



ERA·TOS·THENES

The global experts in the financial estimation, reporting and management of environmental liabilities and risks.

Eratosthenes of Cyrene (276 BC - 194 BC) examined the shadow cast by the noonday sun in Syene south of Alexandria and determined the Sun's angle of elevation to be $1/50$ of a circle ($7^{\circ}12'$). From this key observation, he calculated the distance from the earth to the sun and the circumference and tilt of the earth. He then established a system of longitude and latitude with which, as the world's first geographer, he drew the first map of the known world. Today, investors, corporations, and governments need similar insight in the measurement and management of environmental liabilities and risks (ELRs). This is particularly true in the energy and mining sectors where ELRs for coalmine reclamation, surface and groundwater remediation, decommissioning of processing facilities and pipelines, and plugging and abandonment of oil and gas wells pose a significant risk to corporate balance sheets and government funds for abandoned mines and wells.

We are a specialized research and consulting firm with expertise in the financial estimation, reporting and management of ELRs. Our key areas of focus are financial quantification, accounting and disclosure, internal control, financial assurance, financial engineering, risk management and insurance. Many of these issues come into focus during or immediately prior to corporate bankruptcies. But they warrant careful attention long before.

We founded Eratosthenes based on a few fundamental insights—(1) accounting estimates of ELRs are, as a whole, materially understated and underfunded; (2) financial markets misprice debt and equity securities due to common misperceptions about ELRs; and (3) properly structured, financial planning and risk management solutions can benefit corporations, governments and the general public.

What unfunded employee retirement obligations were to GM, unfunded ELRs are to the energy and mining industries. Reported ELRs average 50% and 40%, respectively, of reported financial debt in the oil and gas and metals and mining industries, and our analysis indicates that the true economic value of these obligations is much greater than what is reported. Our adjusted estimates, which are derived from reported cash flows, normalized discount periods and risk free discount rates, are sometimes more than an order of magnitude higher than reported accounting estimates; and because they affect not only debt,

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"It's up to you now, Müller. The only thing that can save us is an accounting breakthrough."

but also depreciation and interest (accretion) expense, *our adjustments can materially impact every critical corporate financial ratio.*

Our research, which is based on historical time series analysis of corporate accounting disclosures over 12-plus years, reveals that some seemingly healthy companies are actually within the zone of insolvency when the fair value of ELRs is considered. Misperceptions of the financial and legal characteristics of ELRs may cause corporations and governments to misjudge funding and insurance needs and lead financial markets to misallocate capital.

People, and by extension corporations, financial markets and governments, are notoriously bad at planning for retirement. This is in no small part due to the difficulty in estimating what retirement will ultimately cost, and when, and the perceived trade-offs between current spending and long-term saving.



"Oh, that three trillion dollars. I inflated it at 2% and discounted it back at 8.5% over 60 years. It's now only \$68 billion!"

C. Gregory Rogers, J.D., CPA, is author of *Financial Reporting of Environmental Liabilities and Risks after Sarbanes-Oxley* (Wiley, 2005) and a nationally recognized expert on environmental accounting, law and disclosure. He is a past Chairman of the American Bar Association's Committee on Environmental Disclosure, listed in *Best Lawyers* in environmental law, a frequent lecturer at the Stanford Graduate School of Business, and a participating expert in the U.S. Government Accountability Office (GAO) investigation and report to Congress on Environmental Disclosures.

Most recently, Greg authored articles for the *Petroleum Accounting and Financial Management Journal* titled, "Accounting for Oil and Gas Environmental Liabilities in Bankruptcy" and "Environmental Disclosure Report Card: Oil and Gas Decommissioning Liabilities 2003-2014." They have also authored a chapter on "Accounting for Environmental Debt: Realistic Assessment of Environmental Liabilities and an Estate's Financial Burden" that will appear in an upcoming book titled *Bankruptcy and the Environment* to be published by the American Bankruptcy Institute.

There are strong financial and tax incentives for sound asset retirement planning, but these are often ignored in favor of a risky pay-as-you-go approach. We believe that, properly structured, prudent retirement planning for energy and mining assets is not a detriment to economic growth but a win-win for corporations, governments and the general public.

[Eratosthenes Founder and Pentathalos](#)

Experience

- ELR screening of 10,000 listed corporations. Analysis of recorded ELRs for over 750 corporations registered with the U.S. Securities Exchange Commission.
- Independent specialist for BP, plc in the estimation of economic loss and property damage arising from the Gulf Oil Spill.
- Preparation of coalmine reclamation estimates and financial disclosures in connection with private placement and initial public offering.
- Global assessment of internal control over financial reporting for the CFO and Board of a Major oil company related to:
 - Global decommissioning, plugging and abandonment liabilities
 - Divestiture of major downstream contaminated operating assets
 - Remediation management and risk transfer for discontinued mining and oil & gas properties
- Benchmarking and analysis of environmental liability disclosures for a Fortune 100 energy company.
- Analysis of reported environmental liability accounting estimates for the U.S. Department of Justice in connection with the bankruptcy of Tronox Inc.



*"I'm your attorney, Debbie, but I want to be more than that.
I want to be your accountant, too."*