

**To:** Megan Sullivan, Executive Director, Vermont Economic Progress Council  
**From:** Ken Jones  
**Date:** September 12, 2019  
**Re:** Annual Update: Fiscal Cost-Benefit Model, Calendar Year 2018

## **I. Background**

The completion of calendar year 2018 will mark the twelfth 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. As part of the new program, a VEGI Technical Working Group – including representation from VEPC, the Legislature and the Vermont Department of Taxes – was formulated to monitor, assess, and evaluate the implementation of the new VEGI program. This process was undertaken given 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 2018. 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 Re-calibrating these models with new data prevents erroneous conclusions, as outdated assumptions and values of key indicators will undoubtedly lead to over-or under-estimation of the potential economic and fiscal impact of program incentives.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 2018. 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 July, 2018. 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 this annual update, I carried out a comprehensive review of the REMI model and its recent changes to identify what assumptions about the impacts of Vermont business growth will have on key economic indicators.

## **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 2017 to 2018 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 2018).
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 calculation is based on the total education fund expenditures divided by the total enrollment published by the Agency of Education to arrive at a per pupil expenditure.
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 2017 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.

d. Qualifying and Non-Qualifying Jobs & Wages Pages

As a result of the change in the model's base year from 2017 to 2018, 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 Muni Bond Advisors index: General Obligations Bonds: 20-Years to Maturity.

Bond rates from <http://www.munibondadvisor.com/market.htm>

2010	4.6
2011	4.4
2012	4.1
2013	4.1
2014	4.1
2015	4.1
2016	3.7
2017	3.6

f. 'NAICS Row' Lookup Page

No changes have been made to this page that prescribes background growth rates.

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 2018. This determinant is only re-evaluated as new data becomes available from the Vermont Department of Labor, typically during the summer, and no changes have been made for this update.