

secretly provided Washington's army with weapons and ammunition. When the French openly entered the war in 1778, their powerful military helped the Americans on both sea and land. The combined American and French forces won their greatest victory at the Battle of Yorktown, which brought the war to a victorious conclusion. We'll discuss Yorktown in the next chapter.

Today's solar homeowners have already teamed up with several key allies in the fight for solar rights against monopoly utilities. Allies have included solar industry trade groups such as the Solar Energy Industries Association and environmental groups such as the Sierra Club. But solar allies are up against a formidable and established opponent. Like the army of King George III, the forces of monopoly utilities are well-funded and well-armed, in their case, with lobbyists and public relations departments. To stand up to the imperial might of utilities, solar patriots need all the help they can get.

In the future, if they can be convinced that rooftop solar is needed along with utility solar, then unlikely allies including some of America's biggest corporations such as Amazon and Microsoft may prove decisive in helping solar homeowners win. It all begins with reaching out to those who may not yet have joined the fight for rooftop solar rights but who clearly have a stake in helping America switch to a clean-energy economy.

Eleven

THE NEW KILLER APP TO SPREAD SOLAR

*We have it in our power to begin
the world over again.*

—THOMAS PAINE

In the technology world, a killer app is a software program or service that creates its own market. For example, Uber created a new market of people who wanted a ride to work but didn't want to spend the money on a taxi. Likewise, Airbnb created a market for tourists who wanted to stay in private homes.

What would a killer app to spread solar look like? To start with, it might not be a software program or online service. Instead, a killer app for solar might be a new idea in public policy.

Along with a free and unlimited source of fuel—the sun—the main advantage of solar power is that its fuel is clean and doesn't create greenhouse gas pollution. So, any policy that reduces greenhouse gas pollution from energy will also help to spread solar power. That's why a killer app to fight climate change would also be a killer app to spread solar power.

A Solution to Break through the Biggest Barriers

“What we really need is a killer app for climate policy,” climate activist Ted Halstead says in a TED Talk video that's started to go viral online. “In the climate world, a killer app is a new solution so promising that it can break through the seemingly insurmountable barriers to progress.”

Imagine a policy idea that would let the magic of the marketplace do all the work to spread solar power. Then, imagine if this idea had support from both progressives and conservatives. And what if the idea were easy to understand and simple to implement?

That idea is carbon-fee-and-dividend, according to Halstead, who first encountered the policy from Citizens' Climate Lobby's Marshall Saunders and Mark Reynolds. Since 2007, the group's volunteers have been promoting carbon-fee-and-dividend to Congress and various think tanks. Their work has succeeded in gaining support all across

the political spectrum, from conservative Republicans like Halstead, former South Carolina Republican Congressman Bob Inglis whom we've discussed several times in this book, and former Secretary of State George Shultz to progressive Democrats like Senator Sheldon Whitehouse of Rhode Island and former Vice President Al Gore.

These leaders agree that we need to do something new. America has tried regulating climate pollution for years, and it's failed to slow the pace of climate change. Almost invariably, as recent decades have passed without serious action to cut greenhouse gas pollution, the next year is hotter than the last.

The best hope of success may be a simpler approach to cutting pollution from dirty energy that will work with the free market. A carbon fee-and-dividend would encourage businesses and families to use less polluting energy sources by helping the marketplace set more accurate prices for energy and the products and services that use energy.

The carbon-fee-and-dividend proposal suggests putting a fee on carbon pollution at the source—such as a coal mine or an oil or gas well or even a shipping terminal where tankers bring in imported oil—and then returning 100 percent of the proceeds to the American people in the form of a rebate. Under this plan, an average family of four would get a check for about \$2,000 initially. Over time, that amount could increase. If the federal government implemented carbon dividends as proposed by the

Climate Leadership Council, seven out of ten American families would get more money back as rebates than they spend on carbon fees priced into the products and services they purchase, according to the U.S. Treasury.¹⁷

Helping Congress understand that carbon-fee-and-dividend is the “killer app” that will usher the United States into an age of renewable energy independence has been the main work of the volunteers of Citizens’ Climate Lobby. Through constituent lobbying and relationship building across party lines, CCL’s members have helped form the Climate Solutions Caucus, 62 members strong as of November of 2017. The perfectly bipartisan Congressional caucus is committed to exploring climate actions and solutions, and represents real progress in building political will.

Unlike net metering or the 30 percent federal investment tax credit for solar power equipment, a carbon fee is not specifically designed to help solar power. But a carbon fee will have the effect of boosting all clean energy, including solar power, by making clean energy more affordable relative to fossil fuels.

In various proposals for a carbon fee under discussion recently, the federal government would impose a carbon fee ranging from \$15 to \$25 or more per ton of carbon dioxide that would be emitted on fossil fuels. A carbon fee would force dirty energy producers to pay for the right to emit carbon pollution, instead of getting to pollute for free, as they have up till now. That fee is key to letting the

marketplace decide whether Americans continue to use dirty energy or start to put in more clean energy.

The fee would be paid by companies when they produce or import carbon-based fuels. In turn, those companies would pass the fees along to their customers who use the fuel whether to generate electricity or to run cars, trucks, and planes or even to make plastics and chemicals.

Paying the fee and passing it along to customers would have the effect of making dirty energy and all the things made and transported using fossil fuels more expensive. And that will make clean energy, including solar power, and all the things made and transported with clean energy, cheaper in comparison. Economists and veteran policy-makers alike think that a carbon fee will be one of the best ways to help solar spread more quickly across America.

Stronger and More Popular than Solar Subsidies

“The most powerful incentive is going to come when there are economic reasons apparent from our power meters as to why solar makes sense. That’s when it’s going to really take off,” former South Carolina Congressman Bob Inglis told me. “Of course, what we’re talking about there is a price on carbon dioxide so we see the true cost of energy. And when we see that in the liberty of enlightened self-interest, consumers will be dialing solar installers without

anybody telling them what to do. It's going to change the way we do electricity in this county."

Politically, the best news may be that the general public strongly supports putting a fee on carbon. According to the results of a poll released in September of 2017 by Yale University, a majority of registered voters—roughly 66 percent—support taxing fossil fuel in response to growing threats of climate change.¹⁸ According to the survey, the average American would be willing to spend \$177 per year to address climate change, about 14.4 percent more on energy when compared to current electricity rates in each state.

Compared to past policies to encourage solar power, a carbon fee has important advantages:

1. Unlike today's crazy-quilt of clean energy subsidies and incentives, a carbon fee is simple to understand and simple to implement. Studies predict that a steadily rising fee on carbon emissions from fossil fuels would be one of the most effective ways to slow climate change and to speed up clean energy, especially rooftop solar.
2. Today's solar incentives, with a variety of expiration dates, are unpredictable. To make things more confusing, solar incentives vary widely by state. Both of these factors create uncertainty for solar buyers, making it hard for homeowners and solar

installers alike to plan for the future, and to do business in more than one state. If a carbon fee was applied at the federal level, it would be the same in all states. A fee that would increase over a period of decades would provide even more predictability and give people confidence that making an investment in solar today would be good for the future too.

3. A carbon fee with a dividend included might be the most politically viable option to encourage solar today. While Republicans and Democrats fight about climate policy and clean energy incentives, lawmakers and influential leaders from both parties already support a carbon fee-and-dividend.

On the point about politics, a carbon fee that refunds all proceeds to citizens through dividend payments offers a lot to Republicans, who have provided the main opposition to clean energy subsidies in the past. See what Ted Halstead says:

Although the Republican Party has long been hostile to emissions reductions, a carbon dividends plan offers the GOP several strategic advantages. First, dividends should appeal to the party's base... For the GOP establishment, corrective taxes are fully consistent with free market principles, and

once firmly in place, justify the elimination of a range of existing regulations, including the Clean Power Plan. The policy's post-partisan appeal stems from the fact that all major factions could claim an important victory.

Carbon-fee-and-dividend could be the killer app to break two decades of partisan gridlock on climate policy and it could do more than any other idea to make solar power more affordable across the United States.



FROM THE REVOLUTION: BATTLE OF YORKTOWN

With French help, in the summer of 1781, General Washington finally felt that he had the strength to besiege the British in New York and try to take back the city that he'd lost five years earlier. But when French intelligence learned that the leading British General, Lord Charles Cornwallis, had moved up from North Carolina and was heading for Yorktown in Virginia to await supply ships or else evacuate his army by sea, the French urged Washington to change his plans and head south. Washington agreed, but made a feint against British forces in New York to conceal his true plans as he started moving the bulk of Continental forces to Virginia as quietly as possible.

While American and French armies headed south, a French fleet under command of Admiral François de Grasse blocked the entrance to Chesapeake Bay, preventing British ships from supporting or evacuating Cornwallis's army. With the 9,500-man British force trapped at Yorktown, its back to the York River and no way to escape, a combined force of Americans under Washington and French under General Jean Baptiste de Rochambeau began bombarding British positions on October 9.

Eight days later, on October 17, with mounting casualties of 600 dead and wounded, Cornwallis asked the

Americans and French for a cease fire. Then, on October 19 the British signed articles of capitulation that made 8,000 of Cornwallis's soldiers into American prisoners, the largest British army captured during the war.

Several skirmishes took place after Yorktown, but as support for continuing to fight in America evaporated in Britain and pro-war government ministers in London lost their jobs, leaders on both sides of the Atlantic knew that the war was now over. All that was left was to negotiate the peace.

For today's solar patriots, our equivalent of the Battle of Yorktown lies in the future. A final victory for rooftop solar rights could take a variety of forms. That victory could be a carbon-fee-and-dividend that creates a tidal wave of demand for home solar and forces monopoly utilities to finally surrender control of the electric grid to the public. But whatever form the final victory for rooftop solar will take, it must come at the federal level, to cover solar rights for the whole country, and not just in certain lucky states for solar such as California or New York.

In the meantime, many battles will need to be fought in different states, just as Washington's army fought battles in New England or in New York or in Virginia. Solar patriots should celebrate when they win in their state. But they should not get complacent. Winning in your own state is not enough.

Washington's final victory was not won by any one state's militia fighting for that state. Victory at Yorktown was won by the Continental Army fighting for all thirteen original American states. In the same way, the only lasting victory for all Americans to enjoy their rights to clean solar power that they make themselves will happen not in Sacramento or Albany but only in Washington, DC.