

This is a rough draft of the transcript for the EMERGENCY SOLUTIONS FOR POWERING DURABLE MEDICAL EQUIPMENT AND ASSISTIVE TECHNOLOGY webinar April 27, 2022

>>: Well, good morning, and hello, everyone, and

welcome to the accessibility and disability policy webinar

series. This session is going to be recorded momentarily.

You will know when that happens, so if you don't want your

chat to be recorded or your questions to be documented,

then you may want to e-mail us at [TCPD@texas.gov](mailto:TCPD@texas.gov). I'm the

accessibility and disability rights coordinator for the

office. To learn more about our agency, go and click on

the organization section with disabilities and you can

find out more about the committee and how we function.

Today, we are going to have with us Ron Lucy, our director

here and Angela from the university of Texas, Austin.

They're going to talk about emergency solutions for power

and durable medical equipment and assistive technology.

Before we get started, a little housekeeping.

Participants' micro phones will be off during the session.

Post your questions in the Q and A box. It's easier for

us to track things. Feel free to submit questions at any

time, but the presenters will not answer those questions

until the end of the session. If you do have -- if we

have information to share with everyone, I will put that

in the chat box, like a website or something like that.

And in addition, this session will be recorded and posted to our you tube channel at the session. It takes a day or two before we have it up. You will get a message with the web link for that recording, in case you want to share with others. I will put the chat box momentarily up, also the link to our website. Where we registered, we have the PowerPoint and a PDF format as well that the presenters want to share with you. I'll send that to you and you can pull that down when you're ready. Okay. I think that's it. I'm going to go ahead and hit the record button and repeat the name of the session, so we can get started.

One moment.

(Recording in progress)

>>: Good morning, everyone, and welcome to the  
accessibility and disability policy webinar series.

Today, we have with us Ms. Angela Stanbridge and Ron from  
the governor's committee on people with disabilities and  
they will be talking about emergency solutions for  
powering durable medical equipment and assistive  
technology. Angela, I'm going to turn it over to you.

Thank you.

>>: Thank you, Randi. We're housed at the  
university of Texas. I am a white female with a pink and  
purple shirt on and maybe a few more gray hairs than I  
think I should have. I'm going to start off by talking

about our objectives and a little bit of the disclaimers.

Randi, if you want eject the slides forward. Obviously,

in Texas, if you've lived here at all, you know that we

have disasters of all shapes and sizes. We have

hurricanes and chemical spills and all kinds of things.

We would like to provide you with planning sources for

emergencies up to 72 hours to support durable medical

equipment and assistive technology and we'll provide

definitions for those in just a bit. For people with

disabilities and those who are -- those who are our

audience are those with disabilities. There may be

individuals that may be supported. You can move it

forward. So a little bit of a disclaimer. The

manufacturer's recommendations should always be followed.

There is some concern and caution to be used when

utilizing any of the tools that we're talking about. You

want to make sure that you understand how to use the tools

you're working with, what the requirements are for the

tools you need to charge. Using power sources

inappropriately can be a risk of fire, electric shock,

acid burn, damage to the power source, and also I'm sure

you might remember from recent experiences with hurricanes

and with the snowstorm, that carbon monoxide poison can be

damage. We will talk about all of those items. Please be

cautious when utilizing these tools. I'm going to let Ron

talk to you about the benefit of preparing and why you  
might want to prepare.

>>: One moment. I'm sorry to interrupt, but I'm not  
seeing the CART on the screen. I'm seeing the CART, but  
it's -- I don't know -- I've got to make sure we're down  
to the bottom of the screen.

>>: Okay.

>>: I apologize. For some reason, it wasn't  
correct. Okay. Go ahead, Ron. Thank you.

>>: Okay. My name is Ron Lucy. I'm the director  
and I'll be taking the next section of this presentation.

This slide that we're on shows a picture of the city of

Beaumont during hurricane Harvey and it's a good example

of why we prepare. We prepare to keep ourselves and our families safe in the event of all hazard situation, including manmade or natural disasters and, as Angela was talking about winter storm was a widespread disaster that resulted in power loss for many Texans. So as we know, planning is the key to being successfully prepared and one resource we want to start out with is the power planning checklist developed by the Pacific ADA center. I want to give credit to Lewis crouch for putting together this checklist which outstanding. It's found in the references. It's a checklist for people with disabilities who use durable medical equipment for assistive technology



and it takes you step-by-step. So before we can be prepared for our power needs, we need to be prepared, in general, as individuals or as families, and the three ten Nancy of being prepared is make a plan, build an emergency kit, and stay informed. This provides resources on how you can do that. The one provided by FEMA is one good source. When you go there, you can get directions on how to build an individual personal preparedness kit, what items you need to stock, including food, water, lighting, communications, and other items that you want to consider as a person with a disability to address your specific needs. There's also resources on dealing with power outages and then links where you can sign up to receive

emergency alerts for your area using your smartphone. For

Texas, we have [texasready.gov](https://www.texasready.gov) which has Texas specific

resource, but I think one of the most important things you

need to do is connect with your local office of emergency

management and identify the website and make sure you're

getting local information on disasters in your area. So

check out the links on this website to make sure that your

baseline of preparedness is addressed and then we'll go on

to talking about electric or power specific preparedness

needs in the rest of the presentation. As we said, we

prepare for all hazards. We know that winter storm is,

even though it was February of 2021, over a year ago, it

was fresh in the mind of a lot of people. There are other types of disasters that we want to consider. We're just about 40 days out from hurricane season, and that can affect many Texans along the gulf coast. In the western parts of the state, we're also dealing with wild fire dangers which can result in quick evacuations and for people that use medical equipment, it's making a plan to ensure that you can evacuate with your DME and have portable power to address your needs, if you're evacuating. So let's go to the next slide. So general backup power needs, have a backup power for a minimum of 72 hours is the American red cross recommendation. That's three days. We recommend that being a minimum. Within

three days, hopefully, there will be additional resources

coming to you. A couple of things that you want to

consider for your backup power charging needs are do you

have power to address your lighting needs like flashlights

and lanterns, do you have power solutions for

environmental cooling and that may be a portable heater

that runs on propane or that may be a battery-powered fan.

It's unlikely that you may be able to run your furnace for

air conditioner for your whole house, but there are other

ways to ensure that your environmental cooling or heating

needs are addressed. Information and communication needs

includes radios or cell phones and making sure you have

backup power for that. Refrigeration to make sure that your food and medications are taken care of. We'll talk about solutions for powering your refrigerator, but also lower power solutions like high efficiency, ice chests, and coolers. Next slide should be examples of off the shelf options for communications. We have radios and walkie-talkies. Making sure that your emergency kit has a battery-powered radio is essential when the power goes off. If you get your news from the television or from a power device in your home, make sure that you have a backup solution for that, battery-powered. Having multiple options for a hand crank, rechargeable battery and wall charging is a good solution, and these weather

radios can turn on if there's an emergency weather alert

in your area. A lot of the hand held walkie-talkies have

a weather band, so you can consider that as a solution.

Next slide, consider off the shelf lighting solutions.

The technology for lighting has come a long way from the

old D cell flashlights, like the yellow one you see in

this picture that really don't provide a lot of light for

the amount of batteries that they use. These days, you

can get a pretty efficient LED lantern to provide power

for your whole family in your living room or kitchen and

individual flashlights or head lamps. During a disaster,

consider a head lamp as a solution to keep your hands free

for managing other things and this picture shows some different options. Try picking solutions that use the same types of batteries like double A or triple A batteries. Next slide, we also have examples of battery solutions. We're going to get more into batteries in a few minutes, but this picture shows examples of USB power banks, some of the smaller portable ones good for charging a cell phone and then some of the higher-capacity ones that can charge a laptop or a mobile phone over a dozen times. Then also, some of the jump starters that you can use for your car also have a good use for powering devices in your home. Those can be pretty cost-effective for under a hundred dollars. You can get a jump starter that

can charge your phone over a dozen times and also charge

your car. Finally, examples of adaptors and cables.

Having the adapters and the cables is important. Examples

I want to point out, one is a 12 volt USB converter. Many

cars have the cigarette lighter adapter, but these days,

you can get an adapter to plug in that has USB ports to

charge multiple cell phones at the same time. Also, a lot

of families have different types of USB charging needs,

and our family has some people that use lightning

adapters. We have some legacy devices that use micro USB.

It is possible to get a cable that has all three types of

charging ports on a single cable, so you might want to



consider that for your emergency kit is to have cables that can charge a variety of USB devices. So here's some disability specific power needs that we'd like to talk about. I'm going to turn it over to Angela.

>>: All right. Let me get all of my buttons undone.

I promised we'd give you more definitions here. When we're talking about durable medical equipment, we're talking about equipment and supplies ordered by a healthcare provider for every day or extended use such as wheelchairs, oxygen machines, lifts. Some may be life sustaining. Stories from winter storm where people were not able to access their oxygen machines or other things that they were required to remain alive. So that's a very

big deal. And then assistive technology is any technology

that enables a person with a disability or who is aging to

access community, education, vocation. That's not an

entire list. There's all kinds of assistive technologies.

Sometimes technologies that some people would consider

every day not anything special technologies end up being

assistive technology for someone that can't function

without that particular tool. So we have some examples of

some durable medical equipment. Oh, I'm sorry, yes, this

is right. So life sustaining DME, oxygen concentrators,

feeding pumps, suction machines, hearing aid batteries,

telecommunication tools, car mobilities, AAC devices,

computers, tablets, cell phones, Braille note takers, and any AT software, and then medication and nutrition that must be refrigerated. So if you have medication that has to stay cool and it's the middle of the summer and you have no air-conditioning or refrigerator, that can be a challenge. So another example, just to give you a visual for that. This is a ventilator. In addition to the picture, we've -- you can see some of the electrical requirements. There's a nebulizer. Some people might not think of that as being dedicated medical equipment that's required, but suppose there is a hurricane and the power goes out and it's hot and someone's asthma or breathing condition was aggregated, they would have to have that

available. That could affect their ability to survive or  
to function well if they didn't have that. So this is a  
picture for wheelchairs and mobility with dedicated  
medical equipment. That picture may have been national  
news. That was a nursing facility in the Houston area  
during one of the rain hurricane weather events. You can  
see there's a -- it's a picture of elderly folks and  
there's probably about three to four feet of water in  
their living space and they're floating around on their  
chairs and wheelchairs and other mobility devices.  
Obviously, that was an extreme situation, but in that  
situation, none of that was maintained and none of that

was supported. That's what we want to talk about. So

when you're talking about wheelchairs and mobility

dedicated medical equipment concerns, plan to have at

least one extra wheelchair or scooter battery, you want to

connect the extra battery to a trickle charger or a

battery maintainer so that it's always ready to go and

you're not having to think, I need to charge that. A

trickle battery will charge the battery, but not

overcharge it or reduce the lifetime of that battery. You

want to keep a manual wheelchair as a backup. Monitor the

life expectancy of your chair's batteries and plan for

replacements. Plan to evacuate with all charging

equipment, cables, batteries, manuals, and any wheelchair

maintenance equipment that you have to maintain your wheelchair. So when we talked earlier about that planning checklist when you go back and fill that out, make sure you include all of those pieces because you don't want to be on the day of evacuation trying to remember what it is that you packed up to evacuate yourself and the wheelchair. For your DME and AT low tech alternatives, make sure that in addition to whatever is more sophisticated technologies you have, have low tech systems with it. If I communicate with an iPad, I want to make sure I have the low tech board for that in case I'm not able to charge that iPad. So a lot of times what folks

will do is take either a screen shot or print out a hard copy of that array or several arrays and laminate them and then you have them ready to go and they're waterproof.

Hand held optical low vision aids. If you use a desktop system of some kind and that's not able to be charged, what are you doing to do, so if you have a portable hand held magnification system, maybe if you need additional lighting, one of the hand held versions that has lighting options attached to it, so that you're able to see text, if you need to.

>>: I take this recommendation seriously as a person with low vision. I have extra magnifiers in the glove boxes of all of our cars and backpack and laptop bag and

desk drawer in work, at home, and in my pocket. If it's

critical like being able to see things in small print, I

would have multiple backups.

>>: The first thing you do when you arrive at a

shelter is fill out forms.

>>: Yes.

>>: You will probably need access to that. Dry

erase and white boards for communication, if somebody is a

nonoral communicator. There are now coolers. Now there's

some off brands as well that you can keep -- will keep

things cool for extended days with just a very little

amount of ice or one of those ice blocks. There are also



coolers that can be plugged in, so it doesn't take as much of a drain as a full refrigerator, so it's less of a -- if you have a small battery that you're using.

>>: You can put a block of ice if there for three days and it won't melt a little bit. When thinking about keeping your medication at an appropriate temperature, powering a Samsung refrigerator may take more resources than you have, but if you can put your insulin in a thermos or ice chest, that may be a better solution in the short term than trying to power a refrigerator.

>>: And just a side note, too, for that, so whatever medications you're working with really work with the manufacturers to find out what is actually required, so

not necessarily -- even though insulin is supposed to be

fridge rated, you can use it after it's not been

refrigerated for a while. Not in days or Texas 100

something degree weather, but if it was a day or so where

you were not able to refrigerate, you may be able to use

it, based on what your medication is. So the next few

slides, we have a little bit of an electricity 101. Think

back to that third grade science class. I know, it's

complicated. We're not going to go into a huge amount of

detail. It's here for you to refer back to later. We

have an analogy of a hose that is a nice analogy to think

about how electricity is going to reach the gadgets that

need to be charged. So voltage is like the pressure that pushes the water through. It's measured in volts. You have to have an understanding of what your gadgets for your to get the right battery back up to match that without destroying the device, the battery, or whatever the source may be getting power from. So a watt is the common unit of measurement. That's the work used by the devices. Devices often describe the required electricity in volts. You'll see 1.5 on a battery or 6-volt. Direct current comes from batteries. Alternate current comes from outlets. And then DC batteries are often charged from AC outlets. So my iPad or phone, I have a battery and it's in there that I plug into an outlet and that

battery is charged by that alternate current outlet.

Another word to be aware of or that you'll see is amp

hours and that measures the time and power or how long the

battery source is going to last with what level of

voltage. If you're going, oh, my gosh, I don't know what

you're talking about, I'm anxious, I'm worried about

plugging in stuff and we talked about fire hazards, don't

worry, we have a solution for you. So you can figure out

all of this by using math and we have a little chart in

just a little bit that shows you all of the formulas. If

you know any two variables of the electricity formula, you

can figure it out, but you don't have to because this is

2022 and we have apps and the Internet. You can download a power converter app to your gadget if you search in whatever -- if you're apple or Samsung or windows and you go to the store and you search for power calculator, it will bring up dozens of choices and you can pick any one of them. The ones you pay for don't have any annoying ads. I think I have an example with -- I think I took my -- yeah, that's it. So on the left side is a free power calculator that I got off of the Internet. I put two variables and then I was able to figure out what the missing variable was. Now, looking at the screen, with my post 50 visual impairment, I can't see what's on my battery charger in the picture, so I'm not sure which two

variables I started with. The reason you want to finish this out, make a chart with your gadget, and make the columns for the variables that you already know and write down the ones you don't. When you go to look at -- I'm going to get a power backup for this, make sure that matches the needs of the gadget you're trying to charge.

This is the formula chart we promised you. Again, if you are a math person, feel free to just use the formula. If not, download a calculator or there's also some work sheets you can get online to help you fill it out for what is my refrigerator requiring, and then take that same idea and apply it to what is my communication device

requirement, what does my phone require, what does my wheelchair require. So you want to add to that, Ron?

>>: Yeah. We're going to talk about one more complexity and that's the difference between peak or search power. The most important thing is to keep track of the running watts for your devices and you may not be able to power all of your devices off of your backup power solution at the same time, but we'll get into that as well. For an individual like me that has a vision impairment, there may be a plate or a tag that has the power specifications for your device. Usually, it's on the back of the device. If you can't see that, call the manufacturer and let them know what you have and they can

share with you the power requirements and you may be one of those that doesn't save the instruction manual for the device. We have a drawer of those. Sometimes it's easier to keep the -- when you're creating your power checklist, keep the phone number of the manufacturer and keep track of that information. We also talk about backing up serial numbers and license keys for your assistive technology, but documenting the information for hearing devices and their power needs is a great way to be prepared.

>>: And then that kind of concludes our little electricity 101 section. Ron is going to talk to you about some of the batteries that you can use to back up



some of the technology.

>>: We're going to go basic on batteries and get more complicated. This first slide shows a picture of a battery organizer box. Now we're going to go and talk about battery types. We're all familiar with the basic alkaline batteries. We have triple A, double A, C, D, and nine volt and even quadruple A. Those off the shelf that you can get at any grocery store or department store or even from Amazon power most of our portable devices. When you're making your individual preparedness plans, if you're shopping for flashlights, have all of your devices use a common battery type. It makes it easier to stock all batteries rather than having some things to take

different ones. It makes it easier to plan and stock batteries. Battery technology varies. Alkaline have a shelf life of about ten years. They're generally not rechargeable. Lithium can come in the same battery size, they are rechargeable, many of them, but then you have high capacity that are not intended to be recharged. Some of the mercury batteries that -- the button size batteries that are used for hearing aids and those tend to be pretty inexpensive. Stock plenty of them. Make sure that you take your batteries with you when you evacuate. Going beyond disposable batteries or off the shelf, we get into larger size batteries or higher capacity batteries that

are rechargeable battery banks, and the older technology, the nickel, those have problems and they had to be maintained and they would develop a battery memory where if you didn't fully recharge them, the efficiency of the battery would drop off over time. Lithium don't have that same problem, but if you don't maintain them, they can also die a premature death. Lithium can have anywhere from 300 to 1,000 charge cycles, but if you let it die completely and you don't maintain it, you stick it in a drawer or a closet and don't recharge it a couple of times per year, you can destroy that battery and replacing a battery in a laptop can be pretty expensive. Make plans to maintain your batteries. Other batteries that we say,

lead-acid are for wheelchairs. They've gone to gel

batteries. You also will find deep cycle batteries.

They're a high capacity battery that can repeatedly

discharge and recharge several times without damaging the

battery.

>>: Can I say one comment? So some rechargeables

are designed to let a little bit of a charge out for a

long amount of time and some of them are designed to let a

large amount of charge out quickly.

>>: Like your car battery?

>>: For example, I have a light saver for cost

purposes and I prefer to use the one that gives you more

power for shorter amounts of time. I want my lights bright and look good. That is an example of me using what was my need and then backing -- putting the battery source with it that I need. Looking at your technologies, if you need to keep something running for a longer amount of time, look at the rechargeables that are geared more toward that. If you need something like your oxygen -- well, maybe not that, but something that needs a very quick and efficient and high charge that could affect your choice of rechargeable battery as well.

>>: We're going to talk about battery banks. These store a lot more power than just your standard double A alkaline batteries and people often have these for

recharging their iPhone when they're traveling. They often use a USB cable to plug into the wall and so make sure you have the right type of cable that connects to your phone or your other backup device. You can get higher capacity USB power solutions and obviously with power bank, the more money you spend, the more capacity you get and also typically, the bigger the size and the weight. So you get anywhere from a \$20 USB bank that's almost the same size as your iPhone and can give you three or four charges to much more higher capacity ones. Think back to one of the earlier slides where we had pictures of USB banks, some were about the size of a pack of gum,

others were about the size of a brick, and those cannot only charge your phones, but also charge a laptop or power laptop. The more expensive battery banks also have a built-in power inverter that can take the DC part of your battery. More money gives you more storage of power and more capacity. The amount of power that they can put out is usually measured in watts and we talked about the amount of time that they can power a device at that power level. A couple of brands that you may be familiar with. One is Yeti gold zero. They have high capacity that have a built-in trickle charger and a built-in power inverter and they can be quite expensive. You'll also hear manufacturers talk about a solar power generator. That is

nothing more than a battery bank with a voltage inverter

that has a connected solar array. Now, as you discharge

your battery bank, recharging it through solar power can

take a lot more time than people think. The charging time

is less if you have more square feet of solar panels.

Keep in mind at nighttime, you're not going to be charging

it. During the day, if you're going to be using a lot of

it, the charging time can be six to ten times longer than

the discharge period of time, so keep that in mind.

Battery storage, we do recommend that you have a proper

storage box for your batteries. Angela showed me this

battery box that I purchased off of Amazon. I have wasted



a lot of batteries by storing them improperly. If the connections touch each other, you can ruin the battery and have the battery leak all over other batteries and ruin your devices. Avoid storing batteries in extreme temperature situations. Sometimes you want to have them in the glove box of your car, but it's going to get up to 110 degrees with the windows closed and shorten the life of the batteries. Extreme humidity and cold can also shorten the life of your batteries. Keep your batteries stored in a cool, dry place. Put them in a proper storage box so that the contacts of the batteries don't touch.

Also, if you can, don't store the batteries and the devices in your power kit. I have had head lamps where

they got left on a low setting and got turned on and

discharged the battery and then the battery leaked over

the device and corroded the device and ruined it. A

little bit more battery-helpful hints. Prepare a kit with

devices that use the same types of batteries. For

example, in our family emergency kit, most use double A

and triple A. We don't have too many that use D cells and

C. Store devices in batteries separately. I mentioned

that. Check and recharge all of your rechargeable

batteries twice a year. One of the best ways to remember

that is, with daylight savings time and standard time, as

we set our clocks back or forward, that's a good time to

not only change out the batteries in your smoke detectors, but find all of the rechargeable banks in your house and plug them in and top them off. Tips for using a car as a generator. A lot of Texans are interested after recent natural disasters in getting a generator for their home. That can be a financial investment and come with challenges. Most Texans who have a vehicle in their family already have a generator and that's the generator or alternator built into their vehicle. Some of the advantages of using your car's generator are you're storing gas and hopefully maintaining your vehicle and it's already -- it has a variety of outlets for charging commercial devices. You want to maintain your vehicle in

advance with disaster. Keep up with the maintenance and

oil changes of your vehicle. Top off the fuel tank in

advance of a disaster. We take a look at the news and

stay informed and if we think something is happening, I

always tell my wife and son not to let their vehicles go

below half a tank. Utilize multiple types of adapters and

charging ports for your vehicle. Some of the newer

vehicles have a built-in power inverter for the second row

that uses 110 volt. A lot of the older legacy vehicles

have the simple cigarette 12 volt adapter. A lot of the

vehicles built in the last 10 to 15 years have the USB

ports that can charge your phone, although they might do

it rather slowly. The best you can get is 300 watts of power. Check your vehicle's owner's manual to verify that. If you want to get more power, we're going to talk in a second about what a power inverter does and typically, you can get the most power out of your vehicle by connecting directly to the battery under the hood and charging your power inverter from the alternator of the vehicle. A couple of warnings. We're really going to push the safety on this presentation and so we're going to repeat ourselves several times. When using a car as a generator, never run the vehicle inside an enclosed area like your garage with the door closed due to the danger of carbon monoxide. This can result in tragedy for all

concerned. Quick story, we have a hybrid vehicle. One time, we pulled it into the garage. My wife thought she turned it off. We came out later and the inside of the garage was hot and it was because the vehicle was turning the engine on and off periodically and so just take extra care to make sure that you're being safe. So what is a portable power inverter and what does it do? A power inverter is a device that takes DC power from batteries and turns it into alternating current. It can connect to the 12 volt battery system of your vehicle or it can connect to deep cycle battery that's not connected to your car. We're going to talk about a variety of different

types of inverters and how you can pick the best one for you. So you can plug in AC devices into the outlet of a power inverter. It draws power from batteries or while you're running the engine of the car which is maintaining the battery. It draws power that way. You can also create a battery bank by putting more than one deep cycle 12 volt battery in parallel and connecting the power inverter to that battery array, then maintaining that with a trickle charger. We're going to have the slide that will show you how to do that. It's not as clean and neat as if you bought an off the shelf battery bank, but it is much more affordable to do it that way. This is a picture of a common power inverter. I believe this is made by

cobra. It's the 3,000. It is highly rated. There's lots

of different solutions out there for power inverters.

This one is rated for 3,000 watts, which is quite a bit.

It can power probably most things in your home, except for

your central air conditioner. We're going to talk in a

second about peak power versus running power. When you're

choosing a power inverter, make sure that it can deliver

the peak power to start a device. Things like appliances

like refrigerators, when they first kick off, they use

power. Power inverter direct current to alternating

current. We talked about that. This is the way to take

the power stored in your batteries and make it into a



variety of devices. Not all power inverters work for all things. Like I said, the less expensive power inverters produce a few hundred of watts for power. They're perfect for charging commercial devices like an iPhone or an assistive device that uses a couple hundred watts of power, but when we get into bigger devices like appliances and refrigerators, it's not going to do that. Also, according to our friend and colleague, Mark, from angel medical, when you're calculating the power needs of what type of power inverter you want to get, this holds true for generators, which Angela is going to talk about, you want to add together the number of watts that each of the devices use. Then we talked about peak and start up

power. When researching the power needs of your device

that you're going to use, make sure that the peak power,

which is the start up power of that device, that your

power converter can generate that. You're going to flip

a breaker or fuse and damage your vehicle if you can't

meet that need and then the running power is power that

it's going to use when it's just running the device. When

you connect your power inverter, you're going to use clips

or ring cables to connect it to the post of the battery.

Some of the smart inverters are accident proof in that you

can't mess up and get it wrong. The black post goes to

the black cable and the positive post goes to the right

cable or the positive cable on the inverter. Don't get those reversed. You can damage your vehicle. You want to use appropriately rated extension cords. Make sure that your inverter is stabilized to the vehicle so that it doesn't fall off. Once again, use it in a ventilated area. So choosing the right inverter, you want to choose a size that is based on the number of watts that your devices use. If you're using more than one device, add them together to make sure and then it's always good to purchase an inverter that is about 20 to 30 percent higher than the total number of devices you're going to be using at the same time. Now, one other thing, a large sports utility vehicle or pickup truck that has a bigger engine

is going to be able to work with a high capacity power

inverter like a 3,000 watt. The smaller vehicles like a

Honda civic is not going to necessarily work with that

inverter. Check with your vehicle manufacturer as well.

Couple of common features is a lot of inverters, they come

with a variety of cables. Both ring cables or alligator

cables. They'll have a 12-volt cigarette lighter that,

the lower wattage can plug into the inside of the car.

The ones that are higher wattage, connect to your battery

directly. Some of the inverters have 110 and also

multiple USB type C outlets. You also can have ones that

have emergency lights. If you're broken down on the side

of the road or you're out in a storm, you want to make it easier to connect devices to your power inverter. You're going to read as you look at power inverter reviews, the difference between a pure sound wave and a modified sound wave, and what I'm going to say about that is power inverters produce a pure sound wave are going to be more expensive. If your device requires that, you'll spend the extra money for that. It shows a wave based on the number of Hertz or cycles per second for generating electricity. In the United States, we generate electricity at 60 cycles per second. Check with your manufacturer to see if you need a pure sound wave or a modified and then don't spend the extra money if you're not going to need it for your

device. Additional power inverter tips, I think we've

covered most of these already. Keep the inverter close to

the vehicle and run an extension cord from the inverter to

the inside of your house and don't ever run the car inside

an enclosed area. Building a back write-up battery kit.

Angela, you want to talk about this? We've talked about

the components. You want a deep cycle battery, a trickle

charger. This is the link that Angela found on the web.

This is a way to produce a battery kit at a fraction of

the price of some of the more expensive ones. Make sure

that you can do it safely and correctly.

>>: So in the picture, there's two lead acid

batteries and it shows what the setup looks like. That

link will take it to a do it yourself website. This is

particular to the content of this training. I believe if

you use Marine batteries, they --

>>: Deep cycle is what you want to look for. They

can handle repeated charges.

>>: This is something you can do like in an

apartment. You can do this in a place that is inside,

there's no exhaust involved because there's no car

involved. Think about other things that you may need to

be concerned about in your environment. Do you have pets,

kids, a place where you can set this up that it's not

going to be -- you're not going to be disturbed and you'll

be able to charge your equipment with. It is a solution.

I don't know that it's going to be the solution for

everyone.

>>: Right.

>>: Do you want to add something to that, Ron?

>>: If you don't have an environment due to pets and

children, this may not be right for you. You can increase

the capacity. That extra capacity will give you longer

run time.

>>: So if you go to the Internet and Google this

type of thing, you get a lot of sort of survivalist

websites. So this is a more generic website we found and



it's a handyman that -- choose wisely.

>>: A lot of us also know engineers and tech people

that have the professional background or training. Make

sure if you're going to do this, wire it up correctly and

do it safely, but you can purchase the components off of

Amazon or from a car parts store. We're going to go on to

generators.

>>: All right. I have generators. So we have a

picture of just the Home Depot. There's pictures of

generators on the shelf. Now is the time to get it for

the hurricane season, if you want to go there. They're

not really the end all as you think it might be. There is

types. There are gas loan only. All of these fuels are

flammable. That adds an area of caution that may rule out

this tool for a lot of folks. You have to take

appropriate precautions for storage and handling. You

can't leave it under your carport. Have it in a safe

place. The gasoline cannot be stored for more than 6 to

12 months. You can extend that. There's more complexity

of that. You have the right amount of gas and additives

and are you using the right additive with it. It's not

necessarily something that the layperson has a knowledge

base about. It is easier to manage refilling generators

from smaller containers. Getting a portable gas tank

filled up isn't going to be helpful for me. There's no

way I'm going to be able to use that to use my generator.

I'm going to have multiple smaller ones. There's risk of

spillage. With propane, it is easier to store for long

term and it may be safer. You have to ensure those

propane tanks are -- if you've been in Texas for any time

at all, we try to get propane tanks right before a

hurricane is coming.

>>: I would say for the dual fuel, propane doesn't

have the same power density as gas, so you're going not

going to get the same. I think propane is safer in many

regards in terms of storage and you don't have to use --

it's not a one for one trade in terms of run time on a

generator.

>>: Some funding sources may specify the fund

generators, too. So there are also whole house

generators. Right after a hurricane, there will always be

a rush for these. Everybody went out to get these.

Pluses and minuses. It will usually connect to your

natural gas lines. Many have access to natural gas.

Usually, it must be inspected by local officials and it

will vary from locale to locale. It must be properly

installed. Not everybody is going to have the opportunity

to invest that. Usually, it's going to have to be a home

that you own and not rent. That right there cuts out a

large number of potential end users. It does have a large

capacity and can power large appliances, as long as that natural gas is available. So I have lived in Texas all of my life. There have been situations where the natural gas was cut off. That wouldn't have been helpful. You can potentially use them beyond 72 hours. We have a picture of one. So that's one of the more common brands. Hooked up to a nice house in the suburbs, I guess. A good solution, but not necessarily going to work for every consumer. So there are a host of safety issues concerned with generators. You want to make sure you read all of the manufacturer's directions and warnings. There will be a stack of them. Disconnect the power from your AC sources in your house, so you have to disconnect,

otherwise, if the workman has to work on the line and they're working on it, and you have your generator hooked up to it, it could feed back into the house line and injure the repair folks. You have to plug equipment into the generator using heavy duty outdoor rated extension cords. You can't use a cheap one. Get the heavy duty design to handle. Make sure the generator is rounded per the manufacturer's directions. It's electricity. You have to be careful. You've got to use the containers. Did you see the video circulating during some of the disasters of people putting the fuel in plastic Walmart bins? Those are also available and so there's hazards

involved with that. You want to maintain the fuel supply during the use. So if I think I'm going to use my generator for 72 hours, I need to store that fuel the whole time and be able to get more fuel during that time.

I know that the emergencies I've been through in Texas, you couldn't get fuel. Either they couldn't deliver it to get it or the gas stations aren't open. You want to have it ready.

>>: Purchase several five gallon cans that are safe and ready for storage and number them. You can rotate your gasoline each month. You can take it to the gas station and refill it. You'll never run out of fresh gasoline and never have to worry about the gasoline going

bad. It's a pretty good strategy.

>>: It is. It's time and effort. When making your choices for your battery backups, you have to think, do I have the time and energy to maintain that.

>>: It's all choices.

>>: Exactly. Turn off the generator and let it recool before you fill it. If you were trying to run a heater in your house, you would have to -- it would be cold while waiting to do that. Factor that in. It has to be 15 feet away from structures.

>>: This is a challenge, especially in an apartment complex, having your generator be 15 feet away from your



structure wouldn't be possible.

>>: Many apartments wouldn't let you do that. It

has to be outside. In addition to that, it must be kept

secure, so if you have a fancy generator and nobody else

has power, it is at -- it could be stolen or you need to

keep that secure. Do not store gasoline in the generator.

You can't keep it full. It has to be filled before --

it's empty until you use it. Use it outdoors, in a dry

location. That could be a challenge during hurricanes and

flooding events. Store and use in a secure location to

prevent theft. That link right there will take you to a

generic.

>>: I believe that link goes to the U.S. department

of energy. They have good guidance.

>>: Generator issues and challenging. You have to have a garage or a place to put it or it would probably walk. Lease agreements, local ordinances, homeowner's association restrictions may limit. Don't buy an expensive generator and find out that you cannot use it.

Must be able to maintain and operate the generator with or without assistance. Am I going to be able to get my fuel up and running, do I have the ability to do that.

Acquiring additional fuel in a disaster can be a challenge. The last slide here on fuel power generators is that there is the cool gadget that you can have

installed that will make it easier. If you're going to make the investment in the generator, it might be best to make if it's going to be used in your home. You can have one of these home safety plugs installed. Generator plugs direct into. If you plan ahead, put it outside, put this on the wall where you would have that outside location for your generator, and you don't have to -- it makes it easier to --

>>: We only showed you one-half of the picture here.

As you notice, this has a four prong plug. Your generator plugs into that. On the other side of the wall, you'll have 410. This has the advantage of not having to leave a window or a door cracked up. It's going to let the

weather in. It's hot or cold and it allows you to keep the carbon monoxide and all of the noise from the generator outside. This is typically only something you can do as a homeowner, not for something that you're renting.

>>: If you're going to be using those heavy-duty extension cords from the generator to your gadgets. Then there are so-called generators.

>>: It's a battery.

>>: The battery is charged by solar panels. It has to be daylight or daytime to be able to charge it. It'll still charge through a cloudy day. I'm not saying they're

never a choice and you would never look at it, but they're

marketed as a -- they can charge their phone while hiking.

It's not really quite where it's at, but it may be a

choice.

>>: It's getting much more common for homeowners to

have solar panels. What a lot of people don't realize is

those just don't -- they don't power your house when

there's a power outage. The challenge with some of these

is that they will energize the grid. When there's a power

line, have the risk of shock if we're still putting power

into the grid. Tesla has a -- you can put it into a

battery bank that can power your house when your local

power is out. If you need to talk to an electrician, if

they have solar panels, will they do anything for you.

Most of the time, it will not.

>>: So I live in Austin and I get feedback from my neighbors. There's not a lot of competition of those making them. The technology has not improved greatly in the time you would think it would. If there's more companies, then it'll up the competition. The cost is hefty. It's one of those things that I think you would see more of in the future.

>>: One of the things I failed to mention is, with the growth in -- it is possible to power your whole home off of your electric vehicle. Some can power a house up

to three days for most. We're getting to the point where people will now be plugging their home into their car during a disaster.

>>: Yes. There are funding sources. Not as easy as we think they might be. So FEMA has a post disaster option. So if your area is declared a disaster, there's ways to get funding for generators. It's a process because it's a government thing. So you've got to apply for it.

>>: The next slide is going to go into detail on the FEMA one.

>>: Okay.

>>: Yeah.

>>: There may be state or local funding available.

You can ask for backup solutions when you request data.

When you include that in your big package and you're

working with an insurance company, it may take two or

three times to get it approved, but if you're going to ask

for a wheelchair and a medicine mount, ask for it. The

Texas Technology access program does have a low interest

loan program, but you do have to qualify for those loans.

I have one more slide on generator information.

>>: FEMA generator reimbursement, so FEMA may

provide financial assistance for purchasing a generator

post disaster. Of course the challenge is you have to



find one, and so this is not for preparing for disaster.

This is in the response recovery phase of the disaster.

Applicants may be eligible to receive assistance. We

would direct you to FEMA's website or to their toll free

number during a disaster to get more information. Be sure

to save your receipt, if you believe you're going to get

reimbursed. You have to provide documentation. If you

can't get reimbursed, then you need to return it. You'll

want to do that as well. FEMA as recovery centers

throughout the state when there's wide-ranging disasters.

Going to a center or DRC for assistance and getting

reimbursed for a generator is another way of getting

clarity on that issue.

>>: When your area is declared a disaster, if you go to that website, it'll link you to the DRCs in your area, as long as that disaster declaration is in place.

>>: Then we have one more slide on potential reimbursement for generators or financial assistance.

Recently, the health and human services commission provided guidance on Medicaid waiver programs and the -- or Medicaid managed care coverage for gasoline powered generator. Stake holders haven't had a lot of time to analyze this guidance, but we've put it up on our website and you'll find a link to it. There are some waiver programs that will reimburse you for a power generator,

but it may apply towards your lifetime cap of home modifications for your Medicaid waiver. There may be opportunities for Medicaid to -- work with your managed care organizations caseworker that's assigned to you to see if you're eligible. This is for people that usually have a medical necessity for -- that use -- that medical equipment that's considered life sustaining. We've got the link at the bottom of the slide and we also have the PDF document up on our website. What if your needs exceed 72 hours? What do we do then? First, seek assistance. Don't wait until your back up power solution is out. If you're on life sustaining durable medical equipment, all of the usual guidance supplies, get to know your

neighbors. Neighbor to neighbor assistance is critical.

When you have got your wrap around network of supports,

make sure that you have that for your support. If it's

left threatening, get assistance. You may need to go to a

hospital or emergency center where you can charge your

devices. Identify local state and federal government

shelters. FEMA has a shelter app that can show you where

the nearest shelters are and also your local office of

emergency management is going to announce. Plan for a

network of support with options for multiple alternative

plans, backups to your backup. Once you've done all of

these things, there's things that you can do. Insure DME

and AT. Put it in dry bags and waterproof containers, if

you have to evacuate. Bring all of your cables with you.

Make sure you have extra batteries and the manuals for

your devices. Can't guarantee that when you get to the

shelter that they're going to have the types of cables

that you need for your devices. Bring those with you.

Back up custom files. A lot of times, software is a

service or a software is downloadable from the Cloud, and

so if it's software, once you get to a shelter, they may

have computers. You may be able to download.

>>: I think I have the last two.

>>: All right.

>>: So now what else can you do? You might want to

register with the local -- that does not necessarily mean

that there's an emergency, they're going to come rescue

you, but it -- you're identified as a potential need.

Also with the utilities, if you're local utilities,

they'll know that you have that -- you can put in a

priority cue. Contact the local offices of any medical

power dependencies.

>>: There is legislation that came out in the last

session that may include for some individuals in STEAR

well checks that can be helpful. Of course that's used to

make sure there's not power disconnect for lack of

payment. No guarantees on this stuff. After you have

taken care, we recommend that you do this as well.

>>: Our last slide is a reference slide that some of the same repeated links that we had earlier in the document as well as the places where you can get specific information. We have about 15 minutes for any questions or comments that anybody wants to have. You can post them in the Q and A. I am fine with people unmuting and asking a question, if they want to.

>>: Randi, you want to monitor the questions for us?

>>: Sure. There's nothing in the Q and A yet.

>>: Okay.

>>: There's something that Joanne wanted to share that I posted in the chat about people you can trust. You

might e-mail them your ID software licenses, et cetera.

>>: I guess I'm going to share wisdom. As you're

making your backup power plans, be thinking about the goal

that you have rather than the solution that you're

thinking of, and we talked about if you need to keep your

medication cool, you may think the solution is a generator

to keep your refrigerator running. The least expensive

way is a high efficiency ice chest that can keep your

medication cool for over 72 hours. Use a power inverter.

Some of the nicest power inverters connect to a vehicle

are \$300 or less that could power a refrigerator. You

only need to run your refrigerator for 15 minutes every



hour to keep everything from spoiling. Don't focus on  
a -- if you get your mind stuck on I need a \$10,000 when  
your goal is to keep your durable medical equipment  
powered, you can accomplish that for less expensive  
solutions or solutions that don't require as much energy.

>>: There's a question in the chat. I'm going to  
pop my e-mail in there. If you'd send me an e-mail, it's  
easier for me to talk with you directly on that.

>>: This presentation is being recorded. We also  
welcome your feedback. We will be likely giving this  
presentation again to other audiences, and so if you say,  
I would have really liked for you to have covered this in  
more detail, or if there's anything that we covered in too

much detail, I feel like with safety, we couldn't state

the safety issues enough. We welcome your feedback on

this presentation to continually make it better for the

next audience.

>>: Still, I see no more questions.

>>: Okay. With that, we can give them back some of

their time. Angela, any final thoughts?

>>: Well, hurricane season starts in just a -- about

a month. Get ready. Everybody has their go bag packed

and at the front door. I came to the area already ready

for something to happen.

>>: Yeah, and I would say my final thought is your

emergency plans should not be a one and done. Your plans

should be to refresh your plans on a twice a year basis.

Your emergency kits need to be refreshed, your batteries

need to be discharged. Take an inventory of your serial

numbers and your documentation for your durable medical

equipment. Your plans need to be maintained. We

recommend doing that twice a year. I want to thank

everybody for your engagement and participation. We'll

see you with our next webinar.

>>: Thanks, guys.

>>: Good-bye.