Conservation Colorado

CoPIRG

PERMIT POWER

Removing Permitting Barriers to Home Energy Production in Colorado

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Executive Summary

Installing residential solar and battery systems is a key step in the clean energy transition, one that's critical to reducing reliance on fossil fuels in the home and promoting energy independence. Many local governments in Colorado, however, create unnecessary hurdles to solar adoption by employing inefficient, outdated, and burdensome methods for permitting. These obstacles lead to uncertain timelines, delays, and increased expenses for homeowners looking to go solar, as well as increased costs for local governments.

Cumbersome permitting processes can result in egregious wait times, a strong deterrent to families looking to install solar and battery systems. In 2023, Colorado jurisdictions had some of the longest solar permitting timelines in the western U.S. In El Paso County, the majority of solar projects take more than four weeks. In Arapahoe County, the majority take more than 10 weeks.[1]

As a result of these problems, fewer families are able to go solar than otherwise would. In Colorado, around 16 percent of residential solar projects that begin the permitting process are canceled,[2] often due to permitting barriers.[3] Those families who do succeed in installing solar likely end up paying more. The Solar Energy Industries Association estimates that permitting and related bureaucratic costs, such as in-person inspections, add $6,000 to $7,000 to the typical residential solar system.[4]

Cutting unnecessary red tape in local solar permitting through the use of instant permitting and remote inspections will allow more Coloradans to reap the benefits of rooftop solar power while reducing administrative burdens for local governments.

This report looks at some of the common problems facing residential solar and battery storage permitting in Colorado, as reported by representatives from the companies now installing solar across the state. These problems include:

- **Widely varying submission requirements.** Solar installers in Colorado typically operate across multiple cities and counties, meaning they are obliged to coordinate with many different local governments, each with its own processes, requirements, and preferences. Learning to navigate these systems and tailor plans to each set of requirements takes staff time and raises costs for customers.

- **Varying certification and licensing requirements.** Just as submission requirements differ between local governments, so do certification and licensing requirements, which means installers have to be prepared to obtain an array of sometimes overlapping or redundant accreditations, some of which come at significant cost.

- **Communication difficulties.** Poor communication protocols and understaffing in local governments can exacerbate the challenges posed by requirements that differ among jurisdictions and aren't always necessary, increasing the likelihood for delays.

- **Requirements not related to safety.** While plan reviews and inspections can be useful to ensure the safety of a solar system, some local governments complicate and slow the permitting process with other, unrelated considerations, such as closing outstanding permits for home renovation projects irrelevant to the solar and requiring homeowner association approval.

- **Difficulties with inspections.** Coordinating with inspectors in the field after the solar system has been installed can present a number of challenges, especially around scheduling.

- **Long timelines in Arapahoe County.** In one county, an unnecessarily complicated permitting process leads to profoundly long timelines. The wait time for an initial permit review is more than 10 weeks, and that can stretch into six months or more with changes or corrections.[5]

- **Permitting complexity in new construction.** While Colorado's current boom in new home construction brings tremendous opportunity for increased residential solar development, some local governments' permitting processes for solar on new construction add unnecessary complexity, leading to delays.

Reducing the time and cost involved in moving a solar project through the permitting process, from application through inspection, is critical to expanding residential solar access in Colorado. Streamlining the solar permitting process is an easy, local, and rapidly scalable solution for getting more clean energy into our communities while saving families and local governments time and money.

Policy Recommendations

State and local governments should remove unnecessary permitting barriers to residential solar panels and battery storage by adopting instant permitting and remote inspections. Governments should seek to facilitate adoption of solar panels and battery storage while still protecting health and safety. Because this red tape is not the only obstacle to residential solar projects, state and local governments should also seek to address other hurdles, such as by encouraging clear and consistent requirements across jurisdictions and reconsidering requirements unrelated to health or safety. These improvements should apply to solar projects that include home batteries and main panel upgrades.

Adopt Instant Permitting

One of the most effective ways to remove permitting barriers to families installing solar is to issue permits for code-compliant systems instantly. Instant permitting platforms ask the contractor a series of questions to verify the solar system's design is up to code and then approve the permit application automatically, allowing installation to begin. SolSmart, a federally funded program that recognizes local governments for encouraging solar development, has set instant permitting as the standard to receive platinum level certification.

The most common instant permitting platform is SolarAPP+ (Solar Automated Permitting Platform), which was developed by the federal Department of Energy's National Renewable Energy Laboratory beginning in 2019 and is now being run by a non-profit, the SolarAPP+ Foundation.[6] Since SolarAPP+ launched in 2021, 220 cities and counties in 11 states across the country have adopted the platform.[7] Many other cities and counties offer instant solar permitting using private-sector platforms such as Symbium or by building their own software.[8] While SolarAPP+ and Symbium are free for jurisdictions to adopt, the Colorado Energy Office has launched a grant program that provides funding to local governments to implement the platforms.[9]

Allow Remote Inspections

Once a residential solar project is permitted and constructed, installers should have the option for a remote inspection sufficient to guarantee the safety of the system. The permitting office or a qualified and licensed third party should be able to conduct the inspection, either via photos or recorded videos. Such inspections eliminate the need for the installer to make an additional trip to the job site at a later date and wait, frequently for hours, for the inspector to arrive. The National Fire Protection Association (NFPA) has created a standard for remote inspections and the International Code Council (ICC) has created recommended best practices. These inspections should be offered at no greater cost, and should be available with no greater delay, than in-person inspections.

Additionally, no more than one inspection per project should be required unless the project fails its first inspection. In the event that different government units conduct inspections on different components of the system, the government units can sign memoranda of understanding to consolidate the inspections into one. This may require additional training for inspectors, so that, for example, a single inspector can perform both a building and an electrical inspection.

Image Source: Devonie McCamey / NREL via Gov. Works

Introduction

Colorado has made significant strides in recent years to expand access to rooftop solar and other clean energy upgrades for the home. In 2023, the state developed a model solar-ready and electric-ready building energy code that requires all jurisdictions updating their building codes over the next several years to include a provision mandating that new homes and buildings be pre-wired to accommodate future solar panels, electric vehicle charging stations, and high-efficiency electric appliances, minimizing the cost of installing this infrastructure at a later date.[10]

Also in 2023, the state created the Streamlined Solar Permitting and Inspection Grant Program, which provides nearly $1 million to help local governments streamline their solar permitting processes through the adoption of instant permitting software.[11] The City and County of Denver has already adopted instant permitting, reducing permitting wait times for most residential solar installations from 30 days to zero days and saving over a thousand hours of staff time annually.[12] And in early 2024, Colorado received $156 million in federal funding to support rooftop solar installations and community solar programs in low- and moderate-income Colorado communities.[13]

Colorado has set nation-leading climate goals, such as committing itself to 100 percent net-zero greenhouse gas emissions by 2050.[14] Renewable energy is the least expensive source of electricity, and Colorado plans to have more than 80 percent of its electricity come from renewable sources by 2030.[15] Installing more rooftop solar and home batteries gives Coloradans the freedom to produce their own clean energy and is a key solution for meeting our climate goals. Eliminating obstacles to solar permitting is one of the most efficient ways we have of encouraging adoption.

Currently, however, many local jurisdictions in Colorado make it more difficult and costly than it needs to be for residents to go solar. While the cost of solar technology has continued to fall, permitting remains a significant obstacle to widespread residential solar deployment.[16] Long, cumbersome, and uncertain permitting processes discourage the adoption of solar and increase costs. As the permitting coordinator at one Colorado solar company put it: "It's paperwork for weeks, and then the crew comes in and only takes two to three days to actually install the system. Then it's two to three more weeks for approval to operate and turn the system on. Pretty much the entire wait for somebody putting solar on their house is red tape."[17]

These problems have a direct impact on solar adoption in the state. In Colorado, 16 percent of residential solar projects that begin the permitting process are ultimately canceled.F[18] Contractors cite permitting delays as the biggest reason for the cancellations.[19] In some jurisdictions, such as Arvada and Boulder, the cancellation rates are as high as 25 to 29 percent.[20] And those customers who do succeed in installing solar likely end up paying more as contractors must pass on the sunk costs of cancelled projects. The Solar Energy Industries Association estimates that permitting and related bureaucratic costs add $6,000 to $7,000 to the typical residential solar system.[21] One recent report by the International Renewable Energy Agency found that the price for residential solar in

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the U.S. is roughly double the price in European peer countries, where permitting barriers have been effectively eliminated.[22] Delays also result in increased costs for unrelated industries that require their own permits, such as for new housing construction, which are then themselves delayed by solar permit backlogs.

Expanding access to residential solar is a matter of racial and economic justice, and permitting obstacles place a particular burden on residents in disproportionately impacted communities (those subject to higher environmental and health burdens). According to the Colorado Latino Climate Justice Policy Handbook, Latino homeowners and renters face unique financial barriers to accessing renewable energy. Nationally, predominantly Latino neighborhoods usually have fewer rooftop solar panels than other neighborhoods.[23] By decreasing permitting time in Colorado, we can break down this barrier and ensure more communities can afford to reduce their residential fossil fuel emissions.

Removing permitting barriers can allow for faster installations, cut the price tag of a solar system by thousands of dollars, and increase consumer satisfaction.[24] More efficient processes also benefit local building departments, as staff can shift their attention to more complex projects, such as new housing. Allowing homes to receive solar permits instantly could take thousands of solar installations in Colorado out of the permitting queue each year, allowing building departments to permit other construction projects more quickly.[25]

An Overview of Permitting in Colorado

There are two phases to the traditional permit approval process for a residential solar system in Colorado. First, the installer contracted to build the system submits plans to the city or county in which the property is located for review – generally to the building department. These reviews help to ensure that solar panels and batteries are installed safely and do not present a threat to homeowners or others. Some of the considerations plan reviewers typically take into account include whether the solar contractor has the correct licenses to perform the work; whether the project complies with applicable building and electrical codes (establishing that the panels won't be too heavy for the roof they are mounted on, for example, or won't blow off in high winds); and whether the project is properly designed in relation to the electrical grid.

In Colorado, building codes are primarily adopted locally, which means every town, city, or county determines which version of the national code it will adopt.[26] State law does, however, require any

local government updating its building code over the next several years to adopt and enforce both the 2021 International Energy Conservation Code and the Colorado Model Electric Ready and Solar Ready Code.[27] The latter mandates that all new residential construction be prepared for rooftop solar, electric vehicles and high efficiency electric appliances.[28] Most local governments also have their own clerical processes and requirements for solar permits, and these can vary widely from locality to locality.

When a plan is found not to meet the code, or fails to fulfill some other requirement, the authorizing department will send it back to the installer for revision. This back-and-forth can be time-consuming and drive up costs, for both staff time and fees for resubmission. In some cases, a permit application will be passed among multiple reviewers or departments for review of different aspects of the plan (electrical, structural, fire, etc.). Some smaller governments outsource the plan review process to a third party. Once the system is approved by reviewers and the installer pays the permitting fees, the government issues the permit. Turnaround times for this portion of the process range from one day to several months. In Colorado, the average for governments employing traditional permitting is 13 days.[29]

After receiving the permit, the installer is cleared to build the system, which typically takes only two or three days. Then, in the second phase of the approval process, the installer must again coordinate with the local government to schedule an inspection. The role of the inspector is to verify that the installation conforms with the plan and meets building codes. The inspection timeline generally ranges from two or three days to two weeks. In Colorado, the average is 11 days.[30]

Image Source: Dennis Schroeder / NREL via CC BY-NC-ND 2.0

In some jurisdictions in Colorado, the state conducts electrical permitting and inspections.

For cities and counties that employ instant permitting – in Colorado, the City and County of Denver and the Town of Bennett[31] – the plan review phase is automated. In that case, the installer submits information pertaining to the system to an online portal, which is built to contain all the codes and standards required by the governmental body. If some item in the plan is out of compliance, the app instantly informs the installer and gives them the opportunity to revise and resubmit. When a submission is compliant, the installer receives approval immediately.

The most common instant permitting platform, SolarAPP+, also provides checklists for inspectors to verify installation procedures and adherence to the approved design.[32] This process has the potential to make inspections far more consistent and standardized. SolarAPP+ also allows an installer to take photographs or video with a phone to fulfill those 10 points and upload it for inspectors to examine remotely.

In addition to obtaining a permit and system approval from the local government, the installer will need to go through a parallel process with the local utility to obtain its approval for interconnection with the electrical grid. This process also causes delays, increased costs, and frustration, but these issues are beyond the scope of this report.

Common Permitting Problems

This report looks at some of the common problems facing residential solar and battery storage permitting in Colorado, as reported by local solar installers. Permitting authorities were also consulted to determine how the problems affecting solar permitting in their regions impact their ability to provide solar to families in the state efficiently and affordably. Two local governments in Colorado have recently adopted instant permitting: the City and County of Denver and the Town of Bennett. This report focuses primarily on the governments still employing traditional permitting processes.

The following section details some of the most common problems reported in the state.

Widely Varying Submission Requirements

Solar installers in Colorado typically operate across multiple cities and counties, meaning they are obliged to coordinate with many different local governments on a regular basis. Of the installers interviewed for this report, the smallest works in three counties and submits permit applications in eight jurisdictions. The largest works across 10 counties and more than 55 jurisdictions.

Each local government has its own processes, requirements, and preferences. The guidance governments publish for these processes can be difficult to locate, buried deep in city and county websites, amid pages and pages of PDF checklists. These protocols are often highly detailed and differ widely from one another, even between neighboring governments. A few examples:

- The City of Fort Collins requires solar plans to be submitted first by email and subsequently, when resubmitted with corrections, through an access portal requiring a user account.[33] A three-page submittal guide published by the building department includes a whole page of specified file naming conventions – prefixes required for each document type – which differ depending on the stage of submission.[34]

- The City of Rifle requires plans to be submitted both physically and digitally: two copies printed on letter-sized paper and mailed or delivered to the office in person and one digital copy emailed or delivered on a flash drive.[35]

- Arapahoe County's multipage applicant guide has no fewer than 21 bullet points pertaining to formatting requirements for electronic documents, all "subject to change without notice."[36] Missing any of these requirements can be a big problem because the wait time is already unusually long to begin with and returned applications will add several more weeks.[37]

Given that most installers operate in multiple cities and counties, this variability can be highly burdensome. It increases compliance costs for installers both directly, for time spent preparing permitting applications, and indirectly, for time spent learning how to navigate different permitting requirements across governments. It also increases the likelihood for revisions and thus delays.

Delays are more than an inconvenience. They impede installers' ability to accurately schedule projects for installation and set expectations with customers. They frustrate customers and lead to cancellations. All of these factors increase the costs of a solar installation and ultimately deter the adoption of solar. Delays also result in increased costs for unrelated industries that also require permits, such as new housing construction, which suffer from the backlog.

These costs and delays are particularly unwarranted when the requirements in question boil down to administrative preferences rather than operational considerations, given that they could be so easily avoided with a standardized process.

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Varying Certification and Licensing Requirements

Just as submission guidelines differ among local governments, so do certification and licensing requirements, which means installers have to be prepared to obtain an array of sometimes overlapping or redundant accreditations, some of which come at significant cost.

Local governments individually determine who is qualified to install residential solar systems within their jurisdictions, and certification requirements can vary widely. For example, the Town of Carbondale requires applicants to be certified by either the Colorado Solar and Solar Association (COSSA) or the North American Board of Certified Energy Practitioners (NABCEP) in addition to possessing a contractor's license for the Town of Carbondale.[38]
In Garfield County, by contrast, there is no requirement for certification by a trade association, and all permitting is completed through the Colorado Electrical Board.[39] Summit County requires a NABCEP certification as well as the presence of a master electrician or registered electrical contractor on the company's staff.[40] Some requirements are reasonable on their own, but managing the variety of standards between governments can be onerous.

Installers who work in multiple cities and counties must also maintain a range of local and regional licenses, some of which require significant resources to obtain. Many governments require solar installers to obtain a local contractor's license in order to do business in their jurisdiction. One installer says they had to get a county contractor's license in Moffat County to obtain just one permit.[41] The process of obtaining this license required four or five references – an extra step not required elsewhere in the state.

Different certification and licensing requirements can become burdensome when obtaining them requires significant effort or cost. A NABCEP certification, for example, involves documentation of work experience or enrollment in a several-day paid class, in addition to sitting for an exam and paying application and certification fees totaling $500 or more.[42]

Communication Difficulties

Navigation of widely varying requirements is made far more difficult by poor communication protocols and understaffing in local governments, increasing the likelihood for delays.

The Town of Carbondale recently began requiring structural stamps on some permit applications, one installer reports, but details about when the stamp is required were unclear.[43] The necessary information was not available on the town's website, he found, and when the application was returned for revision, the installer had to engage in multiple email exchanges with the Town of Carbondale to clarify the requirements. This back-and-forth led to a three-week delay.[44]

One installer recounted reaching out to the Pikes Peak Regional Building Department multiple times by phone and email with a question regarding a NABCEP certification requirement.[45] He wanted to know whether the region requires the company to have a NABCEP-certified employee on staff, or if a NABCEP stamp on the building plans is sufficient. A stamp can be purchased from a third-party engineering company, but a staffing requirement would be more difficult to fulfill. He was unable to reach anyone who could answer this question. When contacted for clarification by the authors of this report, a permit tech in the department was likewise unable to answer this question.[46] She referred questions to a public relations representative, who did not respond to further calls or emails.

In the city of Rifle, the permitting process involves both mail and email, resulting in a hybrid system of paper and electronic submissions. The tracking system for this multi-format process is disorganized, one installer reports, with no system in place to automatically notify installers of the progress of their applications.[47] This installer recalls a particular project in which the city's failure to notify him of approval resulted in a delay in scheduling the installation. With multiple projects in progress at all times, such a delay can have a significant impact, creating a cascade of scheduling issues among projects.

Douglas County similarly offers no indication of project status or automatic notifications to inform installers when a permit has been approved.[48] One installer relates that he frequently has to reach out to the county by email or phone to understand where a permit is in the process and wait two to three business days for a response.[49] Communication is further complicated by the fact that the application must go through multiple reviews – both a plan and an electrical review for a roof mounted system, and an additional zoning review for a ground mounted system – all processed by separate reviewers.[50] This increases the potential for delays in a process that installers agree already takes too long.

Requirements Are Not Related to Safety

Plan reviews and inspections are reasonable to ensure the safety of a solar system, but some local governments complicate and slow the permitting process with other, unrelated considerations.

In the city of Westminster, for example, one installer recalls an instance when an inspector wouldn't pass a solar project because a previous home renovation, completed nine years prior, had not been correctly permitted.[51] The homeowner and the installer had to spend a lot of time and effort to track down the contractor who had worked on the home under a previous owner in order to find a permit and fix a detail on the home that was not related to the new solar installation. Guidance in this area from the Sustainable Energy Action Committee, a national forum supporting best practices in solar permitting, codes, and standards, recommends that such a project should be permitted without requiring a correction of the earlier problem, since that problem was unrelated to the solar and posed no immediate danger to the property.[52]

Image Source: Dennis Schroeder / NREL via CC BY-NC-ND 2.0

In some towns, such as Avon and Gypsum, the building department requires homeowners association (HOA) approval before issuing a permit.[53] A city planner in Avon reports that the town's Community Development Department can sometimes be caught in the middle between absentee homeowners and HOA representatives.[54] In some cases, an HOA covenant may not clearly allow a given solar project even if both the homeowner and the HOA are in favor of it, in which case the town cannot approve the solar permit until the HOA covenant is revised to allow the project.[55] This becomes challenging in a town like Avon where many homeowners, and by extension many HOA members, own multiple homes and can be difficult to reach when they are out of town.

Difficulties With Inspections

Coordinating with inspectors in the field after the solar system has been installed can present a number of challenges for installers, especially around scheduling.[56] Building departments generally give installers a two- to three-hour window in which to expect an inspector. In some cases, however, the installer won't be informed of that window until 8 a.m. on the day of the inspection. So the installer's electrician, generally paid by the hour at a high rate, is obliged to go to the site and wait hours for the inspector to appear, wasting time and money. This can be especially difficult for installers located several hours away from an installation site.

"It's concerning to be told at 8 a.m. on a Tuesday morning that the inspector will be at the location between 8 a.m. and 10 a.m. and we are four hours from the installation," says one installer.[57] "Or worse, they don't give us a time and say that the inspection will be on Tuesday and that a ladder needs to be there along with a person to remove solar panels so they can inspect the electrical. This means that an employee needs to hang around all day waiting for them."

It's not uncommon, say installers, for inspectors to fail projects without providing specific feedback on the reasons for the failure.[58] In some cases, different inspectors sent to the same job site have conflicting opinions on what needs to be fixed. This lack of clarity leads to confusion for installers and repeat site visits. In some jurisdictions, each visit results in additional fees, increasing the financial burden. One installer describes this practice as "bullying" rather than a collaborative effort to ensure safety.

"They may or may not tell you exactly why you failed, they just fail you," this installer says. "And then you fix what they might have said that failed. And then they'll find something else that they could have found before. Then they send a different inspector, and this different inspector has their own ideas about what needs to happen."

In many cases, installers say, the function of the inspection is simple enough that photographs or videos would suffice.

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Long Timelines in Arapahoe County

In Arapahoe County, an unnecessarily complicated permitting process leads to profoundly long wait times. The median wait time for a solar permit in Arapahoe County is 52 business days, or more than 10 weeks – and this only covers the initial review.[59] The timeline can increase to as much as six or seven months if the application requires changes or corrections.[60]
For example, Arapahoe County mandates separate permits for solar systems, battery storage systems, service upgrades, and electric vehicle (EV) chargers instead of including all of these on a single permit, as is common in other jurisdictions.[61] If an installer has a solar project that includes batteries, an EV charger, and a service upgrade, for instance, they are required to submit at least four separate permits for the same job. That's four separate permits with separate sets of requirements (each up to six pages long[62]), separate plan reviews, and separate individual reviewers on staff, all of whom operate on varying timelines. In many other counties, all of these aspects would be included on a single permit application, subject to a single plan review process.

Given the wide array of differences in local governments' requirements, it is easy to see how an installer might omit a minor detail or two on applications. When this happens, however, the application is considered incomplete and the applicant is forced to revise and resubmit the application. However minor the omission, these resubmittals can cause significant delays. The frustration is heightened when the requirements are not clear to begin with.

Arapahoe County's list of clerical, code, and licensing requirements is also longer and more complicated than those in most other jurisdictions, leaving a lot of room for mistakes and inadvertent omissions.[63] An incomplete application will be returned without review, and the wait time upon resubmission is unusually long – at least 30 business days to be reviewed, according to a permit tech at the county.[64] In other words, an installer could conceivably wait 10 weeks from their initial submission to hear that they missed a single requirement and will have to wait another six weeks for the application to be reviewed again.

The permit tech attributed the county's long delays to low staffing, but also blamed installers for paying too little attention to the county's published requirements.[65] "Ninety percent of the reason [permitting takes so long] is because nobody reads anymore," she says. Either way, it is clear that Arapahoe County's long timelines would improve if the county adopted a clear, consolidated permitting process.

Permitting Complexity With New Construction

Colorado is experiencing a boom in new home construction, with many homes being built in the Denver metro area, elsewhere along the Front Range, and in the Roaring Fork Valley around Aspen and Glenwood Springs.[66] With this boom, and the solar mandates on new construction that some governments have adopted[67], comes tremendous opportunity for increased residential solar development. In some places, however, the local governments' permitting processes add unnecessary complexity, especially when it comes to verifying compliance with these mandates.

In Pitkin County, for example, a solar mandate involving new construction requires builders to provide proof of having an approved solar permit prior to obtaining a build permit.[68] The process for permitting new construction for an entire property, however, can take up to two years. By the time contractors are ready to build, the solar permit has often expired – they usually expire in a year or less – and the customer and installer have to pay for a second set of solar plans and go through a second permitting process.[69]

Likewise, any changes to the general contractor's building plan between the original proposal and construction require revision and resubmission of the solar permitting plan set, causing delays as each contractor waits to resolve the red tape specific to their portion of the project. By making the solar permit separate from the master lot plan, this local government is causing unnecessary delays in the construction of new homes and hindering the deployment of its own solar mandate.

Conclusion

Since the City and County of Denver adopted instant permitting in 2023, Denver has been able to route hundreds of incoming solar applications through the platform.[70] This simple innovation has reduced the permitting timeline for applicable solar systems from an average of 30 days to zero days, while saving city staff an estimated 829 hours in staff review time as of July 2024.[71]

Cutting through the red tape of the solar permitting process will make it easier for solar installers to understand the permitting process, follow the steps of the permitting process, and receive verification of the plans instantly, without the risk of costly delays. It will help more Colorado families enjoy the freedom of going solar, saving them money and reducing their contribution to air pollution and climate change. It will also save local governments time and money on unnecessarily complicated permitting processes and help relieve permitting backlogs now limiting the growth of new construction and other industries. Streamlining solar permitting in Colorado will free up resources to process more solar projects, helping move the state toward its climate goals.

Methodology

Research for this report relied on video and phone interviews with representatives from eight solar companies whose residential photovoltaic operations cover the majority of geographical regions in Colorado, as well as parts of Northern New Mexico. Interviewees were typically those most familiar with that organization's permitting practices – usually the company's permitting coordinator, as well as a sales director and a CEO. Researchers also consulted representatives from 13 of the 15 local governments that were discussed in the conversations with solar installers, as well as those governments' websites. These representatives included permit technicians, city planners, and electrical inspectors. Details concerning the two local governments that were not reached by phone were confirmed through those governments' websites. Interviews took place from October through December 2024. The majority of the Colorado solar installers interviewed did not want to be named in this report, so all names have been omitted.

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Endnotes

1 These timelines are based on samples. Data compiled by Ohm Analytics (https://cleancode.ohmanalytics.com)

2 Average is drawn from 18 cities and counties for which data is available. Excludes the two jurisdictions that have adopted instant permitting (the City and County of Denver and the Town of Bennett). Data compiled by Ohm Analytics (https://cleancode.ohmanalytics.com).

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10 Cities and counties with building codes are required to adopt this code when adopting or updating any building code between July 1, 2023, and June 30, 2026. Not all have currently done so. Colorado Energy Office, "Colorado's Building Energy Codes and Toolkit," https://energyoffice.colorado.gov/building-energy-codes-toolkit.

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14 Colorado Climate Action, "Climate Change Goals & Actions," https://climate.colorado.gov/colorado-goals-actions-main-page.

15 Colorado Climate Action, "Climate Change Goals & Actions," https://climate.colorado.gov/colorado-goals-actions-main-page.

16 Michael Woodhouse, et al., National Renewable Energy Laboratory, Reflections on 15 Years of PV Module and System Price Declines and Where Things Go From Here," July 29, 2024, https://www.nrel.gov/docs/fy24osti/90639.pdf.

17 Zoom interview with the project coordinator of a Fort Collins-based solar installation company, October 30, 2024.

18 Average is drawn from 18 cities and counties for which data is available. Excludes the two jurisdictions that have adopted instant permitting (the City and County of Denver and the Town of Bennett). Data compiled by Ohm Analytics (https://cleancode.ohmanalytics.com).

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44 In regard to information about permitting and submission requirements, a permit tech we spoke to at the Town of Carbondale claimed that "everything is on the website" (contrary to the installer's experience). In regard to the unclear communication, she stated that because a third-party platform manages the review process on behalf of the town, the "Town of Carbondale is not part of the review conversation." Phone interview with Town of Carbondale Permit Tech, November 5, 2024.

45 Phone interview with Otero County-based solar installation company, October 24, 2024.

46 Phone interview with Pikes Peak Regional Building Department permit tech, October 6, 2024.

47 Phone interview with Mesa County-based solar installation company, October 29, 2024.

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50 Phone call with solar installation company based in Denver and Boulder, November 19, 2024.

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55 The town will not approve a project that contravenes the HOA covenant. Phone interview with Max Morgan, Planner, Community Development Department, Town of Avon, November 6, 2024.

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58 Phone interview with Otero County-based solar installation company, October 24, 2024.

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64 Phone interview with Arapahoe County permit tech, November 7, 2024.

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