – not counting acreage that's not relevant to vegetation treatments, such as granite rock, lakes and meadows.

Meyer said the percentage is expected to stay about the same because there's still such a "backlog" of untreated forests, even after the Creek Fire consumed thousands of acres.

"Alternative B is the 'preferred alternative' and is reflected in the draft forest plans," the forests' shared draft environmental impact statement reads. "It focuses on active management to restore healthier ecosystems that are fire-adapted, clear direction for managing fisher and California spotted-owl habitat, the development of recreation management areas, and an aquatic and riparian habitat management strategy."

That alternative calls for reducing fire risks near communities by focusing on mechanical thinning and prescribed burning along roads and ridgetops, also in an effort to safely reintroduce fire.

Nearly half of Sierra National Forest is designated wilderness, more remote areas that have more protections. Those include the Ansel Adams, John Muir, Kaiser, Dinkey Lakes and Monarch wildernesses.

"These are not suitable for timber production, and vegetation management treatments for any purpose would be quite constrained," a Forest Service spokesperson said about wilderness areas.

"Practically speaking, designated wilderness or wild river segments would be very unlikely to receive any treatments that involve cutting or harvesting of timber, or trees for any purpose. The most likely and common way for fuel treatments to occur in these areas would be for naturally-ignited wildland fires to be managed for benefits such as restoring the historic fire regime."

Sierra's draft plan notes that only about 141,626 acres of the 1.3 million-acre forest are suitable for timber production, and of those acres not suitable, "timber harvest may occur to protect multiple use values other than timber production, and for salvage, sanitation, or public health."

Alternative B, the preferred alternative, limits the removal of conifer trees larger than 30 inches in diameter, with exceptions for "ecological restoration, safety, and equipment operability."

Conifers is the broad name for trees bearing cones with needle or scale-like leaves, typically evergreen, such as pine trees.

Gov. Gavin Newsom's Forest Management Task Force released a wildfire and forest resilience action plan for California in January that also called for increased fuel treatments. Both the state, including Cal Fire, and the Forest Service aim to double annual fuel treatments by 2025. The report states that the Forest Service will increase annual treatments across its California forests from 250,000 acres a year to 500,000 acres by 2025.

Fresno County Supervisor Nathan Magsig, whose district covers much of the area burned by the Creek Fire, would like to see even more fuel treatments.

Of Sierra National Forest's plan now being revised, Magsig said it will only be "as good as giving certainty to the timber industry, Cal Fire and communities that potentially lie in the path of a future wildfire."

In a February update about the forest plan revision process, the Forest Service announced, "Our work moving forward is focused on updating the forest health, wildlife habitat and timber objectives of the plans and analysis. Minimal changes are expected to update our aquatics, watershed, and recreation management approaches."

The forest plans being revised are somewhat broad like a guidebook, described as "an opportunity to set a collective vision for the future of this landscape." Specific projects, such as cutting trees in a region, would still require separate proposals.

The 2019 revision describes it this way: “Forest plans emphasize strategic decisions about ‘why’ and ‘what,’ and to a lesser extent, ‘when’ and ‘where.’ The ‘how’ decision is generally made at the tactical or project planning level, and includes a set of site specific details of time, place and circumstances of a particular project proposal.”

Gould sees the new forest plan revision as a “cause for optimism” – a tool to increase work they’ve already accelerated in recent years.

Going forward, Gould said there will be a “much stronger emphasis” on shared stewardship, including with nonprofit organizations, volunteer groups and commercial entities, “anyone that we can bring in to help us do the treatments that this plan will call for.”

In the immediate future, he said his office plans to do more salvage work, finding uses for dead and burned wood.

The Forest Service said about 44% of the nearly 380,000 acres consumed by the Creek Fire burned at high severity (with high-severity fire burning between 24% and 64% of various forest types throughout Sierra National Forest).

Conifers are expected to need a lot of help rebounding. The probability that these trees will naturally grow back in Sierra National Forest is low (between 0 and 20%) or moderately low (between 20% and 40%) in 54% of analyzed burned area, nearly 104,000 acres. The need for reforestation work is “very high” in at least a quarter of that burn scar.

In the timber section of the 2019 draft plan, a much smaller area for potential reforestation work is noted: Up to an average of 3,500 acres per year, where needed. An estimate isn’t given in the case of extreme fire.

Meyer said historically, patches of high-severity fire were relatively small, less than 10 acres, with anything above 100 to 200 acres “very rare.” That’s changed in recent years, with more and larger high-severity patches in California mega fires.

There’s been a “complete loss of forest resilience” in some areas, Meyer said, where shrubs are now taking the place of trees. Meyer pointed to patches on the 2015 Rough Fire in Sierra National Forest, the 2014 King Fire in El Dorado County and the 2013 Rim Fire in Stanislaus National Forest as examples.

Barren hillsides devoid of trees can lead to other problems, like mudslides. The Fresno County Sheriff’s Office has a map that shows mudslide risks.

Fewer trees can also lead to water quality issues. Around 800 billion gallons of water annually flows from Sierra National Forest into the San Joaquin River in the north and the Kings River in the south. These rivers provide drinking water and fill 11 reservoirs that help irrigate crops and provide hydroelectric power for the state. A portion of the Merced River, a tributary of the San Joaquin River, is also in Sierra National Forest.

**OBJECTION PHASE COMING, SMALL CHANGES TO PLAN EXPECTED**

The Forest Service has been revisiting public comments submitted before the “uncharacteristically large and destructive wildfires” of 2020 to make sure responses are taking changed conditions into account.

There will be an objection phase when the final plan is released, where those who already submitted comments are allowed to object if they feel what they proposed was not adequately addressed. The Forest Service said there’s no required amount of time for this phase.

Most new information about changed conditions due to the Creek Fire is going into a supplemental report to the environmental impact statement. Because the environmental impact statement itself isn’t being changed significantly, another round of public comments isn’t required, said Tasha Lo Porto, a regional engagement planner with the Forest Service’s Pacific Southwest Region.

“We’re not creating a new comment period because the information is substantially similar,” Lo Porto said.

“There’s also more substantive changes being put in place, too,” Gould added, “just not close to the magnitude of the previous revision.”

Beyond the legality of it, Gould said another public comment period just isn't needed. He acknowledged that some may be asking, "'How in the world could you have such a large fire and so impactful, and yet your plan doesn't change dramatically as a result of it?' I can fully appreciate that perspective."

His answer: There was already a broad range of alternatives in the last revision that took large fires into consideration, informed by others in Sierra National Forest in recent years, including the Rough, Railroad and Ferguson fires.

"The plan really was pretty predictive in being able to treat the landscape as if large fires would continue to occur," Gould said.

Supervisor Magsig said he's OK with the Forest Service not doing another public comment period this year.

"I don't see how those comments will change a whole lot," Magsig said, "and at some point with any plan, you have to just release that and make tweaks going forward."

Magsig said most constituents who talk to him about Sierra National Forest talk about wanting more access to it, including more mountain biking and walking trails.

Gould said there has been a "dramatically increased interest in recreation" in Sierra National Forest in recent years.

"Last summer, from the beginning of the season on, it was almost like every weekend was Fourth of July on the forest," Gould said, "and we're expecting that to continue."

Sierra National Forest has at least 1,300 miles of trails and 2,000 miles of rough graded roads in addition to nearly 400 miles that passenger cars can easily access. About 20 miles of the iconic Pacific Crest Trail passes through the forest.

**THE PLANNING PROCESS**

Lo Porto said the new plan expected this year will allow land managers to more easily do beneficial work, instead of having to file "forest plan amendments for each project, or bend over backwards to satisfy the old plan."

The Creek Fire ignited in an area that had been approved for a fuel treatment project just a couple months prior.

A 2012 Forest Service planning rule provided the framework for this latest revision. The process started nine years ago with an assessment phase in 2013, followed by a proposed action in 2014. Draft forest plans and the environmental impact statement were released in 2016.

Inyo National Forest was working on this process with Sierra and Sequoia, but ended up forging ahead on its own because it didn't have the same tree mortality issues that hit the western slopes of the Sierra Nevada. Inyo's plan was finalized in 2019.

Sierra and Sequoia instead revised their plans again, factoring in thousands of newly-dead trees from bark beetles, drought and climate change, and released another revision in 2019. The last public comment period followed that fall.

There were 7,340 public comments received during that comment period, 634 of which were considered "unique submissions," which means the comments are not identical to other submissions, such as form letters from organizations.

The Forest Service said there were two other formal public comment periods throughout this process: a 30-day window in 2014, and a 90-day comment period in 2016.

**BALANCING INTERESTS, INCLUDING PROTECTING ENDANGERED SPECIES**

Federal land managers are tasked with doing vegetation treatments in tandem with ensuring the survival of thousands of species that call the forest home. Striking that balance can be difficult and lawsuits have arisen, like one filed last year to further protect the California spotted owl.

The Southern Sierra population of fisher, an elusive animal that resembles a weasel, was listed as federally endangered in June.

Gould said he doesn't see reducing fuel in the forest and protecting wildlife as being in a "tug of war" with each other.

"I tend to look at them as all part of the same picture, rather than this or that," Gould said. "The fisher and other endangered species, they have a place on the forest, and vegetation treatments. They all need to be in balance and in compliment to each other and not in detriment to each other."

Sierra National Forest is home to about 350 species of animals and over 1,400 plant species. Of those, at least 45 species of plants and 20 species of mammals, birds, amphibians, fish and invertebrates were listed by the regional forester in 2016 as species of conservation concern. That means there are concerns about that species' ability to exist on a landscape for a long time.

Of Sequoia National Forest's more than 300 species of animals and over 2,000 plant species, 30 species of animals and 45 species of plants were listed as species of conservation concern.

In a Bee story about a burned fisher fleeing the Creek Fire, Craig Thompson, an ecologist and Forest Service wildlife biologist, said the Endangered Species Act, in its best application, can help all – animals, landscapes and people.

"In some ways, the listing can make it harder because there are more hoops to jump through if you want to do vegetation management in fisher habitat," Thompson said. "On the other hand, it also recognizes the fact that management is even somewhat more important to protect what we have."

Teresa Benson, supervisor of Sequoia National Forest, talked about using science to ensure fuel treatments like prescribed burning aren't done during the prime of a threatened species' breeding time – one example of trying to manage fuels in a way that could be less harmful to wildlife.

"The key is having a variety of different tools available that you can utilize to fit the needs of that time and that location," Benson said, "and not relying on any one or two things to be the way it's going to work only. It's got to be really adaptable."

**WHAT WAS HAPPENING WITH LOGGING BEFORE CREEK FIRE?**

Gould said more timber was removed from Sierra National Forest in 2018 than in any single year over the previous 30 years.

"We've hardly been slowing down in that regard," Gould said.

Much of that increase was because of severe tree mortality in the Sierra Nevada. Gould said close to 60% of the forest experienced tree mortality and in some places, the die-off was over 90%. More funding became available to the Forest Service over the past five years to address this issue.

"To date, over 147 million trees lie standing dead across the state," the 2019 draft environmental impact statement reads, "with about 1.4 million acres concentrated on the Sequoia and Sierra forests."

Most vegetation treatment methods aren't commercial logging and timber sales, such as the removal of smaller trees and plants to improve the forest's resiliency to fire.

In 2015, there was about 4,800 logging truckloads of timber taken out of Sierra National Forest – or 24 million board feet of wood. That's about half of what was removed around 20 years ago, and a sliver of what logging was a century ago.

Between 2008 and 2012, Sierra National Forest sold 12.5 million board feet of timber from the forest. The amount actually harvested – cut and hauled off vs. sold – may have differed, officials said.

As of 2016, only about 3,000 acres of the forest had been logged each year for more than 20 years, Gould said in a 2016 Bee story. He said then that no more than a third of the forest may be suitable for logging, and that logging isn't allowed in more than 40% of the forest designated as wilderness.

Gould said the Forest Service in the early 2000s shifted management practices "from timber industry support to a more holistic ecosystem restoration and maintenance objective."

The Forest Service selects which trees can be cut down by contractors. Commercial clear-cutting – removing large swaths of trees – hasn't happened in the forest since the 1970s. There are still three sawmills nearby, in the small communities of Chinese Camp and Standard north of Yosemite, and Terra Bella west of Sequoia National Forest – the last sawmill south of Yosemite, officials said.

**SEQUOIA NATIONAL FOREST PLAN REVISION AFTER 2020 WILDFIRES**

Sequoia National Forest's forest plan revision is separate from Sierra National Forest's, although both share an environmental impact statement.

Sequoia's draft forest plan is being looked at again following last summer's SQF Complex fire. Like the Creek Fire, it was described by the Forest Service as unusually large with higher proportions of high-severity patches and "extraordinary rates of spread."

The SQF Complex was the combination of the lightning-caused Castle and Shotgun fires discovered Aug. 19. (The cause of the Creek Fire still has not been determined.)

Most of the SQF Complex's 174,000 acres was burned by the Castle Fire, with just 841 acres burned by the Shotgun Fire in Sequoia's Golden Trout Wilderness.

The Castle Fire only burned about 6% of Sequoia National Forest, both wilderness and non-wilderness, charring 62,075 acres there, said its forest supervisor, Benson. More of Giant Sequoia National Monument burned, where the blaze ripped through 69,011 monument acres.

Sequoia's non-monument lands are what's being looked at now for the forest plan revision. The 328,315-acre monument is operating under a separate management plan from 2012 that's not being revised at this time.

Only about a third of the 1.1 million acres Benson manages is being looked at now for the forest plan revision, as the other two-thirds is the monument and designated wilderness areas.

Like in Sierra's case, big changes aren't expected to Sequoia National Forest's draft plan since the 2019 revision.

"These fires that we had last year really underscore a lot of what we're working towards with the forest plan revision ... We have a critical need to reduce the fuels that we have in the forest," Benson said, "and that can look like a lot of different things."

Like in Sierra National Forest, Benson talked about shared stewardship and using tools such as prescribed burning, mechanical thinning, and mastication – the grinding or shredding of vegetation – to reduce vegetation. With prescribed fire, the Forest Service also works closely with the regional air quality control board since these fires can impact air quality.

"It's definitely a balance," Benson said.

Fuel reduction is critical as California wildfires are increasingly larger and burning hotter and longer, Benson said.

"The ultimate goal is we want our fires to be at lower intensities," she said, "where they come in and will creep around and consume fuels on the forest floor that don't kill the larger trees."