

To: Fred Kenney, Executive Director, Vermont Economic Progress Council
From: Ken Jones, Economic Research Analyst
Date: September 2, 2015
Re: Annual Update: Fiscal Cost-Benefit Model, Calendar Year 2015

I. Background

The completion of calendar year 2014 marks the eighth full year of operations for the Vermont Employment Growth Incentive (VEGI). VEGI is the current economic development incentive program overseen by the Vermont Economic Progress Council (VEPC). VEPC has provided oversight for the state's economic development incentive programs since 1999 when the Economic Advancement Tax Incentive (EATI) program was passed by the Vermont General Assembly. The EATI program was replaced by the 2006 General Assembly with the current VEGI program. The VEGI program's original operational protocols were developed by a Technical Working Group consisting of VEPC staff and economists representing VEPC, the Legislature and the Vermont Department of Taxes. This process was undertaken to improve and correct some of the issues associated with the implementation experience with the EATI program.

II. Purpose of Memorandum

This memo is intended to document the process of the annual update of the VEGI model for use during calendar year 2015. As we have done in the past, changes in the economy necessitate annual updates of the VEGI analytical model in order to maintain the model's validity. Re-calibrating these models with new data prevents erroneous conclusions, as outdated assumptions and values of key indicators will undoubtedly lead to over-or under-estimation of the potential economic and fiscal impact of program incentives. As the Vermont economy continues on its labor market recovery from the recession of 2007-2009, the new long-term economic and fiscal consensus forecasts of the Vermont Joint Fiscal Office and the Agency of Administration continue to form the basis of the fiscal cost-benefit model assumptions and other parameters included in the model which apply to calendar year 2015. This annual update of the VEGI model incorporates all of the most recent consensus forecasts and all of the latest fiscal information available as of January 20, 2015 (e.g. the January 2015 Legislative-Administration Consensus Revenue Forecast approved by the Vermont Emergency Board on January 20, 2015). All of the key fiscal and demographic data in the model which informs the conversion from economic impact concepts into relevant fiscal data used in the cost/benefit scorekeeping have been updated.

As part of the annual update, a comprehensive review of model parameters, key economic assumptions, and mathematical calculations and formulas was also performed. Average annual industry background growth rates were reviewed and discussed, and the desirability of updating and revising these inputs was noted.

Accordingly, we recommend that the VEGI Technical Working Group be convened (to include VEPC staff and ACCD's economic analyst, JFO economist, and representatives from Tax and Labor) to review this issue.

III. Standard Annual Model Updates

a. Firm Data Page

The basic components of the analysis are entered into this page. This basic information provides context to the calculations of the model, setting high-order calibrations in order to capture such important variables as industry classification and project location. On this page, the only edit was to change the application year from 2014 to 2015 to reflect the calendar year. As a dynamic variable, this change carried through to the rest of the model.

b. Project Data and Modular Settings Page:

The Project Data Page is where the specifics regarding number of jobs, total payroll, and capital investment expenditures proposed by the applicant's project are entered. This page also contains several statistics used in the various calculations of costs and benefits found throughout the model. The Modular Settings Page consists of support calculations metrics for some the data which flows through to the Project Data Page. The following is a list of the specific items updated on these pages which are consistent with all previous annual updates.

1. **Property Value Inflator:** The property value inflator is relevant to the calculation of an applicant's benefits to state revenue, specifically in the calculation of the effects on the Education Fund. It is used to measure the growth of property values resulting from an applicant's project. The difference between education fund revenues with and without the applicant's project is calculated. As has been the practice in past model updates, this figure was obtained from the most recent Consensus Forecast for Education Fund concepts of the Legislative Joint Fiscal Office and the Agency of Administration. The prior model's figures are updated with the new forecast figures. This statistic is used in conjunction with the Projected Statewide Grand List Growth Rate. The figure is used as a projected measure of growth of the statewide grand list and used in the calculations of changes in property values as a background rate growth.
2. **Statewide School Tax Rate for Residential and Nonresidential Property:** These metrics are used in the calculation of the revenue generated from the proposed project which will be contributed to the Education Fund Based on both residential and nonresidential property improvements. The original data source for this update was the Vermont Department of Taxes (for fiscal year 2015).

3. State & Local Government Price Deflator: This figure is used in the calculation of various costs and benefits associated with an applicant's project. It is used in the formula which projects the growth of the various funds' costs and revenues forward in time. This figure was obtained from the same Consensus Forecast of the Legislative Joint Fiscal Office and the Agency of Administration referred to in #1 above.
4. Estimated per Student Grant, Estimated Special Education Per Equalized Pupil: These figures are used in the calculation of changes in education costs associated with the applicant's project. The figures are on a "per equalized pupil" basis and is used in conjunction with the changes associated in school age population related the applicant's proposed project. The data source for the near-term per pupil payment is the Vermont Department of Taxes with longer run forecast calculated exactly the same way as the Vermont Department of Taxes does for the near-term numbers using the consensus State & Local Government Price Deflator forecast by the Legislative Joint Fiscal Office and the Administration for the forecasted years as presented in #3 above.
5. Vermont Estimated Population: As this update takes place in an inter-censal year, the figure used in this update of the cost/benefit model is the population estimates for the state of Vermont embedded in the REMI input-output model. This figure is used when converting any of the data in the cost-benefit model into per capita figures.
6. FY General Fund Expenditures, FY Expenditures Fund Appropriations: These figures are used to calculate the changes in General Fund and Transportation Fund costs associated with the change in population related to an applicant's project in the most recent fiscal year. The figures are converted to a per capita basis and used in conjunction with the change in population associated with each applicant's project. The updated figures are obtained from the Vermont Department of Finance and Management and the Legislative Joint Fiscal Office.
7. Corporate Revenue/Nonfarm Supervisory Job: This figure is used to estimate revenues associated with a change in employment from an applicant's project. It relates levels of corporate income tax to a per job basis. This can then be used to estimate the incremental corporate income tax associated with a change in employment related to an applicant's project. This figure is obtained from the most recent total corporate tax revenue divided by the BEA's concept of employment data (and includes both full and part time jobs and also proprietors). The BEA employment series data is used as a predictor of future revenues in the model and is preferred for this model since it is the most inclusive data for proprietors and workers in the farm sector.

8. Per Capita Other General Fund Revenues, Per Capita Other Transportation Fund Revenues: These figures are used to capture the 'Other' category for revenues found in the General and Transportation Funds. They are converted to a per capita basis and used in conjunction with the change in population associated with an applicant's project. The updated figure is obtained from the 2014 Calendar year tax revenues divided by the population.
9. State Personal Income Tax Rate, State Sales & Use Tax Rate, State Gas Tax Rate, State MVP&U Tax Rate, Background Statewide Education Property Tax Rate: These figures are used to determine part of the forecasted revenues over the forecast impact period from the new demand from an applicant's proposed project. They are applied to the changes in consumption associated with an applicant's project to yield projected incremental tax revenues. These figures are obtained from the most recent fiscal year data available on total taxes received. These data are then applied to various REMI consumption items to complete the bridge between REMI economic output data and the state's fiscal cost-benefit concepts.

c. REMI Economic Output Page

In addition to being the recipient of the output of the REMI input/output model, there are several embedded REMI control variables which are updated as part of the annual model review. Consistent with the previous year's updates, the equilibrium data from the REMI control is updated for the year of application. These variables include several consumption related factors such as overall consumption, general price indices, as well as specific price indices by consumption category. The REMI model utilized changes as annual or interim updates are provided by REMI. The current model uses REMI's PI+ Version 1.6.6.

d. Qualifying and Non-Qualifying Jobs & Wages Pages

As a result of the change in the model's base year from 2014 to 2015, the lookup function which finds the REMI input-output anticipated level of compensation by industry was updated to ensure accurate future wage levels were taken into account.

e. Present Value Calculations Page

This page calculates the present value of the total benefits and costs associated with a project. The updated present value discount rate was obtained from the analysis of the three year moving average of the Bond Buyers Index: General Obligations Bonds: 20-Years to Maturity. The data for the rolling three year average calculation was obtained from the Moody's Analytics December 2014 baseline forecast—the same underlying macro forecast that was used in the January 2015 Consensus Revenue Forecast update. This year's data resulted in a decrease in the Present Value factor from 4.5% (used during in 2014) to a 4.3% discount rate for 2015.

f. 'NAICS Row' Lookup Page

No changes have been made to this page that prescribes background growth rates. Modifications of the background growth rates is the subject recommended above for review by a VEGI Technical Group.

g. Regional Differential

The Regional Differential effect embedded within the model, governing the different economic impact of an applicant project depending on its location, remains unchanged for CY 2015. This determinant is only re-evaluated as new data becomes available from the Vermont Department of Labor, typically during the summer, and was not updated as part of the Annual Update.

Bond rates from

http://www.bondbuyer.com/apps/custom/msa_search.php?product=bbi_averages

2000	5.7
2001	5.1
2002	5.0
2003	4.7
2004	4.7
2005	4.4
2006	4.4
2007	4.4
2008	4.9
2009	4.6
2010	4.3
2011	4.5
2012	3.7
2013	4.3
2014	4.2