Encompassing the widest array of processes, oil and gas refining represents a major challenge to operators through the sheer scale and variety of applied technologies. Included within these processes and technologies are various compression applications, such as coker wet gas, recycle, hydrotreater and catalytic cracker compressors. Often times, these compressors have been mechanically driven by a steam turbine, but a persistent quest for productivity gains are driving refinery owners and operators to re-evaluate and potentially replace these turbines. Thanks to their efficiency, reliability, and attractive price points, electric motor variable speed drive systems are an attractive option.

When investing in the maintenance and continued operation of their facility, refinery owners and operators utilizing steam turbines as compression drivers for processes are facing the following challenges:

**Low availability of steam**
Multiple processes within a refinery require steam for the steam turbine driven compressors. However, a high quality steam source that can sufficiently provide enough volume to all the turbines is challenging to obtain and maintain. This makes steam availability a primary and very costly concern.

**Keeping process efficiency high**
A refinery’s revenue is maximized when it produces as close to the design capacity as possible. However equipment not running at its best efficiency cuts into productivity, and likewise, the refinery’s bottom line.
Minimizing operating and maintenance costs
A refinery’s profitability is also tied to its uptime and equipment effectiveness. However, equipment that is not functioning due to frequent outages (planned or unplanned) results in financial losses, since the facility is unable to produce refined product during this time.

Making things right with Siemens Integrated Drive Systems

Eliminating steam constraints
With reliable electric power readily available, using an electric motor system to drive the process compressors eliminates dependency on steam and the need to find a high quality source. This improves availability and reduces both maintenance and resource costs.

Maximizing process efficiency
Steam turbines are less efficient, compared to electric motor drive systems. This is especially true when heat losses from the steam are considered. On the other hand, electric variable speed drives have efficiencies over 95%, keeping processes operating at optimal levels and maximizing profitability.

Minimizing OPEX and service costs
Steam turbines require more planned shutdowns, and due to their significant number of moving parts, are comparatively less reliable than electric motor drive systems. Using Siemens reliable Integrated Drive Systems reduces maintenance costs, while maximizing equipment uptime and productivity.