DRAFT: 1 June 2011

Set Up of Spreadsheet for Financial Analysis – District Heat Project

(District HeatV3c_110421.xlsx)

Purpose: The intend of the spreadsheet is to compare the cost of continuing with oil heat for the High School , Elementary School, City Hall/Fire Station, and Police Station to the cost that would be incurred with the District Heat Project.

The comparison evaluates the cost of fuel, operation and maintenance (O&M) and capital equipment replacement.

Oil Boilers (Business As Usual – BAU – data)

The top half of the main worksheet ("Tab CF_NPV") contains data that are relevant to the current and forecasted continued use of oil heat for the four buildings. The Bottom half of this worksheet is information relative to the costs of the District Heat System.

Oil Pricing: The worksheet allows the User to select from one of four Oil Price Scenarios, or for the User to create their own forecast of oil pricing.

The four Oil Price Scenarios are oil price forecasts by Moody's Analytics ("Moody's"), and three cases presented by the Energy Information Agency (EIA) as published in the Annual Energy Outlook (AEO) 2011. The three cases are a high oil price condition (AEO HI), a reference case (AEO Ref) and a low oil price case (AEO LO).

Cell B2 contains a drop-down menu. By clicking on the cell the menu is activated. By clicking on the down-arrow, the selection menu will appear and the User can select the desired option. See Figure 1 and 2.

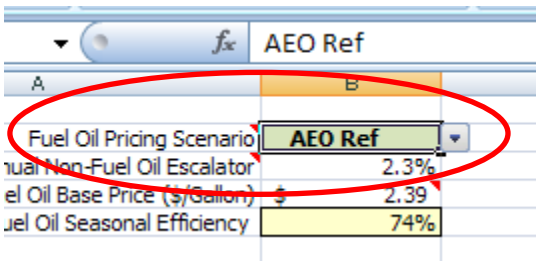


Figure 1 Cell B2

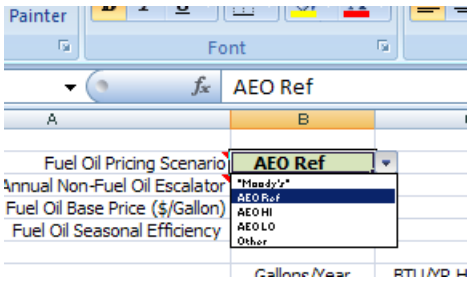


Figure 2 Cell B2; Drop Down Menu

At Tab "Fuel Pricing" the actual year by year price of fuel oil is provided, along with a chart that the displays the data. Should the User wish to create their own fuel oil forecast, populate the column 'Other' with the desired forecast. For example if one wanted to consider the sensitivity around one of the forecasts, set the value in the Other category as the value in one of the scenarios time 10% (e.g. set cell H4 =D4*1.10 and then drag to fill the column). The data will be displayed in the graph for comparison to the other forecast. To use this data, return to the main worksheet (Tab CF_NPV) and select 'Other' in the drop down menu at cell B2.

Fuel Oil Boiler Seasonal Efficiency: Cell B5 is an input value. It is the seasonal efficiency of the fuel oil boilers. The City/School boilers are regularly maintained and are assigned a reasonably high value (seasonally efficiency is different that 'instantaneous efficiency" --- seasonal efficiency is lower than instantaneous efficiency (e.g. the test when a boiler is tuned up).

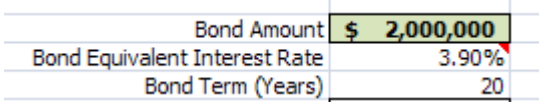
Capital Replacement Schedule: The highlighted cells from E3::AK3, provides a narrative description of the capital replacement of boilers at the four buildings. The details of the capital replacement are at Tab "Capital$".

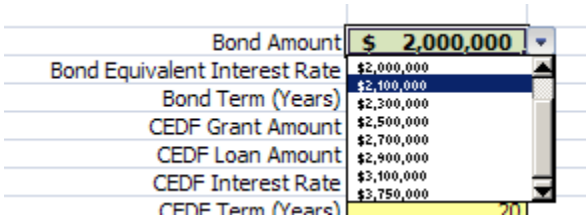
District Heat System

Information below the Brown/Green strip is information relevant to developing and switching to the District Heat System.

The major factors affecting the financial performance of the District Heat System is provided in cells B45::B60 – the yellow highlighted cells are variables that can be varied. The variables are defined in adjacent cells A45::A60.

Bond Amount: Cell B54 contains a drop down menu for selecting various bond amounts. This cell operates as cell B2 described above. The amount selected is linked to the actual scheduled provided by the Vermont Municipal Bond Bank (VMBB). As the VMBB does not release a single bond when a municipality issues a bond the calculation of bond repayment is more complex than a simple loan. For example if a community wishes to bond for $2M, the VMBB would issue 20 - $100,000 bonds for terms that would range from 3 to 7 years. They have found this to be a more economically and flexible means of raising funds for municipalities.





The actual payment schedule is provided at Tab 'VMBB_Schedule' along with its documentation. What the worksheet does not consider is the timing of the bonds; it assumes that they will all be issued at the

start of the project. This will not be necessarily so. Bonds may be issued as needed and would affect the schedule of repayment.

CEDF Support: The worksheet allows for consideration of support from the Clean Energy Development Fund (CEDF). The CEDF can issue either grants or loans. Funds provided in the form of grants have no effect on pay schedule. If a loan is provided, the spreadsheet has been set up for repayment to be delayed until the 'front-end' cost of the District Heat System has been overcome (i.e. District Heat System annual cost less than BAU costs).

Net Present Value (NPV)

Cell D41 presents the 20 year (2013 – 2032) NPV of BAU in 2011$s. Cell D79 provides this same information for the District Heat System. And Cell D83 provides the difference in NPV between BAU and the District Heat System. A Positive value indicates that the District Heat System is less money over the 20 year period. A negative value is that the District Heat System is more expensive.

Graphs

The spreadsheet generates two graphs that are automatically updated to the information of the spreadsheet to document the major variable selected.

The graph at the Tab 'Year_by_Year' plots the annual difference between the cost of BAU and the District Heat System. A positive value indicates that the District Heat System is beneficial, as it represents how much more expensive BAU would be.

The graph at Tab 'LCC' is the cumulative cost (Life Cycle Cost) for the two options. The green colored area is the cumulative cost of the District Heat System. Where the green area goes above the red line, the District Heat System is more expensive; where the green area is below the redline (exposed red area), the District Heat System is less expensive.