



GovEnergy

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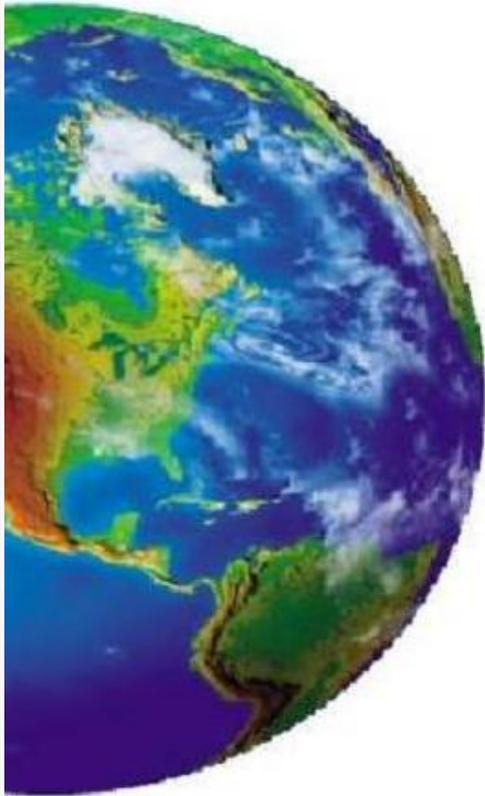
The Premier Energy Training Workshop
and Trade Show for Federal Agencies

A River of Energy Solutions

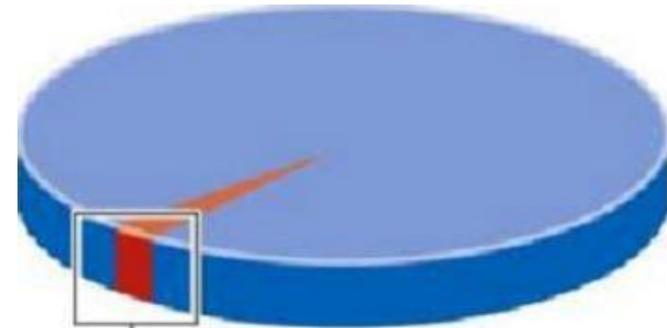
Reducing Water & Energy Use In HVAC Systems

Brian Peters, GE Water & Process Technologies

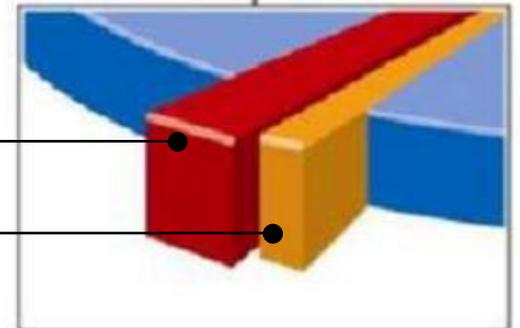
The Earth's surface is 70% water... but less than 1% is accessible freshwater



- Saltwater (97.5%)
- Freshwater (2.5%)



Locked in glaciers
Groundwater,
lakes and rivers

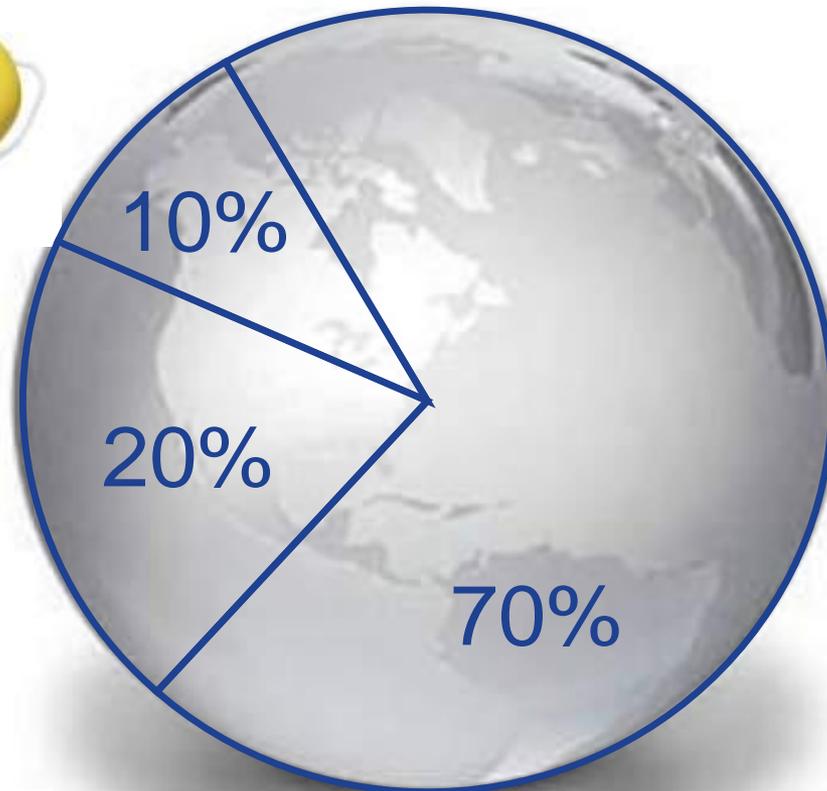


Global water consumption

Water for *Life*



Water for *Industry*



Water for *Food*



Water for industry



It takes 1,500 gal of water to process one barrel of beer



120 gal of water are used to produce one egg



It takes 12 gal of water to process one chicken



39,000 gal of water are used to manufacture one new car



About 6,800 gal of water is required to grow a day's food for a family of 4

It takes 1,850 gal of water to refine one barrel of crude oil

Global water challenges

Availability

- Growing population and industry
- Climate change and draught

Quality

- Deteriorating water quality
- Increased industrial pollution

Environmental

- Stricter regulation on discharge/withdrawal
- Water reuse incentives and mandates

Energy

- Energy to increase ~30% by 2030
- Demand for water to increase ~40%

So Many Products.....

What's right for me?

Chemicals



UF/MBR/
ABMet



RO/ED



Thermal/ZLD



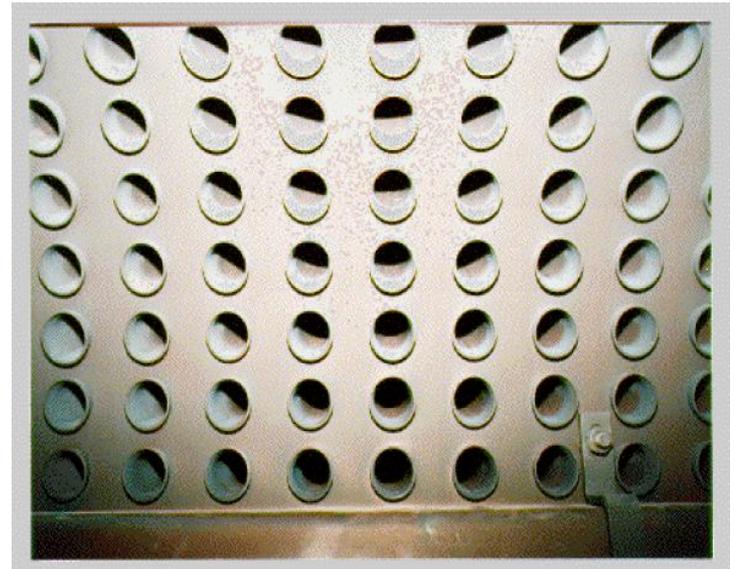
Mobile/BOO



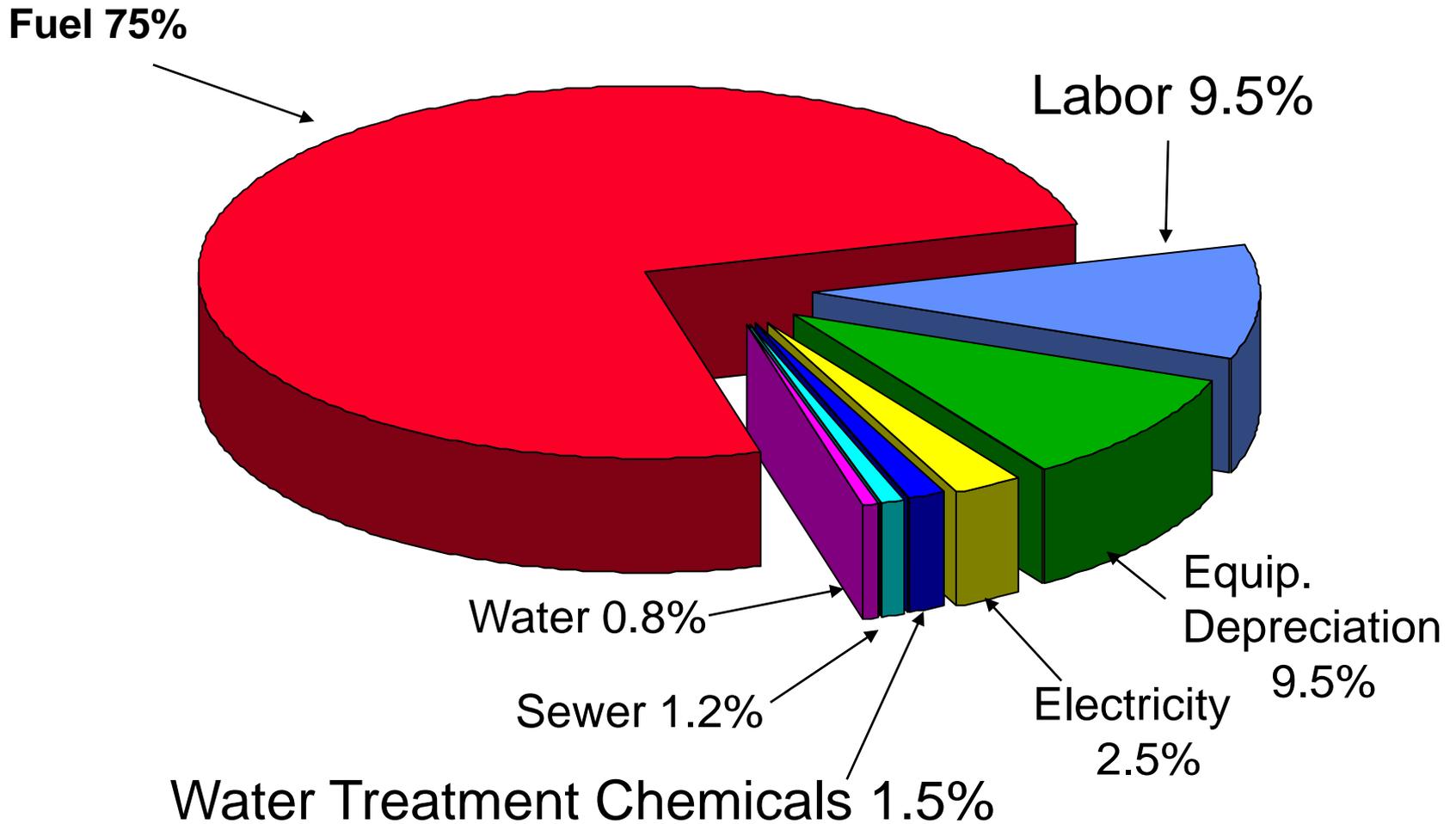
Filters &
Membranes



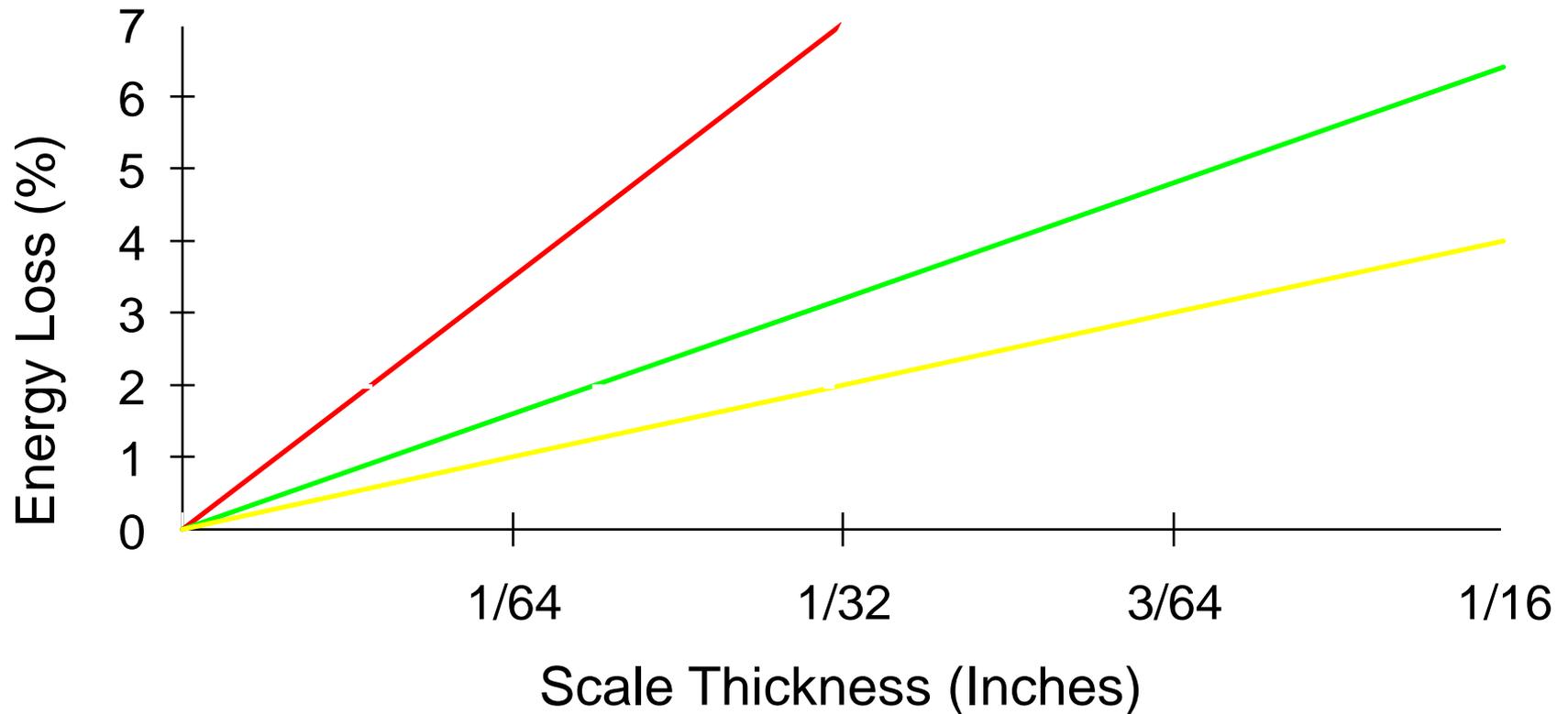
Boiler Systems



Typical Boiler Plant Cost Factors



Potential Energy Loss Versus Waterside Scale Thickness



— Iron & Silica

— High Iron Content

— "Normal" Scale

3 Stages of Water / Lifecycle

Before

What sources
can we use?

What can we do
to make it
perform better?

How much are
we using?

During

What's our Risk/
Use profile?

What's our
control?

How are we
performing?

After

Can we do
anything to bring
the water back?

Can we use the
discharge for
anything else?

How much are
we discharging?

5 Must Knows About Water & Energy in Boilers

- Condensate, Condensate, Condensate – The more you return the more money in your pocket!
- Oxygen – great for people, bad for boilers
- Total Dissolved Solids – The lower the TDS going into a boiler, the higher the potential savings by reducing boiler blowdown
- Scale can form quick – it's effects are long lasting
- Control of program is Paramount to realize savings