



TOP 20

Frequently Asked Questions

California's Nature-Based Solutions Climate Targets

Q1: What is a nature-based solution, and how do these solutions support California's goals to build climate resilience and achieve carbon neutrality?

Nature-based solutions that deliver on California's climate change goals are land management practices that increase the health and resilience of natural systems, which supports their ability to serve as a durable carbon sink (lands that absorb more carbon than they release).

Q2: By 2045, what will California's acreage based NBS climate targets deliver?

- 33.5 million acres managed to reduce wildfire risk, mostly through beneficial fire.
- 11.9 million acres of forest managed for carbon storage as well as protection of California's water supply and biodiversity.
- 1.6 million acres of grasslands managed to restore native grasses and protect biodiversity.
- 1.2 million acres of increased greening and protection from wildfire across California's diverse communities.
- 4.2 million trees planted to protect California communities from the climate crisis, remove carbon and increase access to nature where it's needed most.
- 7.6 million acres conserved with protections to avoid conversion.
- 3.4 million acres of croplands managed to boost healthy soils, drought resilience, and below-ground biodiversity.
- 2.7 million acres of shrubland and chaparral managed for carbon storage, resilience, and habitat connectivity.
- 1.5 million acres to protect fragile ecosystems and biodiversity across California's sparsely vegetated lands.
- 233 thousand acres of wetlands and seagrasses managed to protect water supply, deliver carbon benefits, and buffer communities from flooding.

Q3: How is California's land sector organized, and why?

California's land sector is organized into eight land types, defined by dominant land cover – in other words, what is physically at a location. These land types are consistent

with international carbon accounting methodologies and set an aligned foundation on which we can model, analyze, and measure climate action on our lands.

Because the land types are based on dominant land cover, ecosystems may be spread across a mix of these landscapes despite having unique ecological characteristics and management needs. For example, the vast majority of California's deserts are captured within the 43.1 million acres that make up the shrublands and chaparral and sparsely vegetated lands land types. Other land types such as croplands and developed lands also include some desert areas.

Q4: Why do we need NBS climate targets?

Action in our land sector is essential to meeting California's core climate goals:

- Achieve carbon neutrality as soon as possible and no later than 2045.
- Protect people and nature from climate risks here and now, such as record extreme heat, historic drought, devastating flooding, and catastrophic wildfire.
- Build physical, social, and natural resilience to future climate-driven disasters.

The land sector is unique because it can be a source of emissions or a carbon sink – absorbing more carbon pollution than they release.

Q5: Are California's lands a source of emissions, or a carbon sink?

Emissions in the land sector naturally fluctuate, so scientists track long-term trends. While California's lands have been a carbon sink in the past, they are currently a net source of GHG emissions.

This shift is largely due to historic land use decisions, including disconnection from beneficial land management practices utilized by California Native American tribes, and the accelerating impacts of climate change.

Achieving the NBS targets will increase our lands' ability to withstand future climate shocks, reduce emissions from the land sector, and put us on a path to return our lands to a carbon sink.

Q6: So even if we meet these targets, our lands are still going to be a source of emissions in 2045 – what's the point?

The longer we wait to act, the more vulnerable our lands become – and reducing their resilience to the (rapidly accelerating) impacts of climate change reduces their potential to durably store carbon. In addition to undermining our climate efforts in every other sector, allowing our lands' health to decline further profoundly threatens public health and safety, food and water security, economic prosperity, and California's treasured biodiversity.

Q7: Don't some land types naturally emit greenhouse gases, such as methane from wetlands? So, can our lands really serve as a carbon sink?

Yes, lands can serve as a carbon sink even when they are emitting greenhouse gases through natural processes. The movement of carbon in ecosystems is complex, so a very simplified way of understanding the calculation is total carbon sequestered by photosynthesis minus the carbon lost by lands.

- If the answer is a negative number, then our lands are a source.
- If the answer is a positive number, our lands are a sink.
- If the answer is zero, our lands are carbon neutral.

Q8: Can you count multiple practices on the same acre of land toward multiple targets?

Yes. The NBS climate acreage targets are not mutually exclusive; a given acre of land could contribute to multiple targets.

Q9: Why did you choose acres as the metric for the majority of the NBS climate targets?

California's land sector is extremely diverse – different landscapes, different land managers, different management goals, different ways of measuring progress, etc. We chose statewide acres as a metric that:

- Sets a widely understood north star for climate action in the land sector.
- Provides flexibility for implementation.

Annual acreage targets reinforce the fact that effective land management is a consistent, ongoing activity.

Q10: Why are there no avoided conversion targets?

Tracking avoided conversion is extremely difficult. It involves making assumptions as to where and when conversion would have occurred without action, as well as verifying that actions actually avoided the conversion and did not move it to another location or year. Instead, we include conservation targets, which are far easier to track and verify.

Additionally, setting avoided conservation targets assumes that current land cover/land use is ideal and should not be changed. This is antithetical to many of our targets that are about converting one land cover to another (e.g., afforestation, restoration, and greening). This kind of assumption can also run counter to other land use goals. Conservation targets provide much more flexibility to work with other NBS climate targets and other State and local land use goals.

Q11: Who did you engage in the development of these targets?

The NBS climate targets build on years of work including the Scoping Plan, the Climate Smart Lands Strategy, and a multitude of reports and studies performed by state agencies and academics. They also reflect the expertise and experience of:

- Partners across more than 40 State agencies who contributed to their development, review and approval.
- Existing groups driving on NBS climate action, such as the Wildfire & Forest Resilience Task Force, the Environmental Farming Act Science Advisory Panel, etc.
- Feedback received through early tribal consultation and an inter-tribal workshop.
- AB 1757 Expert Advisory Committee written target recommendations, meeting discussions, and public comment at those meetings.
- Public input received during the June – September 2023 comment period.

Q12: How much is this going to cost?

Achieving the NBS climate targets will require high levels of collective action and investment from many partners, including but not limited to federal, tribal, State, and local governments, private landowners and managers, community groups, philanthropy, educators, development companies, scientists, investors, and more.

The targets were developed to reflect the level of climate action required by science to improve land health and resilience in line with the Scoping Plan's carbon stock target. The Scoping Plan's economic analysis estimated the:

- Cost of achieving the carbon stock target is lower than the cost of addressing emissions from California's fossil fuel-based sectors.
- Health cost savings from reduced wildfire smoke emissions is approximately double the cost of achieving 2.3 million acres/year of fuel reduction treatments.

Q13: How will you track progress toward meeting these targets?

Progress will be measured through:

- Regularly inventorying carbon stocks in California's lands, using CARB's [NWL carbon inventory](#).
- Improving California's understanding of what nature-based solutions are being implemented across all landowners, managers, communities, and funders.
- Utilizing CARB's forthcoming standard methods to track NBS climate action.

California will release a report on our progress toward achieving the NBS climate targets every two years.

Q14: How do the State's NBS targets relate to the EAC recommendations, and why don't we see some of their target recommendations reflected at all?

Of California's 81 NBS climate targets, 47 broadly align with or exceed the EAC's target recommendations. All remaining 34 state targets simply do not have a corresponding EAC recommendation for a particular target year. Seven targets recommended by the

EAC centered on areas of focus out of scope with the state NBS climate targets, such as targets for NBS research, investment, and planning.

Many EAC recommendations focused on implementation pathways for achieving their proposed NBS climate targets. These pathways will inform the 2025 update to our Climate Smart Lands Strategy, called for in AB 1757.

Q15: Is beaver restoration a nature-based solution identified in these targets?

Yes!

Q16: How do the NBS climate targets relate to the Scoping Plan?

The Scoping Plan is limited to considering NBS actions that (a) can be modeled and (b) have sufficient data to quantify their carbon impact. The NBS climate targets were not limited by this constraint. They include all practices considered in the Scoping Plan, as well as many practices we know increase the health and resilience of our lands and expect to learn more about their climate mitigation potential as science evolves.

For example, the wetlands restoration actions in the Scoping Plan Scenario were limited to Delta wetlands and amounted to 3,000 acres of restoration per year. The NBS climate targets included restoration of all California's diverse wetland types and call for 9,200 acres of restoration per year.

Q17: How do these targets add up to the carbon stock target in the 2022 Scoping Plan?

All of the practices considered in the Scoping Plan are incorporated into the NBS climate targets. In some cases, the NBS climate targets decrease ambition – for example, by ramping up climate action in our forests at a more gradual pace. In other cases, they increase it. For example:

- The Scoping Plan modeled 1,500 acres of desert conservation annually by 2045. Desert conservation largely falls under two sets of targets in the NBS climate targets: sparsely vegetated lands conservation and shrubland and chaparral conservation. The former calls for conserving 20,000 acres annually in 2030, ramping up to 40,000 acres annually by 2045. The latter calls for approximately 104,600 acres annually.
- The Scoping Plan modeled 78,000 acres of healthy soils practices on croplands. The NBS climate targets call for implementing healthy soils practices on 140,000 acres of croplands in 2030 and ramp up to 190,000 by 2038.

The next Scoping Plan update will require a new modeling effort to better quantify how these expanded actions will impact carbon stocks into the future.

Q18: Are the NBS conservation climate targets in conflict with the state's commitment to 90% clean energy by 2035; 95% by 2040; and 100% clean energy by 2045?

We do not anticipate conflicts between the NBS climate targets and our clean energy goals. Conservation and clean energy development can coexist with coordinated planning that supports implementation of the targets. The broad and aspatial nature of the NBS climate targets allows for flexibility in implementation to ensure that we meet both the targets and our clean energy goals.

Q19: How do these targets relate to 30x30?

Conservation is defined more broadly than under the Pathways to 30x30 strategy. Acres conserved that count toward 30x30 will at times contribute to implementing our NBS climate targets and at other times will not. While some actions called for in these targets will result in new 30x30 Conservation Areas, others may be complementary conservation measures, which are areas or actions that provide benefits to biodiversity but do not meet the specific definition of 30x30 Conservation Areas.

As defined in the April 2022 Pathways to 30x30 California Report, 30x30 Conservation Areas are “Land and coastal water areas that are durably protected and managed to sustain functional ecosystems, both intact and restored, and the diversity of life that they support.” This generally includes GAP 1 and 2 for land and Marine Protected Areas coastal waters from the California Protected Areas Database, California Conservation Easement Database, and U.S. Protected Areas Database and the Gap Analysis Project.

Q20: How do these targets relate to the state’s housing goals?

The NBS climate targets are broad and flexible in ways that can support coordinated planning efforts and alignment with the state’s housing needs. Specifically, the [Statewide Housing Plan](#) identifies the need to produce more affordable and climate-smart housing. California leads the way in ensuring new housing built is resilient to climate change through efforts such as furthering infill development and updating the CALGreen building standards. The NBS climate targets support these efforts by providing resilience opportunities, such as extreme heat mitigation through community greening and wildfire risk reduction.