

## *A Tough Lesson*

# Lack of Run Time—A Cogeneration Pitfall

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Numerous pitfalls will cause a cogeneration project to be unsuccessful. If success is measured in a project's ability to meet the proforma expectations in overall utility savings and return on investment, then anything less than that renders a project unsuccessful. However, partial success still may be acceptable. For instance, if a project pencils out to have a return on investment of 35% and attains only a 28% savings overall, that project still gives greater-than-normal returns compared to other investments and can be deemed successful.

But the primary concern is when a project fails abjectly. When the returns are considerably less than what can be earned in conservative investments, then the project would be said to have failed.

### LACK OF RUN TIME

When a cogeneration system fails to operate for the required number of hours, this is called "Lack of Run Time"—a run hour shortfall. And projected savings will not occur.

Lack of run time can be attributed to failures caused by design shortcomings, maintenance shortcomings, or the combination of both. But the most common reason is flawed maintenance.

There have been vendors and manufacturers that, after a few years of operation, have been unable to capitalize their companies sufficiently and have ceased to exist. This leaves the users to fend for themselves in finding qualified maintenance outlets.

One such company with which the author has had direct experience manufactured units in the 10 through 30 kilowatt sizes. These units were well designed and manufactured, were given test runs before being installed at the customer's site, and virtually all installations

included an extended warranty and maintenance contract.

That meant that the manufacturer/vendor contracted to supply all routine maintenance and replacement parts at no other charge than what the client was paying in a production arrears type contract. This was based on number of run hours per month. A service technician was to visit all installations at least monthly. No installations had telemetering of performance functions, operational proof or automatic feedback. It was up to the client to inform the company of any forced downtime.

However, because the units were often installed on rooftops and other "out of sight-out of mind" places, the client did not know when a unit might be down. The units had hour meters incorporated into their design which was the basis for the maintenance contract billing.

Often, a technician visited a job site to find the cogenerator not operating and learn that the hours of run time for that month were just a percentage of the previous month's. Yet, the unit did not appear to need repair. It happened that the unit ran out of oil and was automatically shut down by the oil pressure sensor to prevent destruction of the engine.

It was determined that as a unit got older its oil consumption increased considerably and the oil reservoir, usually only that amount that was contained in the crankcase, was insufficient to last a full operating month before it was depleted and the unit shut down. Not only did the client not receive the anticipated utility savings and economic benefits, but the manufacturer/vendor did not receive its full maintenance payment because of lack of run hours.

One solution was to dispatch service technicians more frequently to those job sites until a more permanent solution, i.e. increasing the oil reservoir capacity, was found. Unfortunately, that manufacturer went out of business before that design modification was made, but subsequent manufacturers learned from those mistakes and included expanded oil reservoirs, plus telemetering, into their designs.

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#### ABOUT THE AUTHOR

**Bernard F. Kolanowski** is the president of Kolanowski & Associates in Carlsbad, CA. His company specializes in applying small-scale cogeneration packages to commercial and industrial users.

Mr. Kolanowski has more than 35 years experience in the sales and marketing of capital equipment including various forms of alternative energy and cogeneration.

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