# Unleashing Maryland's Residential Solar Market

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CHESSA | GOOD AIR | SIERRA CLUB MARYLAND CHAPTER | PERMIT POWER

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# EXECUTIVE SUMMARY

Maryland's ambitious clean energy goals depend heavily on the rapid deployment of residential rooftop solar and battery storage. This expansion is critical for meeting state climate targets and for providing significant financial relief to Maryland households facing sharply rising electricity costs.
Despite this critical need, the residential solar market in Maryland today is severely hampered by fragmented, inefficient, and unpredictable administrative processes imposed by counties, cities, electric utilities, and homeowner associations (HOAs). These obstacles add thousands of dollars of "soft costs" to a typical installation, delaying homeowner energy bill savings and stifling market growth. Even with recent progress towards permitting automation, continued policy action is needed.

**Key challenges include:**

- **Permitting Delays:** The state average for permit approval is 10 business days, which is double the national average. Timelines in some jurisdictions exceed two months due to a reliance on outdated, paper-based systems, staffing shortages, and a lack of process standardization.
- **Inconsistent Regulations and Fees:** Significant variability in local code requirements, subjective interpretation by reviewers, and wildly inconsistent permit fees—ranging from $100 to over $900 for the same scope of work—create business uncertainty and drive up prices statewide.
- **Inspection Bottlenecks:** Arbitrary enforcement, inflexible scheduling, and the need for multiple re-inspections due to minor or subjective issues lead to high labor waste and increased project timelines.
- **Utility Interconnection Friction:** Opaque processes, required multiple site visits, and lack of responsiveness from utilities result in systems sitting idle for weeks or months after installation, forcing homeowners to pay "double bills" for their loan and ongoing utility costs.

These inefficiencies elevate the cost of solar, reduce competition, and damage customer trust, ultimately undermining the state's clean energy and affordability objectives.

To unlock the full potential of the residential solar market, the State of Maryland must pursue a holistic modernization of its regulatory environment, building on the 2024 Brighter Tomorrow Act.

**Recommended solutions include:**

- **Increase Uniformity:** Cap permitting fees statewide and apply uniform, up-to-date building codes.
- **Strengthen Permitting Automation:** Mandate true automated code compliance checks and instant permit issuance, and implement enforcement mechanisms.
- **Streamline Inspections:** Require remote inspection options.
- **Limit External Authority:** Consolidate permitting under a single local building department and prevent HOAs from placing undue restrictions on solar adoption.
- **Improve Interconnection:** Allow certified installers to "pull the meter" statewide to eliminate utility-caused delays and multiple site visits.

By addressing friction at every stage of the project lifecycle, Maryland can reduce costs, create thousands of stable jobs, and accelerate its transition to a resilient, affordable, and clean energy future.

# INTRODUCTION

The State of Maryland has rightly adopted ambitious goals for deploying clean energy, and the state's strategy relies heavily on the aggressive deployment of solar infrastructure. The Regional Portfolio Standard (RPS) requirement for 14.5 percent solar by 2030[1] necessitates a massive expansion of the number of solar energy systems on residential and commercial rooftops, but despite many incentives, clean energy growth is not on pace. In December 2025, Governor Wes Moore recommitted Maryland to addressing affordability and accelerating clean energy in his Executive Order on Energy Affordability.[2] In a time when large scale ground-mounted solar arrays continue to face pushback across the state,[3] energizing the "rooftop resource" – along with growing consumer demand for behind-the-meter energy storage – is essential for meeting state climate targets.

This rooftop resource is also essential for individual homeowners. Maryland residential electricity costs have turned sharply upward over the last decade, transitioning from a period of relative stability to one of aggressive rate hikes. According to the Maryland Office of People's Counsel (OPC), distribution rates for major public utilities have doubled between 2010 and 2025 – increasing at an average rate of 4.9 percent per year for BGE and 6.4 percent per year for Pepco[4] – a pace that significantly exceeds the average 2.6 percent rate of inflation over the same period.[5] The U.S. Energy Information Administration (EIA) reports that as of September 2025, Maryland's average residential electricity rate was 21.05 cents/kWh, substantially higher than the national average of 18.07 cents/kWh.[6] High and rising energy costs are continuing to burden Maryland households. This winter in Harford County, even residents in smaller homes are seeing energy bills above $400 per month, with one resident describing the costs in stark terms: "Can I afford groceries this month, or do I pay this BGE bill and go to food pantries?"[7]

The expansion of rooftop solar – and the realization of massive energy affordability and climate benefits across the state – depends significantly on individual Maryland homeowners and businesses choosing to invest in these assets, a decision heavily influenced by cost and the speed of return on investment. Analysis by Permit Power details this savings potential: A typical Maryland household can expect to cut its energy bills by 88 percent with solar, saving $2,300 each year, or $76,000 over the lifetime of its system.[8] One Maryland solar customer sums it up like this:

> *"It's straight finances. The benefit you're providing to the world is completely irrelevant. It makes financial sense, period. It ends up being about 15 percent return on the money."* [9]

Residential solar and battery storage could provide significant energy bill savings to Marylanders, while also advancing our clean energy and climate goals and bolstering job creation. Yet despite the urgency and continued strong consumer demand, the pace of adoption is stymied by clunky and conflicting local permit rules and regulations. The processes of Maryland's Authorities Having Jurisdiction (AHJs) – 23 counties, Baltimore City, and numerous cities and towns – its electric utilities, and hundreds of homeowner associations (HOAs) are not consistent or coordinated, impeding market efficiency and resulting in substantial bureaucratic friction, delays, and added costs and uncertainty across the residential solar and battery market. Evidence from more than a dozen interviews with residential solar installers, equipment manufacturers, and homeowners tells a story about slow, confusing, and expensive administrative burdens that significantly hamper deployment, highlighting the importance of effective and efficient government processes in advancing the state's clean energy goals.

In light of these administrative obstacles, and given anticipated cost increases resulting from the recent expiration of the 30 percent federal Residential Clean Energy tax credit,[10] this is the perfect moment for the State of Maryland to step in and help its residents lower costs and cut through red tape by streamlining and harmonizing its solar and battery permit, inspection, and interconnection rules.

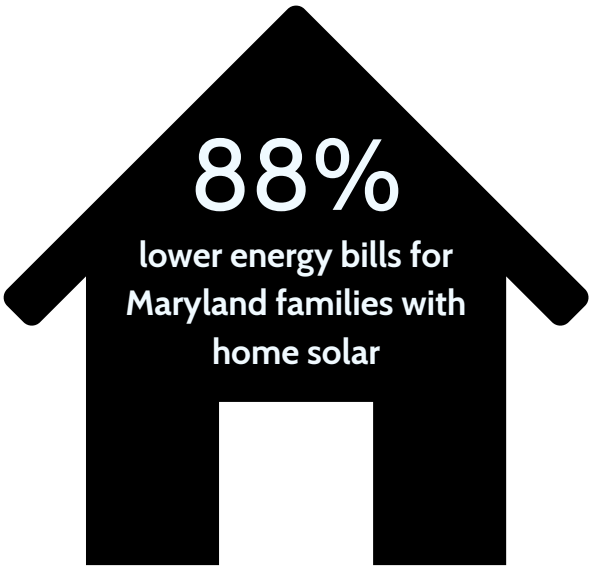
**With home solar, Maryland families can save**

$2,300

***a year***

$76k

***over the system lifetime***



# THE CHALLENGES AND THEIR IMPACTS

We can categorize market inefficiencies and their impacts on the Maryland residential solar market across three stages of the installation process.

1. During permitting and approval, projects can be derailed by AHJ processing delays, inconsistent building and electrical code requirements and application, and arbitrary requirements from HOAs.
2. During inspection, projects can be sidetracked by inspectors for a wide range of unpredictable reasons.
3. During interconnection, projects can be delayed by electric utility requirements and processes that vary across and even within company territories.

## I. DEFINING THE COST CRISIS

The price of a solar installation is bifurcated into hardware costs (modules, inverters, racking) and soft costs (labor, permitting, inspection, interconnection, supply chain, and overhead). In Maryland, soft costs are exacerbated by the fragmentation of regulatory authority. Because permitting is a function of local government, the soft cost structure varies wildly across jurisdictions. These costs include:

- **Direct Administrative Costs:** These are the explicit fees paid to the government. They include building permit fees, electrical permit fees, zoning review fees, and technology surcharges. In Maryland, these can range from a nominal flat fee to hundreds of dollars calculated based on system size or construction value.
- **Indirect Compliance Costs:** These are the internal costs borne by the installer. They include the labor hours dedicated to preparing permit submissions and revisions, the time spent driving to county offices, the administrative overhead of tracking disparate inspection schedules and keeping customers informed and engaged during delays, and the engineering time required to revise plans to meet idiosyncratic local structural and electrical requirements.
- **The Opportunity Cost of Capital:** Solar installers operate capital-intensive businesses. Inventory (panels and inverters) must be purchased in advance. When a project is stalled in the permitting queue, that capital is trapped. The carrying cost of this inventory, along with the interest on working capital loans, erodes profit margins. In an environment of rising interest rates, this cost becomes even more punitive.

The cumulative effect of these delays is a "time tax" on the state's decarbonization efforts. Every day a fully installed system sits awaiting a final inspection or a utility interconnection is a day of lost renewable generation and higher household energy costs. Across thousands of installations statewide, this represents megawatt-hours of lost clean energy and a substantial financial hit to Maryland ratepayers who continue to purchase grid power at rates inflated by capacity constraints and fossil fuel volatility.

Installers see no reason why streamlined permitting could not be successful in Maryland for the vast majority of installations.

> *"In Maryland for 95 percent of jobs there's nothing to review. There's nothing to push back on. If it takes them more than 30 seconds to check and approve most of our jobs, they're doing something wrong. A lot of times we call and within five minutes we have the permit... we're talking about losing three months per job of nonsense, [with permit applications] just sitting on someone's virtual desk."* [11]

The cumulative effect of this time tax is a feedback loop of inefficiency. Installers price their systems based on the average difficulty of doing business in a region. If an installer operates in both a high-burden county and a low-burden county, the operational overhead required to service the high-burden jurisdiction often bloats the pricing structure for all customers. Thus, the bureaucratic sluggishness of one county effectively raises the price of solar for residents in neighboring jurisdictions, forcing efficient counties to cross-subsidize the inefficiencies of their neighbors.

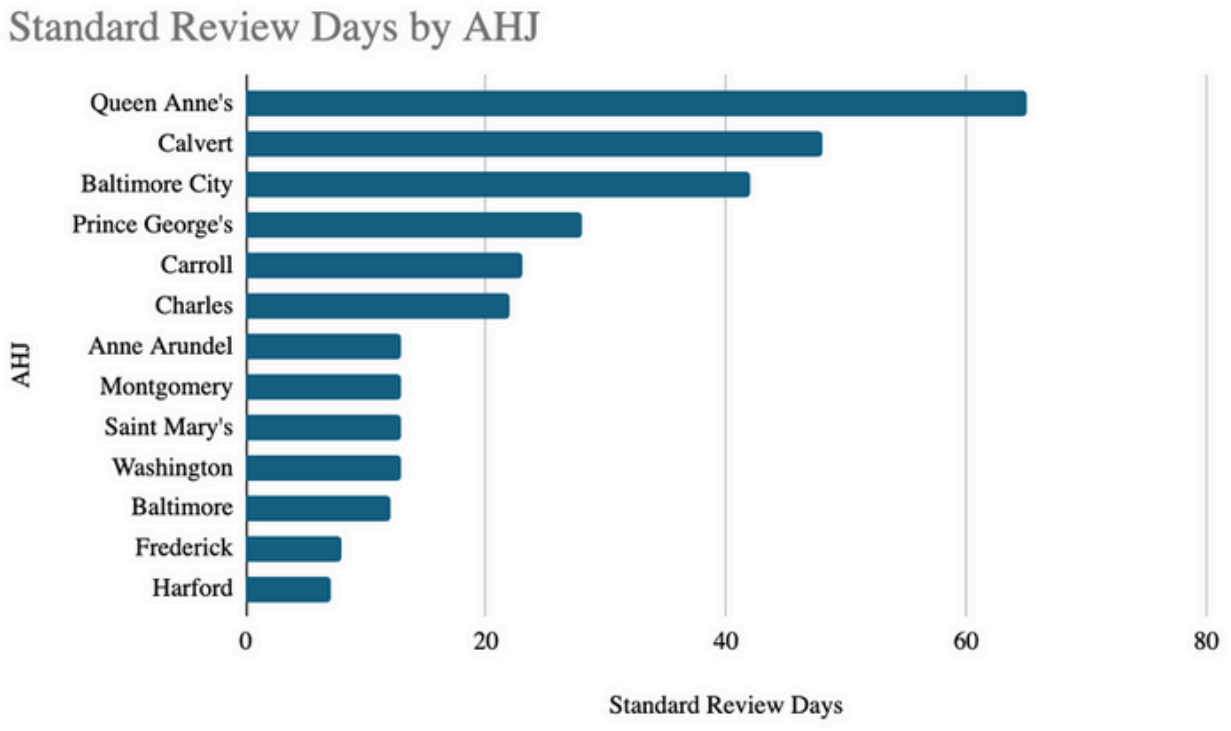
Comprehensive reforms to eliminate this time tax would allow the residential solar and battery market to achieve its full potential. Analysis by Permit Power shows that increased efficiencies would drive down typical rooftop solar installation costs by more than $1,900 by 2030 and $4,600 by 2040, and generate 23 percent more rooftop solar installations statewide in the next 15 years.[12]

# II. CHALLENGES WITH PERMITTING

Maryland's governance structure grants significant autonomy to its local jurisdictions, a principle known as "home rule." In the context of solar energy, this means that while the Public Service Commission (PSC) regulates the utilities (BGE, Pepco, Delmarva) and sets interconnection standards, the fundamental permission to build – in the form of building and electrical permits – is controlled by local county and city AHJs that are responsible for reviewing and approving the following design elements in accordance with statewide requirements and any local amendments that apply:

1. **Zoning:** Ensuring the design complies with land use ordinances and setbacks.
2. **Structural:** Verifying that a roof can support the weight of the panels and racking, and that the design complies with residential building and fire codes.
3. **Electrical:** Ensuring the design complies with electrical codes.

Statewide data, largely collected from AHJs, indicate that the average timeline for rooftop solar permit approval in Maryland is currently 10 business days, double the national average.[13] But averages and AHJ data don't tell the whole story. Installer data gathered for this report indicates that permit approval in some jurisdictions averages well over two months. One installer's dashboard of residential solar permit review timelines – from submission to approval – is shown below, with data as of December 5, 2025.[14]



# LONG PERMIT REVIEW TIMELINES

The efficiency with which an AHJ performs their duties is the single largest variable in a residential solar project timeline. Interviews and installer data collected for this project indicate a spectrum of performance across Maryland, ranging from digitized, automated workflows to legacy, paper-based systems struggling with staffing shortages.

Among all jurisdictions in Maryland, Queen Anne's County stands out for its exceptionally long permitting timelines:

> *"Queen Anne's County is an outlier for sure. You can look at a permit on their portal and it moves at a snail's pace. They actually have a little dial that counts up the percentage and it'll sit at 4 percent for three weeks as somebody reviews it and then it goes on to the next person. The review times are 65 days on average."* [15]

Baltimore City is another outlier, though it should be noted that as of late 2025 the city has taken steps to start automating its solar permitting processes with support from the Maryland Energy Administration. The legacy permitting process in Baltimore reflects the city's historical reliance on physical presence, requiring installers to act more like couriers than contractors. One installer has spent so much time visiting the city permit office he can describe the layout of the building from memory:

> *"I've had to make at least 12 different visits to the Baltimore City building in order to push permits along in the last 6 months... When you walk through the metal detectors... It's the first office to the left. I can navigate you. I know where they're all at."* [16]

This same person recounts days spent shuttling between offices to move files from intake to zoning review, noting that new rules limit inquiries to five permits at a time, creating a bottleneck that affects dozens of homeowners.

> *"When you go and ask for project updates and permit updates at Baltimore City, the people in intake at permitted inspections will only review up to five permits... So for a large scale company, when I'm coming with a list of 30 projects that have been bottlenecked... only having the time to get five projects pushed out is just not right."* [17]

Another installer reflects similar frustrations with the city:

> *"If I could pick one place of focus in Maryland, it would really be Baltimore City. It's taken us several months to get permits there. While the application itself is online, they set a 30-day review time for themselves. That's a pretty long review period, but then if you get to the 30 days and you get a permit rejection comment... it's hard to have a back and forth dialogue with them, especially for something as rinse-and-repeat as residential solar."* [18]

Yet another installer flagged Baltimore County's antiquated permit portal as a source of lost revenue, and noted the difficulty of trying to resolve permitting problems in Baltimore County once they are identified:

> *"We lost a $120,000 contract in Baltimore County. The County's permit portal is... very 1995. We had all the information in, everything was accurate, but we just didn't hit the [proper] submit button at the bottom. There were no notifications, no calls, there was no nothing."* [19]

> *"In Baltimore County it is hard to communicate and know what's going on, and there's no real person anywhere to talk to. I had to call five different numbers and got transferred multiple times to finally speak to somebody. It feels like there's nobody on the other end to want to help. It feels like going to the MVA. They're not very helpful."* [20]

Even Montgomery County, which was an early adopter of electronic permitting software, still has room for improvement:

> *"In Montgomery County... It's hard to reach out to somebody, and the review cycles are very long. They have 30 business days, so it could be 40 days before they send us back a review with any notes. And they require structural and building and fire. One of them could review it within hours and the other person could wait 15 or 20 days before they review it. I don't think they communicate very much with each other."* [21]

## VARIABILITY IN CODE REQUIREMENTS & INTERPRETATIONS

A lack of harmonization within and between jurisdictions regarding building and electrical codes, local amendments, and their interpretation by permit reviewers allows for arbitrary enforcement that confounds installers. One installer described the frustration of dealing with subjective interpretations of building code requirements such as setbacks – the required distance from panels to roof edges – where even in AHJs with the same code requirements the rules can change based on an individual reviewer's preference, or simply a lack of experience:

> *"We're getting inconsistencies with AHJs where some of them want this, some of them want that kind of setback. And I spoke to one guy - argued with him - and he said that every other AHJ is wrong and that we should be doing it that way. So that's his specific interpretation."* [22]

> *"I think Prince George's County might be the biggest offender in terms of finding things to make a problem about that aren't really a problem. It's almost always the inexperience of the reviewer that is the issue."* [23]

Overlapping layers of jurisdictional authority can further complicate installations. For example, a household seeking to install solar in the City of Takoma Park must obtain a Municipality Letter from the city prior to submitting their county permit application.[24] Not only is this an extra time- and resource-consuming step in the process, but the added paperwork makes installations in Takoma Park ineligible for Montgomery County's streamlined electronic permitting process, adding further delays to the remaining project timeline.

Industry stakeholders emphasize that this lack of uniformity across jurisdictions is a primary driver of cost. A representative from a home battery manufacturer notes the logistical nightmare created by these inconsistencies:

> *"I think the biggest hiccup is the lack of standardization. Neighboring towns could be on two completely different codes altogether. I've seen installers not willing to do projects in a certain town just because they know that it's not going to be a straightforward install."* [25]

## VARIABILITY IN FEES

Fee structures for residential solar vary widely across the state. In practice, the work required to review permit applications – especially for highly standardized projects like residential solar installations – is largely consistent from jurisdiction to jurisdiction, and across system sizes. There is thus no reasonable justification for one jurisdiction to charge several times more than its neighbors for the same work product, nor is it reasonable for a jurisdiction to charge higher fees to review permit applications for larger systems.

Two installers highlighted the higher costs and business uncertainty that is caused by inconsistent permitting fees across jurisdictions in the state, noting Prince George's County as an outlier:

> *"We've paid everything from $100 to $900 there for a permit, so some consistency would be great for financial forecasting. Also just having an AHJ being able to charge something like $900 for a residential permit... I don't know if it's fair or not, but some standardization would be better."* [26]

Another installer observes what he sees as "double dipping" in permit fee structures:

> *"In Baltimore County a standard PV permit goes for $251 and for a Main Panel Upgrade permit they charge us another $88. In PG County it's $250 for the electrical, $250 for the building, and then another $250 for the main panel upgrade. They're definitely double dipping where I feel this could be uniform since it's all tied to one scope of work, one property. All these things are being conducted by one contractor."* [27]

## HOA POWERS

On top of these AHJ rules, homeowner associations (HOAs) often add an additional layer of project review, often subjective and focused on aesthetic elements of a design, which further frustrates homeowners that are subject to restrictive covenants. A homeowner in Worcester County shared her frustration with the arbitrary nature of HOA rules:

> *"We wanted to add five or six panels to the townhouse roof and [the HOA] kind of threw the bag at why we couldn't. And they wanted the benefit of any power [the system produced]. They gave 12 bullet points of reasons why we couldn't do it... When you look around outside of our 24 units and other communities and even the bar next door, there are places down there that do have solar for obvious reasons, but not within our units."* [28]

## COST IMPLICATIONS

The many inefficiencies in solar permitting processes described here can add thousands of dollars to the cost of a typical Maryland residential solar installation.

Sometimes these added costs are paid directly by the homeowner, such as in the case of one Carroll County resident:

> *"The county wanted a glare letter from the solar panel manufacturer, which was very strange... because they're not arranging how they're going to be installed. So we had to hire an engineer who did a glare study and put their stamp on it. That added $500."* [29]

More generally, the net result of all this administrative inefficiency, unpredictability, and fragmentation raise the cost of customer acquisition and retention throughout the market, leading to substantially higher soft costs for all Maryland residents.

For example, some installers avoid difficult jurisdictions altogether, which stifles competition, while others raise prices in jurisdictions where it is difficult to do business. Nationally, nearly 60 percent of installers charged higher prices in jurisdictions with onerous requirements, with some premiums greater than 10 percent.[30] A home battery manufacturer confirms this:

> *"The overall cost to the homeowner is what actually ends up getting affected the most because they have limited choices of installers to work with. [Some customers] are paying $5,000 more than their friend who lives in the neighboring town who had the same setup."* [31]

Soft costs also accrue as a result of permitting delays that disrupt the fragile residential solar sales cycle. Homeowners who choose to install solar are often making a significant financial decision based on projected savings and tax incentives. When the period from contract signature to installation stretches from weeks to months, "buyer's remorse" can set in and lead to cancellations. This risk is not theoretical. One installer reports that due to long review timelines, some customers simply walk away:

> *"Occasionally we'll have issues where we'll have to get a loan extension because the permit's not in, and just recently we've had a spate of customers cancelling the loan themselves because they're just kind of fed up with the situation."* [32]

Another installer notes that delays can sometimes push projects past their financing expiration dates, forcing uncomfortable conversations that erode hard-earned trust:

> *"A project sat in permitting for three months and when we did get a permit back, we were approaching a window of financing expiring. We're booked out four weeks so it's hard to fit those one-off customers in as much as we would love to. It's a hard conversation: 'We're ready to install your system, but hey, can you sign all this paperwork again?'"* [33]

These observations are in line with the findings of a 2021 national survey of residential solar installers, which identified permitting delays as the most prevalent reason for contract cancellations. Changes in customer finances (2nd) and interconnection/utility delays (4th) were also among the top reasons identified.[34]

Statewide permit data indicate that one out of every five solar projects in Maryland is cancelled after the permit application has been submitted.[35] In a market where customer acquisition costs are already high, this attrition represents a devastating economic inefficiency. A typical cancelled project represents a "sunk cost" of about $2,000 in marketing, preliminary design work, and expenses related to permit submission and revision.[36] To remain profitable, solar installers must recover these losses from the successful projects, effectively levying a "cancellation tax" on every completed installation in the state.

# III. CHALLENGES WITH INSPECTION

## SCHEDULING

One of the biggest sources of added costs and delays at the time of inspection is scheduling – a process that could easily be improved for many standard installations if Maryland were to allow for remote inspections. Installers point out the ongoing difficulty that inspection scheduling presents in planning field work, and the added costs to their businesses:

*"Inspectors in Maryland don't give you a specific time frame when they'll show up for an inspection until the morning of your scheduled inspection, when you'll probably get maybe a more narrow three-hour window... So, if you have a field tech, he can go out to an inspection and maybe it'll pass at 8:00 a.m., and then he'll have time to do other things, or maybe it won't pass till 3:30 p.m. in which case you just really can't plan for that day."* [37]

*"With most of these AHJs we can only do one inspection a day. They give us a window, but it's very hard to schedule multiples in one day and actually complete them. So, we're out three to four weeks on inspections ourselves because of that one bottleneck."* [38]

## ARBITRARY ENFORCEMENT + REPEAT INSPECTIONS

Other installers express frustration with what they see as arbitrary enforcement. One noted the severity of some inspectors' response to minor issues, even if those issues were documented and approved at the time of permitting:

> *"We get these approved plans, we build it just as they say, and we get to the inspection and the inspector's like, 'None of this is right. Rip it all off, put it back.'"* [39]

Another installer notes that third-party inspection agencies often call out things not required by code, effectively creating their own "shadow code" that is stricter than the actual law:

> *"The inspection agency [in Wicomico County] will come out and require us to add a secondary disconnect inside of the home, upsize wire sizes, even some things that aren't even code compliant like taping around terminals inside of the disconnect just so nobody can open the enclosure... They call out and ask for absurd things that aren't actually required per code or the approved plans from the AHJ."* [40]

> *"In Carroll County, even though the racking that we use has always been UL listed... they require us to have the homeowner acknowledge the fact that they're getting a flashless system... this shouldn't be a conversation we're having in the homeowner's home, putting them in a frightened mood. It really just creates a lot of friction and escalated homeowners."* [41]

Arbitrary inspection requirements often lead to extended project delays, as repeated inspections must be scheduled to respond to failures.

> *"I've constantly had issues with inspectors in Howard County. They seem to really care and want to protect homeowners, but each has different standards so it's unpredictable. We'll have to have three inspections because each inspector wants something different. It's not about the code. It's just what they want us to show up with on inspection day."* [42]

One homeowner in Carroll County describes a cascading scenario where changing inspector demands bordered on the absurd:

> *"When the first guy for the inspection showed up... [he said] 'Nope, these [installation photos] need to be printed out'... and before my installer could get another word out edge-wise, he turned around, went back to his truck. And so although the installer sat there for a couple hours, the inspector was there for less than five minutes and wanted to see digital pictures printed out on paper to review. Why? I don't know."* [43]

> *"And then each inspector is asking for different things. I think it was the second or third inspector who showed up and was really good. He was actually looking at the gauges of some of the wires... which as a homeowner I can appreciate. He was fine with the paperwork, but then the next guy shows up, looks at one document, and says, "Nope, that's the wrong version... it needs to have the new Commissioner's name." So I opened up their website and it was the exact one we had. This guy was gonna fail us again for using the document that they had posted on their website. It's absolutely ridiculous."* [44]

Ironically, nearly the same 'ridiculous' inspection story from Carroll County played out on a different project in neighboring Howard County:

> *"I was on inspection in Howard County three weeks ago and the inspector asked for [installation] photos to be 'printed out and here on site.' Then a second inspector saw our solar certification form and said, 'Oh, that's the form from 2018. We need the 2025 form.' And I went to the website and the form that came up is the one from 2018 [with] the exact same information. But the inspector made us reschedule."* [45]

## COST IMPLICATIONS

A failed inspection triggers a cascade of additional costs that are borne directly by installers, including re-inspection fees[46] of up to $100 and several hundred dollars in labor, fuel, and equipment costs to roll a truck out to the job site a second, third, or fourth time.

While there are many legitimate safety-related reasons for inspection failures, the additional burden of unnecessary 'administrative failures' are reflected back to all Maryland solar customers in the form of higher prices and longer wait times for installation. Homeowners often witness this waste firsthand, seeing professionals paid to sit idle:

> *"I figure they wasted at least 10 hours... sitting there doing nothing... which is an extraordinary waste of resources... $750 to $1,000 just sitting waiting."* [47]

The strain of these inefficiencies is not just economic, but human. One installer notes the toll it takes on his installation teams, who are forced to perform redundant work instead of new installs:

> *"The drive times and all that associated labor cost is what really hurts a business... so going back out 3 hours away... to fix something that takes two hours just because an inspector is requiring this change, you know it hurts them mentally."* [48]

While others note the strain on homeowners:

> *"We had one teacher in Baltimore City last week who twice had to get a substitute in order to do an inspection because of the city cancelling the first one."* [49]

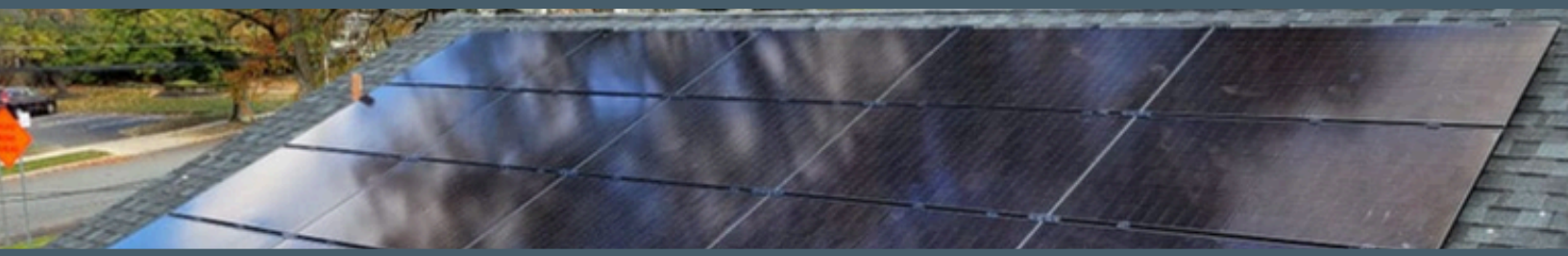
> *"It's kind of frustrating to the customer because now we're still banging on their house. They're not getting any service. Sometimes some people are having to pay two bills because of how they decided to get solar and are still dealing with their utility company."* [50]

And another highlighted the negative reputational impact that arbitrary failures have on their small businesses:

> *"It's a reputation thing... the customer is there and is [using the inspection] as an opportunity to check our work... and then an inspector shows up and they're flashing a red inspection card that says 'failed' on it because of something silly. It kills our credibility [to have to do] three inspections."* [51]

# IV. CHALLENGES WITH UTILITY INTERCONNECTION

Utility interconnection processes can be essential for public safety and electric grid reliability. Grid-connected solar systems must be designed to shut down or disconnect automatically from the electric grid during power outages to protect utility workers. Once a utility is satisfied that a rooftop solar and battery system can be safely energized and that the local electrical grid can support its operation, they provide Permission to Operate (PTO), the final authorization that allows the system to produce and export power to the grid. As part of the utility interconnection, many homes require the installation of an upgraded electrical meter before PTO is issued. Depending on the utility, this "meter pull" process can be as time-consuming and fraught as the permitting and inspection processes described above.



## INEFFICIENT INTERCONNECTION PROCESSES + REQUIREMENTS

Installers characterize the utility interfaces used to request PTO as opaque and redundant. One notes:

> *"The processes that each utility follows is not written or documented anywhere... You just kind of have to build your own database."* [52]

They further criticize utilities for creating unnecessary administrative work that offers no value, essentially doubling the data entry workload:

> *"[BGE] requires us to go first to their business portal, submit an application there, get a reference number, and then input that number when we submit our interconnection application... And I was under the impression that once we generated that number that our operations team would schedule with that, but they don't use the number at all."* [53]

They are even more blunt regarding BGE's on-site procedures, which can require the installer to make between two and four visits to a customer site for work that should reasonably be able to be completed in a single visit, and in some states does not require a utility site visit at all:

> *"We'll go out there, do part of the install, and the customer has to be home for that. Then BGE comes out and we meet with them. They pull the meter, we tie in, then we leave and then we have to come back out because they need something else done... We're doing basically four site visits to get one solar plus battery system installed. That's not cost effective for us [when] we have to roll another truck out there every single time. If in every other area we can do one install in four to six hours, one crew is doing two to three systems a day. Here we're doing a quarter of the installs [and] now we're going out there twice."* [54]

Delays are exacerbated by uneven rules across utilities, even when those utilities are under the same parent company.

> *"When we met with [BGE's] sister utilities Pepco and Delmarva Power 10 or 12 years ago we became certified [to pull their meters]... because the last thing [they] wanted to deal with was having to schedule another meeting so that we could tie in our system. BGE won't let us do that. Come to find out today they have certified third parties that are pulling meters."* [55]

## ARBITRARY ENFORCEMENT

Even within a single utility service territory, installers have experienced unique and unexpected rule interpretations:

> *"The work process for pulling meters varies between the [Pepco] Montgomery County branch and the Prince George's County branch. We had been following a process that we thought was correct for several months... and then were confronted by a new team that told us that we had been doing something wrong and that we were cheating them out of money... we were just following what we thought was the correct process."* [56]

## LACK OF RESPONSIVENESS

One Maryland homeowner detailed a two month process with Pepco just to get his interconnection request into the utility's queue:

> *"In early November I submitted [my initial interconnection information] to Pepco... I emailed the form and all the materials and copied all the email addresses I could find... and now here we are on January 9th and until yesterday I was not even able to confirm how to submit an application... I could show you a string of emails, it's probably 50 long, where I repeat the same information... It's like it doesn't go anywhere. And it was very very frustrating because it took me a lot of time to keep reminding them about things."* [57]

Installers also cite Pepco's poor customer service as a reason for increased interconnection timelines:

> *"Pepco is a little bit unpredictable and the responsiveness is not really there. We'll send 10 different messages and contact our rep... and we still don't hear anything."* [58]

A second highlights the continued deterioration of service timelines at BGE, noting that what was once a streamlined email process has become a bureaucratic bottleneck:

> *"In Anne Arundel County and Baltimore County it used to be that we would just email [BGE] the minute we got our approval to install the system. Our operations team would then schedule to have them come out the day of install so we could do [the installation and interconnection] all in one shot. That same timeline is now 8 weeks out. So it takes us 3 or 4 weeks to get the approval, then we have to wait 8 weeks minimum before we can get out there and do the install and tie into the meter. It's really bad."* [59]

# COST IMPLICATIONS

As with the inspection process, interconnection delays and the need for additional site visits impact the homeowner as much as it does the installer:

> *"[The customer] has to take time off from work to be at home, so they're spending their time, and then what if somebody doesn't show up? At the end of the day, we've all been there. We've all waited for the cable guy, so we know what that's like. I just know there's a lot of time, a lot of energy, and it just doesn't need to be there."* [60]

A system that is installed but not interconnected is a stranded asset. Homeowners are acutely aware of this lost value. One calculated a total added cost of $2,200 when his solar project experienced a total of eight months of delay due largely to administrative issues during permitting and inspection.

One Harford County homeowner summarized his frustration with interconnection delays and the added utility bills he incurred following an otherwise-smooth and efficient installation and inspection:

> *"The only thing that got in my way, and it wasn't even in my way, was BGE. I feel as if they could be proactive... the extra two weeks I bought electricity from them, I'm sure they are giving Christmas bonuses with that money."* [61]

While a Montgomery County resident relayed a similar experience, in which he waited weeks for Pepco to deploy a remote software update to his electrical meter before he could start using his solar energy system, which had already been installed and inspected:

> *"It took a month for my system to come online and I didn't even need a meter update. My meter was a new enough version that it was a virtual switch. They did not have to do a physical change."* [62]

More critically, if the homeowner has financed their system, they may find themselves paying their solar loan installment before the system is energized, creating a "double bill" scenario (paying both the utility and the lender) that damages the customer experience and generates negative word-of-mouth, further driving up future customer acquisition costs.

The cost of all these delays falls most heavily on Maryland's most vulnerable populations. One installer notes that for fixed-income residents, delays aren't just an inconvenience; they are a budget crisis:

> *"There's a large number of residents in Baltimore City that are living on a fixed income... When we're dealing with these delays at times of two months, that's two more months where homeowners had to pay full electrical cost. When they see that $300 electric bill come in... it's 'when can my solar get installed?' It's a shame that their own city officials are...putting them in more financial constraints rather than putting them in a better opportunity to be able to save for their family, put money into 401k accounts... all those different things that they could be doing with that $40 worth of monthly savings."* [63]

# LABOR MARKET IMPACTS

The inefficiency of the permitting process also distorts the skilled labor market. Maryland faces a shortage of licensed electricians. When a Master Electrician spends four hours waiting for an inspector who arrives late, that is four hours of high-value labor removed from the economy, a scenario noted by solar installers who are all too familiar with these inefficiencies:

> *"Howard County basically demanded that we have our master electrician [on site for inspections]. We used to have one of our technicians go and wait — someone who we pay $25 to $30 an hour — but now it's a $70 an hour person just sitting and waiting for an inspector to come."* [64]

Synapse Energy Economics modeling suggests that a more efficient market for clean energy could create over 300,000 jobs across the PJM region (which includes Maryland) by unlocking suppressed demand and improving labor productivity.[65] The Maryland Energy Administration has identified substantial job growth potential from the residential solar market, much of which could be unleashed by eliminating the market friction noted throughout this report. "Its potential for year-over-year deployment of solar plays a pivotal role in generating local, family-sustaining, and stable local jobs and fostering economic development. Residential solar projects create about 27 jobs per megawatt installed, which is more than any other type of solar project. Put into context, in 2022, 55 percent of installation and project management solar jobs came from the residential segment. Expanding this segment will directly expand local jobs."[66]

One solar company CEO articulated the potential for job growth under an efficient regulatory framework as follows:

> *"[If these processes were better] we would grow. We have four crews now, and we could definitely do six install crews if we had same-day permits. Permitting is the bottleneck in this process. I would definitely grow our business."* [67]

Another installer noted that allowing for third-party inspections can bring about additional labor efficiencies, some of which will be passed on to customers in the form of reduced prices:

> *"We really only want to work in jurisdictions that allow third-party inspectors. I think that is the solution. DC and Prince George's have third party inspectors and it is a seamless process and we pay for them. It's no cost to the county. We get to know them, and then we can schedule five inspections in one day, and my master electrician will just follow him to all five locations."* [68]

# THE AUTOMATED PERMITTING SOLUTION

Recognizing that regulatory fragmentation was impeding the state's climate goals, the Maryland General Assembly passed Senate Bill 783, the "Brighter Tomorrow Act," in the 2024 session. This legislation represents a decisive shift in the state-local power dynamic. The core provision of SB 783 regarding residential solar is the requirement for local jurisdictions to adopt automated permitting software. The state identified the National Renewable Energy Laboratory's (NREL) SolarAPP+ (Solar Automated Permit Processing Plus) platform as the primary tool for meeting this requirement, although the language allows for equivalent software.[70]

Automated permitting systems allow installers to input system specifications (equipment models, wiring configurations, structural loads), which are then evaluated against a database of code requirements and local amendments. Compliant applications are issued an immediate permit approval. These systems have been found to reduce permit-to-inspection timelines for solar installations by around 31 percent and for solar-plus-battery installations by about 44 percent.[71]

The success of early Maryland AHJ efforts to adopt automated permitting systems is noted by installers:

> *"The employee we have who works in Prince George's County, it takes her a while to go through this portal because of how archaic it is... Montgomery County is doing the best because they have SolarAPP... [they are] very easy to interact with. And so [a common platform] would alleviate some concerns with staffing for sure."* [72]

From the AHJ perspective, a transition to more automated permitting and inspection allows for better resource allocation:

> *"It used to be technical plan reviewers that were doing the work, which is our highest cost. We now have permit technicians doing some of the work at a significantly reduced time frame."* [73]

But it is important to note that the full benefit of automation to homeowners, installers, and jurisdictions can only be realized with full adoption. Otherwise vestigial processes often remain, creating "zombie" workflows that are half-digital and half-analog. One installer points this out in the context of Carroll County's new online permit system:

> *"As of this month they have moved online, they still require a person to come in person to pick up the permit."* [74]

Thus the Brighter Tomorrow Act represents a critical, albeit partial, solution. By mandating the adoption of automated permitting software, the state is attempting to overcome a key bottleneck in the market. However, the rule is open to interpretation, and even in the best case software alone cannot solve the structural deficits of staffing shortages, rigid inspection cultures, and utility interconnection delays.

# POLICY RECOMMENDATIONS

Despite recent progress towards permitting automation, the state of residential solar permitting, inspection, and interconnection in Maryland continues to be fragmented, inefficient, and unpredictable. These challenges combine to delay household energy bill savings, decrease energy affordability, raise prices across the market, slow down the pace of the clean energy transition, and impede the growth of small businesses across the state. In order to effectively address these challenges, Maryland should pursue a holistic modernization of its policy and regulatory environment for rooftop solar and battery systems that strengthens existing state law by:

1. Defining "automated software" to mean automated code compliance checks and instant permit issuance.
2. Requiring jurisdictions to provide an option for a single remote inspection via photo or recorded video.
3. Applying uniform up-to-date building safety codes for all properties in the state.
4. Placing permitting under the sole purview of a single local building department to enforce compliance with building safety codes to avoid onerous restrictions and approval requirements related to aesthetics, zoning, planning, or historic districts.
5. Preventing HOAs from placing any restrictions on single-family homes going solar. SB 120/HB 4 (2025), which went into effect on October 1, prevents HOAs from imposing requirements that increase the cost of the solar system by more than 5 percent or reduce the energy output of the system by more than 10 percent. However, the homeowner or installer still must seek HOA approval, which can be time- and resource-intensive.
6. Capping permitting fees at $200, which is made possible once permitting is automated and inspections are conducted remotely. For example, installers in Pima County, Arizona pay a fixed $129 for an automated permit and a photo inspection of a home solar system, and an additional $25 if the system comes with a battery.
7. Allowing certified installers to "pull the meter" statewide to streamline the utility interconnection process.
8. Setting accelerated timelines for utilities to process the interconnection applications of simple home solar and battery systems, to allow customers to install their systems within a week of ordering. Set a goal for utilities to automate the processing of interconnection applications of simple home solar and battery systems.
9. Establishing a standard interconnection fee for simple home solar and battery systems to pay for the distribution system upgrades that are required by all simple home solar and battery systems across each utility's service territory, to avoid unexpected interconnection costs.
10. Adopting flexible interconnection best practices, to allow solar and battery systems to be interconnected quickly and cheaply if they agree to limited curtailment without the need for expensive and time consuming distribution grid upgrades.
11. Adding an enforcement mechanism at the state level for jurisdictions that do not comply with updated policy and regulations.

**Only by attacking friction at every stage of the project lifecycle can Maryland reduce the "time tax" and unlock the full economic and environmental potential of its solar aspirations.**

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CHESSA is the Chesapeake Solar and Storage Association. We are a solar and energy storage trade association committed to an effective and equitable clean energy transition across Maryland, Virginia, and the District of Columbia. A 100% clean energy transition that sees mainstream adoption of local solar, large-scale solar, and battery storage throughout the electric grid will realize a stable and affordable grid for all consumers.

Sierra Club is the largest and most enduring grassroots environmental advocacy organization in the nation. We support local service and nature outings, educate the public on the myriad pressing issues stemming from the climate emergency, plastic pollution crisis and collapse of biodiversity. We advocate for bold systemic changes at the local and state level for a just and equitable transition from dirty fossil fuels to 100% Clean Renewable Energy, Zero Waste, and Clean Transportation for all while protecting our air, water, land & wildlife for future generations!

Permit Power is a nonprofit organization making it easy for American families to power their lives cheaply. We do research, education, and advocacy to break down the bureaucratic barriers that get in the way of American families installing rooftop solar, home batteries, and other energy upgrades.

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