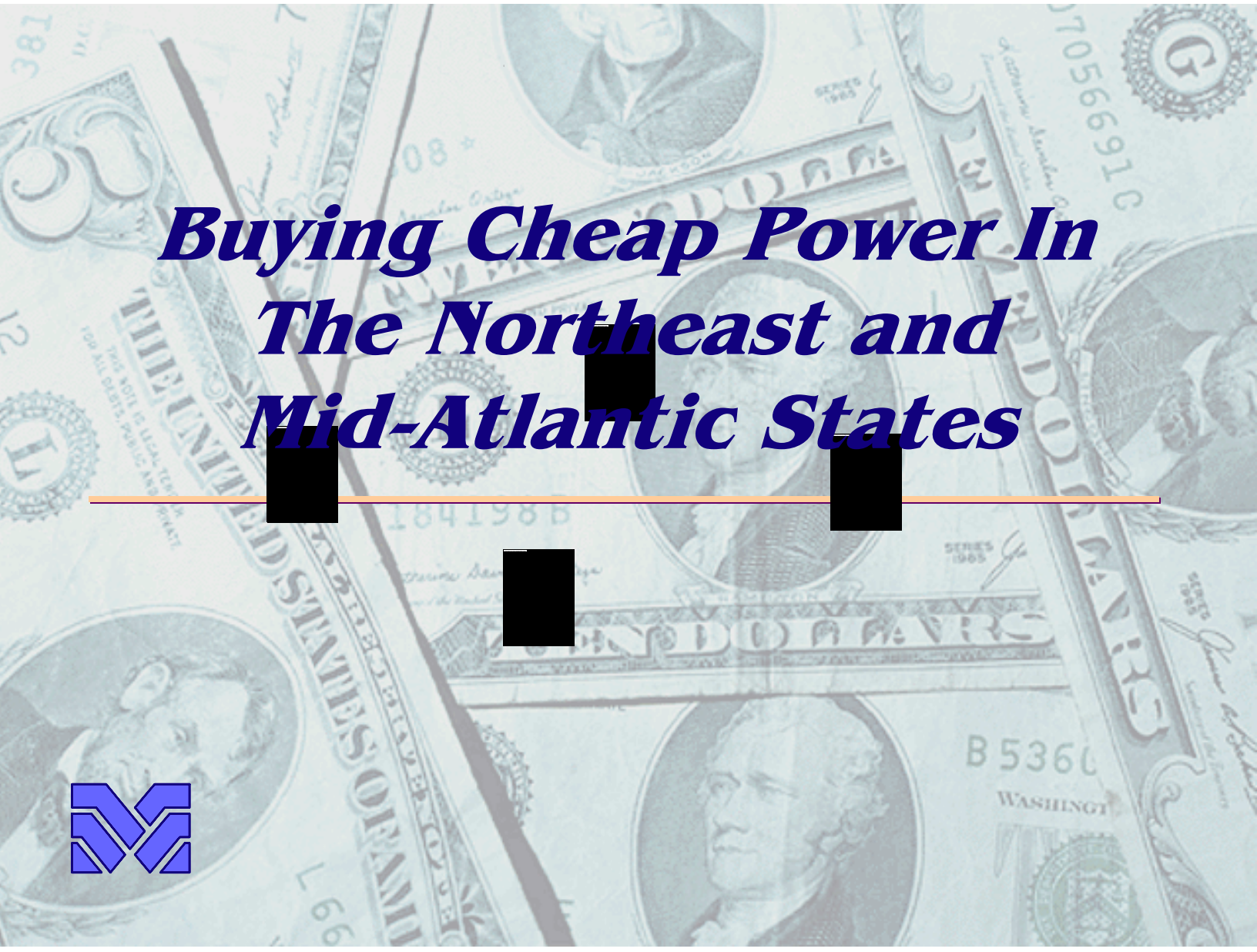


Buying Cheap Power In The Northeast and Mid-Atlantic States

Buying Cheap Power In The Northeast and Mid-Atlantic States

- Introduction To Buying Power In A Competitive Environment
- What Prices and Terms Can You Expect From Buying Power Competitively
- Gaining Access To The Transmission/Distribution System
- The "Devil's In The Details"
- Planning For Competitive Power Procurement
- Identifying A Good Price In Competitive Markets
- Negotiating The Deal

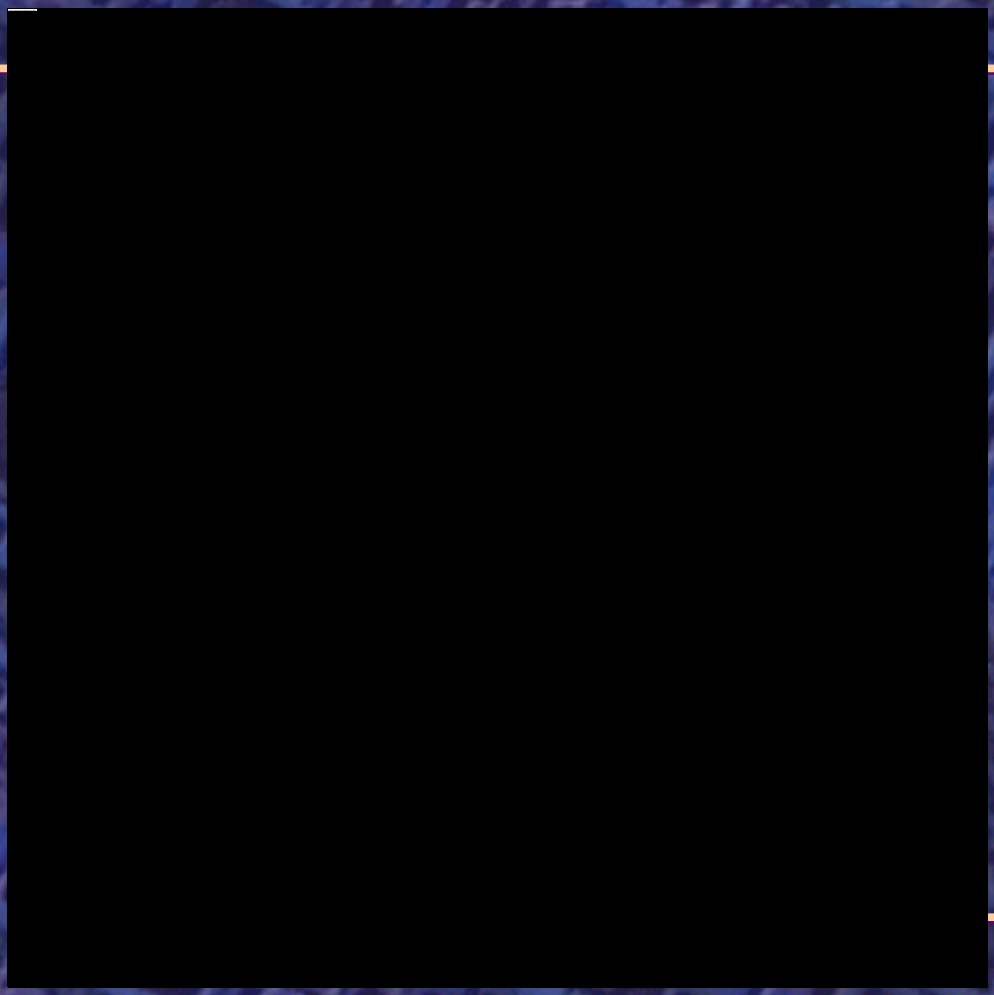
An Introduction To Buying Power In A Competitive Environment

- A basic introduction to the power system -- Power 101
- A power system glossary
- The basic map of the deal

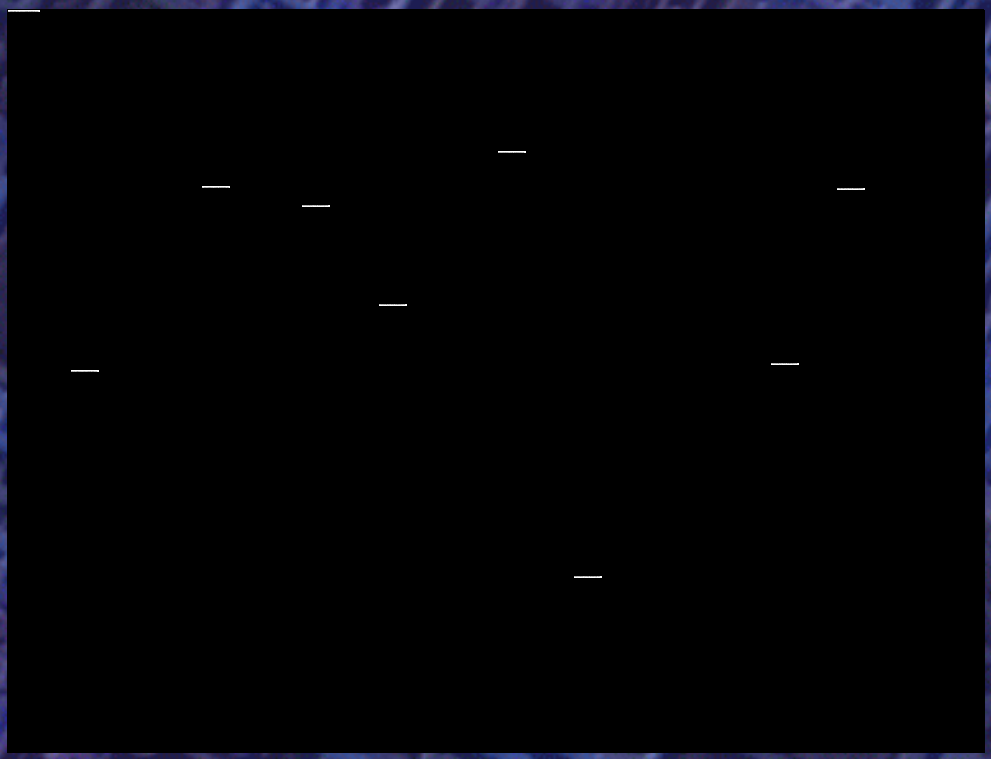
Power Supply 101

- A brief overview of actual operations
  - Dispatching
  - Scheduling
- Power Supply Components
- An Actual Power Supply Portfolio

An Electric System



The System



Thermal

- Thermal plants are the backbone of most electric systems
- Thermal efficiency is increasing dramatically
- We expect that most older plants will disappear under competition producing a marked reduction in spot energy prices
- The capital cost of thermal is usually the implied cost of capacity

Qualified Facilities

- Qualified Facilities (QFs) are an artifact of the PURPA law
- QFs often have inefficient "must run" operations and out-of-market power contracts
- Many QFs are now being phased out or renegotiated -- a factor that will also tend to lower spot prices over time

Hydro

- Hydro-electric facilities dominate in Western and Eastern Canada and the Pacific Northwest
- Hydro facilities usually can provide capacity for very little additional cost -- therefore capacity is inexpensive in these areas
- Hydro also produces substantial amounts of non-firm power -- power that is not dependable on a vear to vear basis

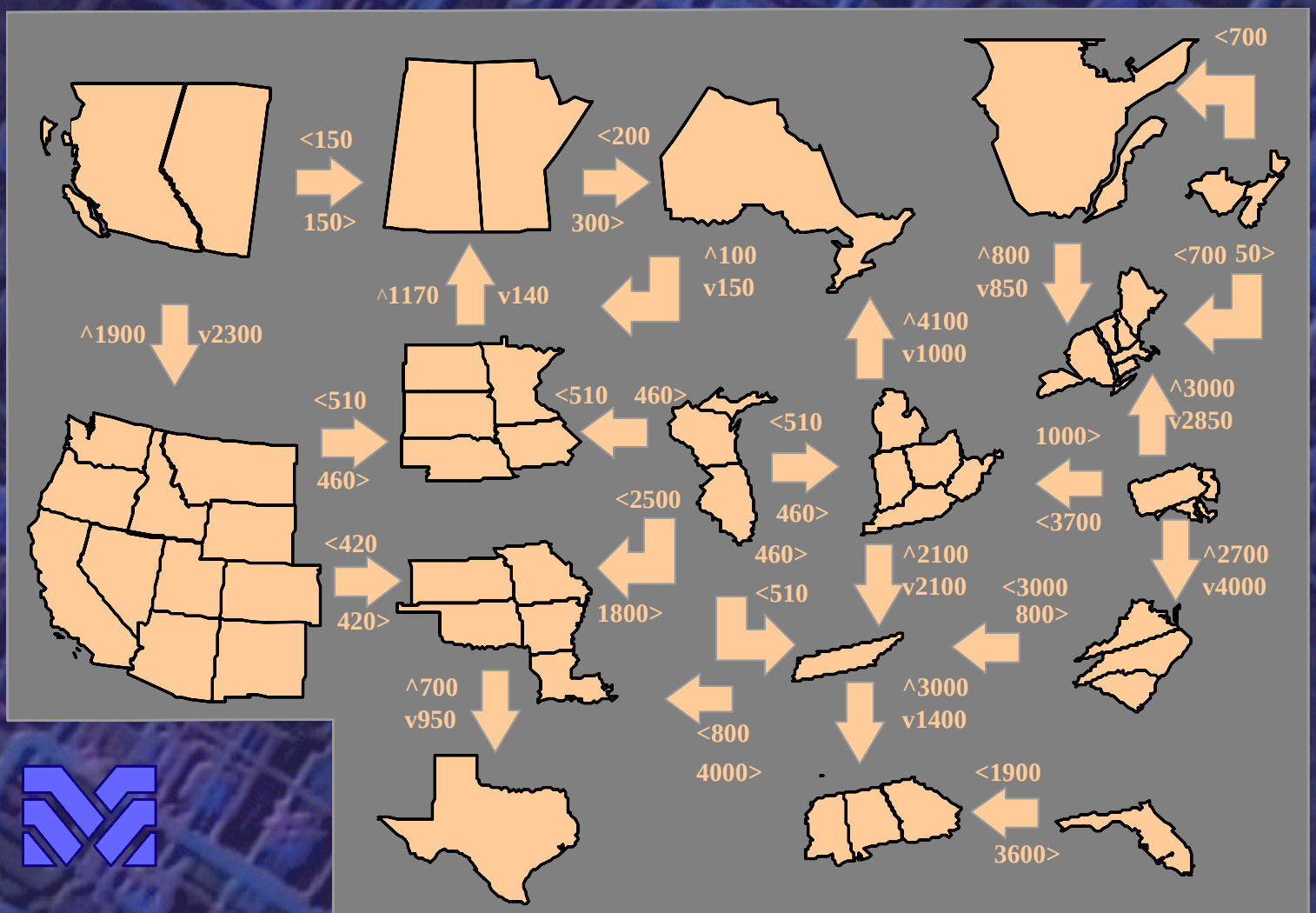
Inter-Regional Transmission

- Inter-regional transmission can be constrained
- Major regions in the U.S. and Canada are connected with between 2,000 and 10,000 megawatts of transmission
- Price differentials develop (and persevere) along these boundaries

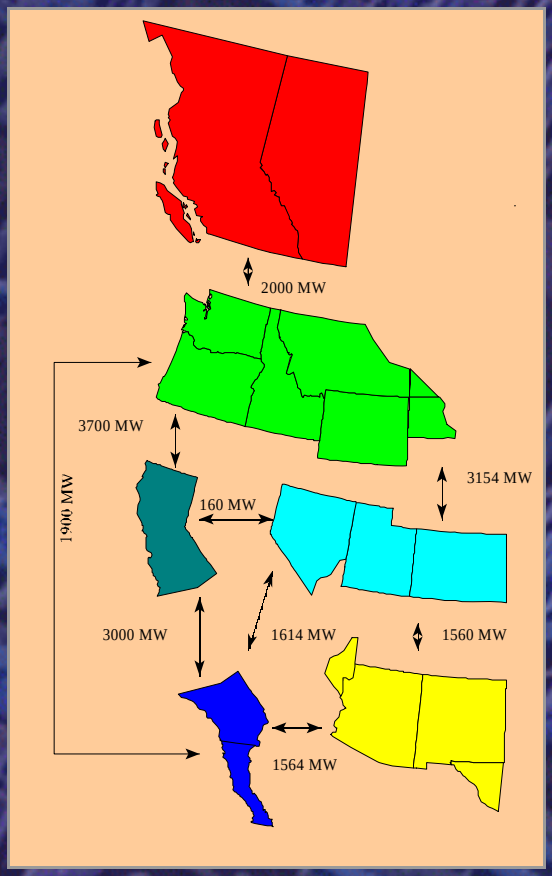
Transmission

- Transmission usually contributes from three to six mills to total cost
- Transmission constraints are often described, but turn out to be unusual in everyday practice
- Under 888, all eligible (i.e. wholesale) entities have access
- Losses at transmission voltages are low 1% to 2%

U.S. Interregional Transfer Capability



West Coast Transfer Capability



- Alberta/British Columbia
- Northwest/N. Rockies
- Northern California
- Central Rockies
- Southern California
- Inland Southwest

Substation

- Major points of interconnection occur at substations
- Conceptually, substations constitute the points of delivery between suppliers and customers
- Ownership of a substation is likely to be the final test for non-"sham" transactions under FERC's 888 rules

Sub-transmission

- Most endusers are served at levels below 67 kV
- This level of service is generally regarded at the sub-transmissioon level
- Losses increase significantly at lower voltages -- 4% and higher are not unusual

Distribution

- Distribution is the end of the line
- Distribution losses are high (in some cases climbing to 10%)

Where Are The Moving

- In the absence of moving parts, administering an electric supply has many similarities to managing your garden -- you can give all the orders you want, but the plants tend to follow their own lead
- The only "system" functions are run by the system dispatcher and the schedulers

What is this man doing?

The Power Supply Dispatcher

- The dispatcher usually fulfills three functions:
  - Overview of transmission and distribution functions
  - Short term ("real time") transactions
  - Management of electric frequency by adjusting plant operations
- These three functions establish a "control area" -- an area under the control of a dispatch center
- As a general rule, these are simple operations without significant interest in our context since most power supply decisions are significantly divorced from these functions

The Power Supply Scheduler

- Schedulers meet on a weekly basis to coordinate purchase and sales, make significant economic dispatch decisions, and to administer bulk power contracts
- Schedulers can administer our power supply without our having any contact with the dispatch center or the dispatchers
- To be exact, much of the drama of the power system is completely unrelated to the day to day economic issue concerned with the purchase and sale of electricity to meet our loads

Actual Power Purchase Mechanics

- The power supply is actually a series of contracts that provide specific solutions to operating problems
  - Base load power is rarely dispatched -- it represents blocks of "take or pay" resources
  - Peak load power operates at low load factor -- it must be dispatched to meet system peaks
  - Spinning reserve (and a variety of similar requirements under similar names) meets the reserve requirements that your load puts on the system
- Actual operational requirements are often clearly summarized under the serving utility's FERC comparability tariff

PG&E Comparability Tariff

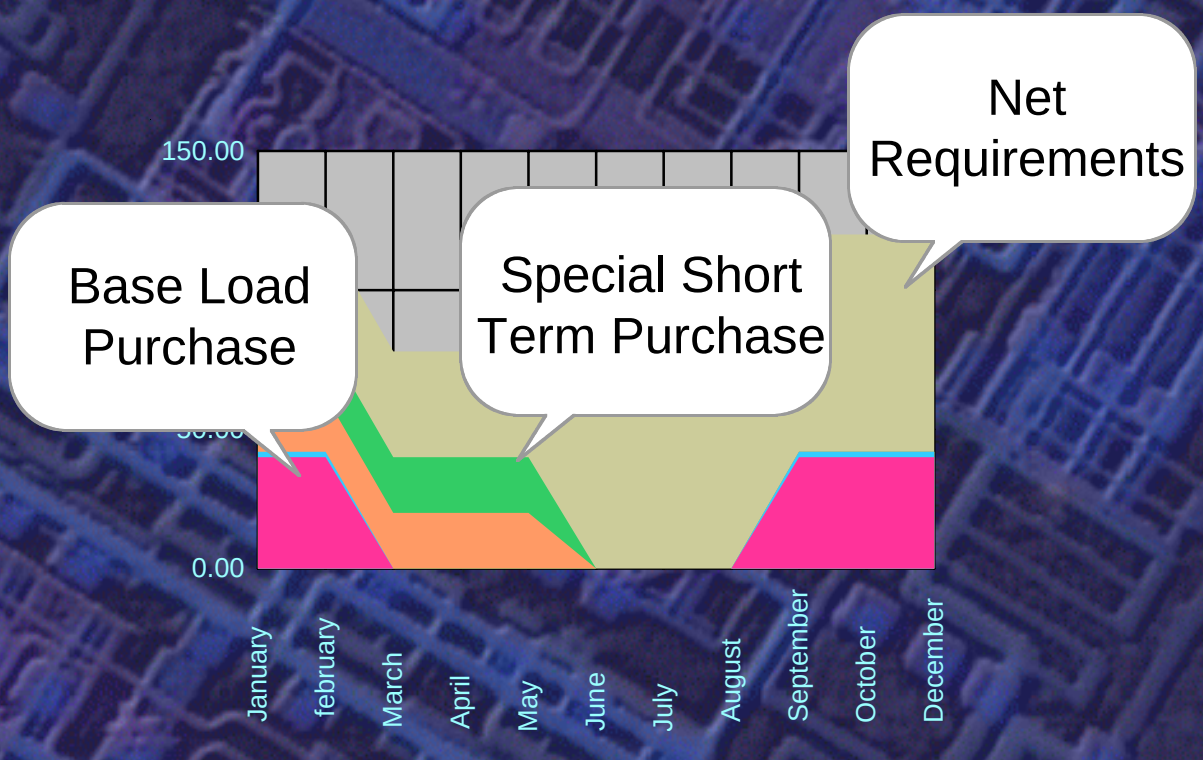
What Information Does This Provide?

- Costs of specific network integration services
- Transmission costs
- Operating requirements
- Losses
- Operating Rules
- Interconnection Requirements

How does this function in reality?

- A portfolio of resources must be procured to enable your system to operate under the Network Tariff
- In practice this will require a set of resources -- often procured from different suppliers
- The next page shows a yearly diagram showing power supplies for one of our clients

An Actual Annual Supply Portfolio



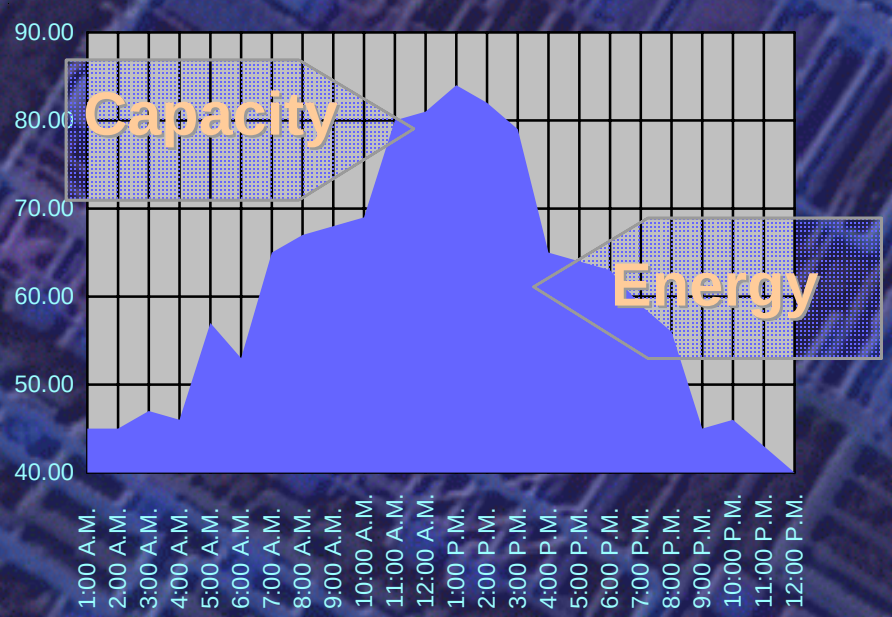
Actual Example

- In this example hourly differences from the weekly and daily schedules are met by the net requirements service
- The thin bar above the base load block also provides some coverage fro hourly excursions
- Special purchases are layered in above the base load block and below the net requirements

A Power System Glossary:

- Energy: Pure energy completely unscheduled -- like monthly bus pass in a slow an unreliable bus system
- Capacity: Pure capacity is the ability to schedule the bus
- Mills: One tenth of a cent
- Megawatt: Two large stores, 500 homes, one one hundredth of a steel mill
- Capacity Factor: the ratio of average energy to capacity
- Load Profile: A simple characterization of a load -- usually on a weekly or monthly basis
- On-Peak: Also known as High Load Hours (HLH) -- usually the 16 hours on Monday through Saturday
- Off-Peak: Also known as Low Load Hours -- all other hours including holidays

Energy and Capacity



Non-firm, Firm, Interruptible?

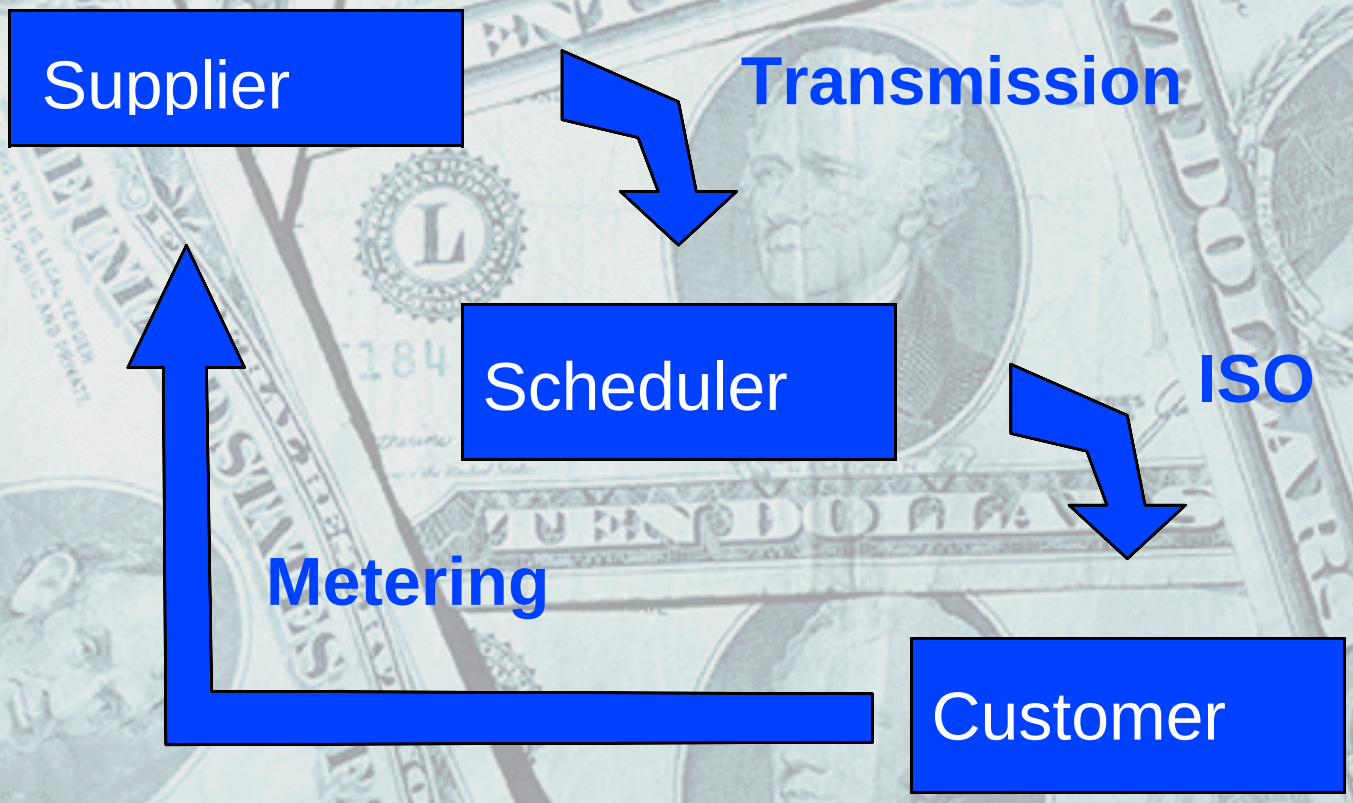
Do any of these gradations actually exist?

- **Non-firm power may simply not exist**
- **Interruptible power is seldom defined operationally**
- **Financial firm may be the only grade of power we have ever purchased**
- **Utility grade service would seem to be an aftereffect of regulatory incentives for overbuilding rather than a fundamental commitment to serve**

Commonly Used Pseudonyms

- **Moe, Curly, and Shemp:** **Large Investor Owned Utilities**
- **Ernie and Bert:** **McCullough Research clients**
- **Laurel and Hardy:** **Power marketeers**
-
- **Nero:** **State Legislator**

Mapping The Deal:



What Prices and Terms Can You Expect From Buying Power Competitively?

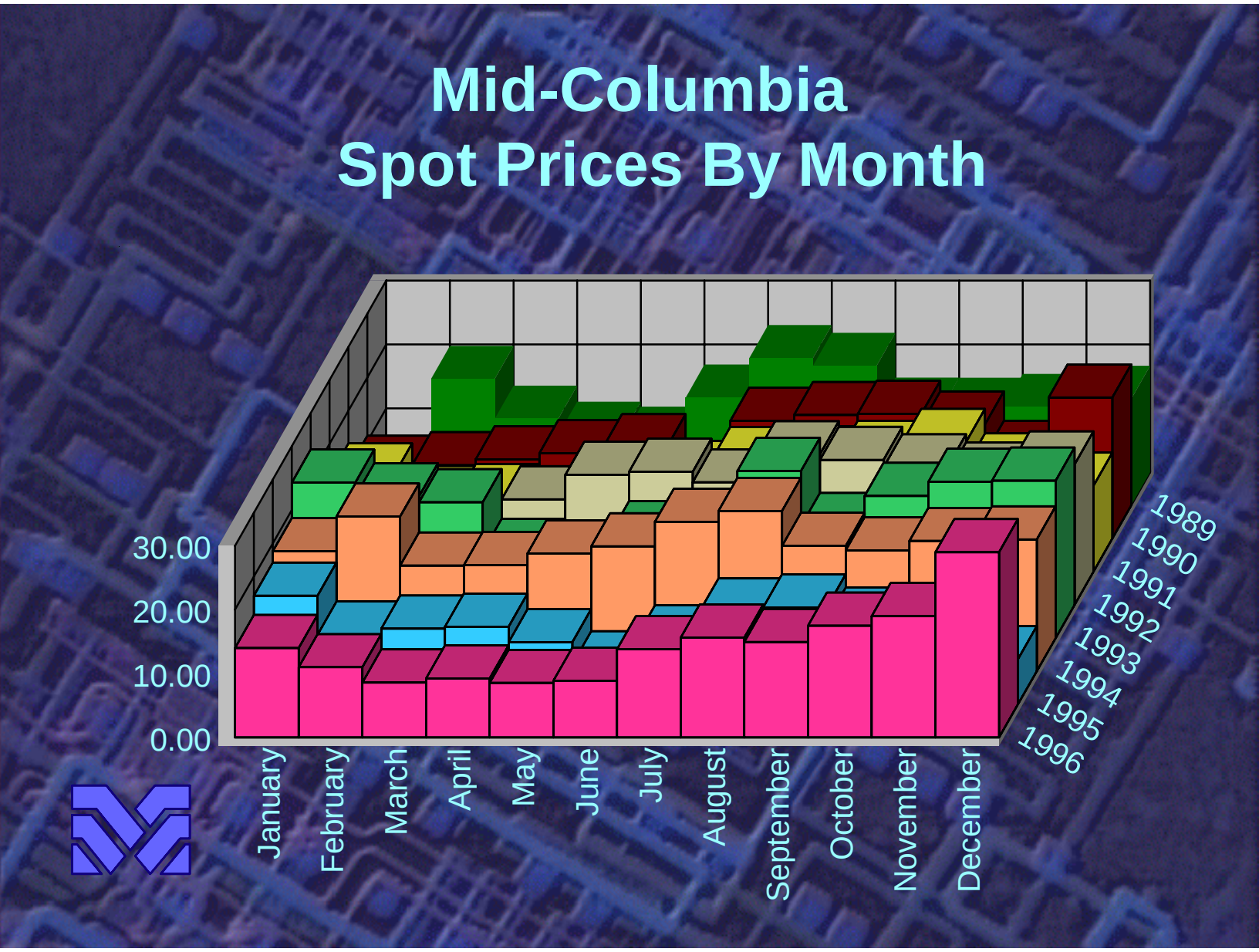
Prices and Terms

- Overall Prices
- Delivery Points
- Firmness
- Duration
- Commitment Duration
- Supplier Flight

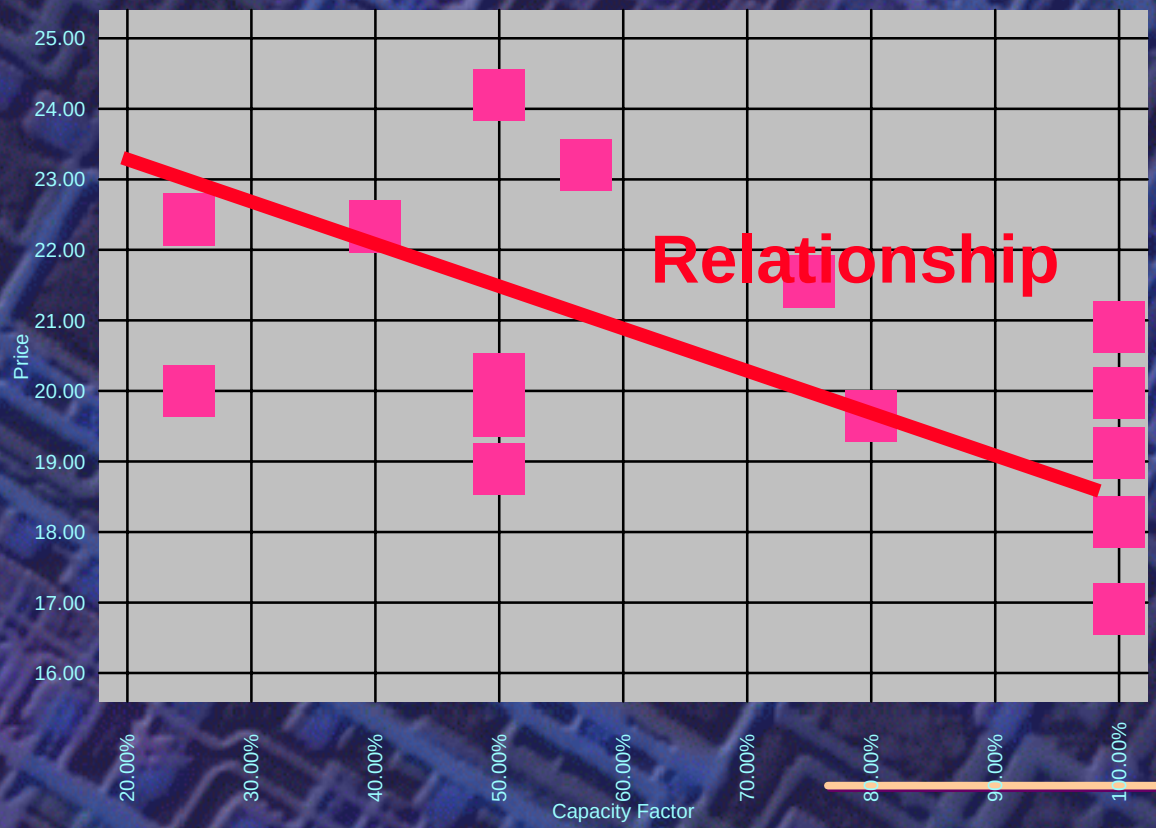
Overall Prices

- For the past two year long term flat prices have stayed in the sixteen mill range
- Capacity prices are very low -- $1.00 to $2.00 per kilowatt month

Mid-Columbia
Spot Prices By Month



Current Bay Area Bids



Recent Northwest Tariffs

Type	Tariff	Price
Spot Index	Puget Schedule 48	32.32 /kwh
	Puget Special Tariffs	24.77 /kwh
	PGE Schedule 67	30.94 /kwh
	PP&L Low	17.70 /kwh
	PP&L High Pricing	24.70 /kwh
	BPA Special Tariff	17.00 /kwh
	Seattle City Light	32.72 /kwh
Market	Tacoma Utilities	21.00 /kwh
Access	WWP Schedule 26	33.58 /kwh
Fixed	PP&L Special	27.00 /kwh
	BPA DSI Contract	22.60 /kwh

Delivery Points

- Almost every discussion we have had for California customers has specified delivery points at Palo Verde or COB
- The delivery points minimize financial risk since numerous suppliers are present and NYMEX contracts provide hedging options

Firmness

- With the exception of Pacific Northwest utilities, full utility commitments are unusual
- Most commitments are financially firm -- simply a guarantee to provide supply by purchase
- Clearly, financially firm commitments are sufficient for the immediate future

Duration

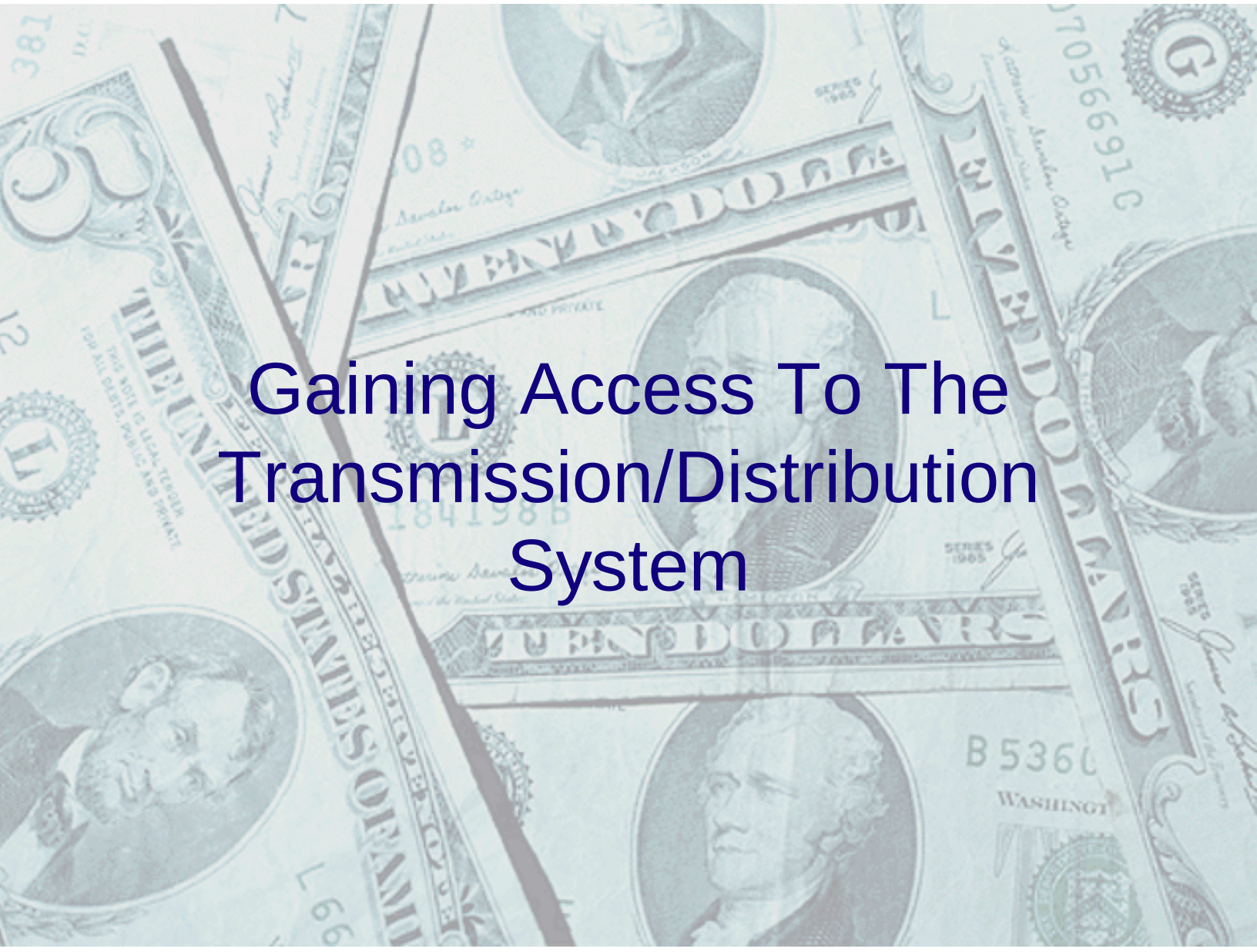
- The magic "five years" has characterized the market for several years
- Few of the suppliers -- even Laurel and Hardy -- know how to bridge the load/resource date
- Some of our clients are considering building Frame 7Fs to bridge this date for industrial development

Commitment Duration

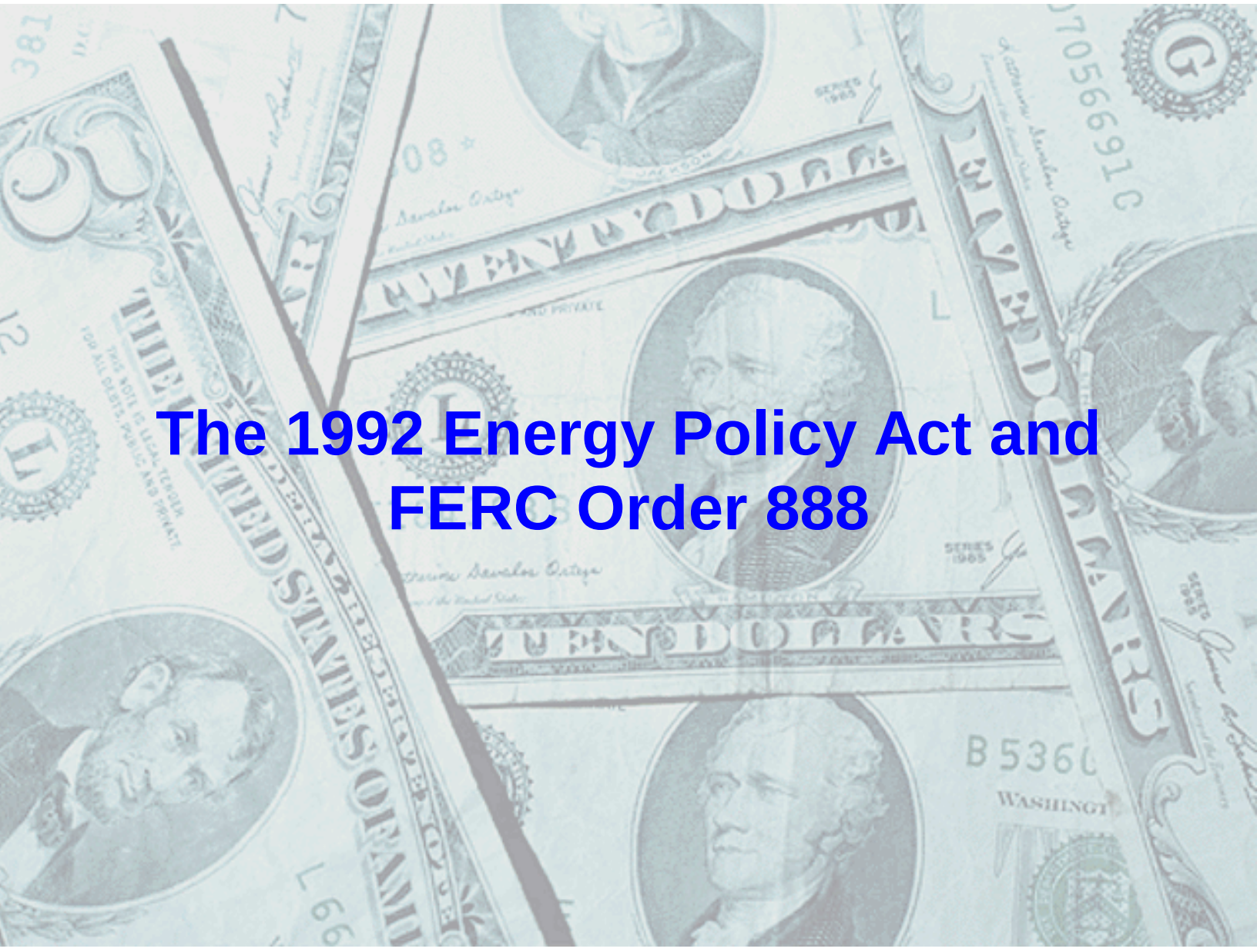
- Most suppliers are unable to commit (or provide, even after they commit) to bids for more than a few months
- Some of this is due to inexperience -- Laurel once assured us that the rapid evolution of the market made commitment impossible -- even though Laurel's bids really haven't changed over the past few years
- Given the increasing evolution of the business towards gas standards over electric -- contractual guarantees may be required for bid commitments

Supplier Flight

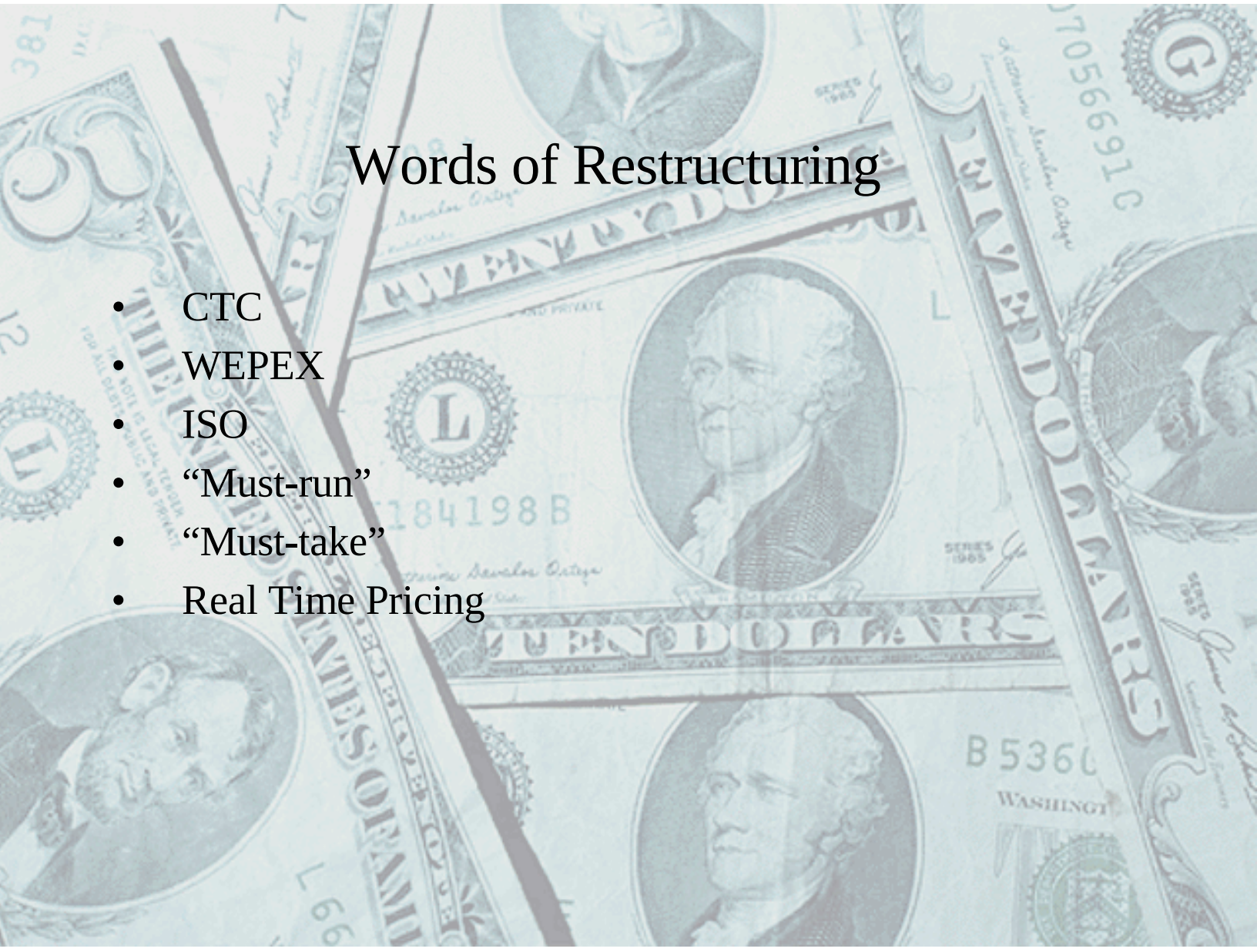
- The increasing complexity caused by the AB-1890 implementation is creating a new energy consumer problem -- "supplier flight"
- For the first time in our experience -- going back almost twenty years -- suppliers have been attempting to leave the bidding process
- Over the past six months we have seen five major suppliers -- including Laurel and Hardy -- abandon bids



Gaining Access To The Transmission/Distribution System



The 1992 Energy Policy Act and FERC Order 888



Words of Restructuring

- CTC
- WEPEX
- ISO
- “Must-run”
- “Must-take”
- Real Time Pricing

ORDER 888:

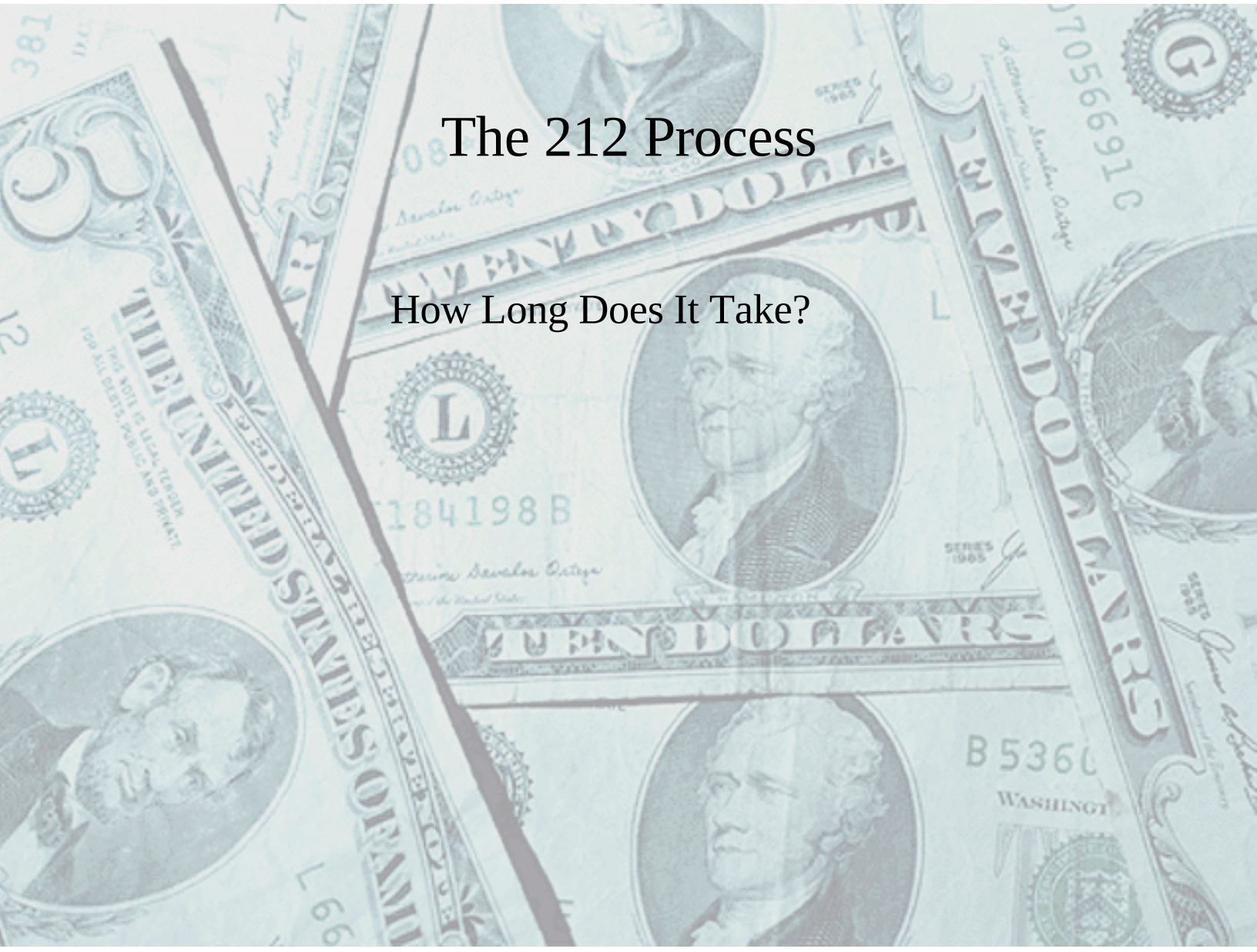
- Which sections actually changed the world
- 1. Anti-competitive effects of existing transmission system
    - Brown v. Board of Education
    - Miranda
- 2. Open access to wholesale transmission
- 3. Apparent award of transition damages ("stranded costs").

Wholesale Transmission Access

- Under 888
  - By pro forma, mandatory tariff.
    - "We will not allow transmission providers to define terms or specify transmission uses to erect barriers to fair and equal competition in power markets or to engage in undue discrimination."
- Under Energy Policy Act of 1992
  - 211/212

- 211(a). “Any electric utility, Federal power marketing agency, or any other person generating electric energy for sale for resale may apply to the Commission for an order***requiring a transmitting utility to provide transmission services ***to the applicant.”

- 212(h). “No order***shall ***require transmission***(2) to***an entity if such ***energy would be sold to an ultimate consumer, unless:***(B) such entity***would utilize transmission or distribution facilities that it owns or controls to deliver all such ***energy to such***consumer.”
  - Palm Springs
  - Cleveland Public Power

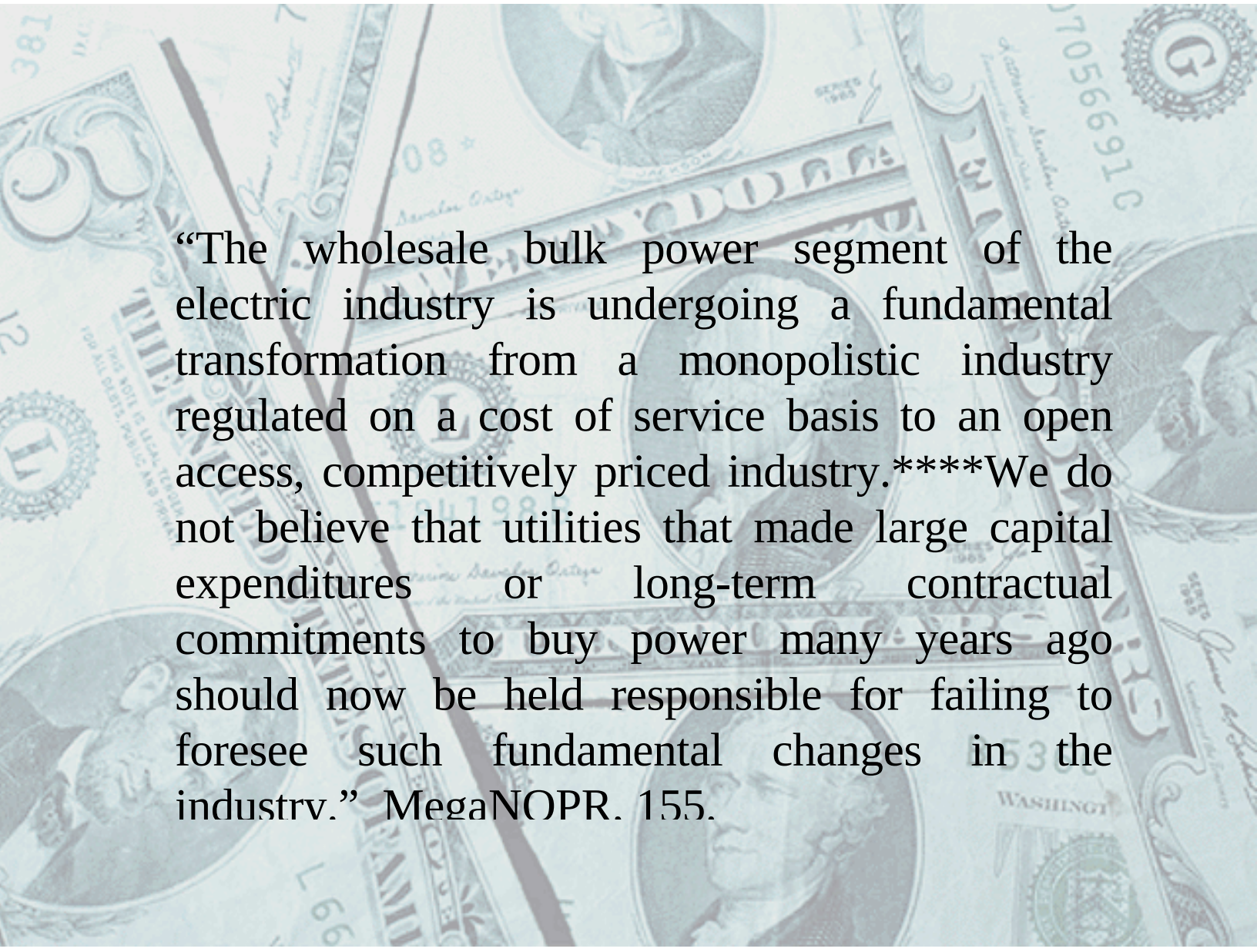


The 212 Process

How Long Does It Take?

Stranded Costs

- Why?



“The wholesale bulk power segment of the electric industry is undergoing a fundamental transformation from a monopolistic industry regulated on a cost of service basis to an open access, competitively priced industry.****We do not believe that utilities that made large capital expenditures or long-term contractual commitments to buy power many years ago should now be held responsible for failing to foresee such fundamental changes in the industry.” MegaNOPR, 155.

Stranded Costs

FERC's Formula: Lost Profits

Stranded Costs

- Who do they Affect?
  - Users of 888 tariffs
  - None with lowered expectations
  - None with silent contracts after July 11, 1994.

What Happens Next?

- Resolution of Divestiture
  - Assessment of Market Power and Antidotes
    - Order 889 Open Access Same-time Information System (OASIS)
    - ISO
    - PX
  - Anti-trust Policing of Collusion
    - Order 889 Code of Conduct among affiliates
    - State affiliate-trading rules.

What Happens Next?

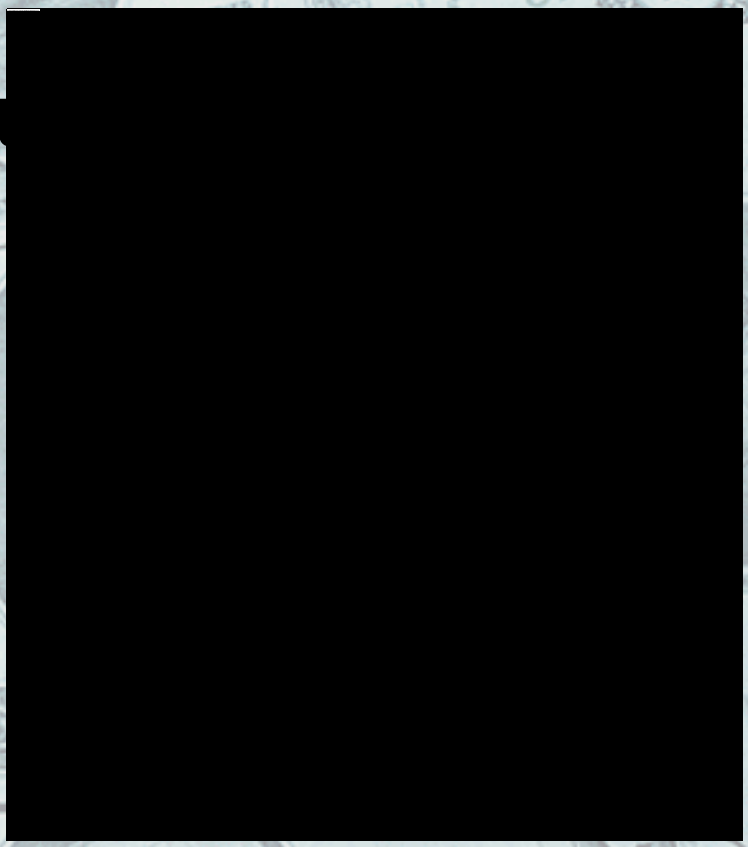
- Resolution of Physical By-pass
  - What if municipal bypass is prohibited.
    - California restructuring legislation (Dec. 20, 1995)
  - What if self-generation is taxed?
    - MIT, 74 FERC ¶ 61,221
  - Can Regulators Force Customers to Pay Up? Stranded Costs v. Competition Transition Charge (CTC).

What Happens Next?

- Continuing debate on how, or whether, to attain non-economic goals.

Pressu

- Economy
- Surplus



Summary

- **FERC is basically on the side of the angels**
- **FERC is trying make the omelet without breaking eggs**
- **States are alive and well -- generally trying to piece the eggs back together**

The "Devil's In The Details"

Overview of New England Developments

- Massachusetts
- Rhode Island
- New Hampshire
- Vermont
- Connecticut
- Maine
- New York
- New Jersey
- Pennsylvania

Massachusetts

- Open access by January 1, 1998
- NEES has received stranded cost coverage by agreeing to divest all of its non-nuclear generation
- Legislation offering open access on January 1, 1998 is expected to pass in November of this year with conditions similar to those set on MECo

New Jersey

The Board of Public Utilities draft policy position called for a final decision in September 1998 to begin competition in October 1998, supported the creation of a power exchange and an independent system operator, and allowed the recovery of stranded investments. The January 1997 draft plan also supported state sponsored bonds to refinance some utility assets to help in recovering stranded costs. April 1997 BPU approves Energy Master Plan, retail choice for all customers by July 2000.

New York

Consolidated Edison, Central Hudson Gas & Electric, and Orange & Rockland have filed negotiated restructuring settlement agreements, while Rochester Gas & Electric and New York State Electric & Gas continue negotiations. The Commission approved a retail wheeling pilot program proposed by Dairyland Cooperative for its members and commercial food processors. The Commission says it will address the ten other pending pilot proposals in company specific cases.

Pennsylvania

The governor signed the Electricity Competition Act into law in December 1996 to require the implementation of retail competition beginning on April 1, 1997, with retail wheeling pilot programs for 5 percent of the load of all investor-owned utilities in the state and culminating with retail access for all customers by January 1, 2001. The law provides for the recovery of mitigated stranded costs from departing customers, and reduces rates through the refinancing of utility capital. The Public Utilities Commission opened implementation proceedings, issued guidelines for the pilots, utilities have filed applications for the pilots, and PECO Energy filed for transition bond refinancing

Rhode Island

The state's restructuring law was enacted in August 1996 to start retail competition on July 1, 1997, require restructuring, provide an opportunity to recover stranded costs, and require divestiture of 15 percent of nonnuclear generation to set the market value of generation. The law specifies many of the implementation details for retail competition and restructuring. The Public Utilities and Retail Licensing Commissions are implementing the law.

Vermont

The Public Service Board issued a final restructuring order to mandate retail wheeling beginning as soon as January 1998, with all customers having access by 2000. The full recovery of mitigated stranded costs is allowed to the extent doing so "allows for rates that are reasonably comparable to regional rates," and rates do not exceed current rates. The December order requires large investor-owned utilities to unbundle generation and marketing functions from transmission and distribution. The Board says the legislature will need to act on legislation in 1997 if the Board's timetable is to be met. A comprehensive restructuring bill based on the Board's outline of needed legislation was approved by the Senate, but it may not pass the full legislature before adjournment in early May. The bill starts choice January 1, 1998 and splits stranded costs 50/50 between customers and shareholders. The Board recently delayed the filing of utility stranded cost mitigation plans preferring instead to convene workshops on the issue.

New Hampshire

The Commission issued its Final Plan for implementing the state's restructuring law along with orders addressing charges for collecting interim stranded costs proposed by five utilities. The PUC orders retail competition to start for all customers on January 1, 1998, requires New Hampshire-based utilities to divest all generation, prohibits distribution companies from being affiliated with a seller of competitive services in its service area, and limits stranded cost recovery to the level of the regional average rate of New England utilities.

Implementation is stalled on litigation

Maine

The Public Utilities Commission submitted its final restructuring report and recommendations to the legislature in December in compliance with a study law's requirement. The PUC recommends that retail wheeling begin simultaneously for all customers in January 2000. The plan provides for the recovery of legitimate, verifiable, and unmitigatable utility generation and nonutility generation contracts stranded costs, requires the two larger utilities to divest generation and prohibits them from having marketing affiliates.

Legislation has been passed.

Connecticut

The Joint Energy and Technology Committee approves by a 16 to 1 vote on March 26 an amended version of the bipartisan restructuring bill it introduced in February to start choice for 20 percent of each customer class as soon as July 1, 1999, with all customers having access within one year on July 1,2000. The bill permits utilities the opportunity to recover the costs of stranded generation and regulatory assets, as well as long term purchased power contracts. Initially, 70 percent of assets with a known present value may be securitized to reduce recovery charges. After the final stranded cost true-up in 2005, 100 percent of stranded costs may be recovered through rate reduction bonds. Costs that are not securitized will be recovered through a competitive transition charge (CTC). The Department of Public Utility Control (DPUC) may establish incentives to encourage divestiture, but divestiture is not required. Legislation did not pass this year.

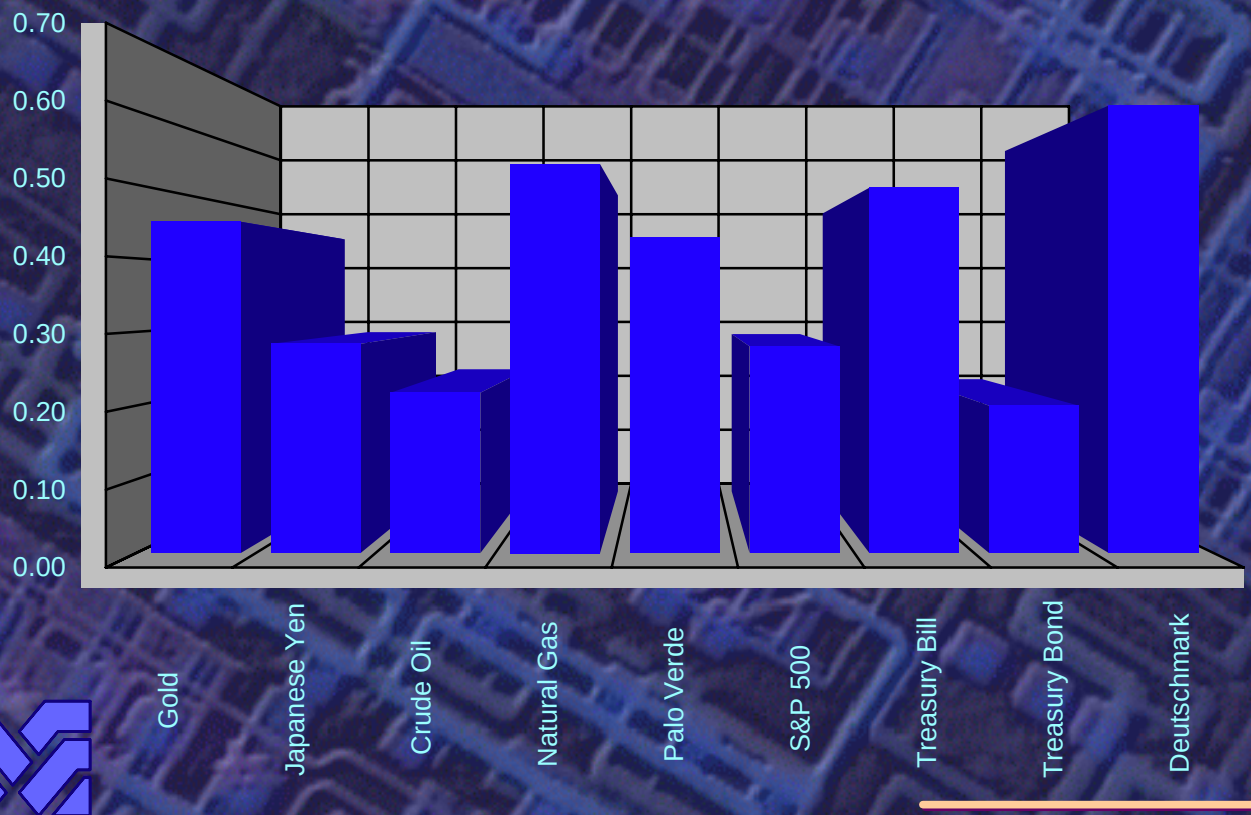
Power Pools

ISO - NewEngland (f/k/a NEPOOL)

NYPOOL

PJM

Volatility Indices



Transmission Issues in NEPOOL

Pool Transmission Facilities (PTF)

Regional Network Service (RNS)

Local Network Service (LNS)
Line losses
Transmission and Distribution Tariffs

Can You Beat the Standard Offer Bogey?

- Probably
- Initial offers are not very good yet
- Suppliers are learning too . . .

Understanding the MECo Standard Offer

- Basic price is 28 mills
- Escalation is 10% per year
- The philosophy is to move people off the standard offer
- Price is delivered to customer's meter
- Price is irrespective of load factor
- Supplier is responsible for losses

What Product(s) Are You Purchasing?

Do you know?

The Wise Shopper Prepares a List

All-requirement energy
Capacity
Firm transmission
Interruptible power
Non-firm transmission

Baseload energy
Peak energy
Off-Peak energy
Ancillary services
Load-following services

Product Terminology

7 x 24 (round-the-clock)
5 x 16 (peak)

Merchant Power Plants

Pure Merchants
- American National Power
- US Generating (PG&E)
- Great Bay Power (Seabrook)

Partial Plays
- ANP - Milford

Traditional
- Divested utility generation
  - BECo
  - NEP
  - CMP
  - EUA
  - Com/Electric

IPP Buyouts

Joint Venture Activity

Southern and Providence Gas
EnergyVisioin (BECo and Williams)
AllEnergy (NEES and Boston Gas)
AT&T/ADT/UtiliCorp/PECo
Green Mountain Energy Partners
(CVPS/HQ/CNG)

Alliances

NorAm and VPPSS
Great Bay and PECo

Buyers: Do Your Homework

Have Realistic Expectations

Buyer Requirements

Load Profiles
Meter data (one year of actual bills)

Operational Characteristics

- Must-run
- Interruptible
- Load-shedding capability
- Availability of on-site generation
- Operations constraints
-

Credit support data

Provide/hire experienced professional help (on a fee basis)

Realistic Expectations

Energy service providers (ESPs) need to make a profit
Energy prices are volatile
Don't aggregate without careful thought
Don't expect charity

Volatility 101

Historic
Implied
Examples

- **Gold**
- **Currencies**
- **Electricity**
- **Natural Gas**
- **Oil**
- **Interest rates**
  - **3-month T-bills**
  - **30-year treasury bonds**

Characteristic of a Successful Energy Service Provider (ESP)

Strong/soung financial
Established infrastructure operations (back room)
good industry/customer track record
User-friendly customer service staff
Access to power supply

- Ownership
- Power contracts
-

Risk management capability

Lessons Learned

Rhode Island
HEFA
GSA
Hancock
Com/Electric
Mass High Tech Council (MHTC)

Web Resources

www.nepool.com or www.iso-ne.com (NEPOOL)
http://oasis.pjm.com (PJM)
www.enron.com
www.erols.com/naruc (NARUC)
www.sel.com (SEL)
www.quote.hyahoo.com (Yahoo! quotes)
www.biz.yahoo.com/news/y0036.html (Yahoo! utility news)
www.intr.net/pma (Power Marketing Association)
www.w-a.com/puc.htm (Regulatory master list)

Planning For Competitive Power Procurement

Planning For Competitive Power Procurement

- Marriage, casual dating, or serious competitive promiscuity
  - Maintaining an active portfolio
  - How multiple suppliers reduce your risk
- Recruiting advisors
- What do you need to know first
- RFP Components

Marriage, casual dating, or serious competitive promiscuity

- Marriage
  - Easilt administered
  - Cost effective
  - Requires high confidence in the marraige partner
- Casual Dating
  - Short term commitments create competition but lack security
  - California's complex implementation may not provide sufficient incentive to stay the course
- Serious promiscuity
  - Pools allow internal competition
  - Mulitple suppliers police each other

Recruiting advisors

- Knowledge of power markets is useful
- Knowledge of power contracts is necessary
- Bid evaluation and negotiation are by far the major personnel commitments
- Have they been to Tacoma, Washington?

What do you need to know first

- Load information
  - Historical tariff information
  - Hourly data
- Location
  - Transmission
- Metering
- Dispatchability

Load information

Historical tariff information

- Rate schedules
- Is this load contractual?

Hourly data

Location

Transmission
Distribution

Metering

AB-1890 requirements
Resource provider communications

Dispatchability

Type of process
Fuel choice
On-peak/Off-peak Scheduling

RFP Components

- Qualifications
  - Experience
  - Financial
- Delivery
  - Point of delivery
  - Transmission access
- Firmness
  - WSCC definition
  - Financial guarantees
- Prices
  - Energy
  - Capacity
- Ancillary services

Qualifications

- Experience
  - Actual transactions
    - details
    - FERC filings
- Financial
  - Letter of credit
  - Parental guarantees

Delivery

- Point of delivery
  - History
  - Transmission rights
- Transmission access
  - Curtailment history
  - Firm contractual path?

Firmness

- WSCC definition
  - Tied to resources
- Financial guarantees
  - Are these funded?

Prices

- Energy
  - By month
  - By year
  - By hour
- Capacity
  - By month?
- Indexation
  - Where?
  - Can reasonable men disagree?
  - Is the index "dual sourced"
  - Are there alternatives?

Ancillary Services

Balancing account
Dispatch
Scheduling
Spinning reserves
Frequency support (steel)

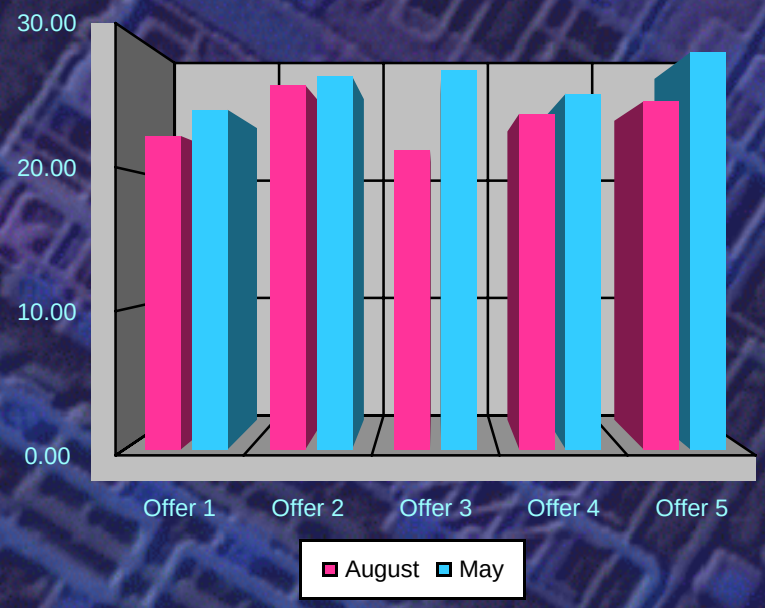
Should you have more than one round of bidding?

- One round -- motivates bidders to do their best
- Two rounds -- allows "negotiating room" to be worked out of the prices

Negotiating Room

- Our experience has been that a second round will reduce prices by 10%
- Our interpretation is that most bidders do not believe in single rounds -- they reserve negotiating room regardless of the announced RFP structure

Second round price reductions

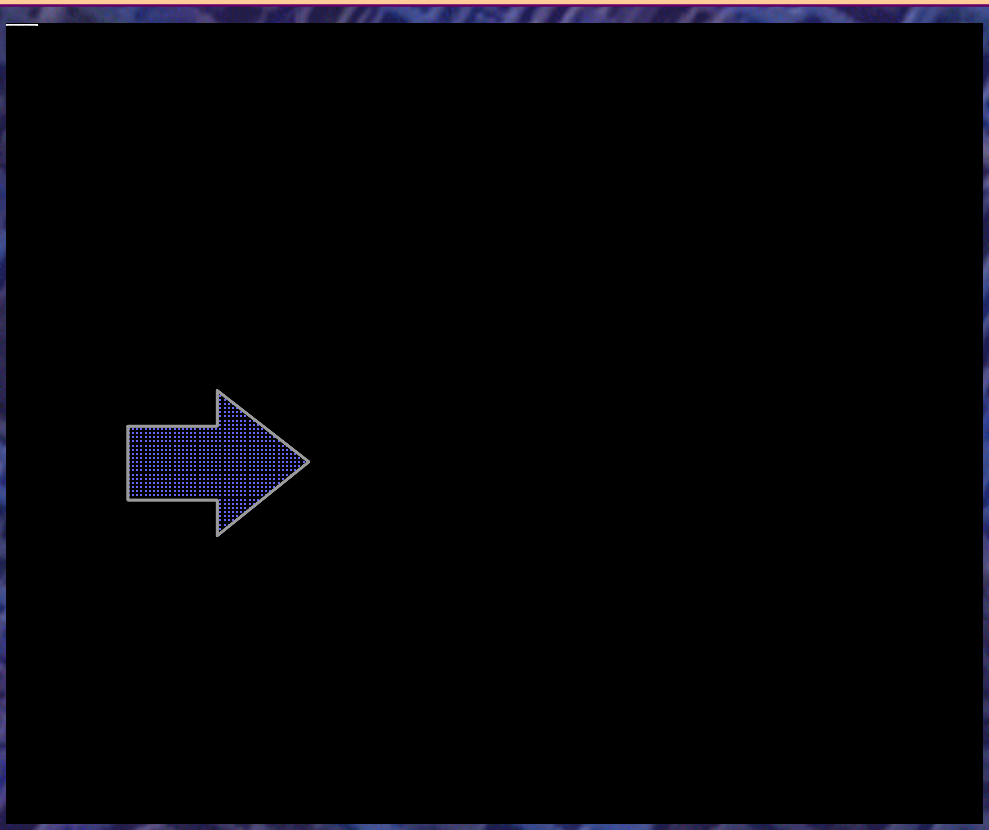


The MOU Stage

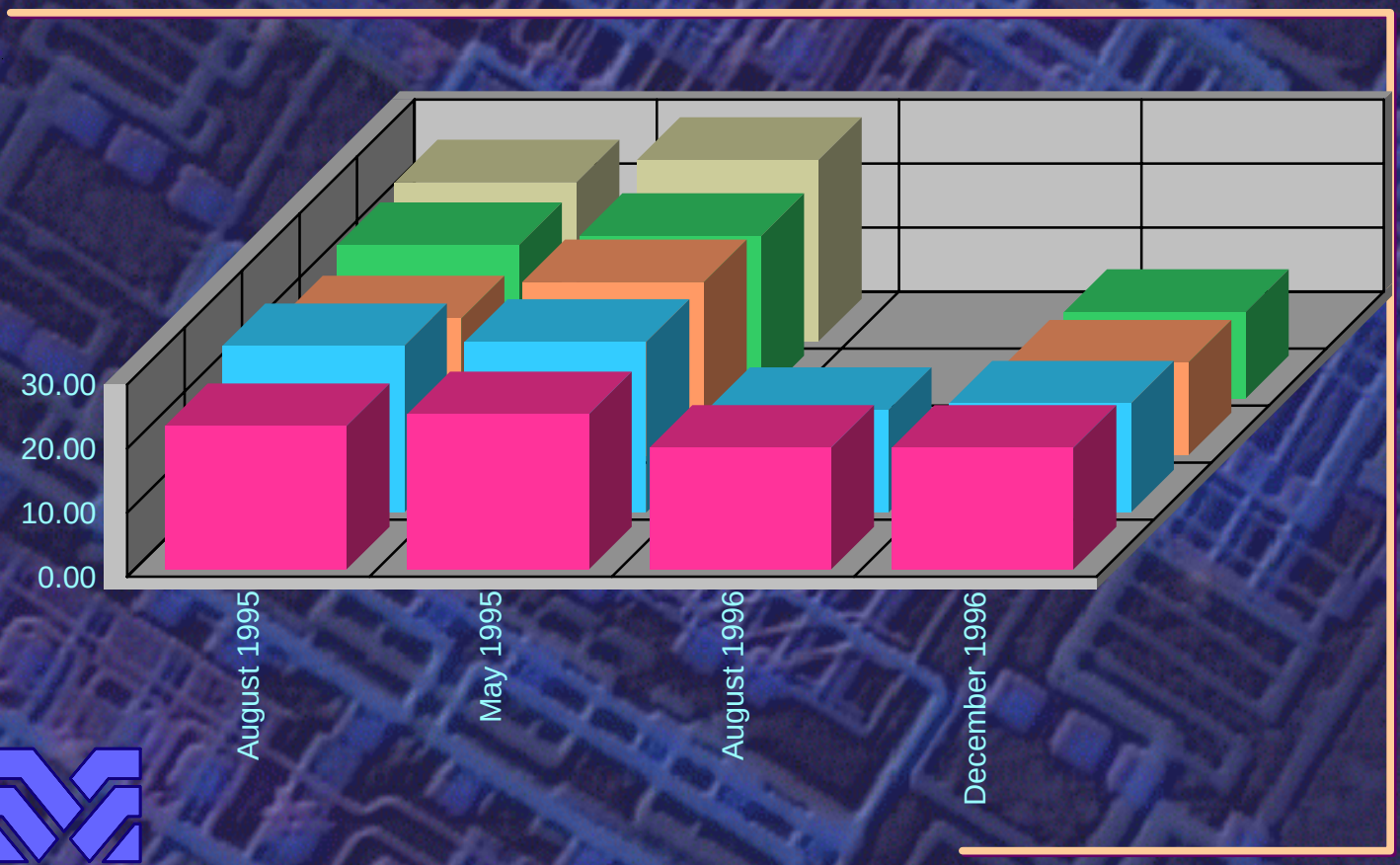
- Setting out terms and conditions in the contract process can be lengthy and costly
- Establishing a formal MOU process can allow definition of these issues early in the process

Identifying A Good Price In Competitive Markets

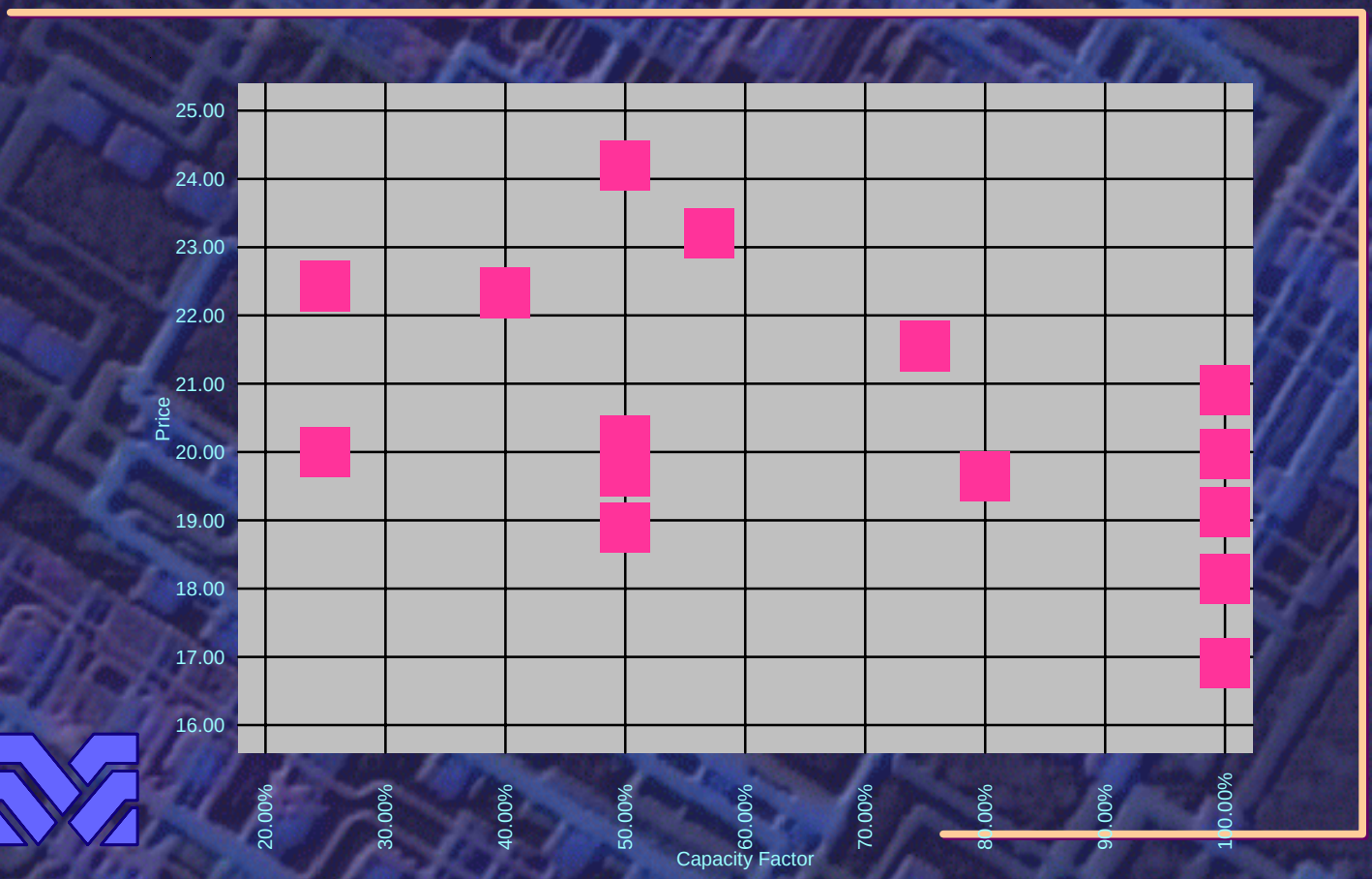
Prices Fall Again



Recent West Coast Prices



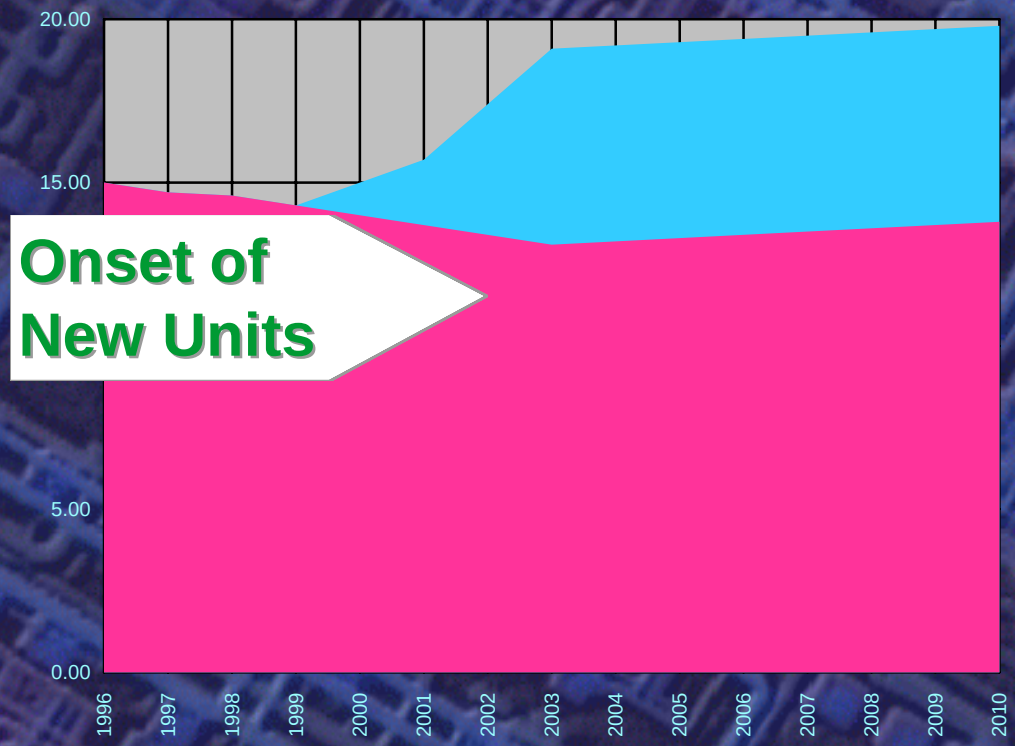
Current Bay Area Bids



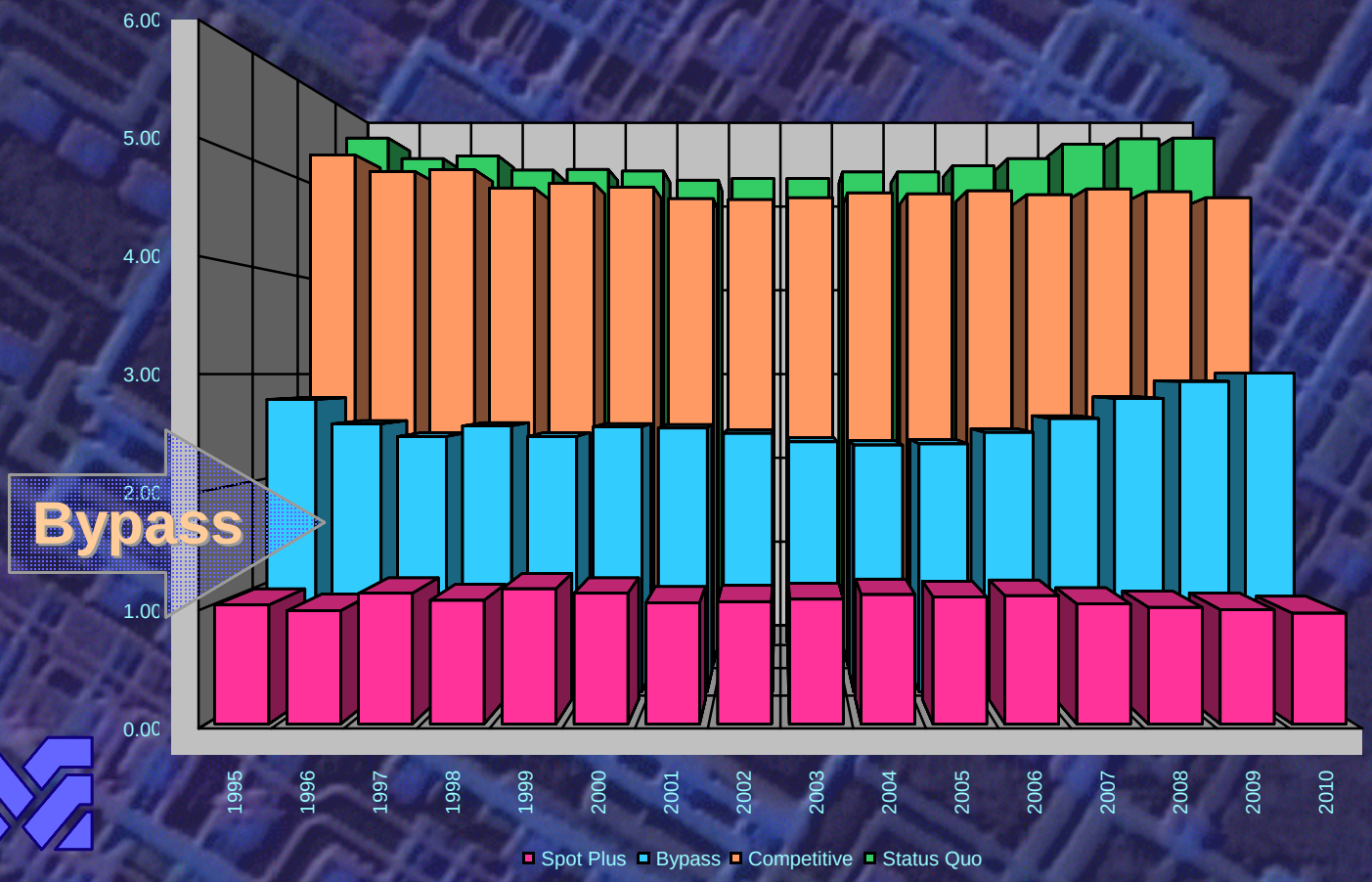
Market Truths

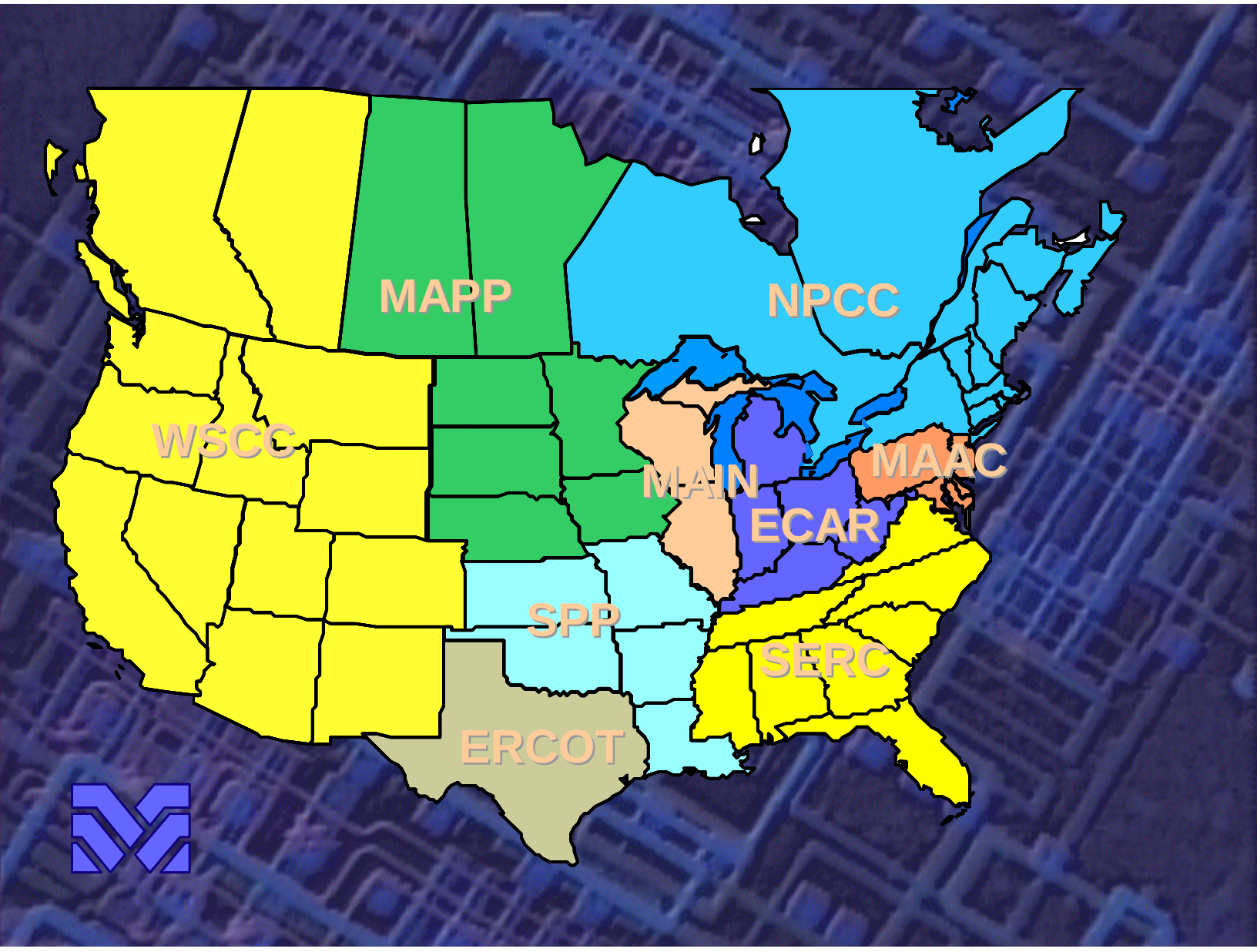
- Capacity has become very, very cheap
- Energy indices are simple
- If they aren't simple, they aren't useful
- Industrial and bulk power markets have converged
- Prices are low and going lower

WSCC Bulk Power Prices



WSCC Industrial Rates




MAPP
NPCC
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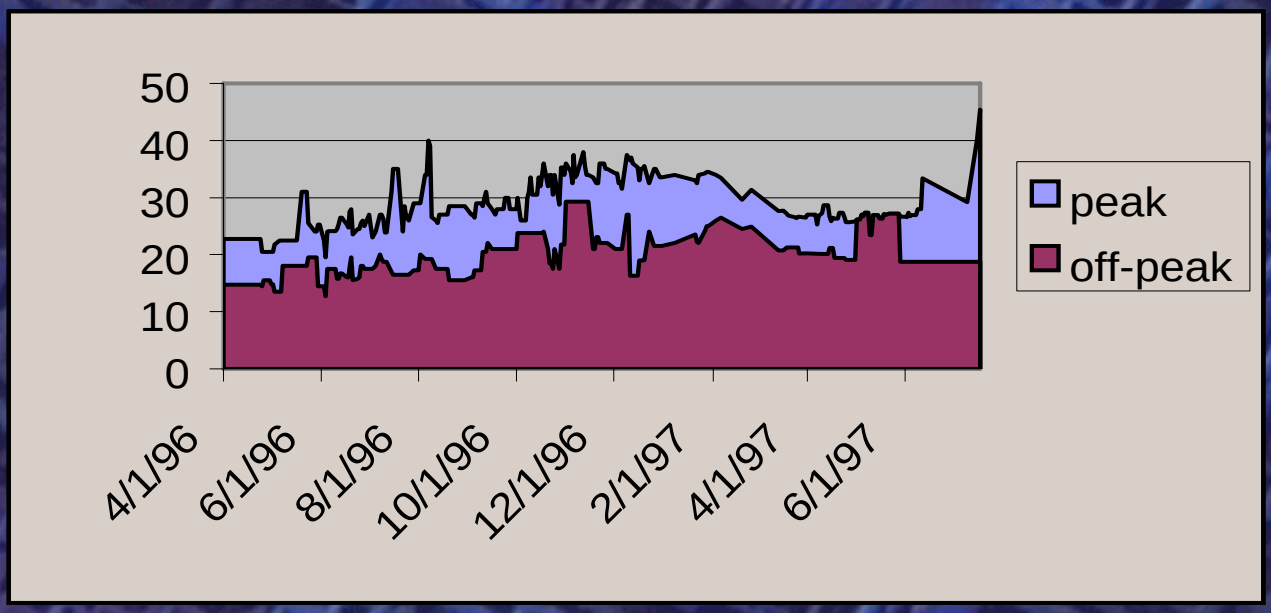
MAAC
ECAR
SPP
SERC
ERCOT

NEPOOL Spot Prices



NEPOOL Prices

- HLH: 28 mills
- LLH: 20 mills
- Melded: 25 mills
- WSCC analog: delivered prices at 28 mills

Negotiating The Deal

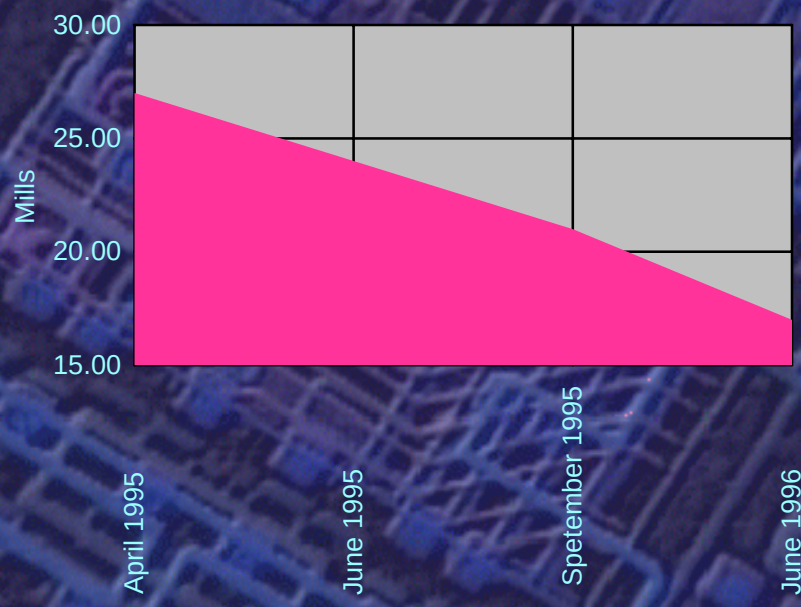
Purchasing Power By RFP

- Why Hold A Horse Race?
- Who should be invited?
- What structure should be imposed?
- Should we charge a fee for entry?

Why Hold A Horse Race?

- Almost all suppliers hold back ten to twenty percent of total bids initial discussions
- Supplier leaning curves are *Very* steep
- Additional market information often educates buyers as well

Industry "A" Bid Experience



Almost all suppliers hold back ten to twenty percent of total bids initial discussions

- McCullough Research experience indicates that most suppliers come prepared for haggling
- Many suppliers have little knowledge of the actual "bottom line" at the initiation of a bidding process
- Supplier "momentum" is a powerful emotional tool

Supplier leaning curves are *Very* steep

- Our experience is that suppliers have a lot to learn
- Transmission arrangements are a common source of learning curve "value"
- For example, many existing utilities have power contracts that already involve transmission in the opposite direction of the proposed transaction
- This is called "counter-scheduling" in real world operations

Additional market information often educates buyers as well

- Many buyers structure their bid around a limited set of resources
- The bid process often firms up the possible inter-rationships between bidders
- A common example is timing:
  - Bidder A has resources for one to five years
  - Bidder B has resources for six to twenty years

What RFP Structure Should Be Imposed?

- Using our resources efficiently
- Reducing bidder "creativity"
- Required information

Using our resources efficiently

- A large number of bids require that the bids be comparable
- It is best if the bidders provide similar formats -- usually in a spreadsheet format
- Amorphous bids should be eliminated
- Invitations to negotiate should be eliminated
  - Many bidders in the current changing environment attempt to avoid commitment
  - Early bid termination dates usually mark unrealistic proposals

Reducing Bidder "Creativity"

- McCullough Research has gone to a "quantum" approach
- Bidders are invited to provide 10 megawatt blocks with a minimum capacity factor
  - This allows easy comparison between competing bidders
  - The minimum capacity factor allows easy classification of peak and baseload resource
- The "quantum" approach also reduces the need to provide bidders with detailed load information

Ancillary Services

- Most real transactions have reduced ancillary services to one mill or less of the total bill
- Most ancillary services are services -- a small component in the total package
- Definitions MUST be taken from external sources
  - Some bidders can create as many as 67 ancillary services (BPA)
  - Other bidders offer such services but have little or no understanding on how to provide them
    - Enron once offered load following services across phase shifters

Information For Bidders

- Bidders tend to request more information than they actually use
- Most pricing is currently based on supplies rather than specific demand characteristics
- Overall loads -- on a monthly or daily basis -- are useful, but not required
- More important information is location, transmission arrangements, and operating requirements

Who Should Be Invited?

- Recently the building management association of San Francisco proposed eliminating brokers from participation because they "lacked experience"
- In reality, the brokers and the utilities are often difficult to distinguish
  - Enron, LG&E, Illinova and others are closely tied to large retail utilities
  - New entrants often are staffed with skilled personnel and bring new solutions to old problems
  - More is often better

Should We Charge A Bidding Fee?

- Bidding fees have ebbed and flowed
- Sacramento Municipal Utility District required a $50,000 deposit in their Rancho Seco solicitation
- ABAG recently chose to charge a $1,000 fee for their RFP
- Most industrial RFPs do not require a payment
- Overall, fees may complicate the process with little benefit

Response Evaluation

- Breaking the whole into parts
  - Ancillary Services
    - Defined ancillary services should be taken from the FERC comparability tariff
  - Energy
  - Capacity
- Bids that cannot be reduced to numbers are likely to be unhelpful
- Dealing with deadlines
- Dealing with "welshers"
- Indexed bids

Dealing With Bid Deadlines

- Many bidders now provide a final date for their bid
- Little evolving information actually occurs in the market so this is an artifact rather than real business information
- McCullough Research experience is that bid deadlines are seldom realistic or relevant

Dealing with "Welshers"

- Current practice is for a few bidders to rewrite their bids on the pretext of errors
- We have found that this practice causes more problems than it is worth
  - Other bidders are placed at a disadvantage
  - Bidders with "errors" can repeat the performance later
- McCullough Research recommends a "put up or shut up" rule

Indexed Bids

- While fixed price bids are still in the majority, an increasing share of the market is at indexed prices
- Most sellers are very unsophisticated when it comes to indexing
- Many sellers will index to an inappropriate location (NYMEX COB) regardless of where the real power transaction is taking place

Caveat Emptor

- A number of utilities have recently started to use indexes as hidden surcharges
- Pacific, for example, proposes indexing to NYMEX COB futures even though NYMEX contracts are for peak energy only
- Pacific's scheme contains a 2.8 mill hidden surcharge

How Can Vendors Help With Implementation

- The Energy Manager Model
- Timing Municipal Services
- Payment For Success
- Load Research and Equipment Requirements

The Energy Manager Model

- Using Existing Supplier Expertise
- Timing Services
- Payment For Success

Using Existing Supplier Expertise

- Most suppliers currently are affiliated with an existing utility system
- These suppliers have a successful history of billing, distribution, credit, and management issues
- Suppliers also are able to draft personnel to meet needs
- Suppliers are able to measure, estimate, and cost expansion and replacement options

Timing Services

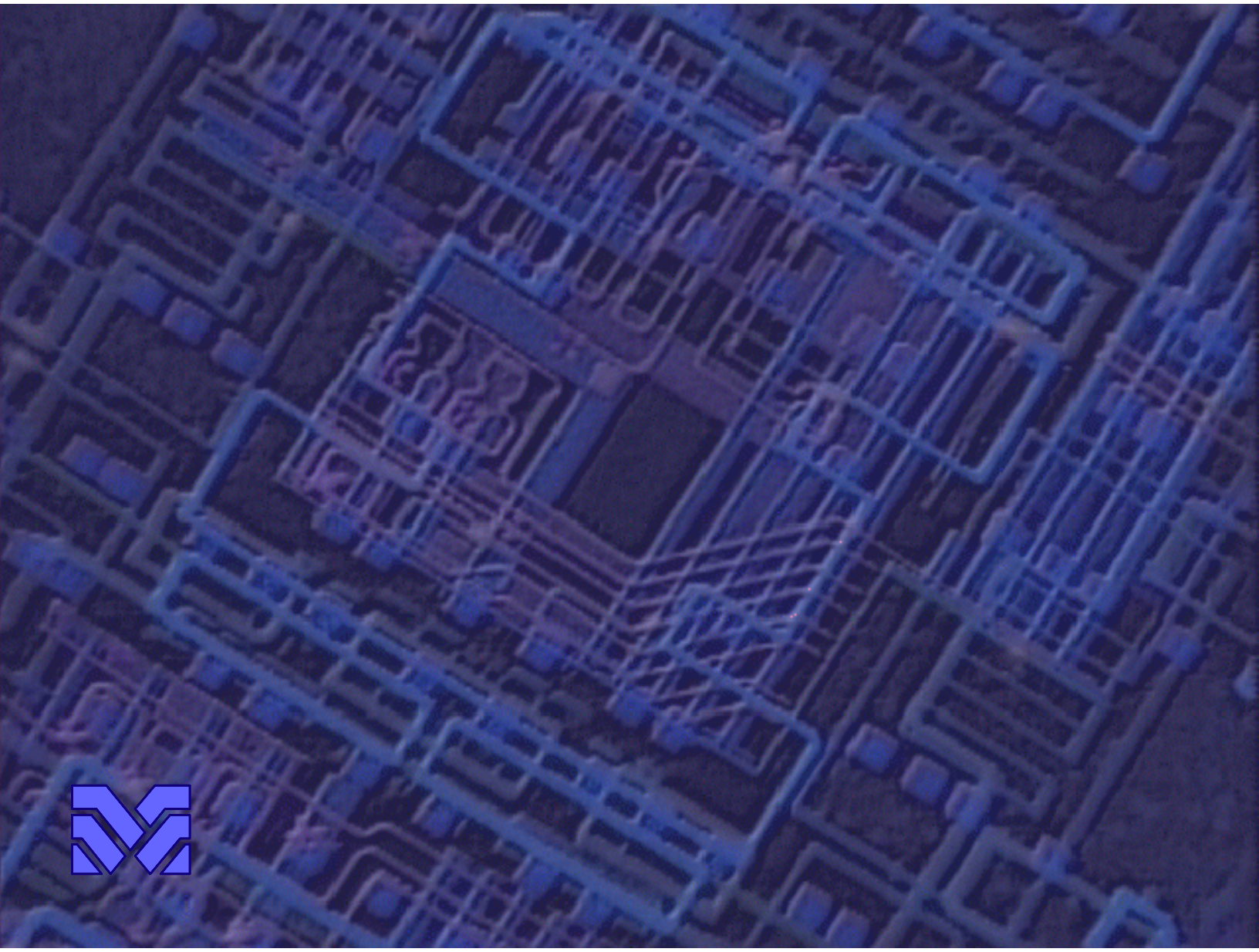
- Many potential customers would like to see full services on the first day but fear the implementation process
- Some new customers fear to "lock in" a relationship with a new supplier
- Suppliers can agree to supply low margin services -- billing and distribution on a temporary basis

Payment For Success

- Since most successful bypass undertakings currently result in rate reductions and continued service by the existing supplier, the Energy Manager model smoothly operates in the compromise outcome
- The Energy Manager can be reimbursed on a success fee basis

Load Research and Equipment Requirements

- Traditionally, end-user service has required an enormous effort to establish the equipment base and the load research to be served
- Suppliers already have the expertise to evaluate the loads and equipment requirements



AB 1890 Deregulation Purposes

Competition in Electric Energy Sales
Creates a new Independent System Operator
Requires sale of utility generation plants
Utility purchases and sales through the PX

AB 1890-Political Purposes

Protect utilities in the transition period
A "rate freeze" to collect stranded costs
Cut residential and small commercial rates 10%
Transition funding for renewables and others

AB1890-Customer Options

Direct Access for everyone January 1, 1998
Competition in metering in billing, too
Time of Use market rates from your local utility
Join other customers in an aggregated pool

AB 1890- The Direct Access hitch

Competition Transition Charge until 2002
About 3 cents/per kWh
Direct Access success means beating the PX
PX price estimated to be 2.4 cents/kWh
Hourly meter reading required for customers over 20kw demand

How the new system will work - ISO

- Transmission charges still controlled by FERC
- Scheduling Coordinators are your agents
- Congestion Charges may increase your bill
- You can provide your own "ancillary services"

How the new system will work-PX

- Energy is bid into and bought out of a day ahead market
- Only required for the IOUs, and only until 2002
- Frozen tariff rates minus PX price and T&D goes to pay down stranded costs
- Hourly price signals against which to compare your direct access supply costs

AB 1890-What about the Munis?

- Can collect stranded costs if direct access before 2000
- Not required to dedicate transmission to the ISO
- Must allow competitors inside their service territories if they sell outside the muni area
- Maintain authority to negotiate deals with customers

Aggregation Pros and Cons

Pros

- Join with other customers for purchasing power
- "Attractive" loads together may get a better price
- Spread administrative costs
- May be the only alternative for small customers in the early years

Aggregation Pros and Cons

Cons

- Less Control over the supply decisions
- Need an aggregation agreement as well as supply agreement

Experience with other Markets

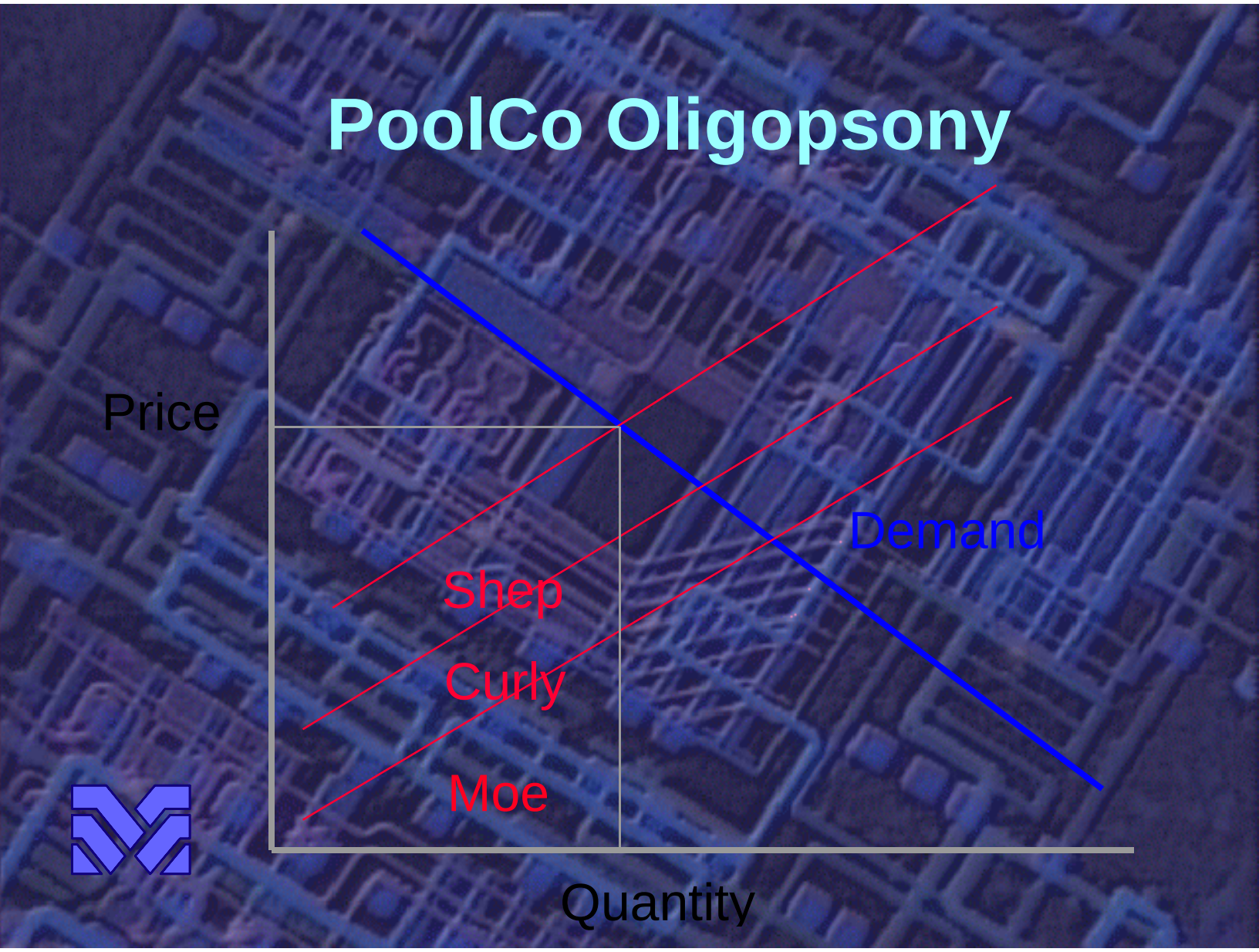
- Experience with other "poolco" style administered markets is that they are volatile and often unfair
- The problem isn't with the theoreticians who set them up -- it is with the real people who have to operate against them
- As currently constituted, California's poolco should devolve into a classic oligopsony model -- three sellers and many buyers
- traditional economic theory indicates that the sellers should win -- at the cost of uncertainty if they do not collude

PoolCo Oligopsony

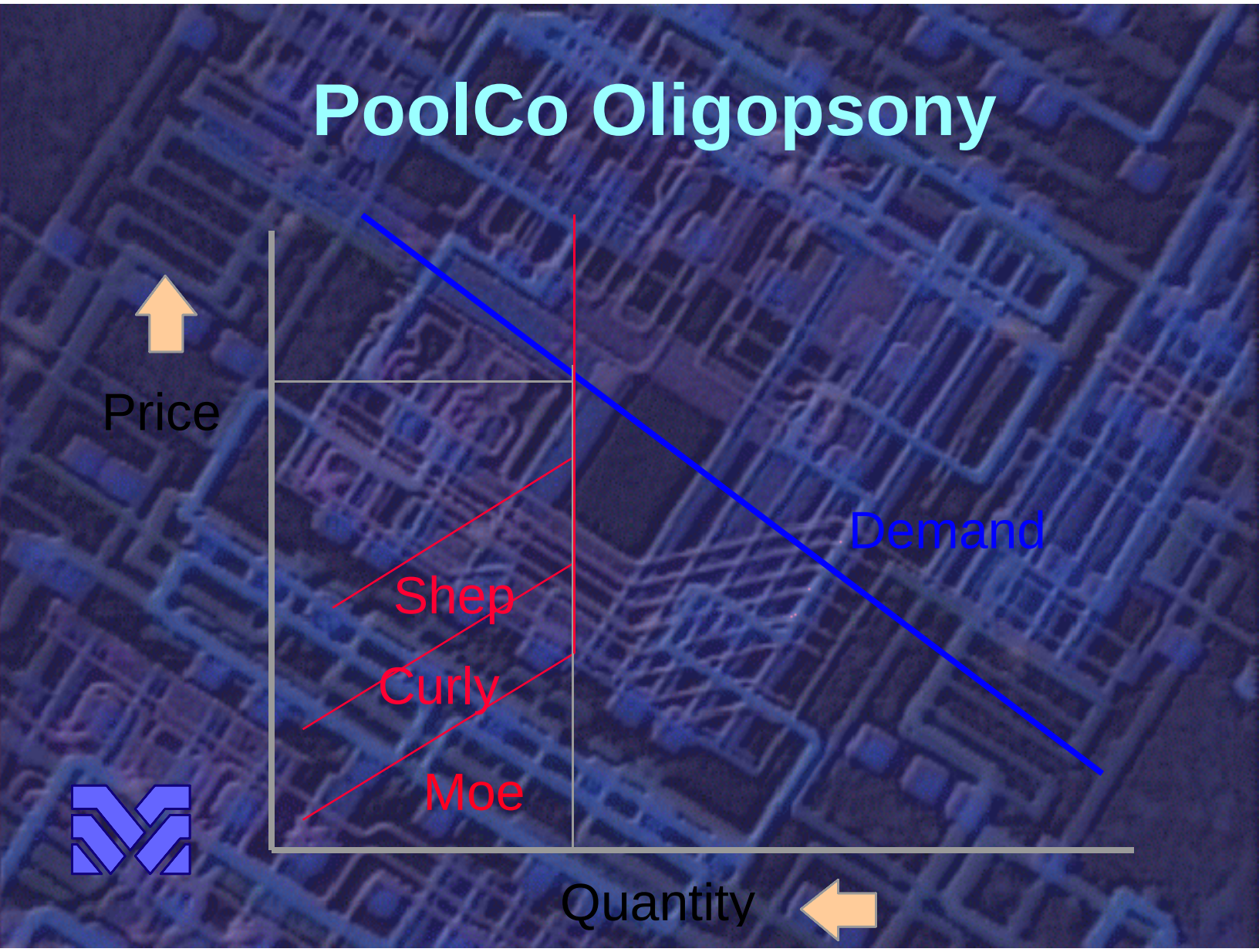
- In traditional economic theory an oligopsony selling to a competitive market will be sorely tempted to pursue production reductions
- Assuming that the three do not voilate Federal antitrust law (who can imagine utility executives in jail?), the most efficient approach is a market enforcement mechanism based on the "tit for tat" theorv

1 Many buyers, few sellers

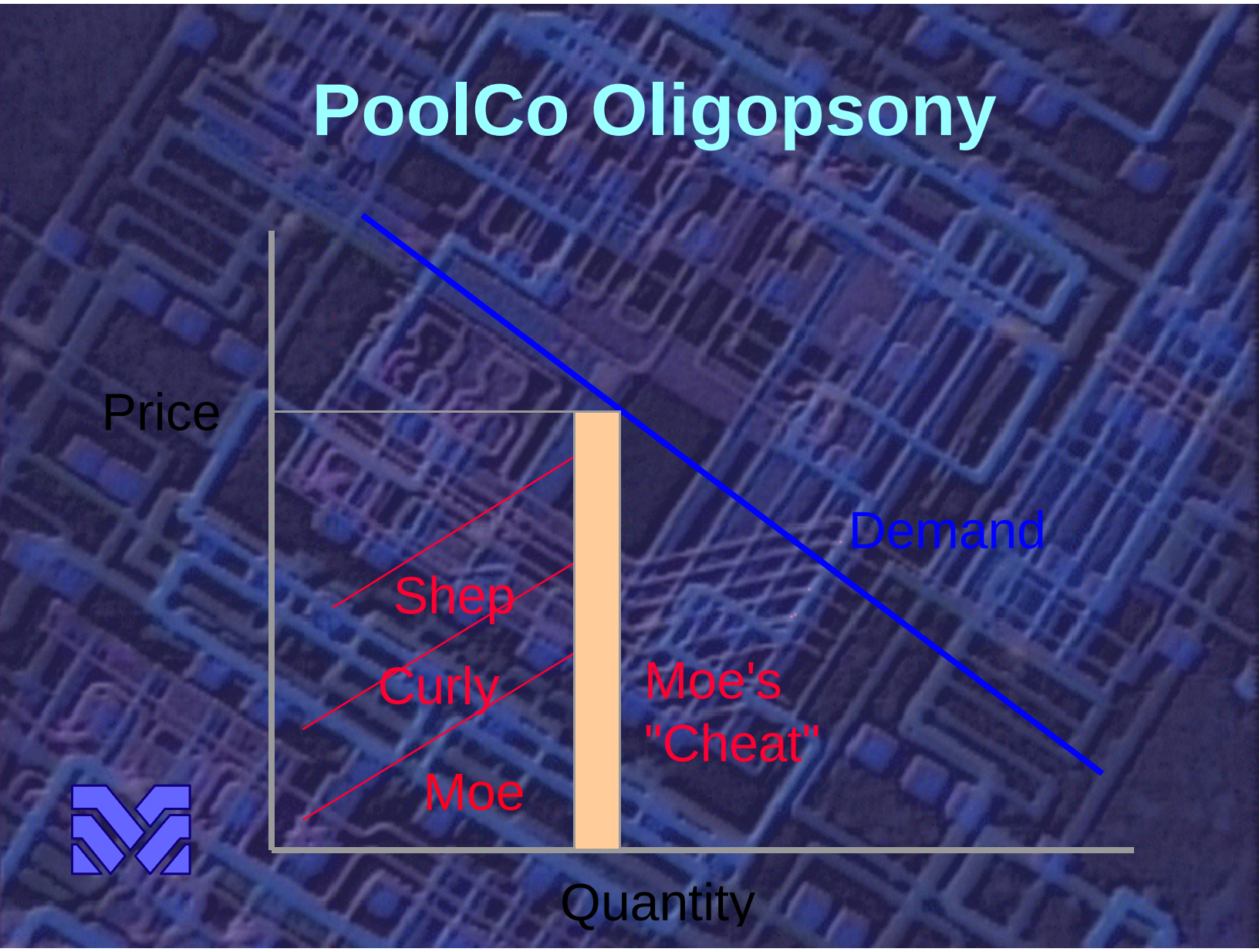
PoolCo Oligopsony



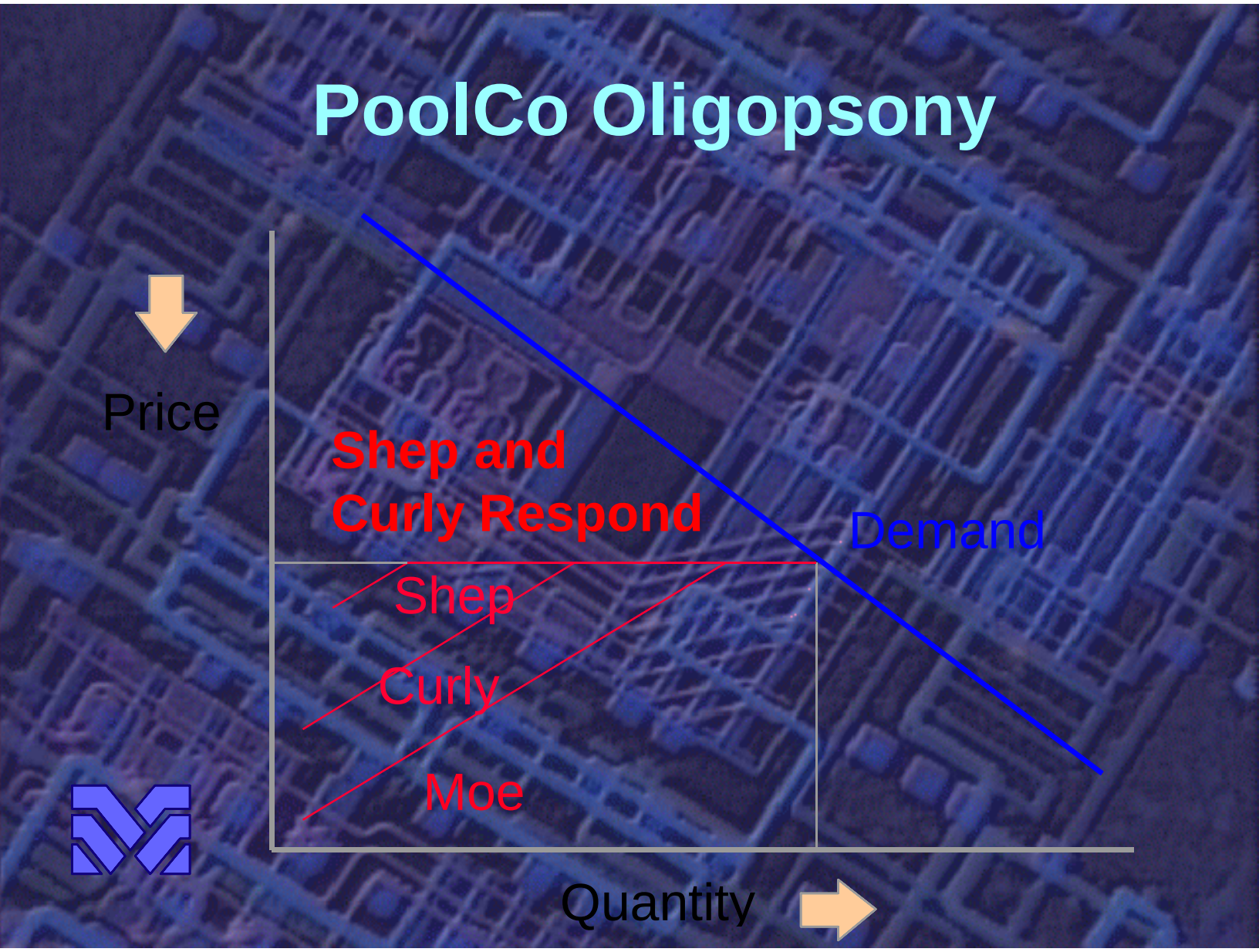
PoolCo Oligopsony



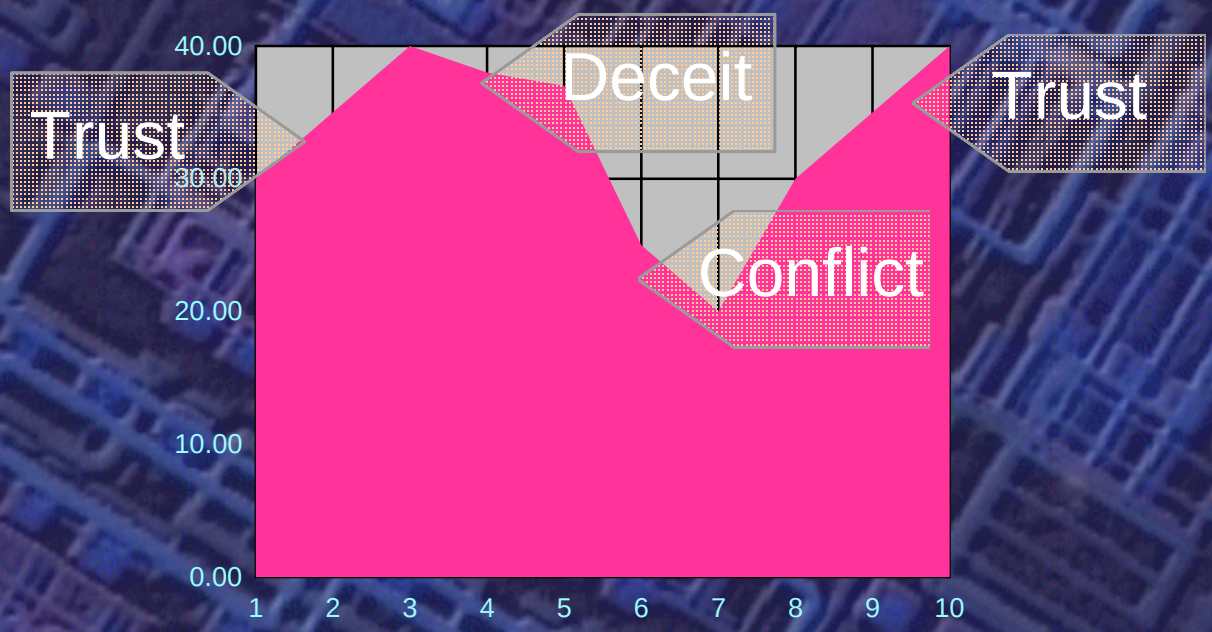
PoolCo Oligopsony



PoolCo Oligopsony



Oligopsony Dynamics



Barriers To Entry

- The ISO filing proposed non-market barriers to any extra-regional party
- This barrier was based on the infamous "French" rule that helped destabilize the British poolco