

works out of the company's Pompano Beach (Fla) office, and Blair Grant, the firm's Edmonton (Alta) branch manager, collaborated on the CTOTF presentation. It introduced many in attendance to fuel-gas compressors, which are expected to find increased application at GT-based powerplants.

Reason for this, according to Schmitz, is the strain on existing infrastructure. Most difficult conditions for owner/operators occur in winter when pipeline pressures are lowest and potential GT-based electricity generation is the greatest because of low ambient conditions. Despite the drop in pipeline pressures in some areas because of increased demand, he said, the company has not yet done a retrofit compressor project.

Schmitz reviewed the various types of compressors available but noted that the piston-type reciprocating compressor the overwhelming choice for GT applications. All in attendance representing plants with fuel-gas compressors had these units. Centrifugals, he said, are not as efficient as reciprocating unless designed to operate under very specific conditions. Screw machines tend to over-compress, he added, and this can be expensive.

Reciprocating are "old" technology and that's a benefit for powerplant application (Figs 22, 23). They are well understood by the good mechanics typically found in generating facilities and usually can be maintained/ repaired by staff personnel. If not, the work is easily outsourced. Yearly, all that's required is a rebuild of valve internals and replacement of piston rings and piston-rod packing. Each time you do a major overhaul of your GT, schedule a compressor tear-down to check bearings, etc.

Schmitz spent some time discussing a stepless unloading system recently introduced by the company that could reduce energy consumption by eliminating the need to recycle-recompress excess fuel gas at existing facilities if retrofitted. Existing installations use recycle valves to control delivered capacity, but you always pay a penalty for recompressing the recycled gas. Some compressors also use step control to help reduce the amount of recycled gas. Recall that step control deactivates cylinder ends when gas demand is low. Return on a stepless unloading system investment is most favorable, he said, for installa-

tions with compressors of more than 1000 hp.

Spring Aero program

Vice-chair Murray's closing comments included mention of the upcoming CTOTF Spring Turbine Forum in Chattanooga, April 23-27. Two elements of that program already are in place, Murray said: a presentation by Philadelphia Gear Corp and a discussion session based on questions submitted by member operators on aeroderivative issues.

Other sessions

Legacy Roundtable

Vice Chair Eddie Mims (emims@colectric.com) of Coelectric Partners called the Legacy Roundtable to order on the afternoon of Day Three.



Mims

This session is invaluable to users responsible for equipment that predates the 1990s because long-term operation gives rise to special challenges.

It's the ultimate self-help clinic. Reason is that the OEMs really do not support old equipment in the fleet—at least not the way they support units under an LTSA. Planned obsolescence is a requirement in every manufacturer's business plan. Without it, how could an OEM support the development of new products?

The flip side of planned obsolescence is the "refurbish to as good as new, or better, at the lowest possible cost" business model of Pond & Lucier LLC, Clifton Park, NY. Charlie Pond and Dave Lucier are ex GE field engineers with experience and know-how predating even their former employer's Mark I control system.

Most of the work the firm does focuses on keeping shafts turning on old peakers that are required for a couple of hundred hours or less annually. Efficiency is not of concern, just maximum power when kilowatt-hours are needed.

This is why Charlie and Dave (no last names necessary for this duo) are frequent speakers at the CTOTF Legacy Roundtable. In Banff, it was Charlie's turn and he addressed maintenance planning and what to do when the budget is not enough.

Since the budget for maintenance and repair of old equipment rarely, if ever, is sufficient, Charlie had much to say. In fact, by the time questions stimulated by the prepared presentation were exhausted, nearly four hours had passed and Mims gavelled the session to a close.

Pond's presentation paralleled closely the one he had made only a couple of months earlier at the Frame 6 Users Group annual meeting. It is summarized in the 3Q/2005 issue of the CCJ on p 130 ("Outage planning").

GE Roundtable

Chairman Bob Kirn of TVA and Vice Chair Larry Rose of Dominion Energy are experts in the operation and maintenance of GE Energy machines. Together they led hours of discussion among frame users in the GE Roundtable on the last day of the Fall Turbine Forum. Particular attention was given to failure experiences and user questions about them. Failures of 7EA bearings and of balance-of-plant components, and discussion of brushless exciters, monopolized the give-and-take.

The only invited presentation was by Hans van Esch (hvanesch@teservices.us) of TE Services (Turbine End-user Services Inc, Houston) who conducted the second segment of a three-part series on GT metallurgy. This installment was on degradation, cleaning and stripping, and coatings. Last fall, van Esch spoke on general metallurgy, superalloys, and heat treatments; next fall he will address welding, brazing, and nondestructive examination.



Van Esch

Degradation was described and illustrated for several GT components. Van Esch reminded that stresses at high temperature make shrouded blades/buckets and unsupported walls of vane/nozzle segments creep; low- and high-cycle fatigue cause cracking and even catastrophic failures. Other degradation modes—such as wet and hot corrosion, oxidation, erosion, fretting, and wear—also were described.

It is important to remember, he continued, that degraded components must be stripped, cleaned, and inspected before any repairs—if needed—can be made and a coating reapplied. Also, that the method of stripping and cleaning depends on the type and extent of degradation. The various cleaning/stripping processes discussed included conventional mechanical and chemical technologies as well as proprietary pro-