Background
Westinghouse, through its subsidiary WEC Equipment and Machining Solutions (WEMS), specializes in machining projects that include first-of-a-kind tool design, manufacturing, testing, qualification and field deployment.

Description
Some of the specialty machining projects include:

- Alloy 600 crack mitigation utilizing reaming and electrical discharge machining (EDM)
- Flange facing
- Governor/throttle valve machining
- Inlet sleeve repair
- Reactor vessel head (RVH) upper head temperature reduction (UHTR) and upflow using EDM
- Reactor temperature detector (RTD) bypass and replacement
- Safe end replacement

In addition, WEMS has extensive field experience and services, including:

- Abrasive water-jet (AWJ) cutting
- Boring
- Drilling
- EDM
- Field machining centers (FMCs)
- Flange facing
- Grinding
- Metal disintegration machining (MDM)
- Milling
- Pipe cutting/weld preparation
- Plasma cutting
- Reaming

Benefits

Canister Machining: Specialized tools designed and developed for installing canister lids, including the weld-prep machining required.

Steam Generator Replacements: Machine weld preparation for installing new steam generators, including primary reactor coolant piping and secondary piping.

WEMS offers multiple approaches for severance cutting and weld-end preparation for any size, thickness or diameter pipe, regardless of material type, access, hazardous field conditions or space restrictions. WEMS uses MDM methods for stud and bolt removal, and abrasive water-jet cutting and plasma cutting for unique situations. EDM is used for applications such as boat sampling and applications requiring more precise tolerances and/or surface finishes.
Computer Numerically Controlled (CNC) Machines:  
Pipe preparation and flange-facing capabilities.

Boring: The capability to bore pumps and valves up to 70 inches in diameter.

Flange Repair/Machining: Flanges up to 10 feet in diameter machined with a flat or phonograph finish using the WEMS portable flange-facing machine. The restored surfaces mate uniformly across the entire flange face, creating uniform gasket compression and sealing forces around the entire flange.

Stuck-stud Removal: An MDM technique using a graphite electrode to cut out the core of the stud, followed by another electrode to create a wide slot in the remaining stud remnant. A tool is then used to remove the remaining strip of material, allowing the stud remnant to be collapsed and removed.

EDM: Electrical discharge machining used for material sample applications that need precise tolerances and/or surface finishes. EDM is also a one-of-a-kind application.

AWJ Cutting: Abrasive water-jet cutting process utilizes an ultra-high-pressure intensifier pump that pressurizes water up to 55,000 psi. This process forces the water through a small nozzle, typically 0.10-inch diameter, which generates a high-velocity water-jet stream at speeds of up to 3,000 feet per second.

Drilling: Portable, hydraulic and electric drilling systems adapted for drilling/reaming needs. Drills can also be used for a conventional stuck-stud removal process.

Milling: Portable hydraulic and electric milling systems to adapt to any milling needs for facing, boring, reaming, keyway cutting and custom applications.

FMC: Transportable, self-sufficient and fully tooled machine shops, outfitted with a standard line of machinery, including a complete inventory of common bar and round stocks.

Custom Machining Solutions: The capability to engineer, manufacture, test, qualify and deliver custom-machining applications to meet customer needs.