

Challenges for Water Power and Waste Management in the US and China

The Perfect Storm

A Documentary Film

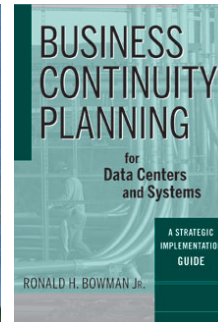
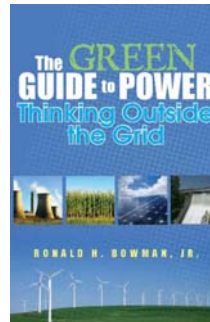
By Ronald H. Bowman Jr.



Wasted Opportunities

By Ronald H. Bowman Jr.

Coming Fall '10



Framing the Discussion

- Climate change is real
- Port cities are most mega cities
- Port cities are oldest cities
- Demand outpaces supply of basic services



United States - 1776

- How we got here
- What is here
- How to move forward



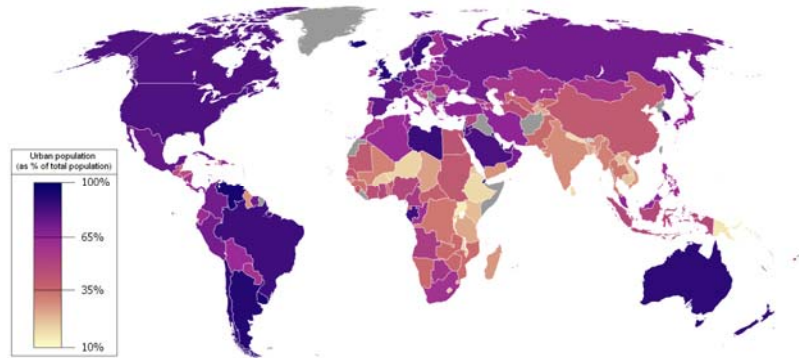
China - 1949

- How they got here
- What is here
- How they are moving forward



Urban Population

- US – 1900
 - All top ten largest cities are port cities
 - 3 remain
- China – migration from rural to urban
 - 1990-2007
 - Urban population increases by 292 million
 - Rural population decreases by 161 million
 - Bourgeoning middle class
 - More income more services
- US – by 2020-2030 will run short of services



Source: Urban Development Report 2007/08

Solutions – Beyond Shock and Awe

- US – Post deregulation – very reliable
not dependable
 - Decentralized Power in urban required
 - Cogen
 - Fuel Cell
 - Solar
 - Wind
 - Tidal
 - Geothermal
 - Fossil Fuel is a major part of the solution
 - Renewables will make up remarkably small amount of the supply



Solutions – Beyond Shock and Awe

- ❑ China
 - ❑ Reliable
 - ❑ Dependable
- ❑ Centralized power solutions
- ❑ Builds power plant every 3 days
- ❑ Fossil major part of solution
- ❑ Major renewable plants slow traction
- ❑ Faster/cheaper



Water and Sewer

- ❑ US – break and fix #2 on most municipal budgets
- ❑ Uses less water than 1980
- ❑ Conservation efforts effective – cost up 300% in 5 years
- ❑ Effluent benefits growing
- ❑ Desalination growing in NYC – Hudson
 - ❑ Now flexible to pollution and salt
 - ❑ Desalination cities have high energy costs
- ❑ 50,000 water companies in US
- ❑ 16,000 waste companies in US



Solutions

□ US

- Decentralized solutions
- Cogen - NYC
- Fuel cell NYC
- Waste water treatment on site for residential
- Canadian hydro 3,000 Quebec city to US
- Plasma NYC on Hudson
- Gryphon dewatering for paper-waste-coal

□ China

- Water
- River redirection
- Reverse osmosis desalinization and pollution treatment
- Baby fossil fuel with sequestering – slow to change
- Nuclear(half the plants of US 56 to 104. Twice the speed half the cost)
- Aggregation of need provides financeable solution
- “Size gets eyes” for private sector – very financeable

