



NACWA's 2007 Winter Conference
Global Trends Impacting Utilities—
The Rising Cost of Clean
a CEO's Perspective

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Agenda

- Key Issues Facing Utilities Today
- Potential Solutions

Build more for less
that **lasts longer**
and exceeds
your expectations.



Methodology



- **10 CH2M HILL interviews:
top WBG leaders**
- **31 Client Interviews by
phone:**
 - **water & wastewater**
 - **economic development**
 - **regulatory affairs**



Overview – Market Conditions

Drivers and deterrents impact client's investments

Driving Forces

Population Growth
Environmental Stewardship
Aging Infrastructure
Regulatory
Public Health
Drought Impacts

Restraining Forces

Economy
Willingness to Pay
Political Uncertainty



Recent client interviews revealed top issues:

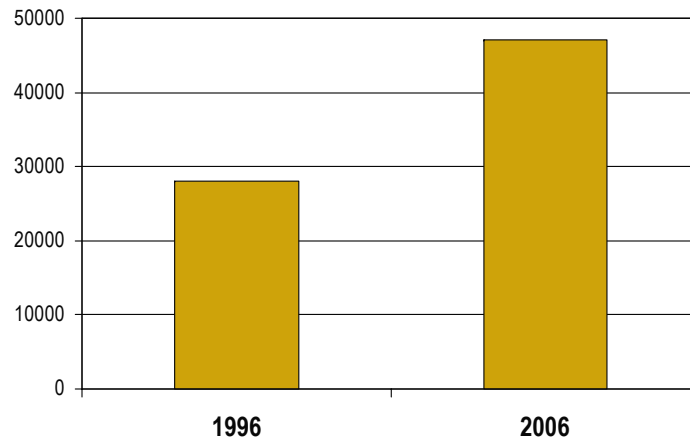
- Workforce, staffing
- Aging infrastructure, financing
- Water quality regulations
- Better integration of water/wastewater resources



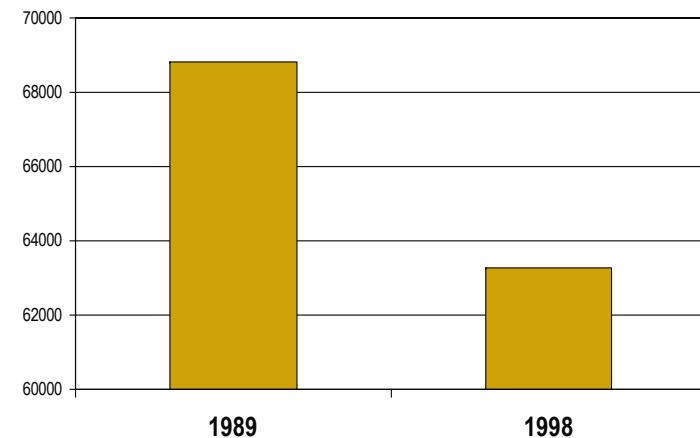
Issue 1: Workforce Competition And Shortages

- There are significant changes occurring in our workforce including retirement, conflicting generational values, ethnicity, and gender. Technical literacy continues to decline in the U.S.

Growing Demand for Engineers
(Source: Bureau of Labor Statistics, 1998-2008)

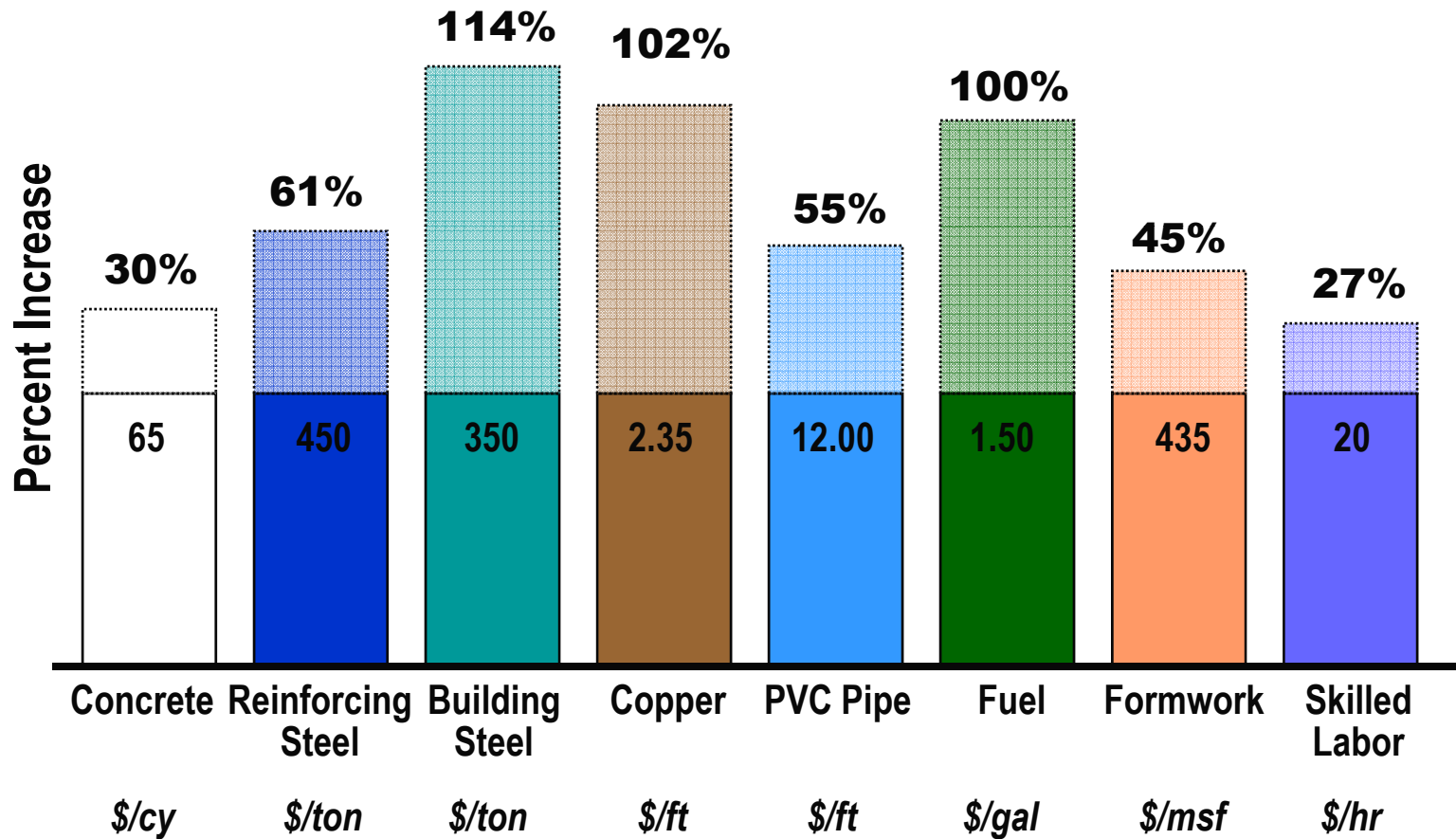


Decline of Engineering Degrees Awarded to Science and Engineering Graduates
(Source: Bensimon, Helen Frank, Jan/Feb 2000)



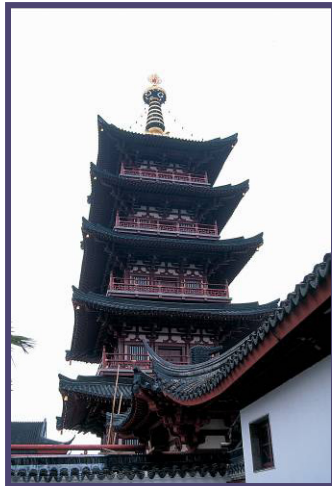


Issue 2: Construction Costs Rose Significantly In All Areas From 2000-2006





Causes of Current Cost Escalation



- **Natural Disasters** –
Hurricanes and Tsunamis
- **China, India, and Middle East** –
Massive building programs
- **War** – Iraq and Afghanistan
- **Energy Costs** –
Record-setting oil prices
- **Labor** – Shortage of skilled labor
- **Material** – Demand exceeding supply
- **Global economy** –
Construction is up everywhere



In Light Of These Challenges, Industry Finds It Difficult To Price

- Demand is driving commodities prices and producing unprecedented volatility
- E&C companies are no longer able or willing to take commodity price risk
- E&C companies will take lump sum contracts, but add significant risk/contingency allowances





How Does This All Affect Your Business?

- As project implementation begins to increase, so will shortages
 - Materials
 - Trade labor
 - Your staff
- Additionally, bond capacity of underwriters will be stretched





As An Owner, There Are Several Ways To Mitigate Your Risk

- Look for ways to understand areas of vulnerability in your project
 - Design concept review
 - Peer reviews
 - Constructibility reviews
 - Value engineering
- Early pre-purchase of critical equipment
- Allow deductive proposals to supply alternative materials

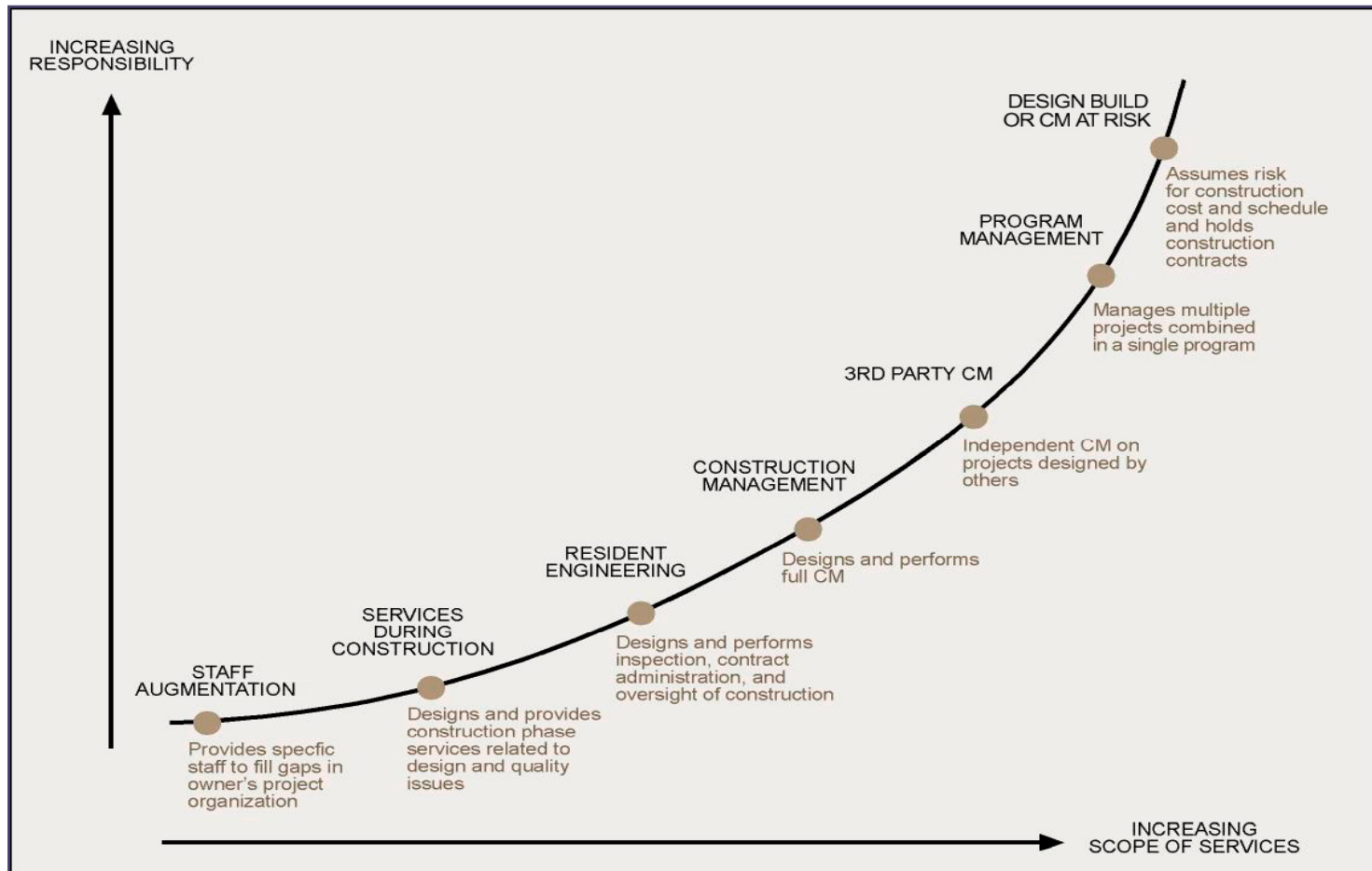


As An Owner, There Are Several Ways To Mitigate Your Risk

- Look for opportunities to share risk
 - Blanket insurance policy to cover construction activity
 - “Index” material costs and reimburse for unusual increases
- Give consideration to other project delivery methods and choose the most appropriate



Owners Have Their Choice Of Construction-phase Delivery Options





Design-Bid-Build

Advantages

- Owner input throughout design
- Can work toward preferred equipment
- Engineer works as “Owner’s Agent” (not legally)
- Familiar - owners, engineers, and contractors understand how it works
- Project requirements are defined by owner and engineer
- Owners, regulatory agencies, and the public usually accept the results

Disadvantages

- Less opportunity for cost savings
- Less control over construction schedule
- Less opportunity for schedule acceleration
- Owner deals with disputes, change orders, etc.



Construction Management

Advantages

- Experienced CM staff as needed
- Owner maintains control with minimal core staff
- Owner has single point of contact for all project issues
- CM is independent of Engineer team
- Reliable systems, processes, and tools
- Systems can be mobilized rapidly

Disadvantages

- Adds another party to communication loop
- Lose design engineers perspective/ understanding of plans and specifications
- Potential cost increase
- Limits owner interaction with designers



CM at Risk

Advantages

- Owner and contractor input into design
- Eliminate redundant construction and contract administration duties (5-10% of total project cost)
- Provide single responsibility for project
- Owner gets competitively bid price for all construction work and equipment
- Owner negotiates CM's profit margin
- Expedited project delivery
- Owner's risk is limited

Disadvantages

- Overall schedule would be longer than Design-Build (DB)
- Less opportunity for cost savings than DB
- No significant cost savings over traditional design-bid-build



Design-Build

Advantages

- Lower design cost (20%± cost savings from traditional)
- Cost savings by eliminating redundant construction and contract administration duties (5-10% of total project cost)
- Single unit responsibility for execution of project
- Time savings, shorter schedule due to reduced design, and early start construction

Disadvantages

- Limited input from Owner after 30% design
- Less Owner control over final construction details
- Limited oversight by Independent Owner's agent
- State laws vary on whether this can be done



Other Cost Mitigation Measures

- Tailored contract packaging size and scope to local market conditions
- Procured major equipment items early so more time could allow greater competition and sourcing globally





Other Cost Mitigation Measures



- Allowed range of materials so contractors had options
 - Different types of steel
- Allowed concrete and steel placement on non-critical structures to be extended where it would not affect the project final completion date



Contractual Strategies

- **Off-Ramps** – Consider contractual language providing escalation “off-ramp” for changes in cost/availability of materials, equipment, or labor beyond the cost reasonably estimated
- **Exclusion Clauses** – Consider excluding volatile commodities and services from lump-sum calculations and offering escalation calculations or pass-through alternatives



Other Points

- Escalation is running higher than interest on bonds – **build now!**
 - Given the current spread between escalation and the cost of money, you can build twice as much infrastructure now than if you wait 5 years





Summary

- Have a proactive Procurement Strategy that understands the current market conditions and controls cost increases
- Re-baseline project budgets and schedules to account for recent cost increases
- Consider alternative delivery options that help control costs
- Find a reliable, full-service partner!