

Tips for buying Used Power Plants



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Believe it or not....

....buying a surplus Power Plant is a lot like buying a car. You can buy a relatively new car in ready-to-go condition and you can also purchase a “fixer upper” if you have the staff to do the maintenance or adjustments required. It is the same with generation equipment.

When buying generators from surplus capacity they normally can be found: **used** (from 1 month to 80 years old), **New** (or “as new”) from cancelled, advance or advanced orders, **refurbished/overhauled** or “**as-is, where-is**” (at the purchaser risk) mainly high houred or damaged units. And just like cars, new and low houred equipment will be more expensive than high houred or older units

Likewise, when thinking about the kind of vehicle you need, some factors are key drivers for choosing between a car and a truck. The same happens with generation equipment.

We have put together some tips that would be helpful when trying to buy a new or used Power Plant, and obviously, when trying to buy a car. **Enjoy it.**

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Origins of the Surplus Capacity....

The high availability of surplus generation equipment, along with their huge advantages on prices and delivery times have made the surplus generation equipment industry very popular the last few years.

When digging into the Surplus Power Plants database, we can find all kind of equipment available:

- Steam Units
- Diesel Engines (reciprocating)
- Gas Turbines
- Power Barges
- Biomass and waste units
- Parts and spares

In according to Mike Craige, specialist in power plants, the reasons for used generator and surplus power plant becoming available are varied:

- Political
- Environmental
- Change in fuel strategy or availability
- Over-estimated load (demand) growth or more economical power available
- Industrial clients, IPPs and utilities with financial problems

Critical factors in the energy industry such as availability and rapid delivery are principal advantages when considering power plants from surplus capacity, but there are other additional advantages.

In according to Mr. Craige, the greatest advantage of utilizing surplus generation equipment is of course the capital cost, but immediate availability also means that the equipment can be commissioned and online, generating power (and steam/heat) within a very short period of time, leading to considerable savings in a number of areas:

- 1) **Construction costs** are reduced due to lower overheads during the shorter period
- 2) **Interests During Construction** (IDC) is reduced in direct proportion, and
- 3) The developing **company's overheads** in a IPP situation are also minimized to the extend that "up-front" profit can be increased by inflating the costs of the installed plant in line with the maximum installed cost, which will satisfy the lead financing agency (albeit within the realms of "transparency").
- 4) In addition to these is the benefit of **early revenues**

The other significant, and possibly the most important feature of utilizing such immediately available and surplus equipment is that the owners may often be willing to retain part equity in any viable IPP development, thereby making overall project finance more accessible. Likewise, a wider vision of many financial institutions along with a higher knowledge about the energy industry result in more access to funds and resources to develop projects based on surplus capacity and turnkey power plants.

With most pre-owned equipment that has been installed and operated, a full maintenance and operational history is normally available. Technical Service Bulletins will also be available, highlighting the changes in maintenance and operating procedures which have been recommended over the years for best performance-based operating experienced within not only the existing plant but all other similar plants world-wide.

Here some tips when looking for generation equipment....

Diesel and Natural Gas Engines (Reciprocating units)

Many of these units can be purchased with 6 month warranties at a very good price and in ready-to-go condition. It is usually a good idea to go with a trusted manufacturer. For example on diesel units it may be Caterpillar, Cummins, Detroit Diesel, Kohler, Wartsila, or Deutz and a few others. For natural gas generators Caterpillar, Cummins, Jenbacher, Deutz, Waukesha, and Cooper are all excellent names.

These units are available as open units, enclosed, and trailer or barge mounted enclosures. However, keep in mind that many times an enclosure can easily be added to an open unit



Steam Power Plants

Although there are a lot of new and unused steam turbines available, many surplus steam power plants might be older units from the 70's and 80's. Do not let this deter you: Most of the coal fired plants running today are using steam turbines built in the 50's and 60's. These turbines have been well maintained and have gone through numerous overhauls. Once a unit has been thoroughly overhauled it is like new and will run for many years. Here comes the importance of having historical information about operation, maintenance and overhauls.

Some the reputable manufacturers of steam units are GE, Westinghouse, Siemens, ABB, Allis Chalmers, Elliot, and Worthington.

Many of these used surplus units can be purchased for an excellent price and with a control system upgrade (both electrical and hydraulically) they will be like new and operate extremely well.

Gas Turbine Engines

Gas turbine engines can be found in new, low houred or overhauled condition. Overhauled or zero houred units can usually be provided with a 1 year warranty, but again these units are like new once they are overhauled. As with steam turbines, new digital PLC controls can be upgraded to the units if needed.

When looking for a gas turbine keep in mind that they can run on diesel, natural gas, or dual fuel options. If you get (or have) a gas turbine that runs on diesel and you need a natural gas fired unit, do not be deterred, a conversion to a gas or dual fueled fired unit is fairly simple. It requires a fuel skid for the fuel system (whether it is gas or oil), modifying the nozzles, and a control system modification to handle dual fuels. Many engineering firms and contractors can easily take care of this modification if required.

For small 0-10 MW gas turbines, Solar, Rolls Royce, Allison, and GE along with some others are very trustable names. For larger units 20-100 MW and over, GE and Siemens/Westinghouse are excellent manufacturers.

Warranty and Pre-Evaluation....

Since you are purchasing pre-owned equipment when you buy a used generator, you most likely will not be able to get much in the way of a long-term warranty. However, depending on the unit you can many times get a guarantee or limited warranty for a short term period. Most sellers who are true professionals that properly test and maintain the equipment will provide a 30-90 day guarantee. In addition, overhauled or zero houred equipment can be provided with a 1 year warranty.

Most warranties are greatly overvalued by purchasers and financing institutions alike as they are not usually worth the paper they are written on. Most major organizations are usually embroiled in some long dispute over warranty on major items of plant. Inevitably it is only the lawyers and the OEM who win these arguments, because in the interim period they will usually charge you for both the manpower and the replacement parts.

Many times the equipment is available in a “as-is where-is” basis (at the purchaser risk) so in this cases it’s strongly advisable the purchaser to take its own staff or hire a professional evaluator to deploy a technical evaluation of the plant and review and set realistic target prices on the available equipment.

During the evaluation, the evaluator might visit the plant so he can check the conditions of the different major and key equipment, read reports, talk to the operational staff and maybe run the power plant if possible. At the end of the assessment, the evaluator would issue a report with a detailed analysis of the results and might set a more realistic target price.

Some evaluation firms do offer e-Valuation services as a prelude to on-site inspection or more detailed due diligence which offers equipment owners and buyers a range of values on actual (or "virtual") items of plant. eValuations are usually undertaken within 24 - 48 after sufficient and accurate data has been delivered by e-mail from the plant owner or the client.

Despite the value of a preliminary eValuation, it contains information that should be validated with real "metered" information.



Typical eValuations would range in cost from US \$2,000 - US \$10,000, depending on the extent of information provided and purpose of the appraisal. A real accompanied inspection would start on US\$ 20,000 depending on the firm selected.

Are you ready to buy?

Ok, you know now what you want and need but, are you ready for this?.

When buying generation equipment, there are some other requirements from your side:

Site Location

An important factor in the feasibility of any power plant installation is related to having the right place to install the equipment. Have in mind that depending on the technology selected and the capacity of your equipment you would need access to abundant water, lubricants, transmission lines, electric improvements, etc. Likewise, it's very likely that you'll need storage facilities for spares and complements. There are also other factors related to environmental and social impact.

Fuel Handling System

Do you have access to ports?, is the quality of the access roads good enough for bringing the fuel by truck?, does the pipeline have additional capacity to deliver your needs?, do you have room (or budget) for fuel storage?, what is the quantity normally available or delivered by sellers?, do they set minimum amounts to purchase?, how are you going to handle the fuel?, is your staff trained for handling this kind of fuel?.

These are key questions that planners normally overlook and generate last-minute changes. Remember the fuel needs are established by the demand and operational programs, but the fuel purchases are going to follow another pattern maybe related to your buying cycle or ships available.

In some cases, it is possible to find a fuel supplier willing to invest in the whole fuel handling system. Obviously, they will charge you some additional fixed fee (normally added to the fuel price in such a way that you'll get a fuel price "right at the mouth" of your power plant).

Staff

Is your staff skilled or ready to operate this technology?, do they have previous experience?, who's going to maintain the plant?

These answers will have a very important impact in your variable costs mainly during the first months or years of operation (due to the knowledge curve), and so in the maintenance budget. A well trained staff will save money by running the plant in the safe operational areas and will avoid internal stresses that would generate sooner preventive maintenances or non-preventive reparations.

When buying power plants from surplus capacity, it is possible that the O&M staff from the original site is available to train the new staff.

Environment

In some cases, depending on the magnitude of the project and the local regulations, it will be required an Environmental Impact Assessment (EIA). In this study, the company must concern the full production cycle that the power plant will generate by evaluating the environmental impact that the suppliers of raw materials like fuels, lubricants, etc. will cause mainly with the extraction, production, transportation and final delivery, as the impact of the power plant process including air pollution and final disposal of residual materials.

It is also necessary to establish the local requirements in terms of some contaminants like NOx, SOx, Mercury, etc. These are key costs to include in the evaluation that even with brand new projects can have an important impact in the cost per MW.





We just make it simple!!!

TurnKeyMasters provides all you need to supply your power plant needs in one single place. We have developed the most robust platform in the industry, to guarantee that you'll get the best offer available:

TurnKeyMasters provides full or partial turnkey solutions with power plants to developers, owners and operators of projects from 4 - 1,200 MW.

We own the largest Contractors DataBase, with access to more than 3,000 suppliers and financial institutions worldwide and over 100,000 MW on equipment from surplus capacity ready to deliver.

We use proprietary search software technology to access and compare all kind of stocks around the world just to ensure that you'll get the best offer available.

We keep agreements with several of the biggest companies from China, Korea, Canada and Russia for the supply and funding of brand new equipment.

 We are
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About TurnKeyMasters



TurnKeyMasters is a customizable, user-oriented, Power Projects Development company, which means we put together all the parts (and parties) required to setup your Power Project

When you need new or used power equipment, we search more than a hundred power plant stocks around the world, provide you information in a easy-to-use and share format, letting you refine and choose the exact equipment and services you want, and finally connecting you directly to the suppliers.

In the other hand, if what you need is brand new equipment, we help you decide the type of equipment and the Scope of Work for each part of the project, and connect you to the companies and contractors that can best supply your needs.

Our Suppliers Network is supported by owners, sellers, brokers, insurers, rebuilders, shippers, forwarders, fuel suppliers, and sometimes governments and individuals. We normally work with steam units, gas turbines, diesel engines, power barges, etc. We also have compiled an important DB of Contractors, EPC and O&M companies to help us on commissioning or decommissioning units everywhere.

By encouraging diverse suppliers to compete for your business, you benefit from the prices, the creativity and new perspectives they have to offer

TurnKeyMasters is a solution to eliminate the headaches and complexity for getting a power plant or generation equipment. We can help you find any type of power equipment, and we try harder to get you the best offer available.

TurnKeyMasters was started to promote Power Projects in Developing Countries as a source of value with strong potential. Along the way, TurnKeyMasters redefined the way smart sponsors promote their projects, and created an important source of business opportunities for local developers and partners.

You can contact TurnKeyMasters at: projects@turnkeymasters.com

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