APPENDIX C: ENERGY COST ANALYSIS

DESCRIPTION

The Energy Cost Analysis Module analyzes operating and replacement cost for Design B AC Induction motors.
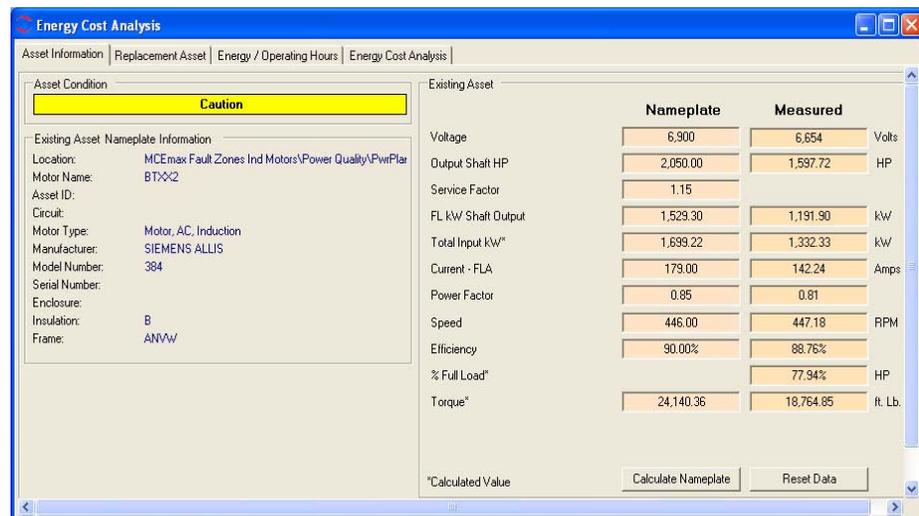
PROCEDURE

To perform energy cost analysis

Note: The asset being analyzed must have EMAX Power test data for accurate calculations. If there is no Power test data a Missing Data error message will appear. It will be possible to continue with the analysis by entering Service Factor, Power Factor, and Efficiency (%) manually. However, some calculations will not be accurate.

1. Highlight the asset on the Site Navigator, Watch List, or the list generated using the Site Condition.

2. Select the Energy Analysis icon   on the toolbar.

3. The Energy Cost Analysis window opens.

    Note: If you do not have the correct Module Activation Key a message box will remind you that the Energy Cost Analysis is not accessible under the current key. Contact PdMA Sales Department at pdma@pdma.com or 813-621-6463.

4. The Energy Cost Analysis window displays four tabs: Asset Information (default), Replacement Asset, Energy/Operating Hours, and Energy Cost Analysis.

Asset Information Tab

5. The left side of the window displays the asset condition and the nameplate information.

6. The right side of the window displays the Nameplate information compared to the Measured test results of the last power test taken. Changes may be made manually in these text boxes in order to answer the "what if" questions.

7. The **Calculate Nameplate** button is used to recalculate the nameplate values if a manual change was made.

8. The **Reset Data** button is used to return the values to the default values.

Replacement Asset Tab

9. The values for a replacement asset are initially blank. You may enter the existing asset values by clicking **Copy Existing Asset Information** and then changing the fields that apply to the replacement asset.

   Or you may search for an asset using the Search for an Asset section to match specific criteria and use that asset's values.

Search for an asset

10. In the Search for an Asset area, enter values in the desired fields. You may search on one, multiple, or all criteria.

11. If you want to search for an asset that falls in a range of values, enter a number in the % Range textbox. Use the + or - buttons to increase or decrease the value in single increments.

12. To search for assets that only have power test results, place a check in the check box before Power Test Only by clicking on it.

13. **C** clears all the values in the line.

14. **Clear Criteria** clears all the textboxes.

15. When you are satisfied with your criteria choices, click **Find an Asset**.

16. The Motor Search Results window opens with a list of motors that fit the search criteria.

17. To view the Test History, if needed, highlight an asset and click **View Test History** to open the Power Test results in the Test History

18. To enter the selected asset information in the Replacement Asset text boxes, highlight the asset and click **Select Asset**.

19. To modify the Replacement Asset values enter the value in the Nameplate and/or Estimated text boxes. % Full Load and the blue text boxes may not be changed. Click **Calculate**.

20. **Clear Fields** removes all values and the asset information in the left side.

Energy/Operating Hours Tab

21. Values are determined by the default energy profile and automatically entered in the text boxes.

22. If needed for comparison purposes, change any values for the existing and replacement asset. To update the calculations press **Enter** or **Tab.** Tab updates the value and moves to the next text box.

    Note: Total (Hours/Year) is a calculated value and cannot be changed.

23. After changing the values, the profile may be saved as the default for future use by clicking **Save as Default Energy Profile**.

    Caution: Once you save the new values as the default it will not be possible to return to the original values **Using the Reset to Default Energy Profile** without manually entering them.

24. If after changing the values you wish to return to the default profile and you have **not** clicked **Save as Default Energy Profile**, click **Reset to Default Energy Profile** and the default values will be redisplayed.

Energy Cost Analysis Tab

Note: Blue textboxes may not be manually changed as they are calculated values.

25. Existing and Replacement values are based on the nameplate, measured, or estimated values depending on which option is selected in the Existing and Replacement Asset boxes on the right.

   For Existing Asset, selecting Nameplate causes the nameplate values to be entered. Selecting Measured causes the measured values obtained as a result of testing to be entered. The nameplate and measured values are displayed also on the Asset Information tab.

   For Replacement Asset, selecting Nameplate causes the replacement nameplate values to be entered. Selecting Estimated causes the estimated values displayed on the Replacement Asset tab to be entered as the Replacement values.

26. The Annual Saving computes the potential energy savings by installing a replacement asset. No values may be changed in this section as they are calculated values.

27. The Repair or Replace section, located on the lower left side, allows you to enter values and then uses those values to calculate the Cost Difference between repairing the existing asset or installing a replacement asset.

28. The Payback and Recovery section calculates the Simple Payback and Capital Recovery time in years based on the Cost Difference value. The only textbox that can be changed is the Interest Rate.

Report

29. When the Energy Cost Analysis has been completed, click **Preview Report** to view a two-page report summary.

Energy Cost Analysis Report Page One

Energy Cost Analysis Report Page Two

30. To move between the pages of the two-page print preview, click the down or up arrow on the tool bar or use the Backward and Forward arrows.

31. To add comments, select File, Add Comments and a window opens for you to type your comments. When complete click **Add**. The comments appear in the lower section of the print preview.
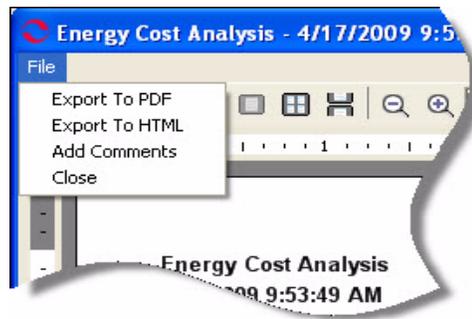
32. The report may be exported to PDF or HTML by using the appropriate command from the File menu.

33. To print the report, click the Print icon on the toolbar.

34. To close, select File, Close or click the close button (red "X") in the upper right corner.