



Energy and GHG Management at California Portland Cement Company

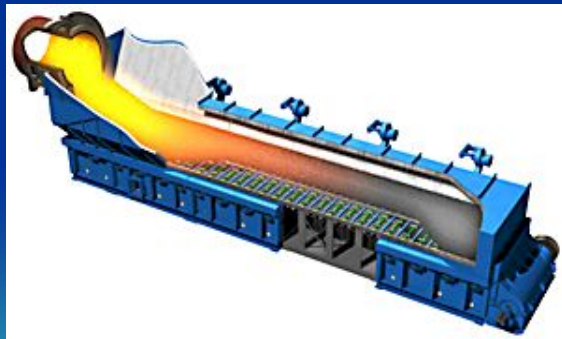
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Benchmarking Industrial Facilities Breakout Session



Climate Leaders Conference
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Energy & GHG Management at CPC



OVERVIEW

- Company Background
- Cement Process
- Energy Use & GHG Emissions
- Energy/GHG Management Strategy
- Energy Star & Climate Leaders
- Benefits
- Challenges & Future Actions





Energy & GHG Management at CPC



Company Background

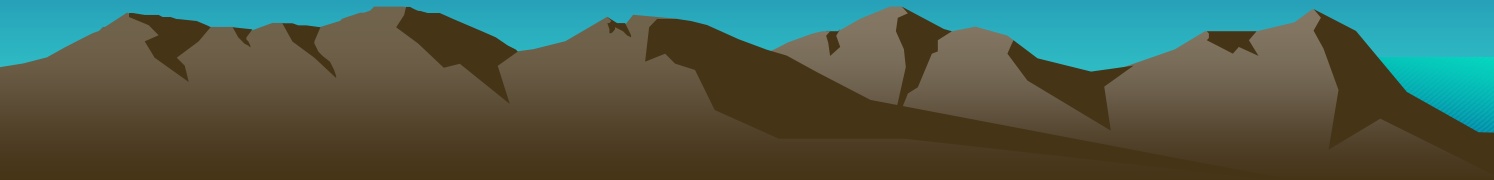
- Founded in 1891
- Producer of cement, concrete and aggregates
- Recent merger with sister company – Glacier NW
- Facilities on west coast from Alaska to California including Nevada & Arizona
- 2000 Employees
- ~\$1 Billion annual sales





Cement Process

- Energy intensive process – conversion of car-sized rock to fine powder
- “Passing a mountain through the eye of a needle twice”
- Mining, crushing, blending, grinding, heating (3000°F), cooling, conveying, grinding & shipping
 - Energy as much as 30% of cost – 50% variable costs
 - Typical power demand 22-27 MWatts
 - Coal is primary fuel



Preheater-Precalciner
Tower & Kiln

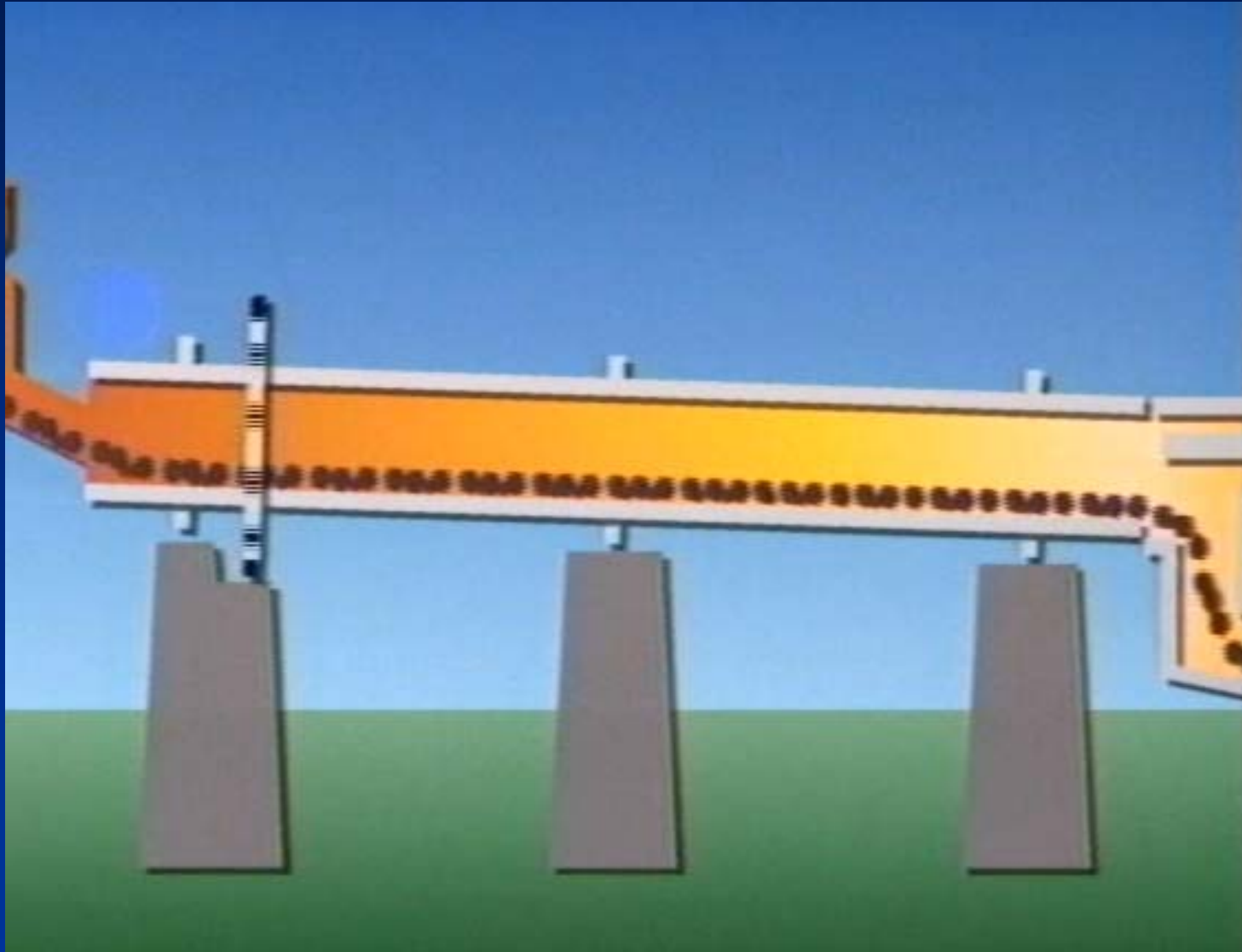


Preheater-Precalciner Tower

- Air flows up
- Feed flows down & into Kiln



Material flows through rotary Kiln
Temperatures reach 3000° F



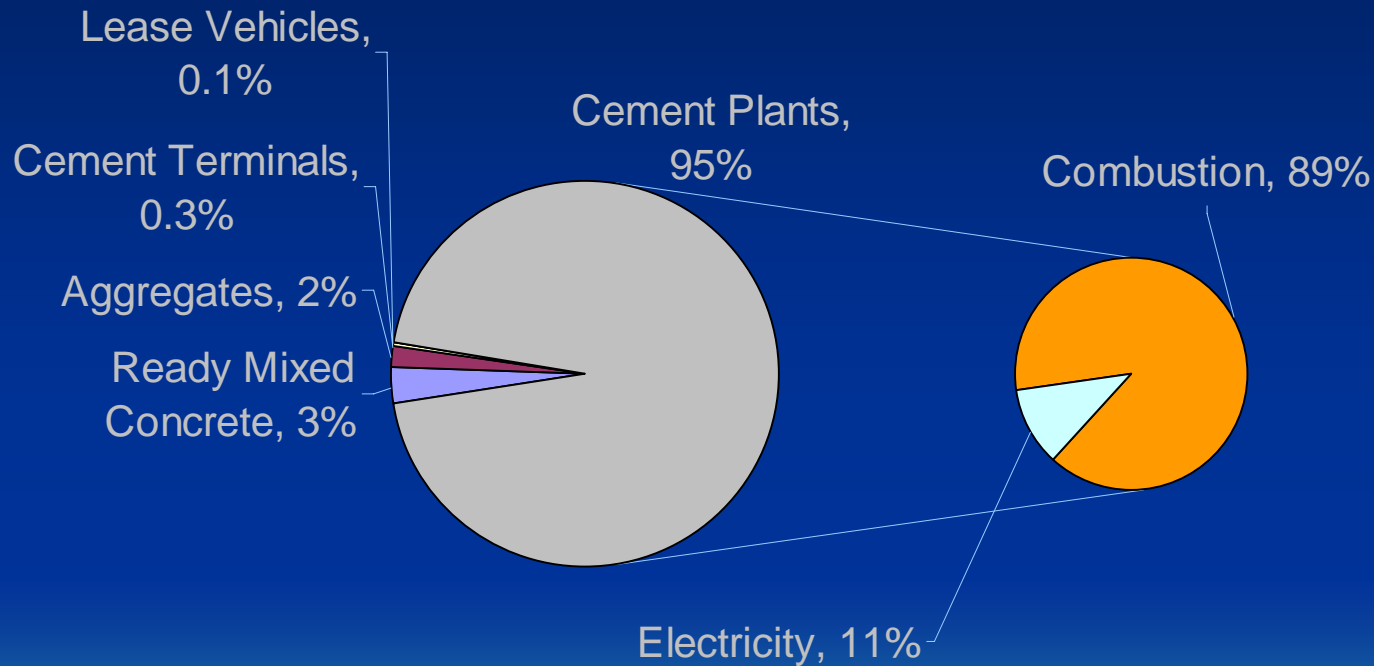




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Energy Consumption by Source

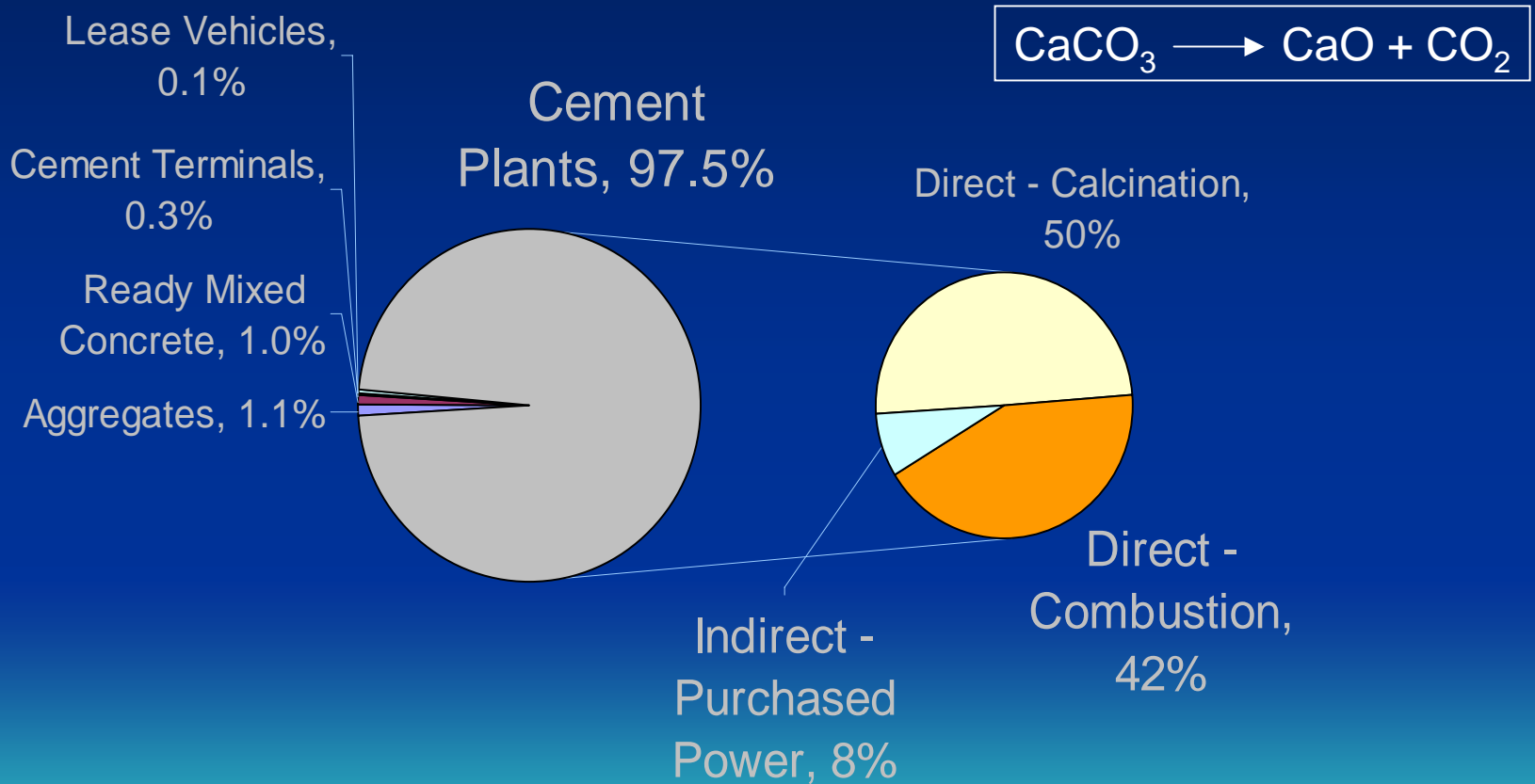




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GHG Emissions by Source

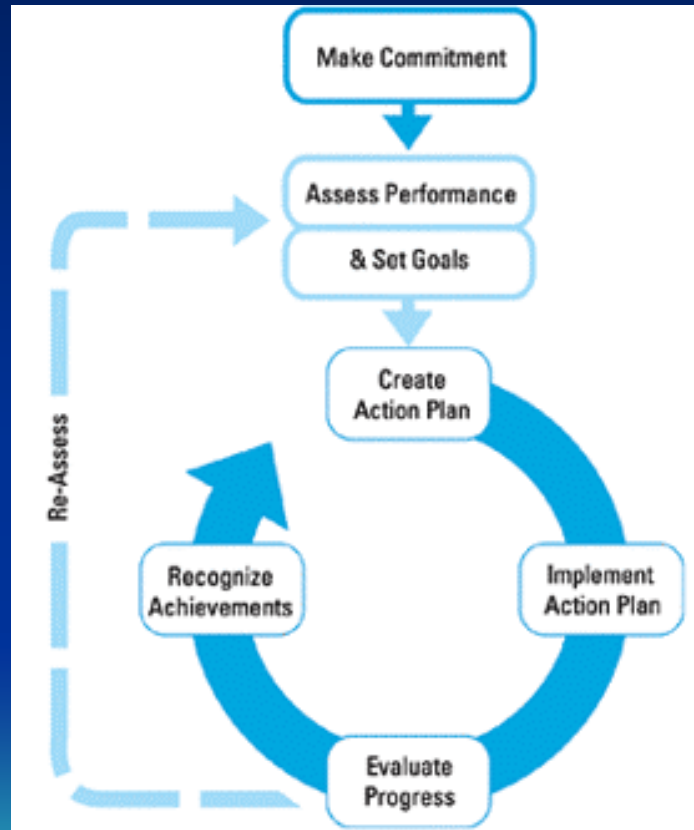




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Energy Star Guidelines for Energy Management

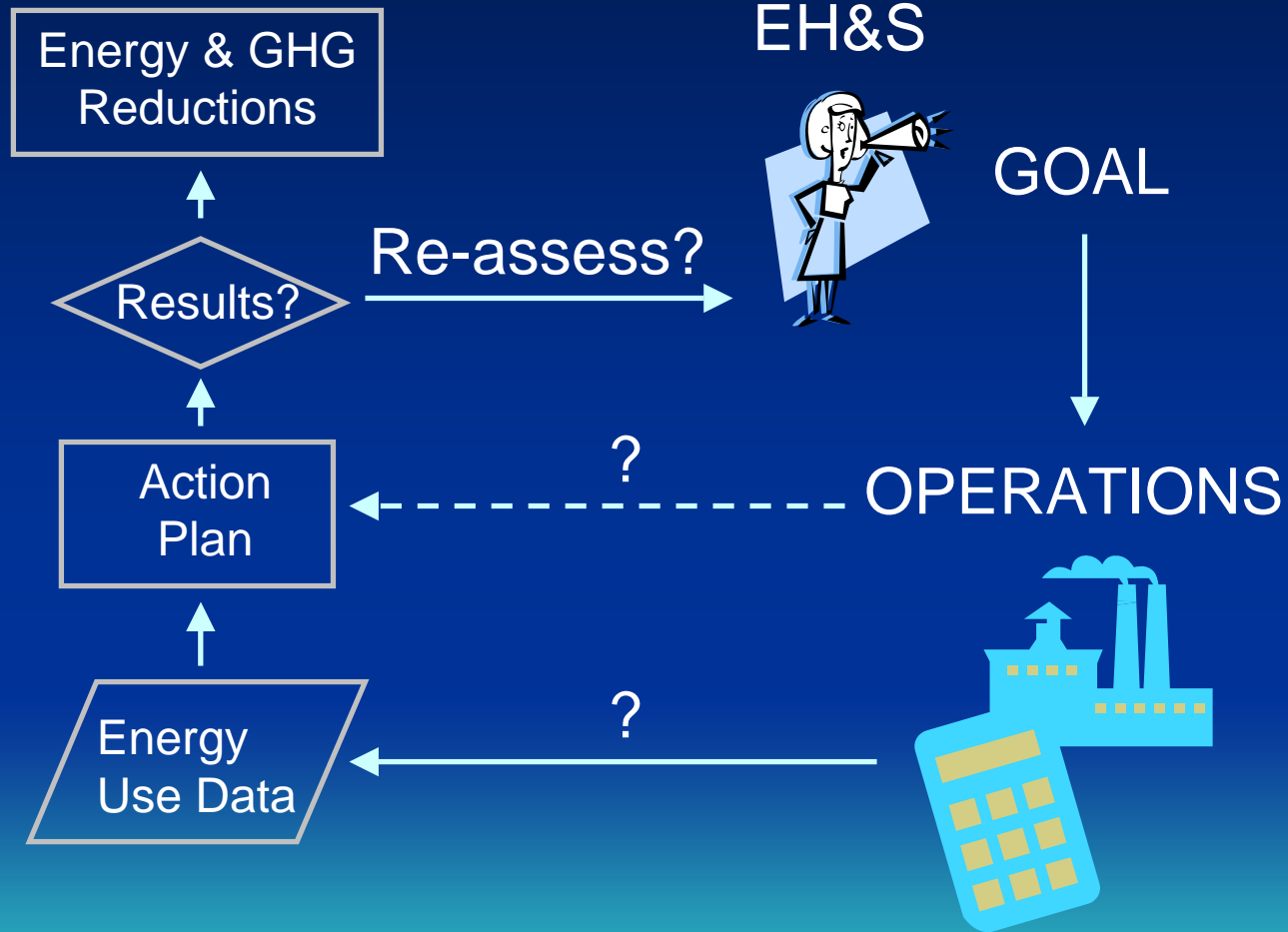




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HOW? – What DOES NOT work...

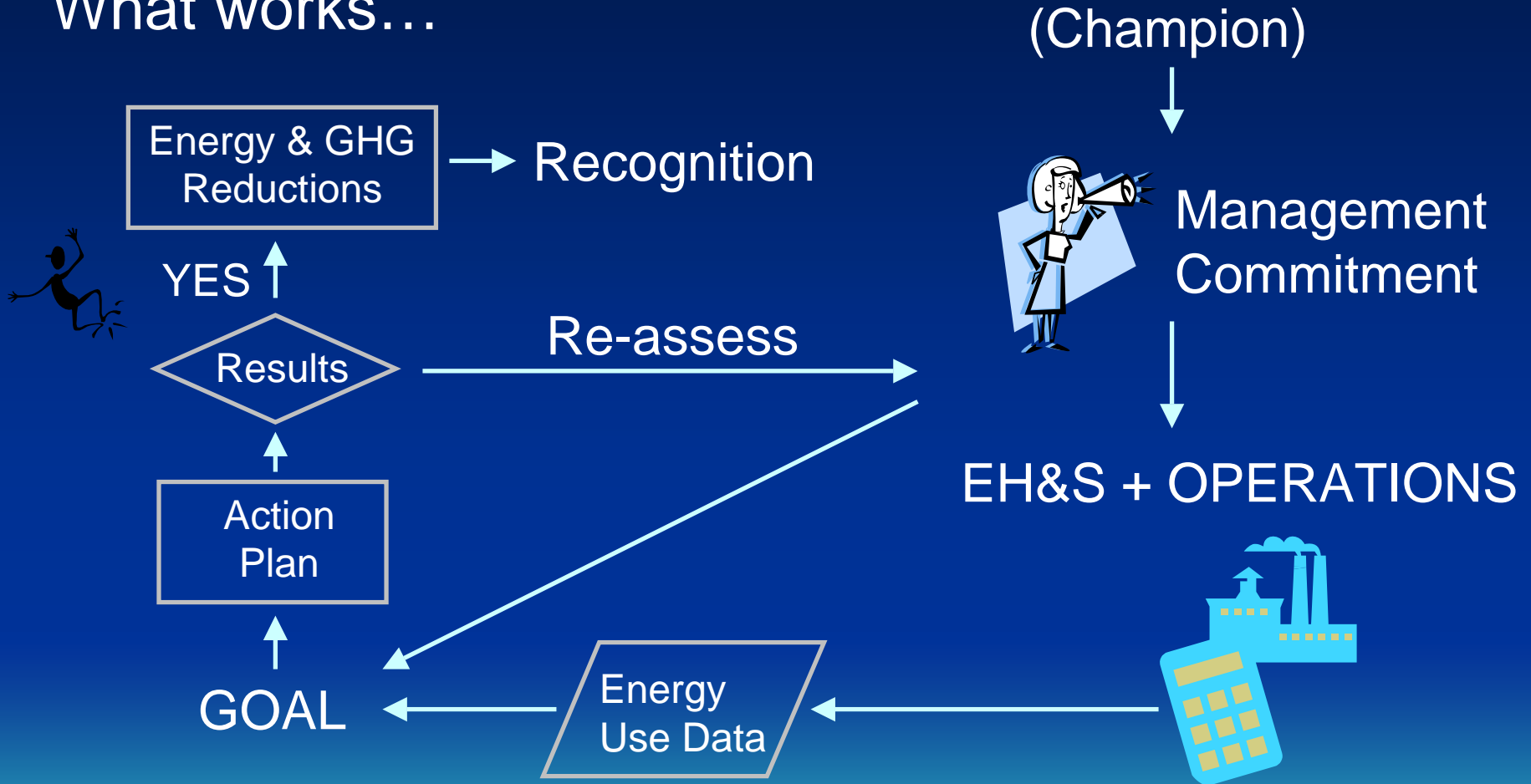




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What works...





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Energy Management Program Organization

- Corporate Energy Team
 - Meets every 6 weeks at various plant sites
- Local Energy Teams
 - Meet with plant departments
- Process Energy Team
 - Performs process audits
- Corporate Support
 - Sr. VP Operations & VP Engineering attend meetings
- Plant Support
 - Plant Managers and plant employees attend meetings





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GHG Management Program

- DOE's EIA 1605(b) Voluntary Reporting of GHG Program since 1996
- Joined EPA Climate Leaders December 2005
- Corporate Engineering group supports data collection and management (operations)
- Management review of goal
- Goal set based on proposed business plan and ***energy management initiatives***
- Goal: 9% reduction in GHG/ton by 2012





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Benefits of GHG management program and Climate Leaders partnership

- Quantify the results of energy management efforts
- Establish a baseline
- Raise public awareness of efforts
- Climate Leaders technical assistance
- Climate Leaders recognition opportunities



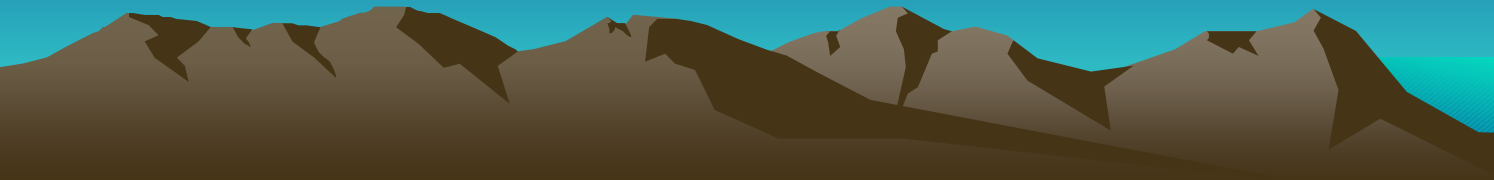


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Benefits of energy management program and Energy Star partnership

- ***Results in GHG reductions***
- Energy reduction efforts help the bottom line due to increasing energy prices
- Raising internal awareness increases savings
- Improving community relations & awareness
- Energy Star technical assistance (EPI, guides)
- Energy Star recognition opportunities
- ***Credibility increases management support***





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Energy Management Program Results

- Saved over \$3 million energy costs
- Significantly reduced emissions
- Institutionalized several ongoing energy initiatives
- Energy awareness has improved significantly
- Received many energy awards
 - Energy Star – Partner of Year 2005 & 2006
 - Energy Star – Sustained Excellence 2007
 - Energy Star for Plants Label – Mojave & Colton
 - CA Flex Your Power 2005
 - AZ Governor's Award - Excellence in Energy Efficiency 2004 & 2005 - Rillito
 - PCA Energy Efficiency Award – Colton (2004) & Mojave (05&06)
 - Edison Award for Energy Efficiency





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Challenges/Future Actions

- Quantifying the results of energy management efforts...
- Involvement of key personnel – facilities, EH&S, management
- Obtaining/maintaining data - 80/20 rule applies
- Institutionalizing energy & GHG data collection





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QUESTIONS?

