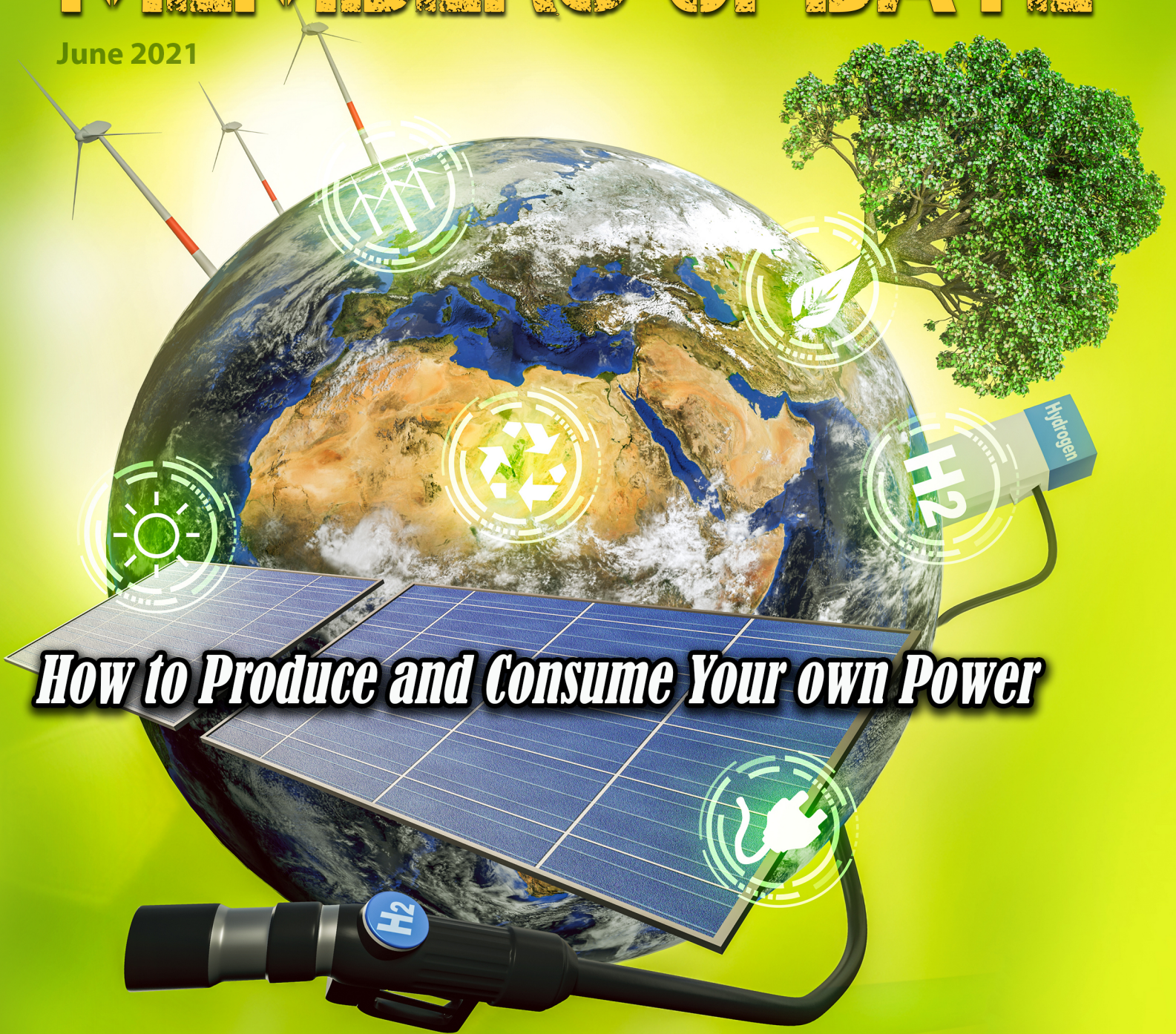




MEMBERS UPDATE

June 2021



How to Produce and Consume Your own Power

- The NSRA's Body Armor Buying Guide
- Top 5 Rifles to Buy Before They're Banned
- How to Build a Hillbilly Hot Tub

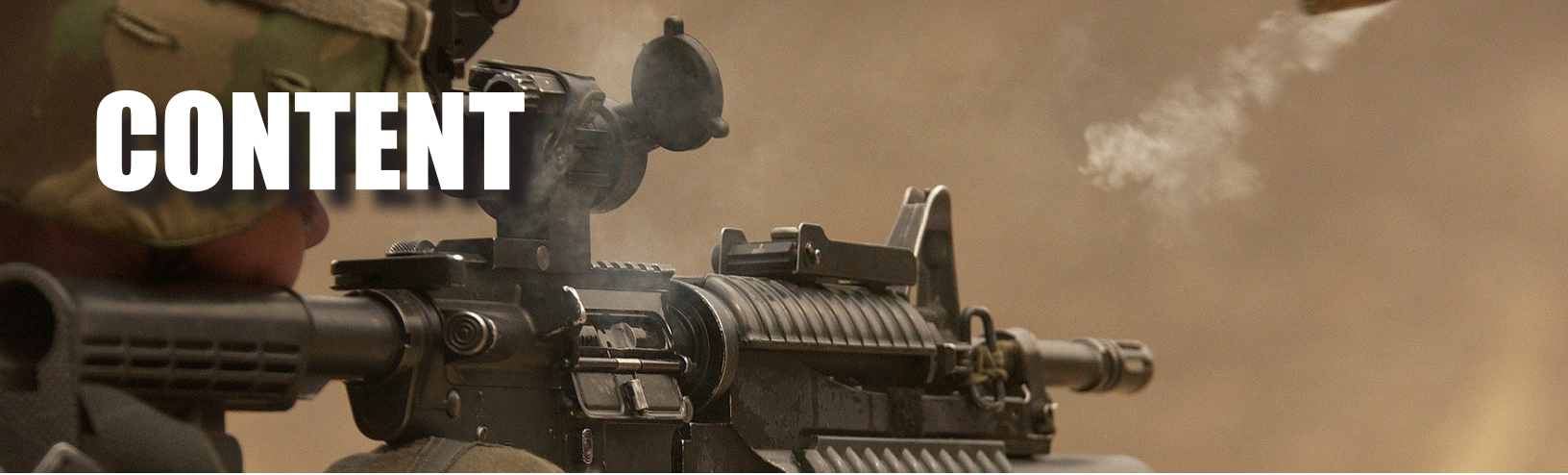


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Get These Rifles Before They're Banned

Many of the things we love about these 5 rifles -- their accuracy, dependability, and detachable magazines -- are the very same qualities that make them the target of the anti-gun crowd in DC. If you're in the market for a highly-rated semiautomatic rifle before anything changes, you can't go wrong with these.



07

Hillbilly Hot Tub

There's a new craze out there that's driving farmers, ranchers and even some feed store owners we spoke to, out of their minds. It's a phenomenon casually referred to as the "hillbilly hot tub," and this DIY trend has created a livestock tank shortage from coast to coast. In this article, we'll show 20 ways you can build your own in a weekend.



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Body Armor Buying Guide

In last month's issue, we took a deep dive into why it may be highly practical for preppers to invest in body armor. Here's a word of caution for those shopping for wearable protection: Not all armor is created equal. With this in mind, we now introduce to you the NSRA's official list of body armor to buy (and avoid).



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Be Your Own Electricity Company

If generating your own electricity is one of your self-reliance goals, then this guide is for you. Because whether you are attempting to live entirely off the grid, or you simply want to sustain your household during an extended power outage, planning is by far the most important factor to your success.



Top 5 Semiauto Rifles to Buy Before They're Banned

So, do we really think we're on the precipice of a new wave of so-called "assault weapons" bans? Possibly, but we're not psychics here at the NSRA; we're pragmatists. And from where we sit, motivating readers to take action is practical -- whether or not the swamp-dwellers in Washington have the 2nd Amendment in their crosshairs (and they certainly do).

With that being said, we've taken the liberty of using this sensational headline to shine the spotlight on several of the very best semi-auto rifles in 2021. As usual, we've done our level best to highlight the most reliable and "shootable" candidates on the market that deliver the absolute most bang for your buck. That means we look for the best values, but also the best quality and performance, so you can enjoy your equipment purchase for thousands of rounds.

The Scope

When conducting research for this topic, we made sure to search far and wide. That mode of action would, of course, helps us narrow it down to the rifles that offer the best shooting and most enjoyable semiautomatic rifles with an MSRP under \$1,000. Sure, most of the selection does fall into the category of ARs, or the umbrella term MSR (modern sporting rifles) that's been put forth to describe the designs inspired by the ArmaLite Rifle design -- but are in no other way related to the actual AR-15. We made sure not to limit our parameters to the MSR platform, however.

The MSR's modular platform is appealing partly because of the ease of customization, which is excellent for those who wish to tinker. Still, we can't rank the customizations that shooters may make to their rifles. And, we certainly understand that not all modular parts are created equal, as it is possible to customize your rifle's performance downward significantly from the day you brought it home.

That's to say, these rifles are reviewed with the stock furniture and hardware they are sold with -- which doesn't give any particular advantage to a modular design. The rifle must be complete, with high quality hardware, magazines, and sights in order to qualify.

What Makes These Rifles Pre-Ban Worthy



Let's face it, the people writing gun control laws in this country, as well as those in other countries, don't know their A2 flash hider from their multi-position buttstock, if you know what we're saying. With that being said, it's hard to know exactly what features a new "assault weapons ban" might target.

Suffice it to say, any gun that looks black and scary to these people could be in the crosshairs. From the NSRA's research, the features that are currently being targeted are semiautomatic actions and detachable magazines.

Based on the previous ban, we can assume certain features will be exempted from such a ban, and thus certain rifles will be exempt arbitrarily. Others will not – even though they operated in almost the exact same way with the same capabilities.

One such example of this haphazard legislation is the Ruger Mini-14, which not only managed to dodge the 1994 Assault Weapons Ban, but also never seems to be targeted by the gun ban advocates. The theory for that is that the Ruger traditionally has a wooden stock and thus looks less militarized.

With that being said, we're not basing our recommendations on the likelihood that these rifles will or will not become the target of any future legislation. The criteria we've placed on these rifles comes down to performance, reliability, and cost. Because, let's face it, getting a rifle before a legal window closes means you're shopping to fill a void in your arsenal, not to add a premium model to your collection.

You want the best, most durable semiautomatic rifle you can get for a good price. If you fall in love with this rifle and want to invest and customize it, the sky is the limit. Often, that's what you're paying for when you get into some of the premium builds, anyway. Wouldn't you rather choose your own upgrades based on your own needs and goals?

Each of these rifles are highly accurate and ready to roll straight out of the box. We've specifically avoided "optics ready" builds (that's marketing jargon for "no sights included"), because we think it's ridiculous to purchase a tactical rifle that doesn't include at least open sights. Talk about an incomplete product!

Palmetto State Armory PA-15 EPT Freedom Rifle 5.56 NATO

3 First up, we've got a very affordable and completely American-made rifle from the folks at Palmetto

State Armory. If you like rifles chambered in 5.56 NATO that like to work hard at very little cost, this may be your Huckleberry.



With a 16" barrel in 4150V Chrome Moly Vanadium Steel, you get a very high quality M4 profile barrel with a 1:7 twist that's ideal for launching mid to heavy weight bullets. For sights, the EPT Freedom Rifle has got a standard A2 style front post, combined with a Magpul MBUS flip up sight on the rear.

The EPT in the title, in case you were wondering, stands for Enhanced Polished Trigger. According to Palmetto, "We start with our standard single-stage government-style fire control group, finely polish the contact surfaces and then coat the hammer and trigger in a super slick nickel finish. The result is a trigger that is substantially smoother than mil-spec. A great economical upgrade."

Another aspect that differentiates the PA-15 is that it's decked out in Magpul furniture, so it doesn't look as ho-hum as many of its no-frills competitors. With an MOE handguard with ample MLOK spaces for mounting accessories, you get a nice upgrade right there. The fact that Magpul's extremely popular MOE grip comes standard on the EPT Freedom Rifle is another strong point to this package. Also, the Magpul multi-position stock gives the rifle a little more customized look, despite not really adding any functionality.



The gas system on the PA-15 is a workhorse and churns through all types of ammo indiscriminately and without misfeeds. As opposed to a custom build, tuning a gas system is one variable you shouldn't have to worry about with this model.

Overall, this rifle is an excellent entry-level MSR for a very economical price. PSA has a well-earned

reputation for manufacturing high quality rifles and accessories that won't break the bank. The EPT Freedom Rifle certainly fits that description and then some.

Kel-Tec SU-16



How about another something different from Kel-Tec? At the NSRA, we're big fans of tactical carbines that offer a little something extra, something different. And as you may have noticed, our sun doesn't rise and set on the AR platform.

Which brings us to the SU-16, a carbine that's not nearly as bizarre-looking as some of its Kel-Tec siblings. Still, it definitely stands out in a good way. Looking somewhere between a Mini-14 and an AK-47 that got shrunk in the laundry, the SU-16 platform has amassed quite a fan base over the years. It doesn't end up on very many "best of" lists, but we intend to rectify that.

First things first, the SU-16 is chambered for the classic .223/5.56 rounds familiar to AR shooters. The action is piston-operated and accepts conventional AR magazines. This is a huge bonus for at least two reasons; a.) you can share magazines if you already own an AR, and b.) there are tons of reasonably priced high-quality AR magazines out there to choose from. We really appreciate Kel-Tec's philosophy on interchangeable magazines.

Weighing in at under 5lbs (unloaded), the SU-16 delivers a really nice mix of weight, ergonomics, accuracy, and overall compactness. Another main draw to the SU-16 is the number of sub-models available.

Do you want iron-sights, a folding stock, a collapsible stock, a threaded barrel? The SU-16 has 7 variants to choose from, depending on whether you're looking for a truck gun, hog popper, or a tactical rig with rails all over the place.

It's a bit difficult to go over the features of a carbine that comes in a range of barrels from 9 to 18.5 inches in length. All of them have a 1:7 twist. For grins, the unloaded weights of these carbines range from 4.5 to 5 pounds.



Wait, did we forget to mention that 4 of these sub-models feature integrated bipod systems? Talk about bang for your buck!

Maybe ultra-lightweight carbines with integrated bipods and folding stocks interest you, and maybe they don't. The fact is, the Kel-Tec SU-16 is an excellent reliable and accurate rifle by any standard, and a very worthy AR competitor.

Smith & Wesson M&P 15 Sport II



As the MSR market has heated up, the field is jam packed with so many similar entries that it's almost impossible to keep up. But as the old adage goes, "the cream rises to the top." And, no series of rifles is a better example of an "instant classic" than the Smith & Wesson M&P 15.

Nobody does the ampersand sign like good ol' Smith & Wesson, and when it comes AR based weapons from a major manufacturer, the M&P 15 proves that no one can build a value MSR for the mass market like these guys, either.

In terms of budget-friendly AR's, the M&P 15 really lays down the gauntlet.

The best part is, once you become aware of the quality, accuracy, and reliability of the M&P 15, it really makes you wonder why so many people are willing to pay \$2,000 for a similar gun with a similar level of performance (sometimes even a lower level of performance). The Sport II package that we recommend here received a few sweet upgrades to the original platform, including a forward assist and a dust cover – both are very nice-to-haves.

The barrel configuration changed from a melonite-nitride coated 1:8 twist for the Sport I, to a slightly less desirable (on message boards) nitride barrel in a 1:9 twist for the Sport II. Despite the fact that there's a strong preference for a 1:8 twist out there in the world of AR fanaticism, the Sport II's barrel prints sub-MOA groups at 100yards. You really can't beat it.



The dirty secret with the AR fan base is that most of them look down on any weapon that's not custom-built, even if they didn't snug up a single bolt on their own rifle. The

fact is, the M&P 15's performance is on par with pretty much ANY other AR build that's 3-5X its price...if not better. Go watch the reviews, and you'll get the picture pretty quick that this gun has earned a reputation for being a stone-cold badass.

The M&P 15 is just really nicely done MSR, with an A2 flash hider, standard 6-position stock, great Magpul iron sights, and a 30-round Magpul magazine. For the money, it's easily one of the best things going. One more thing to consider: This carbine is covered by S&W's lifetime service policy. You won't find that feature with any custom builds.

Ruger AR 556



This much-anticipated rifle from the very value-oriented minds at Sturm and Ruger Co. turned out to be just what the doctor ordered. BTW, if you're a fan of Ruger, you're going to like this list since Ruger has really been knocking it out of the park in terms of bang for your buck.

Now, getting back to the AR 556, this gun is just a plain old high-quality AR-style weapon for those who want an MSR, but don't want to pay \$2k... or even \$1k to get one. In many ways, we'd say it's the most direct competitor to the M&P 15; that's high praise given that the AR 556 is also at the bargain basement end of the spectrum.

In terms of adaptability, this rifle is pretty much mil-spec and in-step with regard to the commercial MSR platform, which is not Ruger's typical MO. Yes, they're known for creating very solid versions of popular firearms (i.e. the Vaquero) but they typically "Ruger-ize" the designs so the parts, scope rings, etc. are not compatible with other manufacturers.

Again, making use of the broader AR platform is yet another sign that Ruger is tuned in to what the consumer wants. That's nice for those who take their rifles out of the box and immediately start "upgrading" all of the manufacturer's workmanship (and possibly voiding some warranty items).



Plus, the AR 556 comes with some pretty nice standard equipment like a milled sight post, birdcage style flash-hider, sling mounts, 4140 chrome-moly steel barrel with a 1:8 twist, and the highly-modular components that make the AR platform so damn popular. Ruger's Rapid Deploy rear sight is a nice little adjustable iron sight, great for co-witnessing other optics.

All in all, it's just a solid AR, with an abundance of nice-to-have features like a dust cover, that can be had for around \$550 for a very reliable US-made firearm. Pretty sweet.

And while we will quickly mention a couple other very nice rifles like the Savage MSR and Springfield's Saint, we really can't see any reason to pay more for them, when the AR 556 is as good or better...

Ruger Mini 14



You didn't think we were going to leave off the Mini 14, did you? Despite being somehow overlooked by previous bans, the critics are correct: The Mini 14 is a very capable semiautomatic .223/5.56 rifle that can do whatever an AR-15 can (albeit with less room for customizations).

We love this rifle for many reasons, not the least of which is its low-profile in the politics of “assault weapons.” But don’t get us wrong; this gun is no lightweight when it comes to tangible assets, either.

For starters, this scaled down M14 is, in fact, a military inspired weapon, without a doubt. Introduced in 1973, the Mini 14 benefits from a pedigree unrivaled by anything this side of an AR-15 or AK-47. Tack on the almost 5 decades of field testing by Ruger and its customers, and you have a weapon that’s been heavily refined. Plus, it’s made by Ruger and, in case you’re not familiar with them, they’ve been around for a few minutes.

As a result of the Mini 14’s military pedigree, it really does look a lot like an M14. It’s got a notably enthusiastic gas ejection system, flinging shells 20 feet or more. When it comes to reliability, the Mini is the strongest contender on this list. It’s a complete rifle, built by a manufacturer that’s well aware these weapons are passed down as heirlooms.

When it comes to accuracy, the Mini 14 is a split decision. The 580 series, manufactured beginning in 2003 will outmatch many entry-level ARs, reliably delivering 2MOA accuracy.



Older (pre-2003) models are generally not on par with the AR platform when it comes to accuracy at 100 yards or greater. To be fair, the original Mini 14s came with iron sights only, and with no integral scope base whatsoever. So, it’s safe to say the older Mini 14s were not designed for long range shooting.

All of the Mini 14 variants comes with throwback iron sights and integrated scope bases for adding an optic. The tactical version also comes with a muzzle device, rounding out the tactical/military feel of the weapon. The Mini 14 Tactical package also comes with two 20-round magazines, which is a nice value add. Be advised; if you do want to get aftermarket magazines, then you’ll need to do your research. Ruger magazines tend to work best with the Mini 14.

For the purpose of this article, we recommend the Mini 14 Tactical, based on the muzzle break, magazines, and overall black rifle look. All Mini 14 rifles now come from Ruger with a drilled and tapped receiver, so you’re ready to install the picatinny rail that’s also included. That’s another nice touch from Ruger to keep this rifle on par with the ARs of the world.



Last, but not least, it’s worth mentioning that the Mini 14 has a lot of aftermarket options compared to most rifles, just not when compared to the AR. You can easily find collapsible stocks, rail systems, magazines, etc. (see nearby image). As this rifle has been popular for nearly 50 years, the aftermarket support is extensive.

Now is the Time

We’ve been saying it for a number of years here, folks, but we are still (for now) living through a tactical firearms golden age. Prices have gone a bit crazy because of COVID and supply chain issues, but there have never been so many excellent tactical rifles, carbines, shotguns and pistols on the market. And certainly, there have never been so many worthy candidates at an affordable price.

The amazing selection of reliable, accurate and range-ready rifles coming in well under the \$1,000 mark is unprecedented and, simply put, no one knows how long this may last. If you are looking to cover the semiauto tactical rifle base in your arsenal, now is the time.

Each of the rifles on this list are capable of target grade accuracy, while boasting excellent maneuverability and home defense chops. All of them additionally come complete and ready for range work. While we never know what tomorrow brings, it’s clear that the sooner you get one of these rifles in your hands, the sooner you’ll be grinning ear to ear as you empty those magazines downrange.



HOW TO BUILD A DIY HILLBILLY HOT TUB

Have you ever soaked in a hot tub at the end of a really grueling day and felt the stress just melt away? We at the NSRA have, and we also believe they are the perfect thing for escaping from everyday worries. In fact, the author has a favorite place in the mountains that has the most amazing hot tub on the deck. The views year-round from its off-grid vantage point are out of this world, too.

Let's face it, a relaxing soak in a hot tub is just what the doctor ordered. However, there's that hefty price tag, sometimes up to \$5,000 that's off-putting, right? Before you discount getting a hot tub because of the price, consider the fact that with a little creativity and ingenuity, you can build one of your own for a fraction of the price you'd pay for one at retail cost.

In a nutshell, easily-built DIY hot tubs allow you to save money, while still looking as good and functioning as well as any expensive version you'd get from the manufacturer.

WHAT TO EXPECT

The hot tubs on our list range from simple tailgate creations to some of the more detailed below-ground-types for the more highfalutin hillbillies among us. There is even one that is solar powered with a fountain! So, if you have ever wanted to own your own hot tub, but thought that maybe they were just a bit too expensive, now is your chance.

What follows are 20 of the most remarkable hot tubs that you can DIY in a weekend or two, along with the plans and ideas that make having a hot tub a reality on almost any budget. No matter what your personal style, though, you are going to find a hot tub on this list that will match it. Each method can be easily found with an internet search, complete with videos and articles that explain how to easily go about building them.

Note: Since there is digging and plumbing involved with some of the hot tubs on this list, be sure to get any permits and required permission from the city or municipality you live in.



\$10 HOT TUB/JACUZZI HACK

You're probably thinking that a hot tub/jacuzzi for \$10 sounds mostly like a click-bait header. How is that even accomplished? Meanwhile, the idea is simple: You use your hot water tap and your garden hose to transport hot water into an inflatable paddling pool. It is literally the easiest and least expensive way to make your own hot tub and enjoy budget-type relaxation in your own homemade jacuzzi hot tub combo.

A word to the wise, though: You'll probably want to start at about five minutes into the 10 minute YouTube video. Doing so will save you from Brit vlogger's James Delve's shenanigans in the beginning that don't really have anything to do with creating this genius hot tub/ jacuzzi hack. You may even want to go with the host's suggestion of using a bigger pool if you want to fit more than one person in it. Be sure to watch out for F#\$% bees, though.

Source/Tutorial: YouTube



HOT TUB FOR TAILGATING



Part of the hesitance in building a hot tub is their inherent difficulty and time constraints. However, this tutorial shows how to easily and inexpensively transform a 390-gallon stock tank to a hot tub and bring up the water temperature to standard in less than one hour.

The hot tub is filled up by using a propane tank, garden hose and a shower wand attached to a "Hot Tap" hot water heater. You begin by filling up the tank halfway with water from the tap via a garden hose. The resulting water level winds up with a

temperature that is about 62-70° F. The other hose that is attached to the Hot Tap fills the tub up the rest of the way and brings it up to about 80-90° F.

The second part of the video shows how to recirculate heated water by bringing it up to a standard hot tub temperature of about 104-108° F. While this hot tub option isn't the most robust one on this list, it's great for tailgating parties, Burning Man or for use as an outside shower.



HOT TUB FROM OLD SOFAS



Photo Source Permission: Ozcam

Instructable tutorials contain a bevy of DIY projects that will save you money over buying something off the shelf; hot tubs are no exception, and this one by Ozcam made from sofas demonstrates some true hillbilly ingenuity. In fact, it kind of reminds us of the crude hot tubs that rednecks used to make out of pickup beds that took the Internet by storm for a while. Ozcam's Instructable shows you how to make a hot tub/ jacuzzi combo from two old sofas, a rubber garden pond sheet and some reinforcing.

Not many tools are needed, and it can be constructed for roughly \$250. It's not elegant by any means, but it sure is cheap. Draining and filling this redneck hot tub is similar to the way it's done in #1: You simply add hot water from a hose to the container and then add more water when it starts to get cold. At the end, you just drain the water out like you would a big, old bathtub.



HILLBILLY HOT TUB FOR ONE

Flickr user Howecolc shows how you can cheaply upcycle a Rubbermaid container into a one-person hillbilly hot tub. To begin with, you will need about a 150-pound container and a way to heat your water. To heat his, Howecolc used a 50 gallon 4500 watt electric water heater with the thermostat turned up to 140 degrees.

There isn't a blow-by-blow instruction to this tutorial, but Howecolc goes into more detail about it in Flickr Comments you can see if you click through. The concept is an excellent one that's simple, as well. To make a one-man mini jacuzzi out of his concept, you can add some jets to it.



SOLAR HEATED HOT TUB

If you heat a hot tub, then you are probably spending about \$80/month on your electricity bill. Plans to go green is all the rage right now, so what if you could power your home spa using solar panels? Luckily, you can make a small investment to turn a solar panel into a hot water heater after building a hot tub from this list. What's more? It will probably cost you under \$100 for one that is big enough to do the job.

There are plenty of tutorials that will help you do just that, and YouTube's "Solar Heated Hot Tub" utilizes this method. As you can tell by the video, solar panels are a surprisingly cheap investment, and they take up very little space when you use them to fuel a home spa.



SOLAR HOT TUB W/FOUNTAIN

If you already believe in sustainability, you're sure to love this solar hot tub and fountain from GreenHomeBuilding.com. This tub is relaxing, gorgeous, and you don't need to worry about how you're going to heat the water after you set up the solar panels. After that, good ol' sol will do all the work for you.

The stone background of the tub presents a beautiful and peaceful atmosphere that definitely lends itself to a Zen mindset. There is a little more to this project than some of the others on this list, but it's not all that difficult to do. The project is easily finished in a weekend or so, and before long, you'll be enjoying your lovely solar powered hot tub.



PALLET HOT TUB



Photo resource permission: therealorson, Instructables

This is such a cool idea for a hot tub, as it's made mostly of upcycled materials. And, as fans of self-sustainment, we love it when someone looks at a bunch of old items and makes them into something fabulous. This tutorial by therealorson on Instructables uses a 1000L IBC and some discarded pallets to build a rustic-themed spa that is perfect if you are going for a farmhouse vibe.

For this hot tub project, therealorson takes the IBC water tank and use it as the base for the tub. To hold its shape, he winds foam lining and pallets around the tank. By the end of it, the hot tub looks exceptional and costs almost no money to build. It's pretty simple to construct, too, and won't take you more than a weekend or so to complete. The best part about this undertaking is the low cost, which is around \$100 if you already have the material lying around.



HOMEMADE STEEL BARREL HOT TUB



Photo resource permission: dan268, Instructables

Once social distancing becomes a thing of the past, the big tub in this Instructable by dan268 can easily accommodate you and 8 of your buddies. Until then, you can enjoy a roomy hot tub with about 1-3 people.

Purchasing all the material to make this multi-person hot tub runs you around \$600, so compare that to the price of a similar one you'd buy that would cost around \$4-\$7K. Plus, it's a breeze to make, and it's even small enough to move it onto the back of your pickup truck. Its portability is nice to have for when you need to haul it to all those fun get-togethers.



CONCRETE HOT TUB #1

A concrete hot tub looks professional and is also very long lasting. They are also semi-permanent, which can present a challenge if you are thinking about eventually moving your creation somewhere else. However, this DIY is pretty easy and cheap to do, so you could always just build another one. This fun project is definitely one for the books, and the resulting tub looks like it cost you thousands.

Source/Tutorial: Hunker



CONCRETE HOT TUB #2

10 UK company buildatub.co shows how you can construct a hot tub structure for your backyard using a breeze block structure, which is later screeded

and tiled. The tutorial takes you through five steps that yield a beautiful wood-fired concrete structure. The resulting structure is very solid and eye-catching. You can decide if you want to leave it as a standalone hot tub to stargaze and relax in while you soak – or to build the optional enclosure and roof that is included in the instructions.



TWO PERSON BATHTUB HOT TUB

A bathtub is built for holding water, so why not turn your old one into an outdoor hot tub? Well, that's just what one Portland couple, the Schangs, did. As you will see from this houzz tutorial, the Schang's creative thinking and DIY skills yielded a pergola-covered hot tub that is giving out some serious Swiss Family Robinson vibes.

Their relatively simple project upcycles a salvaged claw-foot tub, and it's a great one to tackle you are operating on a budget like most of us. All said, the project cost the Schangs \$750 – and that included labor and materials. If you don't have a discarded bathtub to use, you can check with local contractors and thrift stores to see if they have any.



YOUTUBE: "DIY - HOW TO BUILD A HILLBILLY / REDNECK HOT TUB"

Hillbillies and rednecks are not the same, but the resulting heated hot tub you can DIY by using this video is sure to please both camps. Building costs come in at under \$100 if you get the gas cylinder and pallets as free scrap.

Note: You'll need to make sure to empty the gas cylinder during the project, which can be extremely dangerous if you don't know what you are doing. If you are brave, there is an Instructable that details the correct way to do that. We recommend getting with an expert to have the gas emptied out of the cylinder if you've never attempted it before. There's not much room for error, you know? You'll also need hand tool knowhow, copper pipe, an IBC container, black spray paint and a few plumbing connectors.



FIREWOOD HEATED HILLBILLY HOT TUB (SAFER OPTION)



Outdoor Gear provides a video tutorial on how they created and installed this Firewood Heated hot tub at their bushcraft camp Katyusha. The metal container that holds the firewood and heats the tub by copper tubing is probably a much safer option than the gas cylinder approach in the previous tutorial.

The guys also give helpful tips, such as going to the recycle center to get free copper tubing and show us the fittings they used (which are often the hardest part to find). If you are wondering about the wood getting the water too hot, you simply monitor the temp inside and don't feed the fire when it's hot enough. The metal doesn't get hot because the heat quickly dissipates from the metal into the water.



IN GROUND HOT TUB SPA

Most of the hot tubs that are below ground are the plastic shell types that you lower in a hole in your backyard by crane. And a hillbilly certainly doesn't want to look pretentious to the neighbors when they are acquiring their soak getaway. More importantly, this type of hot tub is going to run you about \$10-\$12K by the time it's installed and looks presentable.

You can get around all that by building your own using buildahottub.com, a company that wrote the definitive guide for getting this done. The website has everything you need to build your own below ground hot tub, including hot tub designs, diagrams, CAD and more. By the time you are through, you'll have saved thousands of dollars and even raised the



CEDAR HOT TUB

The wood-fired cedar tub built by Jesse & Alyssa, the couple behind Pure Living for Life, looks absolutely fantastic and reminds us of the high-end ones you see in chateaus and resorts. Jesse & Alyssa, works on a budget like most of us do, and their blog is full of DIY projects that teach people to live off-grid for less.

The young couple has an entire video series on how to build the hot tub, but the most challenging part of the DIY is probably finding cedar at affordable prices. Also, cedar needs a lot of maintenance. As with any outdoor projects, you can substitute other wood for it such as white oak (known as "whiskey barrel wood"), redwood and cypress. You can also use rot proof composites.



LUDDITE HOT TUB



The Amish and people like the guy in this Primitive Technology video really know how to DIY without all that pesky technology. You can follow along with him in the video and build your own amazing hot tub with materials found in nature such as mud, firewood, bamboo and stone.

Notice that the project doesn't require any fancy equipment to create the hot tub, and the floor heating underneath warms up the water. You also get a good workout hand carrying buckets of water back and forth while you fill up the tub. What results is a divine hot tub that looks like it would fit right in on the grounds of Machu Picchu. The total cost to build this hot tub is probably under \$10. And that's

only because you'll need to buy repellent to kill annoying mosquitoes like the one you keep hearing in the video.



ROCKET STOVE HOT TUB



Just like the previous DIY, this one will get you in tune with nature. In fact, the kiwis that put together this wood-fired rocket stove hot tub look like they know a thing or two about living off the grid, we reckon! In their video, they put together a family hot tub made out of bricks, clay and hay and even some old kombucha bottles to insulate the bottom of the tub from the cold. The couple said the hot tub takes about \$100 to make and about 5+ hours to put together.

The family lives on a yurt on a farm in New Zealand. If you are unfamiliar with what a yurt is, it is an inexpensive non-permanent dwelling that is suitable for a wide variety of uses. They can be a DIY project, too and are rugged enough to withstand a wide range of NZ climatic conditions. You can ask patriarch of the family Tim for help on their Facebook page if you want to make a rocket stove hot tub your new home.



BEST PORTABLE HOT TUB

Hot tubs are expensive, heavy, and likely out of the question if you rent a place. The inventor that goes by the name of JON-A-TRON on Instructables.com lets us in on how you can get around all that with this hexagon-shaped beauty he built. The flat-packed portable hot tub is made using plywood, ratchet straps, a vinyl liner, and some lightweight pumping & heating equipment.

His tutorial will guide you through the entire DIY, including the beginning design steps, information

about the heating and water apparatuses, and even information pertaining to the plywood you should utilize.



BEST INSTANTANEOUS HOT TUB

This Chofu wood-fired hot tub from a kit is simple and elegant, making it a really nice addition to a modern homestead. The kit is a little more expensive than some of the simple hot tubs on this list, though. The stove is priced at around \$900 plus shipping, and the tank you hook it up to is around \$200 if you buy it locally. It will certainly set you back a little bit, but it's still a fraction of the cost you'd spend for a new manufactured hot tub.

The Chofu looks like a small pot-bellied wood stove, and it works by heating up on the outside of the tub and piping heat into the water of a galvanized tub. Once everything is considered, you have a very inexpensive hot tub that is easily assembled. Another pro is that it will never cost you a penny in electricity.



HOT TUB WITH SOLARIUM

For those that want a soothing view of the wilderness or garden without leaving the shelter of an indoor enclosure, this hot tub/greenhouse combination is for you. The greenhouse kit used for it is originally intended to house vegetation, but you place a hot tub inside instead.

The finished solarium looks brilliant and protects your tub from the elements. They used an off the shelf hot tub shell for the tutorial, but many of the other DIY hot tubs on this list can suffice.

Source/Article: socialdance.stanford.edu

FINAL THOUGHTS

As you can see, when you deliberate outside the proverbial box, the impossible is suddenly possible. We hope you enjoyed reading about these 20 DIY hot tubs and hope that they provide you the perfect place to soak without a care in the world.

BEST BODY ARMOR TO BUY (AND AVOID)



In our last piece about body armor, we examined the reasons why you might want to invest in some. Now, we're going to take that a step further by looking at some of the best (and worst) body armor you can buy.

ACTIONUNION AIRSOFT TACTICAL ARMOR SET

This adjustable body armor is suitable for people who weigh below 250 pounds and are at a height of 5'5" to 6'3". The multipurpose uses for this include an airsoft vest, tactical vest, shooting vest, police vest, paintball vest, and motorcycle gear.



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The vest is made of eco-friendly PC material and polyvinyl alcohol fiber. Due to its construction, this armor is comfortable and soft to the touch. It

also has a heat preservation component, as well as being flame retardant, waterproof, and shockproof. In other words, this is definitely a good choice if you're trying to protect yourself.

You can enjoy full freedom of movement with this set without giving up your protection. This vest has a robust 4.4-star average out of 104 ratings with 85 percent of consumers giving it 4 or 5 stars. Even better, you can get it on Amazon for only \$139.99. Sounds like a great deal to us!

OHMOTOR MOTORCYCLE MOTORBIKE FULL BODY ARMOR PROTECTOR PRO

Although we didn't explore this type of protection in our last article, you can use motorcycle armor to your advantage. Its durable but lightweight



and, even though its black, it manages to keep you cool. Of course, this isn't intended to prevent a gun shot, but it would help keep you safe in the event of a riot.

The armor has fully adjustable straps and comes with elastic nylon wrist cuffs (including thumbholes). It is meant to protect your back, wrists, and spine. Depending on what size you buy, this can adjust up to 220 pounds, along with a height of up to 6'6".

With a 4.3-star average out of 20 reviews (and 83 percent of these reviews are 4 stars or higher), you know you can count on this armor to hold up against a lot of pressure.

GLORYFIRE TACTICAL VEST

Most tactical vests are made out of 600D normal fabric, but not this one. Instead, it has been manufactured out of 1000D Cordura fabric, which makes it more breathable. The pistol holder is also detachable, meaning it will work well for right or left-handed shooters.



As an adjustable unit, you can wear this vest if your waist is 35 to 57 inches. As far as length is concerned, the GLORYFIRE vest can be worn at 20.5 to 22.5 inches long. Overall, this vest works well for anyone under 300 pounds and less than 6'6". As you can see, this is one of the more versatile options on the marketplace. The pistol holder also uses the MOLLE design, so it will not fall or come loose during movement.

As of this writing, the GLORYFIRE is #5 on Amazon's list of best-selling tactical vests. It has a 4.6-star average out of 1,439 reviews, and 91 percent of consumers rated it as four stars or higher. Even better is the price: It's only \$56.99. If you're looking for this type of tactical vest, you really can't do much better!

JELLYBRO MEN'S PADDED PROTECTIVE FOOTBALL GEAR

This isn't going to protect you from a bullet, but it will give you an advantage during a hand-to-hand fight or when you have to make your way through a riot. This shirt has a high elastic EVA emulsion cushion system, which ensures you have ultimate flexibility and protection.



Designed to be waterproof, this shirt has thicker pads at the heart and elbows. It's also breathable and utilizes a quick dry system. Please note this shirt must be washed by hand to avoid damaging the built-in armor.

This is currently the #1 best-selling item in Football Rib Protectors.

The gear has a 4.3-star average out of 767 reviews. A total of 80 percent of customers gave it 4 or 5 stars. There are many different items you can purchase, but the most popular is the black long sleeve shirt in an XL. Right now, this will run you \$29.99 on Amazon.

WARTECHGEARS DISCREET VEST MED-2XL 11"X14"

This lightweight, compact design can be adjusted from a size Medium to a 2XL. One thing to be aware of is that this vest won't do a whole lot to protect you until you add on the metal plates. So, it's going to cost more than the \$39.99 price tag, but it's still a good deal.



It has hook and loop fasteners for the shoulder straps. Loop fasteners are also used for the front to rear of the vest. Overall, it's earned a 4.4-star average out of 513 reviews, with 84 percent of purchasers giving to at least 4 stars.

YAKEDA TACTICAL VEST 600D

The YAKEDA is the top-ranked tactical vest on Amazon. It uses comfortable, durable, and high-density 600D polyester and incorporates a mesh design. You can fully adjust the vest to make sure it fits you correctly. Whether your waist is 35 inches or 57 inches, the YAKEDA will offer protection.



As a multifunction vest, this has several removable pouches. It also offers a hook-and-loop closure, elastic plug-in systems, and drain holes. No wonder it has a 4.5-star rating out of an astounding 5,633 reviews! Out of these, 88 percent gave it a 4 or 5-star rating and only 3 percent rated it as 1-star. As the top-rated reviewer said:

“Now here is what makes this vest WINNER WINNER CHICKEN DINNER: What I really REALLY REALLY like about the inside back ‘BLADDER’ slot is it will fit on the back perfectly and 11”x14”to15” KEVLAR INSERT... PERFECTLY!!!!!! Now THAT my friends you gotta admit that this is a Bad @\$ \$ OPTION!!!!”

And all of this comes for under \$69, with some colors priced as low as \$36.99.

GFIRE TACTICAL VEST

Now that you’ve met the #1 best-selling tactical vest, let’s turn things over to #2. As you can see, these vests are quite different from each other. One of the things that may be advantage to this particular vest is that it comes with an emergency drag handle.



People with up to a 54” waist can wear this. It’s made of 1000D polyester, which is sturdier and more lightweight than 600D polyester. It has nylon stitching, and the sutures are MOLLE reinforced.

One thing about this vest that’s different from many of the others is that it can only accommodate a height of 5’7” to 6’8”. This one fact alone may have doomed GFIRE to the number 2 spot.

It has a 4.6-star rating out of 2,194 reviews. A whopping 91 percent of reviewers gave it 4 or more stars, and only 2 percent gave it 1-star. As a bonus, the top-ranked review says:

“I am a big guy 6’4” and 450 lbs was worried this would not fit me. I gave it a chance and ordered it. It does fit barely but it does fit. So, if you are a bigger guy this vest fits. Material and craftsmanship is great!”

GZ XINXING 5-4XL LAW ENFORCEMENT TACTICAL VEST

Here’s a vest for the really big boys! It can fit up to a 61” waist and is made of 600D high-density polyester. You’ll benefit from the many, many pockets, along with the MOLLE system. It’s breathable and lightweight and even has an inside pocket for hydration.



Customers have given it a 4.5-star average out of 1,492 reviews. Of these, 88 percent were 4 stars or more. The top mentioned words out of all reviews were “good quality,” and it also scores high for “big guy,” “great vest,” and “fits perfectly.” As one person said:

“I was COMPLETELY and pleasantly surprised at this vest’s high quality and rugged construction. The mesh is strong and sturdy - won’t stretch or rip. The camo fabric portions are very strong and thick with backing. All stitching is strong and precise. The webbing and polymer buckles are tough, thick, and substantial.”

The color you choose plays a role in how much this vest will cost. The pictured vest above is the cheapest at only \$29.99. Of course, even the highest end of the spectrum is \$35.99, so it’s a good value no matter what color you choose.

BODY ARMOR PRODUCTS TO AVOID

Just like anything else, there are certain products that should be avoided. We'll give you details about a few pieces that you should never trust your life to.

UGEBY TACTICAL VEST

The manufacturer claims that this vest is breathable, sweat-absorbent, skin-friendly, and made of a high-quality nylon material. They also tout the vest's V-shaped collar design and adjustability.



When it comes down to it, though, this product just isn't all that great. First off, it's only got a 3.2-star average out of 17 reviews. Half of the reviewers give it 4 stars or higher, but a staggering 21 percent gave it 1-star.

So, what's wrong with it? The biggest complaint we saw was repeated over and over again – it's simply too small. For example, the small adult vest doesn't fit anyone larger than a toddler. That's very odd and makes us think that they mis-advertised this one. Save your \$23.79 - \$57.89 and invest in a vest that's actually made for adults.

MILDA TACTICAL VEST

With a 3.7-star rating out of 10 reviews, you can be forgiven for thinking that the Milda Tactical Vest can't possibly be that bad. However, it has a few things stacked against it.



First off, the sizing isn't nearly as large as many other vests. In fact, the waist only goes from 30" to 42". It also uses 900D nylon, which is a step below the 1000D variety that many vests use. Most likely the biggest problem is that 21 percent of reviewers rated it 1-star. What do those reviews say?

Here's an example:

"Way smaller than expected. Needs sizing options. I'm a bit husky and it barely fits my chest. Feels cheap and adjusting is barely a help."

GENERIES LIRONUKER LIGHT BREATHABLE COMBAT TRAINING VEST

This vest comes with two American flag patches. This may fool some people into buying it, but don't let that fool you.



The manufacturer claims this is perfect for right-handed individuals. It is made from 600D nylon and goes from 33" to 53". The manufacturer apparently also thought it made sense to make the pistol holder for the American Tactical Fatboy, which leaves out a lot of other guns.

With a 3.6-star average out of 6 reviews, you know this vest isn't going to win any awards. Especially when 18 percent of the reviews are only 1-star. It's better to steer clear of the Generies Lironuker and put the \$35.86 toward a more competitively-made product.

EKFACMIA TACTICAL VEST

When a tactical vest has a 1-star average, that's really all we have to say about it. However, we're going to look into this one a little bit further anyway.



Per Ekfacia, this vest is made out of 800D nylon, which is the first time we saw that number. It does utilize the MOLLE system, but this isn't enough to save this vest. In fact, thanks to the 1-star review, this product came out in September 2020, but it quickly sank all the way to sales rank #589,650 in Sports and Outdoors. It's also ranked #541 in Tactical Vests.

When an item you're looking at has this type of rankings, run away as quickly as you can!

FINAL THOUGHTS

Whether you choose to purchase one of the vests on this list or choose a different one altogether, this is the perfect time to start thinking about your body armor needs. Remember: Body armor can be very helpful in the event of an emergency situation, such as when someone is breaking into your home. Also, body armor doesn't guarantee your safety, but it makes it a heck of a lot easier to survive a number of potentially deadly scenarios.



HOW TO PRODUCE YOUR OWN ELECTRICITY

Image source: Cosmin Gurau, Unsplash

Being able to generate enough electricity to run a home is a useful skill to have in both good times and bad. When things are good, the power generated by solar panels, wind turbines or hydroelectric system lowers utility bills and provides protection against outages. It may even be possible to sell unused power to the grid. If society continues its march toward environmental, financial and societal ruin, being able to generate electricity could be the key to your family's survival.

KNOW YOUR LOCAL ORDINANCES



Image Credit: Science in HD, Unsplash

Before you embark on a power generation project, you should check to see if there are any federal or state incentive programs that could lower your equipment costs. The North Carolina Clean Energy Technology Center has an interactive map on their website that could help you to find programs in your area. There are also federal tax credits available to people who generate their own energy.

On the other side of the coin, we have overly restrictive state, city and county ordinances and zoning restrictions that can put a crimp on producing your own energy. These laws and regulations make off grid lifestyle difficult, and even downright illegal when it comes to doing certain things on your property.

For instance, Florida is one of eight states that prohibit the sale of solar electricity directly to customers unless the provider is a utility. Ah, the political clout of big energy; such a bummer, right? However, those rules will probably go by the wayside in a free-for-all TEOTWAWKI event, so it's always best to prepare for the worst and know how to create your own energy.

GENERATING ELECTRICITY AT HOME



The place you live will influence the decisions you make if you decide to generate your own power. There are also certain questions you should ask. Does your home receive a lot of sunlight? Is your area windy? How much space do you have to install

power generating equipment and batteries? Once you have the answers to those questions, you can decide between using the solar, wind, biomass, geothermal or hydroelectric power generation.

SOLAR

Energy companies have been selling solar panels to homeowners for decades. They contain semiconductors that can convert the sun's energy into electricity that is then used by the home or stored for later use. Solar panels work well, but they are not very efficient. It would take more than 30 250-watt solar panels to generate the 10,400 kWh of electricity the average American home consumes each year, and energy can only be generated when the sun is shining.

Solar panels are a good solution to provide power to a needed appliance or keep essential services running during an emergency, and they may actually pay for themselves over time. However, those looking for more than backup or emergency power should combine them with other forms of electricity generation.

SOLAR WATER HEATERS

If full-on solar panel systems are out of your price range, a solar water heater is a cheaper way to capture some free energy. With a solar water heater, the tank is usually installed and stored on the roof. Once it's there, it allows the sun to do the heavy lifting of one of your home's biggest energy hogs.

WIND TURBINES



Turbines work best in relatively flat areas like the Great Plains. Commercial wind turbines are colossal machines that sometimes soar hundreds of feet into the air. However, there are now consumer units

available that are far smaller and suitable for even modest homes. These consumer wind turbines are expensive, but they are extremely reliable and cheap and easy to maintain. When the wind is strong enough to turn the blades, a dynamo is engaged to produce electricity. Wind turbines will last longer than solar panels, but they do not offer any significant power advantages.

WINDMILLS



Like wind turbines, windmills can convert wind power into rotational energy. Some can even pump water through the turning of their vanes. However, the cloth-vaned European windmills that you may have seen personally or as pictures in places like Belgium and Denmark are impractical since they are large, expensive and require constant maintenance.

In 1854, Daniel Halladay created the American-type of windmill. American-style windmills were used on the plains, and early settlers used them to help provide enough water for personal needs and for watering crops or water livestock. Windmills like that aren't the most practical of devices. But, if you want to live off grid or have energy when the sun ever hits the fan, it's a good idea to know how to build one and know how to use it, especially if you live on the American Plains.

American windmills are smaller, cheaper and can be shipped and fabricated easily. There are many styles of windmills, and you can find DIY tutorials for building them and turbines on places like YouTube. Many of them are very inexpensive to build, too. Also, companies such as American Windmills sell aeromotor American windmills, so that their customers can restore and preserve the historical farm-style of metal water pumping windmill and hand pump systems.

BIOMASS

When fuel is burned to produce electricity, power can be generated on demand. The major drawback of renewable energy sources like solar and wind is the power must be generated when the sun is out and the wind is blowing. This energy must then be stored for periods of peak demand. Biomass is the name given to accumulated plant or animal waste, and it can be burned to generate electricity just like coal, oil or natural gas. Power stations generate electricity with enormous turbines that run on steam. The fuel simply heats up water to create the steam. In rural parts of the country, biomass is available in virtually unlimited quantities. It can be burned in devices that look similar to gas boilers.

WATER WHEEL



If you have bodies of water on your property, a waterwheel-provided energy source might be right for you. These wheels require some source of falling or flowing water, including rivers or streams to generate energy. Sometimes a mill pond can be created by damming up a flowing water source. Although pond mills are not used widely today, hydroelectric dams function on pretty much the same basic principle.

The waterwheel works by using a set of paddles mounted around it, and the force of the water pushes the paddles and rotates the wheel. This rotation can be transmitted to a wide array of machinery that goes through a shaft located at the center of a big wheel that is made out of metal or wood. The metal and blade wheel contains buckets and blades along its edge to harness the power of the flowing water.

A waterwheel is usually positioned vertically over the source of water, meaning that its axle is situated horizontally. The axle transfers the power from the flowing water to gears or a drive that then operates some type of machine.

HYDROELECTRIC GENERATORS



Hydroelectric power stations use the movement of water to create electricity. In fact, the iconic Hoover Dam uses this method. They often use the water of a river or lake to power an entire town, but micro hydroelectric generators suitable for a single home are now available. All these generators need to work is a source of moving water, and a 10-kilowatt generator should be capable of satisfying the energy needs of a typical home. Before you install one of these generators, you should make sure that your water supply is secure and cannot be shut off.

GEOTHERMAL POWER

Geothermal power stations use extreme heat miles beneath the earth's surface to heat water, create steam and generate electricity. This kind of approach is obviously not suitable for a single home, but much smaller geothermal units have recently been introduced. These geothermal units are costly, but they require no fuel and produce no CO₂. They can only be used in areas where higher temperatures are available at shallower depths. If your location has a geothermal gradient of at least 50°C per kilometer, a geothermal power generator could be something worth considering.

STORING ELECTRICITY

If you plan to generate power using solar panels or wind turbines, you will need to figure out a way to store electricity. Lithium battery packages are available, but they are expensive and must

be replaced periodically. They are also a fire risk. Lead acid batteries are cheaper and last longer, but they are not as energy dense and can release toxic fumes. One way to get the benefits of wind or solar, without the drawbacks of batteries, is by complementing turbines or panels with biomass, hydroelectric or geothermal generators.

SIMPLY WAIT IT OUT



If you don't want to invest in alternative energy sources right now, you may just want to wait it out until one of the outrageous energy sources of the future become a reality. Sources on the horizon include nuclear fusion, space-based solar, algae power, hydrogen power, tidal power, embeddable solar power and even power that comes from nuclear waste. Maybe a combination of these will ensure a high quality of living that most of us have grown used to.

LIFESTYLE MODIFICATIONS

Energy is something we have learned to take for granted. Fossil fuels have made it possible for us to enjoy lifestyles that would shock our ancestors, but nothing lasts forever. You can create enough electricity in your back yard to power your home and keep your family comfortable, but you will probably not have enough power to operate central air conditioning systems around the clock and have hot water on tap at all times. Here are a few things you can do to reduce your electricity needs:

- **Install a wood-burning stove:** These stoves are extremely efficient and require no electricity to work.
- **Use fewer rooms:** Rooms that are not being used do not have to be heated.

- **Check your insulation:** Proper insulation in walls and ceilings and around doors and windows can lower energy consumption significantly.
- **Upgrade your appliances:** When you need to replace a stove, washing machine or refrigerator, choose a model with a high energy rating.

MEASURE TWICE, CUT ONCE

Before you buy expensive generating equipment and start excavating your property, you should speak to some experts about your goals and plans. Surveyors and energy consultants could assess your property and work with you to design a power generation strategy that takes advantage of your location's natural assets. They could also help you to avoid costly pitfalls. You may also want to speak to some of your neighbors before work commences as hydroelectric and geothermal generators both come in various sizes. If several homeowners split the cost, a larger unit could make a lot of sense.

FINAL THOUGHTS

If you aren't convinced about using alternative sources of energy besides coal-based, here is a sobering fact: If governments around the world don't get serious about decreasing greenhouse-gas emissions by about 40 to 70 percent globally, by 2050 the environmental consequences will be dire. We don't want to sound preachy, but there is a reason world leaders and Bill Gates are planning on releasing chalk in targeted areas of the atmosphere.

Oh, you haven't heard? Well, a large balloon will be launched soon in Sweden that will spew chalk dust in order to dim the sunlight and cool the earth.

Environmental engineering such as this is enough to send your prepping efforts into overdrive.



WCG SPECOPS RANGE BAG

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