

A Strategic Assessment of the Future of Water Utilities



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A Strategic Assessment of the Future of Water Utilities Top Ten Trends

- 1. Population**
- 2. Political environment**
- 3. Finance constraints**
- 4. Total Water Management**
- 5. Customer Expectations**
- 6. Workforce Issues**
- 7. Technology**
- 8. Energy**
- 9. Increasing Risk**
- 10. Regulations**

Population Growth

U.S. population steady increase over the past 40 years

Expected to maintain that rate into the next century with the South & West experiencing greatest growth.

Strategies address this trend:

- Integrated resources planning using scenarios & contingencies.
- Become involved in watersheds.
- Communicate with consumers.
- Stake out position on development?

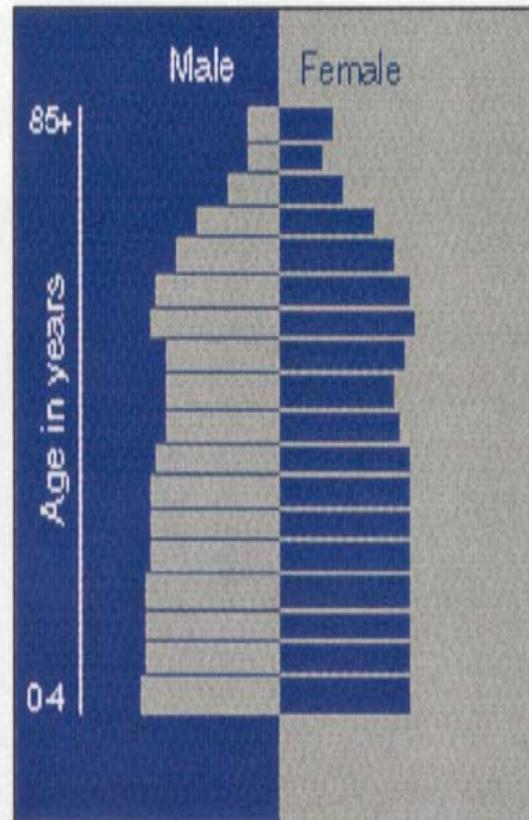
Population: New Demographics

Fig. 1



The Traditional
Population Pyramid

Fig. 2



The New
Population Pillar

- *Globally, # of persons >60 yrs is ~600M in 1999, and projects to ~2B by 2050.*
- *The # of older persons will be larger than the # of children (0-14) for the first time.*
- *People are now living 20 years longer*

Political Environment

The political environment is grows complex. There is a surge in NGOs that will play a greater role in public policy decisions. Public participation will play a larger role. Term limits in many communities require greater outreach.

Strategies to address this trend:

- Develop & maintain state of the art communications.
- Documentation of financial & capital improvement plans to improve transparency.
- Develop communicators & processes
- Leverage NGOs & relationships

Finance: Utility Constraints



The challenges of replacing and repairing infrastructure will strain many systems. Doubling to tripling of rates over next 20 yrs. Rising rates will require “cost-containment”. Labor unrest potential.

Strategies to address this trend:

- Documentation of infrastructure & rate needs.
- Communication to stakeholders.
- Optimize utility efficiency.

The Cost of American Water

Water bills vary greatly by city



In 2003, USEPA estimated that water systems need \$276.8 billion over 20 years – this will double to triple water rates

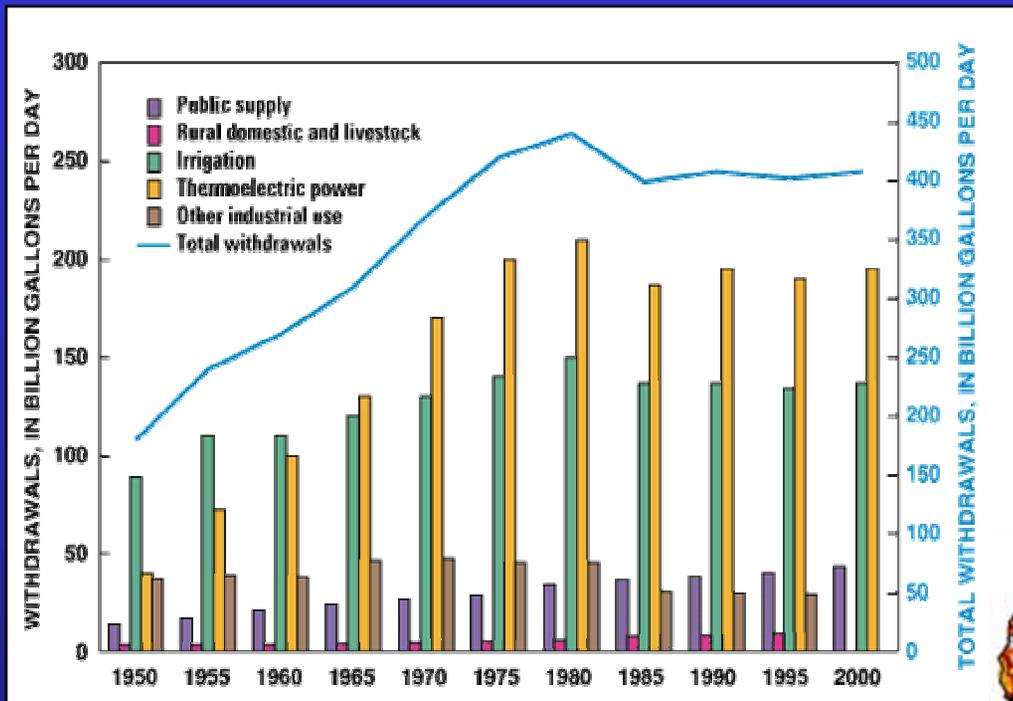
Total Water Management

Water utilities will need to increasingly consider broader policy impacts on their water sources.

Strategies to address this trend:

- Documentation of infrastructure & rate needs.**
- Communication to stakeholders.**
- Optimize utility efficiency.**

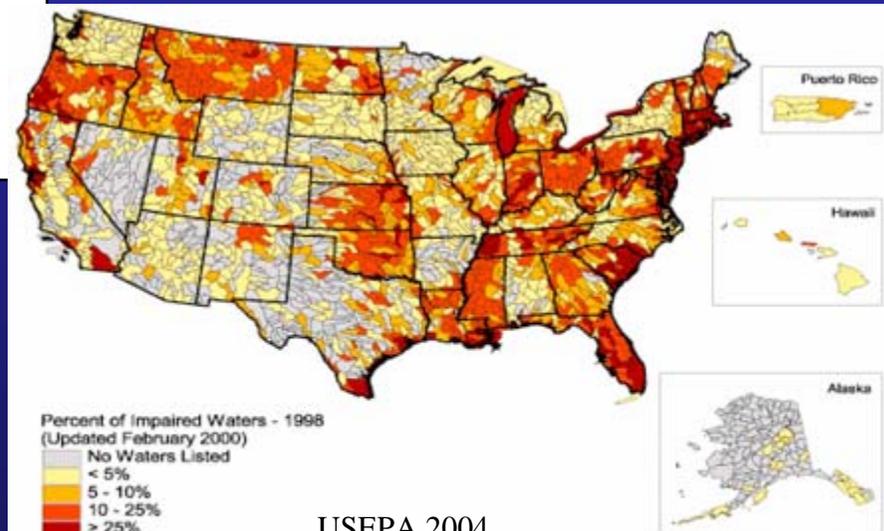
Total Water Management : Water Use Trends by Category, 1950-2000



Source: USGS, March 2004

Impairment is widespread

Public water use is increasing



Given current trends in development patterns, we will be unable to meet the goals of the Clean Water Act (CWA) and the Safe Drinking Water Act (SDWA) with our traditional water programs alone.

Total Water Management: Alternative Water Sources



- Use of “marginal” supplies (cost & quality) growing
- Membrane costs dropping & energy efficiency improving
- Real & perceived quality issues
- Water/Growth: chicken or egg?
- 1950 seawater desalting US\$4/kL; now ~US\$0.65/kL
- Residuals disposal issues grow

Customer Expectations



Customer service can be improved. Understanding customer needs, desires, and best methods of communication will help ensure there is never a disconnect between the customer and the utility.

Strategies to address this trend:

- Use state-of –the-art outreach methods to understand & frame interactions
- Provide governing bodies consumer info

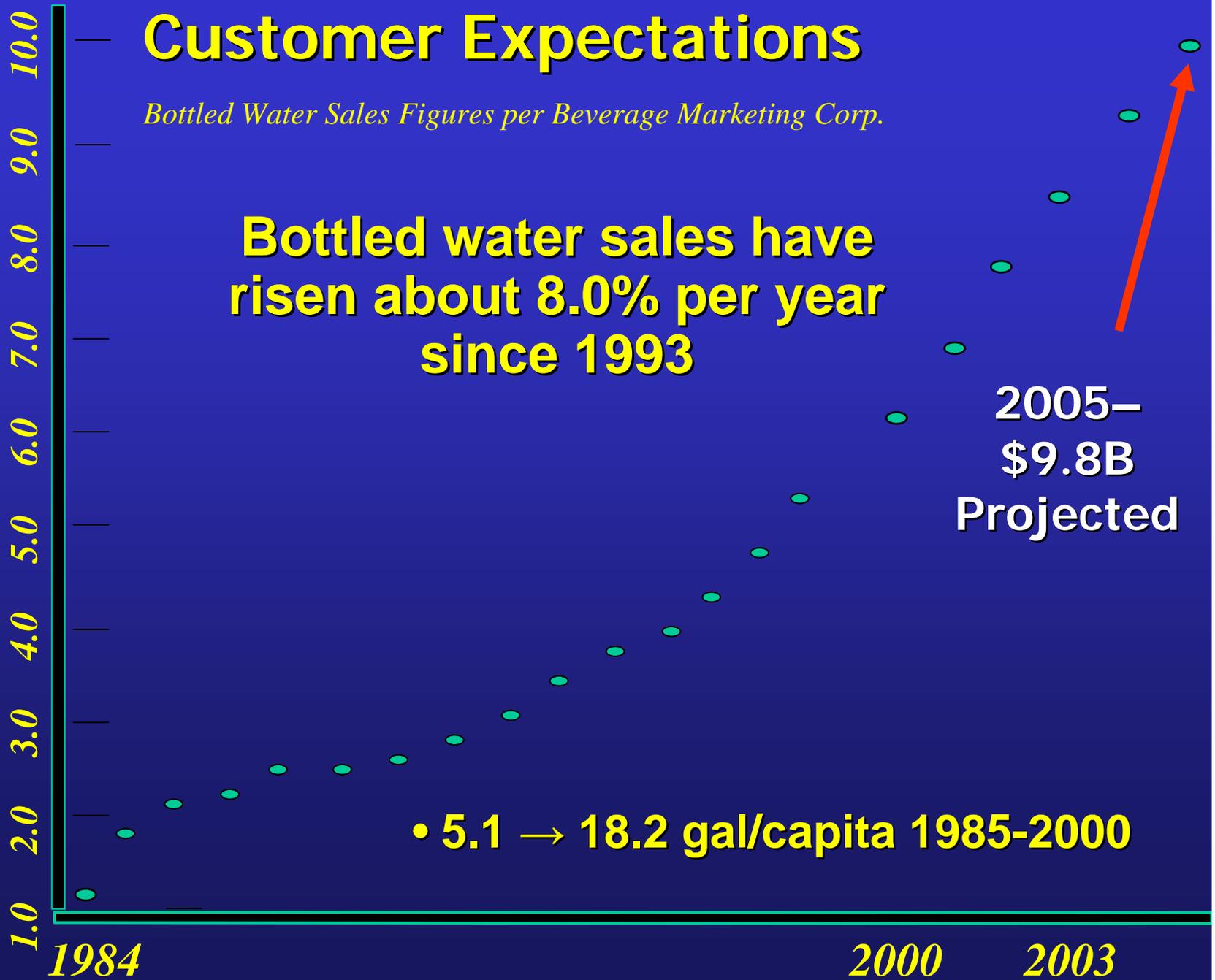
Customer Expectations

Bottled Water Sales Figures per Beverage Marketing Corp.

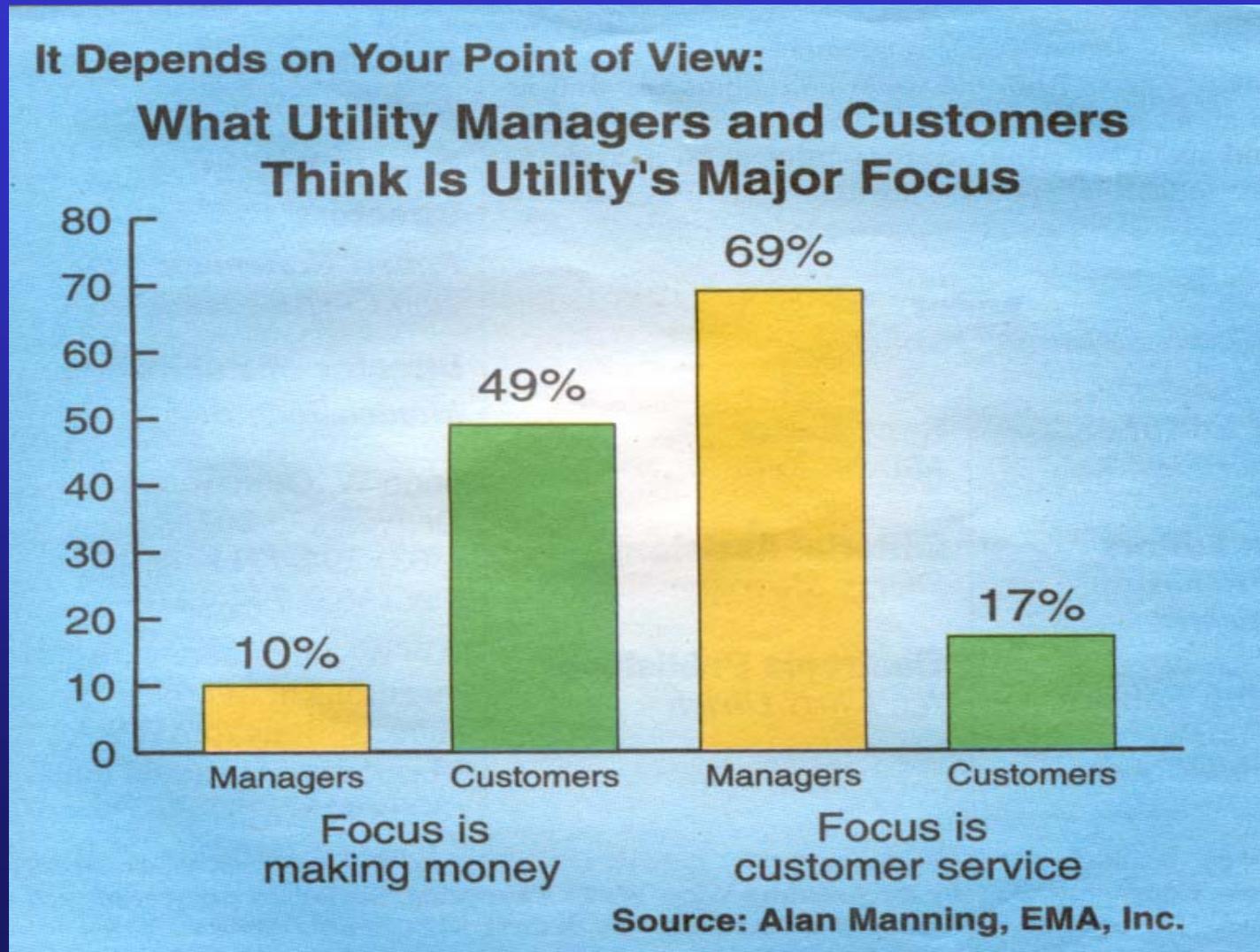
Bottled water sales have risen about 8.0% per year since 1993

**2005—
\$9.8B
Projected**

\$Billion



Customer Expectations: Managers vs. Customer Focus



Source: AWWA Mainstream 2001

Workforce Issues



There are significant changes occurring in the workforce including retirement, increased technology, conflicting generational values, ethnicity and gender.

Strategies to address this trend:

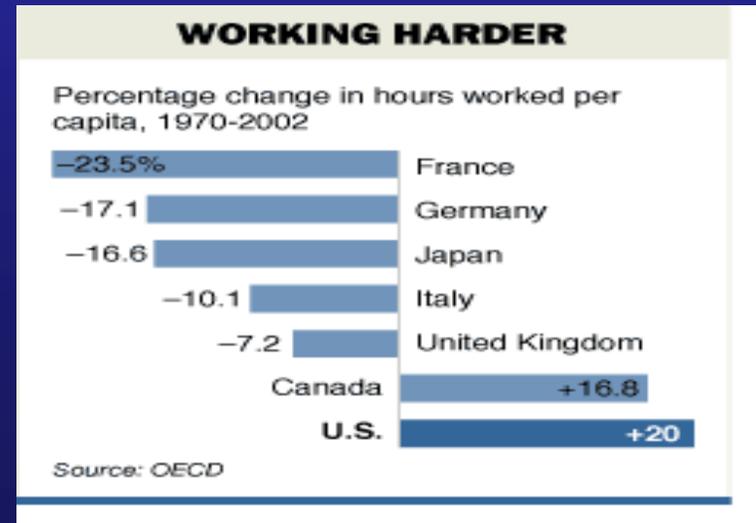
- Understand generational & workforce differences & needs of employees.
- Provide workforce flexibility.
- Conduct more training programs.
- Develop apprenticeship programs.

Workforce Issues: Ethnic & Gender Diversity Will Increase

Projected Growth Rate for US Labor Force 2000-2010	
Asian	44%
Hispanic	36%
Black	21%
White	9%

- The “face” of the American workforce is changing.
 - Older
 - Multi-generational
 - More ethnically diverse

... And working harder



Workforce Issues: The Brain Drain

More than 40% of U.S. labor Force will reach retirement age by the end of this decade.

More than half of electric utility Workers will be eligible w/in 5 yrs

of workers between 35 and 44 is expected to shrink by 7%



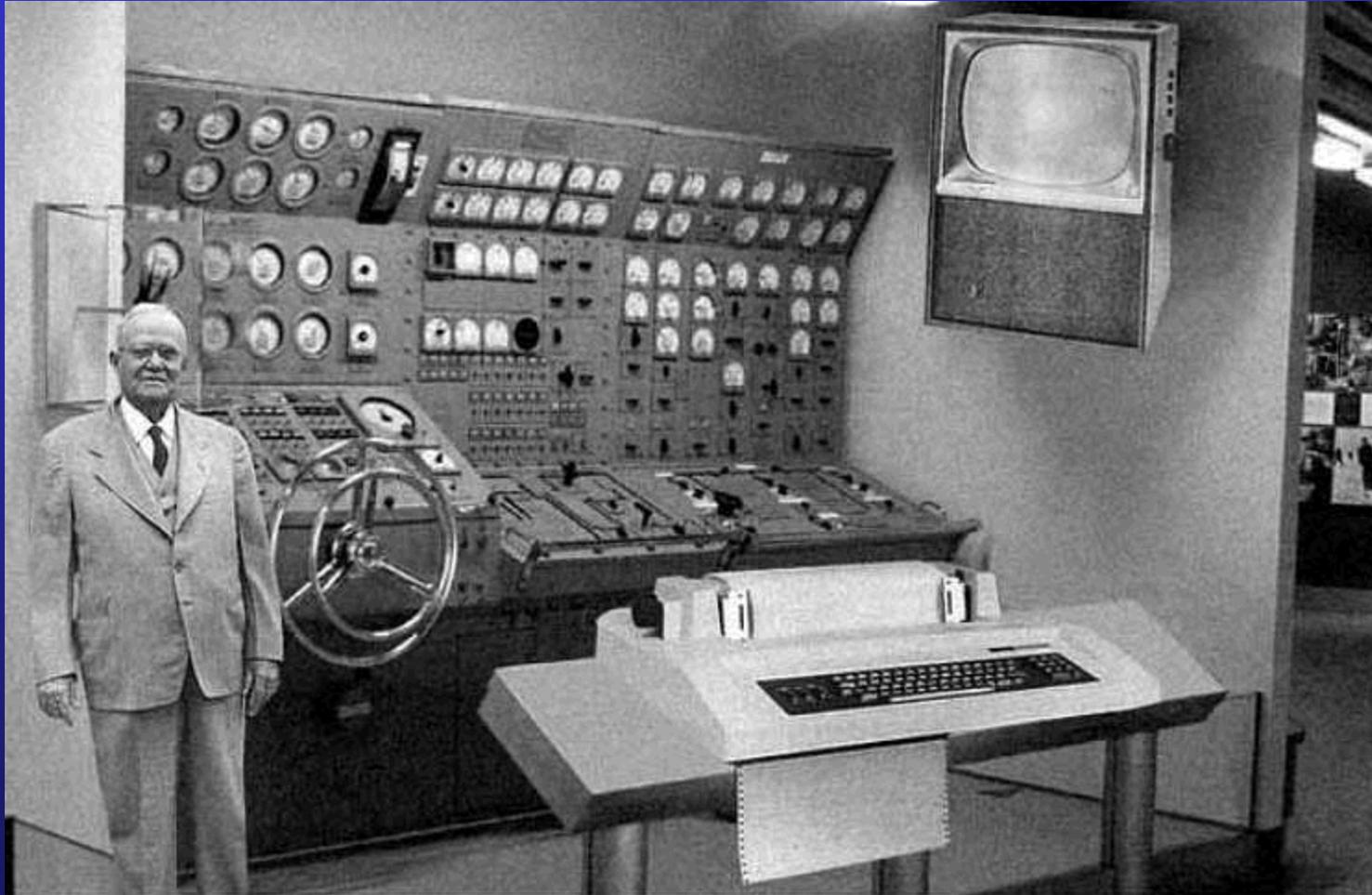
Technology

Technology is rapidly evolving. Its becoming *smaller, cheaper and disposable*. This trend will continue. On-line monitoring will become the norm.

Strategies to address this trend:

- ❑ Providing technology tools as part of a comprehensive strategic technology plan.
- ❑ Provide technology training to staff.
- ❑ Understand customer need for information access.

Life Magazine 1954 – Home Computer



Scientists from the RAND Corporation have created this model to illustrate how a "home computer" could look like in the year 2004. However the needed technology will not be economically feasible for the average home. Also the scientists readily admit that the computer will require not yet invented technology to actually work, but 50 years from now scientific progress is expected to solve these problems. With teletype interface and the Fortran language, the computer will be easy to use.

Technology: Miniaturization

- Radio frequency ID tags
- Antenna, photocells, logic and 50 bits of memory, enough to code billions of different ID numbers.
- Cost pennies
- Read with Lasers
- Windshield toll paying units
- Object tracking
- Medical diagnostics.



Drinking Water Treatment Technologies

- ❑ Multiple drivers pushing new treatment techs.
 - Need to seek addtl source water.
 - Impaired/degraded sources
 - Increased demand
 - New/future SDWA regulations.
 - Emerging contaminants.
 - Consumer demands.
- ❑ Major residuals handling issues loom

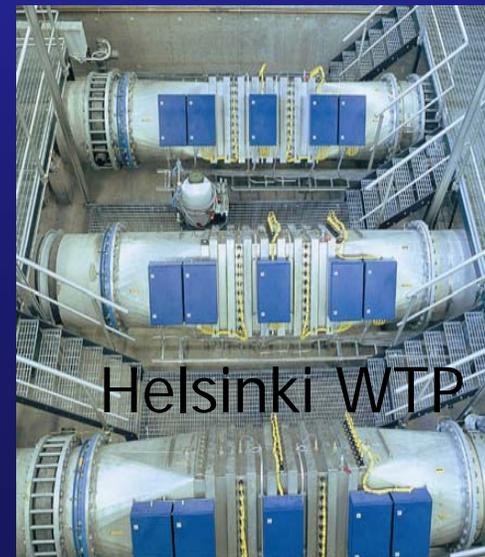


Photo: WEDECO AG Water Technology

Energy

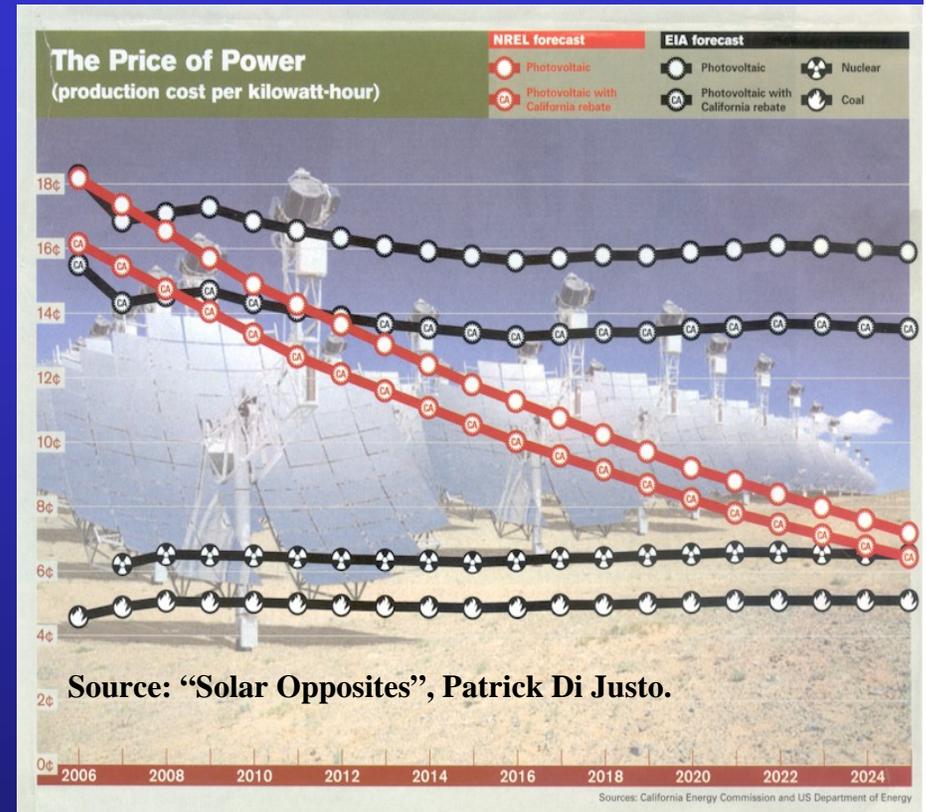
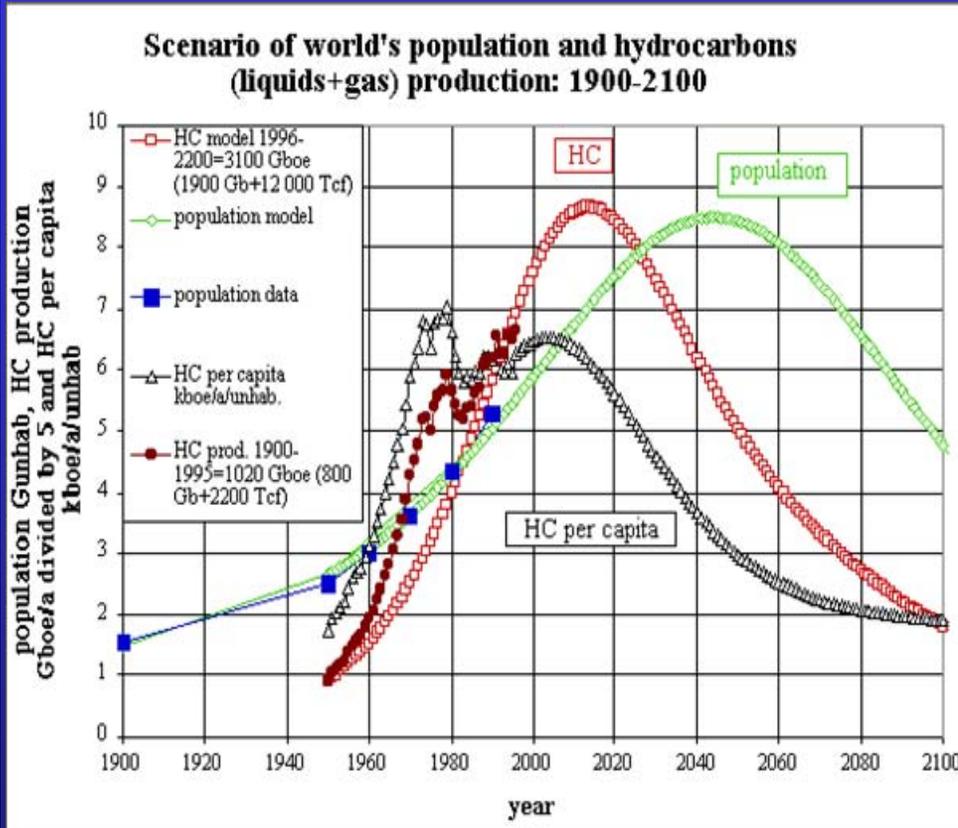


Energy and reliability will become a major issue for utilities. Petroleum based energy will give way to other forms within 20-40 years. Alternative fuels will become the norm.

Strategies to address this trend:

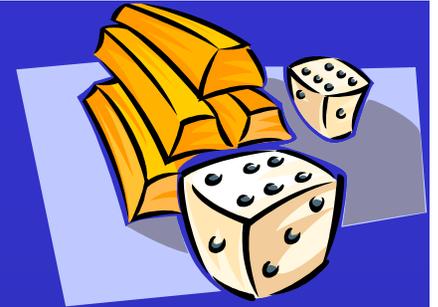
- Develop an energy plan for each utility.**
- Aggressive energy conservation.**
- Assess backup energy needs & availability.**

Energy



- New treatment techs are energy intensive – will they reach their potential?
- Energy pressure may increase “growth management demands and activism.
- Energy efficient plant ops will be important to lower costs & risk of interruption.
- Energy credit banking under Kyoto??

Increasing Risk Profile



Utility risk issues (e.g. IT, physical security, and litigation) are increasing.

Strategies to address this trend:

- Assess internal capability and needs.
- Outsource functions where appropriate.
- Develop specific risk management policies.

Regulations

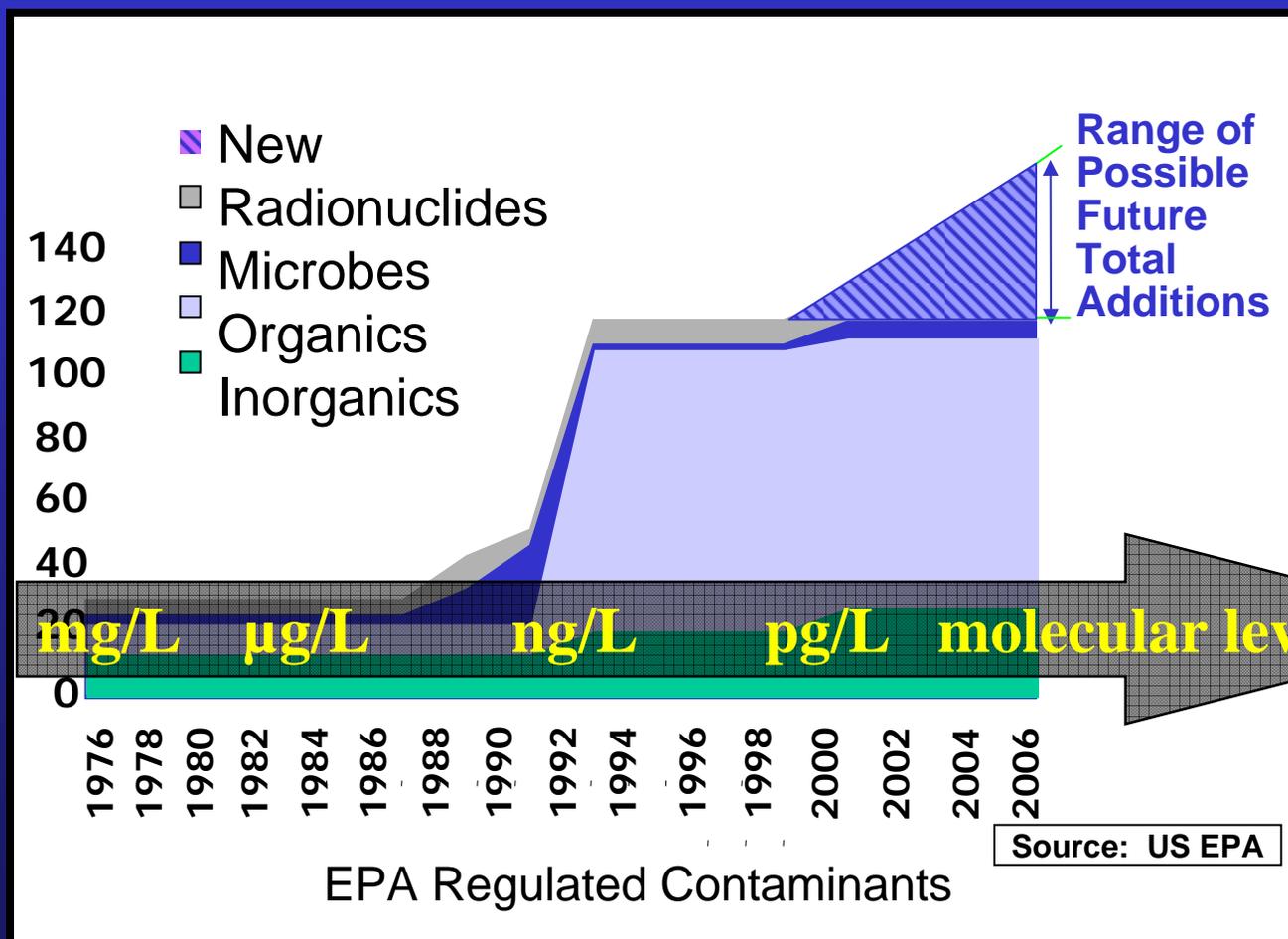


Regulations will continue to challenge water utilities. These regulations will impart fear in the public and are likely to increase sales of bottled water and POU devices.

Strategies to address this trend:

- Develop clear compliance cost info for stakeholders.
- Early engagement in regulatory/legislative process.
- Understand where public stands on issues.
- Fund and develop alternative regulatory paradigm.

Technology: Drinking Water Regs



- Stage 2 DBPR
- LT2ESWTR
- Distribution Rule?
- On-line Monitoring

The End
Thank You

