Competitive Electricity Market with POOLCO

Presented to the Harvard Electricity Policy Group

January 26, 1995
by
Vikram S. Budhraja

Southern California Edison
Edison’s Perspective on Industry Restructuring

Cost Recovery
Non-bypassable recovery of QF costs, prior plant investments and other regulatory assets

Opportunity
Fair opportunity to compete in all market segments

Equity
All customers benefit from competition
Industry Has Responded With New Institutions To Meet Its Needs

1960's Reliability
- NERC
-WSCC
- California Power Pool

1984 Economics
- Western Systems Power Pool

1994 Transmission Access
- RTG's

1998 Competitive Electricity Market
- POOLCO
  Independent System Operator & Pooled Transmission
Competitive Electricity Market Functions

- Production
- Transmission
- Dispatch
- Distribution
- Customers

Marketing/Retailing
Competitive Electricity Market With POOLCO

Unregulated Marketing

- NYMEX
- ENRON
- UTILITY AFFILIATE

Producers

- Edison
- PG&E
- SDG&E
- AES
- DESTECC
- BPA
- SMUD

POOLCO
Independent System Operator

Distribution

- Self- Aggregating Customer
- Utility Customer
- Aggregator Customer
Competitive Electricity Market With POOLCO

- Producers
- POOLCO
- Distribution Utility
- Aggregator
- Customer 1 (Self-Aggregating Service)
- Customer 2 (Utility Service)
- Customer 3 (Aggregator Service)

Customer Choice

Contractual Arrangement
Physical Power Flow
POOLCO Provides More Choices and Delivers Competition Benefits To All Customers

Unregulated Marketing

NYMEX
Bilateral Contract for 100MW @ 2¢

ENRON
UTILITY AFFILIATE

Competitive Power Market

QF’s/IPP’s 2.5¢
Publics 2.2¢
Utility 2 2.6¢
Utility 1 2.4¢

100 MW 10 MW OFF 50 KW

Customer Benefits
- More choices for customers
- Competitive economic dispatch
- All customers benefit from competition

Hourly Spot Price = 2.5¢

C1 100 MW
C2 10 MW
C3 50 KW
Competitive Market Is Facilitated By
Independent System Dispatcher

- Separating dispatch control from ownership
  - Eliminates self dealing concerns
  - Assures open access
  - Provides price visibility
  - Facilitates participation by municipals and other public entities
  - Independent decision-maker
Customer Choice -- Simpler With POOLCO

Bilateral Physical Contracts
Individual, Multiple, Complex

Interconnection Contract
(Control Area Dispatch Transmission Service)

Individual Transmission Service Contracts through Multiple Control Areas

POOLCO
Physical Connection to the Grid Agree to Pool Operating Rules

Retail Connection Contract
(Control Area Dispatch, Transmission Service, Backup Supply, Frequency Control, Voltage Control)
POOLCO Features

- Customers - *Choices, Flexibility, Reliability, Competitive Costs*
- System Operator - *Independent, Unaffiliated*
- Dispatch - *Economic / Competitive Bid*
- Transmission Access - *Open, Comparable*
- Prices - *Open, Visible*
- Opportunity - *Eliminates Self Dealing Concerns, Allows Opportunity to Participate in Competitive Markets*
- Assets - *Does Not Require Divestiture*
- Participation - *Facilitates Participation by Municipal Utilities and Other Public Entities*
- Public Policy - *Unbypassable Costs / No Cost Shifting*
California Restructuring Schedule

April 1994 - CPUC Blue Book

Jan 24, 1995 CPUC Issues Interim Report to the Legislature

Mar 22, 1995 CPUC Proposes Policy Decision and Forwards It to Legislature and Governor for Review

May 22, 1995 CPUC to Issue Policy Decision

Coordination Between CPUC and the Legislature

FERC Filings: POOLCO, Transmission Tariffs

Sep 1995 Effective Date of CPUC Policy Decision

Jan 1997 FERC Approval

Mar 1997 CPUC Approval

Jun 1997 Customer Designation

Jan 1998 POOLCO Begins Direct Access Begins
## Pool Based Competitive Electricity Market

### Jurisdictional Issues

<table>
<thead>
<tr>
<th>Segment</th>
<th>Elements</th>
<th>Jurisdiction</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Generation</td>
<td>- Sale of electricity and/or control area/ancillary services</td>
<td>Competitive Market</td>
</tr>
</tbody>
</table>
| • Transmission | - Revenue requirement determination  
                  | - Revenue requirement recovery  
                  | - Dispatch authority contracted to POOLCO | PUC/Local Jurisdiction  
                  |                                                                 | FERC  
                  |                                                                 | FERC |
| • POOLCO     | - Pricing rules, terms, conditions, governance  
                  | - Generation scheduling and dispatch rules  
                  | - Transmission dispatch rules  
                  | - Control area/ancillary service charges  
                  | - POOLCO management fee and incentives  
                  | - Settlement rules                  | FERC  
                  |                                                                 | FERC * |
                  |                                                                 | FERC * |
                  |                                                                 | FERC * |
                  |                                                                 | FERC * |

* Approval of broad guidelines, with flexibility for Pool to modify implementation rules with minimal filing requirements
### Pool Based Competitive Electricity Market

#### Jurisdictional Issues (Cont’d)

<table>
<thead>
<tr>
<th>Segment</th>
<th>Elements</th>
<th>Jurisdiction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distribution</td>
<td>- Revenue requirement determination and recovery, billing of transmission and distribution wires charges to retailers/customers</td>
<td>PUC/Local Jurisdiction with FERC Affirmation*</td>
</tr>
<tr>
<td>Competition Transition Charges</td>
<td>- Revenue requirement determination and recovery through distribution wires surcharge</td>
<td>PUC/Local Jurisdiction with FERC Affirmation</td>
</tr>
<tr>
<td>Social/Public Policy Programs</td>
<td>- Revenue requirement determination and recovery through distribution wires surcharge</td>
<td>PUC/Local Jurisdiction with FERC Affirmation</td>
</tr>
<tr>
<td>Retail Sales</td>
<td>- Generation contract and consumer portfolio management</td>
<td>Competitive Market</td>
</tr>
<tr>
<td></td>
<td>- Billing/settlement with consumers</td>
<td>Competitive Market</td>
</tr>
<tr>
<td>Consumers</td>
<td>- Service needs, price choices, DSM offers</td>
<td>Competitive Market</td>
</tr>
</tbody>
</table>

*To the extent these services are found to be FERC jurisdictional, FERC should give deference to the local jurisdiction determined revenue requirement and recovery/billing mechanisms*
## Pool Based Competitive Electricity Market

### Responsibility Issues

<table>
<thead>
<tr>
<th>Issues</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Responsibility to Ensure Operational Reliability</td>
<td>POOLCO</td>
</tr>
<tr>
<td>- Increase or decrease generation</td>
<td></td>
</tr>
<tr>
<td>- Curtail customer load</td>
<td></td>
</tr>
<tr>
<td>• Obligation to Serve</td>
<td>Transmission/Distribution Utility</td>
</tr>
<tr>
<td>- Obligation to connect new generators/customers</td>
<td>Transmission/Distribution Utility Market</td>
</tr>
<tr>
<td>- Obligation to deliver power through grid</td>
<td></td>
</tr>
<tr>
<td>- Obligation to acquire/construct new generation</td>
<td></td>
</tr>
<tr>
<td>and transmission</td>
<td></td>
</tr>
<tr>
<td>- Retailer of last resort</td>
<td></td>
</tr>
<tr>
<td>• Who Bills Customers for:</td>
<td>Distribution Utility</td>
</tr>
<tr>
<td>- Transmission Service</td>
<td></td>
</tr>
<tr>
<td>- Distribution Service</td>
<td></td>
</tr>
<tr>
<td>- CTC</td>
<td></td>
</tr>
<tr>
<td>- Social/Public Policy Costs</td>
<td></td>
</tr>
<tr>
<td>- Control Area and Ancillary Services Charges</td>
<td></td>
</tr>
<tr>
<td>- Spot Market Power Deliveries</td>
<td></td>
</tr>
<tr>
<td>- Contracted Power Deliveries</td>
<td></td>
</tr>
<tr>
<td>• Title to Power</td>
<td>Transfers from Generator to Retailer/Consumer</td>
</tr>
<tr>
<td></td>
<td>(auction-house model)</td>
</tr>
</tbody>
</table>