

ChevronTexaco (CVX)

O&M Optimization Initiative

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Location: Dallas, Texas

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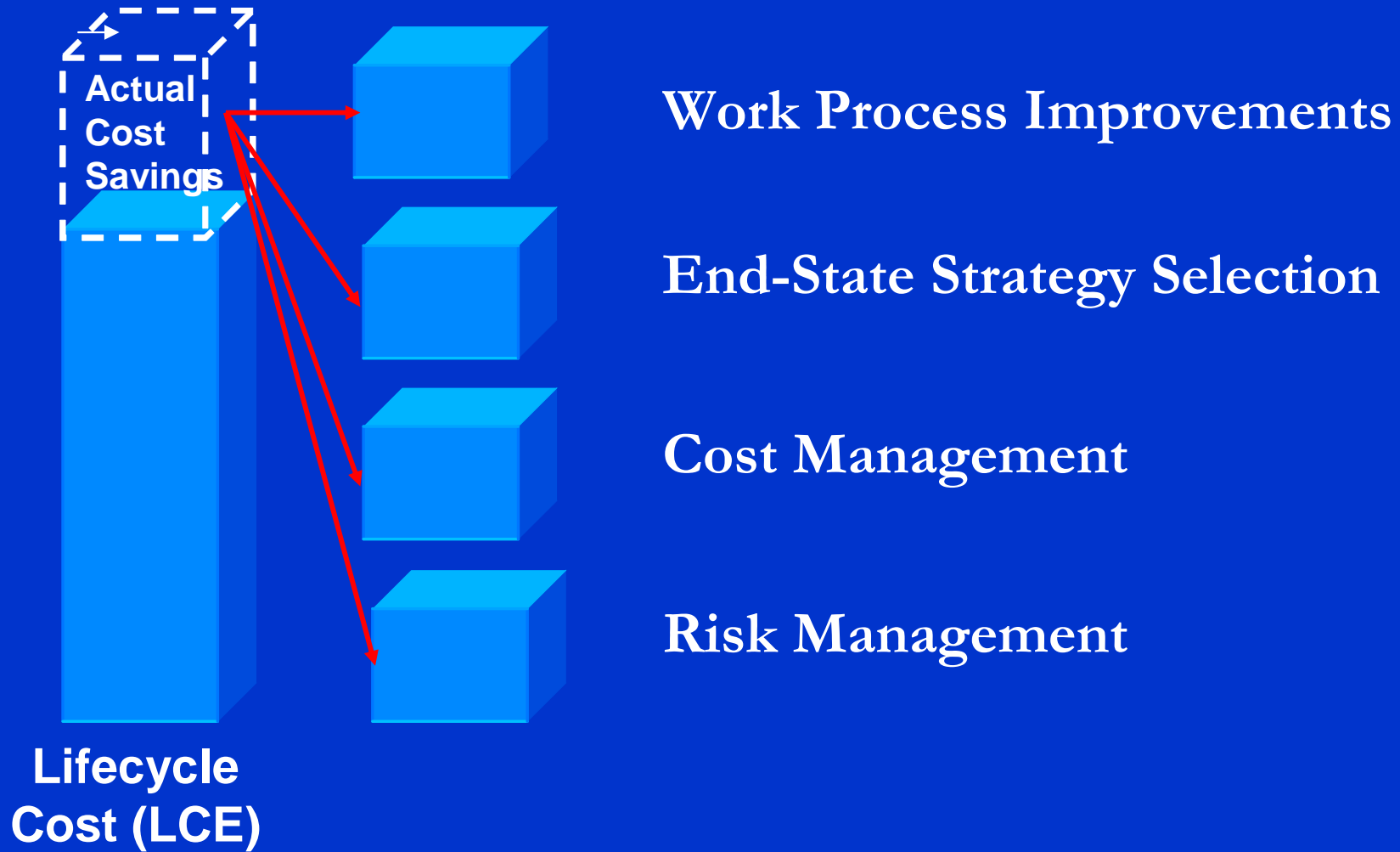
Chevron Environmental Management Company (EMC)

History – EMC formed in November 1998 as a subsidiary of ChevronTexaco, to manage environmental remediation projects.

Purpose - Create significant value through focused management of remediation and abandonment responsibilities.

Scope – Over 3000 sites world wide and expanding internationally. Divided into 5 BU (RCRA, Retail, Superfund, Abandonment and International).

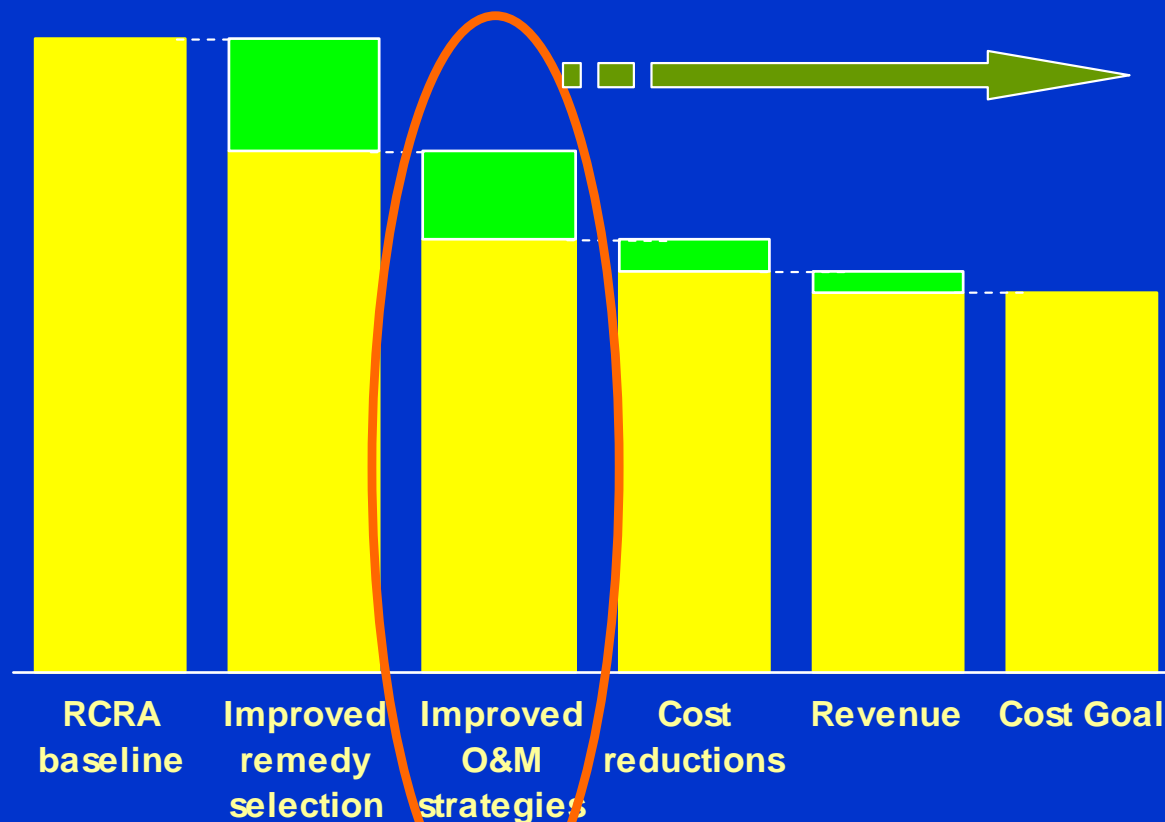
Lifecycle Cost



Business Case

To manage EMC's liabilities to achieve reduction in total lifecycle spend

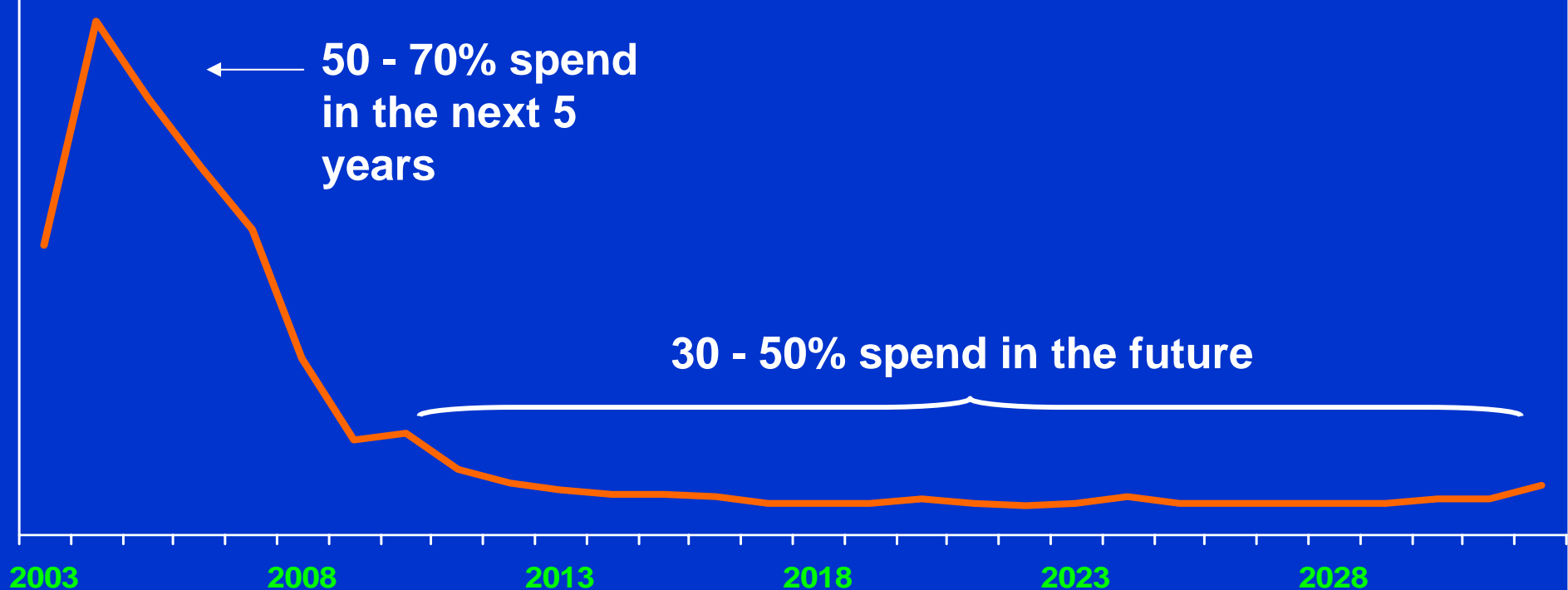
RCRA lifecycle cost reduction opportunities



O&M: >30% reductions in O&M expenditures

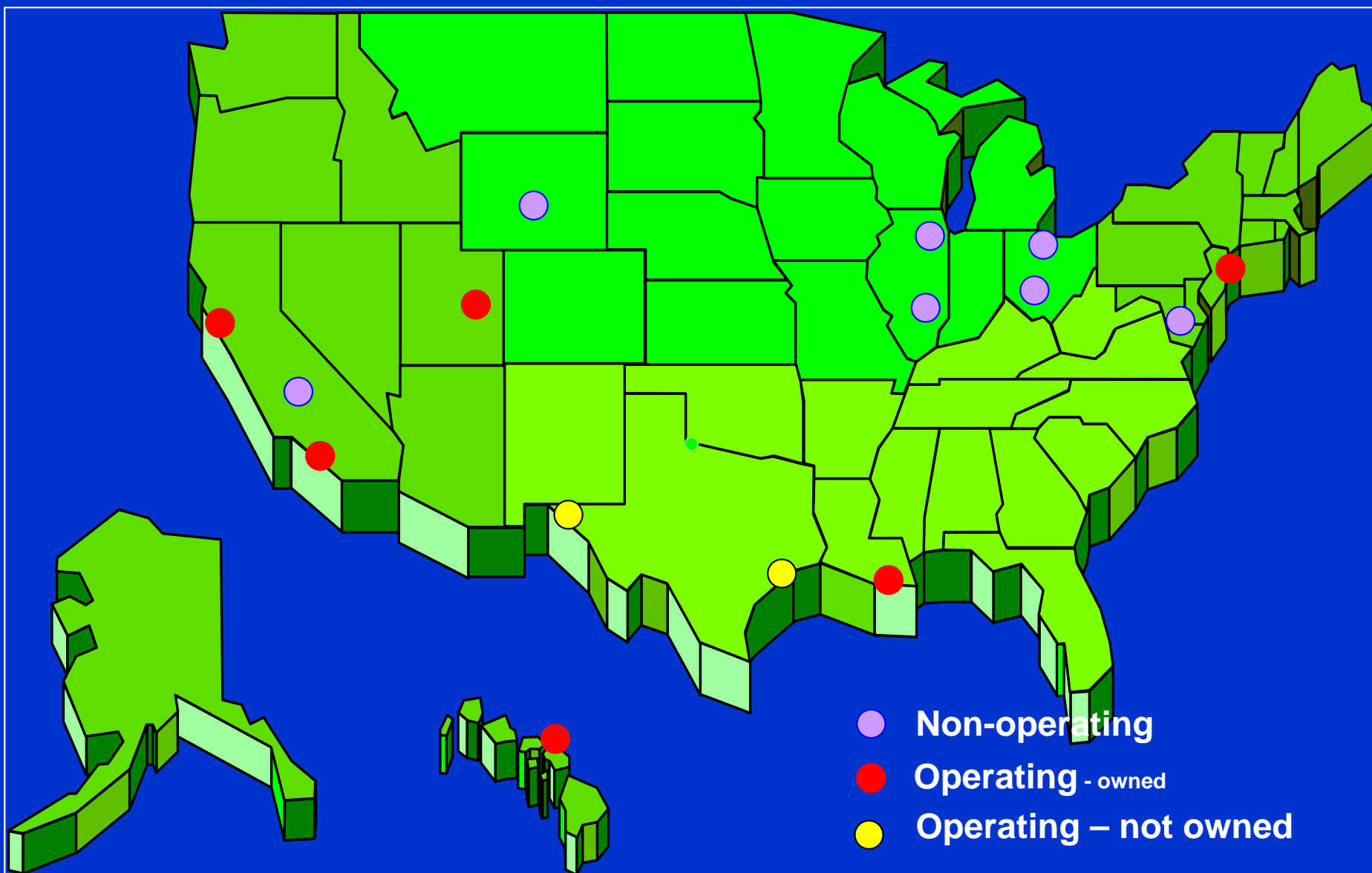
Cost Over Time

RCRA spend profile over time
\$ Millions; future value



- O&M represent 30 - 50% of the portfolio lifecycle costs

ChevronTexaco RCRA Corrective Action Refinery Sites



O&M Optimization Project

Current State for 11+ RCRA Sites:

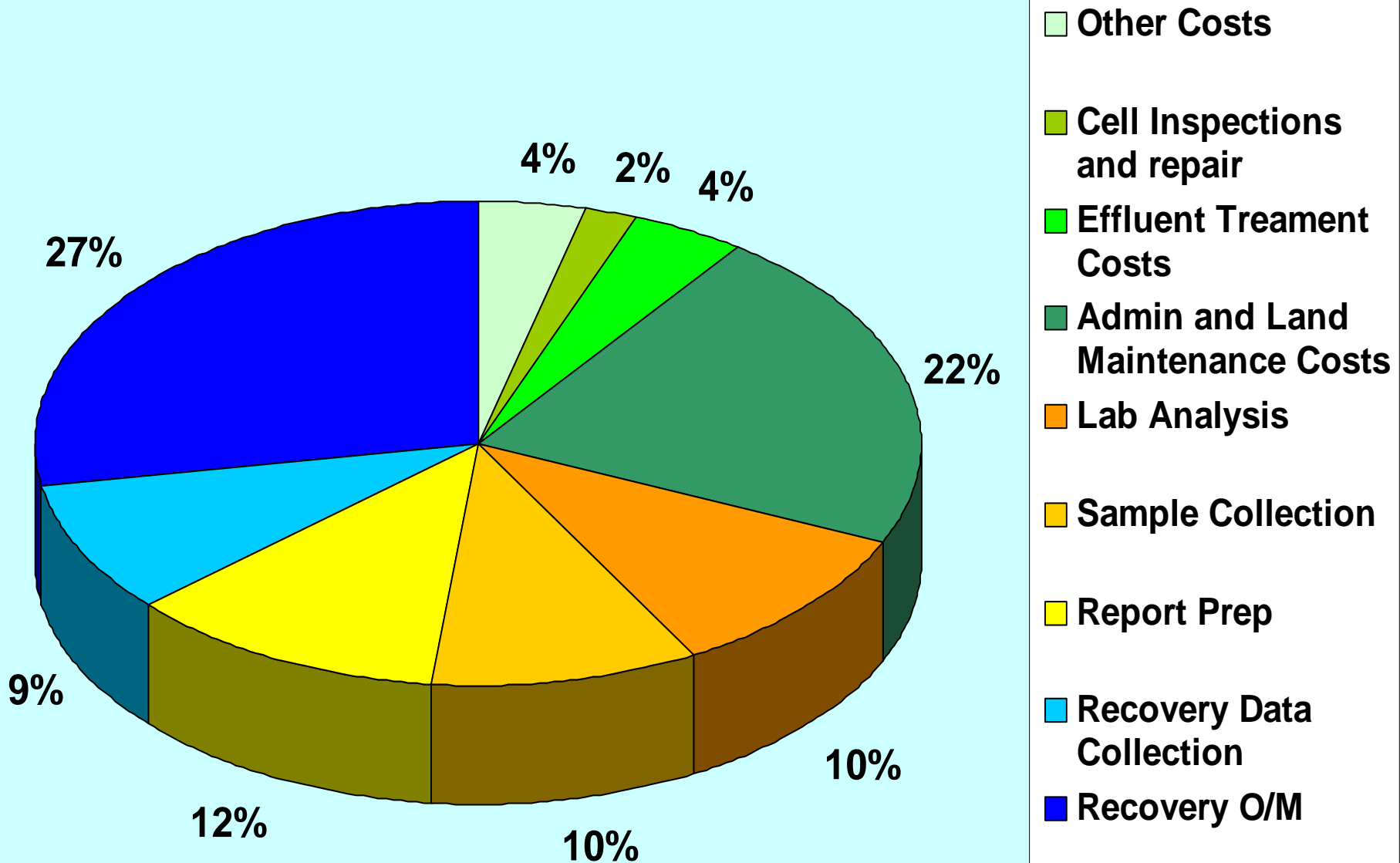
- O/M burn rate is \$13 to 15MM/year
- O/M managed by each site
- Total FTE - 60 contractors & 17 CVX
- > 600 wells/yr sampled & chemical tested
- >1500 samples/yr are collected
- >2100 wells/yr are gauged for fluid levels
- Over 8000 measured each year

O/M Optimization Project

Current State Continued:

- >Operate 550 H/C recovery wells, 280 Vapor extraction wells and 95 bioventing wells
- >1.5 MM gal/yr liquid hydrocarbon recovered
- > 0.4 MM BOE/yr as vapor recovered
- >1.5 billion gal/yr of fluids pumped, treated
- >1000 acres of CAMU or Capped areas maintained and inspected - an additional 135 wells sampled and analyzed.

Routine O/M Costs Across RCRA



O/M Optimization Project

Opportunity Statement -

Implement an O&M optimization program and an O&M organizational model to minimize O&M life cycle costs across the ChevronTexaco RCRA portfolio in support of our cost saving challenge.

O&M OPTIMIZATION PROJECT

Project Drivers

Why are we doing this?

- Meeting the EMC Savings Challenge
- O&M represent 40% of the portfolio lifecycle costs
- Potential savings at key sites to reduce O&M cost

How are we going to do this?

- Document current activities, cost, FTE.
- Focus data gathering and analysis on critical sites
- Run pilot projects to help quantify optimization savings potential and test saving alternatives

O&M Optimization Project

Project Drivers

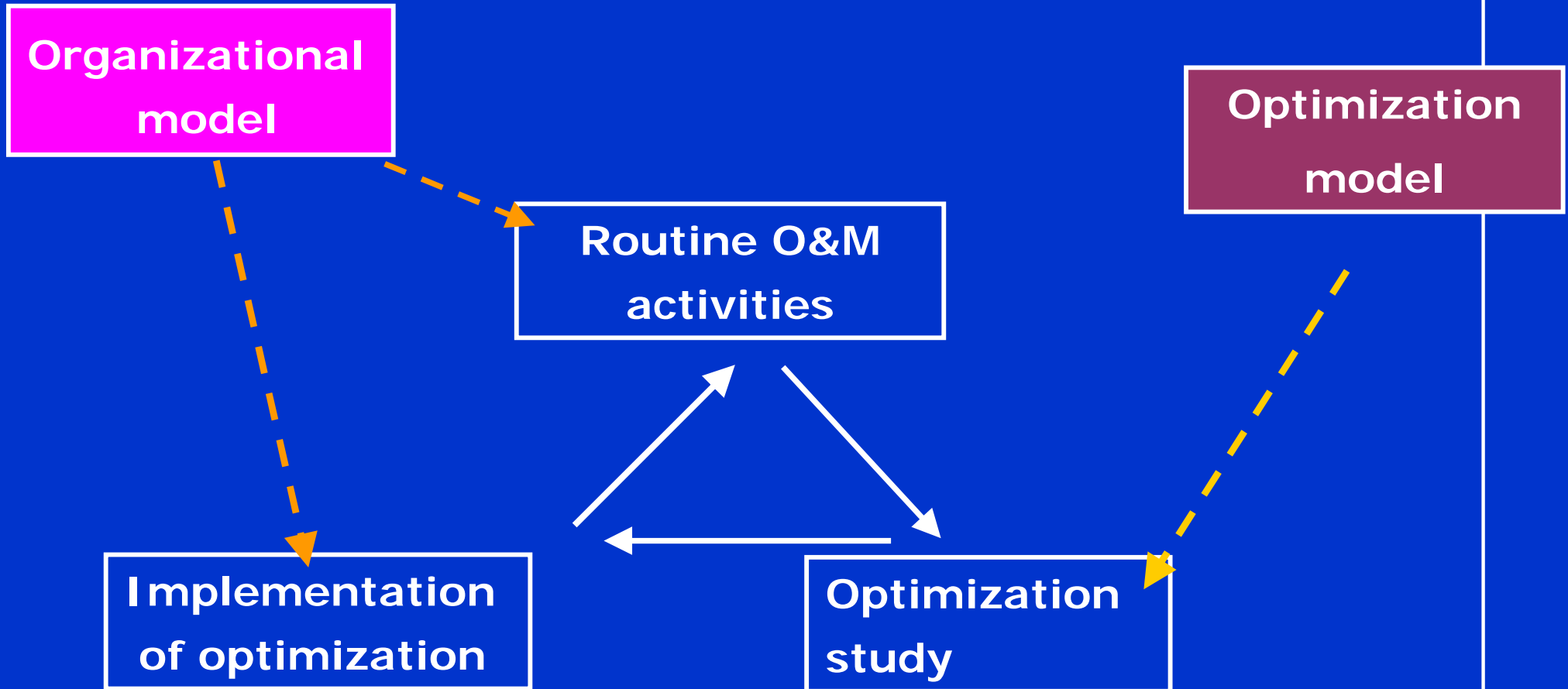
Why now?

- Current O/M burn rate is \$12-15MM/yr
- Sites are being remediated and are shifting to O/M activities

How quickly?

- Implement business model & initial optimization studies in the near term
- Overall systems optimization may take longer

O/M Optimization Project



Where Are We Now

- Created a new position to oversee all O&M activities and focus on optimization of cost while not sacrificing safety and compliance
- Reviewing site strategies & long term O&M costs
- Selected a supplier for optimization studies
- Beginning to evaluate O/M systems throughout the portfolio
- Evaluating contractor management alternatives-
 - *Migrate to a single O&M supplier*
 - *Incentive based contracting*

Casper Wyoming Smart Site Review Objectives

- Evaluate O&M objective, technology, system design, and performance.
- Evaluate potential modifications and upgrades to system hardware and software that may improve performance or reduce short term or long term costs.
- Implement modifications that offer a significant financial ROI or provide other significant non monetary benefits.

Casper Results

- **>\$165,000/yr savings = 19%**
- **Installation of Automated Well Field Controls (\$56,000/yr)**
- **Replacement of Groundwater Extraction Pumps (\$13,000/yr)**
- **Enhance Polymer Feed System (\$9000/yr)**
- **Installation of VFD on GWTU discharge transfer pumps (\$3700/yr)**
- **Reroute groundwater discharge (\$3600/yr)**

Casper Results Cont.

- **Replace SVE Thermal Oxidizer with Vapor Phase Carbon (\$74,000/yr)***
- **Interlock GWTU Controls to Wet Well Sump (\$700/yr)**
- **Install Acid Cleaning Loop on Air Stripper (\$4,700/yr)**
- **Repipe Air Stripper Air Intake (\$1000/yr)**

Conclusion

- **By providing sites with organization and tools to perform O/M evaluations we hope to save 10% to 30% of our life cycle costs through efficient operation and design of remediation or O/M systems**

Questions?????

