

Protecting your Investment with Automatic Standby Power

September 15, 2010

- Introductions
- Growth of the automatic standby generator category
- Automatic standby generator basics
- Incorporating automatic standby into new construction or renovation projects
- Sizing and installation tips
- Question & Answer

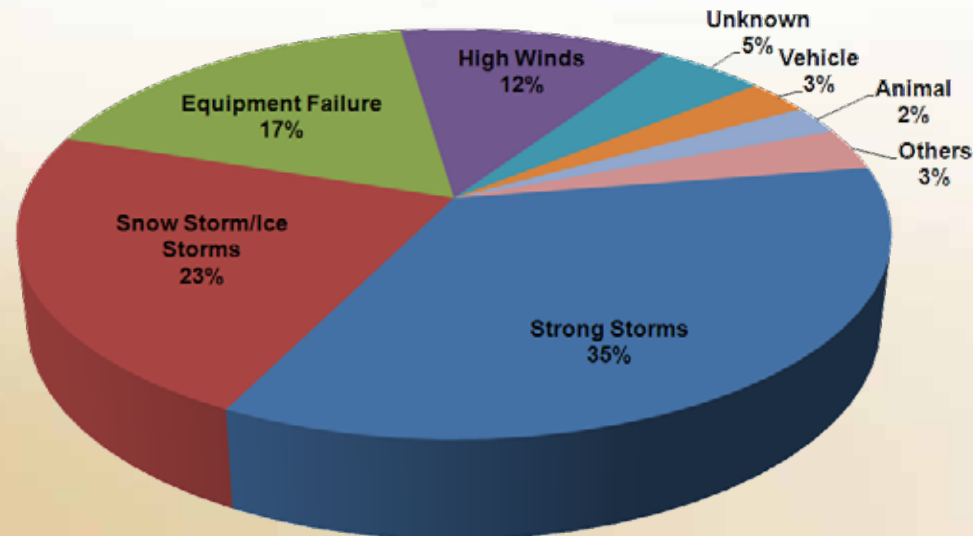
- Presenters
 - Greg Berlin, National Account Manager
 - Joseph Wiegert, Corporate Training Manager
- Founded in 1959 – 50 + Years of Experience
- World's largest provider of residential automatic standby generators
- Product line ranges from 800 Watts – 9 Megawatts
- Vertically Integrated USA Manufacturer
- Engineering and design driven company committed to continuous innovation

Automatic Standby Generator Category Growth



- Increasing frequency of power outages leading customers to seek backup power
- More frequent and longer power outages
 - Increasing 7.2% each year
 - 2904 power outages affecting 19 Million people in 2009
 - Significant increase in storm activity across the country

Causes of Power Outages



Automatic Standby Generator Category Growth



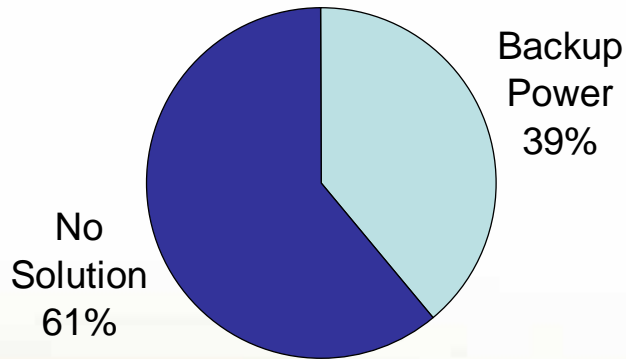
- Demand for electricity is outpacing current and future capacity
- During the past two decades, blackouts have increased 124% due to aging wires, pole transformers, and other lagging infrastructure
- Increased demand for uninterrupted power
 - Estimated annual cost of power outages is \$80 billion
 - 98 percent of losses come from the business sector
 - The U.S. economy is losing between \$119 and \$188 billion annually from power outages and power-quality issues
 - State mandates for certain business types



Automatic Standby Generator Category Growth



Small Businesses with Backup Power



- 79 % of the small-business decision-makers surveyed experienced at least one power outage in 2007
- More than one in four, 29 % of small-business owners experienced three or more outages
- 42 % of those who experienced power outages had to close their businesses

Automatic Standby Generator Category Growth



- Customers' top concerns
 - Safety & Security
 - Heating and cooling systems
 - Lighting, security systems
 - Sump pumps and private wells
 - Refrigeration / food storage
 - Overall comfort
 - Lost revenue & customers
 - Cash registers
 - Computers / data systems
 - Telephones



Who Needs Backup Power?



Homeowners

- Home Office / electronics
- Security
- Sump pumps
- Well pumps
- Refrigerator / Freezer
- Furnace

Small business owner

- Restaurants
- Movie theaters
- Gas stations / Convenience Stores
- Dentist / Family practitioner
- Hair salons

Commercial applications

- Supermarkets
- Hotels
- Casinos
- Radio & TV stations
- Computer / Internet companies
- Fire / Police stations
- Farms
- Water treatment plants

\$13 Billion = Estimated regional economic loss caused by Hurricane Ike to the Houston-Galveston area – Department of Homeland Security

How Does it Work?



- 1** A Generac automatic transfer switch works in tandem with the generator to monitor utility power.
- 2** If the power ever goes out, the generator automatically starts, and then the transfer switch transfers power from the utility to your generator to power your home or business.
- 3** When utility power is restored, the transfer switch will automatically return the electrical load from the generator back to the utility. The generator then shuts down and returns to standby mode.

Why Automatic Standby Power?



- 24/7 Automatic backup power
- Power is restored within seconds
- Permanently installed outside of the building
- Continuous fuel source – NG or LP
 - Natural gas is a highly reliable fuel supply
 - Gas mains have redundant backup systems, so they can be counted on to supply NG even in emergencies
 - No refueling, storage, spoilage, spillage concerns

Adding Automatic Standby Power



- Easy to incorporate & install automatic standby system
- Similar to adding another appliance to a facility
 - New Construction
 - More control over site planning and design
 - Cost effective
 - Renovations
 - Numerous standby generator and transfer switch options make it easy to retrofit existing buildings
 - Commercial vs. Residential applications
 - Often utilize larger gas pipe, meter, larger electrical conduit and wire

- Quilogy - multi-service IT provider in St. Charles, MO
- Remodeled its building in 2005
- Required more power than the existing standby generator to backup the data center
 - Natural gas fuel type offered considerable savings
 - Alan Groh, Chief Technology Officer shared:

"By selecting the [130kW] commercial model, we easily saved more than \$10,000 when compared to the diesel alternatives. It was an easy decision."

Data Center Case Study



- Selected 130kW Automatic Standby Generator
- 400 Amp, 208 Volt, 3 phase service
- Having automatic standby power enhanced Quilogy's reputation as a reliable service provider

“Operating a data center requires 24 / 7 availability, and our clients depend on us to provide uninterrupted service. Our investment in a backup generator allowed us to provide seamless operation through the worst outages in our city's history.”

- Mike Howell
Data Center Engineer



The Payback Calculation



- An automatic standby generator often pays for itself in one outage

Business	Lost Sales Per Hour	Typical kW	Appx. Generator Cost	Payback Hours
Gas / Convenience Store	\$445	30	\$13,100	29
High Volume Restaurant	\$705	60	\$18,435	26
Drug Store	\$1,400	80	\$21,500	15
Supermarket	\$3,510	150	\$36,100	11

Potential Cost of a Power Outage by Facility Type

Facility Type	Potential Cost
Convenience Store/Gas Station	\$445 in sales per hour, not including inventory losses
Drug Store	\$1,400 in sales per hour, not including inventory losses
Supermarket	\$3,150 in sales per hour, not including inventory losses
Semiconductor Chip Manufacturer	\$30 million for a 15-minute outage
Bank Data Processing Network	\$6 million for a 1-hour outage
Media Industry	\$120 in revenue per employee hour

Source: Industry sources; compiled by SBI.

- Begin with an in-depth needs assessment with your client
 - What is the risk of not having power?
 - Has the customer ever lost power?
 - What was the cost of being without power?
 - What does the customer want?
 - Complete facility backup power
 - Managed backup power
 - Essential circuits

Generator Sizing Guidelines



- Residential Sizing
 - Common sizing methods can be combined, including:
 - NEC 220 Part IV
 - Load summation during periods of high power usage
 - Power recording device



Generator Sizing Guidelines



- Commercial Sizing
 - Common sizing methods can be combined, including:
 - NEC 220 Part III
 - Review billing history during high use time; eg. Summer
 - Power recording device



- Work with your electrical engineer and / or electrician to review what codes apply to the project
 - The local inspection department can confirm which code will affect your installation
- Location
 - Install the generator as close as possible to the transfer switch and fuel supply to reduce the length of wiring, conduit and piping in compliance with all codes
- Site preparation
 - Obtain permits – call local jurisdiction for set back requirements
 - Locate all underground utilities before digging
 - Comply with OSHA regulations and all state, local, NFPA and NEC codes
- Plan for delivery
 - Transportation method
 - Equipment required to off-load and move the generator on the jobsite

- Key takeaways
 - There is an increased need for uninterrupted power
 - What is the customer's risk of not having power?
 - Has the customer ever lost power?
 - What was the cost of being without power?
 - What type of backup power does the customer want?
 - It's easy to incorporate & install automatic standby system during new construction and renovations

Questions



- Thank you for your participation!
- For more information visit www.generac.com