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Vermont Legislative Joint Fiscal Office

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TO: Joint Fiscal Committee Members
FROM: Stephen Klein and Sara Teachout
DATE: June 28, 2011
RE: VEGI Cost Benefit Model Update

Attached is a memo from Fred Kenney describing in detail the updates to the VEPC cost benefit model. The Joint Fiscal Committee is required to approve all changes to the model according to the statute below:

32 V.S.A. 5930a (d):

(d) The council shall apply the cost-benefit model in reviewing applications under subdivision (b)(1)(A) and (B) of this section to determine the net fiscal benefit to the state. The cost-benefit model shall be a uniform and comprehensive methodology for assessing and measuring the projected net fiscal benefit or cost to the state of proposed economic development activities. Any modification of the cost-benefit model shall be subject to the approval of the joint fiscal committee. The cost-benefit analysis shall include consideration of the effect of the passage of time and inflation on the value of multi-year fiscal benefits and costs.

As described in the attached memo, these are not modifications to the model but economic, fiscal and demographic updates. The VEPC Working Group, consisting of Tom Kavet, Susan Mesner and Jeff Carr, are considering other more substantial changes which may be proposed at a later date.

MEMORANDUM

To: Members, Joint Fiscal Committee
From: Fred Kenney, Executive Director, VEPC *FK*
CC: Steve Klein, Joint Fiscal Office
Date: June 7, 2011
RE: Vermont Employment Growth Incentive Cost-Benefit Model Update

The Vermont Economic Progress Council is responsible for implementing the application and authorization portion of the Vermont Employment Growth Incentive program. As part of the application review process, the Council applies a cost-benefit model to determine how a project will economically and fiscally impact the State of Vermont. The model was developed by and is currently implemented by Economic & Policy Resources, Inc. (EPRI), through a State of Vermont contract agreement. The initial development and utilization of, subsequent annual updates to, and any modifications to, the cost-benefit model have been presented to and approved by the Joint Fiscal Committee, as required by statute.

Recently, EPRI prepared and submitted to VEPC a memo outlining the annual model updates that were performed to ensure appropriate consideration of VEGI applications in calendar 2011. In accordance with 32 V.S.A. §5930a(d), VEPC hereby provides notice to the Joint Fiscal Committee of the annual updates to the model that were completed for calendar 2011. No modifications were made to existing model elements. Only updates to economic, fiscal and demographic data, as follows:

- To reflect changes in the economy that affect the calculations of the costs and benefits of an application;
- To reflect changes in tax statute and rates that affect the calculations of the costs and benefits of an application; and
- To reflect changes to the model to maintain compatibility with the latest version of the REMI Input/Output software.

One change was made to the process used to determine the discount rate that is utilized to provide a present value of the fiscal costs and benefits. A separate memo is attached to the update memo explaining why a new process was required and describing the consensus methodology reached by the VEGI Technical Working Group.

The attached memo from EPRI to VEPC contains details on the updates that were completed. No changes were made to the way VEGI applications are treated by the model, nor were modifications made to the model operation. The primary change to the 2010 model was the annual update of key fiscal and demographic data used in the model. This is done annually to keep the cost-benefit model as close to reflecting the current economic conditions as possible.

Memo

To: Fred Kenney, Executive Director, Vermont Economic Progress Council
From: Jeffrey B. Carr
Date: March 10, 2011
Re: Annual Update: Fiscal Cost-Benefit Model

I. Background

As has been noted in previous cost-benefit model updates, the completion of another calendar year (in this case calendar year 2010) marks another year of operations in the post- Economic Advancement Tax Incentive (EATI) program history. Calendar year 2010 represented the fourth full year of operations for the Vermont Employment Growth Incentive (VEGI). VEGI is overseen by the Vermont Economic Progress Council (VEPC) which has provided oversight for the state's economic development incentive programs since 1999 when the forerunner 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 VEGI program. Since then, periodic issues regarding the scorekeeping and administration of the VEGI program have been handled by this Working Group through periodic meetings and other means (e.g. email polls).

II. Purpose of Memorandum

This memo aims to describe changes to the VEGI fiscal cost benefit model resulting from the 2011 yearly update. The model is fundamentally unchanged from previous iterations. That is, the basic algorithms, input-output assessment processes, and the structure of net fiscal impact estimation remained unchanged in this cost-benefit model update. That said, we have improved the model beyond simply updating the relevant dates and data. The main focus of this year's modifications is to give a cleaner and more automated tool for estimating the fiscal impacts of potential VEGI projects. This generally consisted of removing unnecessary workbook sheets by consolidating the exogenous model inputs and making greater use of excel functions. An effort was also made to simplify the model by relying more on defined variables for frequently used figures rather than linking to undefined cells, which should make understanding the inner workings of the model easier.

III: Standard Annual Model Updates

a. Firm Data Page

The first sheet of the excel workbook contains color coded input cells where the basic information for the firm in question is entered. Most of these inputs are “defined” variables, as they are used for each application in various calculations. The ‘row look up” entry previously used in a lookup function to pick out the correct background growth rate was deleted as a more effective lookup function is now used for this purpose.

The second section which was reviewed for the current year as usual was the regional differentials. A comprehensive regional analysis was performed, consistent with prior year’s methods as part of the annual update to identify any changes in the past classification scheme based on economic vitality for each of the 14 counties in Vermont. This analysis was performed consistent with previous year’s methodology and data sources. This analysis indicated that the regional differentials remained adequate and were kept the same as the previous year. Since this is a relative assessment, no change was indicated even though the overall waterline for unemployment and payroll jobs had changed (which was a slight improvement in overall employment and unemployment). In other words, the relative differences remained largely unchanged between the subject counties for this component of the fiscal cost benefit model.

The last part updated on this page was the additional binary variable to track if the applicant (as determined by the project location) was eligible for an “enhanced” incentive amount under statutory regulations. As with last year’s memo, the update is discussed in more detail in section IV of this memorandum.

b. Project Data and Modular Settings Pages:

The Project Data Page is where the specifics of the applicant’s proposed 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 is a support calculation table for some of the data which flows through to the Project Data Page. They were updated in tandem. The following is a list of the specific items updated on these pages which are consistent with all previous annual updates.

1. Property Value Inflation: The property value inflator is used in the calculation of an applicant’s benefits, specifically in the calculation of Education Fund revenues. It is used as a growth measure of property values of an applicant’s project in order to calculate the expected difference in education fund revenues between the growth in property values with and without the

applicant's project. This figure is obtained from the most recent Consensus Forecast for Education Fund concepts (completed in October/November of 2010) of the Legislative Joint Fiscal Office and the Administration (completed last Fall). The prior model's figures are updated with the new forecasted figures. This figure is used in conjunction with the Projected Statewide Grand List Growth Rate. This 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 of 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 2010 as the base year).
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 to project 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 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 an applicant's project. The figures are on a "per equalized pupil" basis and used in conjunction with the changes associated in school age population related to 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 took place prior to the release of the Census population numbers 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 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 also 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-time and part-time jobs). The BEA employment series data is used as a predictor of future revenues in the model and is used since it is the most inclusive data on employment (e.g. including a count of the state's self-employed workers) that exists for a state where self-employed workers comprise a significant share of the state work force.
8. Per Capita Other General Fund Revenues, Per Capita Other Transportation Fund Revenues: These figures are used to capture the 'Other' category of 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 most recent fiscal 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 update. Consistent with previous year's updates, the equilibrium

data from the REMI control is updated for the year of application. These variables include several consumption related variables 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 calendar year 2010 to calendar year 2011, the lookup function which finds the REMI input-output anticipated level of compensation by industry needed to be updated and tested to ensure accuracy accounting for the change in model years.

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 Vermont Treasurer's Office for the state's most recent interest rate associated with the most recent sale of Vermont full-faith-and-credit General Obligation Bonds—which in this case was 3.4% corresponding to the latest state General Obligation Bond offering.

f. Background Growth Rate Lookup Page

As described above, a comprehensive evaluation of industry growth is performed by 3-digit NAICS code. Due to new information of the state of the United States business cycle as published by the National Bureau of Economic Research, it was determined by the VEGI Technical Working Group through a December 2009 email poll to maintain the same industry background growth rates as used in the 2009 model because the time period of study 1990-2007 represents two full business cycles. This was left unchanged again this year. By using two full business cycles from trough to trough, the approach to calculating background growth by industry has been standardized and desensitized to intermediate and intermittent fluctuations in the economy attributable to comparisons of data absent consideration of time and the nature of the business cycle.

g. Discount Rate Update

This year, the discount rate was updated according to a consensus process that developed after it became evident that the past years' procedures would be inadequate for this year's update. A copy of the consensus memo is attached to this memo regarding the discount rate update for this year.

IV: Update of Last Year's Addition to the Model

a. Enhanced Present Value Calculations Page

The last part of the VEGI fiscal cost-benefit model update pertained to any changes in the labor market areas that are eligible for 'subsection 5 enhanced' incentives. Last year, only the Burlington-South Burlington and Hartford labor market areas (LMAs) were ineligible "subsection 5 enhanced incentives." Looking at the data for 2010, a request has been made of the Vermont Department of Labor as to whether or not the eligibility status of any other LMAs in Vermont under 32 VSA §5930b(c)(5) had changed according to Department of Labor eligibility criteria. This request has typically been made during the Spring by the VEPC Executive Director at about this time of year. While the eligibility does not specifically impact the fiscal impact model directly, it does have an impact on what parts of the model get employed in a fiscal impact run based on subsection 5 enhanced incentives eligibility. Please advise EPR when the Vermont Department of Labor changes the eligibility of any Vermont LMAs based on the annual request.

Please feel free to call us at 878-0346 with any questions or comments about these updates.

Memo

To: VEGI Technical Working Group (Susan Mesner, Tom Kavet)
From: Jeffrey B. Carr, E.P.R.
Date: March 5, 2011
Re: Discount Rate Determination Consensus—Annual Update: Fiscal Cost-Benefit Model

I. The Issue

Over the 13 year history of the EATI-VEGI programs, the Discount Rate employed in the model is updated each year as part of an annual update of the underlying data in the fiscal cost-benefit model. The model's Discount Rate factor—which has been employed to convert the 7 year dollar flow of fiscal costs and benefits into a present dollar value as of the date of the application—has typically used the actual interest rate received in the most recent State of Vermont general obligation debt offering/sale.

Up until the fiscal cost-benefit model update this year, this process worked well. This year, the state went to market for its general obligation debt in mid-November and received a very favorable rate of 3.4% on its 20 year general obligation debt. That rate, which would translate to a 3.4% discount rate—would be a full 1.2 percentage points below last year's discount rate used in the cost-benefit model and would be 1.7 percentage points below the published rate for long-term general obligation debt as published in the Wall Street Journal.

The discount rate within the fiscal cost-benefit model is intended to measure as accurately as possible the opportunity cost of forgone revenues to the state under the program. The choice of the proper discount rate is therefore important. Too high a discount rate will reduce the cost of forgone revenues in the out years of the incentive period. Too low a discount rate will increase the estimated cost of those forgone revenues in the out-years of the incentive period. In this annual cost-benefit forecast model update, the second condition is of concern. This is particularly so, since the state's general obligation interest rate on its most recent offering appears to be so exceptionally positive—given the recent deterioration in the municipal and state bond market over the period since the State went to market and the resulting sharp increase in rates on most general obligation bond offerings since the state went to market.

The current methodological approach to the annual debt rate update has worked well for the EATI/VEGI program as the debt markets have been relatively stable

over this period. Even against the backdrop of the harsh 2007-09 recession, year to year changes in the discount rate have been relatively stable.

II. A New Approach

Because of this year's market volatility for state general obligation debt offerings, the usual approach for updating the model's discount rate simply did not seem credible. As a result, members of the VEGI Technical Working Group—including Thomas Kavet of Kavet, Rockler & Associates and Susan Mesner of the Vermont Department of Taxes—were contacted to discuss this issue and to discuss possible alternatives.

After several discussions with individual members on this subject, the VEGI Technical Working Group arrived at a consensus recommendation to use a moving three year mean (average) of the Moody's Analytics **Bond Buyer Index: General Obligation 20-Years to Maturity, (% , NSA)**—attached. The moving three year mean will be constructed each year at the time of the fiscal impact model update using the forecasted average for the calendar year of the model (in this case calendar year 2011) and the annual average of the immediate preceding two calendar years (in this case calendar year 2009 and calendar year 2010). For this year, the discount rate calculated by this approach is 4.5%—up 0.2 percentage points from last year.

The use of the rolling three year average was preferred by the members of the VEGI Technical Group for a number of reasons. First, it is straight-forward and simple. Second, this approach is expected to provide greater year-to-year stability, which will reduce volatility in the valuations of applications. Third, this approach uses a series that is routinely published by Moody's Analytics. Although the index is not specific to the state of Vermont, the VEGI Technical Group felt the stability and continuity of using a national index average would more than offset the lack of specificity to Vermont.

III. Implementation:

With the transmittal of the annual cost benefit model updates (expected on Monday, February 28, 2011), VEGI applications processed on and after that date will include this discount rate. This discount rate will remain in effect until the next fiscal cost-benefit model update expected during the January-February 2012 time frame.

Please feel free to call with any questions or comments.

Source: Moody's Analytics, December 2010 Baseline (or "Most Likely") Forecast

FRBB20Q Bond Buyer Index: General Obligation 20-Years to Maturity, (% , NSA)

UNITED STATES - ANNUAL

1975	7.1
1976	6.6
1977	5.7
1978	6.0
1979	6.5
1980	8.6
1981	11.3
1982	11.7
1983	9.5
1984	10.1
1985	9.1
1986	7.3
1987	7.6
1988	7.7
1989	7.2
1990	7.3
1991	6.9
1992	6.4
1993	5.6
1994	6.2
1995	6.0
1996	5.8
1997	5.5
1998	5.1
1999	5.4
2000	5.7
2001	5.2
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	4.2
2011	4.6
2012	5.4

3-Year Average CY 2009-2011F
4.5%