financial solvency study

Guaranteed Education Tuition (G.E.T.) Program

Office of the State Actuary

"Securing tomorrow's pensions today."

November 13, 2009

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Office of the State Actuary

"Securing tomorrow's pensions today."

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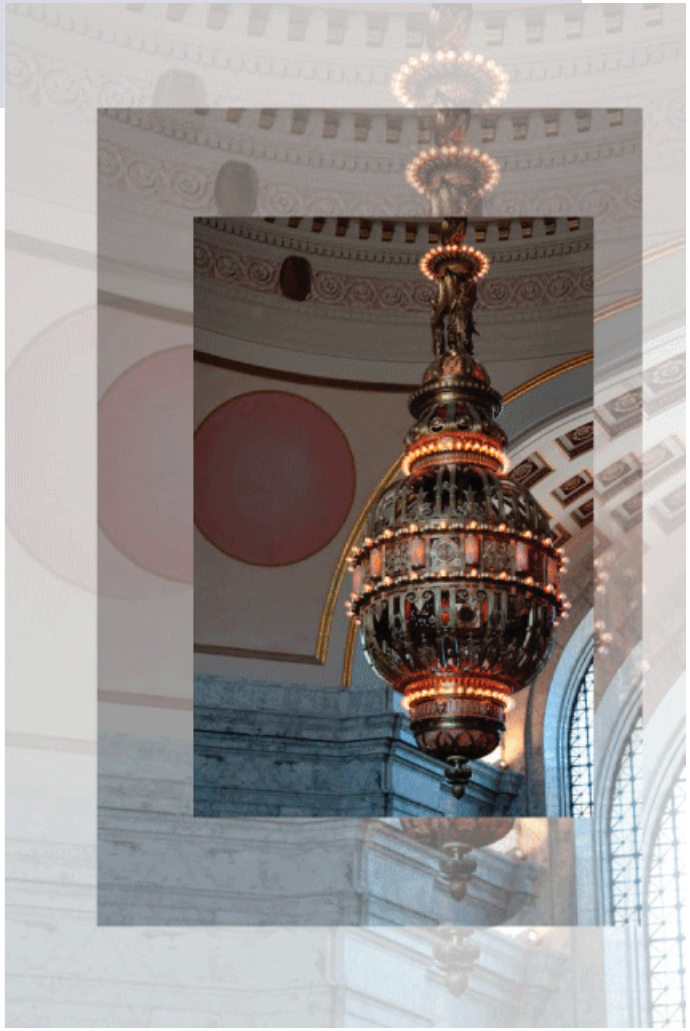
Special Thanks



To OSA's GET Team:

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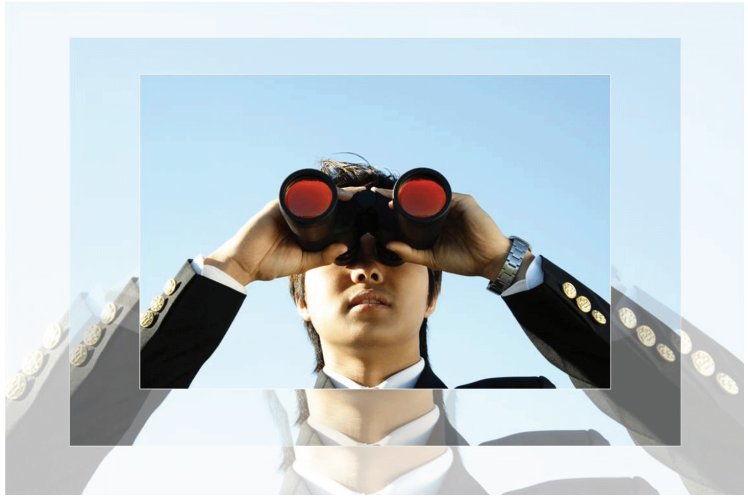


executive summary

Introduction

The recent financial crisis has sparked renewed interest in the financial solvency of prepaid college tuition plans, especially plans backed by a state guarantee. Washington's Guaranteed Education Tuition (GET) Program is backed by the state's promise that if you buy one year (100 units) of college tuition today, you'll have one year of college tuition at Washington's most expensive public university when your child is ready for college. Recent market turmoil may generate questions: Is the program at risk of not being able to meet its obligations? Will the state guarantee be triggered, and will the state need to contribute money to the GET fund?

After a decade of experience with the GET program, the Legislature has chosen to evaluate its financial solvency. This evaluation comes at a critical time. Perhaps no other time will test the financial resiliency of the program more.

The GET Study Mandate

The 2009 Legislature asked the Office of the State Actuary (OSA) to assess alternatives for assuring the long-term financial solvency of Washington's Guaranteed Education Tuition (GET) Program, including suspending the program. The Legislature's study mandate is found in Section 105 of the 2009 budget bill (ESHB 1244, Chapter 564, Laws of 2009). A copy is included in the Actuarial Section appendix. OSA interprets this mandate as calling for an independent actuarial study of plan solvency as well as an assessment of alternatives for assuring its long-term financial health.

The GET Model

As OSA considered the objectives of the study and the dynamics of GET solvency, it determined that conventional analysis would not be adequate to fully respond to the Legislature's mandate. Therefore, OSA constructed a more customized or dynamic actuarial model designed exclusively for the GET program. This model is future-oriented in that it values the assets and liabilities of not only the current GET contracts, but also future contracts. The model generates fifty-year solvency projections to produce detailed information about the impacts of changes or events affecting the program.

OSA used stochastic modeling to generate thousands of fifty-year projections. This kind of analysis is especially suited for guaranteed benefits that are affected by economic variables. Results from the OSA GET model are extensive and provide detailed information about how program solvency will behave in the future. By looking at a very large spectrum of randomly generated economic events (annual changes in investments, inflation, tuition growth, etc.) we can see the full range of possible outcomes as well as their likelihood of occurring.

In effect, the OSA GET model allows policy makers to experiment with the program in a working "laboratory" rather than in the real world. To the extent that the model can help inform decision makers about the future consequences of various actions and events, it can be used to avoid some of the negative impacts on people and programs that can result from experimenting with program changes.

Results from GET "Scenarios" Increase Understanding of GET Solvency

We ran different "scenarios" through the model to see how various indicators of GET solvency would react over a fifty-year period. Scenarios are not options or recommendations. A scenario is simply a change, action, event, or condition that affects the GET program. It can be intended or unintended, and caused by action or inaction that is either internal or external. This report summarizes results from twelve scenarios using summaries in various formats.

Steps in Our Analysis

A. First we analyzed what would happen to GET solvency if the program remains open and keeps its current structure ("status quo"). We included this analysis not only to give us insights into the solvency of the current program, but also to establish a baseline for comparing what happens to GET solvency when the status quo changes. We found that under the status quo, the chance that the state would have to make contributions over the next fifty years is low, but should it occur, the dollar amount is high.

B. Next we looked at what would happen to GET solvency if the program was suspended (closed to new enrollees). We found that the probability of state contributions would be very high while the dollar amount would be much lower than under the status quo.

C. We assumed from the study mandate that the Legislature would want to avoid making any contributions. Therefore, we turned our attention to solvency risks within the current program and how the biggest drivers of GET solvency would be affected by changes or economic events.

The big "drivers" of GET solvency are the cost of tuition, investment returns, and purchaser behavior. Why are they important? First, the program's payout liability for the GET units depends on the cost of tuition at the time of payout. Secondly, the GET program relies on investment returns to help the program keep pace with increases in tuition costs. Finally, GET depends on people continuing to purchase GET units so there will be proceeds to invest on a regular basis.

When GET experiences losses due to low investment returns, unexpected tuition hikes or dips in sales of GET units, the GET Committee can only recoup those losses from future purchasers or potential future investment returns. The Committee considers this when it charges a premium on the GET units sold to new enrollees. The premium includes a "cushion" or "reserve" to help keep the fund actuarially sound. At some point, however, if the premium becomes too large, GET units will become too expensive and purchasers may buy less or stop buying.

GET's most important tool for managing risks from the "big three" cost drivers is its set of guidelines for determining the price of GET units (copy in the About GET appendix). These guidelines must carefully strike a balance between the need to avoid state contributions and the need to keep the premium on GET units affordable to new purchasers. If the units are well-priced, citizens will continue to buy, the GET program will recover past losses and the state will avoid having to make contributions in the future.

OSA examined how changes in any of the big three cost drivers would impact the program. We looked at higher and lower investment returns, higher and lower tuition growth, the tuition growth assumption and changes in purchaser behavior. We also considered how the GET

Committee's pricing guidelines might be strengthened to assure the program's future solvency.

D. To complete the analysis we looked at the effects of several strategies that other states have used in reaction to significant solvency challenges in their prepaid college tuition plans. These scenarios include a one-time cash infusion, limiting the payout value for future enrollees, and terminating the program.

Results from the OSA GET model show that with some relatively minor changes, GET can continue with very little risk of future contributions from the state.

Findings and Conclusions

1. If GET remains open, there is a relatively small likelihood that state contributions will be required over the next fifty years. While the chance of a state contribution is small, the dollar amount under worst case conditions could still be quite significant.

2. The GET Committee could virtually eliminate future solvency risk by amending its current pricing guidelines to strengthen the program's reserve while making it more responsive to funded status.

3. Suspending GET would greatly increase the risk of state contributions, but the dollar amount of those contributions would be lower than if the program stays open. Terminating GET virtually locks in insolvency, but at the lowest amount of state contributions.

4. The current investment policy is striking a good balance between risk and affordability.

5. Limiting future tuition growth and tuition volatility will optimize GET solvency.

6. Matching the long-term tuition growth assumption to experience will help manage solvency risk.

7. Solvency results are very sensitive to changes in the purchaser behavior assumption.

8. Reducing payouts to future enrollees by 25 percent would slightly reduce solvency risk.

Recommendations

1. Amend GET's pricing guidelines to strengthen the program's reserve while making it more responsive to changes in funded status.

2. Consider increasing the tuition growth assumption for the program from 7 to 7.5 percent.

3. Continue to use the OSA GET model or similar analysis in the future to evaluate the impacts of significant economic events and potential changes affecting the program.

4. If policy makers or the GET Committee continue to use the OSA GET model, update the model in 2010 to incorporate the new data on purchaser behavior after the enrollment window, as the current GET enrollment period follows the most significant increase in the GET unit price since the program's inception. Continue to track purchaser behavior in the future and re-evaluate assumptions about purchaser behavior regularly.

g.e.t. solvency report

GET is a Prepaid College Tuition Plan

GET is Washington's state-operated plan for helping families set aside funds for future college tuition. GET's slogan is: "Buy tomorrow's college tuition today." GET guarantees that if you buy 100 "units" today, your 100 units will equal the actual cost of one academic year of resident undergraduate tuition and state-mandated fees at the most expensive Washington public university when your child enrolls in college, regardless of how much tuition has increased over time.

GET is Funded by Unit Sales and Investment Returns

GET is funded by proceeds from the sale of GET units and the investment returns on those proceeds. The price for GET units is set by GET's governing body. During an annual window, citizens enroll in the GET program to purchase GET units. Money from the purchases is deposited into the advanced college tuition payment program account in the custody of the State Treasurer. The Washington State Investment Board (WSIB) invests money from the account and the account is then credited with the investment returns.

GET Contracts Are Backed By the State's Guarantee

The GET program is backed by the state's full faith and credit. This means that GET contracts are obligations that are legally binding on the state pursuant to RCW 28B.95.090. To evaluate the state's risk under this program, the Office of the State Actuary (OSA) analyzed the chances that the state would have to step in as a financially responsible party, and if that occurred, what the likely amount of those contributions would be.

The Dynamics of GET Fund Solvency Are Influenced by External Risk Factors

The GET Committee sets the price for GET units, so it does have some control over GET solvency. GET solvency, however, is significantly affected by several factors that are not within the direct control of the GET Program. We refer to them as "the big three."

1. **Investment returns.** Proceeds from GET units are invested and managed by the Washington State Investment Board. The GET program relies on investment returns to help the program keep pace with increases in tuition costs. Investment policy (how assets are invested) and market volatility (ups and downs in the market) both influence GET program solvency.

2. **Tuition costs.** The program's payout for the GET units depends on the cost of tuition at the time of payout. Decisions about tuition policy and tuition volatility affect the payout amount for GET units and hence, GET program solvency. The GET Committee has no control over changes in tuition costs, but it tries to anticipate what will happen and prices GET units to cover those costs.

3. **Purchaser Behavior.** Purchaser behavior is closely tied to the GET program's price-setting activity. The GET Committee, a five-member governing board, must balance the need to keep the program actuarially sound against the need to keep the units affordable. The Committee hopes that it strikes the right balance but it cannot control how many people choose to buy in any given year. The Committee's pricing-setting challenge is compounded by the fact that unexpected costs and past investment losses can only be recouped from new purchasers or future investment returns.

Each year the GET Committee gathers information about the big three. The GET actuary performs a valuation to determine the plan's "funded status," or a comparison of the assets on hand to the current value of existing GET contracts. Based on that information, the GET Committee sets the price for GET units. This can occur on May 1 each year, and again on September 1 if the Committee so chooses (although the common practice is to set the price once per year). Marketing and enrollment periods follow. Then the cycle starts over again.

An Emerging Pattern Creates Challenges to GET Solvency

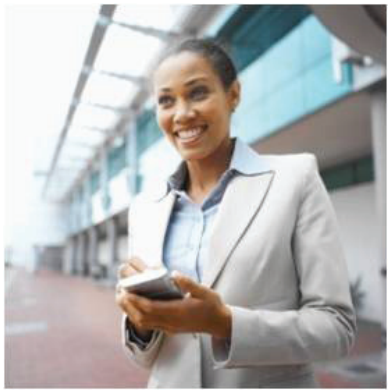
External factors have combined to create significant challenges for guaranteed prepaid tuition plans such as the GET Program. When markets are in turmoil and investment returns are down, state budgets are also down - particularly in Washington where state revenues are closely tied to economic growth. There are fewer state dollars available for the higher education institutions when the economy contracts.

Weak economies and strained budgets create pressure to increase college tuition. Increases in college tuition mean a higher payout value for GET units. When GET experiences losses due to low investment returns or unexpected tuition hikes, the GET Committee recoups those losses from future purchasers and potential future investment returns.

The Committee sets the GET unit price based on guidelines. The unit price covers the current cost of tuition, estimated future tuition, inflation, administrative costs and a "stabilization reserve" or "cushion" to cover past losses and unexpected future costs. When there are financial challenges to the program, the GET Committee must set higher prices for new units, especially when reserves are low. In some instances, units could be priced so high that there are not enough willing buyers to provide the proceeds needed to keep the fund healthy.

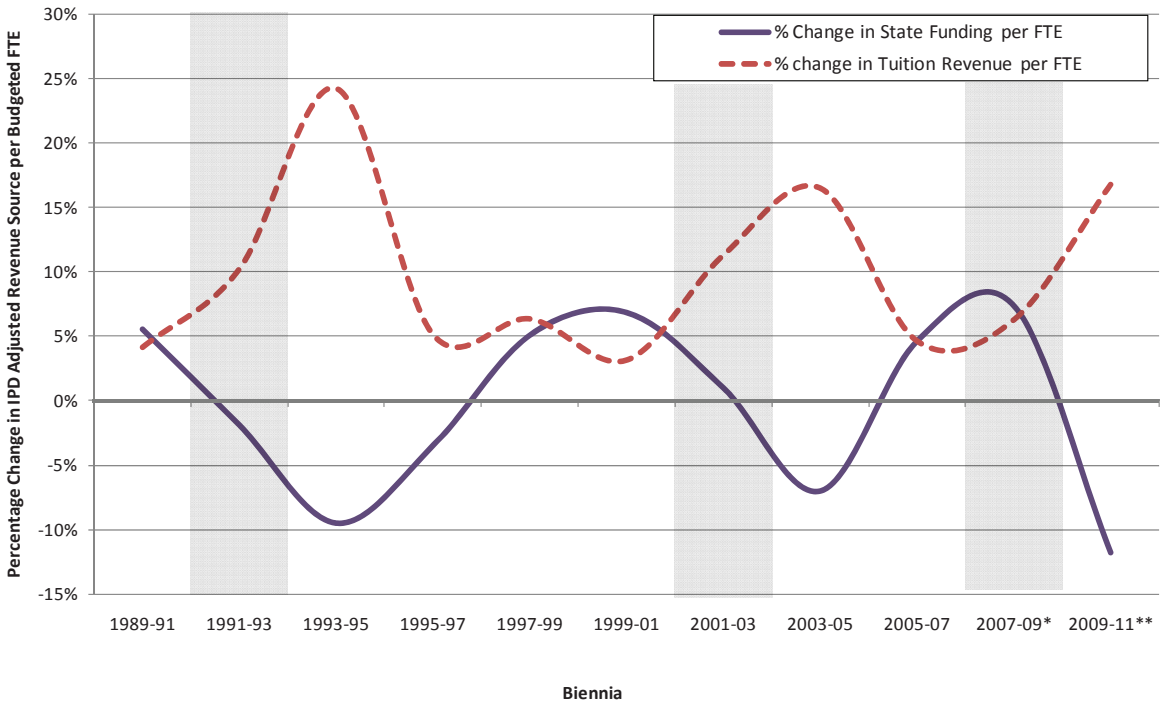
To summarize, market and tuition volatility can wreak havoc with the GET unit price and hence, prepaid tuition plan solvency. This dynamic pattern can create "perfect storms" that occur not just once or twice but many times during the life of the program.

The following graph prepared by the Higher Education Coordinating Board illustrates how tuition costs in the state of Washington have increased when state budgets dollars have declined in response to economic downturns.



Percentage change in IPD Adjusted State Biennial Funding for Higher Education in Washington Per Budgeted FTE as Compared to Percentage change in IPD Adjusted Tuition Revenue per FTE

Average Biennial Budgeted FTE Student Enrollment, Near General Fund-State,
Biennia with Recessions are Shaded



Notes:
*2007-09 Funding Reflects Appropriation Levels from 2009 Supplemental 2007-09 Operating Budget.
**2009-11 Funding and FTE Levels Reflect Appropriation Levels from 2009-11 Operating Budget as Passed Legislature.

Note: IPD stands for Implicit Price Deflator, a standard measure used to account for the effects of inflation.

Caution: Shaded biennia may not print correctly on all printers. The shaded biennia are 1991-1993, 2001-2003, and 2007-2009.

GET's Internal Price-Setting Guidelines Help Manage External Risks from the Emerging Pattern

GET's most important tool for managing solvency risks is its set of guidelines for determining the price of GET units. These guidelines must carefully strike a balance between the need to avoid state contributions and the need to keep the premium on GET units affordable to new purchasers. If the units are well-priced, people will continue to buy, the GET program will recover past losses and the state will avoid having to make contributions in the future.

A copy of the current pricing guidelines is provided in the About GET appendix.

How Is GET Doing Today?

The most common indicator of plan solvency is its funded status. This measure is typically reported in the annual actuarial valuation of the fund. If the funded status is 100 percent, this means that as of the date of the valuation, there is one dollar in the fund for every dollar of future liability.

As of June 30, 2009, GET's funded status was 84.2 percent. In all but two years since inception, the GET fund has had a funded status of 100 percent or greater.

Fiscal Year	Funded Status
1999	109.2%
2000	113.4%
2001	104.9%
2002	78.4%
2003	101.6%
2004	104.5%
2005	108.1%
2006	108.8%
2007	117.3%
2008	109.5%
2009	84.2%

The GET Solvency Study Looks at More than Funded Status

Funded status is a measure of GET solvency, but this measure has its limitations due to the fact that it is based on one snapshot in time. Also, it does not fully illustrate the extent to which the plan is subject to external forces over time such as market ups and downs, increases in tuition costs and changes in purchaser behavior.

In Section 105 of the 2009 budget bill (ESHB 1244, Chapter 564, Laws of 2009), the Legislature charged the OSA with providing an independent assessment of alternatives for assuring the long-term financial solvency of the GET Program, including suspension of the program. A copy of the study mandate is provided in the Actuarial Section appendix.

OSA interpreted this mandate as a call for an independent actuarial study of plan solvency. This study is not a traditional actuarial valuation, an audit, or a policy piece on guaranteed prepaid tuition plans. Instead, OSA analyzed the fund's projected future solvency over a fifty-year period and how changes to the program could affect its outlook. This long-term view provides a more complete picture of solvency dynamics and program risk than the current funded status.

OSA Constructed a Custom GET Model to Analyze Solvency

OSA's most significant efforts in response to the mandate have resulted in a custom GET model. While traditional actuarial analysis values only the current or "closed" group of members, the OSA GET model values and monitors both the program's current group and the plan's future enrollees

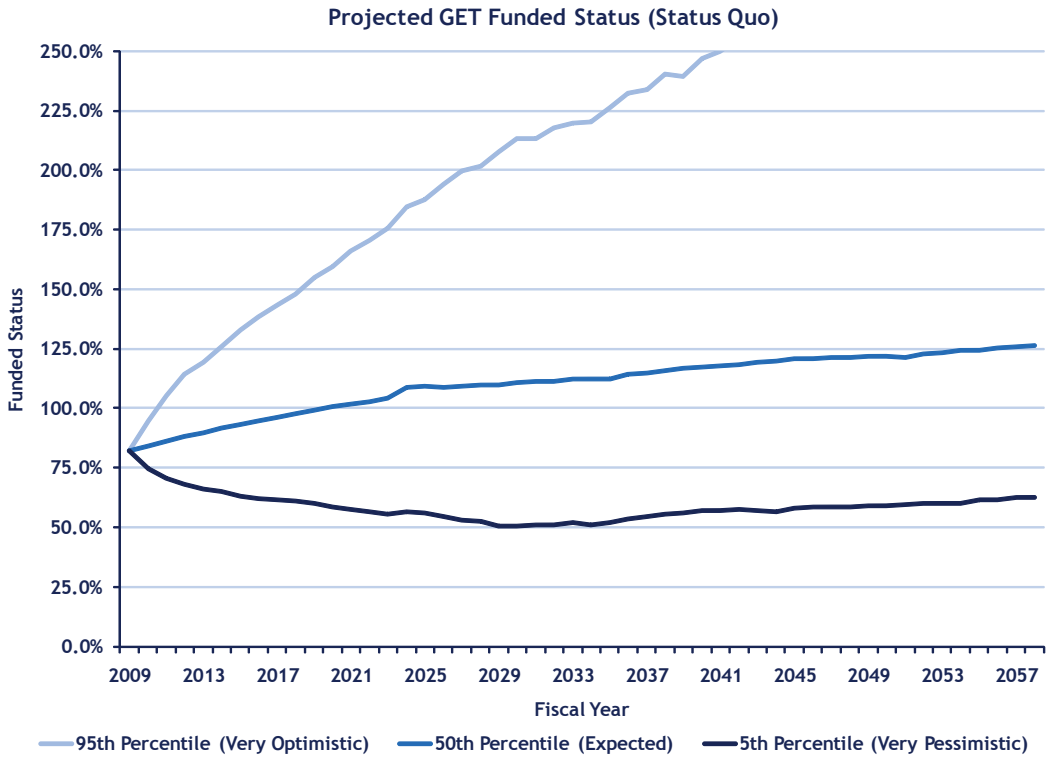
or "open group." The result is a model that provides an ongoing look into the future.

The OSA GET model also generates thousands of fifty-year projections. This kind of analysis is especially suited for guaranteed benefits that are affected by economic variables. Results from the model are extensive and provide detailed information about the general workings of the GET program and how assumptions about the program will behave together.

By looking at a very large spectrum of randomly generated results we can also see the full range of possible outcomes as well as their likelihood of occurring. This approach is dynamic and provides more information than looking only at "expected" outcomes.

The graph on this page is a simple example. Instead of merely projecting the expected outcome for GET's funded status over the next fifty years, the model allows us to view all possible outcomes for GET's future funded status. The graph summarizes not only the outcome we expect, but also outcomes that are more "extreme." Understanding extreme results or "tail risks" helps decision-makers know the extent and probabilities of outcomes they want to see or avoid.

Under the optimistic outlook shown below (95th percentile), tuition growth is low and investment returns are high. Under the pessimistic outlook (5th percentile), tuition growth is high and investment returns are low. Under the expected outlook (50th percentile), the future funded status is a reflection of the program's current assumptions about investment returns and tuition growth.



Results from GET "Scenarios" Increase Understanding of GET Solvency

Results from the model can also show how the program is likely to respond to internal and external changes. The OSA GET model can help policy makers evaluate how such changes would impact the balance between limiting financial risk to the state and maintaining affordability for purchasers of GET units. The model can also assist policy makers in assessing and comparing alternatives for assuring or improving GET solvency.

We ran different "scenarios" through the model to see how various indicators of GET solvency would react over a fifty-year period. Scenarios are not options or recommendations. A scenario is simply a change, action, event or condition that affects the GET program. It can be intended or unintended, and caused by action or inaction that is either internal or external.

Results from running the scenarios through the model teach us about the dynamics of GET solvency and how relationships between risk and affordability can be affected over the long term. For each scenario, we used the results from the model to answer various questions related to GET solvency. These results are instructive, but decision makers should be aware than actual experience could differ in the long run, and decisions should not be made solely on the basis of results from a model.

OSA Used Two Formats to Summarize Results from the GET Model

OSA summarized the results from running each scenario through the model by using two formats:

1. **Solvency Report Card**
   The solvency report card is a tool for comparing scenarios. The grades are relative, not absolute. Thus, it is more important how each grade compares to grades for other scenarios than whether it is high or low.

The risk report scores the results from each scenario in five categories. We selected categories that are "indicators" of GET solvency. A different score card could be used to reflect a different focus or different values.

We also assigned a weight to each category. We combined the results from all five categories and generated a total risk score. Then we converted the score into a grade of A through F. Again, different weights could be assigned to these categories depending on the values of the user.

The solvency report card grades the answers to the following questions:

- How likely is it that the state would have to make contributions to GET within the next fifty years?
- What would be the largest amount of money that the state might have to contribute within that period?
- What will happen to the program's average funded status over time?
- What is the probability that GET's funded status will dip below 50 percent?

- What will be the average change in GET's premium level?*

** The premium is the amount of the GET unit price that exceeds the current price of tuition. It covers tuition growing faster than investments, ongoing expenses, and a reserve or cushion for past losses and unexpected future expenses.*

The following is a graphic explanation of the Risk Solvency Report Card.

Solvency Report Card - SAMPLE				
Category	**Value**	**Score**	**Grade**	**Weight**
Probability of State Contributions	5.0%	85	B	25%
Worst Case 50-Year State Contributions (millions)	$10,000	50	F	25%
Average Funded Status	110%	90	A	20%
Probability of Funded Status Under 50%	8.0%	60	D	20%
Average Annual Change in Premium Level	2.00%	95	A	10%
Total Solvency Score		**73**	**C**	**100%**

C-

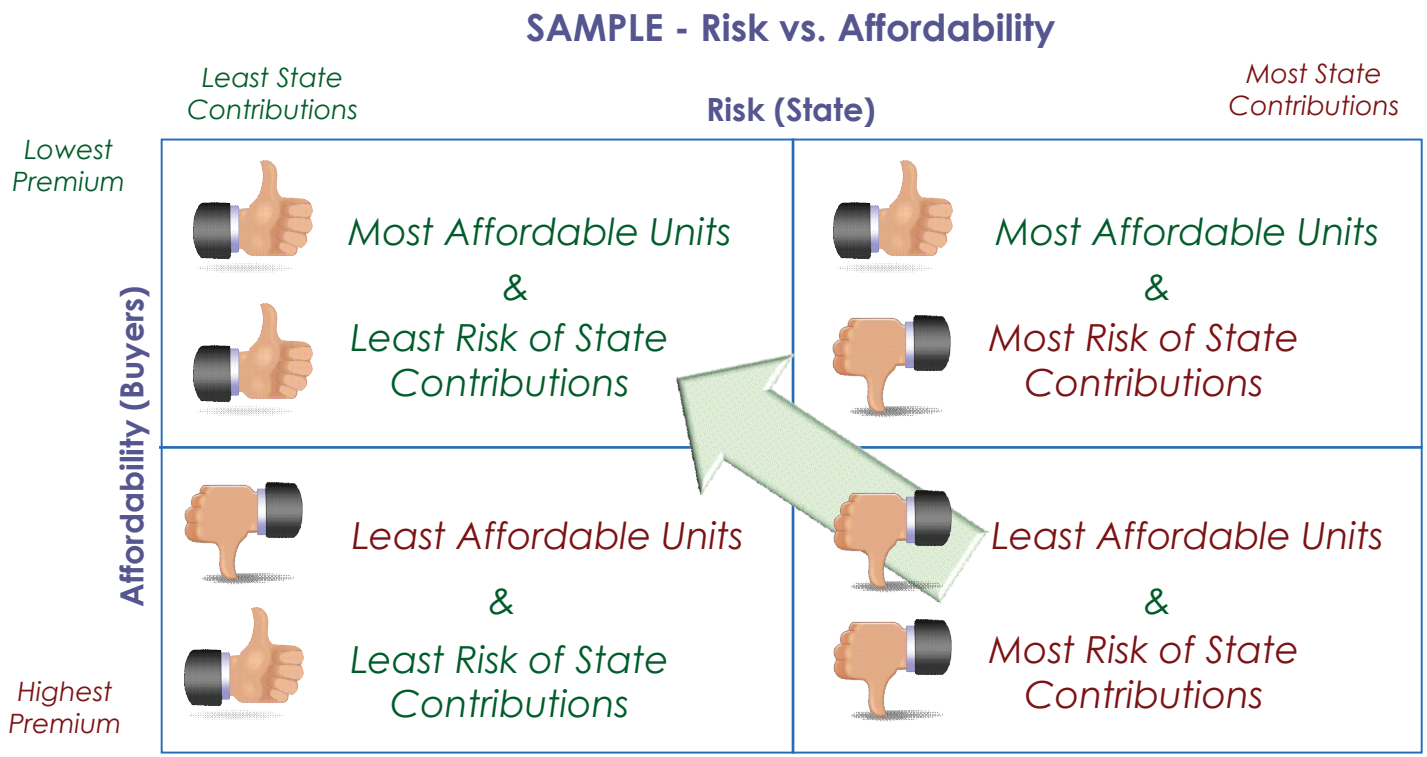
Explanation of Scoring Scale For Report Cards		
Category	**Best Value**	**Worst Value**
Probability of State Contributions	0%	15%
Worst Case 50-Year State Contributions (millions)	$0	$30,000
Average Funded Status	115%	0%
Probability of Funded Status Under 50%	0%	50%
Average Annual Change in Premium Level	0%	20%

Explanation of Grading Scale For Report Cards	
Score Range	**Grade**
90-100	A
80-90	B
70-80	C
60-70	D
Below 60	F

2. **Risk vs. Affordability Comparison**
The risk/affordability comparison shows how each scenario will change the current balance between the risk that state contributions will be required over the next fifty years, and the affordability of GET units to purchasers. Generally speaking, a scenario will have the most positive effects (lower risk to the state, more affordable to GET unit purchasers) when the arrow on the graph moves in a northwesterly direction. The optimum balance between risk and affordability is in the northwest quadrant.

We included this comparison because striking this optimum balance serves to reduce GET solvency risk. Also, this relationship is relevant to the stated legislative intent of the GET program, which is "to help make higher education more accessible and affordable to all citizens of the state of Washington."

The following is a graphic explanation of this comparison.



The Status Quo Is a Baseline for Comparing Scenarios

After we built the model and established some ways of summarizing results from the model, we started using the model to explore GET solvency.

First we analyzed what would happen to GET solvency if the program remains open and continues to accept new enrollees. We assumed that the current program structure would remain in effect indefinitely and the GET Committee would continue to set the unit price according to its current guidelines. See the About GET appendix for access to program details and the current price-setting guidelines.

We included an analysis of the status quo because it gives us insights into solvency risks within the current program. Also, it serves as a baseline for comparing what would happen to GET solvency when the status quo changes.

Solvency Report Card - Status Quo

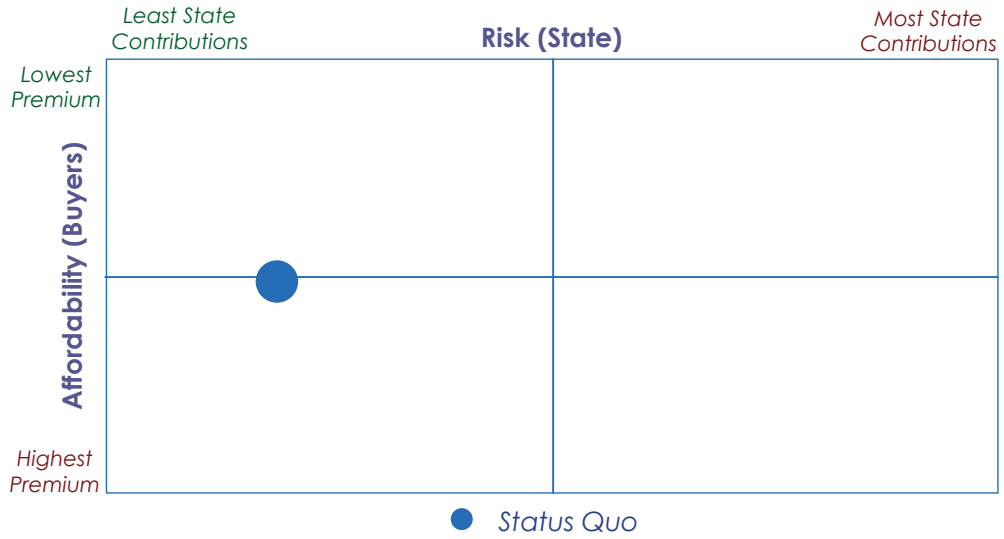
Category	Value	Score	Grade	Weight
Probability of State Contributions	1.5%	91	A	25%
Worst Case 50-Year State Contributions (millions)	$9,055	70	C	25%
Average Funded Status	110%	95	A	20%
Probability of Funded Status Under 50%	12.3%	76	C	20%
Average Annual Change in Premium Level	1.64%	92	A	10%
Total Solvency Score		**84**	**B**	**100%**

B

Findings: Under the status quo, the chance that the state would have to make contributions over the next fifty years is low, but should it occur, the dollar amount under the worst case outcome is high. The main risk to manage for the status quo is the amount of future state contributions under worst case conditions.

Note: This baseline scenario uses OSA's preferred tuition growth assumption of 7.5 percent instead of the GET program's current 7.0 percent assumption. (See Actuarial Section appendix for more detail about the tuition growth assumption.)

Status Quo - Risk vs. Affordability



OSA Included Results from Twelve Scenarios

Next we used the model to generate information about the effects of various changes or economic events affecting the program. We selected a variety of scenarios - some directly related to the big three (investment returns, tuition costs and purchaser behavior), one affecting the price-setting guidelines, and others that are either anticipated as possibilities under the GET statutes or similar to events that have occurred in other states.

For each scenario the GET model generated 5,000 fifty-year projections. Each projection has three basic parts that are similar to the steps that are taken annually by the GET program to manage the dynamics of GET solvency:

1. An economic event occurs (e.g. change in investments or tuition) and the actuarial valuation shows the resulting funded status of the plan.
2. The GET unit price is determined, based on the funded status and the current pricing guidelines.
3. Buyers respond.

For each scenario we started with the current funded position and allowed 5,000 random economic events to take the program down different, and equally likely fifty-year paths. We ran the same 5,000 random economic events through each scenario. The resulting information was extensive. It allowed us to see the full range of possible outcomes for the GET program as well as the likelihood of any specific event occurring.

In order to make the report manageable, we summarized only the key results from each scenario. We focused on outcomes related to financial solvency and placed the results into formats that were designed to be user-friendly (the Solvency Report Card and the Risk/Affordability Comparison). Readers can use the summaries to compare the scenarios to the status quo.

We chose to include the following scenarios in this report.

- Suspend
- Lower Risk/Return Investment Portfolio
- Higher Risk/Return Investment Portfolio
- Reduce Tuition Growth Rate
- Increase Tuition Growth Rate
- Higher Tuition Growth Rate than GET Assumes
- People Buy Less
- People Buy More
- New Price-Setting Guidelines
- One-Time Infusion of Money
- Lower Future Payout Value
- Terminate

Caution: *Do not mix and match results from different scenarios. Combining scenarios may require setting different assumptions, which may lead to different results.*

Suspending GET Greatly Increases the Risk of Insolvency

We started by comparing the status quo to permanent suspension of the program. This approach has been used in other states as a way to cut losses in the face of serious solvency challenges. See the Snapshots From Other States appendix for more information.

Suspending GET means the program would be closed to new enrollees. Existing account holders would remain in the program as it is currently structured. The outstanding assets would still be affected by investment returns and tuition costs. (This scenario differs from discontinuing the program altogether. Ending the program would trigger certain closeout and refund scenarios for existing account holders. We analyzed termination later in the report.)

Findings: Closing GET to new enrollees allows the state to partially pin down its future liability. However, the probability of state contributions is very high compared to the status quo. Under worst case conditions, the dollar amount of a state contribution would be significantly less than under the status quo.

Comparing this scenario to the status quo made it clear that the state would have a very high risk of having to make contributions if it suspended GET. We assumed from the study mandate that the Legislature would want to avoid making any contributions. That being the case, we then turned our attention to solvency risks within the program and how the biggest drivers of GET solvency would be affected by changes or economic events.

Solvency Report Card - Suspend

Category	Value	Score	Grade	Weight
Probability of State Contributions	79.3%	0	F	28%
Worst Case 50-Year State Contributions (millions)	$3,633	88	B	28%
Average Funded Status	36%	31	F	22%
Probability of Funded Status Under 50%	77.7%	0	F	22%
Average Annual Change in Premium Level				0%
Total Solvency Score		**31**	**F**	**100%**
Status Quo Solvency Score (for comparison)		84	B	

F

Current Investment Policy Balances Risk and Affordability

We ran various scenarios through the model to examine the effects of changes to the "big three" drivers of GET solvency. We started with investment returns. The GET model includes investment data through June 30, 2009. We ran two investment scenarios through the GET model.

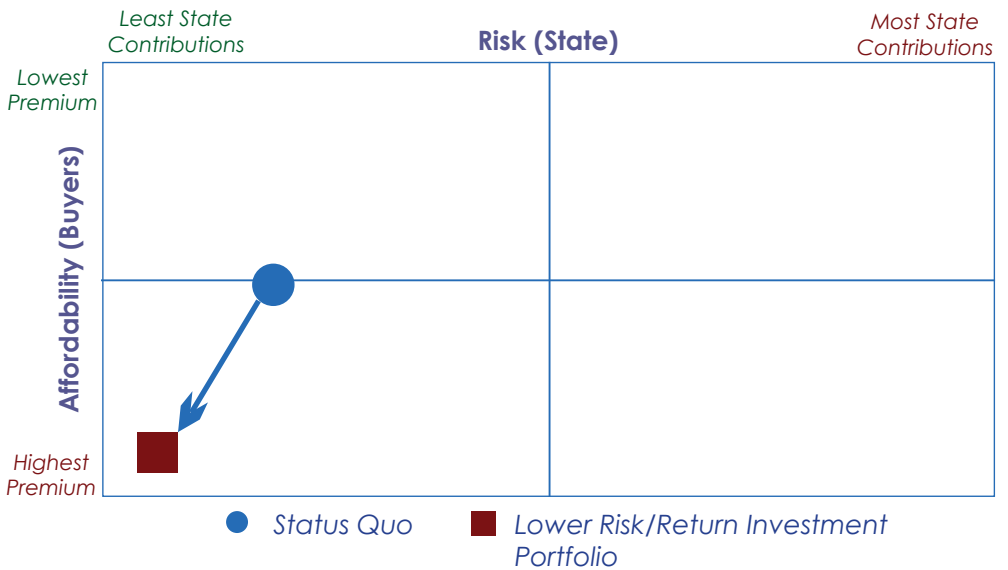
First we looked at what would happen if the investment asset mix were changed from 60 percent equities and 40 percent fixed income (60/40) (current policy) to a mix of 30 percent equities and 70 percent fixed income (30/70) (lower risk, lower returns). The expected rate of return dropped from 6.89 percent to 5.73 percent. Investment volatility (the expected standard deviation or change from year to year) dropped from 10.13 percent to 6.50 percent.

Solvency Report Card - Lower Risk/Return Investment Portfolio

Category	Value	Score	Grade	Weight
Probability of State Contributions	1.8%	88	B	25%
Worst Case 50-Year State Contributions (millions)	$2,475	92	A	25%
Average Funded Status	103%	89	B	20%
Probability of Funded Status Under 50%	10.1%	80	B	20%
Average Annual Change in Premium Level	2.06%	90	A	10%
Total Solvency Score		**88**	**B**	**100%**
Status Quo Solvency Score (for comparison)		84	B	

B+

Lower Risk/Return Investment Portfolio - Risk vs. Affordability



Findings: With a lower risk, lower return portfolio there is a small increase in the risk of state contributions, however the dollar amount under worst case conditions is much smaller, which results in an overall improvement in the solvency report card.

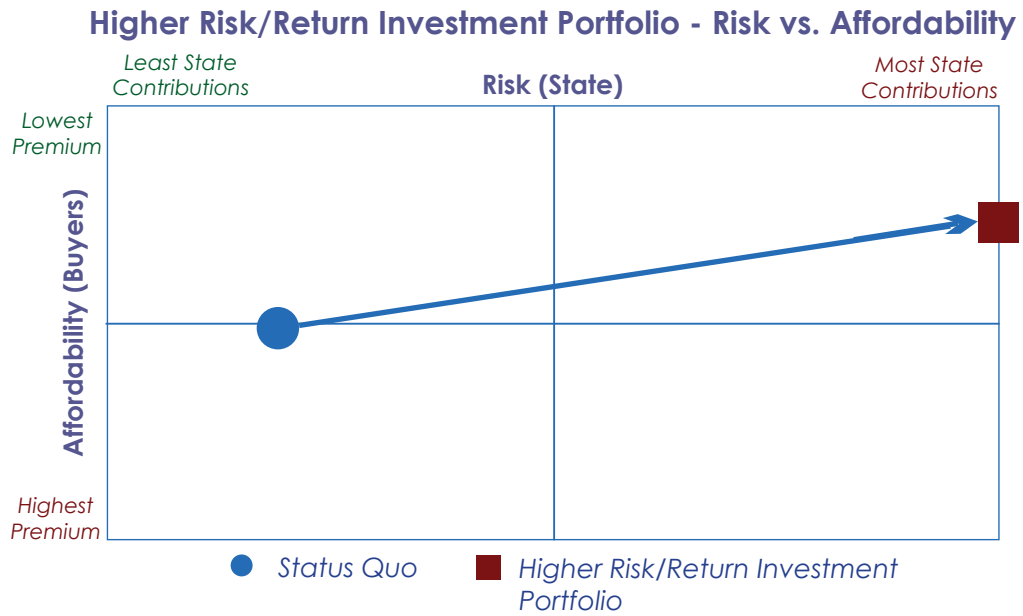
On the other hand, this scenario also causes GET units to become more expensive with less people buying. The premium level within the unit price is higher, the cost of GET units increases and the number of units purchased decreases. This scenario drives the risk/ affordability balance out of the northwest quadrant, tipping the balance away from affordability and toward lower risk.

Under the next investment scenario, we looked at what would happen if the investment asset mix were changed from 60 percent equities and 40 percent fixed income (60/40) (current policy) to a mix of 80 percent equities and 20 percent fixed income (80/20) (higher risk, higher returns).

The expected rate of return increased from 6.89 percent to 7.51 percent. Investment volatility (the expected standard deviation or change from year to year) increased from 10.13 percent to 13.19 percent.

Solvency Report Card - Higher Risk/Return Investment Portfolio				
Category	Value	Score	Grade	Weight
Probability of State Contributions	8.5%	44	F	25%
Worst Case State Contributions (millions)	$26,205	13	F	25%
Average Funded Status	114%	98	A	20%
Probability of Funded Status Under 50%	22.4%	56	F	20%
Average Annual Change in Premium Level	1.47%	93	A	10%
Total Solvency Score		**54**	**F**	**100%**
Status Quo Solvency Score (for comparison)		84	B	

F



Findings: A higher risk, higher return portfolio affects purchaser behavior by increasing the number of units purchased. The tuition component within the GET unit price is reduced and GET units become more affordable.

This scenario, however, drives the risk/affordability comparison out of the northwest quadrant. While a higher-return higher-volatility investment scenario decreases the cost of GET units, it significantly increases the risk of state contributions due to the additional risk assumed under the investment portfolio. Under worst case conditions, the dollar amount of possible state contributions is potentially much larger than for the status quo. This changes the overall Solvency Report Card grade to an F.

Overall Conclusion: The current investment portfolio is striking a good balance between risk and affordability.

Limiting Tuition Growth and Tuition Volatility Will Optimize GET Solvency

Next we looked at tuition costs because they directly affect the program's payout liability. The tuition growth rate also affects the GET unit price.

We looked at two scenarios related to tuition costs. Under the first scenario, tuition costs slow down and grow at 6.12 percent instead of the 7.5 percent growth rate we assumed for the status quo. This scenario also assumes a decrease in tuition volatility from 5.20 percent to 4.15 percent.

Tuition volatility refers to the variability in tuition costs from year to year. Lower volatility affects GET solvency in a number of ways: by making payout liabilities more predictable, by making the dollar amounts available for investment more certain, by making it easier to price GET units, and by making purchaser behavior more predictable.

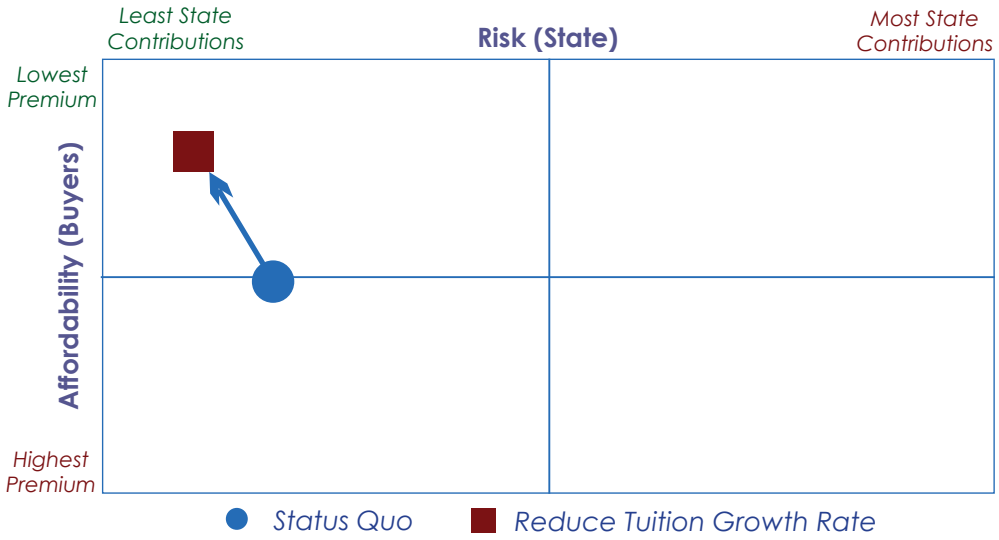
We chose this scenario to illustrate what can happen to GET solvency if tuition costs increase at a lower rate than assumed based on external factors that are outside the GET Committee's control.

Solvency Report Card - Reduce Tuition Growth Rate

Category	Value	Score	Grade	Weight
Probability of State Contributions	1.0%	94	A	25%
Worst Case 50-Year State Contributions (millions)	$6,909	77	C	25%
Average Funded Status	120%	100	A	20%
Probability of Funded Status Under 50%	8.1%	84	B	20%
Average Annual Change in Premium Level	1.50%	93	A	10%
Total Solvency Score		**89**	**B**	**100%**
Status Quo Solvency Score (for comparison)		84	B	

B+

Reduce Tuition Growth Rate - Risk vs. Affordability



Findings: This scenario increases the number of units purchased. It also drives the risk/affordability balance deeper into the northwest quadrant by significantly decreasing the cost of GET units.

The Solvency Report Card shows a higher grade than for the status quo. The amount of state contributions decreases under worst case conditions, and the average funded status improves. The average change in the premium level decreases. These changes result in higher solvency scores.

Under the second tuition scenario, tuition costs grow at a higher rate than in the past and the GET Committee increases the price to reflect the increase in tuition. This scenario assumes a future tuition growth rate of 8.85 percent instead of the 7.50 percent growth rate assumed for the status quo or base scenario. This scenario also assumes an increase in tuition volatility from 5.20 percent to 7.25 percent.

Again, tuition volatility refers to the variability in tuition costs from year to year. High volatility affects GET solvency in a number of ways: by altering payout liabilities, by changing the dollar amounts available for investment, by making it more difficult to consistently price GET units, and by affecting purchaser behavior.

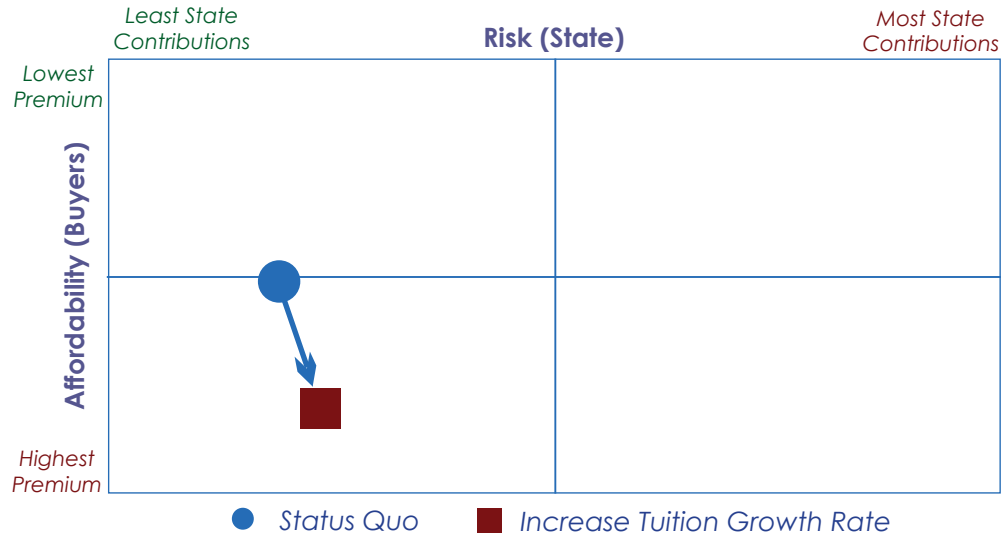
We chose this scenario to illustrate what can happen to GET solvency if tuition costs increase at an even higher rate than 7.5 percent based on external factors that are outside the GET Committee's control.

Solvency Report Card - Increase Tuition Growth Rate

Category	Value	Score	Grade	Weight
Probability of State Contributions	1.6%	90	A	25%
Worst Case 50-Year State Contributions (millions)	$12,015	60	D	25%
Average Funded Status	104%	90	A	20%
Probability of Funded Status Under 50%	19.9%	61	D	20%
Average Annual Change in Premium Level	2.13%	90	A	10%
Total Solvency Score		**77**	**C**	**100%**
Status Quo Solvency Score (for comparison)		84	B	

C+

Increase Tuition Growth Rate - Risk vs. Affordability



Findings: This scenario decreases the number of units purchased. It also drives the risk versus affordability balance out of the northwest quadrant by significantly increasing the cost of GET units.

The Solvency Report Card shows a lower grade than for the status quo. The amount of state contributions increases under worst case conditions, and the average funded status drops. The average change in the premium level increases. These changes result in lower solvency scores.

Overall Conclusion: Limiting growth in tuition costs and avoiding sudden or unexpected spikes in tuition costs will optimize GET solvency.

Matching the Tuition Growth Assumption to Experience Helps Manage Risk

If tuition costs grow at a higher rate than expected, the GET Committee may be under-pricing GET units. If tuition grows at a slower rate, the Committee may be over-pricing GET units. Solvency risk occurs when the actual payout for tuition is more than what was planned.

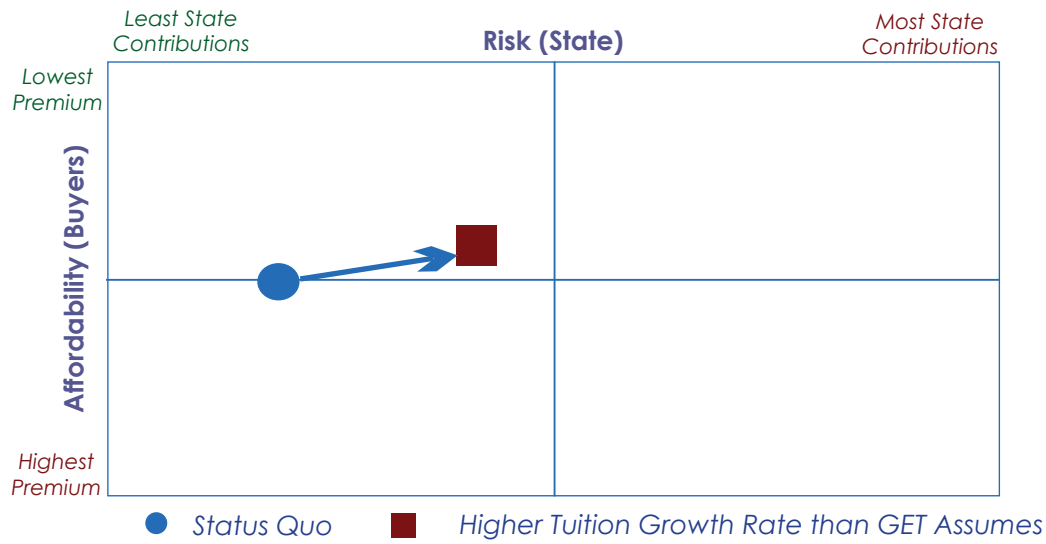
Under this scenario, we looked at what happens when the GET Committee sets the unit price using a 7.0 percent tuition growth assumption and actual tuition growth occurs at a rate of 7.5 percent. We chose this scenario because the GET Committee uses a 7.0 assumption, but historical data shows increases above 7.0 percent over the last five-, ten-, twenty- and twenty-eight-year periods. We also expect at least one more year of double-digit increases in the future. See the Actuarial Section appendix for more information about the tuition growth assumption.

Solvency Report Card - Higher Tuition Growth Rate than GET Assumes

Category	Value	Score	Grade	Weight
Probability of State Contributions	3.7%	76	C	25%
Worst Case 50-Year State Contributions (millions)	$13,424	56	F	25%
Average Funded Status	103%	89	B	20%
Probability of Funded Status Under 50%	19.1%	62	D	20%
Average Annual Change in Premium Level	1.71%	92	A	10%
Total Solvency Score		**72**	**C**	**100%**
Status Quo Solvency Score (for comparison)		84	B	

C-

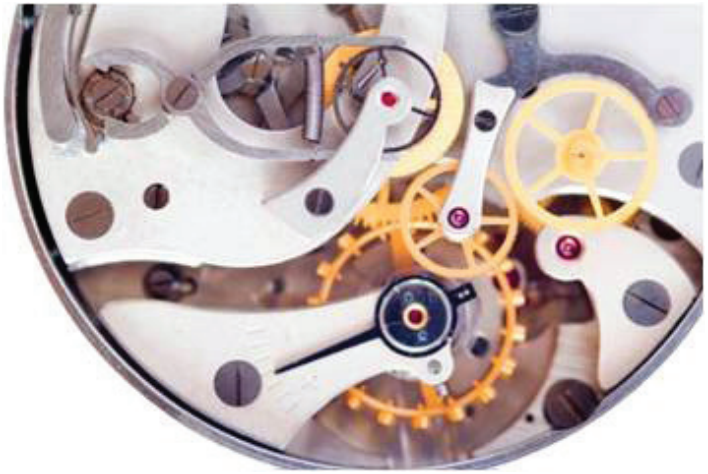
Higher Tuition Growth Rate than GET Assumes - Risk vs. Affordability



Findings: If the 7.0 percent assumption turns out to be too low, then state contributions will significantly increase under worst case conditions. Also, there would be a lower funded status over time. This is because using a tuition growth assumption that is too low results in under-pricing GET units. Another way of looking at this is that for all contracts, the payout goes up by 0.5 percent per year. GET would be collecting insufficient proceeds to cover future payout liabilities for tuition costs, and the only way to make this up is by increasing the premium for future purchasers. If the premium gets too high, fewer purchasers may buy.

Increasing the assumed rate of tuition growth to 7.5 percent could help to assure that GET units are adequately priced, that future payout liabilities are covered and the funded status improves over time. The entire program would be valued on the more conservative side of our best estimate about what will happen in the future, which means less solvency risk.

Recommendation: Consider changing the growth in tuition assumption from 7.0 percent to 7.5 percent.



Solvency Results Are Very Sensitive to Changes in the Purchaser Behavior Assumption

The GET program depends on regular income from the sale of GET units to help sustain the program over time. The number of units purchased each year reflects purchaser behavior. A history of the number of units purchased each year since inception of the program is included in the Actuarial Section appendix .

Purchaser behavior is influenced largely by the GET unit price, but also by other factors including the state of the economy, market conditions, investment policies, tuition costs, media coverage, marketing effectiveness and purchasers' available discretionary income. The GET unit price includes an amount to cover expected tuition costs, an amount for planned expenses and a reserve component to cover unexpected costs and past losses.

The difference between the purchase price of a GET unit and the current cost of tuition for that same tuition increment is known in the world of prepaid college tuition plans as the "premium." Some purchasers will buy fewer GET units as the premium increases and their dollars for college savings are stretched. If the premium is too high, there will likely be fewer people who will even enroll in the GET program.

We made an assumption in the GET model about how purchasers would behave over the long term as the premium changes each year. We performed sensitivity analysis around this assumption to see how much solvency results would change if the assumption about purchaser behavior changed.

We selected the following two scenarios and ran them through the model to observe what would happen to plan solvency if people bought 200,000 units less per year or 200,000 units more per year than we assume over the long term. We selected 200,000 because it's about a ten percent shift from the experience we have seen so far. When prices are very high, this amount could equal close to the total number of units people would be buying.

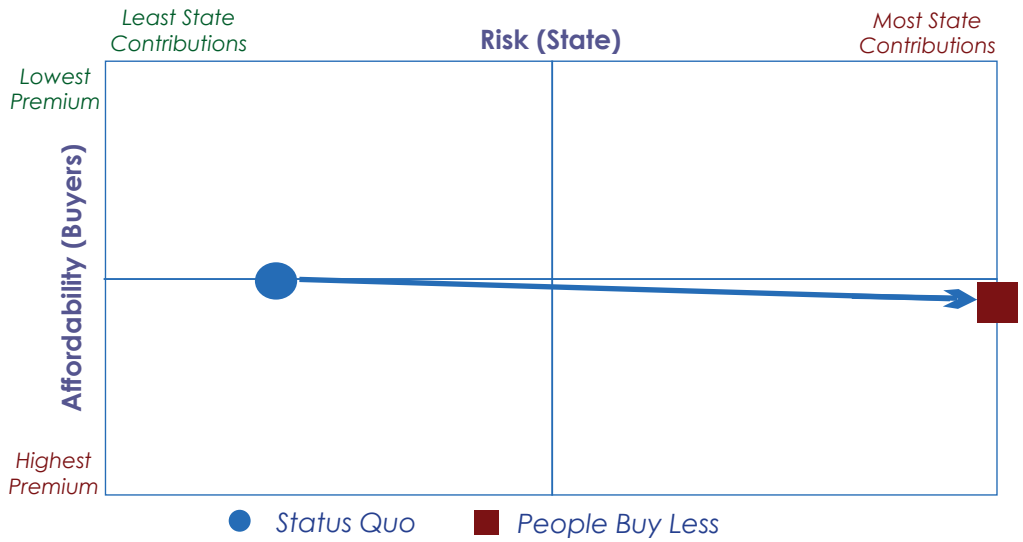
Under the first scenario we looked at how the status quo would hold up if less people purchased GET units than assumed. We looked at a downward shift of 200,000 units per year.

Solvency Report Card - People Buy Less

Category	Value	Score	Grade	Weight
Probability of State Contributions	14.3%	5	F	25%
Worst Case 50-Year State Contributions (millions)	$17,767	41	F	25%
Average Funded Status	105%	91	A	20%
Probability of Funded Status Under 50%	23.9%	53	F	20%
Average Annual Change in Premium Level	1.52%	93	A	10%
Total Solvency Score		**50**	**F**	**100%**
Status Quo Solvency Score (for comparison)		84	B	

F

People Buy Less - Risk vs. Affordability

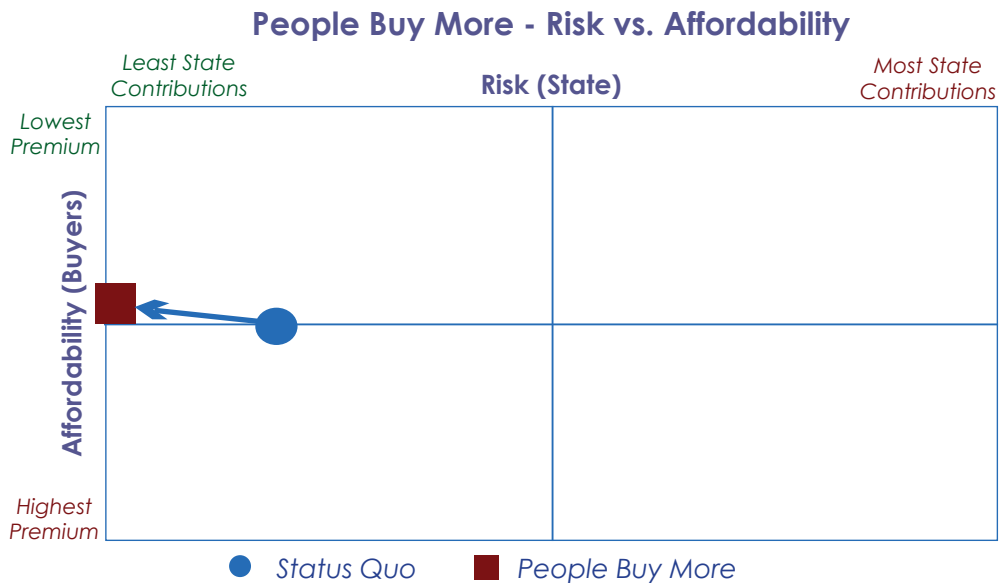


Findings: Results from this scenario show that when people don't buy, it's much harder for GET to weather the storm. The balance between risk and affordability is no longer in the northwest quadrant. Under worst case conditions, the amount of state contributions doubles, and the probability of a state contributions increases by a factor of about nine.

Under the second scenario we looked at how the status quo would hold up if more people purchased GET units than assumed. We looked at an upward shift of 200,000 units per year.

Solvency Report Card - People Buy More				
Category	Value	Score	Grade	Weight
Probability of State Contributions	0.0%	100	A	25%
Worst Case 50-Year State Contributions (millions)	$263	100	A	25%
Average Funded Status	113%	98	A	20%
Probability of Funded Status Under 50%	7.4%	86	B	20%
Average Annual Change in Premium Level	1.59%	93	A	10%
Total Solvency Score		**96**	**A**	**100%**
Status Quo Solvency Score (for comparison)		84	B	

A



Findings: When more people buy, it becomes very unlikely that the state will ever have to make contributions. The amount of contributions under worst case conditions also becomes very small. Having more buyers means there are more reserve dollars to provide a cushion for the program.

The findings from both scenarios assume that the current price-setting guidelines are in effect. However by amending the guidelines, the solvency risks under these scenarios could be very well-managed. We will talk more about the price-setting guidelines in the next section of this report.

Purchaser behavior is unpredictable, and we have less data about this cost driver than any other. Within the current enrollment window, purchasers are responding to the largest increase in the GET unit price since the program's inception. Including this data will improve the reliability of the GET model.

Recommendation: Because the current GET enrollment period follows the most significant increase in the GET unit price since the program's inception, update the OSA GET model in 2010 to incorporate the latest data on purchaser behavior at the current price.

The Price-Setting Guidelines Help Manage Effects from the "Big Three"

The main focus of GET's current price-setting policy is the reserve component of the GET unit price. The reserve component funds the "stabilization reserve." This reserve helps keep the GET fund actuarially sound by covering past losses and unexpected future costs. The money collected for the reserve is not set aside into a separate fund.

The current guidelines are in the About GET appendix. The guidelines provide that the reserve component of the new unit price should be based on the funded status of the plan at that time. If the funded status is over 110 percent, the Committee should lower the reserve component to 0.5 percent. If the funded status is between 106 and 110 percent, the Committee should leave the reserve component as it was the prior year. If the funded status is less than 106 percent, the Committee should increase the reserve component by 2 percent per year until the program reaches 106 percent or higher.

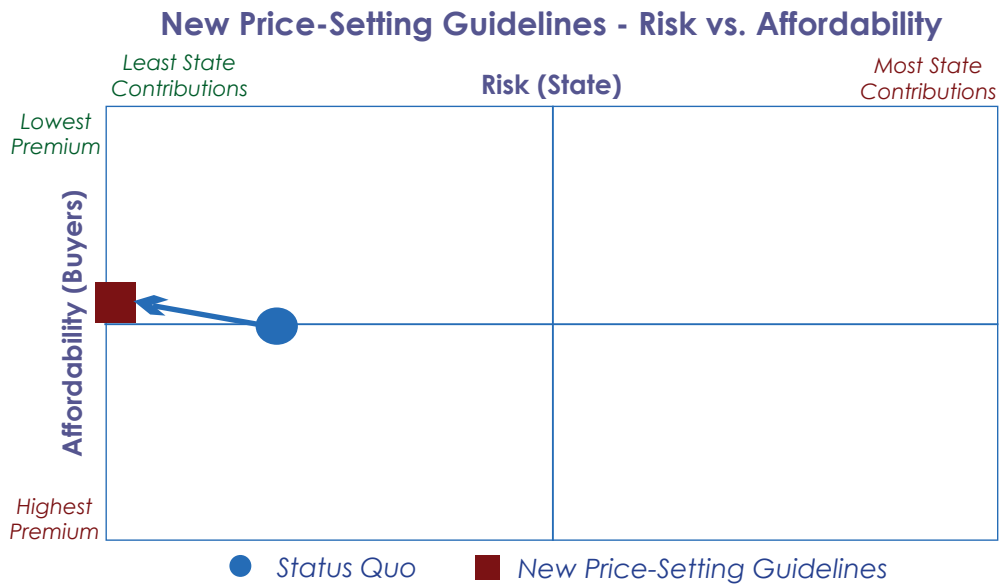
We ran several scenarios through the GET model to examine how changes to the current price-setting guidelines would improve GET solvency. The particular scenario we included in this report had excellent solvency results. Simply put, solvency risk could be virtually eliminated by new guidelines that strengthen the reserve while allowing the unit price to be more responsive to funded status.

In this scenario, the GET Committee guidelines would allow no stabilization reserve or a negative reserve component when the funded status is over 150 percent. When the funded status is between 80 and 150 percent, the reserve would be maintained at 10 percent. When the funded status drops below 80 percent, the reserve would increase to twenty percent. There would be no limit on how quickly the GET Committee could increase the reserve component of the GET unit price to respond to a low funded status.

It is important to note that we are not recommending a specific set of price-setting guidelines. Instead we are showing how different guidelines can help GET solvency. We recommend that the GET Committee run analysis such as this on a variety of guidelines, and use the GET model to test the best guidelines against a variety of purchaser behavior assumptions.

Solvency Report Card - New Price-Setting Guidelines				
Category	Value	Score	Grade	Weight
Probability of State Contributions	0.0%	100	A	25%
Worst Case 50-Year State Contributions (millions)	$0	100	A	25%
Average Funded Status	112%	97	A	20%
Probability of Funded Status Under 50%	10.3%	80	B	20%
Average Annual Change in Premium Level	2.47%	88	B	10%
Total Solvency Score		**94**	**A**	**100%**
Status Quo Solvency Score (for comparison)		84	B	

A



Finding: Changing GET's price-setting guidelines could virtually eliminate the risk of future state contributions.

Recommendation: Amend GET's price-setting guidelines to strengthen the program's reserve while making it more responsive to changes in funded status.

A One Time Cash Infusion Will Not Eliminate Future Solvency Risk

We looked what would happen if the Legislature provided a one-time cash infusion of $400 million into the GET fund. We included this option to see if an infusion could virtually eliminate future solvency risks. Also, the GET statutes contemplate that the Legislature might provide an infusion when requested to keep the fund actuarially sound.

This scenario does not assume that the money would be set aside into a reserve fund or managed according to a specific policy. Instead it would become part of the GET fund.

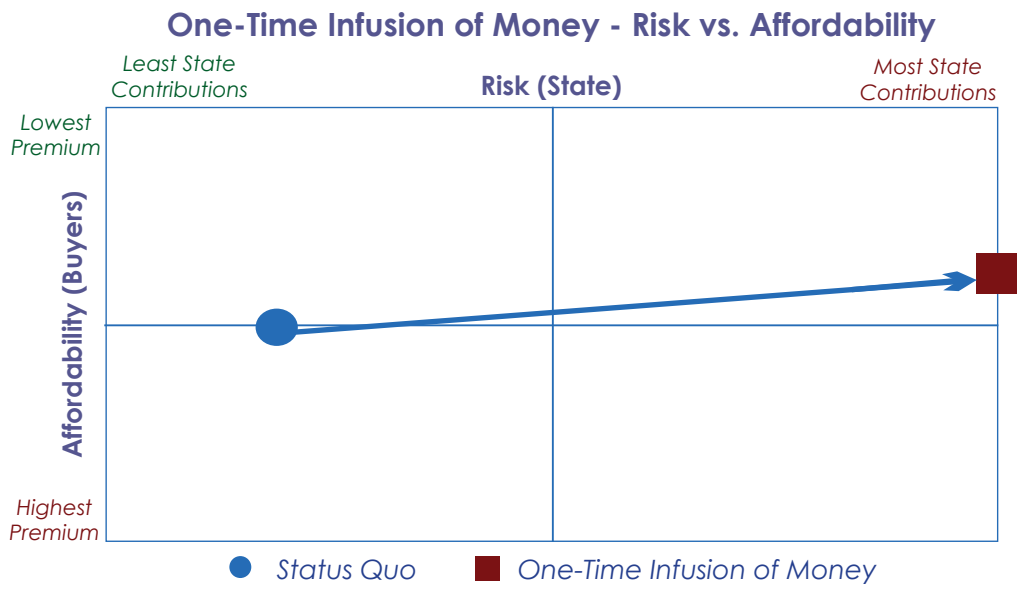
Solvency Report Card - One-Time Infusion of Money

Category	Value	Score	Grade	Weight
Probability of State Contributions	100.0%	0	F	25%
Worst Case 50-Year State Contributions (millions)	$8,528	72	C	25%
Average Funded Status	135%	100	A	20%
Probability of Funded Status Under 50%	7.2%	86	B	20%
Average Annual Change in Premium Level	0.78%	97	A	10%
Total Solvency Score		**65**	**D**	**100%**
Status Quo Solvency Score (for comparison)		84	B	

D

We gave this scenario a score of zero in the first category (probability of state contributions) because a state contribution of $400 million is actually being made. We also included the $400 million in the dollar amount shown in the in the second category (worst case fifty-year state contributions).

For comparison purposes, we considered what the report card would have looked like had we not "counted" the $400 million in the scoring. This would be like grading only the after-effects of the strategy and not the strategy as a whole. By paying $400 million directly into the fund, the probability of state contributions after that would be significantly reduced but the amount of worst case fifty-year contributions would be only slightly reduced. Still, the overall solvency report card would move from an F to a B+. Also, compared to the status quo (solvency score of 84), the overall solvency score would improve (up to an 89).



Again, if we graded only the after-effects of this strategy, the risk versus affordability balance would slightly improve for the state and for buyers, driving the square deeper into the northwest quadrant.

Findings: This scenario guarantees a state contribution of money. However, no reasonable amount of money can completely eliminate the long-term risk of insolvency under the worst case scenario. This is because the cash infusion would become part of the GET fund itself and would be subject to the same dynamics that currently affect the fund. Eventually, the one-time cushion would blend into the fund and its effects would no longer be felt.

Because of this blending effect, a separate reserve fund with reserve policy guidelines, a long-term payment plan or insurance would be better options for eliminating future solvency risk than a one-time cash infusion. Specifically identifying and using funds or assets only for reserve purposes would help maximize the effects on long-term solvency. The OSA GET model could be used to perform this kind of analysis. We did not include this analysis, however, because results from the model showed that state contributions could be avoided by amending the price-setting guidelines.

Reducing the Future Payout Value by 25 Percent Slightly Reduces Solvency Risk

There are many potential strategies for reducing the future payout value of GET units. Other states have used such strategies when their prepaid tuition plans have faced solvency challenges, some with better results than others. The GET Committee staff has extensive information on how other states have responded to market losses and rapidly escalating tuition costs.

Strategies for reducing future payout liability include capping the number of units that can be sold, capping or limiting the amount of tuition the units will buy, and shifting risk from the state to the higher education institutions and/or future enrollees. We did not attempt to design an amended program or new program, nor did we try to anticipate how much policy makers might want to reduce future payouts or who should pay for the difference. For illustrative purposes, however, we chose a scenario that reduces future payout value by 25 percent.

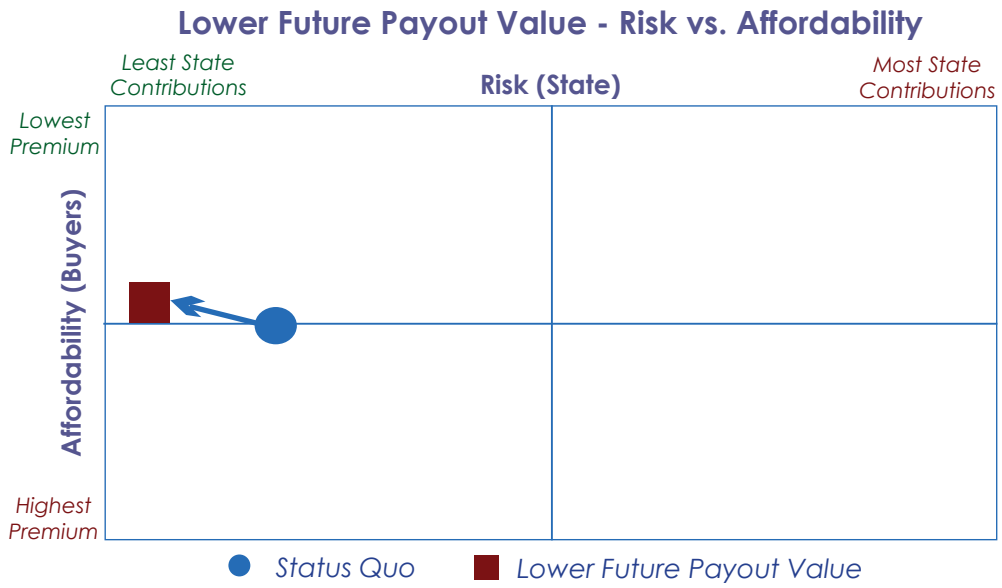
Under this scenario, current GET account holders would keep their contracts, but for new enrollees the program would have a lower payout value for each GET unit. Proceeds from their contracts would be comingled with existing funds. We chose a scenario that would reflect a set percentage reduction in GET program liability. Other percentages could be used.

Some states with prepaid tuition programs have lowered their future payout liability by amending their contracts or offering a different program to new enrollees. Results have been mixed. For more information, contact the GET program's staff; see also the Snapshots From Other States appendix, which includes summary information about plan experience in several other states. In any event, for this scenario, we did not model "shocks" to the program such as people thinking the program is less reliable or in trouble.

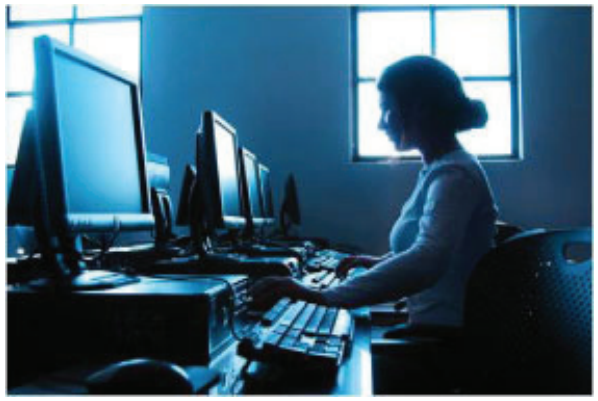
Solvency Report Card - Lower Future Payout Value

Category	Value	Score	Grade	Weight
Probability of State Contributions	0.8%	95	A	25%
Worst Case 50-Year State Contributions (millions)	$5,765	81	B	25%
Average Funded Status	113%	98	A	20%
Probability of Funded Status Under 50%	9.7%	81	B	20%
Average Annual Change in Premium Level	1.58%	93	A	10%
Total Solvency Score		**89**	**B**	**100%**
Status Quo Solvency Score (for comparison)		84	B	

B+



Findings: Under this scenario the unit price would drop and more purchasers would buy. The state would still have similar exposure; it would just be spread among more units. This helps to explain why ultimately there would be very little reduction in the state's long-term solvency risk. Lowering the payout value of future contracts by 25 percent would slightly improve GET solvency over the long-term, but could create unintended consequences for future purchaser behavior that might offset any benefits from this approach (for example a loss of confidence in the program).



Terminating GET Virtually Locks in a State Contribution

By law the state can end the GET Program based on its determination that the program is no longer financially feasible, or for any other reason. Ending the program would trigger certain closeout and refund scenarios for existing enrollees and contract holders. Some people would be allowed to continue in the program, while others would be required to take refunds. (See the About GET appendix and links to program details.)

Solvency Report Card - Terminate				
Category	Value	Score	Grade	Weight
Probability of State Contributions	79.3%	0	F	28%
Largest Amount of State Contributions	$703	98	A	28%
Average Funded Status	81%	70	C	22%
Probability of Funded Status Under 50%	51.3%	0	F	22%
Average Annual Change in Premium Level				0%
Total Risk Score		**43**	**F**	**100%**
Status Quo Solvency Score (for comparison)		84	B	

F

Findings: Terminating GET allows the state to eventually lock in a known liability.

The dollar amount of the state's contribution would be significantly less than under the worst case conditions for the status quo, and less than if the program were simply closed to new enrollees.

This approach might be appropriate for a program that has significant financial challenges that are not likely to be overcome. With unacceptable levels of losses on the horizon, the state could minimize its liability by terminating the program. Washington's GET program, however, is not currently in that position.

Findings, Conclusions, and Recommendations

Results from the OSA GET model show that with some relatively minor changes, GET can continue with very little risk of future contributions from the state.

Findings and Conclusions

1. If GET remains open, there is a relatively small likelihood that state contributions will be required over the next fifty years. While the chance of a state contribution is small, the dollar amount under worst case conditions could still be quite significant.

2. The GET Committee could virtually eliminate future solvency risk by amending its current pricing guidelines to strengthen the program's reserve while making it more responsive to funded status.

3. Suspending GET would greatly increase the risk of state contributions, but the dollar amount of those contributions would be lower. Terminating GET virtually locks in insolvency, but at the lowest amount of state contributions.

4. The current investment policy is striking a good balance between risk and affordability.

5. Limiting future tuition growth and tuition volatility will optimize GET solvency.

6. Matching the long-term tuition growth assumption to experience will help manage solvency risk.

7. Solvency results are very sensitive to changes in the purchaser behavior assumption.

8. Reducing payouts to future enrollees by 25 percent would slightly reduce solvency risk.

Recommendations

1. Amend GET's pricing guidelines to strengthen the program's reserve while making it more responsive to changes in funded status.

2. Consider increasing the tuition growth assumption for the program from 7 to 7.5 percent.

3. Continue to use the OSA GET model or similar analysis in the future to evaluate the impacts of significant economic events and potential changes affecting the program.

4. If policy makers or the GET Committee continue to use the OSA GET model, update the model in 2010 to incorporate the new data on purchaser behavior after the enrollment window, as the current GET enrollment period follows the most significant increase in the GET unit price since the program's inception. Continue to track purchaser behavior in the future and re-evaluate assumptions about purchaser behavior regularly.

appendices

Introduction to the Appendices

The Appendices provide details that support the main body of this report. We have divided them into three sections.

About GET

Quick Facts - Background information on the GET program with links to enrollment materials, program details, and applicable state laws.

GET Committee's Price-Setting Guidelines - The current guidelines used to set the price for new GET units.

Actuarial Section

Study Mandate - The Legislature's word-for-word directive to the State Actuary.

Process Behind the GET Model - A disclosure of the methods, data, and assumptions we used to perform our analysis.

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Plan Histories - From four states, illustrating a variety of experiences with guaranteed prepaid tuition plans.

Article - Providing an overview of prepaid college savings plans around the country.

About GET

Quick Facts

Background information on the GET program with links to enrollment materials, program details, and applicable state laws.

GET Committee's Price-Setting Guidelines

The current guidelines used to set the price for new GET units.

Quick Facts

About GET

What is the Guaranteed Education Tuition (GET) Program?

GET is Washington's state-operated 529 prepaid tuition plan for helping families set aside funds for future college tuition. Families prepay college tuition by purchasing "units" that can be used at qualified public and private colleges, universities, and vocational schools throughout the United States and some schools in other countries.

GET's slogan is "Buy tomorrow's college tuition today." GET guarantees that if you buy 100 units today, your 100 units will equal the actual cost of one academic year of resident undergraduate tuition and state-mandated fees at the most expensive Washington public university when your child enrolls in college, regardless of how much tuition has increased over time.

Purchasers of GET units have a binding guarantee that tuition units will be worth the same number of units at the time of redemption as they were at the time of purchase. If the money in the program is insufficient to cover expenses for a biennium, state law provides that the Legislature will appropriate the funds necessary to cover them. Click for a program overview brochure.

An enrollment information kit is available on the GET website, along with enrollment forms and instructions. Visit the GET website at: www.get.wa.gov.

How is GET funded?

GET is funded by proceeds from the sale of GET units and the investment returns on those proceeds. The price for GET units is set annually by GET's governing body. During an annual window, people enroll and agree to purchase GET units. Money from the purchases is deposited into the advanced college tuition payment program account in the custody of the State Treasurer. The Washington State Investment Board (WSIB) invests money from the account and the account is then credited with the investment returns.

Expenses for the GET program are paid directly from the account without appropriation by the Legislature. Expenses include costs related to investing the account as well as the costs to administer the program.

How is GET governed?

GET is governed by the Committee on Advanced Tuition Payment (referred to in this report as the "GET Committee"). By statute, Committee members are:

- The State Treasurer (or his/her designee).
- The Director of OFM (or his/her designee).

- The Executive Director of the Higher Education Coordinating Board (HECB) (or his/her designee); by statute, the Director serves as Chair of the Committee.
- One Governor appointee who represents program participants.
- One Governor appointee who represents private business and who has marketing, public relations or financial expertise.

The Committee is staffed by employees of the HECB.

What laws apply to GET?

Federal tax laws apply to GET. GET is known as a qualified tuition program or "Section 529" plan. "Section 529" refers to a section of the Internal Revenue Code that created these plans in 1996. Every state has at least one 529 plan available. GET is considered a "prepaid tuition/guaranteed savings plan." There are other types of Section 529 plans, but only one 529 plan is offered in Washington. Contributions to GET are not deductible from federal taxes, but investment growth is tax-deferred and distributions to pay for qualified college costs are taken tax-free.

State law also applies to GET. GET was authorized by statute in 1997. The provisions of Chapter 28B.95 RCW apply to the program. The GET committee is authorized to formulate rules and policies and to enter into contracts. Rules promulgated by the Committee are located in WAC Title 14. A GET Master Agreement explains GET program terms to prospective purchasers and serves as a contract between the state and GET account owners. A copy of the current Master Agreement is available on the GET website in the Program Details brochure.

GET Committee's

Price-Setting Guidelines

October 31, 2007

The GET Committee adopted the following price-setting guidelines at the October 31 meeting. These guidelines are designed to provide guidance to Committee members in setting future prices of a GET unit.

- The target for the overall program stabilization reserve is 8 percent.
- The range for the overall program stabilization reserve is plus or minus 2 percent of the target (i.e. 6 to 10 percent).
- If the overall program stabilization reserve is outside of this range (6 to 10 percent), the Committee may increase or decrease the reserve contribution in each new unit sold in order to keep the overall program stabilization reserve within the range.
  - If the overall program stabilization reserve is above 10 percent, the Committee should reduce the reserve contribution in each new unit sold to 0.5 percent (minimum level) until the overall program stabilization reserve is again within the range.
  - If the overall program stabilization reserve is below 6 percent, the Committee should increase the reserve contribution in each new unit sold by 2 percent every enrollment year until the overall program stabilization reserve is again within the range.
- The Committee should make pricing adjustments gradually over multiple enrollment years.

Actuarial Section

Study Mandate

The Legislature's word-for-word directive to the State Actuary.

Process Behind the GET Model

A disclosure of the methods, data, and assumptions we used to perform our analysis.

Actuarial Certification

A letter certifying the results of our analysis.

STUDY MANDATE

ENGROSSED SUBSTITUTE HOUSE BILL 1244
Chapter 564, Laws of 2009
61st Legislature
2009 Regular Session
OPERATING BUDGET
EFFECTIVE DATE: 05/19/09

Section 105 …

(4) $175,000 of the general fund--state appropriation for fiscal year 2010 is provided solely for the office of the state actuary to conduct an independent assessment of alternatives for assuring the long-term financial solvency of the guaranteed education tuition program including suspension of the program. In conducting this review, the office may contract for assistance, and shall consult with the higher education coordinating board, the operating budget committees of the legislature, the office of financial management, and the state's public colleges and universities. The office shall report findings, an assessment of the major alternatives, and suggested actions to the governor and to the relevant legislative committees by November 15, 2009.

The OSA GET Model

This section of the Appendices explains the approach used to build a custom model for the GET program that would calculate solvency risks. Actuaries are required by the Actuarial Standards of Practice to disclose all assumptions, methods, and data they use. Here we attempted to go beyond the requirements so interested people can fully understand the reasons we chose to model something in a particular way.

Building the GET model required many different steps. We organized the explanation of our approach into the following sections:

1. **Matching the Actuarial Valuation for the GET Model**
   We valued the existing GET contracts and matched the most recent actuarial valuation.

2. **Valuing Future Purchasers Provides a Look into the Future**
   We valued future GET contracts.

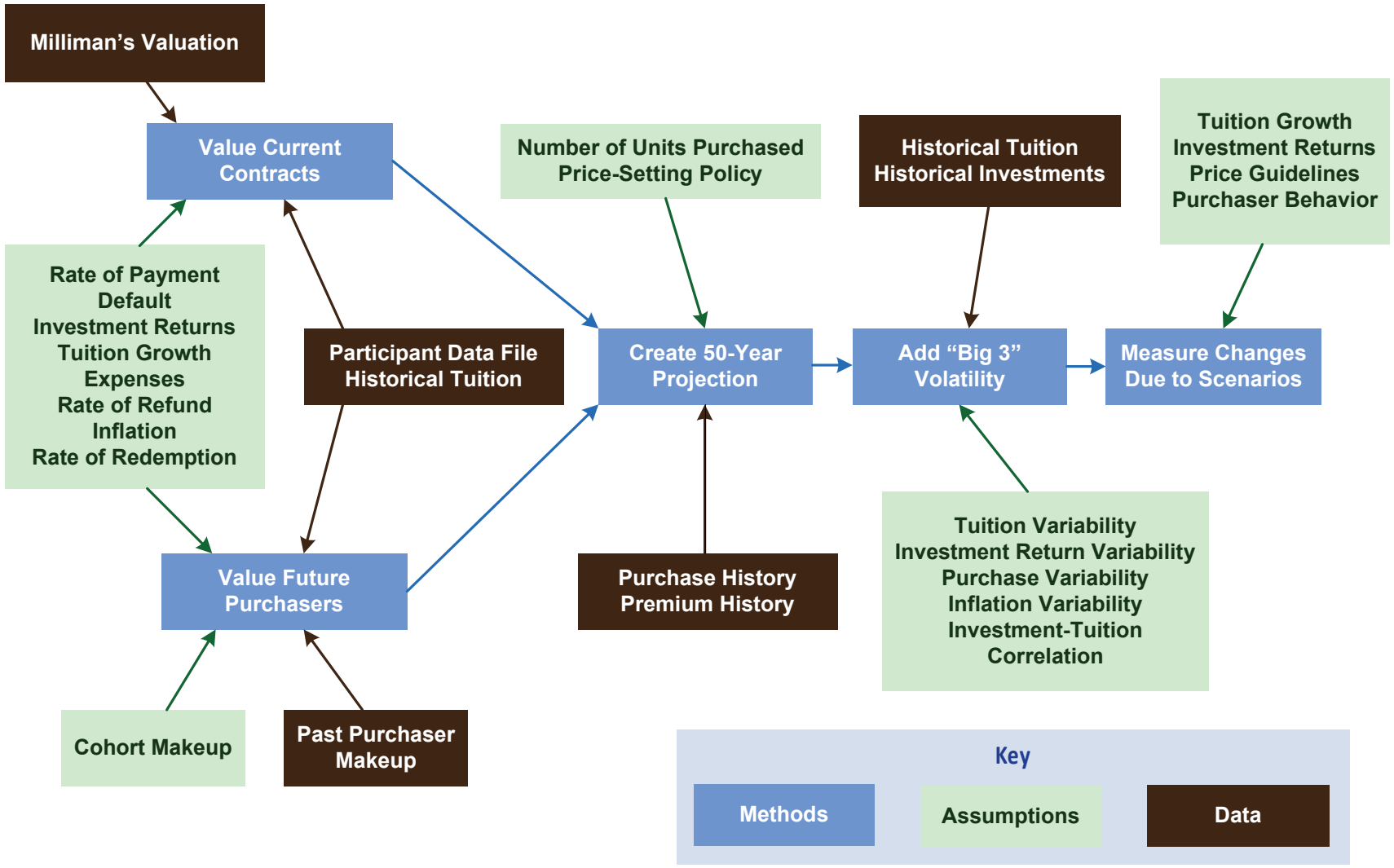
3. **Fifty-Year Projections Allow Modeling Current and Future Purchasers Together**
   We created a best-estimate projection of GET over the next fifty years assuming the program stays open.

4. **Adding Assumptions about Future Variability Measures GET Solvency Risk**
   We allowed our main assumptions to vary in the projection. We ran 5,000 random fifty-year projections, and sorted the results to estimate the likelihood of various events occurring.

5. **Scenarios Measure the Change Due to Internal Decisions and External Factors**
   We showed how various changes affect the status of GET over the next fifty years.

See the diagram on the following page for more details.

Process Behind the GET Model



Matching the Actuarial Valuation for the GET Model

Annually, the GET program has a "checkup", called an actuarial valuation. Among other things, the checkup determines the funded status, or whether the program has enough money on hand today to pay for its future obligations. The actuarial valuation serves as a snapshot at that date for only the current group of members. It does not monitor the ongoing, or "open", nature of the plan. Matching the latest actuarial valuation for the GET program allowed us to:

1. Value one of the two groups that we will use later in our fifty-year solvency projections.
2. Compare our results to the GET program's current information to ensure accuracy.

How We Valued the Current Contracts in GET

We valued the current contracts in GET by estimating the future tuition payments (cash outflow), administrative expenses (cash outflow), and monthly contract payments (cash inflow). The estimation of future cash flows required assumptions about:

- When contract holders will redeem their units.
- Whether they will stop making payments on their monthly payment plans.
- What tuition will be in future years.
- What administrative expenses will be over time.

We discounted these cash flows to today's value in order to calculate the plan's funded status. Discounting the cash flows to today's value requires an assumption regarding how fast invested money will grow over time. The idea is that $1 today is worth more next year ($1.07 in this case) due to investment earnings. Discounting moves the opposite way and states that $1.07 in year one will be worth $1 today. Discounting all of the cash flows to one common year allows for an apples to apples comparison of all cash flows.

The funded status is today's value of the assets (current assets plus value of monthly contract payments) divided by today's value of the liabilities (value of tuition payments plus value of expenses). The funded status serves as the best indicator of the program's health at a particular point in time.

Assumptions We Made About Uncertain Future Events to Value the Current Contracts

We made both economic and behavioral assumptions to value the current GET contracts.

Economic Assumptions

Investment Return – We assume assets will grow by 6.89 percent each year they are invested. The portfolio currently consists of 60 percent equities and 40 percent treasury inflation-protected securities (TIPS). The Washington State Investment Board's (WSIB) capital market assumptions assume this portfolio will have an arithmetic return of 7.35 percent and a standard deviation of 10.13 percent. When compounded over fifteen to twenty years, the deviation turns the 7.35 percent arithmetic return into a long-term geometric average of 6.89 percent.

Tuition Growth – We assume tuition will grow by 7.50 percent per year. Over the last five-, ten-, twenty-, and twenty-eight-year periods tuition grew by 8.08, 8.00, 7.39,

and 7.29 percent respectively. In addition we expect at least one more year of double digit increase due to the Legislature approving a tuition increase of up to 14.00 percent for the 2009-2011 biennium. For the replication of the actuarial valuation, we used the current assumption of 7.00 percent. We believe the current assumption is reasonable; however, our best estimate for future tuition growth is 7.50 percent. The "Higher Tuition Growth than GET Assumes" scenario in the body of the report shows the effect of estimating too low on an important assumption such as tuition.

Inflation – We assume 2.50 percent inflation per year. We relied on the most recent actuarial valuation for this assumption since we did not analyze the administrative expense growth rate.

Expenses – Consistent with the most recent actuarial valuation, we assume:

- Maintenance expenses will be $18.29 per contract per year.
- Distribution expense will be $12.20 per contract in payment status per year.
- Monthly payment plan expense will be $1.44 per contract per month.
- Expenses will grow by inflation each year.

Behavioral Assumptions

Rate of Redemption – This shows what percent of a contract holder's total units will be used upon reaching college (or their "use year"). Consistent with the most recent actuarial valuation, we used the following assumptions.

Redemption	
Year	Rate
0	0.2
1	0.2
2	0.2
3	0.1
4	0.1
5	0.1
6+	0.1

Rate of Monthly Payment Default – This shows the rate at which payments stop under monthly payment plan contracts. If default occurs, these contracts are converted to a lump sum plan. Consistent with the most recent actuarial valuation, we used the following assumptions.

Payment Default	
Year	Rate
1	0.025
2	0.020
3	0.020
4	0.020
5+	0.015

Rate of Refund – This shows the rate at which people ask for payouts for any reason other than tuition payments. Consistent with the most recent actuarial valuation, we used the following assumptions.

Refund	
Year	Rate
1	0.0110
2	0.0040
3	0.0025
4	0.0025
5+	0.0010

We relied on the expense and behavioral assumptions from the latest actuarial valuation as accurate. We felt they were reasonable and did not perform an experience study to determine if they should be altered.

Data We Used to Value the Current Contracts

We used the contract data file provided by GET staff. We relied on this data file as accurate and complete since we value each entry in the file. We did not perform an audit of this data, but believe it is reasonable for the purposes of our work. We used data entries such as:

- Program Year – the contract holder's entry year into the program.
- Use Year – when the contract holder expects to start using units for tuition.
- Payment Amount – the monthly amount the contract holder owes on the payment plan.
- Payments Due – the number of monthly payments left on the monthly payment plan.
- Units Outstanding – the number of units the contract holder currently owns (including units still being paid for in the monthly payment plan).

To set our tuition growth assumption we studied the following historical tuition data.

Year	Tuition Growth	Year	Tuition Growth
82-83	11.00%	96-97	4.00%
83-84	11.20%	97-98	3.90%
84-85	0.00%	98-99	4.00%
85-86	22.70%	99-00	3.70%
86-87	0.00%	00-01	3.40%
87-88	7.90%	01-02	7.10%
88-89	3.80%	02-03	16.00%
89-90	1.70%	03-04	7.00%
90-91	6.90%	04-05	6.60%
91-92	11.50%	05-06	6.80%
92-93	3.40%	06-07	6.90%
93-94	12.40%	07-08	6.80%
94-95	14.80%	08-09	6.80%
95-96	3.90%	09-10	13.10%

We also examined average tuition growth over different periods.

Tuition Statistics	
5-Year Average	8.08%
10-Year Average	8.00%
20-Year Average	7.39%
28-Year Average	7.29%
Standard Deviation	5.15%

Valuing Future Purchasers Provides a Look into the Future

The GET Committee sets a price each year and allows citizens to purchase new units. We already valued the current contract holders by replicating the latest actuarial valuation. To analyze the solvency of the GET program, as mandated for this study, we looked at the ongoing, or "open" nature of the GET program. Next we valued the cost of assumed future purchasers so that we could analyze the entire program under different economic states in the future.

How We Valued the Future GET Contracts

While we have data for the current contract holders, we do not have data on who will purchase GET units in the future. So, the first step we took was to estimate the makeup of these future purchasers. We refer to the entire group of purchasers each year as a "cohort". The cohort for each purchase year is made up of thirty-eight different types of people. The 38 types of people represent a mixture of the entire population. We expect each of the thirty-eight people to remain in the program between two to twenty years before starting to use their units. The thirty-eight types are either lump sum or monthly payment plan purchasers. The thirty-eight combinations are the nineteen different contract lengths multiplied by the two different payment options. The percent of the population expected to be in each of the combinations is shown in the next section of this appendix. Later, we ratio the value of the thirty-eight combinations up based on how many units we assume will be sold in that year (in the following section).

Next, we valued the thirty-eight types of people in each cohort. We valued each cohort in the same way we valued the current contract holders in the actuarial valuation. We estimated the future tuition payments (cash outflow), administrative expenses (cash outflow), and monthly contract payments (cash inflow). The estimation of future cash flows required assumptions about when contract holders will redeem their units, whether they will stop making payments on their monthly payment plans, what tuition will be in future years, and what administrative expenses will be over time.

We then discounted these cash flows to the cohort's entry year. We repeated this process for each year in our fifty-year projection, since we expect a new cohort to enter each year.

Assumptions We Made About Uncertain Future Events to Value the Future Contracts

We used the same assumptions for the open group as the closed group except one. The only new assumption for the future purchasers is the makeup of each cohort. We based the cohort on the full data file provided by GET staff. We assumed each future cohort would have this same makeup.

The table below shows the percent of the population in each of the thirty-eight combinations. It also shows the number of units each combination purchases and the length of the monthly payment plan for those who select that payment option. For example 4.0 percent of the people are assumed to purchase 248 lump sum units that are kept for six years before being used.

The easiest way to think about this table is, for every 100 purchasers:

- Seventy-three select the lump sum payment option.
  - Each buys 202 units.
- Twenty-seven select the monthly payment plan option.
  - Each buys 209 units.
  - They pay for it over 114 months.

Future Purchaser Cohort Assumption					
Length In Program Years	% Lump Sum	Lump Sum Units Purchased	% Monthly Payment Plan	Monthly Payment Plan Units Purchased	Length of Payment Plan Months
2	0.1%	273	0.0%	316	45
3	3.9%	246	0.5%	159	25
4	2.9%	231	0.7%	171	36
5	3.8%	229	1.1%	185	47
6	4.0%	248	1.3%	193	58
7	4.4%	230	1.6%	203	69
8	4.6%	231	1.7%	207	80
9	4.5%	223	1.8%	214	91
10	4.4%	223	1.7%	213	100
11	4.3%	209	1.9%	219	111
12	4.0%	212	1.8%	218	119
13	4.0%	197	1.7%	212	130
14	5.0%	182	2.0%	206	139
15	3.9%	181	1.5%	212	148
16	4.3%	167	1.8%	212	156
17	4.8%	158	2.0%	216	166
18	6.4%	162	2.6%	231	175
19	3.2%	163	1.7%	231	191
20	0.1%	229	0.0%	234	135
	72.6%	**202**	**27.4%**	**209**	**114**

Fifty-Year Projections Allow Modeling Current and Future Purchasers Together

Once we had the expected cash flows for both the current and future contract holders, we needed to tie these together to create a projection for the status quo of the GET program. The status quo is the ongoing program as it exists today (accepting new contracts and using the current price-setting guidelines). To value the status quo, we needed to create assumptions for the price of future GET units (set by the GET Committee), and how many units people purchase each year.

How We Projected the Status of the GET Program

We created a projection of the GET program that measures every key element during each future year.

Here's how: We start with the program's current status – liabilities, assets, funded status, and price. Throughout the next year, investment returns occur at our assumed rate, tuition grows at our assumed rate, people cash in tuition units at our assumed rate, and people buy new units at our assumed rate (discussed below in the assumption section). This particular projection moves the program forward assuming experience matches our assumptions exactly. We call this a deterministic projection because the current program and assumptions determine the future. (Later we follow this same process, but let the investment returns, tuition growth, and number of units purchased deviate from their expected values.)

At the end of the first year, a valuation is performed and the new liabilities, assets, and funded status are calculated. Based on the funded status from the valuation, we make an assumption for how the GET Committee will set a new price for the following year (based on their current price-setting guidelines).

Once the new price is set, we have projected one year. We repeat this process fifty times during our fifty-year projection. At the end of the projection, we have developed our "expected" path that the GET program will follow. Of course, in reality, the future will be different. We believe there is a 50 percent chance the future will be better for the program, and a 50 percent chance the future will be worse for the program.

Assumptions We Made About Uncertain Future Events to Project the Status of the GET Program

We developed two new assumptions in order to tie the current contract holders together with the future contract holders and create a projection of the GET program. These two assumptions are the unit price set by the GET Committee, and the number of units purchased per year.

Unit Price – The GET Committee sets the GET unit price using three components:

1. **Current Price of Future Tuition** – This is the amount of money that can be expected to pay for the tuition costs when the units are redeemed. The money is invested at the assumed rate of return between now and then. If the tuition assumption equaled the investment assumption, the current price of future tuition would equal the current price of tuition. Currently, the price of future tuition is greater than the price of current tuition since tuition is expected to grow at 7.50 percent while investments earn 6.89 percent.

2. **Current Price of Future Expenses** – This is the amount of money that can be expected to pay for the administrative costs as they occur.

3. **Reserve Level** – This is the amount of money that covers any unfunded liabilities (from past purchasers), and acts as a cushion for unexpected costs that accrue in the future (from current purchasers).

Together, these three pieces make up the GET unit price. The amount of the GET unit price that exceeds the current price of tuition can be considered a "premium". For example, the current price of a GET unit is $101, whereas the current cost of tuition is $76 – there is a premium level of 33 percent. The premium is an important concept that is used throughout the rest of the Appendices. The premium covers expected tuition growing faster than expected investment returns, expenses, and reserve cushion for both past and current purchasers.

We assumed the GET Committee would follow their current price-setting guidelines ("Guidelines") in each future year of our projections. This constitutes an assumption rather than fact since they are guidelines, rather than rules. The GET Committee uses them as a beginning point for their price, but uses additional information in a given year to ultimately set the price. The Guidelines have been in place for two years and they have been followed only one of those two years.

Units Purchased – Since any unfunded liability is expected to be made up by increasing the reserve level in future purchases, purchaser behavior is important. The program's solvency depends on units being purchased when the reserve level is set at higher levels. To create this assumption, we:

1. Looked at past data.

2. Looked at the rate of return on a GET purchase from an investment perspective.

3. Looked at how many dollars were spent in the past.

4. Considered what percentage of future purchasers are "investors" vs. "cash-constrained".

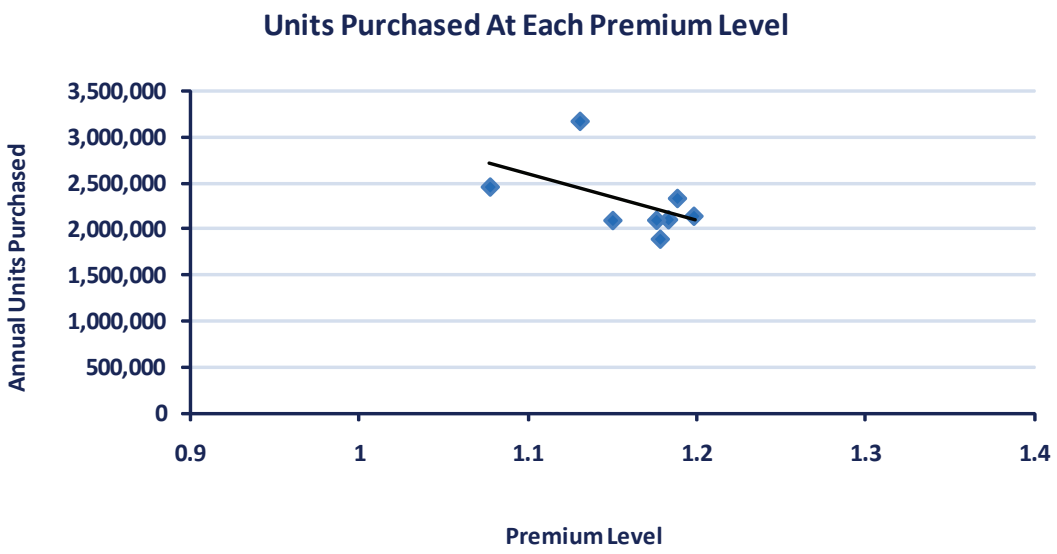
Past Data

Our first step involved looking at past data (shown below in the data section) to isolate indicators of purchaser behavior. Unfortunately, there is limited data for us to rely on to set this important assumption. In addition, we decided to exclude the first three data points due to a fundamental shift in the GET Committee's marketing strategy from radio to TV (which greatly increased the annual number of units sold). As a result, we had eight data points to work with out of the original eleven.

We analyzed how many units were purchased based on the current premium level, the following year's premium level (one-year lag), the increase in premium level from year to year, the reserve level, and the funded status. The most useful indicators of the number of units purchased tended to be the following year's premium level, and the current year's premium level.

We looked at the correlation between the number of units purchased in one year and the following year's premium level. We expect the public has knowledge of current investment returns and potential tuition increases that will affect the next year's purchase price before the end of the current year. In other words, the purchase period ends in April and a new price is set for purchases starting in May – but people are privy to the investment results and the Legislature's discussions on tuition before April ends. This showed a high correlation of 0.62. However, this behavior requires an assumption in the model for what people perceive the following year's premium level to be. We believe this extra complication in modeling does not add extra precision.

We settled on the current premium level as the best indicator of how many units will be purchased. The graph below shows the data points with a best-fit line drawn through them. The correlation is 0.26. If we were to rely solely on this data, we would use the line as our best estimate for the number of units purchased based on the premium level. However, due to the limited data we don't have much confidence behind this analysis alone. In addition, this approach does not include a way of estimating purchaser behavior to the left and right of our current experience. We supplemented this analysis by looking at two different types of purchasers and how much they may purchase under varying circumstances.



Rate of Return for "Investors"

Next, we analyzed the rate of return a purchaser expects when they buy a unit. We realize that many people look at setting money aside in a program like this as an investment. They step back, look at the investment prospects, compare it to other investment opportunities (for saving for education), and decide whether or not to purchase units.

We believe the rate of return investors expect would be based on the premium level, the length of stay in the GET program, and the individual's expectation for tuition growth. We assume that individuals believe tuition will grow at the same rate that the GET Committee sets their assumption for tuition growth.

We calculated the expected rate of return for each possible combination of premium level and length of stay in the GET program. The table below shows a sample of the possibilities.

Expected Annual Rate of Return for "Investors"				
Premium Level	Length in Program (Years)			
	2	8	14	20
0.50	52.0%	17.2%	13.0%	11.3%
0.75	24.1%	11.4%	9.7%	9.1%
1.00	7.5%	7.5%	7.5%	7.5%
1.25	-3.9%	4.5%	5.8%	6.3%
1.50	-12.2%	2.2%	4.4%	5.3%
1.75	-18.7%	0.2%	3.3%	4.5%
2.00	-24.0%	-1.4%	2.3%	3.8%
2.25	-28.3%	-2.9%	1.4%	3.2%
2.50	-32.0%	-4.1%	0.7%	2.7%

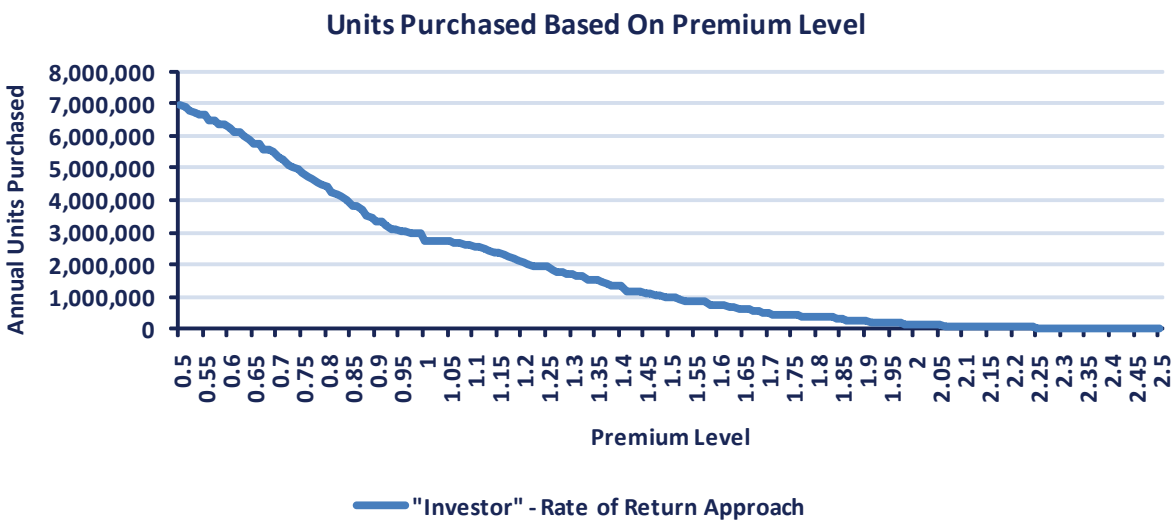
Based on our cohort, we have assumed a different percent of the population will stay in the program from two to nineteen years. When we multiply these percents for each length of stay by the rate of return for that length of stay (above), we develop an overall rate of return for our future purchaser cohort. When calculated for each premium level, the result is an expected cohort rate of return at each premium level.

Over the last eight years, the GET program has averaged selling about 2.3 million units per year. The average cohort expected a rate of return of about 5.5 percent. We assume that under "average" conditions, the GET program will sell 2.3 million units in future years. As the premium level increases or decreases, the expected rate of return for "investors" will decrease and increase respectively. As the expected rate of return for our future purchaser cohort (described above in the future purchaser section) increases, more people will buy. As the expected rate of return for the cohort decreases, less people will buy. The table below shows how we adjusted the average number of purchases for various rates of return.

Expected Cohort Rate of Return	Purchase Factor	Number of Units Purchased
2%	0.0	-
3%	0.1	230,000
4%	0.5	1,150,000
5%	0.9	2,070,000
6%	1.1	2,530,000
7%	1.2	2,760,000
8%	1.3	2,990,000
9%	1.5	3,450,000
10%	1.8	4,140,000
11%	2.2	5,060,000
12%	2.7	6,210,000
13%	3.2	7,360,000

The above table shows that at a 5.5 percent rate of return, we assume the "average" number of units (2.3 million) will be purchased. If the rate of return falls to 4.0 percent, we assume half as many people will buy. If the rate of return jumps to 9.0 percent we assume 50.0 percent more people will buy.

The next graph shows this assumption based on the premium level set by the GET Committee. It is the same format as the analysis on past data (above), and the format for our final assumption described later in this section.

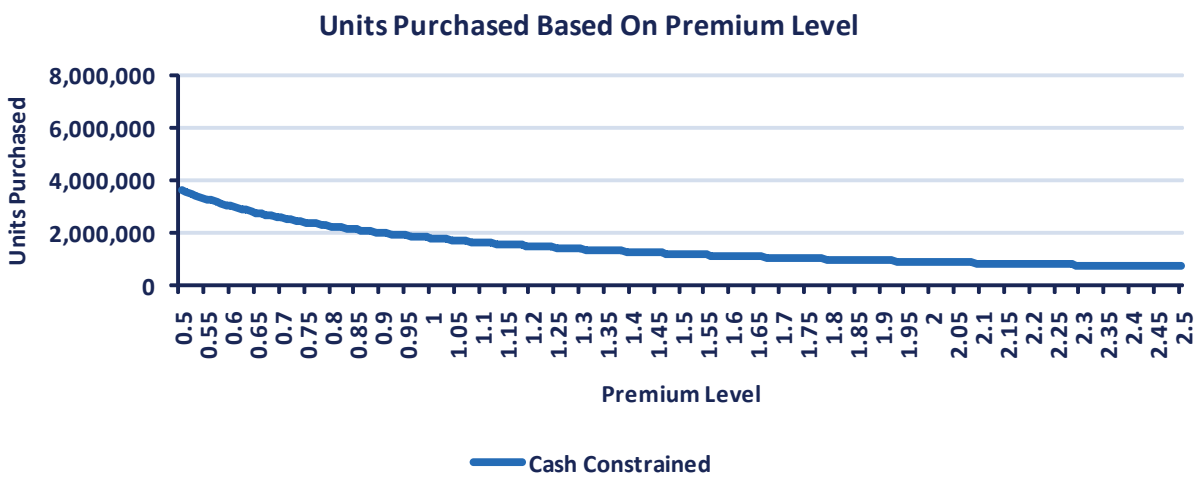


Dollars Spent by "Cash Constrained" Purchasers

While we know a certain portion of the population is the "investor" type, we also know that a certain portion is what we refer to as "cash constrained". "Cash constrained" buyers plan to purchase units in this program because they believe it is the correct thing to do, regardless of the rate of return. We assume that these buyers have a certain amount of money they can allocate to saving for education, and will buy as many units as they can with that amount.

We looked at the average number of dollars spent on unit purchases over the history of the GET program. On average, each account spent about $12,000. We assumed that the "cash constrained" purchasers will purchase $12,000 worth of units. We assumed this amount grows by 6.0 percent per year. We chose 6.0 percent due to its relationship to the 7.5 percent tuition assumption. The actual growth amount is less important than the relationship. We believe the high long-term expected tuition growth will slightly outpace the public's ability to pay for the higher costs. This is a similar concept to many forecasts of long-term medical inflation – assumed to be approximately 1.0 to 1.5 percent higher than general inflation.

The next graph shows this assumption based on the premium level set by the GET Committee. Later we will blend this graph with the "investor" graph to create the final assumption. It is the same format as the analysis on past data (above), the rate of return approach (above), and the format for our final assumption.



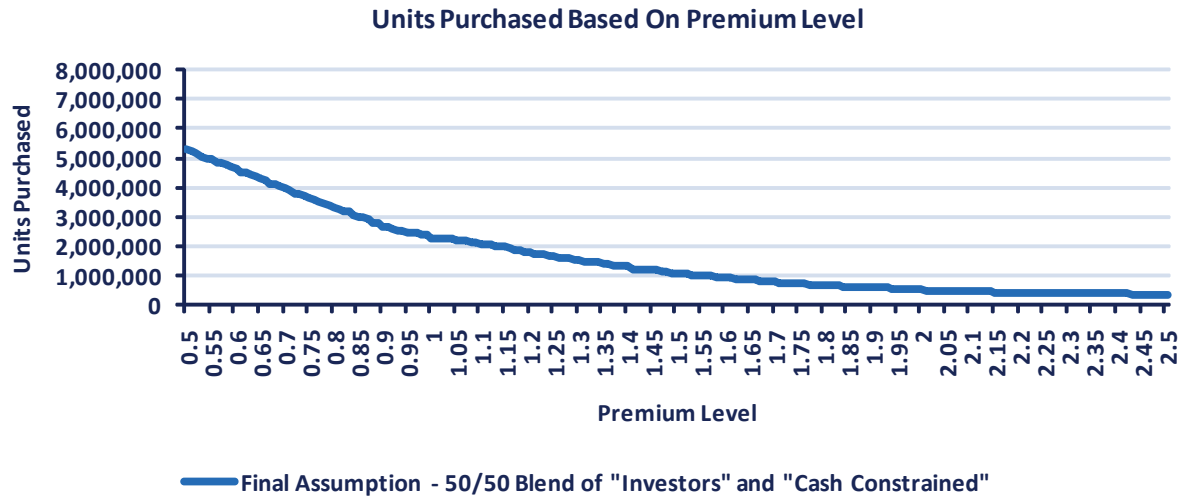
177, 236, 481 units. It appears most of these people had a certain amount of cash to spend on units and bought as many units as they could. While this is not a perfect measure (we know we are categorizing some people incorrectly), it was good enough to round to an even 50 percent for both types and feel comfortable with the result.

The next graph shows the final assumption based on the premium level set by the GET Committee. The final assumption is a fifty/ fifty blending of the "investor" graph and the "cash constrained" graph. It is the same format as the analysis on past data (above), the rate of return approach (above), and the "cash constrained".

"Investors" vs. "Cash Constrained" and the Final Assumption

At this point, we had looked at three ways purchasers may behave in the future – based on past data, "investor" types, and "cash constrained" types. We blended the "investor" and "cash constrained" types together to make our final assumption. Then, the past data analysis was used to validate our result.

To blend these together, we needed to figure out what percent of the population are "investor" types versus "cash constrained" types. We looked at the data to determine how many people bought a "round" number of units – for example 50, 100, 150…400, 450, 500 units. We believe most of these people are not constrained by cash and bought enough units for their specific education / investment needs – 48 percent of the population fell into this category. This means 52 percent of the population bought an "un-round" number of units – for example 46,



We tested the left side of the graph by comparing it to the maximum number of ongoing units the population of Washington could purchase. Based on the census data, Washington has just shy of 100,000 children at

each age from one to five. If 100,000 new children were introduced to the population each year, and they each purchased the average 206 units, 20.6 million units would be sold each year. On the left side of our graph our assumption approaches six million. We believe this shows the extreme left end of the assumption to be reasonable since it is within the bounds of maximum purchases, but accounts for the fact that not everyone in the state would know about this investment opportunity, care about the investment opportunity, or have the cash to pay for the investment opportunity.

In addition, we expect the amount of people eligible to purchase units will likely grow over time. We looked at the growth rate of the Washington State population for an idea of how much the eligible population may grow in the future. We assumed a 0.5 percent growth rate in units sold in each future year.

Data We Used to Project the Status of the GET Program

We requested data from GET program or GET staff to measure the number of units purchased at each unit price period. The table below shows the results.

Premium Vs Units Purchased		
Year	Units Purchased	Premium Level
1998	1,374,095	103.1%
1999	615,327	107.9%
2000	523,702	112.6%
2001	2,463,500	107.7%
2002	2,099,531	115.0%
2003	1,896,635	117.9%
2004	2,108,360	118.4%
2005	2,146,191	119.9%
2006	2,339,431	118.9%
2007	2,102,305	117.6%
2008	3,177,699	113.1%
2009	TBD	133.0%

The table below shows how many dollars were spent per contract holder over the course of the program. This data was used to set the "cash constrained" purchaser assumption. It also shows how the amount of money per contract holder has increased over time.

Dollar Amount Spent Per Year			
Unit Price	Average Units / Contract	Dollars Spent	Percent Increase
$35	206	$7,210	
$38	206	$7,828	9%
$41	206	$8,446	8%
$42	206	$8,652	2%
$52	206	$10,712	24%
$57	206	$11,742	10%
$61	206	$12,566	7%
$66	206	$13,596	8%
$70	206	$14,420	6%
$74	206	$15,244	6%
Average		$11,042	9%

Results

The table below shows some key measures of the expected GET program status over the next 50 years. These results are based on the best-estimate assumptions. The following section will show that the status can deviate from these results significantly.

Expected Status of GET Over Next 50 Years						
Fiscal Year	Liability (millions)	Assets (millions)	Funded Status	Unit Price (Buy)	Tuition Rate (Redeem)	Premium Level
2009	$1,531	$1,256	82.1%	$101	$76	1.33
2010	$1,724	$1,446	83.9%	$121	$87	1.40
2011	$1,882	$1,615	85.8%	$132	$93	1.42
2012	$2,030	$1,776	87.5%	$144	$100	1.44
2013	$2,172	$1,937	89.2%	$157	$108	1.46
2014	$2,311	$2,100	90.9%	$171	$116	1.48
2015	$2,449	$2,268	92.6%	$187	$124	1.50
2016	$2,587	$2,441	94.4%	$204	$134	1.53
2017	$2,716	$2,612	96.2%	$222	$144	1.54
2018	$2,843	$2,789	98.1%	$242	$154	1.57
2019	$2,968	$2,975	100.2%	$264	$166	1.59
2020	$3,081	$3,156	102.4%	$287	$179	1.61
2021	$3,189	$3,343	104.8%	$313	$192	1.63
2022	$3,284	$3,528	107.4%	$336	$206	1.63
2023	$3,374	$3,719	110.2%	$259	$222	1.17
2024	$3,708	$4,097	110.5%	$278	$238	1.17
2025	$4,077	$4,513	110.7%	$299	$256	1.17
2026	$4,488	$4,977	110.9%	$321	$276	1.17
2027	$4,945	$5,492	111.1%	$345	$296	1.16
2028	$5,475	$6,086	111.2%	$371	$318	1.17
2029	$6,061	$6,743	111.2%	$398	$342	1.16
2030	$6,739	$7,497	111.3%	$428	$368	1.16
2031	$7,492	$8,335	111.2%	$460	$395	1.16
2032	$8,322	$9,258	111.2%	$494	$425	1.16
2033	$9,227	$10,264	111.2%	$531	$457	1.16
2034	$10,208	$11,356	111.2%	$571	$491	1.16
2035	$11,262	$12,531	111.3%	$613	$528	1.16
2036	$12,389	$13,791	111.3%	$659	$568	1.16
2037	$13,591	$15,138	111.4%	$708	$610	1.16
2038	$14,872	$16,577	111.5%	$761	$656	1.16
2039	$16,233	$18,110	111.6%	$818	$705	1.16

Expected Status of GET Over Next 50 Years *(Continued)*						
Fiscal Year	Liability (millions)	Assets (millions)	Funded Status	Unit Price (Buy)	Tuition Rate (Redeem)	Premium Level
2040	$17,677	$19,743	111.7%	$879	$758	1.16
2041	$19,206	$21,479	111.8%	$944	$815	1.16
2042	$20,817	$23,314	112.0%	$1,015	$876	1.16
2043	$22,511	$25,252	112.2%	$1,091	$942	1.16
2044	$24,298	$27,306	112.4%	$1,172	$1,012	1.16
2045	$26,194	$29,493	112.6%	$1,260	$1,088	1.16
2046	$28,213	$31,829	112.8%	$1,354	$1,170	1.16
2047	$30,370	$34,331	113.0%	$1,455	$1,258	1.16
2048	$32,683	$37,019	113.3%	$1,564	$1,352	1.16
2049	$35,171	$39,916	113.5%	$1,681	$1,453	1.16
2050	$37,848	$43,038	113.7%	$1,806	$1,562	1.16
2051	$40,728	$46,401	113.9%	$1,942	$1,679	1.16
2052	$43,828	$50,029	114.1%	$2,087	$1,805	1.16
2053	$47,166	$53,939	114.4%	$2,243	$1,941	1.16
2054	$50,759	$58,156	114.6%	$2,411	$2,086	1.16
2055	$54,628	$62,702	114.8%	$2,591	$2,243	1.16
2056	$58,794	$67,605	115.0%	$2,785	$2,411	1.16
2057	$63,281	$72,891	115.2%	$2,994	$2,592	1.16
2058	$68,112	$78,593	115.4%	$3,218	$2,786	1.16
2059	$73,315	$84,742	115.6%	$3,459	$2,995	1.15

Several important events occur during this projection that can be seen from the output. First, beginning in 2010 we assume the units are priced using a 7.5 percent tuition assumption rather than the current 7.0 percent assumption. This creates a jump in the premium level. Next, in 2019 we see the program move back into fully funded status. Then, in 2022 we see the premium level remain constant at 1.63. This happens because the guidelines state that the reserve level will stay the same as the previous year when the funded status is between 106 and 110 percent. Lastly, in 2023 we see the premium level drop from 1.63 to 1.17 and the unit price drop from $336 to $259. Again, this projection assumes the Guidelines are used as they are written. It is possible that the GET Committee would never allow a price decrease. If this were the case, the unit price would hold constant at $336 for four more years while the premium level gradually reduced itself to its long-term level.

The starting funded status we show here differs from the latest actuarial valuation due to the difference in tuition growth assumption.

Adding Assumptions about Future Variability Measures the GET Solvency Risk

At this point, we have created our best-estimate projection of the GET program. As we mentioned earlier though, there is a 50 percent chance the future will be better or worse. To measure the likelihood of the State needing to contribute money to the program, we developed assumptions for how much our best-estimate assumptions could be different in the future. Then we ran many different equally likely projections to determine the probability the State will need to contribute, and how much if that occurs.

How We Measured the Risk of GET Becoming Insolvent

We already had a projection of the GET program with all the necessary components. Next, we allowed the most important factors to vary in the projection to measure the full range of possible outcomes. We determined the most important factors were tuition growth, investment returns, inflation, and purchaser behavior. The next section shows how we assumed these factors would vary from year to year.

We implement the variation of our expected assumptions through "percentile distributions". A distribution is simply the range of possible outcomes for a particular event. For example, we expect investment returns will be anywhere between -23.1 to 48.6 percent in different years. The distribution is based on past data and future expectations. Standard deviation is a common term for describing the size of the distribution. We shape our distribution using percentiles in order to create equally likely events. This is similar to a child getting their height measured when they are young – if the doctor says they are in the 72nd percentile for their height, it means they are taller than

72 out of every 100 children their age. Going back to the investment example, we expect -23.1 and -8.5 percent to happen as often as 24.8 and 48.6 percent. [These are just four of the equally likely 100 possible investment returns.]

We varied our assumptions using Microsoft Excel's built-in random number generator. Excel provides us a random number from zero to one – such as 0.42. We look up the 42nd percentile in our assumed distribution of the particular assumption in question. For example, the forty-second percentile for our tuition assumption is 5.97 percent. In other words, we believe tuition grows at less than 5.97 percent 42 percent of the time, and it grows by more than 5.97 percent 58 percent of the time. We repeat this process for each assumption in each year of the fifty-year projection. In the end, we are randomly selecting an equally likely possibility for each assumption in each year of the projection.

Now, we have created one fifty-year projection with a "random" outcome. We repeat this process to obtain many 50-year projections that are equally likely. For this project, we ran 5,000 "random" fifty-year projections. Since each of these fifty-year projections is statistically equally likely, we can sort them to calculate the probability of a particular event occurring. For example, if 500 of the 5,000 projections show the premium level reaching 2.00, we can estimate there is a 10 percent chance of this occurring.

This study mainly focuses on solvency, so most of our measures look at the probability of the State needing to contribute money – and how much they'd need to contribute if that occurred. However, we are also able to pull out other key measurements at the same time – average funded status, probability of the funded status falling below a certain level, unit price volatility, and general affordability for the purchaser.

Just like any model, the user should be aware of what the results are and what they are not. The results of this model give great insight into the general workings of the GET program, how the assumptions behave together, and an indication of how likely an event is to occur. The probabilities should be used as a general understanding of likelihood, which provides more information than looking only at the "expected scenario". On the other hand, decision makers should be aware that actual experience could differ in the long run, and decisions shouldn't be made based solely on the results from a model.

Assumptions We Made About Uncertain Future Events to Measure Solvency Risk

We created assumptions for how tuition growth, investment returns, inflation, and purchaser behavior could deviate from our best-estimate assumptions from year to year. In addition, we created assumptions for how they will tend to deviate with respect to each other – their correlation.

Tuition Growth

To create our tuition growth distribution we looked at the percentiles according to our past data. We decided to make the "tails" (the extreme ends) of our distribution extend further out. We believed this was necessary based on only having 28 data points. Another way of thinking about this is we are creating an assumption that tells us what we would expect to see over 100 years (100 percentiles). We believe we would have seen more extreme events if we were able to collect another 72 data points. Also, we had to increase each percentile slightly to make the distribution match our best-estimate assumption.

The table below shows a sample of our distribution – the actual distribution we used has a value at every single percentile.

Tuition Growth Likelihoods	
Percentile	Tuition Growth
0	-2.0%
5	0.6%
10	3.0%
15	3.6%
20	3.9%
25	4.1%
30	4.1%
35	4.2%
40	6.3%
45	7.1%
50	7.1%
55	7.2%
60	7.3%
65	7.3%
70	8.1%
75	11.6%
80	11.9%
85	12.9%
90	14.2%
95	16.3%
100	27.5%

Investment Return

To create our annual investment return distribution we used the lognormal model. This is a common model used to estimate future stock returns. The return distribution is linked to the makeup of the investment portfolio. A portfolio will be invested in assets with different risk/return characteristics. The GET portfolio invests in 60 percent equities and 40 percent TIPS. Similar to the tuition growth distribution, we have an investment return at each percentile. Again, the table below only shows a sample of the full distribution.

Investment Return Likelihoods	
Percentile	Investment Return
0	-23.1%
5	-8.5%
10	-5.3%
15	-3.1%
20	-1.3%
25	0.3%
30	1.7%
35	3.1%
40	4.4%
45	5.6%
50	6.9%
55	8.1%
60	9.5%
65	10.8%
70	12.3%
75	13.9%
80	15.7%
85	17.8%
90	20.6%
95	24.8%
100	48.6%

Inflation

We assumed inflation would be 2.50 percent with a standard deviation of 2.99 percent. We applied the normal (bell-shaped) model to create our inflation distribution. We have not included a sample table since it does not greatly affect the results because it only applies to expenses.

Purchaser Behavior

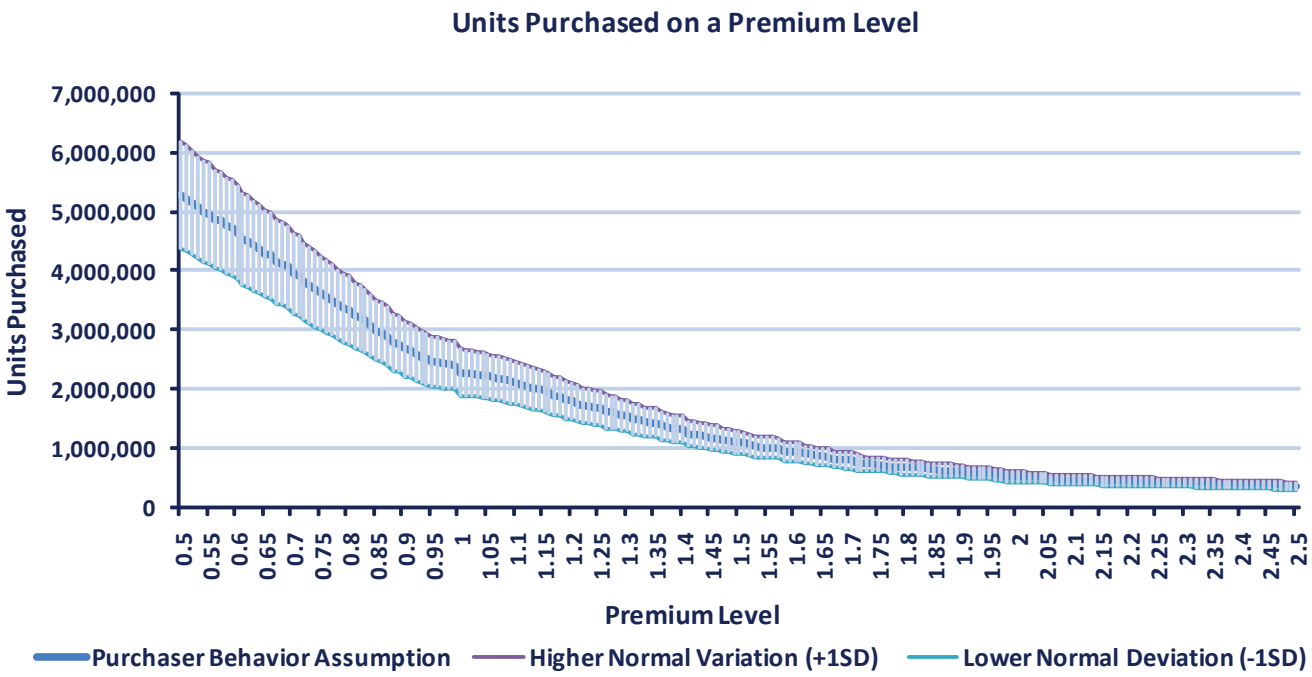
We realize that estimating purchaser behavior is difficult, and many factors we can't model will affect how many units are bought in a year. Some examples include media coverage, marketing efforts, marketing effectiveness, disposable income, view of higher education, and faith in State backing. We added a "random" component to our purchase assumption to account for these possible swings in behavior.

While 2.3 million units has been the average number sold over the last eight years, the variation (standard deviation) of the annual amount has been 396,494. We used this standard deviation in the normal (bell-shaped) distribution to develop our assumption for how purchaser behavior could vary.

Effect on Purchaser Behavior Likelihoods	
Percentile	Effect on Units Purchased
0	-1,387,733
5	-652,174
10	-508,127
15	-410,939
20	-333,697
25	-267,431
30	-207,921
35	-152,777
40	-100,450
45	-49,824
50	0
55	49,824
60	100,450
65	152,777
70	207,921
75	267,431
80	333,697
85	410,939
90	508,127
95	652,174
100	1,387,733

However, applying this magnitude of deviation only makes sense in the range of prices that we have experienced this far. This required us to make an assumption for how the variability of purchaser behavior would change as more or less units are expected to be purchased in the future. We changed the amount of deviation in proportion to the expected amount of units to be purchased at each premium level. For example, if the expected number of units to be sold at a premium level of 1.45 is 1.15 million units, we would cut the variability in half (1.15 / 2.30 million units)

In other words, the standard deviation around smaller numbers will generally be smaller than the standard deviation around larger numbers. The graph below is a better depiction of this adjustment.



Correlations

Finally, we needed to determine how these assumptions would change in relation to each other. We focused on the relationship between tuition growth and investment returns. We looked at how the investment return in one year affects the tuition growth in the following year. We looked at this relationship due to the circumstances of Washington State. Whether the economy is good or bad in one year, the Legislature gets together early the next year and assesses the situation, which in turn leads to a decision about tuition increases.

We created this assumption by looking at the data (outlined in the next section) in several ways. We used the returns from the S&P 500 to approximate the 60 percent equities in the portfolio and we used the eleven years of TIPS (Treasury Inflation-Protected Securities) returns for the 40 percent of the portfolio invested in TIPS. Because of the short history of TIPS, we were limited in developing a correlation based on the current portfolio mix. We looked at the correlation of the portfolio in three ways:

- Eleven-Year History of 60 percent S&P 500 / 40 percent TIPS; the correlation was -0.72.
- Ten-Year History of 60 percent S&P 500 / 40 percent TIPS, excluding the last data point; the correlation was -0.34 a year ago. We excluded the final data point because correlations tend to one in extreme events such as the market decline of 2008/2009. We did not want to overweight this single event in our data.
- Twenty-Eight-Year History of 100 percent S&P 500 for the first seventeen years, and 60 percent S&P 500 / 40 percent TIPS for the last eleven years; the correlation was -0.52.

While we do not feel that one measure of the correlation is clearly better than the others, we do feel that the correlation is significantly negative. This means that investment returns and tuition growth tend to go the opposite direction at any point in time, which creates more extreme events than if they were not correlated at all.

We chose -0.45 as our assumption. We felt we were selecting a significantly negative correlation without putting too much weight on the last data point.

Data We Used to Measure Solvency Risk

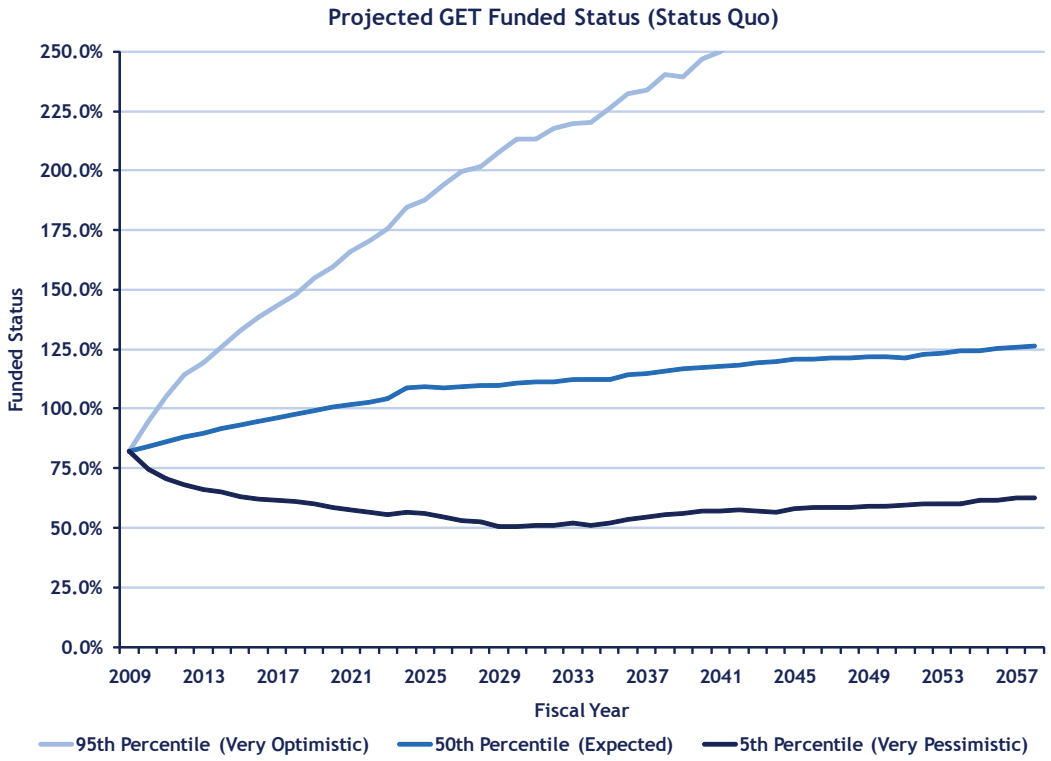
The following table shows the data used to select our correlation assumption between tuition growth and investment returns. In general, you can see many instances of negative returns leading to high tuition increases and high investment returns leading to low tuition increases. This is consistent with a negative correlation between investment returns and tuition growth.

Comparison of Investment Portfolio to Lagged Tuition Growth

Investment Year	S&P 500	TIPS	60/40 Portfolio	Tuition Year (Lagged 1 Year)	Tuition Growth
1981	-4.9%	N/A	N/A	1982	11.0%
1982	21.4%	N/A	N/A	1983	11.2%
1983	22.5%	N/A	N/A	1984	0.0%
1984	6.3%	N/A	N/A	1985	22.7%
1985	32.2%	N/A	N/A	1986	0.0%
1986	18.5%	N/A	N/A	1987	7.9%
1987	5.2%	N/A	N/A	1988	3.8%
1988	16.8%	N/A	N/A	1989	1.7%
1989	31.5%	N/A	N/A	1990	6.9%
1990	-3.2%	N/A	N/A	1991	11.5%
1991	30.5%	N/A	N/A	1992	3.4%
1992	7.7%	N/A	N/A	1993	12.4%
1993	10.0%	N/A	N/A	1994	14.8%
1994	1.3%	N/A	N/A	1995	3.9%
1995	37.4%	N/A	N/A	1996	4.0%
1996	23.1%	N/A	N/A	1997	3.9%
1997	33.4%	N/A	N/A	1998	4.0%
1998	28.6%	4.0%	18.7%	1999	3.7%
1999	21.0%	2.4%	13.6%	2000	3.4%
2000	-9.1%	13.2%	-0.2%	2001	7.1%
2001	-11.9%	7.9%	-4.0%	2002	16.0%
2002	-22.1%	16.6%	-6.6%	2003	7.0%
2003	28.7%	8.4%	20.6%	2004	6.6%
2004	10.9%	8.5%	9.9%	2005	6.8%
2005	4.9%	2.8%	4.1%	2006	6.9%
2006	15.8%	0.4%	9.6%	2007	6.8%
2007	5.5%	11.6%	7.9%	2008	6.8%
2008	-37.0%	-2.4%	-23.1%	2009	13.1%

Results

Earlier, we showed the expected funded status of the GET program over the next fifty years. We also mentioned that this could vary significantly based on actual experience regarding the "Big Three". When tuition growth is low and investment returns are high, this is an "optimistic" outlook. When tuition growth is high and investment returns are low, this is a "pessimistic" outlook. The graph below shows the funded status of the plan under very optimistic (95th percentile), expected (50th percentile), and very pessimistic (5th percentile) outlooks.



Scenarios Measure the Change Due to Internal Decisions and External Factors

After creating the fully functional projection system, we were able to move onto assessing alternatives and running scenarios. We chose:

- Suspend
- Lower Risk/Return Investment Portfolio
- Higher Risk/Return Investment Portfolio
- Reduce Tuition Growth Rate
- Increase Tuition Growth Rate
- Higher Tuition Growth Rate than GET Assumes
- People Buy Less
- People Buy More
- New Price-Setting Guidelines
- One-Time Infusion of Money
- Lower Future Payout Value
- Terminate

Each of these scenarios represents an internal decision that can be made by someone in Washington State, an external force that could affect the program, or sensitivity to one of our key assumptions. We will briefly mention what we changed in each of these scenarios regarding assumptions and methods.

Suspend

This scenario shows what would happen if the program were closed to new enrollees. The methods are consistent with the "closed-group" valuation for current members only.

Lower Risk/Return Investment Portfolio

We changed the investment portfolio from a 60/40 mix between equities and TIPS to a 30/70 mix. In general, this mix has a lower expected return balanced by lower expected volatility. The expected return dropped from 6.89 percent to 5.73 percent. The expected standard deviation also dropped from 10.13 percent to 6.50 percent.

Higher Risk/Return Investment Portfolio

We changed the investment portfolio from a 60/40 mix between equities and TIPS to a 80/20 mix. In general, this mix has a higher expected return balanced by higher expected volatility. The expected return increased from 6.89 percent to 7.51 percent. The expected standard deviation also increased from 10.13 percent to 13.19 percent.

Reduce Tuition Growth Rate

This scenario signifies a fundamental shift in how tuition is expected to grow in the future. If tuition is expected to grow less, the GET Committee will recognize that, and price the units at a lower price. We changed the expected tuition growth from 7.50 percent to 6.12 percent. The expected tuition volatility decreased from 5.20 percent to 4.15 percent.

Increase Tuition Growth Rate

This scenario signifies a fundamental shift in how tuition is expected to grow in the future. If tuition is expected to grow more, the GET Committee will recognize that, and price the units at a higher price. We changed the expected tuition growth from 7.50 percent to 8.85 percent. The expected tuition volatility increased from 5.20 percent to 7.25 percent.

Higher Tuition Growth Rate Than GET Assumes

This scenario differs from the previous scenario in that the actual tuition growth over time does not change – it stays at the 7.50 percent consistent with the Status Quo. Instead, it assumes that the GET Committee has estimated too low on the tuition assumption – they have estimated 7 percent. In this scenario the units are priced too low and not enough money is collected to pay for the expected costs of the units. However, this is balanced by the lower-priced units being purchased by more people.

While we believe the 7 percent assumption is reasonable, this scenario is meant to show what happens if the GET Committee sets the assumption incorrectly on the low side.

People Buy Less

This sensitivity analysis shows how the status quo would hold up if less people purchased units than we have assumed. We assumed a uniform downward shift of 200,000 units per year would be purchased for this sensitivity. This is approximately a 10 percent decrease from past data. However, at higher premium levels this could constitute most or all of the buyers. Please see the "final assumption" for purchaser behavior for a relative comparison of units purchased at various premium levels.

People Buy More

This sensitivity analysis shows how the status quo would hold up if more people purchased units than we have assumed. We assumed a uniform upward shift of 200,000 units per year would be purchased for this sensitivity. This is approximately a 10 percent increase from past data. However, at higher premium levels this could constitute most or all of the buyers. Please see the "final assumption" for purchaser behavior for a relative comparison of units purchased at various premium levels.

New Price-Setting Guidelines

This scenario shows what a different set of price-setting guidelines could do to improve the long-term solvency of the program. We believe there are three main parts to the reserve component of the price-setting guidelines:

1. **Normal Reserve** – This constitutes the normal level of reserve built into the unit price. It is meant to provide a cushion during normal times so the program is better prepared going into rough times.

2. **Overfunded Reserve** – This deals with how the reserve is set when the program gets to some level of "overfunded" status. While there are many bad scenarios, there are just as many good scenarios where the current guidelines could lead to funded statuses in excess of 200 and 300 percent.

3. **Underfunded Reserve** – This deals with how the reserve is set when the program gets to some level of "underfunded" status. Ideally, the price-setting guidelines would respond in a way to maximize the number of "reserve dollars" coming into the fund to help sustain its health.

Our scenario handles each of these three parts. It sets a strong constant reserve when the plan has a "normal" (80 to 150 percent) funded status. When the funded status gets "too high" (over 150 percent) it allows no reserve, and sometimes a negative reserve. When the funded status gets "too low" (less than 80 percent) it reacts quickly to set a higher constant reserve level to maximize the number of "reserve dollars" coming into the program. See the main body of the report for the specifics of the price-setting guidelines used in this scenario.

One-Time Infusion of Money

We looked at a one-time infusion of $400 million into the program. We assumed the money would be immediately deposited into the GET fund as a lump sum.

Lower Future Payout Value

This scenario shows what could happen if the payout value (and corresponding cost) were reduced by some amount. We modeled the units at 75 percent of their current value.

Terminate

This scenario shows what would happen if the program was terminated. We valued immediate refunds for everyone that was at least four years away from their "use year". We valued everyone else consistent with the "closed-group" valuation for current members only.

Actuarial Certification Letter
GET Solvency Report
As of June 30, 2009

November 13, 2009

This report documents the results of a solvency study for the Washington Guaranteed Education Tuition (GET) Program defined under Chapter 28B.95 of the Revised Code of Washington. The primary purpose of this study is to assess alternatives for assuring the long-term solvency of GET as stated in Section 105, ESHB 1244, Chapter 564, Laws of 2009. This report should not be used for other purposes.

The study results summarized in this report involve calculations that require assumptions about future economic and demographic events. Standards of practice for prepaid tuition programs have not been defined within the actuarial profession. We used the standards of practice for pension systems where possible to guide the study of GET. I believe that the assumptions, methods, and calculations used in the study are reasonable and appropriate for the primary purpose as stated above, and are in conformity with generally accepted actuarial principles and standards of practice as of the date of this publication. The use of another set of assumptions and methods, however, could also be reasonable and could produce materially different results.

Since the study results are based on assumptions about future events, actual results will differ to the extent that future experience differs from those assumptions.

The GET Program staff provided the participant, asset, and historical data to us. We checked the data for reasonableness as appropriate based on the purpose of this study. An audit of the data was not performed. I relied on all the information provided as complete and accurate. In my opinion, this information is adequate and substantially complete for the purposes of this study.

We intend this study to be used by the Legislature during the 2010 Legislative Session only. We advise readers of this study to seek professional guidance as to its content and interpretation, and not to rely upon this communication without such

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guidance. Please read the analysis shown in this study as a whole. Distribution of, or reliance on, only parts of this study could result in its misuse and may mislead others.

Consistent with the actuarial Code of Professional Conduct, I must disclose any potential conflict of interest. I have purchased units in GET; however, this does not impair my ability to act fairly. I have performed all analysis without bias or influence. The Legislature mandated the OSA to perform this study and I supervised the actuarial analysis performed.

The undersigned, with actuarial credentials, meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

Sincerely,

Matthew M. Smith, FCA, EA, MAAA
State Actuary

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Snapshots from Other States

Plan Histories

From four states, illustrating a variety of experiences with guaranteed prepaid tuition plans.

Article

Providing an overview of prepaid college savings plans around the country.

History of Florida's Plan

- Florida Prepaid College Plan opened in 1988.
- Largest plan in nation.
- Contract-based prepaid plan.
- Participants purchase years of tuition.
- Backed by statutory guarantee.
- Has not suspended enrollment at any time during its twenty-one year history.
- In 2007 legislature authorized Florida's research-level universities to charge a "tuition differential fee" to increase their funding.
  - Legislation exempted beneficiaries of the plan whose contracts were purchased prior to July 1, 2007.
  - A prepaid plan covering the tuition differential fee was made available to customers as of October 2007.
- Expected value of assets exceeded expected value of liabilities by 10.3 percent as of June 30, 2008; updated information available by end of 2009.

History of Ohio's Plan

- Ohio's Guaranteed Savings Fund established in 1989; administered by Ohio Tuition Trust Authority.
  - Unit-based prepaid plan.
  - Participants purchase tuition "units" that are redeemed for tuition and other eligible costs in the future.
  - Backed by state's full faith and credit.
- Plan accepted applications until 2003; new enrollments were suspended beginning January 1, 2004.
  - Actuarial deficit due to market declines and rising costs of tuition.
  - Controls on tuition growth to help manage deficit.
    - Last three years saw tuition increases of 0 percent, 0 percent, and less than 1 percent respectively.
  - Rules enacted in 2006 to help manage deficit.
    - No transfer of funds or change of beneficiary for accounts where beneficiary is 22 or older.
    - New limits on transfers of funds or changes of beneficiary for accounts where the beneficiary younger than 22.
    - Mandatory withdrawal of funds for beneficiaries 28 or older; funds can also be transferred to Ohio's CollegeAdvantage plan (a Section 529 savings plan) .
    - Limit of one account ownership change.
- Actuarial evaluation annually to determine whether to reinstate; program currently suspended through December 31, 2009.

History of Texas' Plan

- Texas Tomorrow Fund opened 1996; later renamed Texas Guaranteed Tuition Plan.
  - Contract-based prepaid plan.
  - Participants purchased years of tuition.
  - Backed by state's full faith and credit.
- Plan accepted applications until 2003.
- Tuition deregulated in 2003; Board suspended new enrollment in plan due to the uncertain impact of deregulation on the financial stability of the Plan.
  - In 2003 Plan was limited to paying colleges the weighted average tuition rather than actual tuition to help mitigate the effects of deregulation.
  - Receipts from contract purchasers continue to decline each year.
  - Disbursements to colleges and universities and account cancellation refunds are increasing each year.
  - Funded ratio as of August 31, 2008, was 90.3 percent; updated information available in mid-January 2010.
  - Projections in 2008 annual report show expected cash flows will be insufficient for disbursements in 2021.
  - Cancellation refund amount changed in 2009 from current value of state-school tuition to money paid in minus fees. Due to public outcry, change has not been implemented. Final board decision expected in December 2009.

- Texas Tuition Promise Fund created in 2007, opened in 2008.
  - Unit-based prepaid plan.
  - Participants can choose from several types of units.
  - Not backed by full faith and credit.
  - Risk sharing between program and higher education institutions (program pays a net earnings rate or 101 percent of tuition cost at redemption, whichever is less).

History of Virginia's Plan

- Virginia Prepaid Education Program established 1996; administered by the Virginia College Savings Plan.
  - Contract-based prepaid plan.
  - Participants purchase years of tuition.
  - Backed by statutory guarantee.
- Plan was closed to new enrollments in 2003-2004 because of delay in adopting state budget and slump in investment markets over previous several years.
- Three largest schools received tuition-setting authority in 2005 and increased tuition.
  - Plan was again closed to new enrollment for one year starting in 2005.
  - Program reopened in 2006 with ability of Board to vary benefit payouts to accommodate differential pricing structures implemented by institutions of higher learning.
- Funded status of plan as of June 30, 2008, was 97.3 percent; updated information available January 2010.

The New York Times

October 5, 2009

Prepaid College Savings Plans Might Not Cover All Costs

By SEAN D. HAMILL

In the last two decades, more than a million families around the country have invested in state funds that pledged to cover the cost of attending their state's public colleges and universities, regardless of how much tuition increased.

But in the last year, the stock market slump and rising college costs have combined to drive all but two of the nation's 18 such funds, known as prepaid college savings plans, into the red, jeopardizing those pledges.

Even with stock market gains since March, the losses have forced some programs, like Pennsylvania's and Washington's, to impose new and higher fees that could amount to thousands of dollars a year in additional costs to parents.

Others, like South Carolina's, have developed doomsday scenarios, capping how much a family would get if the program shut down completely. West Virginia had to pump $8 million into its prepaid program to help restore its financial health because its fund lost 25 percent of its value in the last year. And Alabama closed its program to new enrollees because the fund lost almost half of its assets — more than $300 million — in the stock market in the last year, and the state might have to put its own money in to keep it solvent.

"I think ultimately more and more of these plans are going to close down to new investments," said Mark Kantrowitz, the founder and publisher of FinAid.org, a financial aid Web site.

"Every time there's a significant market downturn, there's two main ways states make up for the losses: close to new participants to cut off the losses," Mr. Kantrowitz said, "or raise fees. And raising fees makes it less attractive to new participants."

The funds were first proposed 23 years ago in Michigan as a fail-safe investment tool. They were quickly adopted by other states after 1996, when Congress allowed them to be tax-deferred under Section 529 of the Internal Revenue Code. In 2001, Congress expanded that to make all qualified educational disbursements tax-free. As a result, the 529 prepaid funds — not to be confused with 529 college savings

plans that do not promise a specific return — grew into financial powerhouses, even though 7 of the 18 funds have closed to new investments over the years.

All 18 state prepaid plans differ slightly, but most sell contracts or tuition credits that establish how much someone will pay in now to receive a certain return in the future based on projected in-state public university tuition.

If, in the end, students decide not to go to a state school, they can use the money at other schools, though the amount is likely to fall short of the full cost of tuition.

Between them, the 18 state funds serve nearly 1.6 million families and hold $23.8 billion in assets, ranging from Tennessee's small $80 million fund serving 9,700 families to Florida's massive $8.7 billion fund that serves about 850,000 families.

"The reason they're popular is simply because the states bear the risk, not the individual," said Jackie Williams, who was executive director of the Ohio Tuition Trust Authority for 10 years, until June.

The trust oversees Ohio's $590 million prepaid fund, which was closed to new enrollees in 2003 after the state began allowing public universities to raise their tuition as high as they wanted. That resulted in double-digit increases, which, combined with a tough stock market, threw the fund out of balance.

Not every state fully guarantees its prepaid funds. Only five states offer a "full faith and credit" of the state guarantee, and seven are required by law to consider helping the funds out if need be. The other five states — Alabama, Colorado, Nevada, Pennsylvania and Tennessee — and Texas's new prepaid fund have no guarantee, though officials say they doubt that the states would ever let the funds become insolvent and would step in if need be.

All of the funds but Florida's and Colorado's now have an actuarial deficit, meaning they do not have enough money to pay all of their future college tuition obligations. Most are only about 80 percent to 90 percent funded. But many are worse off, like the Illinois fund, which is about 75 percent funded, and South Carolina and Alabama's funds, which are both about 66 percent funded.

Carol M. Perdue was troubled by a letter she got from Alabama's treasurer this summer that said the state's prepaid program had lost about 50 percent of its assets in the stock market. She is suing to force the state to put money into the fund to make up for the losses.

"At first I was kind of scared," said Ms. Perdue, 40, an insurance agent in Phenix City who has about $30,000 in the program for her two daughters. "And then I felt almost cheated, like I was sold a bill of goods that wasn't there."

Even Florida's program could be in for tough times. The state has stayed out of trouble because it has 90 percent of its assets in fixed income investments, unlike other funds with 50 percent to 70 percent of their assets in the stock market, and it has enjoyed very low tuition increases.

But the Florida Legislature for the first time has allowed public universities to raise tuition by up to 15 percent a year for the next five years, which is much greater than the 6.5 percent average the fund has counted on in the last two decades.

"You can't keep up with 15 percent tuition inflation with fixed income," said Andrew A. Davis, executive director of the Illinois Student Assistance Commission, which oversees that state's prepaid fund. "They'll have to change something."

Despite all this bad news, investors continue to see the funds as an attractive option, particularly in a tough economy, for one simple reason.

"Even with all the problems, no one has ever lost money in the process," said Joseph F. Hurley, founder of Savingforcollege.com, which specializes in dissecting the different 108 college savings and prepaid plans.

Ganesh Seshadri has invested $200,000 in Pennsylvania's fund, which has lost about 25 percent of its value. He is philosophical about the fund's losses, which have not affected his investment, though he has stopped investing in it because of the increased fees and costs imposed recently.

"If I get back the return they promised, it will be a good investment, because all of my other investments tanked," said Mr. Seshadri, 55, a hospital computer analyst in Murrysville, Pa. He has children at Northwestern University and Carnegie Mellon, and one in high school.

Many states, aware of the allure of prepaid funds, are now keeping an eye on Texas, which opened a fund in the last year after closing another one in 2003 to new enrollments. The new fund shifts the burden of the guarantee from the state to the public university system. If the fund runs short, the universities agree to cover the difference between what is available and how much tuition is in the future.

"It's an interesting idea, but the money has to come from somewhere," Mr. Kantrowitz said. "Saying you'll pay anyway is sweeping it under the rug. But it will be interesting to see if it works."

Texans apparently think it will. Since last September, amid the financial meltdown, about 13,000 families invested a total of $95 million in the fund.