
COST-REVENUE SPREADSHEET MODEL

To support our calculations, we built a simple spreadsheet model in Microsoft Excel. This model allows quick summing of costs and revenues associated with the different ship disposal options.

The spreadsheet tracks the various ship types so that estimates of the cost of each disposal option will reflect the actual composition of the fleet rather than a generic fleet of “ships.” Ships are classified as surface combatants, carriers, amphibians, auxiliaries, nonnuclear submarines, minesweepers, and others. The inputs to the model are as follows.

NAVY AND MARAD STORAGE COST FACTORS

The inputs for the Navy and MARAD cost factors are separate but they reflect similar categories. The spreadsheet provides inputs for the following: annual operations and maintenance funding per ship designated for scrap, operations and maintenance funding per ship designated for long-term storage, one-time costs for cathodic protection/dehumidifying (CP/DH) installation, a dry dock interval and dry dock cost per ship, an operations and maintenance aging cost factor, and, for MARAD ships, a follow-on dry dock cost per ship.

TOWING COST FACTORS

Towing cost inputs include towing costs in dollars per mile, the cost to outfit a ship for towing, the average distance to a recycling yard, and the average distance to a reefing site.

SHIP DISMANTLING COST FACTORS

Inputs include the cost to prepare a ship for dismantling represented as dollars per ton, dismantling costs per ship type represented as dollars per ton, number of shipbreaking sites, length of the dismantling effort in years, and an im-

provement factor to account for the learning and eventual efficiencies that result from experience.

SHIP REEFING PREPARATION COST FACTORS

These cost factors are organized much like those associated with dismantling. Inputs include the cost to prepare a ship for reefing represented as dollars per ton, preparation costs per ship type represented as dollars per ton, number of preparation sites, length of the reefing effort in years, and an improvement factor to account for the learning and eventual efficiencies that result from experience.

REVENUE OFFSETS

The spreadsheet makes use of two further inputs: scrap metal prices by type (e.g., copper, steel) represented as dollars per long ton or pound, and scrap metal recovery factors for calculating how much of each species will be recovered for ships of each given type.