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What's Your Backup Plan?

A GUIDE FOR DEVELOPING A STRATEGIC EMERGENCY POWER PLAN

What's Your Backup Plan?

Planning for the inevitable power outage can be thought of as a continuum from no backup power to complete coverage of all circuits in all locations. There is no single point on that continuum that is right for every business.

For some businesses, locking the doors and waiting for power to return might be a viable alternative. For others, full operation for the duration of the outage is the only option. For most companies with branch operations, the best solution is often a strategic mixture of coverage based on the critical nature of products or services, location, population density or any number of other factors.

No Backup

Lock up, go home and wait for power to return. There are no customers and there is no revenue until power is restored.

Orderly Shutdown

Safely shut down computers and registers. Key customer/business data is protected, but customers will have to go elsewhere until utility power returns.

Limited Operation

With backup power for essential circuits, you can stay open for business, but not at full productivity. Losses are reduced and you can continue to provide some level of service to your customers.

Full Operation

Operations continue as if there were no outage. Revenues increase and new customers are gained while competitors are closed or operate at reduced capacity.

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Backup Plan Examples

Example # 1 — Regional or National Convenience Store Chain
Parameters:
- Densely populated areas
- At risk for hurricanes
- 10 locations within a 20 mile radius

  - **"Full Operation"**: Three strategically located stores
  - **"Limited Operation"**: Four additional strategically located stores (operate half of the gas pumps, maintain refrigeration and security system, limited lighting and reduced number of registers)
  - **"Orderly Shutdown"**: Three remaining stores (safely shut down computers and registers, maintain refrigeration and security system)

Example # 2 — Regional or National Supermarket Chain
Parameters:
- Densely populated areas
- 4 locations within a 15 mile radius

  - **"Full Operation"**: Two strategically located stores
  - **"Limited Operation"**: Two additional strategically located stores (maintain refrigeration and security system, zone lighting, reduced air conditioning and reduced number of checkout lanes)

Example # 3 — Regional or National Drug Store Chain
Parameters:
- Densely populated areas
- 6 locations within a 20 mile radius

  - **"Full Operation"**: Two strategically located stores (24 hour, full service locations)
  - **"Limited Operation"**: Two additional strategically located stores (maintain refrigeration, pharmacy operation, security system, zone lighting)
  - **"Orderly Shutdown"**: Two remaining stores (save data and safely shut down computers and registers, maintain refrigeration and security system)

When Will it Happen to You?

It will happen. The only questions are, "When?" and "How much will it cost?" Every year, more than 2 million U.S. businesses experience a power outage lasting eight hours or more. The cost of these outages is astronomical in terms of lost revenue alone.

Business	Lost Sales Per Hour	Typical kW	Transfer Switch	Approximate Installed Generator Cost	Payback Hours
Convenience Store / Gas	$556	100	ATS 400 Amp, 3ø	$26,828	48
High Volume Restaurant	$881	150	ATS 600 Amp, 3ø	$37,000	42
Drug Store	$1,750	150	ATS 600 Amp, 3ø	$37,000	21
Supermarket	$4,388	300	ATS 1200 Amp, 3ø	$80,779	18

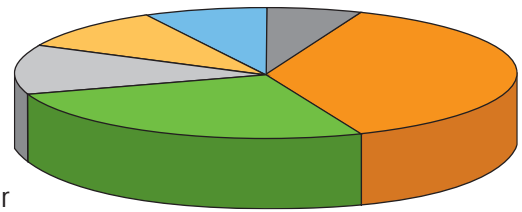
Commercial Businesses	$57 Billion
Industrial Businesses	$20 Billion
Total Annual Lost Revenue	**$77 Billion**

Lost revenue is only part of the story. When you consider some of the other direct costs and intangible losses, it's easy to see why an extended outage can be devastating.

- Data can be lost
- Employees are idled
- Manufacturing processes are disrupted
- Refrigerated goods spoil
- Security systems may be disabled
- Customers are inconvenienced and buy from your competitors

Causes of Power Outages

Power outages are not confined to the coasts and "Tornado Alley". In fact, more than 60% of all power outages are not weather related at all. The need for electricity is increasing at a phenomenal rate and utility companies are finding it difficult to keep pace with the growing demand. As a result, the overloading of our aging power grid has become an ever-increasing cause of extended outages nationwide.



38% Weather: lightning, wind, rain, snow, heat, cold and ice

26% Utility equipment problems and grid overload

12% Fallen trees or tree growth

10% Animal contact

8% Human error: Underground digging, cranes, traffic, vandalism, etc.

6% Miscellaneous: Mechanical damage, construction error, fire, etc.

Things to Consider

1. How important are your products and/or services during an extended outage? High priority examples:
   - Gas stations, convenience stores
   - Supermarkets
   - Pharmacies, drug stores
   - Restaurants
   - Building supply stores
   - Telecommunications
   - Media (radio, TV, newspapers)
   - Municipal services (water, sewer, garbage pickup, etc.)

2. Which areas (cities, counties, states or regions) represent the highest priority needs for backup power? Consider:
   - Likelihood of an extended outage
   - Geographical location
   - Population density
   - Legislative requirements

3. How many locations do you have in each priority area?

4. Can each area be divided into smaller, contiguous territories to provide the best possible coverage with the fewest number of physical locations?
   - Distance (locations within X mile radius)
   - Population density (i.e., 50,000 people)

5. Do, or can your locations within each territory offer different products and/or levels of service? Examples include:
   - Gas station vs. convenience store
   - Drug store only vs. pharmacy with food, personal items, gifts
   - 24 hour service vs. typical business hours
   - Full service restaurant vs. drive thru

6. Which locations offer the greatest potential revenue during an extended outage? Consider:
   - Average number of customers
   - Average hourly revenue
   - Potential based on location, population, need for your products and/or services

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Selecting a Backup System

Determining how much backup power will be required for each location can be a complex process. Always consult a professional for proper system sizing.

- For **"Full Operation"**, the backup system must have an amp rating greater than the total of the electrical loads in each facility.
- For **"Limited Operation"**, all electrical loads to be backed up must be taken into account. Since the power (amps) required to start some loads (air conditioning, refrigeration, etc.) will be significantly higher than operating amps, the system will need to be sized to handle starting amps as well as running amps.

Examples of Electrical Loads

- Interior / exterior lighting
- Computers / registers
- Security system
- Air conditioning / heat
- Refrigeration
- Pumps (fuel / water / etc.)
- Ovens / ranges
- Vaults
- Other specialized equipment

Automatic Standby Generators

For “Full Operation”, and even for “Limited Operation”, automatic standby is a superior choice because there is no significant downtime. If an outage occurs during business hours, the interruption lasts only a few seconds. Even if no one is around when the outage occurs, the generator will start automatically and the business will still be protected. The following are some questions that will help you decide if an automatic standby system is right for your applications.

How important to your business is:

		Very Important				Not Important
1.	Around-the-clock automatic protection?	❑ 5	❑ 4	❑ 3	❑ 2	❑ 1
2.	Having power return automatically within seconds of an outage rather than having to shut down until a generator can be delivered and hooked up?	❑ 5	❑ 4	❑ 3	❑ 2	❑ 1
3.	Not having to have trained personnel at each location or hire an electrician to safely hook up a generator?	❑ 5	❑ 4	❑ 3	❑ 2	❑ 1
4.	A stable, permanently installed generator that is theft-proof and will withstand winds up to 150 mph?	❑ 5	❑ 4	❑ 3	❑ 2	❑ 1
5.	Automatic self-testing that eliminates the need to manually start and run the generator on a weekly basis?	❑ 5	❑ 4	❑ 3	❑ 2	❑ 1
6.	Fuel options, including diesel, Bi-Fuel, LP vapor or natural gas?	❑ 5	❑ 4	❑ 3	❑ 2	❑ 1
7.	Eliminating the need to re-fuel during an outage with a natural gas-fueled generator?	❑ 5	❑ 4	❑ 3	❑ 2	❑ 1

TOTAL SCORE (SUM OF RESPONSES) _____

Automatic Standby Generators

28 - 35	Definite requirement
20 - 27	Probably the best choice
14 - 19	Should consider
0 - 13	Not a significant factor

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Mobile Generators (Rental Option)

Mobile generators are growing in popularity, primarily because they can be moved from one location to another as needed. Some businesses are signing rental agreements for mobile units, but before deciding that a rental agreement is your best, most cost-effective option, there are a number of questions you must answer.

		Very confident				Not Confident
1.	Does the rental company have enough generators of the size you need to ensure that one will be available when you need it?	❑ 5	❑ 4	❑ 3	❑ 2	❑ 1
2.	Can you be sure that your unit will be delivered on time?	❑ 5	❑ 4	❑ 3	❑ 2	❑ 1
3.	Will the person delivering your generator be qualified to hook it up?	❑ 5	❑ 4	❑ 3	❑ 2	❑ 1
4.	With the high demand that comes with an outage, will your rental company be able to respond to your request quickly and efficiently?	❑ 5	❑ 4	❑ 3	❑ 2	❑ 1
5.	If there is a problem, will the rental company be able to quickly send a qualified technician to service the generator?	❑ 5	❑ 4	❑ 3	❑ 2	❑ 1
6.	Everyone will be looking for rental generators during an outage. Are you certain that your company is near the top of the priority list?	❑ 5	❑ 4	❑ 3	❑ 2	❑ 1
7.	If the outage is extended, can you be certain you'll be able to get fuel?	❑ 5	❑ 4	❑ 3	❑ 2	❑ 1

TOTAL SCORE (SUM OF RESPONSES) _____

Mobile Rental Generators

28 - 35 Could be a viable option
20 - 27 Possibility – consider risks
14 - 19 Probably a poor choice
0 - 13 Definitely not viable

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Mobile Generators (Purchase Option)

Another option some companies are considering is to purchase a number of trailer-mounted mobile generators. This approach is most common when the applications call for larger generators that might not be readily available from a rental company. Purchasing the units ensures the generators are available when you need them, but there are still a number of issues to be resolved before committing to this strategy. How confident about the following concerns?

		Very confident				Not Confident
1.	These units are high theft items because they can simply be hitched to a truck and driven away. Do you have a secure location where the generators can be stored?	❑ 5	❑ 4	❑ 3	❑ 2	❑ 1
2.	If you purchase several units, will you have access to enough trucks and drivers to move them as needed?	❑ 5	❑ 4	❑ 3	❑ 2	❑ 1
3.	If you contract with a rental company to store, maintain and deliver your generators, will your needs take priority over delivering their own rental units to other customers?	❑ 5	❑ 4	❑ 3	❑ 2	❑ 1
4.	Even with pre-wired quick connect systems, connecting high-output generators can be dangerous. Are you sure that a trained, qualified electrician will be available when needed?	❑ 5	❑ 4	❑ 3	❑ 2	❑ 1
5.	Will it be possible for a fuel truck to get to your location if the outage lasts more than a day or two?	❑ 5	❑ 4	❑ 3	❑ 2	❑ 1
6.	Trailer-mounted generators are very unstable in high winds. Will you be able to secure the trailer so that it continues to function during the storm?	❑ 5	❑ 4	❑ 3	❑ 2	❑ 1
7.	It's difficult to predict where an outage will occur and often the generator arrives at about the same time power is restored. Will you know when and where to deploy your generators?	❑ 5	❑ 4	❑ 3	❑ 2	❑ 1

Do you deploy before the storm hits and hope you pick the right locations, or wait until after the storm and hope to quickly get the generators where they are needed?

During a voluntary evacuation roads are clogged. How long will it take to get the generators to their destinations?

In a mandatory evacuation, traffic will be moving in a single direction. Will you be able to move the generator at all?

TOTAL SCORE (SUM OF RESPONSES) _____

Mobile Rental Generators

28 - 35	Could be a viable option
20 - 27	Possibility – consider risks
14 - 19	Probably a poor choice
0 - 13	Definitely not viable

Are Mobile Generators a Cost Effective Option?

A 300 kW diesel generator with trailer and a 500 gallon fuel tank will typically cost between $100,000 and $120,000. Other costs to be considered include:

- Storage in a secure facility.
- Generator maintenance. In addition to normal maintenance, mobile generators need to be started and run for a few minutes each week or a minimum of 45 minutes each month to ensure proper operation.
- If you're handling your own storage, you'll need trucks and drivers to deliver the generators.
- You'll also need to have a re-fueling contract with a reliable supplier.
- Some pre-wiring will have to done at all potential locations. At a minimum, a quick connection system with either a service disconnect or appropriately sized breaker will need to be installed at each location. If the generator will only be powering emergency circuits, you'll need to add an emergency distribution panel to isolate the emergency loads from the non-critical loads. These preparations will probably cost between $4,000 and $5,000 per location.
- Each time the generator is used, you'll have to hire an electrician to hook it up and unhook it after the outage.

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Cost Comparison Mobile vs. Automatic Standby

	300 kW trailer-mounted diesel generator	**Generac 300 kW MQT automatic standby system**
Est. Initial Cost	$110,000 (Generator trailer with 500 gal. fuel tank, generator ends and connections)	$60,000 (Complete system including installation)
Est. Pre-wiring	$22,000 (5 locations @ $4,500)	N/A
Annual Storage	?	N/A
Electrician (per event)	?	N/A
Re-fueling Contract	?	N/A (natural gas system)
Annual On-going Costs	?	-0-
Est. Total Cost (1st year)	**$150,000+**	**$60,000**

What you get for your money

	300 kW trailer-mounted diesel generator	**Generac 300 kW MQT automatic standby system**
	$150,000+ • Full Operation emergency power for 1 of 5 locations	$60,000 • Full Operation automatic standby power for 1 of 5 locations
What you can get from Generac for about the same money		• Full Operation automatic standby power for a 2nd location ($60,000) • Limited Operation system (150 kW) for 1 additional location ($30,000) • The ability to increase capacity of Limited Operation locations to Full Operation at any time
Est. Costs and Benefits	$150,000+ (Plus on-going annual costs) • Full Operation power for 1 of 5 locations • The ability to move the generator to any of the locations	$150,000 (No additional cost) • Full Operation power for 2 of 5 locations • Limited Operation (150 kW) for 1 additional location • Secure, wind resistant, permanent installations • 24/7 automatic standby protection for 3 of 5 locations

Worksheet

Cost Comparison Actual Cost

	Generac Automatic Standby Generator	Mobile Generator	Other
Initial purchase price			
Pre-wiring (per location)	(Installation Costs)		
Annual Storage	N/A		
Electrician (per event, per location)	N/A		
Re-fueling contract	N/A		
Maintenance Contract			
TOTAL COST (per location)			

What you get

Generac Automatic Standby Generator	Mobile Generator	Other
Automatic Backup Power		
24/7 Protection		
Permanent Installation capable of withstanding hurricane force winds		

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Strategic National Accounts Program

We do a lot more than just manufacture power generation equipment. We build relationships. When you select Generac Power Systems, you'll get a dedicated team of professionals that you'll come to think of as an extension of your staff.

Our Strategic National Accounts team will help you analyze and prioritize your backup power needs, develop a plan that's tailored to your company and implement that plan using a schedule that works best for you.

With Generac, you'll get:

- Top quality products configured to your requirements
- Consistent and competitive pricing
- The fastest delivery times in the industry
- Exemplary local support from our national dealer network

Best of all, you'll have a corporate-level partner who will ensure that the process is efficient and hassle-free.

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