

# Prudence Resurrected

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# Topics

- History of Prudence Disallowances
- Evolution of the Prudence Standard & the Regulator's Perspective
- Lessons Learned
  - What Went Wrong?
  - What Is Still Going Wrong?
- Prudence Resurrected - Upcoming Regulator Focus
  - What Can You Do About It?

# Over \$19 Billion in Prudence Disallowances Between 1981-1991

Largest Cost Disallowances by Plant				
Year	Unit	Fuel	Utility	Disallowed (\$ Million)
1981	Daniel	Coal	Mississippi Power	\$19.0
1983	Reid Gardner 4	Coal	Nevada Power	\$4.4
1984	Summer 1	Nuclear	South Carolina Electric &	\$123.0
1984	Kettle Falls	Water	Washington Water &	\$9.0
1985	Wolf Creek 1	Nuclear	Multiple	\$1,617.6
1985	Shoreham 1	Nuclear	Long Island Lighting	\$1,395.0
1985	Susquehanna 1&2	Nuclear	Pennsylvania Power &	\$847.0
1985	Callaway 1	Nuclear	Union Electric Co.	\$413.7
1985	Byron 1	Nuclear	Commonwealth Edison	\$101.5
1985	Belle River 1&2	Coal	Detroit Edison	\$96.9
1985	Helms 1-3	PS	Pacific Gas & Electric	\$22.0
1985	Big Bend 4	Coal	Tampa Electric Co.	\$3.7
1985	Holcomb 1	Coal	Sunflower Electric Power	\$0.5
1986	Limerick 1	Nuclear	Philadelphia Electric Co.	\$368.9
1986	Millstone 3	Nuclear	Multiple	\$353.0
1986	Greenwood 1	FO#2	Detroit Edison	\$283.0
1986	Hunter 3	Coal	Utah Power & Light	\$112.5
1987	Nine Mile Point 2	Nuclear	Multiple	\$2,141.0
1987	River Bend 1	Nuclear	Gulf States Utilities Co.	\$1,297.0
1987	Vogtle 1&2	Nuclear	Georgia Power Co.	\$541.0
1987	Hope Creek 1	Nuclear	Multiple	\$511.6
1987	Waterford 3	Nuclear	Louisiana Power & Light	\$284.0
1987	San Onofre 2 & 3	Nuclear	Multiple	\$252.0
1987	Bath County	PS	West Penn. Power	\$31.0
1988	Diablo Canyon 1&2	Nuclear	Pacific Gas & Electric Co.	\$2,000.0
1988	Fermi 2	Nuclear	Detroit Edison Co.	\$1,310.0
1988	Braidwood 1	Nuclear	Commonwealth Edison	\$278.3
1988	Grand Gulf 1	Nuclear	Multiple	\$246.2
1988	Trimble County	Coal	Louisville Gas & Electric	\$200.0
1988	Palo Verde 1-3	Nuclear	Multiple	\$188.0
1988	Byron 2	Nuclear	Commonwealth Edison	\$180.6
1989	Clinton 1	Nuclear	Illinois Power Co.	\$665.0
1989	Perry 1	Nuclear	Multiple	\$665.0
1989	Seabrook 1	Nuclear	Multiple	\$646.4
1989	Beaver Valley 2	Nuclear	Multiple	\$125.3
1990	South Texas 1&2	Nuclear	Houston Lighting & Power	\$375.5
1991	Comanche Peak 1&2	Nuclear	Texas Utilities	\$1,381.0
			Total	\$19,089.5

FO#2 = #2 Fuel Oil.

PS = Pumped Storage.

# History of Prudence

## ■ 70s & 80s - The Beginning – Major Project Cost & Schedule Overruns

1978 - Salem Nuclear (\$20 Million)

1980 - Trans Alaska Pipeline Construction (\$1.6 Billion)

1981 to 1991 - 19+Billion \$\$ Disallowed – Mostly Nuclear Construction Related

## ■ 90's – Re-Allocation of Blame / Focus on Operations

GE Hydrodynamic Loads / Westinghouse Steam Generator / Co-Owner & Contractor Litigation – Shoreham

New Focus on Extended Outages & NRC Actions – STP / Calvert Cliffs / Palo Verde / Peach Bottom

Early Nuclear Retirements – Maine Yankee / Conn. Yankee

## ■ 2000s – Restructuring & System Reliability

2001 – California “Meltdown” – PG&E / SCE Insolvency Reviews

2002 – Enron Bankruptcy Fallout – Trading Practices / Market Manipulation

2003 - Prudence of NJ Utility Basic Generation Service Purchases

2004 – Texas Stranded Costs – Sale & Valuation of Plant Spin-offs – CNP / TNP / AEP

2005 – CT Yankee Decommissioning Cost Overrun

2006 – Affiliate Cost Portion of Base Rate Cases – AEP / Xcel

2007 – T&D Maintenance and Storm Recovery – Ameren / Con Ed / Puget

## Evolution of the Burden of Proof

### From.... “Innocent Until Proven Guilty”

“Every investment may be assumed to have been made in the exercise of reasonable judgment unless the contrary is shown”

Justice Brandeis

Southwestern Bell Tel v. MOPSC 1923

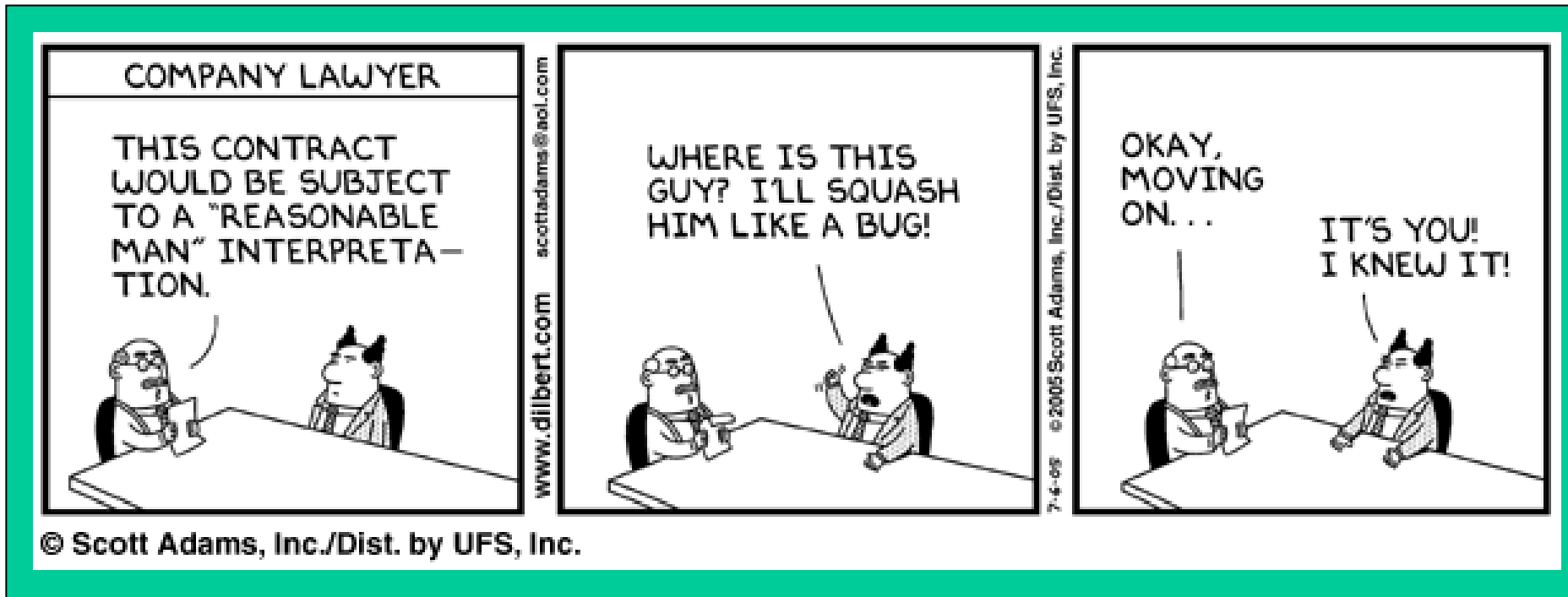
### To..... “Guilty Until Proven Innocent”

Texas Public Utility Regulatory Act (“PURA”) Section 36.058 **generally disallows**, for purposes of setting rates, payments made by a utility to affiliates.

# Who Is This “Reasonable Man”???

Major Project Retrospective Prudence Review Standard:

*“Reasonable man, looking prospectively, without the benefit of hindsight.”*





# Prudence Disallowances - “Regulatory Opportunism,” “Bad Luck,” or “Bad Management”???

- Lyon & Mayo Study of Regulatory Disallowances and Impact on Utility Investment Patterns:
  - Reviewed investment patterns of 156 utilities between 1970 and 1991
  - Observed the investment behavior of those utilities that were ostensibly “unaffected” by particular regulatory actions (meaning they did not receive prudence disallowances)
  - The empirical model:  $I_{i,j,t} = \beta_0 + \beta_1 X_{i,t} + \beta_2 Y_{j,t} + \beta_3 X_{i,t} Y_{j,t} + \epsilon_{it}$ .
  - Blah Blah Blah – it is an academic study after all....
- Conclusion:
  - **“The empirical results do not support the proposition that there was a violation of the “regulatory contract” as a result of the cost disallowances of the 1980s..... Most utilities apparently saw the disallowances as indicative of bad management by the affected firms, and saw no reason to change their own investment practices.”**

Lyons & Mayo – Rand Journal of Economics, 2005

Regulatory Opportunism and Investment Behavior: Evidence from the U.S. Electric Utility Industry

# What Went Wrong????

## *From the Benign to the Bizarre...*

- Poorly structured contracts not matched to project needs and realities;
- Failure to recognize internal and external resource requirements & capabilities;
- Failure to effectively organize owner oversight or contractor resources / Inadequate policies and procedures defining responsibilities and accountabilities / Lack of communication between organizational units / Inadequate Board of Director Oversight;
- Over reliance on contracts and litigation to remedy problems;
- Inadequate financial planning and resources to match project needs;
- Ineffective or non-existent owner or contractor project control systems / Lack of information to make informed decisions / Inadequate cost/schedule/quality / regulatory compliance information;
- Poor and untimely resolution of engineering problems/ Lack of integration of engineering/procurement/construction activities / Inadequate design control / inadequate work force planning and management;
- Management dealing with symptoms instead of identifying/resolving root causes of problems / Failure to take timely corrective action when problems identified;
- Failure to recognize complexity of transition from bulk construction to systems completion phase of work; and,
- Inability to end the project and for the owner to accept operational responsibility

# Lessons Learned- Dysfunctional Contract

<b>Symptoms</b>	<b>Causes</b>	<b>Mitigating Actions</b>
<ul style="list-style-type: none"> <li>• Excessive Change Orders</li> <li>• Unnecessary Claims</li> <li>• Litigation</li> <li>• Contractor Failure</li> <li>• Over Payment</li> </ul>	<ul style="list-style-type: none"> <li>• Unclear Scope</li> <li>• Market Conditions Misunderstood</li> <li>• Wrong Contract Type</li> <li>• Non-Competitive Bidding</li> <li>• Bid Collusion</li> <li>• Late Awards</li> <li>• Poor Contractor Performance</li> <li>• Lack of or Inappropriate Incentives</li> </ul>	<ul style="list-style-type: none"> <li>• Revise Contract Strategy</li> <li>• Improve Terms and Conditions</li> <li>• Establish Clear Project Scope</li> <li>• Employ Appropriate Incentives</li> <li>• Improve Direction and Control of Contractors</li> <li>• Improve Contractor Management Training</li> </ul>

# Lessons Learned – Organizational Deficiencies

<b>Symptoms</b>	<b>Causes</b>	<b>Mitigating Actions</b>
<ul style="list-style-type: none"> <li>• <b>Poor Communications</b></li> <li>• <b>Slow Response to Problems</b></li> <li>• <b>Unnecessary Functions</b></li> <li>• <b>Lack of Accountability</b></li> <li>• <b>Confused Responsibilities</b></li> <li>• <b>Unclear Authority &amp; Approvals</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>Cumbersome Structure</b></li> <li>• <b>Over/Under Staffing</b></li> <li>• <b>Conflicting/Redundant Responsibilities</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>Clearly Define Missions and Functions</b></li> <li>• <b>Clarify Lines of Responsibility and Authority</b></li> <li>• <b>Reorganize</b></li> <li>• <b>Improve Qualifications Through Training and Hiring</b></li> <li>• <b>Better Selection and Control of Outside Service Providers</b></li> </ul>

# Lessons Learned – Ineffective Project Controls

<b>Symptoms</b>	<b>Causes</b>	<b>Mitigating Actions</b>
<ul style="list-style-type: none"> <li>• <b>Untimely Data</b></li> <li>• <b>Failure to Identify Problems</b></li> <li>• <b>Too Much/Not Enough Data</b></li> <li>• <b>Uncontrolled Costs</b></li> <li>• <b>Scheduling Conflicts</b></li> <li>• <b>Inappropriate Priorities</b></li> <li>• <b>Incorrect Reporting of Status, Performance or Cost</b></li> <li>• <b>Poor Forecasting</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>Accounting Driven</b></li> <li>• <b>Reliance on Contractor Systems</b></li> <li>• <b>Poor Systems</b></li> <li>• <b>Lack of Qualified or Experienced Controls Personnel</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>Employ Owner-Controlled Systems</b></li> <li>• <b>Evaluate Contractor Systems and Interfaces</b></li> <li>• <b>Standardize Reporting</b></li> <li>• <b>Create Integrated Hierarchy of Cost and Schedule Reports</b></li> <li>• <b>Make System Investment Commensurate With Risk</b></li> <li>• <b>Integrate Cost &amp; Schedule Functions</b></li> <li>• <b>Integrate Contractor Schedules</b></li> </ul>

# Lessons Learned – Declining Contractor Performance

<b>Symptoms</b>	<b>Causes</b>	<b>Mitigating Actions</b>
<ul style="list-style-type: none"> <li>• <b>Schedule Delays or Accelerations</b></li> <li>• <b>Increased Costs</b></li> <li>• <b>Constructability Issues</b></li> <li>• <b>Design Issues</b></li> <li>• <b>Excessive Rework/Redesign</b></li> <li>• <b>Poor Quality</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>Poor Controls</b></li> <li>• <b>Unqualified Contractors</b></li> <li>• <b>Shortage of Qualified Contractor Personnel</b></li> <li>• <b>Unresponsive Change Control Systems (Design, Scope, Contract)</b></li> <li>• <b>Inadequate Owner Oversight</b></li> <li>• <b>Inadequate Integration of Information Between Parties</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>Increase Quality of Owner Oversight</b></li> <li>• <b>Upgrade Design/Contractor Field Staffing</b></li> <li>• <b>Improve Performance Measures</b></li> <li>• <b>Tighten/Improve Change Control</b></li> <li>• <b>Revise Contracts and/or Incentives</b></li> <li>• <b>Improve Integration of Engineering/Contractor Schedules</b></li> </ul>

## Lessons Learned – Failure to Change With Conditions

Symptoms	Causes	Mitigating Actions
<ul style="list-style-type: none"> <li>• <b>Poor or Inconsistent Directions</b></li> <li>• <b>Project Out-of-Touch with Corporate Goals</b></li> <li>• <b>Economic Viability of Project Erodes</b></li> <li>• <b>Marketplace Changes Undetected</b></li> <li>• <b>External Impacts/ Requirements Ignored</b></li> <li>• <b>Unnecessary Rework</b></li> <li>• <b>Over/Under Built</b></li> <li>• <b>Schedule Delays or Accelerations</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>Inflexible Procedures and Controls</b></li> <li>• <b>Poor Implementation of Corrective Action Systems</b></li> <li>• <b>Root Cause Analysis Process Not Implemented Effectively</b></li> <li>• <b>Poor Contract Provisions or Mismanagement</b></li> <li>• <b>Poor or Late Information Flow</b></li> <li>• <b>Missing or Inappropriate Standards/ Milestones</b></li> <li>• <b>Poor Regulatory Interface</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>Perform Frequent Evaluations of Project Objectives and Economics</b></li> <li>• <b>Improve Communications</b></li> <li>• <b>Perform Frequent Board-Level Reviews</b></li> <li>• <b>Improve Coordination with Ongoing Operations</b></li> <li>• <b>Improve Corrective Action Programs</b></li> <li>• <b>Implement Effective Root Cause Analysis Process</b></li> </ul>

# Lessons Learned – Poor Documentation/Record Keeping

<b>Symptoms</b>	<b>Causes</b>	<b>Mitigating Actions</b>
<ul style="list-style-type: none"> <li>• <b>No Audit Trail</b></li> <li>• <b>Can't Defend Decisions and Actions</b></li> <li>• <b>Can't Verify Quality</b></li> <li>• <b>Weakened Prudence/ Litigation Position</b></li> <li>• <b>Over Payment</b></li> <li>• <b>Inconsistent Record Retrieval and Reporting</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>Inadequate Guidelines</b></li> <li>• <b>System Not Adequate for Needs</b></li> <li>• <b>Project Records Mixed With Operating Records</b></li> <li>• <b>Excessive Documentation Requirements</b></li> <li>• <b>System Suited to Specific Needs not Capable for All Needs</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>Establish Formal Document Systems</b></li> <li>• <b>Appoint Project Historian</b></li> <li>• <b>Audit System and Procedure Compliance</b></li> <li>• <b>Define Requirements Better</b></li> <li>• <b>Adopt or Modify Contractor or Company Systems</b></li> </ul>

# What Is Still Going Wrong????

- **Connecticut Yankee Decommissioning (1999-2007)**

- Unclear lines of responsibility and accountability for key project activities defined between the owner and the contractor
- Inadequate definition of project information requirements and management control tools
- Owner failure to monitor cost and schedule performance and to use the authority, tools and resources available to it to mitigate potential problems (e.g. stop work)
- Inadequate Board / Senior management attention to project status and failure to keep project managers accountable for accuracy of information
- Failure to change with conditions or react to problems
- Over reliance on contracts and litigation as a remedy to solvable problems

**The Result** – three to four years of delay and a doubling of costs -- at least half of which was avoidable in spite of serious project complexities and contractor failures not envisioned at the onslaught of the project

## The Future – Continued Focus on Reliability and on Unprecedented Capital Investments in Infrastructure and New Supply

- **Reliability Improvements** – 12,500 miles of new transmission lines projected between 2007-2014
- **Environmental Upgrades** - \$50 billion in capital investment expected between 2007-2025
- **New Supply** – 255 plants representing 29 GW new capacity actually under construction in 2007 - 50 GW of new supply required by 2014 and 347 GW new supply required by 2025

Source: Edison Electric Institute & Jan 07 Power Magazine

## The Regulator's Perspective

- Facilities are needed to improve reliability and meet customer demand.
- Utilities have the responsibility to plan, design and construct facilities in a cost-effective manner.
- Utilities must be able to support the prudence of their actions and decisions.

## What Can You Do?

- **Plan** - Consider appropriate range of project contractual options given the legal & regulatory environment and the realities of the project – evaluate how projects differ from those done before – organize resources and develop policies and procedures necessary for defining responsibilities and accountabilities.
- **Manage** - Develop a framework for effective project management resources, tools and reporting requirements needed for project management and control – including timely corrective action when required.
- **Prioritize** - Identify risk exposure areas and develop contingency plans - Keep your eye on the ball and maintain flexibility to adopt to changing project conditions.
- **Collaborate** - Get your regulators & key stakeholders involved - where possible, obtain pre-approval or certification from regulators regarding the project.
- **Document** - Formalize prospective independent project assurance including documentation of key activities and decisions.