FNCE 100 – Fall 2004 **MacKinlay**

New Economy Transport (Revised)

The New Economy Transport Company (NETCO) was formed in 1952 to carry cargo and passengers between ports in the Pacific Northwest. By 2004 its fleet had grown to four vessels, one of which was a small dry-cargo vessel, the Vital Spark.

The Vital Spark is badly in need of an overhaul. Peter Handy, the finance director, has just been presented with a proposal, which would require the following expenditures:

Install new engine and associated equipment	$185,000
Replace radar and other electronic equipment	50,000
Repairs to hull and superstructure	130,000
Painting and other maintenance	35,000
	$400,000

NETCO's chief engineer, McPhail, estimates the postoverhaul operating costs for 2005 as follows:[1]

Fuel	$450,000
Labor and benefits	480,000
Maintenance	141,000
Other	110,000
	$1,181,000

The Vital Spark is carried on NETCO's books at a net value of only $60,000, but could probably be sold "as is" for $100,000. If the Vital Spark is overhauled, the $60,000 book value will be depreciated at a rate of $20,000 per year for three years (2004-2006).

The chief engineer has also suggested installation of a more modern navigation and control system, which would cost an extra $200,000.[2] This additional equipment would not substantially affect the Vital Spark's performance, but it would result in the following reduced annual fuel, labor, and maintenance costs:

Fuel	$420,000
Labor and benefits	405,000
Maintenance	70,000
Other	90,000
	$985,000

[1] All estimates of costs and revenues will increase with inflation. Mr. Handy's bankers have suggested that inflation will average 3 percent a year.

[2] All investments qualify for the seven-year MACRS class.

There is no question that the Vital Spark needs a new engine and general overhaul for the 2005 season. However, Mr. Handy feels it unwise to proceed without also considering the purchase of a new boat. Cohn and Doyle, Inc., a Wisconsin shipyard, has approached NETCO with a new design incorporating a Kort nozzle, extensively automated navigation and power control systems, and much more comfortable accommodations for the crew. Estimated annual operating costs of the new boat for 2005 are:

Fuel	$370,000
Labor and benefits	330,000
Maintenance	70,000
Other	74,000
	$844,000

The crew would require additional training to handle the new boat's more complex and sophisticated equipment and this would probably require an expenditure of $50,000 to $100,000.

The estimated operating costs for the new boat assume that it would be operated in the same way as the Vital Spark. However, the new boat should be able to handle a larger load on some routes, and this might generate additional revenues, net of additional our-of-pocket costs, of as much as $100,000 per year. Moreover, a new boat would have a useful service life of 20 years. After 20 years it would not have any value. The Vital Spark, even if rehabilitated, could not last that long—probably only15 years. At that point it would be worth only its scrap value of about $40,000.

Cohn and Doyle offered the new boat for a fixed price of $2,000,000, payable on delivery in nine months at the end of 2004. Of this amount $600,000 was for the engine and associated equipment and $510,000 was for navigation, control, and other electronic equipment.

NETCO was a private company, soundly financed and consistently profitable. Cash on hand was sufficient to rehabilitate or improve the Vital Spark but not to buy the new boat. However, Mr. Handy was confident that the funds necessary to purchase the new boat could be readily obtained in the capital markets.

NETCO has estimated that its opportunity cost of capital for major business investments is currently to be 15%. Mr. Handy thought this is a reasonable number to use for the dry-cargo business.

Required: Calculate equivalent annual costs of the three alternatives—overhaul, overhaul with improved navigation and control, or a brand-new boat. To do the calculation, you will have to prepare a spreadsheet table showing all costs after taxes over each investment's economic life. Take special care with your assumptions about depreciation tax shields and inflation.