

# Fuel-handling Equipment

## Background

Westinghouse, through its subsidiary PaR Nuclear, Inc., has designed fuel-handling equipment that minimizes the potential for human performance (HuP) errors. It is designed to improve the physical layout of bridge and trolley structures, reduce operator stress-induced errors and provide clear sight lines to fuel.

Constant improvements to actuators, software and interlocks reduce the possibility of fuel-handling errors, and the training Westinghouse technicians receive helps to maintain industry knowledge and safety standards related to the safe installation and maintenance of the fuel-handling equipment.

## Description

The range of fuel-handling equipment offered by Westinghouse includes:

- Refueling machines, refueling platforms and manipulator cranes
- Spent-fuel-handling machines, spent fuel pit cranes and pond fuel-handling machines
- Fuel transfer elevators
- New fuel elevators
- Auxiliary platforms

The fuel-handling equipment applications range from new plant equipment to upgrades for the operating fleet. Equipment upgrades range from full machine replacement to control system upgrades.



New plant refueling machine

## Benefits

The PaR Nuclear fuel-handling equipment offers:

- Reliability
  - Wide use of commercially available components for easy access to replacement components
  - Asset management program to track and maintain equipment health
- Efficiency
  - Improvement in the efficiency of machine operation and movements that results in higher productivity
  - Axis speeds and positioning capabilities that provide faster fuel moves
  - Simultaneous multi-axis movements
  - Positioning through fine-speed control
  - Off-index maximum hoist speeds
- Higher productivity that results in:
  - An increase in the number of fuel assembly moves per hour
  - The potential for shorter outages
  - A rapid payback on investment in upgrading fuel-handling equipment

## Experience

- With more than 50 years of experience, the PaR Nuclear facility and staff are strictly focused on the design, manufacture, installation and operation of fuel-handling equipment and cranes.
- The technical staff is experienced in designing to a wide range of regulatory requirements.
- The qualified field service technicians are experienced in managing the complexities of outage scheduling and installation.