Save money by going solar in Oregon ($0 installations may be available) - Click Here to Apply

2017 United States Solar Power Rankings

(click the image for a larger version)
Welcome to our annual state rankings report

Hey folks! 2016 was a hell of a year, huh? Nowhere was that statement more true than in the solar industry. We’ve been through the ringer this year, with some big victories and big defeats.

We began the year with an extension to the all-important Federal Solar Investment Tax Credit, which served to put a lot of long-term fears to rest across the industry. That was good start, but it didn’t last long.

Almost at the same time, Nevada did away with its formerly-excellent net metering policies, setting the tone for a year full of contentious fights over how utility companies should pay homeowners for the solar energy they produce.
There’s a whole lot more to talk about, but for now, let’s jump right into the rankings.

This year, we analyzed 663 data points to judge the promise of solar in all of the 50 states and the District of Columbia.

As in past years, we graded each state based on 12 criteria, then weighted the criteria individually, and multiplied the values of the grades by the weights to determine rankings.

To be ultra-precise, we modified our net metering category this year to include information about solar Feed-in Tariffs (FiTs) in states without net metering. The modification helped us shine a light on places where statewide policy fails, but utilities pick up the slack. The FiTs also figured into our modified financial estimate tool, which is now more accurate than ever.

On to the rankings!

Click a button below to be taken to that section of the report.

The Rankings
Executive Summary
Factors and Methods

The Rankings

Let’s start with what everyone wants to know: **which state is number 1?**

Well, it’s Massachusetts, which set itself apart this year with a re-commitment to net metering, while retaining all of its awesome financial rewards for going solar. New Jersey follows closely behind with just a slightly lower Internal Rate of Return, but the two top states scored nearly identically in our rankings.

Coming in third is Rhode Island, which passed an extended RPS and is seemingly throwing every solar incentive at the wall to see what will stick. It won’t last forever, but it’ll be nice to see what happens. 4th place welcomes “sunny” Oregon, which makes solar a winner through sheer force of great legislation and incentives, likely for decades to come. Rounding out the top 5 is last year’s tied-for-1st place champion New York,
which passed an expanded RPS law (which is good), but nixed its excellent solar carve-out (which is bad).

The top 5 states are all tops in our book. Though each offers a different mix of policy and incentives, they’ve all managed to ensure a future in which home solar power is a big part of the energy picture—where homeowners can count on taking part, rather than simply consuming. These states are setting the standard for what it means to be solar-friendly.

As for the rest of the states, the buttons below are presented in ranked order. Click to see a state’s 2017 Solar Report Card and read a little about solar there. If you’d like to read more, click on the report card to see in-depth analysis of the state’s solar policy and incentives, and read about solar investment strategies.

MA     NJ     RI     OR     NY     MD     CT     VT     DC
NH     MN     CO     DE     NM     HI     CA     IA     IL
WI     OH     PA     AZ     ME     WA     MT     FL     IN
NV     AK     NC     SC     UT     MO     KS     TX     MI
GA     VA     NE     TN     SD     LA     ND     WV     WY
ID     AR     KY     OK     AL     MS
**Massachusetts**

**2017 SOLAR REPORT CARD**

**Overall Grade:** A

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**5-kW Solar Payback Time:** 4 Years  
**Investment Return (IRR):** 28.5%

**TREND**

**COMMENTARY**

Massachusetts takes sole possession of 1st place this year, wresting the title away from former spotlight-hoggers New York and New Jersey. The state earned the top spot fair and square though, reinforcing its commitment to home solar owners with a new net metering bill in April, 2016. Overall, the state’s policies for solar are nearly as good as they can be, and while we’d like to see an updated RPS with a new solar carve-out, the Bay State is still the easiest state in which to get into solar. And that payback time is nuts.

go back and choose a new state
New Jersey gave up a share of the limelight this year to take 2nd, instead. Policy-wise, it’s every bit as good as Massachusetts, but doesn’t have quite the financial muscle to best the Bay State. NJ’s solar carve-out is still near the best in the nation, which has led to a very robust SREC market. With New Jersey’s great solar policy and incentives, you Garden Staters can feel secure in a solar investment.

Rhode Island gave up a share of the limelight this year to take 2nd, instead. Policy-wise, it’s every bit as good as Massachusetts, but doesn’t have quite the financial muscle to best the Bay State. RI’s solar carve-out is still near the best in the nation, which has led to a very robust SREC market. With Rhode Island’s great solar policy and incentives, you Garden Staters can feel secure in a solar investment.
Rhode Island got serious about its RPS law this year, while its amazing performance payments program persists. After jumping five spots last year the state rises another TWELVE big spots in the 2017 ranking, bringing it to the top five! We don’t think they’ll have any trouble hitting those RPS goals, so our new year’s wish is for a further-expanded RPS with a solar carve-out, too!

Oregon picks up two big spots this year, because it passed a new RPS with an immense solar carve-out, and its incentives are still going (although not for long). The state’s excellent state solar tax credit is going away after 2017, and you have to choose between performance payments and the rebate program. Still, the potential returns for a solar investment in Oregon are unquestionably good, and the state looks firmly committed to keeping it that way.
New York
2017 SOLAR REPORT CARD

Overall Grade: A

Policy
- A: RPS Law
- F: Solar Carve-Out
- A: Electricity Cost
- A: Net Metering
- B: Interconnection

Incentives
- A: Tax Credits
- F: Rebates
- A: Performance Payments
- A: Property Tax Exemption
- A: Sales Tax Exemption

5-kW Solar Payback Time: 6 Years
Investment Return (IRR): 25.1%

TREND

COMMENTARY

New York had to give up its share of the top spot this year (it was tied with MA and NJ in 2016), but it's really on a technicality. The state passed a brand new RPS law, but cut its solar carve-out in favor of a broader renewable standard. And though the rebates are slowly fading away, the tax credits are still top notch, so New York still earns a place in the top 5 states for solar.

Maryland
2017 SOLAR REPORT CARD

Overall Grade: A

Policy
- B: RPS Law
- A: Solar Carve-Out
- B: Electricity Cost
- A: Net Metering
- B: Interconnection

Incentives
- D: Tax Credits
- C: Rebates
- B: Performance Payments
- A: Property Tax Exemption
- A: Sales Tax Exemption

5-kW Solar Payback Time: 10 Years
Investment Return (IRR): 10.3%
Maryland dropped three spots this year due to the rise of Oregon and Rhode Island. The state still has a great SREC market, rebate program, and solid solar policy. There are some places where we’d shore up what’s missing here, but overall, 5th place is nothing to sneeze at. The Old Line State is fine for homeowners who dream of sunbeams!

Connecticut drops two spots because of the ascension of Oregon and Rhode Island. The state still has excellent solar policy and incentives—particularly its best-in-the-nation rebates—but it runs the risk of stagnating if there isn’t new renewable goals sometime soon, but it helps that the rebate program is slated to run through 2022. For now, no matter where you are in Connecticut, there are incentives to help you pay for solar and good policy to ensure it maintains its value for years to come.
**Commentary**

**Vermont** is a Steady Eddie this year, resting on the laurels of its excellent policy and incentives enacted in years past. The state's on solar cruise control after enacting the 2nd-best RPS in the country last year, but we say “why not make 2017 a surprise banner year for the future of solar in the Green Mountain State?” Hm, maybe that’s not catchy enough for the bumper sticker yet. Back to the drawing board!

[go back and choose a new state]
**Washington D.C.**

2017 SOLAR REPORT CARD

**Overall Grade:** A

<table>
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5-kW Solar Payback Time: 6 Years  
Investment Return (IRR): 19.1%

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<td>▲2</td>
<td><strong>Washington D.C.</strong> hops from a B to an A this year because of its sweet new RPS and solar carve-out. The state still has its super-duper SREC market, but did away with its rebates in favor of the Affordable Solar Program, which was a very successful way to get solar to low-income D.C. residents for free. The District could still use a sales tax exemption, but an investment in solar in here is already a great bet. However, the solar getting is so good right now because of the great SREC program, but it won't be that way forever. People of the District ought to jump on the solar train soon to take advantage of this incentive before it goes away!</td>
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[go back and choose a new state]
**New Hampshire**

**2017 SOLAR REPORT CARD**

**Overall Grade:** B

**Policy**
- B   RPS Law
- C   Solar Carve-Out
- A   Electricity Cost
- A   Net Metering
- D   Interconnection

**Incentives**
- C   Tax Credits
- A   Rebates
- F   Performance Payments
- C   Property Tax Exemption
- A   Sales Tax Exemption

**5-kW Solar Payback Time:** 9 Years

**Investment Return (IRR):** 14.0%

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**TREND**

▲ 3

**COMMENTARY**

**New Hampshire** got into solar early, and its incentives are still going strong! This year, the state gained a few spots, which is nice, but we know New Hampshirites don’t like to brag. Good thing is, they don’t have to! The state didn’t move up because it did better this year; it moved up because other states did worse. Still, no state could complain about being in the top 10, and that’s just where the Granite State deserves to be!

[go back and choose a new state]
Minnesota dropped a few spots this year, but the state is still a fine place to put panels on your roof. There’s been some drama in the state’s nascent community solar program, but otherwise, we’ve seen a relatively stable year in MN policy and incentives, including the fine Xcel Energy Solar*Rewards program.

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Colorado 2017 SOLAR REPORT CARD

Overall Grade: B

5-kW Solar Payback Time: 11 Years

Investment Return (IRR): 9.8%

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TRENDS

COMMENTARY

Minnesota dropped a few spots this year, but the state is still a fine place to put panels on your roof. There’s been some drama in the state’s nascent community solar program, but otherwise, we’ve seen a relatively stable year in MN policy and incentives, including the fine Xcel Energy Solar*Rewards program.
### TREND

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<td><strong>Colorado</strong> has a mature solar industry, which came about in large part thanks to the state’s excellent incentives of the past. Unfortunately, those incentives are mostly gone for the big utility companies, and the state is dropped two spots in this year’s rankings simply by not doing much to ensure a great future for solar. The policy base here is strong, but without a further commitment to renewable energy, we’re likely to see little growth in the solar industry for the foreseeable future.</td>
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| go back and choose a new state |

### Delaware

**2017 SOLAR REPORT CARD**

**Overall Grade:** **B**

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**5-kW Solar Payback Time:** **10 Years**

**Investment Return (IRR):** **11.5%**

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<td><strong>Delaware</strong> falls a tiny bit in our rankings, a victim of its own solar success. You see, the state used to have excellent rebates, but they disappeared really quickly because the limits were reached. So many people wanted to go solar in The Small Wonder that the rebates have all but disappeared. The policy here is very strong, so we’d like to see Delaware commit some more funds to renewable energy incentives. Maybe take away some of those tax shelters for corporations…</td>
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| go back and choose a new state |
Here's New Mexico, with one of the the nation's best solar carve-outs! Yes, it's a sunny place, but you can’t take advantage of that sun unless you do a few things right—which The Land of Enchantment has. They’ve called for 4% of all electricity to come from the sun by 2020, but they’ve let their formerly-excellent tax credit go away. That’s the big reason for the 6-spot drop going into 2017. As for the future, we’d still like to see an SREC market here, so all you New Mexico homeowners should call your legislators and get that carve-out increased!

**TREND**

Here’s New Mexico, with one of the the nation’s best solar carve-outs! Yes, it’s a sunny place, but you can’t take advantage of that sun unless you do a few things right—which The Land of Enchantment has. They’ve called for 4% of all electricity to come from the sun by 2020, but they’ve let their formerly-excellent tax credit go away. That’s the big reason for the 6-spot drop going into 2017. As for the future, we’d still like to see an SREC market here, so all you New Mexico homeowners should call your legislators and get that carve-out increased!

**COMMENTARY**

...
Back in 2015, Hawaii became the first state to set a 100% renewable energy goal. That’s a huge deal! And the Aloha State needs it, too—most of their electricity now comes from burning imported fossil fuels. That imported oil and gas costs a ton, which is why solar doesn’t need big incentives to be successful here. Unfortunately, the state’s main utility, HECO, has a new net-metering-lite way of paying for solar that might prove to be a bad deal in the near future. Still, the electricity prices here are super high and the state has a good tax credit, so a solar investment in Hawaii is just about the best in the nation (for now).

**Hawaii**

**2017 SOLAR REPORT CARD**

**Overall Grade:** B

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**5-kW Solar Payback Time:** 6 Years

**Investment Return (IRR):** 24.4%

TREND

1

**COMMENTARY**

Back in 2015, Hawaii became the first state to set a 100% renewable energy goal.
California, reprising its 2016 performance, slips another two spots for 2017 after letting its property tax exemption lapse (update: California’s exemption was extended in 2014, but hidden in arcane tax code—with the change, the state deserves to be in 13th place in these rankings). Still, the Golden State is where the nation’s solar industry was built, and Public Utilities Commissioners here made the whole industry’s day by renewing net metering early last year. That’s why a solar investment here is still a brilliant move, and probably will be for years to come. Cali, you’re better than your 16th-place showing would indicate, so shore up some good policy and keep the sun party going!

go back and choose a new state
Iowa
2017 SOLAR REPORT CARD

Overall Grade: C

Policy
- D RPS Law
- F Solar Carve-Out
- C Electricity Cost
- B Net Metering
- B Interconnection

Incentives
- B Tax Credits
- F Rebates
- D Performance Payments
- B Property Tax Exemption
- A Sales Tax Exemption

5-kW Solar Payback Time: 13 Years
Investment Return (IRR): 7.2%

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<td><strong>Iowa</strong> jumped up 6 spots in our rankings this year, but again, it's because other states moved down. Not saying there's anything wrong with Iowa; in fact, given how much sun the state gets on account of being mostly flat and tree-less, Iowa is actually a nice place to go solar. We'd still like to see a real RPS law with a solar carve-out, and maybe some further incentives for farmers and homeowners who go solar. Don't make us wait too long for that, Iowa!</td>
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[Link to solarpowerrocks.com]
This year, Illinois stays put in our rankings, but it could've been worse. There was a major energy bill in the legislature late in the year that almost contained a disastrous fee increase for solar owners. Luckily, that crisis was averted in time for Christmas.

With good policy and high electricity prices, the Land of Lincoln should be a fine place to go solar in 2017 and beyond.

**COMMENTARY**

- **5-kW Solar Payback Time:** 13 Years
- **Investment Return (IRR):** 7.4%

**TREND:** Even
Wisconsin
2017 SOLAR REPORT CARD

Overall Grade: C

Policy
- D RPS Law
- F Solar Carve-Out
- B Electricity Cost
- D Net Metering
- D Interconnection

Incentives
- F Tax Credits
- B Rebates
- D Performance Payments
- A Property Tax Exemption
- A Sales Tax Exemption

5-kW Solar Payback Time: 12 Years
Investment Return (IRR): 8.1%

Wisconsin picked up a spot this year thanks to Arizona’s poor showing, after dropping 4 spots in our 2016 rankings. That’s not where you should be, Badgers! The state continues to struggle with joblessness and a stagnant economy, and ignoring the chance to kick-start a renewable revolution is no way to reverse those problems. We wish Wisconsin could get its act together and look to the future again, but we’re not holding our breath. For now, going solar here is still a good investment if you live in Madison and Milwaukee, but we’re not sure how much longer that will hold true.

go back and choose a new state
Ohio gains back the six spots it lost last year, largely because its performance payments and solar carve-out don’t look as bad in the relatively stagnant solar policy landscape of 2016. Ohio still can’t get it together and pass a real RPS, but we can take heart that Governor Kasich fought and won a battle with his own party to re-start the state’s current Renewable Standard. We’d hate to see the Buckeye state fall even further behind its neighbors in the rust belt when it comes its energy economy, so we’re hoping you’ll get out there and call on your legislators to make the right choices and pass an expanded RPS soon!
Ironically, this rust-belt neighbor of Ohio’s comes in right after it in our rankings.

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<td>The state of Pennsylvania is a state we’d argue is better than Ohio in terms of its commitment to helping folks go solar, but those missing tax exemptions are what keep the Keystone State down. If the General Assembly would be so kind as to enact those simple pieces of legislation, PA would end up in 13th place. Wouldn’t that be nice?</td>
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**Pennsylvania**

**2017 Solar Report Card**

**Overall Grade:** C

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**5-kW Solar Payback Time:** 12 Years

**Investment Return (IRR):** 8.7%
Arizona's solar marketplace is mature, because the state got started on solar early. Many of the incentives here have fallen off over the years, but prices are low, so the industry keeps churning. Unfortunately, Arizona is also the newest state to end solar net metering, which means solar owners here will soon be paid less-than-retail prices for the electricity they send back on the grid. Time will tell how much of a hit people here will take, but for right now, we're estimating about 25% of the solar electricity will be sent to the grid for about 20% less than retail prices. What the hell, Arizona?

go back and choose a new state
Maine jumps six spots this year, on the strength of its relatively stable solar policy, but look for that to change soon, given the state’s contentious fight over net metering. We’re afraid that if Maine’s Public Utilities Commission does away with the state’s very popular program, each year after now will see dwindling returns for home solar installations. Might be time to call your legislators and get them to back sensible solar policy, folks.
Washington hops up a couple of spots this year, another beneficiary of the failures in certain other states. Washington is trying pretty hard to help homeowners go solar, despite having the nation’s lowest energy prices and least sun, but we’d still like to see a property tax exemption and expanded rebates.
Montana drops 3 spots this year because it isn’t doing anything new to help expand home solar. Add to that the fact that state is one of many which are now considering changes to net metering law, and the optimism shown by some in The Treasure State should be tempered with a healthy dose of “if you love something, support it.” We’d like to see some action from Helena in the form of an actual RPS law with a solar carve-out, to facilitate a shift to renewable energy and make it easier for ordinary Montana homeowners to go solar.

Florida is the most baffling of all the states when it comes to solar. It’s literally called “The Sunshine State,” yet it bans third-party solar (PPAs), and was this year subjected to a shameful, misleading solar ballot initiative put forth by a utility-backed political group. Thankfully, that measure was defeated. Hopefully, Florida voters have been awakened to the shenanigans going on in their state’s energy markets. We really hope you figure this one out, Floridians, and stop big utilities from building fossil fuel plants on your dime while denying you the most basic of low-cost solar choice. Kick out those
legislators and demand that the Sunshine State not be in the bottom half of the country for solar policy.

**Indiana**

**2017 SOLAR REPORT CARD**

**Overall Grade:** C

**Policy**
- D RPS Law
- F Solar Carve-Out
- D Electricity Cost
- B Net Metering
- B Interconnection

**Incentives**
- F Tax Credits
- F Reates
- D Performance Payments
- A Property Tax Exemption
- A Sales Tax Exemption

**5-kW Solar Payback Time:** 18 Years

**Investment Return (IRR):** 3.5%

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### TREND

Here’s what we wrote the last two years about Indiana:

“Oh, Indiana. With your voluntary RPS and your lack of rebates and tax credits, you look like a D state. Oh wait, are those property and sales tax exemptions? And good net metering and accessibility rules, too? Well, that’s a decent start, so we’ll give you a C for trying, but we need to see some progress toward more aggressive standards, or we’ll have to hold you back a year, and we know you don’t want to be in the same class as your little cousin West Virginia.”

It’s pretty much still true, but Indiana gains a(nother) spot because other states got worse.

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**go back and choose a new state**
Nevada took a huge dive this past year after its Public utilities Commission did away with the state’s net metering program (It actually happened in late December, but we had already written the 2016 update by then). Thankfully, people who already have solar systems were “grandfathered in” to net metering in an 11th-hour move back in September, but for homeowners newly looking to go solar, the outlook is getting less rosy by the day. That’s because NV Energy is set to raise fixed fees and lower payments for excess solar energy on a set schedule over the next 12 years. If you get solar panels for your home today, you can still expect decent returns, but pray they don’t alter the deal any further.

**go back and choose a new state**
No state in the union gets less sun than Alaska, so it’s refreshing to see it coming in ahead of such sun-rich states as Georgia and Alabama. Or no, wait... that’s depressing as hell. We will say that Alaska’s position is largely due to its super-high electricity prices, as solar saves you more here than most places, even if you hardly see the sun for months at a time.

go back and choose a new state
North Carolina
2017 SOLAR REPORT CARD

Overall Grade: C

Policy
- C RPS Law
- C Solar Carve-Out
- D Electricity Cost
- C Net Metering
- B Interconnection

Incentives
- F Tax Credits
- F Rebates
- D Performance Payments
- B Property Tax Exemption
- F Sales Tax Exemption

5-kW Solar Payback Time: 14 Years
Investment Return (IRR): 6.7%

TREND COMMENTARY

North Carolina is on of this year's biggest losers. With its tax credit, rebates, and performance payments all gone or weakened, the state took a huge a hit. Those changes caused a near-doubling of the payback time for solar in the Tarheel state, and a reduction by 50% of the IRR for a solar investment here. The state still has decent solar policy, and we’d like to see that strengthened going forward. Hopefully new governor Roy Cooper can get that done… if the changes Pat McCrory and the legislature don’t hobble him too much, that is.

go back and choose a new state
**South Carolina**  
**2017 SOLAR REPORT CARD**  
**Overall Grade:** C

<table>
<thead>
<tr>
<th>Rank</th>
<th>5-kW Solar Payback Time:</th>
<th>Investment Return (IRR):</th>
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<tbody>
<tr>
<td>31st</td>
<td>7 Years</td>
<td>16.6%</td>
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### Trend

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### Commentary

*South Carolina* doesn’t support solar with a lot of good laws and a bevy of incentive options, but it doesn’t have to. The state’s solar tax credit allows homeowners who install solar to reduce their taxes by 25% of the costs of their system, up to $3,500 per year for up to 10 years. Add to that a very nice rebate program from Duke Energy Progress (only available in certain parts of the state, sadly), and you’d have to be living underground to not want solar on your SC roof. All in all, the “C” grade in that report card above is a little misleading. As long as the rebates and tax credit exist and net metering stays relatively intact, the Palmetto State is one of the best places to put panels on your roof.

[go back and choose a new state](https://solarpowerrocks.com/2017-state-solar-power-rankings/)
Even if you don’t live there, you might not know it, but Utah is a really sunny place! Combine that with the state’s good tax credit and fine net metering rules and you have the makings of an unlikely solar hero—without the RPS to kickstart it. Beware, though, Rocky Mountain Power wants to end net metering and start charging solar customers more. If that happens, Utah will be a tough place to go solar.

go back and choose a new state
Missouri hopped up two spots on our ranking last year, because rebates from a few utility companies (including KCP&L) were actually pretty nice. This year, those rebates are almost exhausted (good on you if you got one!), which ushered in a 3-spot drop in our rankings for the state. This kind of piecemeal approach to good solar policy might be all we can get in a state like Missouri, but we think Americans of all political stripes should see the benefits of clean solar power flowing into their homes, and get behind some common-sense measures to ensure we've all got a shot to get there.
What's the matter with Kansas jumps up 4 spots this year, but they actually got worse for solar than they were in 2016. Last year, we called Kansas legislators who worked to repeal the state's successful RPS law “backwards-thinking morons who care more about fighting progress (on the taxpayer dime) than they do about making things better for their constituents.” This year, without much action on good energy policy at all, we have to wonder what they’ve been up to.

go back and choose a new state
Texas drops a spot this year, even with its pockets of great solar policy in big cities like Dallas, Austin and San Antonio. On the whole, the energy marketplace here gives utility companies a better chance than the little guy, but those big cities often have great programs to help you go solar, and we've heard there might be a few people living in them. If you live within 40 miles of a major city center in Texas, you owe it to yourself to check out the possibilities for solar on your roof.

go back and choose a new state
Michigan earns nearly the exact same grades as last year, but its interconnection policies look a little worse compared to the average, and payback time and IRR are both a little worse. The state is one of the few above the Mason-Dixon line to languish like this, and we’d like to see lawmakers in Lansing follow Ford Motor Company’s lead, but help homeowners install solar, instead of big corporations.

go back and choose a new state
Georgia
2017 SOLAR REPORT CARD

Overall Grade: **D**

### Policy
- **F** RPS Law
- **F** Solar Carve-Out
- **B** Electricity Cost
- **B** Net Metering
- **D** Interconnection

### Incentives
- **F** Tax Credits
- **D** Rebates
- **F** Performance Payments
- **F** Property Tax Exemption
- **F** Sales Tax Exemption

### 5-kW Solar Payback Time: **10 Years**

### Investment Return (IRR): **11.7%**

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<td>Georgia’s incentives aren’t as good as one of the better states, and they don’t have solid solar policy, but going solar here is interestingly a good idea. That’s because Georgia Power will pay you well over the retail price for solar energy that you sell back to them. As long as this program exists, Georgia is a good place to choose solar, but like with other states with tepid support for solar, we’d like to see a solid base of policy and incentives that shows a real commitment to a long future for home solar here. As it stands, the 6-spot jump could turn around real fast in our 2018 rankings report.</td>
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[go back and choose a new state](https://solarpowerrocks.com/2017-state-solar-power-rankings/)
“Solar in Virginia: about as bad as you might think!” The state’s big utility company, Dominion Power, offers an anemic performance payments program, which will help homeowners now but isn’t guaranteed to be there in a few years. All in all, the “D” grade is earned, but if you’re environmentally-minded, you can get solar and see decent returns over 25 years.
Nebraska
2017 SOLAR REPORT CARD

Overall Grade: D

Policy
- F RPS Law
- F Solar Carve-Out
- D Electricity Cost
- B Net Metering
- F Interconnection

Incentives
- D Tax Credits
- D Rebates
- F Performance Payments
- A Property Tax Exemption
- F Sales Tax Exemption

5-kW Solar Payback Time: 17 Years
Investment Return (IRR): 4.4%

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<td>Nebraska popped up 8 spots after adding a property tax exemption for solar, but the state is otherwise lacking any help for people who want to go solar. Beautiful Lincoln, though, does offer a rebate program that might be worth checking out, so if you live there, seek out an installer who can walk you through taking advantage of it. You’ll see decent returns, and the state’s good net metering rules will help keep it that way.</td>
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[go back and choose a new state]
Tennessee drops down 7 spots because the TVA’s popular “Green Power Providers” program stopped paying extra for solar kilowatt-hours (and also paid a small initial rebate), and became a contract to purchase your excess power at retail rates for 20 years. Without good net metering policy otherwise, the TVA’s program provides a bit of comfort, but we’d like to see state-level policy that does a more convincing job of supporting solar.
The first “F” in our rankings goes to South Dakota, which just can’t seem to get anything going in the way of renewable energy. The state gets plenty of sun, but without action to at least put solar on a level playing field with fossil fuels, the outlook isn’t too rosy. If you live in the Mount Rushmore State, you can get solar and save a little money over the long term, but you’re better off putting that money in stocks and maybe using your proceeds to plant trees if you’re environmentally-minded.

**TREND**

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**COMMENTS**

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**go back and choose a new state**
Louisiana, which saw the end of its solar tax credit in 2016, was one of our rankings' biggest losers this year. In fact, it would have been the biggest loser but for a surprise restoration of net metering late in the year. Still, the electricity prices here are the cheapest in the nation, leading Louisiana to the worst IRR for a solar investment, even with net metering.

go back and choose a new state
The story of North Dakota, South Dakota's colder, flatter sister, rose three spots to challenge its sibling for the title of “completely unremarkable solar state.” We suppose the decent interconnection standards and a not-terrible 5-year property tax exemption deserve some modicum of praise, but not much more than a modicum. Not good enough to bring the state out of “F” territory, but not the worst, either.

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**go back and choose a new state**
West Virginia
2017 SOLAR REPORT CARD

Overall Grade: F

Policy
- RPS Law: F
- Solar Carve-Out: F
- Electricity Cost: D
- Net Metering: A
- Interconnection: B

Incentives
- Tax Credits: F
- Rebates: F
- Performance Payments: F
- Property Tax Exemption: F
- Sales Tax Exemption: F

5-kW Solar Payback Time: 17 Years
Investment Return (IRR): 4.3%

West Virginia seems like it really wants to help its residents out, given that its net metering and interconnection rules have been good for some time, but 43rd in the nation for solar is hardly better than 48th (last year’s rank). The state’s net metering standards somehow survived this year, but we’re not holding our breath that they’ll be joined by any better policy package any time soon.

go back and choose a new state
Wyoming solar: people just kind of leave the issue alone and the state jumps 5 spots for not being as bad as the deep south for solar. You can still make money investing in solar in Wyoming, and with good net metering rules, you probably won’t have too difficult a time doing it, but no guarantees.

Idaho solar: people just kind of leave the issue alone and the state jumps 5 spots for not being as bad as the deep south for solar. You can still make money investing in solar in Idaho, and with good net metering rules, you probably won’t have too difficult a time doing it, but no guarantees.
Look at Idaho, holding steady at 46th place after rising from 51st in 2015. Should we award them for that? No. They still fail. We need to see some actual improvement here, and soon.

Arkansas
2017 SOLAR REPORT CARD

Overall Grade: F

Policy
- F RPS Law
- F Solar Carve-Out
- D Electricity Cost
- A Net Metering
- F Interconnection

Incentives
- F Tax Credits
- F Rebates
- F Performance Payments
- F Property Tax Exemption
- F Sales Tax Exemption

5-kW Solar Payback Time: 19 Years
Investment Return (IRR): 3.2%

Arkansas was #51 last year, and now look where they are! Why, next year, the Natural State could end up at (gasp) 39th!! Oh wait, the state is considering getting rid of its only good solar policy, net metering. We agree with Arkansas solar owner Pat Costner, who called the move to end net metering “punitive.” Don’t mess this up, Arkansas. We’ve got our eye on #51 for you again next year, but you’ve got some stiff competition.

go back and choose a new state
### Kentucky

**2017 SOLAR REPORT CARD**

**Overall Grade:** F

- **Policy:**
  - F RPS Law
  - F Solar carve-out
  - D Electricity cost
  - B Net metering
  - F Interconnection

- **Incentives:**
  - F Tax credits
  - F Rebates
  - F Performance payments
  - F Property tax exemption
  - F Sales tax exemption

- **5-kW Solar Payback Time:** 19 Years
- **Investment Return (IRR):** 2.9%

### Trend Commentary

Kentucky drops 4 spots after losing the Tennessee Valley Authority’s fine solar payments, which, to be honest, it didn’t really do anything to bring about anyway. The state would be home to the worst Internal Rate of Return for a solar investment were it not for...

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### Oklahoma

**2017 SOLAR REPORT CARD**

**Overall Grade:** F

- **Policy:**
  - D RPS law
  - F Solar carve-out
  - D Electricity cost
  - F Net metering
  - F Interconnection

- **Incentives:**
  - F Tax credits
  - F Rebates
  - F Performance payments
  - F Property tax exemption
  - F Sales tax exemption

- **5-kW Solar Payback Time:** 16 Years
- **Investment Return (IRR):** 4.8%
Turbines in Oklahoma generate a ton of electricity for the state, but even with how sunny it is here, the solar industry has been stymied at every turn. A solar installation here still makes sense if you like the idea of saving the planet and making a little lower return than the stock market.

Why does it seem like the sunniest states are the ones with all the problems? Alabama comes in just better than Mississippi this year, but only just barely. In these southern states, you'll still see a lot of sun, but barely any support or protection from the gubbamint. Just how they like it, apparently. Hey Alabamians: we know it's hard to be a solar lover in the old South, and we feel your pain, so maybe elect some folks who are willing to do something about how bad it is for you?
Here's Mississippi at #51. The 10-spot drop is due to the end of the TVA programs so many states in the region suffered from, but it just exposed Mississippi as bad, bad, bad as it is. If there is a silver lining to this sun-blocking cloud, it’s that solar actually provides decent returns here, if you can find an installer or DIY. Someday soon there will probably be a way to go off-grid with solar and batteries for cheaper than you buy electricity, but until then, keep fighting the good fight, Mississippian solar lovers.

Executive Summary
So, let’s get back to the dumpster fire that was 2016. Actually, we should temper that by saying it was a dumpster fire that took place in a really pretty meadow, with sunshine and flowers. And maybe some sprinklers going to keep it all from burning. The good and the bad. Have we stretched the metaphor enough yet?

Anyway, here are the solar trends of 2016:

**Net Metering Battles**

There were notable net metering battles in states all across the country in late-2015 and 2016, from Maine to Arizona to Hawaii and everywhere in between. In places like Illinois and Michigan, changes to net metering policies were removed from energy bills in the eleventh hour, giving solar advocates and homeowners a taste sweet, sweet victory. In Arizona, though, there was a different taste in our mouths when the four of the five members of the Arizona Corporation Commission voted to replace net metering with a value-of-solar tariff guided by the utility companies’ estimates of the benefits and costs of rooftop solar in the next 5 years.

2017 looks like a year where we can expect more of the same, and hopefully we’ll end up with some smart policies like long term Value-of-Solar (VoS) Tariffs that can ensure people who want solar can get it and contribute to the grid while they save a little money, too. With the national climate poised to turn back to fossil fuels and away from climate-friendly renewable energy, we’re going to need sensible state policies to lead the charge for reason.

**Falling costs drive the future**
The price people pay to install solar is still falling. Based on data from NREL and multiple state-level resources, our estimates indicate that 2017 will see a nationwide average cost before incentives of around $3.78 per watt, with state-by-state variation based on the size and maturity of the solar industry. That’s down a little more than 4% from our 2016 estimate of $3.95/watt.

Looking Forward to 2017

Let’s take a look at that chart again:
Pretty cool, huh? We analyzed each of the ten factors represented above, plus two other “outcome factors”—the time it takes for solar to pay back the cost of the investment and the internal rate of return of that investment—to determine the final rankings. New for this year, we broke the “Net Metering” factor into two halves, where states without net metering policies were judged based on the price the major utility companies paid for solar electricity (some states pay very little, while others pay retail or close to it, even in the absence of state-level policy).

All told, we looked at 663 separate data points (51 x 13), covering all aspects of solar policy and incentives across the country.

As for the rest of the states, you can see from the chart, the states that did well tend to have more solid bases of solar policy (rings 2-6), and to offer more solar incentives (rings 7-11).

Here are some other interesting facts from the chart:

- All states (except Washington D.C.) that earned an overall “A” grade offer both sales and property tax exemptions for solar (rings 10 and 11)
- Similarly, all “A” and most “B” states have good net metering policies (ring 5), which help ensure that solar remains competitive
- All but one of the bottom 25% of states (lower left quadrant) have no RPS (ring 2), and the one that does has only a voluntary goal
- Conversely, all but two states that earn an “A” or “B” have above-average RPS laws
- Only three states with above-average RPS laws earn lower than a “B” overall
- Having high electricity prices helps—11 of the top 20 states do—but high prices are less important for solar success than a good RPS

**Factors and Methods**

We analyzed 663 different data points to produce our final rankings. It wasn’t easy, but it was worth it. Take a look at the factors we rated and the weights we assigned to each:
Click on the buttons below to see more information about the three different categories (policy, incentives, and outcomes), or the twelve different factors. Each factor has its own ranking so you can see, for example, which state has the best solar carve-out, or which has the highest energy prices.

Policy

RPS

RPS Solar Carve-Out

Electricity Prices

Net Metering

Interconnection Standards

Incentives

Tax Credits
Rebates

Performance Payments

Property Tax Exemptions

Sales Tax Exemptions

Outcomes

System Payback Time

Internal Rate of Return

Solar Policy Factors – 50%

Policy is one of the major categories that we use to determine how solar will fare in a state. All told, the 5 policy factors make up 50% of our weighting system. Good solar policy is like the bedrock of the future energy landscape—with a strong bunch of laws and regulations in place, you can be sure a state will be favorable for solar long into the future.

The danger here is that state laws can be repealed as control of the legislature changes from one party to another, but we're not quite ready to analyze the political climate of every state. Instead, we judge states by what the leaders of the past and present have done to encourage renewable development, and leave it at that.

[back to factor table]

Renewable Portfolio Standards (RPS)
As we mentioned above, 2015 was a landmark year for state RPS laws. In June, Hawaii became the first state in the nation to commit to a 100% renewable energy future, and they’re aiming to do it by 2045. Vermont, too, went nearly all-in on renewables—the Green Mountain State has committed to be 55% renewable by 2017, with a further goal of 75% by 2032. Good job, Vermont!

But there was some bad news, too. Kansas and West Virginia became the first two states ever to repeal an RPS, meaning there are now 17 states without goals for future renewable use. The folks over at ALEC and all the utility industry lobbyists are surely feeling pretty good about those nefarious victories, but hopefully the point will be moot in a couple years, and we’ll have a federal standard for the first time ever. We can dream, can’t we?
There weren’t any changes to state solar carve-outs this year, which is a sad state of affairs, because solar carve-outs are the ideal way to ensure that good incentives are in place. In fact, no state with a decent solar carve-out placed lower than 19th in our overall rankings, and only 7 states without carve-outs made it into the top 20 overall. Let’s hope we see a little more commitment to solar in 2016. The country could use some more robust SREC markets.
Electricity Prices

How can we guarantee that solar will be a success in a state? Electricity prices are the number 1 factor. In states like New York and Massachusetts, electricity prices are so high that solar is a no-brainer, just because it starts saving you money on day 1.

Electricity prices in most states rose about a penny this year. That’s about a 4.4% increase, and it puts us back on trend after last year’s 0.87% increase. We use an estimate of 3.5% increase per year for electricity prices, based on historical data.
We draw data for our estimates from the U.S. Energy Information Administration, which publishes *monthly recaps of the total energy picture in the country*. At the time we pulled the data for this report, 24 states had seen increases in their electricity prices averaging $0.01/kWh. Conversely, only 2 states saw their electricity prices decrease this year: Michigan and West Virginia.

*back to factor table*

**Net Metering**

**Net Metering & Feed-in Tariff**

10% of grade

What is net metering?

Net metering means you get full-price credit for all the energy your solar panels generate. A feed-in tariff (FiT) is the payment for solar energy in non-net metering states.

The grade reflects how balanced the policies are, with regard to system size caps, total program capacity, restrictions on kWh rollover from one month to the next, metering charges, Renewable Energy Credit (REC) ownership, and safe harbor provisions to protect customers. It also reflects the FiT price in non-NM states.

Ah, net metering. One of the most important factors in determining how well solar will be supported by your state, but not, as it turns out, the end of all that is good and holy, as some solar advocates would have us believe.
That’s because even after Nevada did away with net metering, people who install appropriately sized systems can still do well there. As long as you’re not sending a ton of electricity to the grid, you’re still offsetting retail prices. The big problems in Nevada will come when the monthly fixed charges go up. Getting solar sooner is actually a benefit there, even without net metering.

Still, we wanted to accurately reflect the importance of net metering, so this year, we bumped up its weight to 10% of the total grade, and we examined Feed-in Tariff policies in non-net metering states to show where solar still does well despite bad policy. In layman’s terms, that means we look at whether utility companies in states without net metering will still pay you a good price for the solar energy you send to the grid.

In Arizona, another state that just did away with net metering, we’ll probably see a solar payment of $.09/kWh. That’s lower than retail to be sure, but not the end of the world. Again, as long as home solar systems are properly sized (i.e., designed to use power in the home, minimizing what gets sent to the grid), the owners will still cut their bills by the retail rate by replacing their usage.

A replacement for net metering has long been scheduled for Maine, but keeps getting kicked down the road. In good net metering news, Louisiana reinstated it, Michigan and Illinois managed to keep it, and Hawaiian electric prices are still so high, it almost doesn’t matter.

Finally, the way solar and battery prices are going, we think going off-grid will start to be more desirable. In 5 or 10 years, the end result of all these battles over what to pay homeowners for solar electricity could be a move to micro-grids n increasing energy self-reliance movement that sees companies like Tesla offering solar-plus-battery solutions that remove homes from the grid entirely. Technological solutions to the problem of greedy electric utilities are coming soon to a neighborhood near you, and we might not all be the better for it.

back to factor table

Interconnection Standards
This is one place where, thankfully, not much has happened this year on the solar scene. Even Hawaiian electric companies have been forced to back down and get moving on allowing customers to connect to the grid. Hallelujah! Here’s hoping states can keep good policies in place and continue to improve long into the future.

**Solar Incentive Factors – 40%**

Incentives make up another 40% of our overall weighting system. Generally, good incentives follow from good policy, but that’s not always the case. A couple of the largest
utility companies in Missouri, for example, offer good rebates without much of a state 
RPS to go on, while there are virtually no incentives in Maine, which has one of the most 
aggressive RPS laws in the country.

Incentives are generally temporary monetary tools that help defray the cost of going 
solar and encourage people to consider solar power over other investments. Incentives 
are sometimes immediate, as is the case with most rebate programs. Other times, 
incentives are ongoing, and take the form of SREC markets tied to RPS goals, or tax 
credits that carry over for a number of years.

In any case, many of the most aggressive incentive programs have come and gone. 
And they’ve done a good job, too. Incentives are responsible for the health of the solar 
industry in places like California, New Jersey, and Arizona, because they’ve served to 
increase competition in the marketplace and drive costs down. But there are still some 
fine incentive programs to be found, in states as different as Louisiana, North Carolina, 
and Washington. Here’s what you’ve got to look forward to for incentives in 2016:

back to factor table

Tax Credits
There were a few big changes in state tax credit availability in 2015. Of note, New Mexico and Louisiana ended their tax credit programs. In all, there are now only 7 states with solar tax credits that meet our “B” grade criteria. Ouch.

Looking ahead, Iowa and Oregon will see their tax credit programs disappear in just a couple short years. Luckily, the federal solar tax credit will keep kicking at 30% through 2019, then step down after until it disappears for homeowners after 2022. That is unless Donny Trump uses whatever tiny pen will fit in his hands to sign a bill ending the tax credit. Which would suck.

back to factor table
If expiring tax credits aren’t fun enough for ya, how about expiring rebates? Most of the juicy solar rebate programs of the past have all but dried up, as utility companies approach the RPS goals set by the states earlier in the century. There are just 8 states with grades of “B” or higher on rebates. Without increases to those RPS goals, expect the trend to continue.

Again, we’ve seen big decreases in prices for solar installations that have basically brought prices down to where they had been while rebates were still big. Incentives have worked wonders to kickstart the solar industry, so why stop here? We’d like to see
states re-commit to more aggressive RPS goals, complete with new rounds of rebates, or better yet, SREC markets.

Performance Payments

10% of grade

What is a performance payment?

Performance payments reward homeowners for the electricity their panels produce on an ongoing basis.

They are credited either as per-kWh bonuses or Solar Renewable Energy Certificates (SRECs). Either can fatten your wallet.

The per-kWh bonuses directly reduce your electric bill, whereas SRECs must be sold after they are earned.

SREC markets are pretty much the gold standard for incentives, because they're a market-based financial tool that incentivizes solar production by making utilities prove they're meeting the goals set forth under an RPS solar carve-out. SREC markets work great to get homeowners into solar as an investment strategy, because, believe it or not,
it's cheaper for a utility to pay people for their SRECs every year than it is for them to buy land and build their own solar farms.

In that way, solar becomes a win-win-win-win. Homeowners win by reducing their electric bills and getting paid for their SRECs, utility companies win by having a perfect, on-demand source of local electricity and by saving money on expensive capital investments, solar companies win by getting paid to do the installing, and everyone in the community wins because solar power reduces our carbon footprint, saving the planet for future generations. We call that a good system.

Now, in order to see more SREC markets, we need to get more states enact aggressive RPS laws with robust solar carve-outs. Call your local legislators, people!

back to factor table

Property Tax Exemptions
There were no appreciable changes to property tax exemptions in the country for 2015. That’s good, but not good enough. You see, there are 29 states up there with property tax exemptions that earn less than an “A” grade. Ideally, we’d like to see everyone earn the highest possible grade, but we’ll start with wishing those 18 states without any property tax exemption get their acts together and pass something, stat.

**Why property tax exemptions?**

Installing solar panels on your home increases its value up to 20 times your annual energy bill savings. We think you shouldn’t be penalized for that, and many state legislatures agree.

The benefits of solar are numerous, and extending this type of tax break is low-hanging solar policy fruit.

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**Sales Tax Exemptions**
Ditto the lack of change in the sales tax exemption outlook. In this case, there are 18 states without any sales tax exemption for solar purchases, which we’d love to see fixed as quickly as possible. Notice again how every one of the states that earned an “A” overall have sales and property tax exemptions for solar panels? That’s the kind of leadership all states can look to.

[Diagram showing sales tax exemptions]

When states give you a sales tax break on solar, we notice. You should too. Sales tax exemptions for solar can save you hundreds of dollars up front.

A handful of states have no sales tax, and therefore received ‘A’ grades by default (OR, DE, MT, AK, and NH).
Outcome Measurement Factors – 10%

The final two factors are described as “outcome measurements,” because that’s exactly what they are. If a state has a good RPS, high electricity costs, and decent rebates, you’d expect these outcomes to follow. But that doesn’t always happen, like in the case of Georgia. The state does poorly on almost ever measure of solar-friendliness and earns a “D” overall, but Georgia Power’s uniquely great solar payments plan makes the payback and internal rate of return (IRR) for a solar investment better than some “B” states.

Similar effects happen from quirky policies in Utah, South Carolina, and Texas, and we couldn’t just ignore the fact that, despite predictive measures looking bad in those states, a solar investment performs well, for any number of reasons our other analysis didn’t capture. So we added some weight to these outcomes to reward states that go against the odds. 10% of weight, to be exact, distributed evenly to the 2 factors.

back to factor table

System Payback Time
We made some changes in our calculations this year that increased the average system payback time. Specifically, we put in a 0.7% decrease in panel efficiency per year, which we hadn’t accounted for in past estimates. Because of the change, our estimated average system payback for a 5-kW solar array in the United States went up by almost exactly one year, from 11.8 to 12.8 years.

That increase might seem shocking, but it’s important to note that 0.7% is actually a conservative estimate for panel degradation. Most panels these days degrade by only about 0.5% per year, and last for at least 30 years before they’ve fallen below 80% efficiency. That’s pretty sweet, no?

back to factor table
There was a similar dip in rate of return across the board, with our estimates now showing an average of 9.4% IRR for solar investments. Last year, we estimated an average IRR of 10.9% for the country as a whole. Much of the decrease can be explained by the changes to the panel degradation number, and also huge changes in IRR for Louisiana (which ended net metering and its very large tax credit) and Hawaii (which ended net metering).

Let’s be clear here that an investment in solar still averages a return of 9.4%. That number is higher than the historical performance of the stock market, meaning solar is a better-than-average-investment, right now, right here (well, most places). Those kinds of
returns are in jeopardy as states start to hit those RPS numbers, change net metering policies, and/or end incentive programs, but for now, solar is about as much of a sure thing as there is.

Check out our IRR infographic for more information about solar investment IRR in the USA, and click the image for the full article:
Popular investing:

Unless you need the cash soon, investing in the stock market has long been a pretty solid bet.

But now, with good federal and state incentives, solar beats the S&P 500 in about half the country.

In some places, you can see returns many times higher than the market, making solar a no-brainer.

Watch out for Louisiana and Kentucky, where low electricity prices and bad policy collide.

Massachusetts is the place to be: Number 1, baby!

What makes for a great solar state?

- Low solar costs: The best states committed to solar early, with good policy and incentives to help the industry mature

- SRECs: 4 of the top 10 states have set up marketplaces for selling SRECs (Solar Renewable Energy Credits)

- High electricity prices: Residents in 8 of the top 10 states pay more for electricity than the national average

What goes into the calculations?

We start with the cost of paying for a 5kW system with cash, reduced within the first year by tax credits and other incentives, then estimate annual electricity savings, SREC sales, and other ongoing incentives.

INVESTING IN HOME SOLAR (how solar stacks up across the United States)

Investing in solar power for your home provides returns in the form of energy bill savings and incentive payments.

The returns can be calculated annually for the 25-year life of the system, making it easy to compare solar with other kinds of investments.

Who needs sun?

States like these prove you don’t need tons of sunlight to make solar make cents.

Learn more and get custom quotes at:

back to factor table
How much can you save with a solar roof in Oregon?

Profit from your roof space: find local deals on solar in Salem, eliminate your power bill, and join the solar revolution.

Calculate my savings!

How to Claim the 30% Federal Solar Tax Credit and FAQ

Solar Power Rocks has been referenced by:
Important Links

- Our story (and contact info)
- Solar Case Studies
- See Your Solar Savings
- Our E-book
- Solar FAQ
- Blog
- Installers – partner with us!
- Infographics
- Solar Policy Guide

Hot Solar States

- Arizona
- California
- Connecticut
- Hawaii
- Maryland
- Massachusetts
- New Jersey
- New York
- Pennsylvania
- Rhode Island

Go Solar!

Solar Power Rocks provides free comprehensive guides to solar policy and incentives for all 50 states and the District of Columbia, along with hundreds of helpful and informative articles about recent solar news and general information related to home solar power. For media inquiries, general questions, or to report an error, you can reach us here.
What happens after filling out this form?

See my savings!