



## Office of the State Actuary

*"Securing tomorrow's pensions today."*

September 28, 2012

Senator Rodney Tom  
Chair  
GET Legislative Advisory Committee  
PO Box 40448  
Olympia, WA 98504-0448

### **RE: ACTUARIAL ANALYSIS OF DIFFERENTIAL TUITION – OPTION A\***

At your request, we performed preliminary actuarial analysis on the potential impacts on the Guaranteed Education Tuition (GET) program from "differential tuition." We understand that no state institution of higher education is currently allowed to charge differential tuition, but may adopt such policies next fall if the suspension under current law ends.

Our most recent analysis of GET excluded the impact of differential tuition. The current GET unit price of \$172 also does not include a premium for differential tuition.

The purpose of this analysis is to demonstrate the potential impacts to GET from differential tuition under the following two scenarios occurring in the fall of 2013.

- ❖ A one-time increase to the GET payout value of 5 percent.
- ❖ A one-time increase to the GET payout value of 10 percent.

For your reference, we also updated previous analysis where we demonstrated the potential impacts to GET from differential tuition under one-time increases to the GET payout value of 20 and 50 percent.

The results of our analysis are highly sensitive to assumed future purchaser behavior and future tuition growth. We did not have sufficient time to complete a comprehensive review of how differential tuition policies may affect our current assumptions. For these reasons, this analysis demonstrates potential impacts under four defined scenarios only and does not represent our best-estimate analysis.

*\* For purposes of this analysis, differential tuition refers to a tuition-setting policy where rates of resident, undergraduate tuition vary by an institution's programs, campuses, courses, or students.*



Summary of Results			
	Without Differential Tuition	With Differential Tuition 5% Increase	With Differential Tuition 10% Increase
<i>(Dollars in Millions – Except for GET Unit Price)</i>			
Current GET Unit Price	\$172	\$186	\$201
Unfunded Liability	\$631	\$770	\$910
Chance of State Contribution over 50 years	1.0%	2.6%	4.7%
Worst Case 50-Year State Contributions	\$1,852	Over \$2,000	Over \$2,500
Chance of Purchaser Experiencing Negative Return	3.0%	6.6%	11.6%
Chance of Average Annual Sales Below 750,000 Units	18.3%	Over 20%	Over 25%
Average Expected Annual Units Sold (Next 20 Years)	936,803	858,588	781,655

Summary of Results			
	Without Differential Tuition	With Differential Tuition 20% Increase	With Differential Tuition 50% Increase
<i>(Dollars in Millions – Except for GET Unit Price)</i>			
Current GET Unit Price	\$172	\$248	\$486
Unfunded Liability	\$631	\$1,189	\$2,026
Chance of State Contribution over 50 years	1.0%	Over 20%	Over 40%
Worst Case 50-Year State Contributions	\$1,852	Over \$4,000	Over \$5,000
Chance of Purchaser Experiencing Negative Return	3.0%	30.0%	95.2%
Chance of Average Annual Sales Below 750,000 Units	18.3%	Over 50%	Over 75%
Average Expected Annual Units Sold (Next 20 Years)	936,803	499,878	233,741

Please see the rest of this letter for further details and supporting information.

### Impact On GET Program Status

When we update the current status of the GET program to apply the one-time increases defined above, the expected cost of every unredeemed GET unit that has already been sold immediately increases. However, the assets collected from past purchasers, plus the associated investment returns, remain unchanged.

The following tables display the impacts on GET's current liability, assets, unfunded liability, and funded status from the scenarios defined above.



Impact on GET Program Status*			
(Dollars in Millions)	Without Differential Tuition	With Differential Tuition 5% Increase	With Differential Tuition 10% Increase
Present Value of all GET Contracts	\$2,942	\$3,081	\$3,221
Market Value of Assets	2,311	2,311	2,311
Unfunded Liability	\$631	\$770	\$910
Funded Status	79%	75%	72%

\*At June 30, 2012.

Impact on GET Program Status*			
(Dollars in Millions)	Without Differential Tuition	With Differential Tuition 20% Increase	With Differential Tuition 50% Increase
Present Value of all GET Contracts	\$2,942	\$3,500	\$4,337
Market Value of Assets	2,311	2,311	2,311
Unfunded Liability	\$631	\$1,189	\$2,026
Funded Status	79%	66%	53%

\*At June 30, 2012.

### Current GET Price-Setting Guidelines

The GET Committee adopts price-setting guidelines (how we price future units) to manage the risks of the program. The current GET unit price includes the following four components:

- ❖ **Expected Cost** – Covers the expected cost of future tuition and certain administrative expenses.
- ❖ **Expenses** – Covers the GET program's annual operating expenses.
- ❖ **Reserve** – Covers unexpected future costs such as above-expected tuition growth or below-expected investment returns. The current price-setting guidelines call for a 15 percent reserve. This component can be increased or decreased to alter the probability that a unit will ever create unfunded liability in the future.
- ❖ **Amortization** – An optional component that covers unexpected past costs from significant program or policy changes. In 2011, the committee established a one-time 30-year amortization of the



unfunded liability measured at June 30, 2011. It is important to collect amortization payments for the entire planned period. Ending the amortization sooner could effectively result in the use of reserve dollars (dedicated for future unexpected costs) for past unexpected losses.

### Impact On GET Unit Price

When we update the current status of the GET program to apply the one-time differential tuition increases defined above and apply the current price-setting guidelines, we observe the following changes to the GET unit price.

Impact on GET Unit Price			
Category	Without Differential Tuition	With Differential Tuition 5% Increase	With Differential Tuition 10% Increase
<b>Unit Price</b>			
Expected Cost	\$127.66	\$134.06	\$140.44
Expenses	5.33	5.74	6.39
Reserve	19.95	20.97	22.03
Amortization	19.73	25.77	32.99
<b>Total Unit Price</b>	<b>\$172.00</b>	<b>\$186.00</b>	<b>\$201.00</b>

Note: Total unit price rounded down.

Impact on GET Unit Price			
Category	Without Differential Tuition	With Differential Tuition 20% Increase	With Differential Tuition 50% Increase
<b>Unit Price</b>			
Expected Cost	\$127.66	\$153.21	\$191.51
Expenses	5.33	9.98	21.53
Reserve	19.95	24.48	31.96
Amortization	19.73	61.09	241.33
<b>Total Unit Price</b>	<b>\$172.00</b>	<b>\$248.00</b>	<b>\$486.00</b>

Note: Total unit price rounded down.

The expenses and amortization components both increase by more than the percent increases in the defined scenarios because both components are collected over assumed future purchases. As the price premium increases (total unit price ÷ unit value of \$117.82), we expect fewer future purchases. Therefore, the price of the expense and amortization components must increase to collect the same total dollars over fewer assumed future



purchases. The amortization component also increases by the percent increase in unfunded liability displayed earlier under Impact on GET Program Status

### Impact On Program Risk

The program’s future success depends on maintaining a delicate balance between risk and affordability. In this case, “risk” represents the risk of the state needing to make a contribution to the program and “affordability” represents the affordability of future GET units. Improving one risk will typically increase the risk of the other.

The following tables summarize how key risk metrics change under the defined scenarios.

Key Risk Metrics			
Risk Category	Without Differential Tuition	With Differential Tuition 5% Increase	With Differential Tuition 10% Increase
Chance of State Contribution over 50 years	1.0%	2.6%	4.7%
Worst Case 50-Year State Contributions ( <i>Dollars in Millions</i> )	\$1,852	Over \$2,000	Over \$2,500
Chance of Funded Status Under 50% over 50 years	21.7%	26.3%	32.3%
Chance of Purchaser Experiencing Negative Return	3.0%	6.6%	11.6%
Chance of Average Annual Sales Below 750,000 Units	18.3%	Over 20%	Over 25%
Average Expected Annual Units Sold (Next 20 Years)	936,803	858,588	781,655

Key Risk Metrics			
Risk Category	Without Differential Tuition	With Differential Tuition 20% Increase	With Differential Tuition 50% Increase
Chance of State Contribution over 50 years	1.0%	Over 20%	Over 40%
Worst Case 50-Year State Contributions ( <i>Dollars in Millions</i> )	\$1,852	Over \$4,000	Over \$5,000
Chance of Funded Status Under 50% over 50 years	21.7%	52.1%	81.5%
Chance of Purchaser Experiencing Negative Return	3.0%	30.0%	95.2%
Chance of Average Annual Sales Below 750,000 Units	18.3%	Over 50%	Over 75%
Average Expected Annual Units Sold (Next 20 Years)	936,803	499,878	233,741

When we apply the current price-setting guidelines, we expect the one-time increases under the defined scenarios will reduce future unit sales by about 10, 20, 50, and 75 percent respectively. With lower future sales, the GET program collects fewer future dollars to protect against future adverse experience and to recover from past losses. As a result, the risks to the program increase. We observed increases in both the chance and amount of state contributions to the program over the next 50 years.



From the purchaser's perspective, the increase in the current 30-year amortization component of the GET unit price increases the chance a future purchaser will experience a negative rate of return on their GET investment – from 3 percent without differential tuition to about 7, 12, 30, and 95 percent respectively.

### **Actuarial Certification**

We prepared this preliminary analysis to assist the Legislature in evaluating the potential impacts of differential tuition on the GET program under four defined scenarios. Please do not use this analysis for other purposes.

This analysis involves calculations that require assumptions about future economic and demographic events. Actuarial Standards of Practice (ASOP) for prepaid tuition programs have not been defined within the actuarial profession. We used the ASOPs for pensions where possible to guide our analysis of GET. We believe that the assumptions, methods, and calculations used in this analysis 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 letter. The use of another set of assumptions and methods, however, could also be reasonable and could produce materially different results.

Since the analysis is based on assumptions about future events, actual results will differ to the extent that future experience differs from those assumptions. Significant differences between the actual and assumed future enrollments will impact the results. This analysis will need to be updated in the future if the Legislature enacts either major reform to current tuition policy or other changes to GET.

The GET Program staff provided the participant, asset, and historical data to us. The Washington State Investment Board (WSIB) also provided recent asset data to us. We checked the data for reasonableness as appropriate based on the purpose of this analysis. An audit of the data was not performed. We relied on all the information provided as complete and accurate. In our opinion, this information is adequate and substantially complete for the purposes of this analysis.

We advise readers of this analysis to seek professional guidance as to its content and interpretation, and not to rely upon this communication without such guidance. Please read the analysis shown in this communication as a whole. Distribution of, or reliance on, only parts of this analysis could result in its misuse and may mislead others.

The analysis in this letter will become outdated very quickly. Please replace this analysis with any future actuarial analysis.

Consistent with the actuarial Code of Professional Conduct, I (Matthew Smith) 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 GET Committee contracted with OSA to perform actuarial analysis for the GET Legislative Advisory Committee, and I supervised the actuarial analysis performed.

The undersigned, with actuarial credentials, meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein and are available to provide extra guidance and explanations as needed.

Sincerely,

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

Troy Dempsey, ASA, EA, MAAA  
Actuary

cc: Betty Lochner, Director  
Guaranteed Education Tuition  
Larry Lee, Deputy Director  
Guaranteed Education Tuition



## **Appendix – Data, Assumptions and Methods**

### ***Data We Used***

The data and assets we used are consistent with the data and assets disclosed in the *June 30, 2012, GET Actuarial Valuation Report (GAVR)*.

### ***Assumptions We Made***

Most of the assumptions we made are consistent with the assumptions disclosed in the GAVR. We made the following assumption changes to complete this analysis:

We assumed the GET Committee would follow their current price-setting guidelines over the 50-year projection period. The guidelines (“current guidelines”) require a 15 percent reserve. The guidelines also include a one-time, closed 30-year amortization to address the unfunded liability created by the new tuition-setting policy established in the 2011 Session.

We further assumed the GET Committee would respond to the presence of differential tuition by changing the current price of a GET unit.

We increased the 2013 tuition growth rate of 12 percent by 500, 1,000, 2,000, or 5,000 basis points to reflect the assumed one-time increase in GET payout value defined by the given differential tuition scenario.

### ***Methods We Used (How We Applied The Assumptions)***

Nearly all of the methods we used are consistent with the methods disclosed in the GAVR. We made the following method change to complete this analysis:

We added the increased unfunded liability due to differential tuition to the amortization already in place to address the existing unfunded liability measured at June 30, 2011.

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