

Approved: January 23, 1996
Date

MINUTES OF THE SENATE COMMITTEE ON COMMERCE.

The meeting was called to order by Chairperson Alicia Salisbury at 8:00 a.m. on January 22, 1996, in Room 123-S of the Capitol.

Members present: Senators Salisbury, Burke, Gooch, Hensley, Jordan, Petty, Ranson, Reynolds, and Steffes.

Committee staff present: Lynne Holt, Legislative Research Department
Jerry Donaldson, Legislative Research Department
Bob Nugent, Revisor of Statutes
Betty Bomar, Committee Secretary

Conferees appearing before the committee:

Rich Bendis, President, KTEC
Jim Hague, EHV, Manhattan
Mary Good, Under Secretary for Technology, NIST, Washington, DC
William D. Hammers, Executive Director, Kansas Mathematics & Science
Education Coalition.

Others attending: See attached list

Rich Bendis, President, KTEC, stated the agenda this week before the Committee focuses on partnerships and KTEC's involvement with state agencies, universities and private industries.

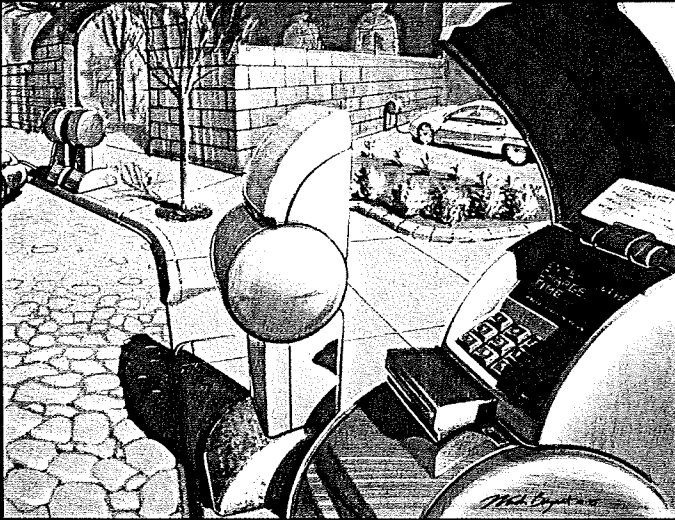
Jim Hague, President, Electric Hybrid Vehicles (EHV), a KTEC participant, stated Kansas and KSU has some of the best advisors in the country. Today, as in the future, we face choices that must be made. The environment is one of those concerns. As a consequence, we were convinced that electric vehicles are a part of the answer to our clean air. Mr. Hague informed the Committee about the Electric Hybrid Vehicle his company has produced and spin-offs such as the electric charge stations, Smart cards and other technology. This has been achieved as a result of a partnership with Western Resources with a grant of \$15 thousand and \$90 thousand from KTEC. To date there is a return of \$13 million in economic development in this state, and this amount will soon exceed \$20 million. The State of Kansas is a participant in the alternative fuel vehicle technology. (Attachment 1)

Mary Good, Ph.D., Under Secretary for Technology at the U.S. Department of Commerce's Technology Administration, briefed the Committee on the role of the federal government in the area of science and technology. Capital, labor and technology are the three ingredients that make economic growth go. It is necessary that emerging technology be adequately advanced in order that our country can maintain its place in the global economy. Dr. Good explained the need for technology partnerships between the federal government and the state government; the partnership between the federal government and industry; and the partnership between industry and academia. Dr. Good stated that MAMTC is a star in the manufacturing Extension Partnership program and is cited as a the model for the United States in utilizing state and federal monies for the economic growth of the State of Kansas. Dr. Good stated that 1994 is the first year there was a balance of trade deficit in technology products. (Attachment 2)

At its noon meeting at KTEC, William D. Hammers, Executive Director, Kansas Mathematics & Science Education Coalition, briefed Committee members on the Integration of Kansas strategic technologies with K-16 curriculum. (Attachment 3)

The next meeting is scheduled for January 23, 1996.

INFRASTRUCTURE



CONCEPT RENDERING OF CURBSIDE CHARGING UNIT

INFRASTRUCTURE PLAYS A VITAL ROLE IN THE EMERGING ELECTRIC VEHICLE WORLD. TDM IS POISED TO PROVIDE INFRASTRUCTURE SOLUTIONS WITH THE INTRODUCTION OF VEHICLE CHARGING UNITS THAT WILL MAKE THE RECHARGING OF EVS SAFE AND ECONOMICAL.

The Wallmount Unit

THE ECONOMICAL WALL-MOUNTED CHARGER IS DESIGNED FOR THE EV OWNER AS A SIMPLE AND SAFE METHOD OF VEHICLE CHARGING AT AN ECONOMICAL PRICE. WITH THE STANDARD AVCON CONNECTOR AND BUILT IN SYSTEM INDICATORS, IT PROVIDES A SIMPLE METHOD OF CHARGING AN EV.

The Curbside Unit

THE CURBSIDE UNIT IS A FREE-STANDING ELECTRIC VEHICLE CHARGER. DESIGNED FOR OUTDOOR USE IN PUBLIC AREAS IT PROVIDES THE NECESSARY DURABILITY WITH AN EASY TO OPERATE USER INTERFACE. AVAILABLE WITH AN OPTIONAL METER IT CAN DISPENSE ELECTRICITY USING SMART CARD TECHNOLOGY.



TM

Unit Housing

Curbside	Cast aluminum body w/ concrete base. Standard paint, special colors with quantity order.
Wallmount	Steel electrical box painted gray with special colors available quantity order.

System Indicators

LED indicators for the following functions: meter on, vehicle charge, vehicle failure, meter failure.

Service and Receptacle Voltages (magnitudes)

Standard	120/240 1Φ or 120/208 2Φ of 3Φ
Option	240 1Φ
Frequency	50/60 Hz
Shape	sinusoidal
Distortion	none added

Output Receptacles

Standard	AVCON connector
Option 1	NEMA 6-20 & 14-50
Option 2	NEMA 6-20 & 5-20
Option 3	NEMA 5-20 & 14-50
Option 4	CEE7 (Europe)
Option 5	DS1363
Option 6	Others Available

Maximum Output Current (amperes)

	Curbside	Wallmount
AVCON	20&50	20&30
NEMA 5-20	20	20
NEMA 14-50	50	40
NEMA 6-20	20	20
CEE7	16	16
DS1363	13	13
Special	5 to 60	5 to 40

Pricing

Wallmount Unit: \$599. Curbside Unit: Call

Ordering Information

Please contact the TDM Electric Vehicle Marketing Center at the following numbers:
 phone: 313-537-3880 fax: 313-537-8765
 online: [http:// www.tdm-team.com](http://www.tdm-team.com)

Information contained in this Specifications sheet was correct when approved for public release. TDM reserves the right to change or to discontinue specifications or designs at any time without notice or obligation. All taxes and delivery charges extra. c 1995 TDM. 12/02/95

*Original submitted to
 Attachment 1 thru 1-2*

Vehicle

Model Year	1996
Body Style	Regular cab pickup
Wheelbase	Long wheelbase
Payload	550 lbs. (includes 2 pass.)
Dimensions	Similar to 1996 Ranger
Exterior paint	Oxford white other colors special order

Powertrain

Motor	100hp (peak) high-efficiency, 3-phase AC
Transaxle	Single-speed, RWD

Standard Features

Dual Air Bags	Occupant Protection
Microprocessor control units:	
Battery Controller	Monitors functions of the battery
Motor Inverter	Converts high voltage DC to 3-phase AC
Communications center	Operates instruments and climate control
Heater	Electric resistance
Regenerative braking	Energy recovered to increase range
DC/DC convertor	Electronic "alternator"
2-wheel ABS	Straighter stopping and steering control under most conditions
Battery thermal management	Maintains battery temperatures
FMVSS	Full vehicle safety compliance

Battery

Type	Sealed lead-acid
Voltage	26x12v modules 312v system
Battery capacity	26kWh (21kWh @ 80% discharge)
Charger	On-board 240v/30A



TRANSPORTATION DESIGN & MANUFACTURING INC.

ELECTRIC VEHICLE

Data Sheet

Performance Targets

0-50 mph	<13 seconds
Rated top speed	70 mph (governed)

Customer range @ 32F w/heater	30 miles
Range--FUDS cycle @ 72F	55 miles without A/C or heater usage

Pricing

Base Vehicle MSRP	\$29,499.
Option package: Air Conditioning & Electrohydraulic Power Steering	\$2,999.

Incentives and Ordering

See separate TDM sheet for pricing, incentive discounts and ordering information.

Warranty

Vehicle	3/36, same as 1996 gasoline powered, inclusive of integral parts
Batteries	1 year, pro-rated

TDM Electric Vehicle Marketing Center

Telephone	313-537-3880
Fax	313-537-8765
Online	http://www.tdm-team.com

Production Availability

Production vehicles available to customers in 1996 through selected TDM dealers

Information contained in this Specifications sheet was correct when approved for public release. TDM reserves the right to change or to discontinue specifications or designs at any time without notice or obligation. All taxes, title, and destination charges extra. Final FMVSS and QVM certification forthcoming. © 1995 TDM. 8/24/95

Federal Technology Policy and the States

Presentation to Kansas

State Legislators

January 22, 1996

Dr. Mary L. Good

Under Secretary for Technology

U.S. Department of Commerce

*Senate Commerce Committee
January 22, 1996*

Attachment 2 thru 3 - 11

Enabling the Nation's Capacity to Perform in a Global Community

2-2

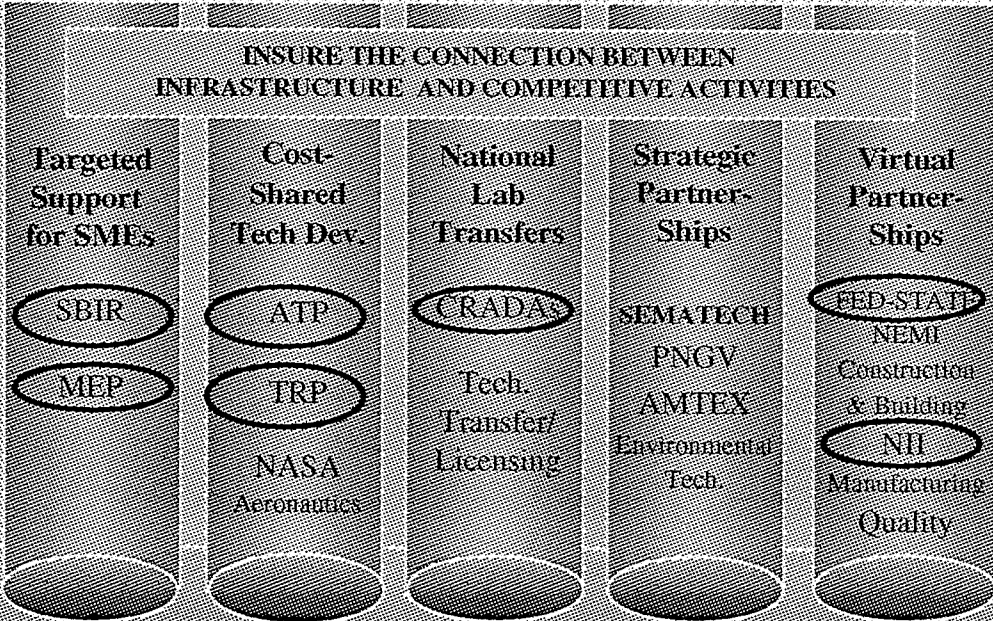
Industry
\$84B R&D

**Globally Competitive
U.S. Industrial Base**

**Competitive Products
& Processes, Creating
Jobs & Wealth**

Technology Utilization and Conversion

Joint Industry
Government
University



Partnerships for Pre-Competitive and New Technology Development

- Enabling Technologies
- Emerging Technologies
- Technology Development
- Productivity Improvement

Intellectual and General Infrastructure

Government
\$70B R&D

<p>FUNDAMENTAL RESEARCH</p> <ul style="list-style-type: none"> •Discovery Science •Mission Driven Basic Research <p>MISSION APPLIED R&D</p>	<p>BUSINESS ENVIRONMENT</p> <ul style="list-style-type: none"> •Investment Incentives •Regulation/Legislation •Trade & Export Climate •International Assessments 	<p>PUBLIC RESPONSIBILITIES</p> <ul style="list-style-type: none"> •Education/Training •Standards/Measures •Capture of the Social Value of the Nation's Tech. Base
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Federal Technology Policy and the States

SBIR - Small Business Innovation Research

MEP - Manufacturing Extension Partnership

ATP - Advanced Technology Program

TRP - Technology Reinvestment Project

CRADAS - Cooperative R&D Agreements

FedState - State/Federal Tech. Partnership

NII - National Information Infrastructure

Federal Technology Policy and the States

SBIR - Small Business Innovation Research

- Targetted toward Small Business
- Nation Wide, Every State
- Every Federal R&D Performing Agency
- Funded as % of mission Agency Budget
- Largely mission specific

Federal Technology Policy and the States

MEP - Manufacturing Extension Partnership

- Targetted toward Small/Med. Manufacturers
- Active Manuf. Sector in Most States
- Department of Commerce NIST
- Cooperative with State Local Efforts
- Some Centers Intiated with DOD/TRP
- Funding remains, but no expansion.

Federal Technology Policy and the States

ATP - Advanced Technology Program

- Targets Industry Wide, Large & Small Business
- Competitive, no geographic targetting
- Participants from majority of States
- Cost-shared, Peer Reviewed
- Funding in controversey

Federal Technology Policy and the States

TRP - Technology Reinvestment Project

- Targetted by Community and Region
- Defense Conversion
- Envisioned Technology Infrastructure Efforts
 - Not Realized
- Funding from Department of Defense
- Not Continued

Federal Technology Policy and the States

CRADAS - Cooperative R&D Agreements

- Targets Appropriate Research Partners
- Include State Universities, Industry
- Funded by R&D Agencies - DOD, DOE, NASA
- Numbers Increasing, Metrics Difficult
- Some Technology Diffusion, Transfer

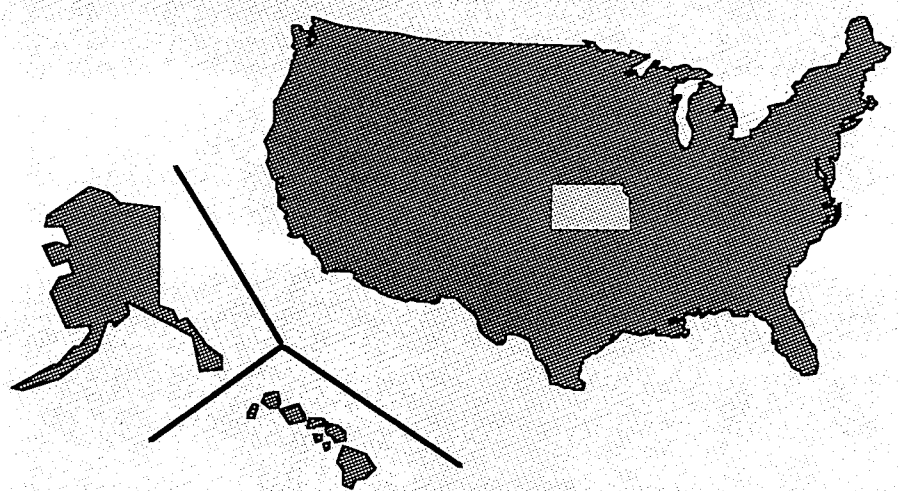
Federal Technology Policy and the States

FedState - State/Federal Tech. Partnership

- Targets State Efforts
- Independent Efforts Coalescing
- Leadership from States, DOC, White House OSTP
- No Funding Mechanism

Technology: State-Federal Partnership

- Technology is Ubiquitous
 - Every State
 - Every Industry
- Economic Development
 - Key component
 - Variety of Approaches
- State-Federal Partnership is in the Formative Stage
- States Differ Greatly



Federal Technology Policy and the States

NII - National Information Infrastructure

- National Initiative Infrastructural by nature
- Targets all States, Regions
- NII Task Force, Lead by Secretary of Commerce
- Strong interest by Vice President, Speaker
- NII Applications Grants, Department of Commerce NTIA



KANSAS

**MATHEMATICS & SCIENCE
EDUCATION COALITION**

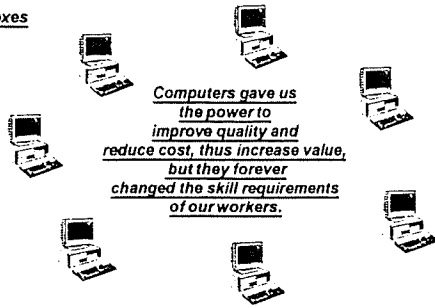
Presentation
to
Senate Commerce Committee
and
House Economic Development Committee

by
William D. Hammers
Executive Director, KMSEC
January 22, 1996
Topeka, Kansas

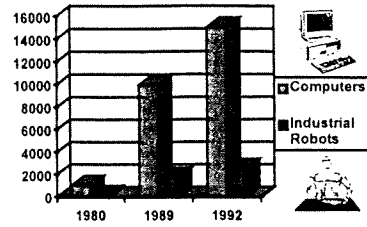
*Senate Commerce
Committee
January 22, 1996*

Attachment 3 thru 3 -

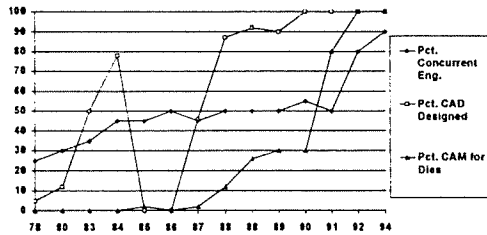
Boxes



Increase in Use of Computers and Robots Within Chrysler Corporation



Increase in Teamwork and Computer Aided Work at Chrysler Corporation



"A recent study conducted by the Census Bureau for the Federal Department of Education found that education is the best investment business can make; increases in workers' education levels produce twice the gains in workplace efficiency as investments in tools and machinery. A 10 percent increase in educational attainment produces an 8.6 percent increase in productivity, approximately the same percentage that is gained in employees' income for each additional year of schooling."

Madeline M. Kunin, Deputy Secretary, US Department of Education, Education Reform, Stating Out Common Ground, DAEDALUS, Journal of the American Academy of Arts and Sciences, 7, Fall 1995

Business Training Courses:

	Total Hours
Skill Development Through Trigonometry	80
Descriptive Geometry	20
Shop Math I	30
Shop Math II	30
Communication and Teamwork	16
Getting Good Information From Others	4
Getting Your Ideas Across	4
Clarifying Team Roles and Responsibilities	4
Resolving Team Conflicts	4
Creative Problem Solving	20
Fostering Improvement Through Innovation	4
Solving Problems: The Basic Process	4
Solving Problems: Tools and Techniques	4
Participating in Problem Solving Sessions	4
Leading Problem Solving Sessions	4
Basic Statistics	20
No Sweet Statistics	8
Statistical Process Control	12
Total Hours	136
Salary and Fringe Benefits	\$17
Total Investment Per Employee	\$2312

Math and Science Education Reform

Responding to the Alarm - 1989 - 1990

National Council of Teachers of Mathematics
Curriculum and Evaluation Standards for Mathematics

Project 2061
Science for All Americans

3-2

● **Kansas Mathematics and Science Education Coalition Board**

Community Colleges = 2 Higher Education = 20

Ex-Officio = 8



Vo-Tech = 2

K-12 Educators = 20

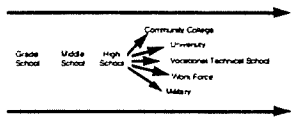
Business/Industry = 18

High Leverage Business Involvement in KMSEC

Criteria for KMSEC Involvement

- ✓ The activity must be statewide
- ✓ The activity must create systemic improvement in our state educational process
- ✓ The activity can best be completed by the coalition

- Coalitions are inherently systemic because they are in parallel with the change process



- Coalitions are inherently systemic because they are in parallel with the change process



Education Infrastructure to Support Economic Development

**An Investigation of the
Integration of
Kansas Strategic Technologies
Into the
K-16 Curriculum**

Building upon past work

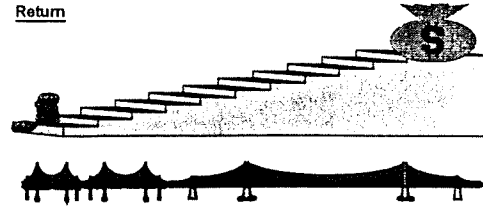
- **A Kansas Vision**
The 1993 Kansas Economic Development Strategy - Kansas Inc
- **A Strategic Technology Assessment for the State of Kansas**
Kansas Technology Enterprise Corporation

3-3

Cost

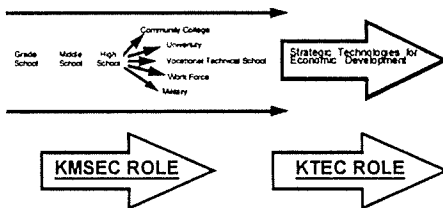


Return



- Students will recognize the importance of mathematics and science education as it impacts their future career opportunities, and the global competitiveness of the Kansas and national economies
- Students will demonstrate the applied mathematics and science skills important to the growth of the Kansas economy as defined in the Kansas Strategic Technologies Assessment

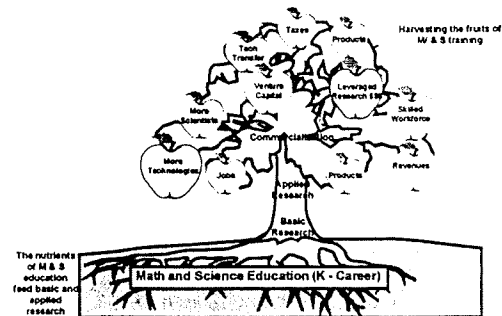
Development of Kansas Strategic Technologies and the Educational Infrastructure to Support Them



**Systemic Reform
of
Math and Science Education
Is NOT
Just a Money Issue!**

It is a Larger Issue -

**The Business Sector and the Public Policy Sector
Must Make A
Commitment to Sustain
The Systemic Reform of Math and Science Education
Initiated by the Education Sector
In Response To
The Economic Development Needs
Of The States**



3-4