

# Kentucky's Affordable Prepaid Tuition

Actuarial Valuation Report  
as of June 30, 2022





September 9, 2022

Board of Directors  
Kentucky's Affordable Prepaid Tuition  
100 Airport Road  
Frankfort, Kentucky 40601

Attention: Mr. David Lawhorn, 529 Program Manager

**Re: Kentucky's Affordable Prepaid Tuition Actuarial Valuation as of June 30, 2022**

Dear Directors:

Gabriel, Roeder, Smith & Company ("GRS") has performed an actuarial valuation of the Kentucky's Affordable Prepaid Tuition Program ("KAPT" or "the Program") as of June 30, 2022. The purpose of this actuarial valuation is to evaluate the financial status of the Program as of June 30, 2022.

This report presents the principal results of the actuarial valuation of KAPT including the following:

- a) A comparison of the actuarial present value of the obligations for prepaid tuition contracts purchased through December 13, 2004 (the most recent ending date for contract sales), with the value of the assets associated with the Program as of June 30, 2022;
- b) An analysis of the factors which caused the deficit to change since the prior actuarial valuation; and
- c) A summary of the member data, financial data, Program provisions, and actuarial assumptions and methods utilized in the actuarial calculations.

The main conclusion of this valuation is that the fund is expected to become depleted in about 2 years (roughly one year sooner than projected in last year's valuation). We understand that the liabilities of the fund are backed by the full faith and credit of the Commonwealth of Kentucky, who will be responsible for satisfying the liabilities not covered by the assets of the fund.

Our valuation results show estimates of the depletion date and present value of the unfunded liabilities in accordance with the investment policy adopted by the Board at the May 2022 Board Meeting (see Appendix A for additional information). In addition, we show the sensitivity of the depletion date and unfunded liabilities to changes in certain assumptions about future activity affecting KAPT in Section G.

This report was prepared at the request of the Board and is intended for use by the Board of Directors ("the Board") and those designated or approved by the Board. This report may be provided to parties other than the Board only in its entirety. This report should not be relied on for any purpose other than the purpose described above. GRS is not responsible for unauthorized use of this report.

The valuation results set forth in this report are based upon data and information as of June 30, 2022, furnished by KAPT, concerning Program benefits, financial transactions, and beneficiaries of KAPT. We reviewed this information for internal and year-to-year consistency, but did not audit the data. We are not responsible for the accuracy or completeness of the information provided by KAPT.

There are currently no Actuarial Standards of Practice that specifically refer to prepaid tuition plans. We have followed the general guidance from the Actuarial Standards of Practice on pensions due to their similar nature.

The valuation results summarized in this report involve actuarial calculations that require assumptions about future events. The major actuarial assumptions used in this analysis are based upon past Board adopted assumptions along with discussions with Program Staff regarding anticipated future investment returns and Program expenses. We have not performed an experience study, but have reviewed the assumptions. Based on our limited review, we believe these assumptions are reasonable and are generally following actuarial standards regarding pension calculations.

This report was prepared using our proprietary valuation model and related software which, in our professional judgment, has the capability to provide results that are consistent with the purposes of the valuation and has no material limitations or known weaknesses. We performed tests to ensure that the model reasonably represents that which is intended to be modeled.

We have prepared this valuation with the understanding the Program is closed to new participants.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: Program experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; and changes in Program provisions or applicable law. We have performed an analysis of the sensitivity of certain changes in future assumptions. See Section G of this report for additional details. In addition, because it is not possible or practical to consider every possible contingency, we may use estimates or simplifications of calculations to facilitate the modeling of future events. We may also exclude factors or data that are deemed to be immaterial.



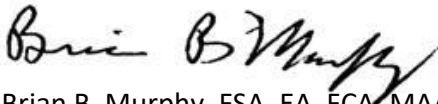
GRS makes no representations or warranties to any person participating in or considering participation in the Program.

To the best of our knowledge, the information contained in this report is accurate and fairly presents the actuarial position of the Kentucky's Affordable Prepaid Tuition Program as of June 30, 2022.

Brian B. Murphy and James R. Sparks are Members of the American Academy of Actuaries (MAAA) and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

The signing actuaries are independent of the Program sponsor.

Respectfully submitted,  
Gabriel, Roeder, Smith & Company



Brian B. Murphy, FSA, EA, FCA, MAAA, PhD



James R. Sparks, ASA, FCA, MAAA

BBM/JRS:sc

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## **SECTION A**

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### **EXECUTIVE SUMMARY**

## Kentucky's Affordable Prepaid Tuition Summary of Results

Valuation Date:	Valuation Results	
	June 30, 2022	June 30, 2021
Membership Summary:		
Accounts		
8 or More Years Beyond Projected College Entrance Year (PCEY)	560	629
1-7 Years Beyond PCEY	1,511	1,817
At or Before PCEY	34	145
Total	2,105	2,591
Average Years until PCEY (Negative if Past PCEY)	(5.3)	(4.8)
Assets		
Market Value of Assets <sup>1</sup>	\$ 19,079,821	\$ 33,142,370
Present Value of Future Contract Payments	3,819	34,690
Fees Receivable	2,315	2,308
Total Valuation Assets	\$ 19,085,955	\$ 33,179,368
Estimated Annual Return on Market Value of Assets <sup>2</sup>	-3.42%	9.61%
Actuarial Liabilities (Present Value of Future Tuition Payments, Refunds, Fees, Administrative, Personnel & Professional Expenses)	\$ 53,542,113	\$ 63,026,944
Margin/(Deficit)	\$ (34,456,158)	\$ (29,847,576)
Funded Ratio (Total Assets ÷ Actuarial Liabilities)	35.6%	52.6%
Estimated Fiscal year Fund Depleted	2024	2025

<sup>1</sup> Market Value of Assets based upon current Program cash, cash equivalents and investments.

<sup>2</sup> Estimated money-weighted annual return net of investment expenses.

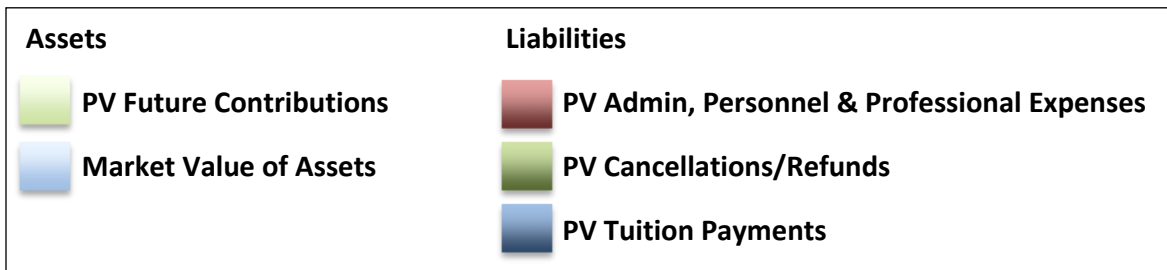
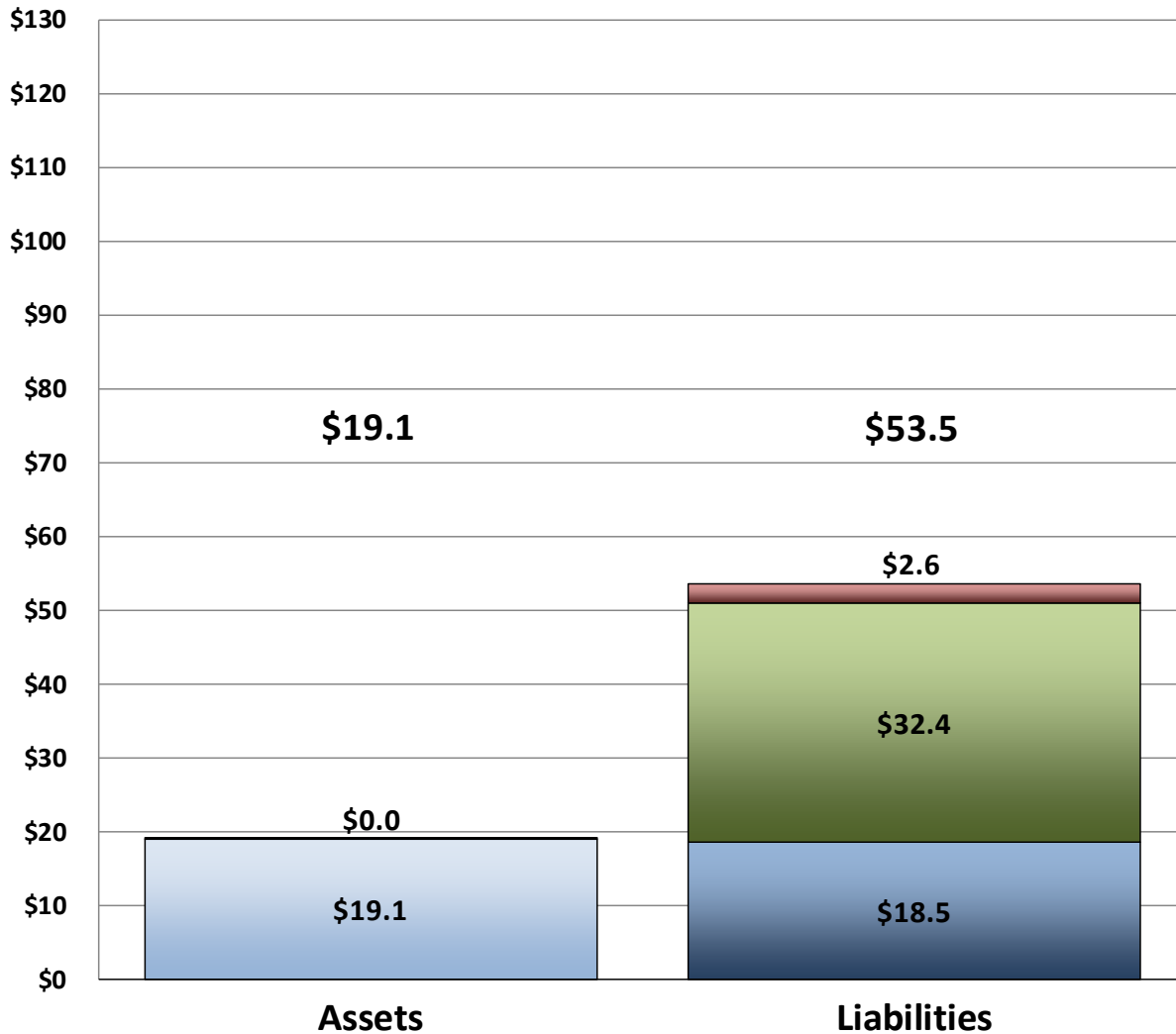
## Kentucky's Affordable Prepaid Tuition Summary of Results

<b>Valuation Results as of June 30, 2022</b>	
Market Value of Assets & Future Contract Receivables	\$ 19,083,640
Other Payables & Receivables	2,315
Actuarial Liabilities	53,542,113
Other Liabilities	<u>N/A</u>
Actuarial Deficit	\$ (34,456,158)
Deficit as a Percent of Liabilities	64.4%



# Kentucky's Affordable Prepaid Tuition Summary of Assets and Liabilities as of June 30, 2022

(\$ in Millions)



*PV – Present Value*

Numbers may not add due to rounding.

# Kentucky's Affordable Prepaid Tuition

## Funded Status

	June 30, 2022	June 30, 2021
Actuarial Liabilities (Present Value of Future Tuition Payments, Refunds, Fees, Administrative, Personnel & Professional Expenses)	\$ 53,542,113	\$ 63,026,944
Market Value of Assets (Including the Present Value of Future Contract Payments)	\$ 19,085,955	\$ 33,179,368
Margin/(Deficit)	\$ (34,456,158)	\$ (29,847,576)

## Change in Margin/(Deficit)

	Margin/(Deficit)
1. Values as of June 30, 2021	\$ (29,847,576)
2. Interest on Margin/(Deficit) at assumed rate (3.30%)	\$ (984,969)
<b>3. Projected margin/(deficit) as of June 30, 2022 [(1) + (2)]</b>	<b>\$ (30,832,545)</b>
4. Change Due to:	
a. Legislation	\$ -
b. Investment experience above/(below) assumed	(1,664,216)
c. Tuition/Fee inflation for upcoming academic year	433,871
d. Change in program expense assumptions	(1,315,313)
e. Change in other program assumptions*	(902,469)
f. Other program experience during fiscal year 2022	(175,486)
Total	\$ (3,623,613)
<b>5. Actual Margin/(Deficit) as of June 30, 2022 [(3) + (4)]</b>	<b>\$ (34,456,158)</b>

\* Includes changes in liability as a result of changes to the assumed future annual increases in tuition and rates of investment return.

## Kentucky's Affordable Prepaid Tuition Short-Term and Long-Term Present Values of Future Revenues and Expenditures

	<b>As of June 30, 2022</b>
1. Future Contract Payment Revenue	
Short Term <sup>a</sup>	\$ 3,819
LongTerm <sup>b</sup>	-
	\$ 3,819
2. Future Tuition Payments and Refunds	
Short Term <sup>a</sup>	\$ 10,043,288
Long Term <sup>b</sup>	40,935,174
Total	\$ 50,978,462
3. Future Administrative, Personnel and Professional Expenses	
Short Term <sup>a</sup>	\$ 392,546
Long Term <sup>b</sup>	2,171,105
Total	\$ 2,563,651

<sup>a</sup> Present value of amounts in following year (includes accounts payable).

<sup>b</sup> Present value of amounts after first year.

# Kentucky's Affordable Prepaid Tuition Discussion

## Financial Status of Program

### Program Status

As of June 30, 2022, the present value of all future tuition obligations under contracts outstanding (and including estimated future administrative, personnel and professional expenses) is \$53.5 million. Program assets as of June 30, 2022, including the Market Value of Assets and the present value of installment contract receivables, are \$19.1 million.

The difference between the assets of \$19.1 million and future obligations of \$53.5 million represents a Program deficit of \$34.5 million. The Program is 35.6% funded. This compares to 52.6% as of the prior actuarial valuation. As the Program draws down its assets, the funded status is expected to go to zero. The funded status is not appropriate for measuring the settlement cost of the Program. A funded status less than 100% is an indication that additional contributions (in other words, contributions from sources other than contract payments) will be needed to satisfy the Program's liabilities.

We understand that the Program is backed by the full faith and credit of the Commonwealth of Kentucky. The deficit of \$34.5 million is one estimate of the present value of the contributions the Commonwealth will need to make in order to satisfy its obligation under the Program, if future activity is exactly as assumed.

### Other Measurements to Consider

This report is intended to measure the obligations of the Program. Since the Program obligations will become Commonwealth obligations upon asset depletion, the unfunded obligation of the Program of \$34.5 million is one measure of the obligation of the Commonwealth. However, there are other measures. For example, if the expected payment obligations were summed from the date of depletion, to the date of termination, the sum would total approximately \$37.0 million in tuition, refund payments and administrative, personnel and professional expenses.

Fiscal Year Ending June 30	Projected Tuition		Projected Administrative, Personnel & Professional Expenses:		Total Obligations
	Payments*	Projected Refunds			
2024	\$ 83,109	\$ -	\$ -		\$ 83,109
2025	3,305,699	3,998,243	331,500		7,635,442
2026	1,520,816	6,094,949	331,500		7,947,265
2027	480,750	4,440,513	331,500		5,252,763
2028	57,178	3,983,415	331,500		4,372,093
2029	-	2,790,272	331,500		3,121,772
2030	-	8,263,768	331,500		8,595,268
<b>TOTAL</b>	<b>\$ 5,447,552</b>	<b>\$ 29,571,160</b>	<b>\$ 1,989,000</b>		<b>\$ 37,007,712</b>

\* Net of projected remaining program assets after payments for projected refunds, administrative, personnel & professional expenses for Fiscal Year 2024.

The projected expenses above are based on Program Staff provided projections. The tuition payments and refunds are based on assumptions regarding future participant behavior and future tuition increases. If stakeholders intend to create future budgets from this chart, Stakeholders should consider that actual annual obligations will likely differ from the projections and allow for such differences in their budgeting.



# Kentucky's Affordable Prepaid Tuition Discussion (Continued)

## Financial Status of Program (Continued)

### Management's Discussion and Analysis Language Describing Financial Status for Financial Statements

The following language was specifically requested by Fund Management:

*As of June 30, 2022, the Program had a deficit of \$34.5 million. This represents a \$4.6 million increase from the previous year's deficit. Based on actuarial estimates, the Program's assets will be exhausted in fiscal year 2024, at which time the liability of the Program becomes a General Obligation of the Commonwealth of Kentucky. Per KRS 164A.708, once a real liability is expected to accrue, the General Assembly shall appropriate the necessary funds to meet the liability. Over the remaining estimated life of the Program, through fiscal year 2030, actuarial estimates show the Commonwealth of Kentucky will need to transfer approximately \$37.0 million, as shown on the previous page.*

## Program Experience During the Year

The net Program experience during the year was unfavorable, resulting in the liabilities increasing more than assumed, the deficit increasing, and the solvency of the Program shortening. We observed the following experience:

Experience increasing the deficit:

- 1) The estimated 2022 Fiscal Year market rate of return on fund assets was -3.42%. This compares to an assumed rate of return of 3.30%.
- 2) The assumed rates of future investment return were reduced from 2.50% in fiscal years' 2023-2024 and 2.00% thereafter to 1.50% in all future fiscal years (2023+). This change in the assumed rate of return was as a result of the updated investment policy approved by the Board at the May Board Meeting (see Appendix A for more information).
- 3) Future assumed administrative, personnel and professional expenses were increased.

Experience decreasing the deficit:

- 1) The actual rate of tuition increases for UK and KCTCS were about 2.00% and 1.60%, respectively, compared to an assumed increase of 4.25% for both (assumption from the June 30, 2021 valuation);
- 2) Future assumed rates of and tuition increases for both UK and KCTCS were reduced from 4.25% to 4.00% for all future years. This results in lower future assumed tuition rates and therefore lower liabilities than assumed in the future.

Tuition payments, refunds, administrative, personnel and professional expenses were approximately \$13.35 million for the fiscal year 2022 compared with \$13.47 million projected from the June 30, 2021 valuation. Since these cash flows in aggregate were close to the projected amount from last year's valuation, actual vs. expected cash flows had little impact on projected future liabilities, assets and solvency.

Overall, the deficit of the Program increased from an expected amount of \$30.8 million to \$34.5 million as a result of the experience described above. Additionally, the solvency of the program declined by 1 year (projected insolvent during the fiscal year 2024).

# Kentucky's Affordable Prepaid Tuition Discussion (Continued)

## Benefit Provision Changes

No Legislation changes occurred during the year.

## Valuation and Actuarial Methods

Valuation and Actuarial Methods were unchanged during the year.

## Data Adjustments

No adjustments were made to the June 30, 2022 census data provided by Staff.

## Valuation Assumptions

### Changes from Prior Valuation

#### Tuition Increase Assumption

The assumed rates of future tuition increases were lowered from 4.25% in the prior valuation to 4.00% for all future years.

#### Asset Allocation and Assumed Rate of Investment Return

At the May 2022 Board Meeting, the Board adopted an updated investment policy in lieu of the approaching investment fund depletion. Below is the target asset allocation:

Asset Classes	Target
Large Cap U.S. Equity	0%
Small/Mid Cap U.S. Equity	0%
International Equity	0%
U.S. Fixed income	0%
TIPS	0%
Short Duration US Fixed Income	50%
Cash Equivalents	50%
<b>Totals</b>	<b>100%</b>

In the past, Graystone Consulting reviewed the Board's adopted Glide Path and then projected expected rates of return until assets were presumed to be 100% in cash or depleted. With the acceleration of the depletion date this past fiscal year, the conversion to more cash intensive positions was expedited.

# Kentucky's Affordable Prepaid Tuition Discussion (Continued)

## Valuation Assumptions (Continued)

The valuation uses the assumed rate of investment return as a discount rate to calculate the present value of future tuition payments and expenses (the Actuarial Liability). We used an assumed rate of return applicable to a portfolio that is roughly 50% cash and 50% short duration U.S. fixed income (current investment policy). We reviewed current short-term U.S. Treasury yields (e.g., 13-week Treasury Bills) and determined a reasonable return on such investments would currently yield in the 2.0% - 3.0% range. Assuming half of the portfolio will remain in cash positions yielding lower returns, we used a reduced assumed rate of return (net of investment expenses) of 1.50% for all future years.

Fiscal Year Ending:	Assumed Investment Return/Discount Rate			
	2022	2023	2024	2025+
Prior Actuarial Valuation (6/30/2021)	3.30%	2.50%	2.50%	2.00%
Current Valuation (6/30/2022)	N/A	1.50%	1.50%	1.50%

## Other Assumptions to Consider Monitoring

### Refunds

With the value of contracts growing at full value for up to eight years beyond the Projected College Entrance Year (PCEY), it would seem likely that participants who have not utilized all of their contracts for schooling would hold their contracts until the date the contract reaches its maximum value. The results shown in this report are based on the following assumptions:

- 1) Participants who reach eight years beyond their PCEY in the future are assumed to refund at that point in time (assumed to be 8% of participants); and
- 2) Participants who already have maximized their contract value and not yet refunded (more than eight years beyond their PCEY) are expected to hold their contracts until the end of the Program (June 30, 2030).

# Kentucky's Affordable Prepaid Tuition Discussion (Continued)

## Valuation Assumptions (Continued)

### Expenses

Our projections of Program expenses are based on Staff estimates received in connection with the June 30, 2022 valuation.

The following paragraph was provided by Program Staff regarding changes to future Program expenses:

Starting in FY 2023, KHEAA will charge the KAPT program \$150,000 a year for administration cost to run the program on behalf of the Commonwealth of Kentucky. The fee is designed to offset cost that has previously been covered by KHESLC/KHEAA and never allocated as an expense of the program. The pandemic has created a very significant amount of additional pressure on KHEAA's revenues. On May 12, 2021, the U.S. Department of Education ("USDE") expanded the pause on federal student interest and collections on all defaulted loans in the FFELP program that are managed by guaranty agencies like KHEAA. This expansion requires all FFELP guaranty agencies to surrender to USDE, through special mandatory assignment, all outstanding loans on which a default claim was paid during the pandemic period from March 13, 2020 through December 31, 2022.

Below is the projection of future Program administrative, personnel and professional expenses through the closure of the Program provided by Staff:

<b>Fiscal Year</b>	<b>Administrative, Personnel and Professional Expenses</b>
2023	\$375,000
2024	\$331,500
2025	\$331,500
2026	\$331,500
2027	\$331,500
2028	\$331,500
2029	\$331,500
2030	\$331,500



# Kentucky's Affordable Prepaid Tuition Discussion (Concluded)

## Program Status

The Program has a closure date of June 30, 2030, at which point any remaining contract values will be refunded or rolled over to individual 529 College Savings Plans. The Board could elect to start selling contracts again and is charged with annually making that decision. However, if new contracts were to be sold, they would be part of a different plan and would not be backed by the full faith and credit of the Commonwealth. See Appendix B for a discussion regarding the sales of new contracts.

## Future Outlook

The Program is expected to become insolvent in about 2 years. We understand that the obligations will be transferred to the Commonwealth once the Program becomes insolvent.

As the Program nears insolvency, it is uncertain how this may impact members' behavior, especially for those who have already maximized their account value and not refunded their remaining accounts. Acceleration of refunding accounts could result in expediting the depletion date.

While our sensitivity modeling shows that different experiences will generally only affect the estimated depletion date by a year or two, readers should remember that since the baseline line assumptions show depletion in approximately two years, a change of even one year would be a material change in valuation results. It is also important to remember that the projections shown herein are based on future activity that cannot be precisely predicted. While future positive activity may delay the point of fund depletion (the point of becoming pay-as-you-go), future adverse experience may hasten the point of fund depletion.

## **SECTION B**

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### **PROGRAM DESCRIPTION**

# Kentucky's Affordable Prepaid Tuition

## Summary of Program Description Evaluated June 30, 2022

**Purchasing Contracts** – KAPT is currently closed to new participants. Current members purchased from three types of contracts with the following benefits:

- **Value Plan** – Provides in-state tuition and mandatory fees at Kentucky Community and Technical College System (KCTCS). KCTCS tuition price for full-time enrollment will be guaranteed. Depending on tuition rates, any money left over can cover qualified educational expenses.
- **Standard Plan** – Provides in-state undergraduate tuition and mandatory fees at Kentucky's eight public universities. Guarantees tuition price for full-time enrollment at the Commonwealth's most expensive public university (currently University of Kentucky). Depending on tuition rates, any money left over can cover qualified educational expenses such as books, room and board.
- **Premium Plan** – Provides tuition at Kentucky's private colleges and universities. While no particular school's tuition is guaranteed, the value of the plan grows at the same rate as the University of Kentucky's tuition. Depending on tuition rates, any money left over can cover qualified educational expenses such as books, room and board.

**Contract Payments** – Contract holders may agree to pay-off their contracts in a variety of ways:

- Lump-Sum Payment (Full Contract paid-in-full at time of enrollment to the Program)
- 3-Year Monthly Payments (36 monthly payments after purchase of contract)
- 5-Year Monthly Payments (60 monthly payments after purchase of contract)
- 7-Year Monthly Payments (96 monthly payments after purchase of contract)
- Extended Monthly Payments (Monthly payments after purchase of contract for defined period up to and including the year of high school matriculation)
- Custom Monthly Payments (Monthly payments based upon a custom determined schedule)

# Kentucky's Affordable Prepaid Tuition

## Summary of Program Description Evaluated June 30, 2022

### **Refunds**

**If a contract holder elects to close account prior to July 1 of their Projected College Entrance Year (PCEY),** the amount refunded will include payments made towards the contract minus administrative and cancellation fees.

**If a contract holder elects to close account beyond July 1 of their PCEY and before the end of their contract's utilization period,** the contract holder receives the tuition payout value of the account at that time minus administrative and cancellation fees and any benefits already used.

**If a contract holder elects to close account beyond the end of their contract's utilization period, the contracts receive the following:**

*If refunds occurred prior to June 30, 2019:*

- Accounts with utilization period end dates prior to 2012 – The value of the remaining prepaid tuition account for the 2014-2015 academic year.
- Accounts with utilization period end dates on or after 2012 – The value of the remaining prepaid tuition account at the end of the utilization period plus any applicable tuition plan value increases in each of the next two years (capped at 3% per annum).

*If refunds occur on or after June 30, 2019:*

- The value of the remaining prepaid tuition account at the end of the utilization period plus any applicable tuition plan value increases through the first eight years beyond the contract holder's original Projected College Entrance Year (PCEY).

Accounts have until June 30, 2030 to utilize benefits. Any remaining contract value will be rolled over into a 529 College Savings Program or refunded.

### **Change in Beneficiary**

Contract holders can change the beneficiary as long as the new beneficiary is an eligible member of the family of the current beneficiary.

*For purposes of this valuation, it is assumed that no contracts will change beneficiaries.*

*This is a summary of the contract provisions as they pertain to this valuation and as the Actuary understands them. If our understanding is not correct or has omitted material items, please contact the Actuary and do not rely on the results of this report. This should not be construed as actual contract terms.*

## SECTION C

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### DETAILED CHANGE IN MARGIN/(DEFICIT)

## Kentucky's Affordable Prepaid Tuition Detailed Change in Margin/(Deficit)

	(A) Present Value of Benefits	(B) PV Future Contract Payments	(C) Market Value of Assets	(C) - (A) + (B) Margin/(Deficit)
1. Values as of June 30, 2021	\$ 63,026,944	\$ 34,690	\$ 33,144,678	\$ (29,847,576)
2. Expected Contract Payments	\$ -	\$ (30,292)	\$ 30,292	\$ -
3. Expected Tuition Payments, Refunds, and Administrative Fees	\$ (13,471,888)	\$ -	\$ (13,471,888)	\$ -
4. Interest on Margin/(Deficit) at assumed rate (3.30%)	\$ 1,800,578	\$ 648	\$ 814,961	\$ (984,969)
<b>5. Projected Margin/(Deficit) as of June 30, 2022 [(1) + (2) + (3) + (4)]</b>	<b>\$ 51,355,634</b>	<b>\$ 5,046</b>	<b>\$ 20,518,043</b>	<b>\$ (30,832,545)</b>
6. Change Due to:				
a. Legislation	\$ -	\$ -	\$ -	\$ -
b. Investment experience above/(below) assumed	-	-	(1,664,216)	(1,664,216)
c. Tuition/Fee inflation for upcoming academic year	(433,871)	-	-	433,871
d. Change in program expense assumptions	1,315,313	-	-	(1,315,313)
e. Change in other program assumptions*	902,488	19	-	(902,469)
f. Other program experience during fiscal year 2022	402,549	(1,246)	228,309	(175,486)
Total	\$ 2,186,479	\$ (1,227)	\$ (1,435,907)	\$ (3,623,613)
<b>7. Actual values as of June 30, 2022 [(5) + (6)]</b>	<b>\$ 53,542,113</b>	<b>\$ 3,819</b>	<b>\$ 19,082,136</b>	<b>\$ (34,456,158)</b>

\* Includes changes in liability as a result of changes to the assumed future annual increases in tuition and rates of investment return.

**SECTION D**

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**PROGRAM ASSETS**

## Kentucky's Affordable Prepaid Tuition Statement of Total Assets (at Market Value)

### Market Value of Cash and Investment Assets Held

	as of June 30, 2022		as of June 30, 2021	
	Amount	% of Total	Amount	% of Total
Cash	\$ 10,322,792	54.10%	\$ 9,955,153	30.04%
Corporate Bonds	\$ -	0.00%	\$ 3,311,724	9.99%
U.S. Treasury and Government Agency Securities	\$ 8,748,018	45.85%	\$ 13,166,434	39.73%
Corporate Stock	\$ -	0.00%	\$ 6,709,059	20.24%
Money Market	\$ 9,011	0.05%	\$ 50,650	0.15%
Assumed Net Receivables	\$ -	0.00%	\$ (50,650)	-0.15%
<b>Total</b>	<b>\$ 19,079,821</b>	<b>100.00%</b>	<b>\$ 33,142,370</b>	<b>100.00%</b>



## Kentucky's Affordable Prepaid Tuition Reconciliation of Total Assets (at Market Value)

	FY 2022	FY 2021
<b>Total Market Value of Assets at the beginning of the Fiscal Year</b>	\$ 33,142,370	\$ 44,841,181
<b>Additions:</b>		
<b>Contract Payments</b>	\$ 32,200	\$ 107,147
<b>Investment Revenues:</b>		
a. Net unrealized gain on investments	\$ (1,915,483)	\$ (6,272,992)
b. Interest and investment income	1,066,228	9,669,223
<b>Total Investment Revenues</b>	<b>\$ (849,255)</b>	<b>\$ 3,396,231</b>
<b>Deductions:</b>		
a. Administrative expenses	\$ 92,939	\$ 124,173
b. Personnel and professional expenses	230,750	213,250
c. Refunds	2,706,087	2,995,222
d. Tuition benefits expense, net	10,324,667	11,743,389
<b>Total Deductions</b>	<b>\$ 13,354,443</b>	<b>\$ 15,076,034</b>
<b>Change in Net Position</b>	<b>\$ (14,171,498)</b>	<b>\$ (11,572,656)</b>
<b>Change in Net Receivables</b>	<b>\$ 108,949</b>	<b>\$ (126,155)</b>
<b>Total Market Value of Assets at the End of the Fiscal Year</b>	<b>\$ 19,079,821</b>	<b>\$ 33,142,370</b>

Total asset value shown above excludes any receivables for future contract payments.

**SECTION E**

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**CONTRACT DATA**

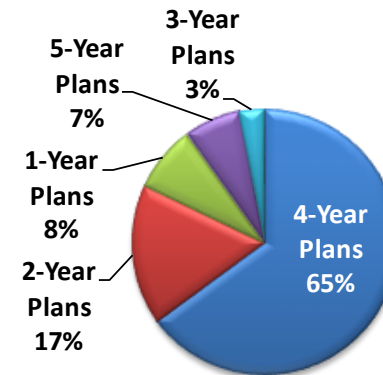
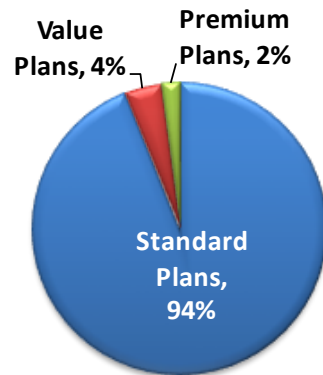
## Kentucky's Affordable Prepaid Tuition Member Matriculation Summary as of June 30, 2022

Projected Matriculation Year	Type of Contract												Total	
	Value Plan 1 Year	Value Plan 2 Years	Standard Plan 1 Year	Standard Plan 2 Years	Standard Plan 3 Years	Standard Plan 4 Years	Standard Plan 5 Years	Premium Plan 1 Year	Premium Plan 2 Years	Premium Plan 3 Years	Premium Plan 4 Years	Premium Plan 5 Years		
2004	-	1	1	-	-	5	-	-	-	-	1	-	8	0.4%
2005	-	-	-	2	-	9	-	-	-	-	1	-	12	0.6%
2006	-	1	-	4	3	12	3	-	-	-	1	-	24	1.1%
2007	1	1	3	4	1	16	1	-	-	-	2	-	29	1.4%
2008	-	-	3	6	-	24	3	-	-	-	2	1	39	1.9%
2009	-	2	3	10	3	31	2	-	-	-	-	1	52	2.5%
2010	-	-	3	5	4	30	5	1	-	-	1	-	49	2.3%
2011	1	-	4	11	2	41	4	-	-	-	2	-	65	3.1%
2012	-	2	6	10	3	35	2	-	-	-	1	-	59	2.8%
2013	1	1	4	9	2	56	6	-	-	-	-	2	81	3.8%
2014	-	6	9	25	6	88	4	-	1	1	1	1	142	6.7%
2015	2	3	8	11	4	83	10	-	-	-	2	1	124	5.9%
2016	1	8	8	17	7	94	16	-	-	-	4	-	155	7.4%
2017	4	4	8	16	4	115	21	-	1	-	1	1	175	8.3%
2018	2	12	15	30	8	175	18	-	-	-	2	-	262	12.4%
2019	2	7	15	32	3	153	10	-	1	1	2	1	227	10.8%
2020	2	6	21	34	9	164	15	-	1	-	1	-	253	12.0%
2021	2	9	21	31	6	119	15	-	2	-	2	-	207	9.8%
2022	3	4	11	11	4	63	9	1	-	1	1	-	108	5.1%
2023	-	-	3	6	-	18	3	-	-	-	1	-	31	1.5%
2024	-	-	-	-	-	1	-	-	-	-	-	-	1	0.0%
2025	-	-	-	1	-	-	-	-	-	-	-	-	1	0.0%
2026	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%
2027	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%
2028	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%
2029	-	-	-	-	-	1	-	-	-	-	-	-	1	0.0%
<b>2004-2014</b>	<b>3</b>	<b>14</b>	<b>36</b>	<b>86</b>	<b>24</b>	<b>347</b>	<b>30</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>12</b>	<b>5</b>	<b>560</b>	<b>26.6%</b>
<b>2015+</b>	<b>18</b>	<b>53</b>	<b>110</b>	<b>189</b>	<b>45</b>	<b>986</b>	<b>117</b>	<b>1</b>	<b>5</b>	<b>2</b>	<b>16</b>	<b>3</b>	<b>1,545</b>	<b>73.4%</b>
<b>Grand Total</b>	<b>21</b>	<b>67</b>	<b>146</b>	<b>275</b>	<b>69</b>	<b>1,333</b>	<b>147</b>	<b>2</b>	<b>6</b>	<b>3</b>	<b>28</b>	<b>8</b>	<b>2,105</b>	<b>100.0%</b>
	1.0%	3.2%	6.9%	13.1%	3.3%	63.3%	7.0%	0.1%	0.3%	0.1%	1.3%	0.4%	100.0%	



## Kentucky's Affordable Prepaid Tuition Member Payment Option Summary as of June 30, 2022

Contract Payment Type	Type of Contract												Total	
	Value Plan 1 Year	Value Plan 2 Years	Standard Plan 1 Year	Standard Plan 2 Years	Standard Plan 3 Years	Standard Plan 4 Years	Standard Plan 5 Years	Premium Plan 1 Year	Premium Plan 2 Years	Premium Plan 3 Years	Premium Plan 4 Years	Premium Plan 5 Years		
Lump Sum	6	19	84	109	19	526	61	-	3	3	14	6	<b>850</b>	40.4%
3-Year Monthly	-	8	14	12	3	76	10	-	-	-	2	-	<b>125</b>	5.9%
5-Year Monthly	2	6	10	19	4	115	15	1	2	-	3	2	<b>179</b>	8.5%
7-Year Monthly	4	11	14	56	19	248	28	-	-	-	6	-	<b>386</b>	18.3%
Monthly Extended	9	23	24	76	24	321	22	1	1	-	2	-	<b>503</b>	23.9%
Custom Monthly	-	-	-	3	-	47	11	-	-	-	1	-	<b>62</b>	2.9%
<b>Total</b>	<b>21</b>	<b>67</b>	<b>146</b>	<b>275</b>	<b>69</b>	<b>1,333</b>	<b>147</b>	<b>2</b>	<b>6</b>	<b>3</b>	<b>28</b>	<b>8</b>	<b>2,105</b>	100.0%
	1.0%	3.2%	6.9%	13.1%	3.3%	63.3%	7.0%	0.1%	0.3%	0.1%	1.3%	0.4%	100.0%	



## **SECTION F**

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### **METHODS AND ASSUMPTIONS**

# Kentucky's Affordable Prepaid Tuition Valuation Methods and Assumptions

The assumptions are based upon past Program experience and future expectations. We believe the assumptions are reasonable.

**Assumed Rate of Investment Return/Discount Rate** – The assumed rate of return (net of investment expenses) is used as the discount rate for the determination of the present value of fund tuition payments, refunds and administrative, personnel and professional expenses. The assumed rate of investment return (net of investment expenses) is 1.50% for all future years.

**Assumed Rate of Tuition Increases:** The assumed rate of tuition increases is prescribed by KAPT.

4-Year Universities – 4.00% for all future years.

2-Year Community Colleges – 4.00% for all future years.

**Assumed Utilization Hours<sup>#</sup>:** It is assumed 92% of contracts who reach Projected Contract Enrollment Year (PCEY) on or after the valuation date will utilize 32 KAPT hours per year until they have exhausted all value or reached the end of their utilization period. Contracts with remaining value beyond the utilization period are assumed to refund eight years after their PCEY (maximum refundable value).

*# Liabilities are modeled assuming two payments per year for Tuition payouts (one at beginning of September and one at beginning of January).*

**Refunds:** It is assumed 8% of contracts with PCEY on or after the valuation date will not utilize any additional KAPT hours in the future and will continue holding their contract until eight years after PCEY, at which time they will be issued a refund.

**Past Due Refunds:** Those who are already eight years past their PCEY and have not already refunded are assumed to continue holding their contracts until the Program closure in 2030 and then will be issued a refund.

**Election of Program Changes:** None.

**Election of Change of Beneficiary:** None.

**Liability Adjustments for Administrative, Personnel and Professional Expenses:** Below is the projection of future administrative, personnel and professional expenses through the closure of the Program provided by Staff:

Fiscal Year	Administrative, Personnel and Professional Expenses
2023	\$375,000
2024	\$331,500
2025	\$331,500
2026	\$331,500
2027	\$331,500
2028	\$331,500
2029	\$331,500
2030	\$331,500

**Contract Terms:** No changes in contract terms are assumed once initiated.



# Kentucky's Affordable Prepaid Tuition Valuation Methods and Assumptions

**Annual Payout Values for the 2022/2023 Academic Year (based on usage of 32 KAPT hours):**

Value Plan: \$6,080.00  
 Standard Plan: \$12,858.88  
 Premium Plan: 2001-2002 KAPT Enrollment – \$40,705.92  
                   2002-2003 KAPT Enrollment – \$44,516.80  
                   2004-2005 KAPT Enrollment – \$37,562.56

**Cancellations:** It is assumed contracts which have not yet reached their PCEY will cancel and refund based upon the rates below. It is assumed the amount refunded equals the amount of money the contract holder has paid into the Program.

Years Since Purchase	Contract Payment Plan					
	Lump-Sum	36 Monthly Payments	60 Monthly Payments	84 Monthly Payments	Extended Payments	Custom Payments
0	1.50%	3.00%	5.00%	6.00%	8.00%	8.00%
1	1.00%	2.00%	4.00%	4.00%	7.00%	7.00%
2	0.75%	1.00%	3.00%	3.00%	5.00%	5.00%
3	0.75%	1.00%	2.00%	2.00%	4.00%	4.00%
4	0.50%	0.75%	1.00%	1.00%	3.00%	3.00%
5	0.50%	0.75%	0.75%	1.00%	2.00%	2.00%
6	0.50%	0.75%	0.75%	1.00%	1.00%	1.00%
7+	0.50%	0.75%	0.75%	0.75%	0.75%	0.75%

## **SECTION G**

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### **PROJECTION RESULTS**



# Kentucky's Affordable Prepaid Tuition

## Sensitivity Testing Results

The actuarial assumptions regarding future increases in tuition costs and fees and the future rate of investment return were adopted by KAPT. In our opinion, the adopted assumptions are reasonable for the purpose of the measurement. However, no one knows with certainty what the future holds with respect to economic and other contingencies. For example, while it is assumed that the assets of the Program will earn 1.50% net of investment expenses during the fiscal year 2023, actual return is expected to vary from year to year. Therefore, we have projected the Program's results under alternative assumptions for future investment income and tuition increases as follows:

**Page**   **Description**

- 22   Summary of Sensitivity Testing Results.
- 23   Current valuation assumptions
- 24   The investment return assumption is 100 basis points higher than assumed in each of the next four years.
- 25   The investment return assumption is 100 basis points lower than assumed in each of the next four years.
- 26   Tuition increases are 100 basis points higher in each future year than assumed.
- 27   Tuition increases are 100 basis points lower in each future year than assumed.
- 28   Contracts which, as of the valuation date, are more than eight years past their Projected College Entrance Year (PCEY) but have not refunded yet are assumed to refund immediately in the next fiscal year.
- 29   Contracts once beyond the Projected College Entrance Year (PCEY) are assumed to not refund their contracts until Program closure in 2030.

The summary of the impact of each of these scenarios on the principal valuation results is presented on the following page. See pages 23 through 29 for detailed projection results of each scenario.

## Kentucky's Affordable Prepaid Tuition Sensitivity Testing Results

	Valuation Results Page 23	Assumed Investment Return +100 Basis Points Page 24	Assumed Investment Return -100 Basis Points Page 25	Assumed Tuition Increases +100 Basis Points Page 26	Assumed Tuition Increases -100 Basis Points Page 27	Assuming All Maximized Refunds Paid During Next Fiscal Year (FY 2023) Page 28	Assuming All Maximized Refunds Paid During Year of Program Closure (FY 2030) Page 29
<u>Assumed Investment Return in Fiscal Year Ending</u> 2023 and Thereafter	1.50%	2.50%	0.50%	1.50%	1.50%	1.50%	1.50%
<u>Assumed Tuition Increase (University/Community College)</u> 2023-2024 and Thereafter	4.00%/4.00%	4.00%/4.00%	4.00%/4.00%	5.00%/5.00%	3.00%/3.00%	4.00%/4.00%	4.00%/4.00%
Fiscal Year Insolvent	2024	2025	2024	2024	2024	2024	2026
Margin/(Deficit) (\$ in Millions)	(\$34.5)	(\$32.7)	(\$36.3)	(\$35.4)	(\$33.5)	(\$35.2)	(\$33.1)
(Increase)/Decrease in Deficit (\$ in Millions)		\$1.8	(\$1.8)	(\$0.9)	\$1.0	(\$0.7)	\$1.4

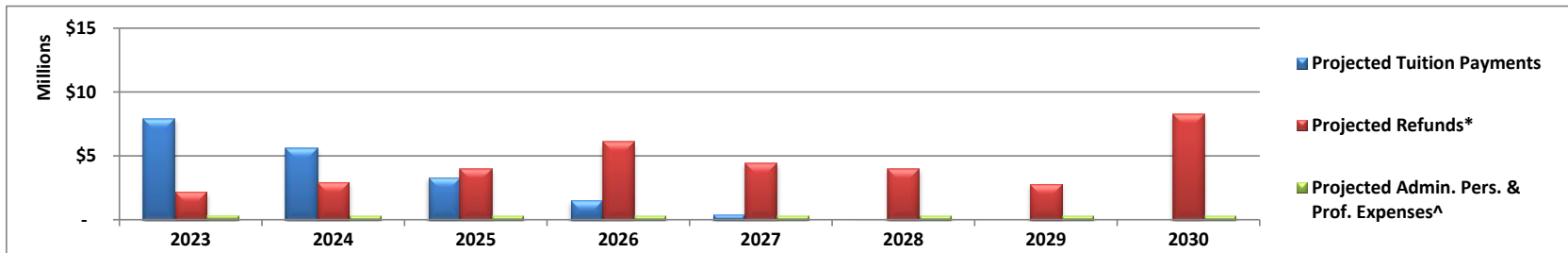
# Kentucky's Affordable Prepaid Tuition

## June 30, 2022 Projection Based on Valuation Results

Inputs		
Assumed Administrative, Personnel and Professional Expenses:	2023: \$375,000	2024-2030: \$331,500
Closure of Program:	2030	

Valuation Results	
Present Value of Future Tuition and Fees	\$ 53,542,113
Present Value of Future Contract Payments	\$ 3,819
June 30, 2022 Assets	\$ 19,082,136
Margin/(Deficit)	\$ (34,456,158)
Funded Status	35.6%
Year Insolvent	2024

Fiscal Year Ending 6/30	Assumed Net Investment Return During Year	Assumed Tuition Increase for UK	Assumed Tuition Increase for KCTCS	Market Value of Assets Beginning of Fiscal Year	Projected Tuition Payments	Projected Refunds*	Projected Admin. Pers. & Prof. Expenses^	Projected Contract Payments	Market Value of Assets End of Fiscal Year
2022				\$ 19,082,136	\$ 7,911,971	\$ 2,186,659	\$ 395,475	\$ 3,847	\$ 19,082,136
2023	1.50%	N/A	N/A	\$ 19,082,136	\$ 7,911,971	\$ 2,186,659	\$ 395,475	\$ 3,847	\$ 8,779,873
2024	1.50%	4.00%	4.00%	8,779,873	5,639,628	2,943,399	331,500	-	(83,730)
2025	1.50%	4.00%	4.00%	(83,730)	3,305,699	3,998,243	331,500	-	(7,785,806)
2026	1.50%	4.00%	4.00%	(7,785,806)	1,520,816	6,094,949	331,500	-	(15,913,112)
2027	1.50%	4.00%	4.00%	(15,913,112)	480,750	4,440,513	331,500	-	(21,445,070)
2028	1.50%	4.00%	4.00%	(21,445,070)	57,178	3,983,415	331,500	-	(26,171,691)
2029	1.50%	4.00%	4.00%	(26,171,691)	-	2,790,272	331,500	-	(29,709,394)
2030	1.50%	4.00%	4.00%	(29,709,394)	-	8,263,768	331,500	-	(38,814,608)



\* Assumed all maximized refunds as of 6/30/2022 are paid upon termination of the Program (2030). All other contracts are assumed to refund 8 years after Projected College Entrance Year (time at which contract value is maximized).

^ First year includes accounts payable as of the valuation date.

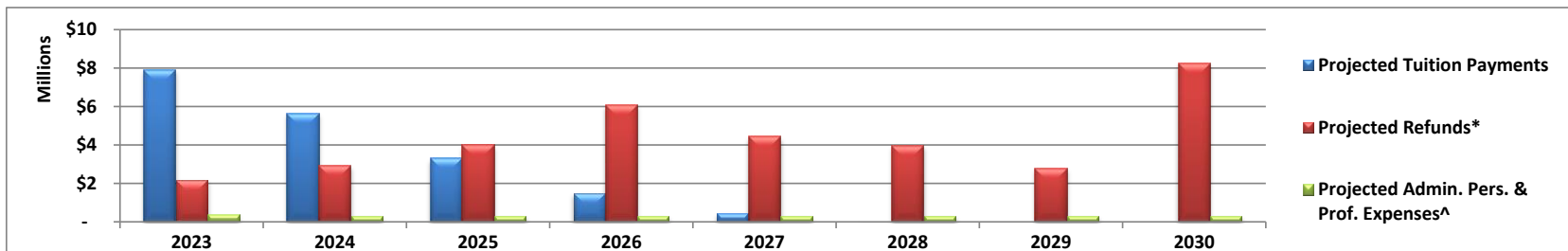
# Kentucky's Affordable Prepaid Tuition

## June 30, 2022 Projection Based on Investment Return +100 Basis Points for 4 Years

Inputs		
Assumed Administrative, Personnel and Professional Expenses:	2023: \$375,000	2024-2030: \$331,500
Closure of Program:	2030	

Solvency Results	
Year Insolvent	2025

Fiscal Year Ending 6/30	Assumed Net Investment Return During Year	Assumed Tuition Increase for UK	Assumed Tuition Increase for KCTCS	Market Value of Assets Beginning of Fiscal Year	Projected Tuition Payments	Projected Refunds*	Projected Admin. Pers. & Prof. Expenses^	Projected Contract Payments	Market Value of Assets End of Fiscal Year
2022									\$ 19,082,136
2023	2.50%	N/A	N/A	\$ 19,082,136	\$ 7,911,971	\$ 2,186,659	\$ 395,475	\$ 3,847	8,905,445
2024	2.50%	4.00%	4.00%	8,905,445	5,639,628	2,943,399	331,500	-	79,131
2025	2.50%	4.00%	4.00%	79,131	3,305,699	3,998,243	331,500	-	(7,663,128)
2026	2.50%	4.00%	4.00%	(7,663,128)	1,520,816	6,094,949	331,500	-	(15,907,227)
2027	2.50%	4.00%	4.00%	(15,907,227)	480,750	4,440,513	331,500	-	(21,625,059)
2028	2.50%	4.00%	4.00%	(21,625,059)	57,178	3,983,415	331,500	-	(26,592,442)
2029	2.50%	4.00%	4.00%	(26,592,442)	-	2,790,272	331,500	-	(30,417,887)
2030	2.50%	4.00%	4.00%	(30,417,887)	-	8,263,768	331,500	-	(39,880,601)



\* Assumed all maximized refunds as of 6/30/2022 are paid upon termination of the Program (2030). All other contracts are assumed to refund 8 years after Projected College Entrance Year (time at which contract value is maximized).

^ First year includes accounts payable as of the valuation date.

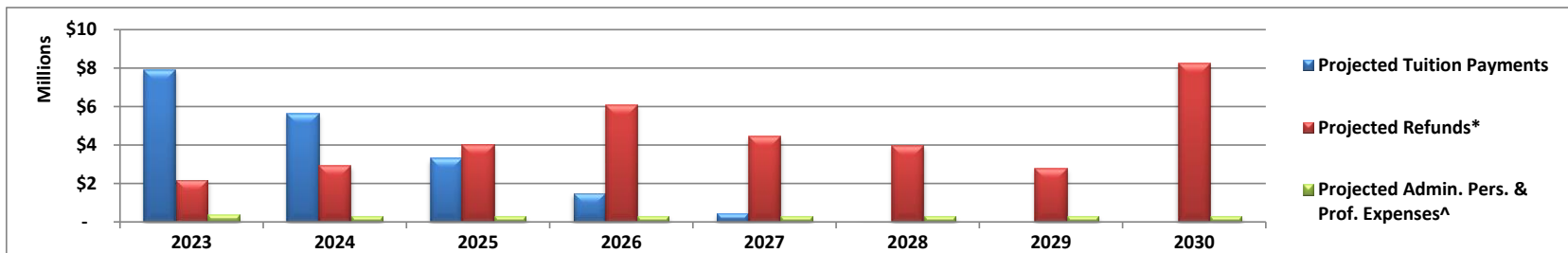
# Kentucky's Affordable Prepaid Tuition

## June 30, 2022 Projection Based on Investment Return -100 Basis Points for 4 Years

Inputs		
Assumed Administrative, Personnel and Professional Expenses:	2023: \$375,000	2024-2030: \$331,500
Closure of Program:	2030	

Solvency Results	
Year Insolvent	2024

Fiscal Year Ending 6/30	Assumed Net Investment Return During Year	Assumed Tuition Increase for UK	Assumed Tuition Increase for KCTCS	Market Value of Assets Beginning of Fiscal Year	Projected Tuition Payments	Projected Refunds*	Projected Admin. Pers. & Prof. Expenses^	Projected Contract Payments	Market Value of Assets End of Fiscal Year
2022									\$ 19,082,136
2023	0.50%	N/A	N/A	\$ 19,082,136	\$ 7,911,971	\$ 2,186,659	\$ 395,475	\$ 3,847	8,654,494
2024	0.50%	4.00%	4.00%	8,654,494	5,639,628	2,943,399	331,500	-	(243,726)
2025	0.50%	4.00%	4.00%	(243,726)	3,305,699	3,998,243	331,500	-	(7,902,213)
2026	0.50%	4.00%	4.00%	(7,902,213)	1,520,816	6,094,949	331,500	-	(15,910,107)
2027	0.50%	4.00%	4.00%	(15,910,107)	480,750	4,440,513	331,500	-	(21,255,942)
2028	0.50%	4.00%	4.00%	(21,255,942)	57,178	3,983,415	331,500	-	(25,745,284)
2029	0.50%	4.00%	4.00%	(25,745,284)	-	2,790,272	331,500	-	(29,003,580)
2030	0.50%	4.00%	4.00%	(29,003,580)	-	8,263,768	331,500	-	(37,765,337)



\* Assumed all maximized refunds as of 6/30/2022 are paid upon termination of the Program (2030). All other contracts are assumed to refund 8 years after Projected College Entrance Year (time at which contract value is maximized).

^ First year includes accounts payable as of the valuation date.

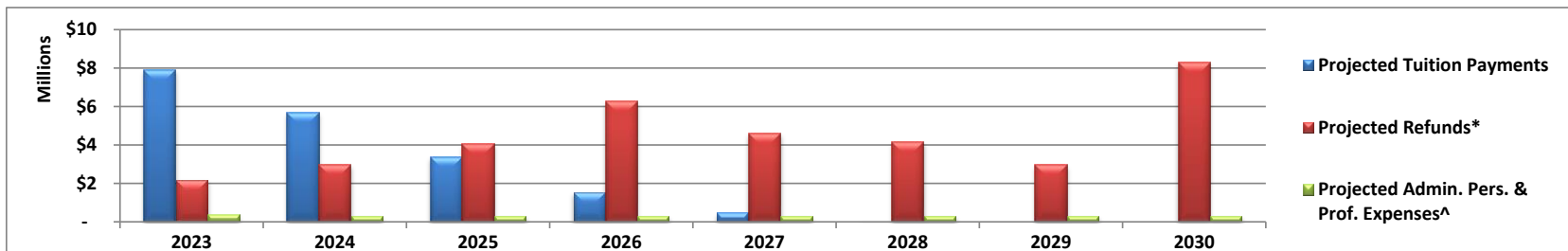
# Kentucky's Affordable Prepaid Tuition

## June 30, 2022 Projection Based on Tuition Increases +100 Basis Points

Inputs		
Assumed Administrative, Personnel and Professional Expenses:	2023: \$375,000	2024-2030: \$331,500
Closure of Program:	2030	

Solvency Results	
Year Insolvent	2024

Fiscal Year Ending 6/30	Assumed Net Investment Return During Year	Assumed Tuition Increase for UK	Assumed Tuition Increase for KCTCS	Market Value of Assets Beginning of Fiscal Year	Projected Tuition Payments	Projected Refunds*	Projected Admin. Pers. & Prof. Expenses^	Projected Contract Payments	Market Value of Assets End of Fiscal Year
2022									\$ 19,082,136
2023	1.50%	N/A	N/A	\$ 19,082,136	\$ 7,911,971	\$ 2,186,659	\$ 395,475	\$ 3,847	8,779,873
2024	1.50%	5.00%	5.00%	8,779,873	5,693,857	2,971,698	331,500	-	(167,012)
2025	1.50%	5.00%	5.00%	(167,012)	3,369,575	4,075,498	331,500	-	(8,012,683)
2026	1.50%	5.00%	5.00%	(8,012,683)	1,565,109	6,272,457	331,500	-	(16,366,963)
2027	1.50%	5.00%	5.00%	(16,366,963)	499,509	4,613,776	331,500	-	(22,099,234)
2028	1.50%	5.00%	5.00%	(22,099,234)	59,980	4,178,637	331,500	-	(27,035,180)
2029	1.50%	5.00%	5.00%	(27,035,180)	-	2,955,161	331,500	-	(30,751,957)
2030	1.50%	5.00%	5.00%	(30,751,957)	-	8,313,996	331,500	-	(39,923,413)



\* Assumed all maximized refunds as of 6/30/2022 are paid upon termination of the Program (2030). All other contracts are assumed to refund 8 years after Projected College Entrance Year (time at which contract value is maximized).

^ First year includes accounts payable as of the valuation date.

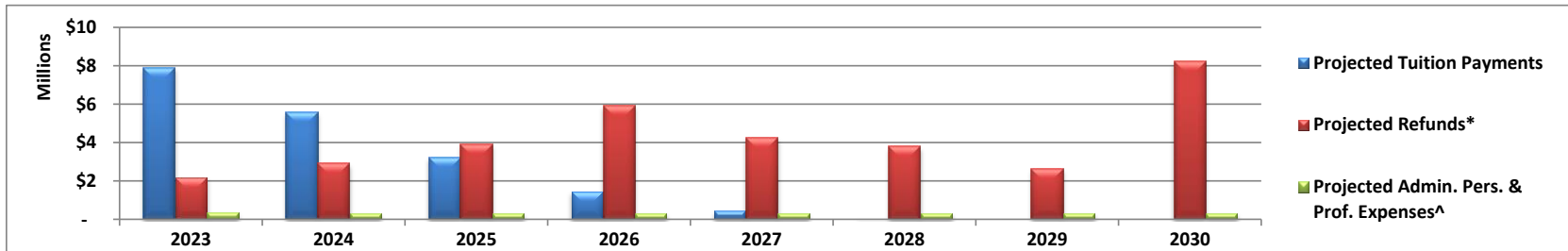
# Kentucky's Affordable Prepaid Tuition

## June 30, 2022 Projection Based on Tuition Increases -100 Basis Points

Inputs		
Assumed Administrative, Personnel and Professional Expenses:	2023: \$375,000	2024-2030: \$331,500
Closure of Program:	2030	

Solvency Results	
Year Insolvent	2024

Fiscal Year Ending 6/30	Assumed Net Investment Return During Year	Assumed Tuition Increase for UK	Assumed Tuition Increase for KCTCS	Market Value of Assets Beginning of Fiscal Year	Projected Tuition Payments	Projected Refunds*	Projected Admin. Pers. & Prof. Expenses^	Projected Contract Payments	Market Value of Assets End of Fiscal Year
2022									\$ 19,082,136
2023	1.50%	N/A	N/A	\$ 19,082,136	\$ 7,911,971	\$ 2,186,659	\$ 395,475	\$ 3,847	8,779,873
2024	1.50%	3.00%	3.00%	8,779,873	5,585,401	2,915,100	331,500	-	(451)
2025	1.50%	3.00%	3.00%	(451)	3,242,433	3,921,727	331,500	-	(7,560,292)
2026	1.50%	3.00%	3.00%	(7,560,292)	1,477,367	5,920,822	331,500	-	(15,464,903)
2027	1.50%	3.00%	3.00%	(15,464,903)	462,525	4,272,177	331,500	-	(20,802,136)
2028	1.50%	3.00%	3.00%	(20,802,136)	54,481	3,795,559	331,500	-	(25,327,127)
2029	1.50%	3.00%	3.00%	(25,327,127)	-	2,633,123	331,500	-	(28,693,837)
2030	1.50%	3.00%	3.00%	(28,693,837)	-	8,216,356	331,500	-	(37,736,050)



\* Assumed all maximized refunds as of 6/30/2022 are paid upon termination of the Program (2030). All other contracts are assumed to refund 8 years after Projected College Entrance Year (time at which contract value is maximized).

^ First year includes accounts payable as of the valuation date.

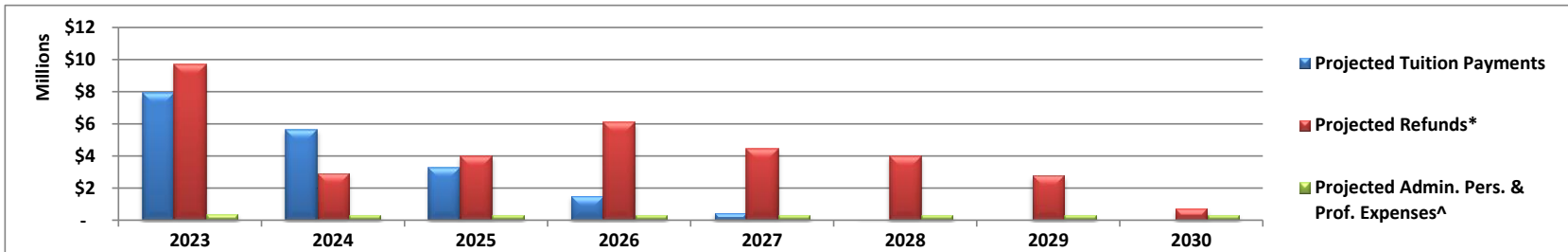
# Kentucky's Affordable Prepaid Tuition

## June 30, 2022 Projection Based on Maximized Refunds Paid Next Fiscal Year

Inputs		
Assumed Administrative, Personnel and Professional Expenses:	2023: \$375,000	2024-2030: \$331,500
Closure of Program:	2030	

Solvency Results	
Year Insolvent	2024

Fiscal Year Ending 6/30	Assumed Net Investment Return During Year	Assumed Tuition Increase for UK	Assumed Tuition Increase for KCTCS	Assumed Market Value of Assets Beginning of Fiscal Year	Projected Tuition Payments	Projected Refunds*	Projected Admin. Pers. & Prof. Expenses^	Projected Contract Payments	Market Value of Assets End of Fiscal Year
2022									\$ 19,082,136
2023	1.50%	N/A	N/A	\$ 19,082,136	\$ 7,911,971	\$ 9,725,433	\$ 395,475	\$ 3,847	1,184,699
2024	1.50%	4.00%	4.00%	1,184,699	5,639,628	2,943,399	331,500	-	(7,792,833)
2025	1.50%	4.00%	4.00%	(7,792,833)	3,305,699	3,998,243	331,500	-	(15,610,544)
2026	1.50%	4.00%	4.00%	(15,610,544)	1,520,816	6,094,949	331,500	-	(23,855,222)
2027	1.50%	4.00%	4.00%	(23,855,222)	480,750	4,440,513	331,500	-	(29,506,311)
2028	1.50%	4.00%	4.00%	(29,506,311)	57,178	3,983,415	331,500	-	(34,353,851)
2029	1.50%	4.00%	4.00%	(34,353,851)	-	2,790,272	331,500	-	(38,014,286)
2030	1.50%	4.00%	4.00%	(38,014,286)	-	724,994	331,500	-	(39,648,899)



\* Assumed all maximized refunds as of 6/30/2022 are paid immediately in the next Fiscal Year (2023). All other contracts are assumed to refund 8 years after Projected College Entrance Year (time at which contract value is maximized).

^ First year includes accounts payable as of the valuation date.



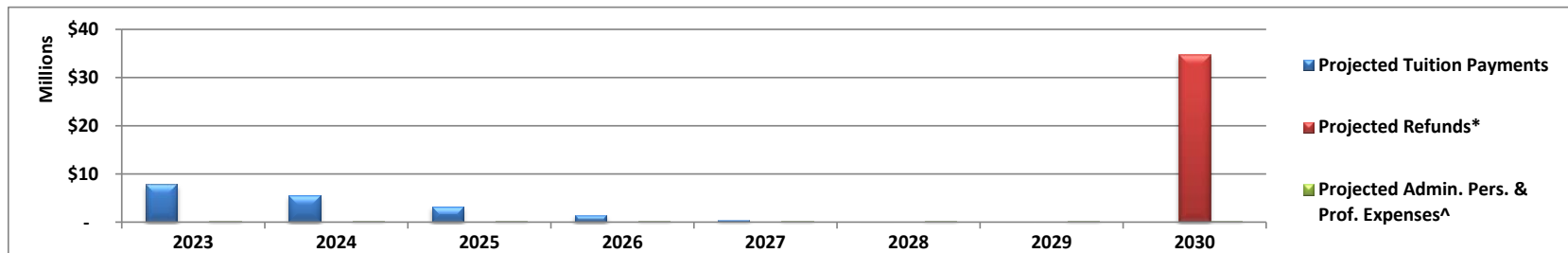
# Kentucky's Affordable Prepaid Tuition

## June 30, 2022 Projection Based on Maximized Refunds Paid Upon Program Closure

Inputs		
Assumed Administrative, Personnel and Professional Expenses:	2023: \$375,000	2024-2030: \$331,500
Closure of Program:	2030	

Solvency Results	
Year Insolvent	2026

Fiscal Year Ending 6/30	Assumed Net Investment Return During Year	Assumed Tuition Increase for UK	Assumed Tuition Increase for KCTCS	Market Value of Assets Beginning of Fiscal Year	Projected Tuition Payments	Projected Refunds*	Projected Admin. Pers. & Prof. Expenses^	Projected Contract Payments	Market Value of Assets End of Fiscal Year
2022									\$ 19,082,136
2023	1.50%	N/A	N/A	\$ 19,082,136	\$ 7,911,971	\$ 5,481	\$ 395,475	\$ 3,847	10,977,369
2024	1.50%	4.00%	4.00%	10,977,369	5,639,628	275	331,500	-	5,111,871
2025	1.50%	4.00%	4.00%	5,111,871	3,305,699	197	331,500	-	1,515,686
2026	1.50%	4.00%	4.00%	1,515,686	1,520,816	139	331,500	-	(331,690)
2027	1.50%	4.00%	4.00%	(331,690)	480,750	137	331,500	-	(1,156,330)
2028	1.50%	4.00%	4.00%	(1,156,330)	57,178	136	331,500	-	(1,565,541)
2029	1.50%	4.00%	4.00%	(1,565,541)	-	135	331,500	-	(1,923,140)
2030	1.50%	4.00%	4.00%	(1,923,140)	-	34,694,718	331,500	-	(37,240,250)



\* Assumed all refunds after Projected Contract Enrollment Year are paid at closure of Program (2030).

^ First year includes accounts payable as of the valuation date.

## **APPENDIX A**

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### **INVESTMENT POLICY'S INVESTMENT OBJECTIVE**

# Kentucky's Affordable Prepaid Tuition Investment Policy's Investment Objective

Below provides the investment objective of the KAPT Board's current investment policy for the Program as of June 30, 2022. Please refer to the full investment policy of Kentucky's Affordable Prepaid Tuition Plan for more information.

## II. INVESTMENT OBJECTIVE

The objectives of the Fund have been established based upon current and projected financial requirements. The objectives are:

1. Minimizing return volatility while generating a rate of return that closely matches the rate of tuition inflation.
2. To remain sufficiently liquid to meet KAPT benefit payments in a timely manner.

A diversified portfolio strategy will be used in an effort to achieve the objectives identified above. The strategic target asset allocation, based on an analysis performed by the Fund's investment consultant, shall be as follows:

<u>Asset Class</u>	<u>Target %</u>	<u>Range %</u>	<u>Benchmark</u>
Large Cap US Equities	0	0	
Mid Cap US Equities	0	0	
Small Cap US Equities	0	0	
Non-US Equities	0	0	
Total Equity	0	0	
Domestic Fixed-Income	0	0	
Short Duration US Fixed Income	50	45-52	Bloomberg Barclays US 1-3 Year Government/Credit Bond Index
Cash Equivalents	50	48-52	J.P. Morgan One-Month US Dollar Libor Index
Total Fixed Income/Cash	100	100	

Adherence to the asset allocation is monitored quarterly by the Board, but more frequently by the investment manager. Rapid unanticipated market shifts or changes in economic conditions may cause the asset mix to fall outside of the stated ranges. Rebalancing the Fund to comply with the stated ranges is the responsibility of the investment manager. The Fund's investment consultant will reevaluate the strategic asset allocation on an annual basis and report their findings to the Board.

Any investment of funds made will consider asset allocation, rate of return, and fee structure. For the purpose of evaluating success/failure in meeting the Fund's rate of return objectives, inflation will be measured by a rate of inflation which reflects tuition costs. Investment return means total compound return, calculated to recognize all cash income plus realized and unrealized capital gains and losses, net of transaction costs and disbursements.

In order to measure performance of the investment program, the return for the Total Fund will be compared to a blend of benchmark returns in proportion to the target asset allocation.

Following the May 2022 KAPT Board meeting at which time the Investment Policy will be revised, the program manager will liquidate all equity holdings within 90-days of Board approval. Once the liquidation has been completed and remaining assets have been moved to fixed income/cash equivalents, section *III. Eligible Investments* subsections A & B will no longer be applicable as it relates to Fund equity references.



## **APPENDIX B**

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### **DISCUSSION OF SELLING NEW CONTRACTS**

# Kentucky's Affordable Prepaid Tuition

## Discussion of Selling New Contracts

### Background

The Board must annually consider the selling of new contracts. Contracts were last sold in 2004.

### Long-Term Growth of Contracts

Under the original Program, Participants could leave their contracts in the Program (unused) for as long as they desired and the contract value would continue to grow at the rate of the increase in tuition growth (primarily at the University of Kentucky). Since pricing is based on a present value of expected payments, appropriate pricing under a Program design, such as this, cannot be determined when the value of the contract can grow forever and the rate of increase in value (assumed tuition increases) exceeds the discount rate (assumed rate of investment return).

However, the legislated Program changes in 2014 limited the growth of unused contracts to six years beyond the expected utilization period. Legislated changes in 2019 modified that limit to eight years past the Projected College Entrance year (PCEY). Under either the 2014 limit or the 2019 limit, an appropriate pricing can be determined. If the limit is changed in the future, we would need to assess whether appropriate prices could still be determined.

### Separation of Programs

We understand that if the Board were to re-open sales of new contracts, a separate Program would be created (such as a KAPT II). We further understand that contracts under the new Program would not be backed by the full faith and credit of the Commonwealth and the assets of the new Program would not be used to pay the benefits of the old Program. We further understand that there would be a time limit on the growth of the contract value (similar or the same as under the current KAPT Program).

### Development of Pricing

Under these parameters, we believe that appropriate pricing can be developed. The pricing would be dependent on the following:

- The age of the participant at contract purchase;
- Expected matriculation date;
- Assumptions regarding:
  - Rates of utilization
  - Rates of future tuition increases (or growth of contract value)
  - Rates of assumed investment return
  - Timing of expected tuition payments (or refunds)
  - Rates of cancellation
  - Rates of administrative expenses paid by the contract holder
- Risk margin; and
- Board's funding and pricing policy/guidelines.

# Kentucky's Affordable Prepaid Tuition

## Discussion of Selling New Contracts (Continued)

### Important Considerations

#### Risk Margins

Risk margins are an important aspect of contract pricing. Essentially the contracts are an insurance policy with one-time pricing. Pricing is traditionally built using assumptions developed on average expectations. Meaning that half the time, the contracts are underpriced and that half the time contracts are overpriced. This type of pricing can work when only a short period of time is covered and assumptions can be continually reviewed and contracts can be repriced (such as automobile insurance). In the case of a prepaid tuition plan the time frame between purchase and benefit payment can be as long as 25 years. In addition, short-term risks (for participants who are older at contract purchase) may place significant pressure on cash flow for Programs that are new or smaller. By recognizing these risks, Programs can build a margin into the pricing to manage these risks.

There are two types of Risk Margins that we have seen utilized in contract pricing: implicit risk margin and explicit risk margin. Implicit risk margins are created when pricing assumptions are more conservative than average expectations. For example, a Program may believe that the long term average increase in tuition will be 6%, but include pricing based on increases of 10% for the next six years, 7% for the following six years and 4% for the remaining six years (assuming 18 years for complete payment of benefits).

Another example of an implicit risk premium would be if the long term investment return expectation is 5%, but pricing assumed 2% for the next six years, 4% for the six years after that and 7% for the remaining six years (assuming 18 years for complete payment of benefits).

Explicit risk margins are created when pricing is increased by a specific factor, such as 5%, as the final step.

We have assisted other pre-paid Programs in developing funding policies that connect the risk margin in the pricing to the funded status of the Program (and the relativity to the Board's funding target). For example, an initial risk premium could be established of 3% explicit and 3% implicit. In addition, a funded status target might be established of 115%. Then, in years when the funded target is exceeded by 200 basis points, the risk margin is reduced. Conversely, if the funded target missed by 200 basis points, the risk margin would be increased.

#### Program Size

There is a common misconception that a prepaid tuition Program must have a certain level of participation to be viable. While we do not agree with this sentiment, we do believe that the Program size has implications for the Board to consider. One consideration is the funding target (or risk reserve). Because the Program is basically insurance, the size of the Program is the risk pool. The larger the pool, the more the Program is spreading risk and therefore the smaller the risk reserve will need to be (as a percent of liabilities). Conversely, the smaller the risk pool, the larger the risk reserve needs to be in order to keep the Program healthy.

## **Kentucky's Affordable Prepaid Tuition Discussion of Selling New Contracts (Concluded)**

Program size is also a consideration when determining if the Program is an appropriate use of resources. This is a policy decision, not an actuarial decision. However, the issue is essentially, the expected size of the Program (once it matures) sufficient to justify allocating Commonwealth resources to the maintenance of the Program. A side concern is whether or not the Program is being utilized by the intended population.

### **Final Thoughts**

Should the Board wish to explore opening a new Program and selling new contracts, we would be happy to work with the Board to develop a funding policy, initial pricing assumptions and contract pricing.