Mr. Chairman, members of the Committee, my name is Gary Forsee, President of the University of Missouri System, and I am pleased to be here today to testify in support of Senate Bill 936.

I want to thank Senator Pearce for moving this legislation forward so that we can have this discussion today.

I also want to note that this week is designated as Math, Engineering, Technology and Science Week in Missouri. Today’s hearing is very timely.

The concept of promoting METS, or the Science, Technology, Engineering and Mathematics areas of our educational system, is not new.

At the federal level, many organizations have sounded the alarm about the drop in U.S. competitiveness for our elementary and secondary school students in these areas.

Just last fall the White House launched the “Educate to Innovate” campaign to encourage $260 million in public-private investments to improve achievement in science and math over the next decade.

A recent Brookings report indicates the US is now 47th in the world in the percentage of new graduates trained in these fields.

Missouri has been looking at this area as well.

The Missouri METS Coalition was formed a few years ago to bring together businesses, education, government and community stakeholders to look for ways to improve education and awareness among our elementary and secondary students.

The coalition developed an excellent set of recommendations for steps that can be taken to improve our performance in this area.

In higher education, we have also been concerned as the number of students seeking degrees in areas that would lead them to teach in the physical sciences decreases.
We have seen other nations accelerate the focus on training engineers at a time when Missouri and our nation continue to fall behind.

Perhaps some statistics can help to hit home the message of why this is so important.

- Missouri ranks in the lowest 25% of all states in the proportion of Science and Engineering degrees as a share of the total degrees awarded. This is a measure of the extent to which a state's higher education programs are concentrated in Science and Engineering. (Source: National Science Board state indicators)

- In Missouri, fourth-grade students' math skills rank in the bottom third nationally. (Source: National Center for Educational Statistics.)

- In 2005, only 17% of Missouri’s 10th-grade students scored at proficient or advanced in math. Only 8% tested at proficient or advanced in science. (Source: DESE)

  Math scores of eight-grade students have declined in national assessments, ranking Missouri below 34 other states. (Source: National Center for Educational Statistics)

- There is a growing need for more students trained in engineering, with a particular need for women and minority graduates in the field. The number of bachelor’s degrees awarded in natural sciences and engineering dropped 5 percent from 2002 to 2007 in Missouri.

- And according to a study by the Brookings Institute, Missouri colleges produced just one graduate to teach high school physics last year.

  In Missouri we have had several studies and reports that document these and other statistics.

  But by whatever measure, it is not acceptable that Missouri – and the country – continue to slip further and further behind other countries in science, technology, engineering and math fields.

  It is time to move beyond study….it is time to develop a plan that will result in action.

  We all should be alarmed that we are not doing all that’s necessary to inspire and support students to excel in these areas.
Missouri can – and should—do better. So today, I am asking for your support of Senate Bill 936.

Public higher education has demonstrated a successful track record in partnering with the state to improve our production of graduates in key areas.

We also have shown our ability to leverage modest state matching funds with institution and private monies to provide support for endowed chairs.

These endowed positions help attract and retain the best faculty to teach and conduct research on our campuses.

The Caring for Missourians initiative to increase the output of graduates to help meet critical shortages in health care fields in Missouri is another example of a successful model.

This initiative began with higher education identifying a state need, developing a statewide plan involving all of our institutions to help solve the problem, and developing legislation and funding models involving partnership with the state.

As a result, Caring For Missourians has provided the opportunity for at least 118 permanent new seats for tomorrow’s health care professionals in our schools and colleges statewide, with the potential of adding as many as 471 new seats. We are working together to meet a state need.

Years ago, we launched an endowed chair program that provided a state match to fund professorships and chairs on our campuses. We were able to raise an endowment of more than $105 million that resulted in support for 110 faculty chairs and professorships across our system.

The state invests about $5 million per year in this program with an impact of more than $100 million – this is another example of how we are able to leverage precious state funds to better serve our students and our state.

We need to take a similar approach in the Science, Technology, Engineering and mathematics fields.

Senate Bill 936 is broadly defined, and establishes a process through the Department of Higher Education for institutions to seek state matching funds to do several things:

1. Hire additional teaching faculty whose primary focus would be teaching undergraduates in science, technology, engineering or mathematics fields.
• This would ensure that we have our best teachers in the classroom in these fields and allow for increased enrollment in areas such as engineering.

2. Provide funds for scholarship matches or loan forgiveness for students who study math, science or engineering or who plan to enter the teaching field in these areas.
   • Need-based scholarships could be established to provide more access to students in these fields.
   • Loan forgiveness programs for teachers in these fields may be designed to encourage teachers to stay in Missouri and help fill the growing need in these areas.

3. Support and increase the number of pre-college youth programs that would bring elementary, middle school, junior high and high school students to our campuses to learn more about these exciting fields.
   • We already have several examples such as Missouri S&T’s aerospace camp, nuclear engineering camp, and a robotics camp. We also have an explosives camp that is very popular and certainly helps high school students learn about engineering in a very dynamic way.
   • These programs have a high rate of success – more than 40% of youth who attend these camps enroll in engineering programs. Funding from private sources and the state for these programs is drying up, making it particularly critical that new funding sources be provided.
   • Similar programs can be enhanced or developed on all of our campuses to bring students in at an early age to experience science and technology and to pique interest in fields such as engineering that they may not otherwise have considered.

4. Support programs to enhance those already teaching at the elementary and secondary levels to improve the quality of teaching.
   • Here again, funding from private and state sources for experiential teacher enrichment programs for science and math teachers is dwindling at a time when the need for highly qualified teachers in these areas has never been more critical.

5. Provide support to update and modernize laboratory equipment.
Many details will need to be addressed, both by the institutions and by the Department of Higher Education. But we do believe this is a way to get the process moving, and to prepare for the future when we believe a better funding environment will exist.

We encourage your support for this bill as a first step to address these issues. I would be happy to take questions.