U.S. Environmental Protection Agency
Characterizing Chemicals in Commerce
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Austin, Texas

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Est. 1978 (AB 3414)

Berkeley, Davis, San Francisco (northern California).

- Toxicology
- Epidemiology
- Industrial hygiene
- Environmental health policy
- Occupational and environmental medicine
- Occupational health nursing
- Ergonomics
- Labor Occupational Health Program (LOHP)
- Continuing professional education

- Assesses problems and opportunities in chemicals policy
- Proposes broad policy goals

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:
[http://coeh.berkeley.edu/news/06_wilson_policy.htm](http://coeh.berkeley.edu/news/06_wilson_policy.htm)
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Report’s findings similar to those of:

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<tr>
<th>Institution</th>
<th>Year</th>
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<tr>
<td>National Academy of Sciences</td>
<td>1984</td>
</tr>
<tr>
<td>U.S. General Accounting Office</td>
<td>1994</td>
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<td>Congressional Office of Technology Assessment</td>
<td>1995</td>
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<td>Environmental Defense</td>
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<td>former EPA officials</td>
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<td>RAND Science and Technology Institute</td>
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<td>U.S. Government Accountability Office</td>
<td>2005</td>
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<td>National Academy of Sciences</td>
<td>2005</td>
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California’s expected population growth, 1990-2050

2006 = 36 million

Source: California Dept of Finance, CA pop. trends, 1990 – 2050
Global chemical production is doubling every 25-years.

Production index = 231 in 2022, where 1997 = 100

Production index = 131 today, where 1997 = 100
Key finding: TSCA goals:
(1) Assess risks of 62,000 existing chemicals
(2) Control those of greatest concern.

Voluntary approaches
Procedural & legal burdens, data gaps (*GAO, 2005*)

- Provide REACH data to EPA
- Formalize consent agreements
- Address CBI issue (*GAO, 2005*)

No

- EPA needs more than HPV data to meet burdens
- Is post-market, not preventive = ↑ commercial value
- Ongoing barriers to test rules & to controlling hazards

Yes

1. Beginning to fill data gaps for high volume substances.
UC report: A systems approach is needed to produce enduring changes in the chemical sector. Example: per capita electricity use.

![Annual electricity use per capita, kWh, 1960 - 2002](chart)

**Annual electricity use per capita, kWh, 1960 - 2002**

- **U.S.**
- **California**

Courtesy John Wilson, CA Energy Commission
The design of chemical products and processes to reduce and/or eliminate substances hazardous to human health and the environment.

12 principles proposed by Anastas & Warner.

Thank you!
Barriers to green chemistry

TSCA, other statutes

Data Gap

Safety Gap

Tech. Gap

Markets

Government

Buyers: weak haz data
Sellers: weak case for GC
Barriers to assess haz
Barriers to control haz

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

Drivers of green chemistry

E.U. policy initiatives

Downstream users

Industry leaders

NGO activity

Green chem. entrepreneurs

Public opinion

California Legislature

Government procurement

Climate change

National Academy

UC chemicals policy report