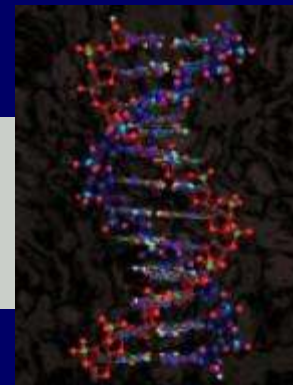




Green Chemistry in California: A Framework for Leadership in Chemicals Policy and Innovation

*Governor John E. Baldacci
Task Force Promoting Safer
Chemicals in Consumer Products*

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Green Chemistry Framework Report

- Assesses problems and opportunities in chemicals policy
- Proposes goals, makes policy recommendations

Commissioned January 2004 by:

- Byron Sher (Chair, SEQC)
- John Laird (Chair, ACESTM)

Released to Legislature March 14, 2006 to:

- Joseph Simitian (Chair, SEQC)
- Ira Ruskin (Chair, ACESTM)

Download etc:

http://coeh.berkeley.edu/news/06_wilson_policy.htm



- 1) What are the key chemical problems facing California?
- 2) What are the consequences of those problems?
- 3) How might California respond to those problems?

Key problems with the federal Toxic Substances Control Act of 1979.



- **Data Gap:**
 - TSCA does not require producers to generate chemical hazard data for EPA or downstream users.
- **Safety Gap:**
 - TSCA has constrained EPA's ability to assess and control chemical hazards.
- **Technology Gap:**
 - TSCA has dampened private sector interest in green chemistry, which is reflected in research and education.

Analyses of chemical policy failures in the U.S:

- National Academy of Sciences 1984
- U.S. General Accounting Office 1994
- Congressional Office of Technology Assessment 1995
- Environmental Defense 1997
- U.S. EPA 1998
- former EPA officials 2002
- RAND Science and Technology Institute 2003
- U.S. Government Accountability Office 2005
- National Academy of Sciences 2005



The U.S. chemicals market is flawed, due to weaknesses of TSCA in:

- Generating information
- Regulating known hazards
- Motivating investment in green chemistry

Function	Price
Performance	Hazards



The U.S. chemicals market, 1979 – 2007.

Function	Price
Performance	



The view from state agencies...

To assess & prioritize chemical hazards, agencies need four pieces of information:

Identity	Sales volume
Uses	Hazards



California chemical information available to state agencies under TSCA, 1979 - 2007



Sather gate, UC Berkeley

University teaching & research in chemistry reflect:

- industry priorities, based on...
- a flawed chemicals market,
- that operates on the function, price, & performance of chemicals,
- with less attention to the hazards of chemicals.



UC Report:

California needs a chemicals policy that motivates investment in green chemistry – the design of chemical products and processes to reduce or eliminate substances hazardous to human health and the environment.

Anastas, P.T. and J. Warner. 1999. Green Chemistry Theory and Practice

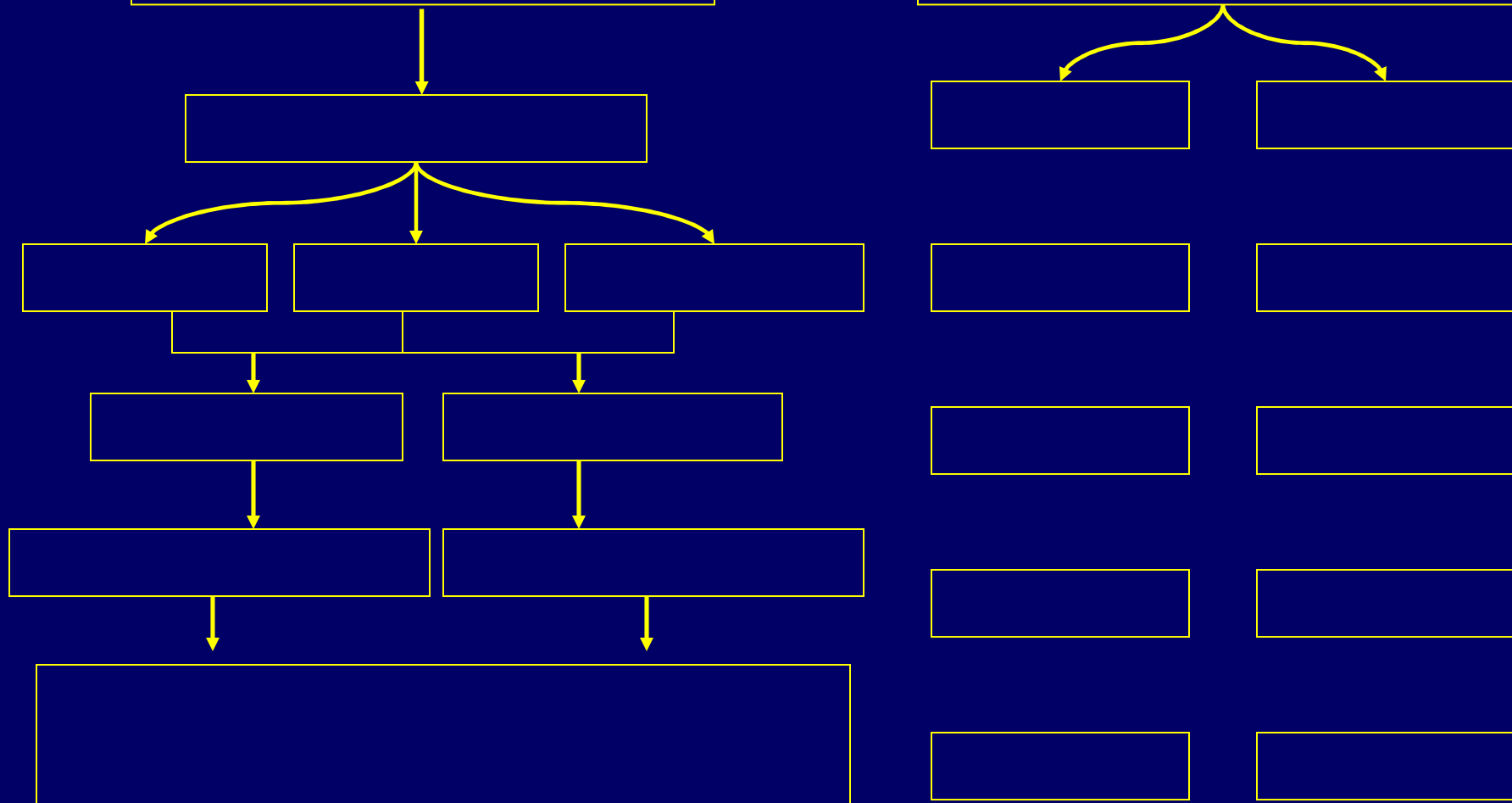


- From a policy perspective,
- green chemistry links public & environmental health...
- with new business & investment opportunities.

UCB chemicals policy report

Barriers to green chemistry

Drivers of green chemistry



UCB chemicals policy report

Barriers to green chemistry

Drivers of green chemistry

TSCA, other statutes

Data Gap

Safety Gap

Tech. Gap

Markets

Government

Buyers: no haz data
Sellers: no case for GC

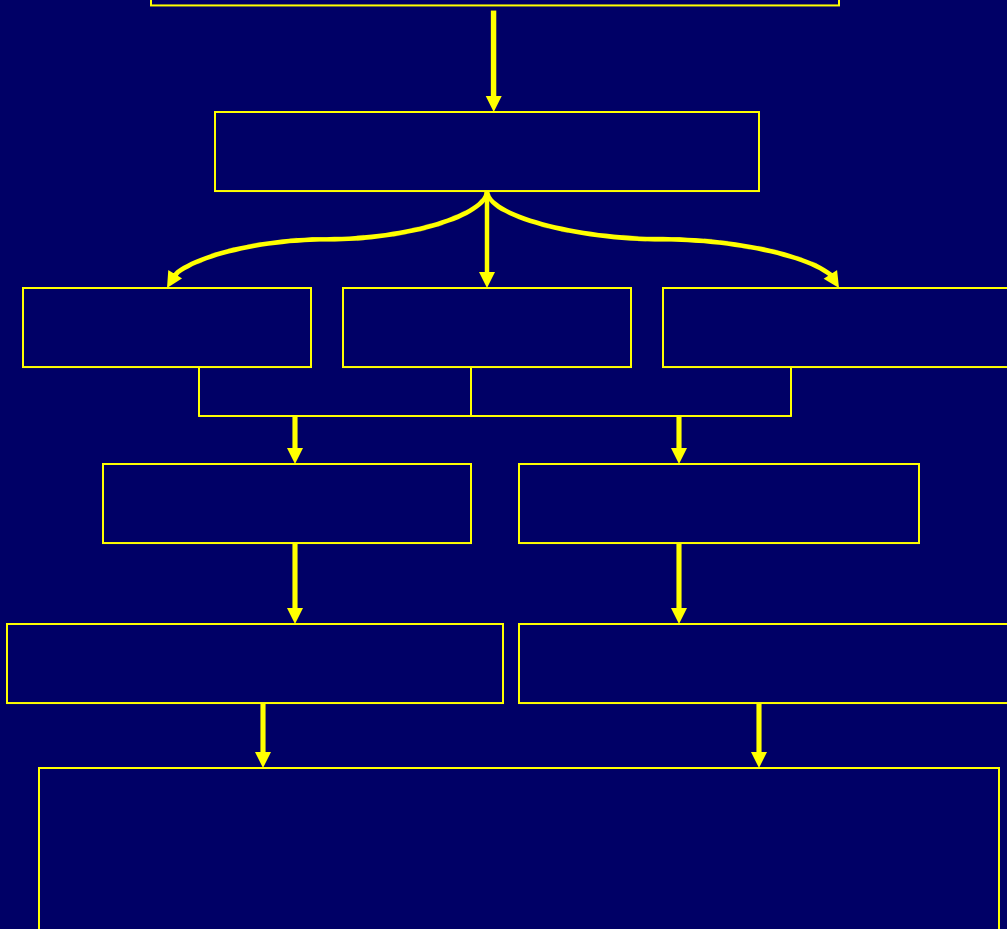
Inability to assess haz
Inability to control haz

- Hazard undervalued against price, function
- Hazardous chemicals competitive in market
- Green chemistry innovation impeded

UCB chemicals policy report

Barriers to green chemistry

Drivers of green chemistry



E.U. Directives

Downstream users

Industry leaders

NGO activity

Green chem. entrepreneurs

Public opinion

California Legislature

Government procurement

Climate change

National Academy

UCB chemicals policy report

Barriers to green chemistry

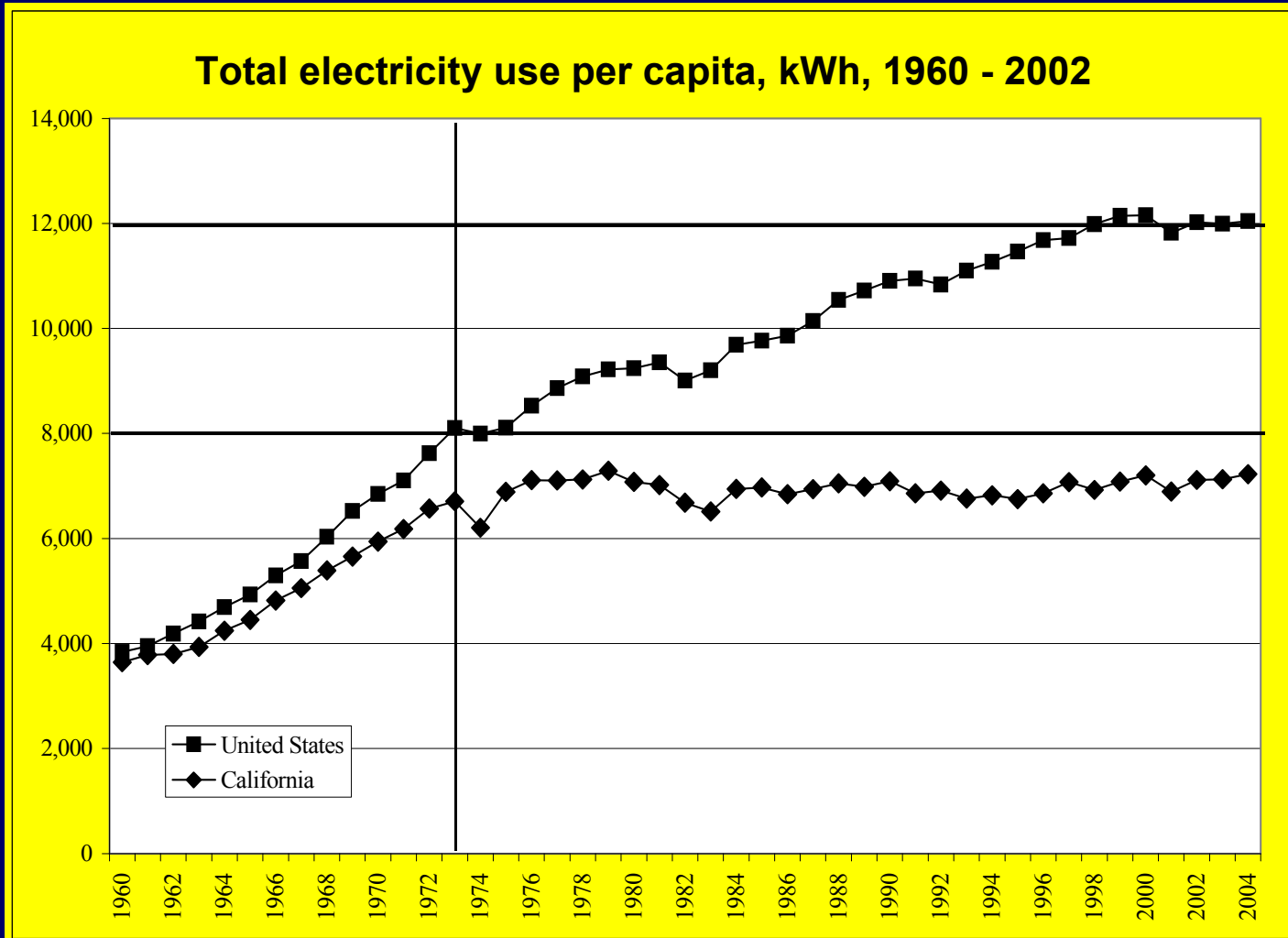
Drivers of green chemistry

Recommendations

Close the Data, Safety & Technology Gaps:

- Improve transparency & accountability in the chemicals market.
- Improve government capacity to mitigate known hazards.
- Implement other incentives to motivate investment in green chemistry.

A systems approach is needed to produce enduring changes in the chemical sector. Example: electricity use.



Courtesy John Wilson, CA Energy Commission



Thank you!

