The New Economy Transport Company (NETCO) was formed in 1952 to carry cargo and passengers between ports in the Pacific Northwest. By 2008 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 at the start of 2009:

- Install new engine and associated equipment: $610,000
- Replace radar and other electronic equipment: $165,000
- Repairs to hull and superstructure: $430,000
- Painting and other maintenance: $120,000

\[ \text{Total: } $1,325,000 \]

NETCO’s chief engineer, McPhail, estimates the post-overhaul operating costs for 2009 as follows:

- Fuel: $870,000
- Labor and benefits: $1,200,000
- Maintenance: $300,000
- Other: $130,000

\[ \text{Total: } $2,500,000 \]

The Vital Spark is carried on NETCO’s books at a net value of only $315,000, but could probably be sold “as is” for $515,000. If the Vital Spark is overhauled, the $315,000 book value will be depreciated at a rate of $105,000 per year for three years (2009-2011).

There is no question that the Vital Spark needs a new engine and general overhaul for the 2009 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
The crew would require additional training to handle the new boat’s more complex and sophisticated equipment and this would probably lead to additional costs of $125,000 at the beginning of 2009.

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 will generate additional revenues, net of additional out-of-pocket costs, of about $200,000 per year. Moreover, a new boat would have a useful service life of 15 years. After 15 years it would not have any value. The Vital Spark with an overhaul could not last that long — probably only 10 years. At that point it would be worth only its scrap value of about $100,000. Cohn and Doyle have offered the new boat for a fixed price of $5,500,000, payable on delivery at the start of 2009.

NETCO is a private company, soundly financed and consistently profitable. Cash on hand is sufficient to rehabilitate the Vital Spark but not to buy the new boat. However, Mr. Handy is confident that the funds necessary to purchase the new boat can be readily obtained in the capital markets. NETCO has estimated that its opportunity cost of capital for major business investments is currently 15%. Mr. Handy feels that this is a reasonable number to use for the dry-cargo business.

**Required**: Calculate equivalent annual costs of the two alternatives — overhauling the current boat and buying a brand-new boat. To do the calculation, prepare a spreadsheet table showing all costs after taxes over each investment’s economic life. Make assumptions as necessary. Be sure to include the effects of inflation. The tax rate for NETCO is 35%.

**Due Date**: Thursday, October 30, 2008

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3 The new boat falls into the 5-year MACRS class.