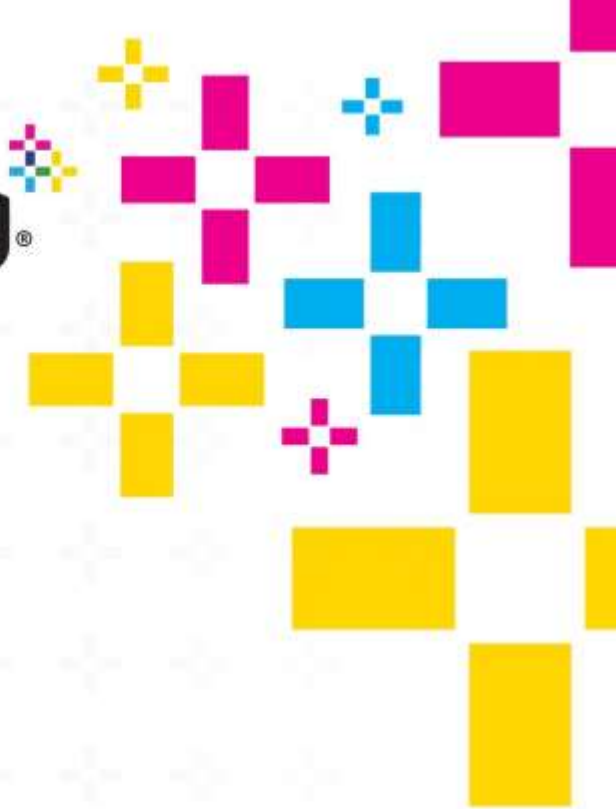


The power to change life.
The energy to make it happen.®

nrg®



2015 - MREC

NRG Reliability Solutions

The Case for Back-up Generators



Disruption of workflow due to loss of power can result in:

- Employee safety issues
- Loss of revenue
- Loss of productivity
- Inventory spoilage
- Machine downtime
- Computer network downtime

Interruptions to the grid system cost the U.S. commercial & industrial sectors approximately 78 billion dollars annually*

* Cost of Power Interruptions to Electricity Consumers in the U.S., Lawrence Berkeley National Laboratory 2006



Two Solutions – Designed to Keep Business Open for Business



Banta Publishing - 8,000 kW

Fixed Systems

- Permanently installed on-site back-up generation system
- Power you need delivered instantly
- Sizes range from 100kW generators to 18+ MW installations.



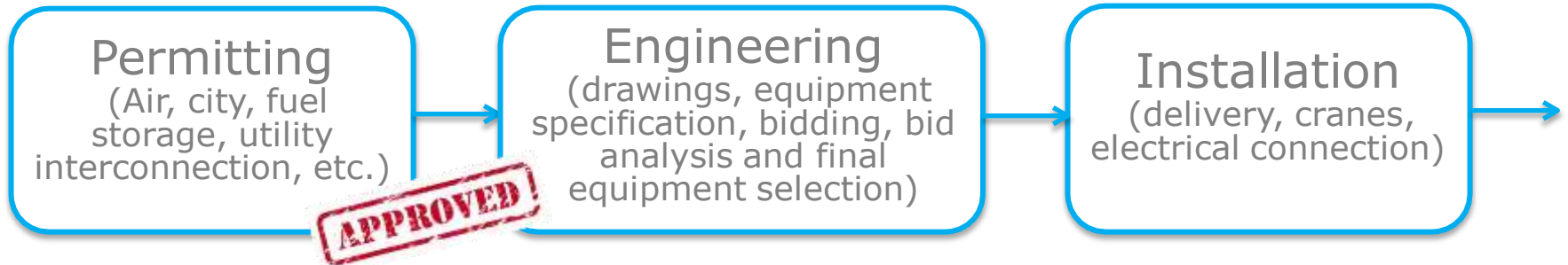
Mobile Backup Power
Where you need.
When you need it.

Mobile Systems

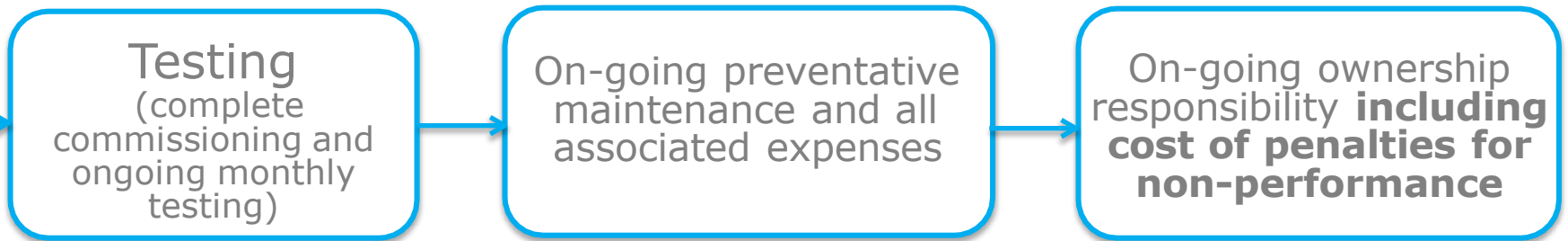
- Temporary on-site back-generation system
- Delivered and deployed upon request
- Small monthly fee that varies according to size of generator, response time required and ratio of prepped sites to customer-dedicated generators

Installation – Fixed Generators

Turn-key Installations:



Hastings, MN – 8,800 kW Peak Shaving and Grid Support





Installation & Deployment – Mobile Generators

Customer decides to install quick connect panels at their facilities



Customer decides how many generators they want dedicated to their facilities



Customer signs contract – price reflects number of facilities with connection cabinets as well as the number of dedicated mobile generators



NRG installs quick connects and procures and deploys dedicated generators to an agreed upon location near geographic center of facilities.

When a threat is developing that can impact customer's power reliability, customer contacts NRG about when and where they want the generators deployed



Installation Logistics

- Project development
- Engineering and design
- Contractor and vendor management
- Financing and extended warranties
- Maintenance, operations & fuel contract arrangement
- Leasing and third-party ownership options
- Fuel supply
- 24/7 equipment monitoring and support
- Emergency Response:
 - **Quick Connect Installation** Allows the mobile solution to be deployed safely and seamlessly
 - **Mobile Genset Storage** Strategically placed allowing maximum flexibility and lower overall costs
 - **Mobile Genset Deployment** Including connection, start up and removal



Behind the Scenes – Additional Items

- Secure storage
- Monthly tank inspections and test runs
- Annual load bank testing
- Maintenance:
 - Bi-annual fuel testing
 - Annual oil and filter changes
 - Batteries, belts, coolant and hoses replaced every 3rd year
- Replacement parts as needed
- Licensing
- Environmental Compliance
 - (Emissions testing – Quad Z, SPCC Plans, etc.)



Typical Applications

Product	Range Size	Cost	Typical Customer	Fuel	Back Up
Small Single Engine* *(only in high qty)	80kW to 160kW	\$40K - \$80K	Fast food restaurant, small retail, drug store	Natural Gas, propane	Full customer load
Single Engine	400kW to 2,000kW	\$170K - \$850K	Clinic, car dealer, city maintenance facility, manufacturer, grocery store, department store	Diesel	Full customer load
Multi Engine	2,500kW to 16,000kW	\$1.1 mil - \$6 mil	Grocery distribution centers, printers, Utilities (wholesale market)	Diesel	Full customer load
Mobile backup generation	50kW to 2,000kW	TBD	Banks, hotels, pharmacy, office, big box retail	Diesel	Full customer load
Uninterruptible Power Supply Flywheel UPS	900kW	\$450K	Manufacturing, high tech	NA	Backup for full load for 30 secs. until generator takes over



Single Engine

Size range:	80kW to 160 kW
Cost:	\$40,000 - \$80,000
Typical customer:	Fast-food restaurant, small retail, drug store
Fuel:	Natural gas
Backup:	Full customer load
Manufacturers:	Cummins/Onan, Caterpillar, MTU, TAW, Others



nrg[®] Single Engine – Custom Design

Size range: 400kW to 2,500 kW

Cost: \$175,000 - \$950,000

Typical customer: Clinic, car dealer, city maintenance facility, manufacturer, grocery store, department store

Fuel: Diesel

Backup: Full customer load

Manufacturers: Cummins/Onan
Caterpillar
MTU
Others



nrg[®] Single Engine – Standard Design

Size range:	500 kW
Cost:	\$200,000
Typical customer:	Municipal Utility District Water Tower
Fuel:	Diesel
Backup:	Full customer load
Manufacturers:	TAW PECO



nrg[®] Multi Engine – Large loads



Size range: 3 MW to 16+ MW

Cost: \$2 million to \$10 million

Typical customer: Utility or Grid Operator, Water and Waste Water Treatment, Grocery Distribution Centers

Fuel: Diesel

Backup: Backup and/or Grid Export, Demand Response

Manufacturers: Cummins/Onan - Caterpillar - MTU





Mobile Backup Generation

Size range: 50kW to 2,000kW

Cost: TBD

Typical customer: Banks, hotels, pharmacy, office, big box retail

Fuel: Diesel

Backup: Full customer load

Manufacturers: All





Uninterruptible Power Supply Flywheel UPS

Size range: 900kW

Cost: \$450,000

Typical customer: Manufacturing,
High Tech

Backup: Backup for full customer load for 30 seconds
until generator takes over the load

Manufacturers: Active Power, Caterpillar





Example: Thomson Reuters, Eagan, MN 14,000 kW





Example: GRE Peaking Generation Lake Marion & Hastings, MN 8.8 MW each





Gulf Coast Water Authority Lynchburg – 15 MW (30 units)





Great River Energy utility grid backup and support generation Colvill, MN 18 MW





Frequently Asked Questions: Generation

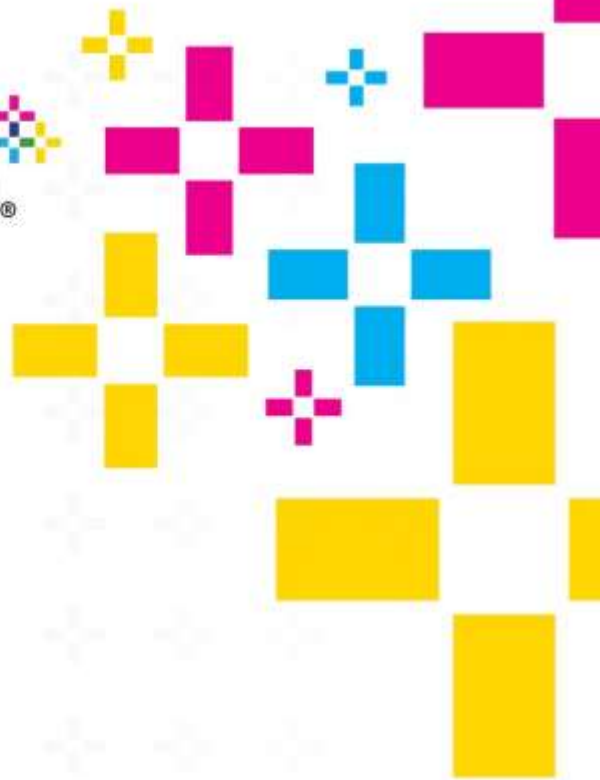
- Generator Prime and Standby Ratings?
- Large motor Concerns?
- Alternate Fuel Types?
- Exercising/Fuel storage/Sound Attenuation?
- EPA Emissions – Tier II, Tier IV, NESHAP
- Maintenance

Frequently Asked Questions: Transfer Gear

- Types of switchgear
- Automatic vs manual switchgear
- Considerations for sizing switchgear
- Standard Generator/Gear/Service configurations
- Extended Parallel
- Grounding

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