Recycling Fund Condition Modeling

Recycling Fund Condition compares sales (revenues) and returns for recycling (expenditures) of beverage containers.

- Difference between the sales and returns, over a given period (usually a fiscal year), is the amount of available resources.

Assembling a Fund Condition is an exercise in making predictions.

For instance, when the Fund Condition is prepared in September for the Governor's Budget, DOR must predict beverage sales and recycling for the subsequent 22 months.

- Standard methodology for doing this for the past 20 years = "month-over-month" projection.

Month-over-month projection compares prior month's to predict future month's sales and returns.

- To predict sales for January 2010, DOR compares the actual, known sales for January 2008 against the actual, known sales in January 2009.
- The percentage increase in sales applied to known sales for January 2009 is used to predict January 2010 sales.
- Repeat x 21 times (to complete a 22 month projection).

Where uncertainty comes into the picture.

- In September 2009, the projection for May 2010 is the last period where known values (May 2009 and May 2008) are used to project sales.
- In September 2009, the June 2010 estimates rest on a known base (June 2008), but June 2009 sales are projected. This continues through the projection in September 2009 of the May 2011 sales.
- In September 2009, June 2011 estimates rest on two projections (June 2009 and June 2010).

The projections for returns are conducted almost identically.

- Given shorter reporting periods, the returns projections are based on more verifiable numbers farther into the future.

Limitations of the Methodology

Obviously limitation = delay in Fund Condition Statements recognizing economic downturns (and up-swings).

- Recessionary forces (which tend to flatten sales and increase returns) may not be predicted until we are already experiencing them.

This dynamic affects recoveries from recessions as well.

- Projections of sales may not recover and projected returns may not slow until we have already started to experience them.

Is there a better model?
In the past, the model was “good enough.”

- Relatively lower recycling rates (and, thus, higher fund balances) allowed a buffer against differences between projections and reality.
- We do not still live in that world and implementation of proportionate reduction has renewed DOR’s need to seek better economic indicators.

The UC Study, which was not commissioned to develop a sales projection model, nonetheless observed some factors influencing sales and returns.

- Sales were not affected much, if at all, by changes in redemption values.
  - the study made no other significant findings regarding factors influencing sales.
- Returns were found to change based upon a 10% increase in family income.
  - increased volumes at curbside recyclers by 1.6%; decreases at recycling centers by about 1%.
- However, there are at present, no known reliable economic indicators for predicting sales or returns.

The challenge is two-fold.

- First, the economic indicator to be used must be reliably predictable through 22 months into the future.
- Second, when such an indicator (or indicators) is/are identified, it would need to be positively correlated against recycling sales or returns.

Department presently is in the process of hiring an economist.

- One of his/her duties will be to review the Fund Condition projection methodologies and identify improvements or alternative methodologies.
- Position will serve several roles In Department.