

Project & Installation Questionnaire

In order to accurately estimate the labour, materials and equipment costs for any project, it is essential that all available data relating to the generator and its environment are itemised and documented before contacting the Storage Battery Systems Inc.

* - Enter N/A where not applicable

Project details

Project name

.....

Customer (end user)

.....

Address of site

.....

.....

Tel. No

Email.....

Consultant / specifier / architect

Address

.....

.....

Tel No

Email.....

Site drawing nos.....

Application

Prime power Standby

Continuous Co-generation

Rental Overload required

Fuel: Diesel Bio-diesel

Mains gas Bio-gas

Other fuel.....

Voltage..... Frequency.....

No. of phases..... Rated Power Factor.....

Site maximum temperature..... °C/°F*

Site minimum temperature..... °C/°F*

Site altitudemetres/ft* above sea level

Distance from coast.....km/miles*

Site hazardous classification level (if any).....

Pollution level:

Clean Normal

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Dusty Mine / Quarry
 Saline Corrosive
 Oil / Petroleum Flammable gas

Type of Pollutant.....

Emissions requirements.....

Load Characteristics:

Total load to be supported kWkVA.....

Load primary constituents:

Misc. loads	<input type="checkbox"/>	kW.....	kVA.....
UPS loads	<input type="checkbox"/>	kW.....	kVA.....
Motor starting	<input type="checkbox"/>	kW.....	kVA.....
Regenerative loads	<input type="checkbox"/>	kW.....	kVA.....
IT equipment	<input type="checkbox"/>	kW.....	kVA.....
Discharge lighting	<input type="checkbox"/>	kW.....	kVA.....
Medical equipment	<input type="checkbox"/>	kW.....	kVA.....
Welding	<input type="checkbox"/>	kW.....	kVA.....
RF Transmission	<input type="checkbox"/>	kW.....	kVA.....
Traction	<input type="checkbox"/>	kW.....	kVA.....
Power factor correction	<input type="checkbox"/>		kVAr.....

Other.....

Special load characteristics.....

Number of generators in parallel.....

Number of utility supplies to control.....

Load shedding control required.....

Redundancy requirement.....No of sets

Site details

Position of set(s):

Ground level Basement
 Intermediate Roof top

Height above ground level.....m/ft*

Site Access limitations.....

Underground / Overhead services checked.....

Crane reach required.....m/ft*

Crane height required.....m/ft*

Road access to site: Concrete Asphalt Gravel Sand

Road closures/ transport escort.....

Site ground conditions.....

Language for instructions.....

Generator accommodation

Housing: Room	<input type="checkbox"/>	Enclosure	<input type="checkbox"/>
Set mounting:			
Concrete floor	<input type="checkbox"/>	Concrete plinth	<input type="checkbox"/>
Steel Rails	<input type="checkbox"/>	Concrete rails	<input type="checkbox"/>

Other.....
.....

Special vibration isolation requirements: Yes / No*

Cooling system

Set mounted:	Radiator	<input type="checkbox"/>	Heat exchanger	<input type="checkbox"/>
Remote cooling installations:				
Remote radiator	<input type="checkbox"/>	Heat exchanger	<input type="checkbox"/>	
Cooling tower - open	<input type="checkbox"/>	Closed	<input type="checkbox"/>	

Heat exchanger & cooling tower: secondary circuit coolant
.....

Special radiator requirements:

Tinned cores	<input type="checkbox"/>	Coated cores	<input type="checkbox"/>
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Static head at engine for remote installations:.....m/ft*

Pipe route length.....m/ft*

Number of bends.....

Standard coolant is ethylene glycol 25% concentration.

State any special coolant requirements:.....
.....

Pipework:	Painted	<input type="checkbox"/>	Galvanised	<input type="checkbox"/>
	Welded	<input type="checkbox"/>	Screwed/flanged	<input type="checkbox"/>
	Lagged	<input type="checkbox"/>	Pipeline heating	<input type="checkbox"/>

Flange type.....

Fuel system

Fuel bulk storage

Type of tank: cylindrical	<input type="checkbox"/>	Rectangular	<input type="checkbox"/>
Underground	<input type="checkbox"/>	Above ground	<input type="checkbox"/>

Tank capacity.....litres/gallons/hours run*

Height of top of tank above ground.....m/ft*

Height of bottom of tank above ground.....m/ft*

Tank construction: Thicknessmm/in*

Construction standards.....

Spillage containment: Yes / No*
 Double skinned tank Bunded
 Tank vent: Local Remote

Type of pipe connection.....

Tank contents gauge:
 Hydrostatic Electronic
 Mechanical Dipstick

Contents gauge position.....

Fill point cabinet Yes / No*
 Overfill alarm Yes / No*

Tank alarm contacts:
 Low level High Level
 Spillage alarm
 Standard paint
 Special paint.....

Fuel day service storage

Base tank Free standing

Day tank capacity.....litres/gallons/hours run*

Height of top of tank above ground.....m/ft*

Height of bottom of tank above ground.....m/ft*

Head of fuel at engine inlet - Max.....Min.....m/ft*

Tank construction: Thicknessmm/in*

Construction standards.....

Spillage containment: Yes / No*
 Double skinned Bund
 Tank vent: Local Remote

Alarm contacts:
 Low level High Level
 Spillage (containment/sense)

Type of pipe connection.....

Route overflow to bulk tank: Yes / No*
 Dump valve & line to main tank: Yes / No*
 Fire valve: Yes / No* Electrical / Mechanical*

Standard paint
 Special paint.....

Fuel supply piping:

Route length between fill point and bulk tank.....m/ft*

Number of bends.....

Route length between bulk & service tanks.....m/ft*

Number of bends.....

Route length between service tank & engine.....m/ft*

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Number of bends.....(Remote tanks only)

Wall thickness.....mm/in*

Route: Above ground	<input type="checkbox"/>	Below ground	<input type="checkbox"/>
Single skinned	<input type="checkbox"/>	Double skinned	<input type="checkbox"/>
Pipeline heated	<input type="checkbox"/>	Wrapped* / lagged*	<input type="checkbox"/>
Welded	<input type="checkbox"/>	Flanged	<input type="checkbox"/>
Fuel pre-filters	<input type="checkbox"/>	Duplex filters	<input type="checkbox"/>

Automatic fuel transfer system

Pump voltage.....V	Frequency.....Hz
Single pump <input type="checkbox"/>	Duplex pumps <input type="checkbox"/>

Gravity feed with solenoid valve: Yes / No*

Double shut-off requirement: Yes / No*

Special requirements.....

.....

Lubrication oil system

Duplex lube oil filters	<input type="checkbox"/>		
Oil pan evacuation pump: Hand	<input type="checkbox"/>	Electric	<input type="checkbox"/>

Lubrication oil make-up tank Yes / No*

Capacity.....litres/gallons*

Double skinned piping Yes / No*

Route length between tank & engine.....m/ft*

Alarm contacts: Low level	<input type="checkbox"/>	High Level	<input type="checkbox"/>
Fill pump: Hand	<input type="checkbox"/>	Electric	<input type="checkbox"/>

Special requirements.....

.....

Starting system

Battery Electric	<input type="checkbox"/>	Compressed air	<input type="checkbox"/>
Hydraulic	<input type="checkbox"/>		

Dual start method required: Yes / No*

Number of start attempts required.....

Battery type:

Std Lead Acid	<input type="checkbox"/>	Sealed Lead Acid	<input type="checkbox"/>
NiCad	<input type="checkbox"/>		

Battery charger: Normal	<input type="checkbox"/>	Heavy Duty	<input type="checkbox"/>
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Special requirements.....

.....

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Exhaust system

Muffler

Noise level.....dB(A) @m/ft*

Material: Steel Stainless steel
 Floor mounted Wall mounted
 Ceiling mounted Other.....

Condensate drainage piping: Yes / No*

Lagging: Rockwool Other
 Cladding: Aluminium Stainless steel

Piping

Flue material: Steel Stainless steel
 Prefabricated flue Twin wall

Type/Manufacturer.....

Overall length of exhaust: Horiz.....m/ft* Vert.....m/ft*

Number of bends:

Number of expansion bellows.....

Flanged connections Butt-welded
 Supports: Roller Spring
 Weathering in: Wall Roof
 Termination: Tailpipe Cowl / rain-flap
 Spark arrestor
 Paint finish: Black Silver

Length of pipe to be lagged and clad.....m/ft*

Lagging type.....thickness.....mm/in
 Cladding: Aluminium Stainless steel

Explosion relief valve: Yes / No*

Emission control system (e.g. SCR).....

Ventilation and attenuation

Noise level.....dB(A) @.....m/ft*

Noise survey required: Yes / No*

Colour of inlet & outlet termination.....

Inlet duct:

Lengthm/ft* Area.....m²/ft²*

No. of bends..... Fan assistance: Yes / No*

Fire damper Inlet louver
 Attenuator Canvas duct

Louver type:

Fixed blade Gravity

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- | | | | |
|--------------------------|--------------------------|---------------|--------------------------|
| Motorised | <input type="checkbox"/> | Spring return | <input type="checkbox"/> |
| Gas retention | <input type="checkbox"/> | Sand-trap | <input type="checkbox"/> |
| Duct position: Low level | <input type="checkbox"/> | High level | <input type="checkbox"/> |

Outlet duct:

- | | | | |
|---|---|---------------|--------------------------|
| Length.....m/ft* | Area..... m ² /ft ² * | | |
| No. of bends..... | Fan assistance: Yes / No* | | |
| Fire damper | <input type="checkbox"/> | Outlet louver | <input type="checkbox"/> |
| Attenuator | <input type="checkbox"/> | Canvas duct | <input type="checkbox"/> |
| Louver type: | | | |
| Fixed blade | <input type="checkbox"/> | Gravity | <input type="checkbox"/> |
| Motorised | <input type="checkbox"/> | Spring return | <input type="checkbox"/> |
| Gas retention | <input type="checkbox"/> | | |
| Duct position: Low level | <input type="checkbox"/> | High level | <input type="checkbox"/> |
| Design duct restriction.....mm/in* H ₂ O | | | |

Generator enclosure

- | | | | |
|-------------------------|--------------------------|--------------------|--------------------------|
| Acoustic enclosure (SA) | <input type="checkbox"/> | Weather enclosure | <input type="checkbox"/> |
| ISO Container | <input type="checkbox"/> | Drop-over | <input type="checkbox"/> |
| Walk-around | <input type="checkbox"/> | Close-fit | <input type="checkbox"/> |
| Internal muffler | <input type="checkbox"/> | Internal lighting | <input type="checkbox"/> |
| Internal power | <input type="checkbox"/> | Emergency lighting | <input type="checkbox"/> |
| Outboard attenuators | <input type="checkbox"/> | | |

Internal tanks:

- | | | | |
|----------------------|--------------------------|---------------|--------------------------|
| Internal fuel tank | <input type="checkbox"/> | Lub. oil tank | <input type="checkbox"/> |
| Spillage containment | <input type="checkbox"/> | Spill alarm | <input type="checkbox"/> |

Capacity.....litres/galls Capacity.....litres/galls

Fire suppression system.....

Noise limitation.....dB(A) @.....m/ft*

Special lifting arrangements.....

Load cable termination internal* / external*

Paint finish: Standard Special

Specify paint colour & finish.....

Electrical installation

Control systems

- | | | | |
|------------------|--------------------------|---------------------|--------------------------|
| Single generator | <input type="checkbox"/> | Parallel generators | <input type="checkbox"/> |
| Base load | <input type="checkbox"/> | Standby | <input type="checkbox"/> |

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Parallel with utility Short term <5 mins
 Utility sensing Remote contact start

Additional features

Break transfer No-break transfer
 Soft transfer Peak lopping

Utility export limit.....

No. of generator circuit breakers controlled.....

No. of utility circuit breakers controlled.....

Master control Type.....
 Network controls Type.....

Control wiring:

PVC/SWA/PVC EPR/CSP
 Tri-rated LSF

Method of installation:

Wall mounted On tray
 Suspended from ceiling Floor mounted
 In open trench In sunlight
 Buried direct Enclosed trench
 In conduit

Special wiring requirements:.....

Comms/Interface requirements

Clean contacts for interface to: BMS.....
 Remote control..... Remote switchgear.....
 SCADA system..... Telemetry

Network interface to BMS
 Remote control Remote switchgear
 SCADA system Telemetry

Special interface requirements.....

Switchgear

Fitted on set: Circuit breaker
 Switch-disconnect None
 Load Terminal Box: Circuit breaker
 Switch-disconnect None
 Remote switchgear: Circuit breaker
 Switch-disconnect Changeover
 Transfer switch Paralleling s/board

Incoming utility fault level.....MVA/kA

Breaking capacity specified.....kA

Making capacity specified.....kA

Special protection requirements.....

Generator systems

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Type of load cables

PVC/SWA/PVC EPR/CSP
Tri-rated LSF

Method of installation:

Wall mounted	<input type="checkbox"/>	On tray	<input type="checkbox"/>
Suspended from ceiling	<input type="checkbox"/>	Floor mounted	<input type="checkbox"/>
In open trench	<input type="checkbox"/>	In sunlight	<input type="checkbox"/>
Buried direct	<input type="checkbox"/>	Enclosed trench	<input type="checkbox"/>
		In single-way ducts	<input type="checkbox"/>

Other.....

Cross sectional area.....mm²/in²*

Number of cables per phase.....

Number of cables per neutral.....

Free-standing load box (no circuit breaker): Yes / No*

Route length of load cables.....m/ft*

Special cabling requirements:.....

Earthing/Grounding systems (grounded neutral assumed)

Ungrounded neutral	<input type="checkbox"/>	Neutral switchgear	<input type="checkbox"/>
Grounding resistor	<input type="checkbox"/>	Ground fault prot'n	<input type="checkbox"/>

Factory tests / documentation

Standard tests Witnessed tests

Special tests.....

Rec. spare parts lists	<input type="checkbox"/>	Parts catalogue	<input type="checkbox"/>
Hard copy manuals	<input type="checkbox"/>	Electronic manuals	<input type="checkbox"/>

No. of copies..... Format.....

Language.....

Start-up services

Pre-start-up first fills

Coolant	<input type="checkbox"/>	Quantity.....
Lubrication oil	<input type="checkbox"/>	Quantity.....
Fuel – service tank	<input type="checkbox"/>	Quantity.....
Fuel – bulk tank	<input type="checkbox"/>	Quantity.....

Special pre-start-up tests:.....

Start-up tests

Provide fuel for tests Witnessed testing

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SBS® STORAGE BATTERY SYSTEMS, INC.

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Load bank required Rating.....kW
Resistive only Resistive / Reactive

Distance from generator.....m/ft*

Special start-up tests:.....

.....
.....

Special handover requirements.....

.....
.....

Maintenance contract No of visits / year.....

Extended warranty Extension period.....years

Compiled.....Date.....

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