Vesting Contracts: A Tool for Electricity Market Transition

Vesting contracts can manage the transition to full competition in electricity, manage the financial risk of market participants and help achieve other deregulation objectives. Vesting contracts could have prevented the financial problems in California.

Edward D. Kee

The California electricity crisis is not proof that electricity deregulation can only work if there is an excess of capacity and low spot prices. Instead, this crisis demonstrates that a deregulation plan based on a belief in low spot prices, without hedging, is very risky. The California deregulation plan was a bet-the-state electricity trade that could succeed only if spot prices were low.

Vesting contracts, hedge contracts put in place prior to the divestiture of generators, could have locked in utility power costs and largely prevented the California financial crisis. Vesting contracts can protect customers (or the retailers serving the customers) from spot market prices even in capacity-tight markets, kick-start the hedge contract market, maintain a viable spot market, provide incentives for new entry, and facilitate other aspects of a transition to electricity markets.

Without adequate hedging of spot market purchases, California has focused on spot price caps to control losses – removing important market price signals. Deregulation plans that recognize the potential for high spot market prices and incorporate appropriate hedging strategies will be viable regardless of spot prices and without the need for price caps.

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The California crisis does not mean that deregulation and electricity markets are unworkable. Instead it should remind us that spot market prices can be unpredictable and sometimes very high; demonstrate that deregulation plans without appropriate hedging strategies are risky; and show that being wrong on a bet-the-state electricity trade can be very expensive.

This article looks briefly at the California crisis from a risk management point of view, discusses risk management and the use of hedge contracts in electricity markets; and then provides an overview of vesting contracts.

I. Did High Spot Market Prices Cause California’s Problems?

Some believe that the California electricity crisis was caused by high electricity spot prices. Those holding this view may advocate the use of price caps to control spot prices and try to find a scapegoat on which to blame high spot prices. The most common scapegoats are in-state generators, with out-of-state utilities, traders and even Federal Power agencies also being named as culprits.

Others hold a slightly more enlightened view and blame high prices on the lack of new capacity additions in California over the last decade. Some then conclude that California proves electricity deregulation is only possible when spot prices are low. An example is

One mistaken assumption: California tried deregulation and it did not work.

\[\text{This assumption. Market design, concentration of ownership, the nature of existing infrastructure, and other factors will determine the level of competition in a market and the level of spot market prices. All these factors being equal, an excess of supply will generally lead to lower spot market prices compared to the prices in a market with a shortage of supply.}\]

2. California tried deregulation and it did not work. If the Governor had said that “California-style deregulation can only work if there is an excess of capacity,” most would agree. Electricity deregulation and markets can and do work. The failure of the particular deregulation plan adopted by California should not be viewed as a general failure of electricity industry reform and deregulation. The experience in PJM, New York, New England, England & Wales, Australia, and other places show that electricity markets can work.

3. Deregulation is only possible when prices in the spot market are low (i.e., because there is an excess of capacity). I also disagree with this assumption. Governor Davis may be reflecting the political reality that electricity consumers and voters will favor a shift to markets when they get immediate benefits. Other jurisdictions have successfully implemented a shift to electricity spot markets without an oversupply of capacity.\(^1\)

While excess capacity and low spot prices would have averted the financial crisis in California, excess capacity and low spot market prices are not prerequisites for electricity deregulation. Another view of the California crisis that high spot prices exposed a deeply flawed and risky deregulation plan.

II. California Deregulation: A Recipe for Risk

California built significant risk into its deregulation scheme by setting objectives that could only be achieved in total when spot market prices were low:

- \[\text{End-use customer rates at stipulated levels (i.e., no spot market pass-through)};\]
Utilities that were to recover stranded costs;
Utilities that were restrained from hedging spot market exposure; and
Utilities that were financially solvent.

California utilities were obligated to supply end-use customers at fixed prices while required to purchase in the spot market, largely without hedging. It is now painfully obvious that only low spot market prices would have kept these utilities financially solvent without the need for rate increases. Small commercial and residential customers were given an initial 10% reduction in rates, but could only obtain additional benefits at end of the rate freeze period if spot prices remained low.

California’s approach established an enormous unhedged financial position in the electricity market, so that deregulation became the equivalent of a bet-the-state electricity trade. If spot prices were low, deregulation would work; if spot prices were high, a lot of money would be lost.

The financial crisis demonstrates that a deregulation plan based on a belief in low spot prices, without hedging, is very risky. Hedge contracts signed before spot prices were high could have locked in utility power costs, largely preventing the current financial crisis. Even better, hedge contracts assigned to generators prior to divestiture, referred to as vesting contracts, could have supported the original rate freeze regardless of spot price levels.\(^3\)

Instead, high spot prices in California have destroyed the credit of the investor-owned utilities and threaten to burden the State for decades. Without adequate hedging of spot market purchases, California has focused on spot price caps to control these losses – removing important market price signals. Many parties are calling for even more stringent and widespread spot market price caps to ease the financial problem, even while the state (and the region) is in great need of new entry.

New generation plants in California already face significant environmental and siting hurdles and price caps will further reduce the attractiveness of power plant investments. Also, retailers and customers are unlikely to hedge spot market exposure when frozen retail rates and spot market price caps are in place.

Viewing California’s problems in the context of hedging and financial risk does not mean that the very real problems with adequacy of supply and potential blackouts should be ignored. These capacity supply problems must be examined and resolved on a regional basis. The financial crisis and the supply shortage are not unrelated, but the two problems should be considered separately.

A focus on price caps to ease the financial problem is likely to exacerbate the supply shortage problem. Viewing the California crisis as a risk management problem may allow solutions that both ease the financial exposure to spot prices and help solve the supply shortage problem (e.g., new entrants signing up for hedge contracts).

Before discussing risk management and vesting contracts, it is useful to examine another feature of the California deregulation plan – the notion that customers should see wholesale spot prices.

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**With California’s enormous unhedged financial position, deregulation became the equivalent of a bet-the-state electricity trade.**

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**III. Should Customers be Forced to Buy at Wholesale Spot Prices?**

The California deregulation plan called for customers, after the end of the rate freeze, to buy energy at the wholesale spot market price. Retailers were to be conduits to pass on the wholesale market price. This probably looked like a nice idea when spot prices were relatively low compared to the rate freeze levels. There is disagreement among the industry experts on this issue, with some arguing that the California chose the
correct path and others arguing that customers will seek fixed price arrangements and retailers serve a useful function in providing risk management.

California was unique in deciding that there was to be little hedging in the market and to have most customers provided with electricity service after the end of the rate freeze that passed through spot market prices. Some have asserted that this aversion to hedge contracts was a reaction to decades of overpriced contracts with cogeneration and renewable generators.

Some have expressed the view that customers should be provided with a pass-through of wholesale spot prices. While this approach may produce clear and efficient price signals to consumers, there is little reason to believe that electricity markets will evolve in this manner.

While wholesale electricity spot markets may be a useful way to achieve the efficient dispatch of resources, both generators and consumers are exposed to the risks of highly volatile and unpredictable spot market prices. This problem of risk can be solved with bilateral contracts that allow generators and consumers to deal with one another directly or through intermediaries without distorting the dispatch-based spot market.

The experience in San Diego in the summer of 2000 suggests that customers may not desire a pass-through of spot market prices. This may be especially true in the early stages of a market (the California market is far from settled, even after several years), when spot prices are likely to be more volatile and new entry may still be under development.

More likely, retailers will offer a set of packages that include bundled service at fixed rates for some period (e.g., a year). The experience in England and Wales, Norway, Australia, and now in San Diego, suggests that customers will overwhelmingly choose some sort of fixed price package, largely ignoring rates linked to wholesale spot prices.

The natural end state of electricity markets is likely to be one where:

- A majority of customers take electricity service at fixed rates from retailers;
- Retailers enter into a variety of hedging arrangements to manage the risk of these fixed rate sales;
- Generators hold a portfolio of hedge contracts that provide a significant part of their income;
- New entrants in generation compete with incumbents for hedge contracts; and
- The spot market provides appropriate price signals at the margin to unhedged generation and load.

Retailers in this model are primarily involved in packaging electricity bought in the wholesale market for resale at a profit to customers at fixed prices (or at other pricing arrangements that customers seek).

This sounds like California utilities over the last several years, doesn’t it? The major difference is that the California utilities remained regulated. They were prohibited from managing the risk inherent in supplying customers at rate freeze tariffs (hence the financial crisis).

The California utilities may also have thought that regulation made them immune from the risk of such losses. While the California utilities risked not fully recovering stranded costs if spot prices were high, they probably believed that costs of purchasing power to supply regulated customers would be recovered. This issue is the heart of the California financial crisis and is in the courts now, including the PG&E bankruptcy case.
It would have been a very different world if the California utilities had been told, prior to 1998, that their retail functions (including sales to customers at rate freeze levels) were to be separated from the regulated wires business and removed from regulation.

Risk management would have been a very high priority for these companies.

IV. Risk Management

One large and painful lesson from California is that the shift from regulated utilities to markets brings risk. This is a hard lesson after decades of experience in an industry where cost-based transactions and full recovery of costs in rates were the norm.

The California experience over the last year can be compared to earlier financial hedging disasters such as those at MG9, Barings Bank10, and LTCM11. The MG, Barings Bank, and LTCM disasters each involved experienced and sophisticated trading entities and arose from a complicated series of events interacting with complex hedging strategies. While the magnitude of the California financial crisis, at more than $15 billion to date, is much larger than these earlier hedging disasters combined, the California crisis was not a complicated failure by sophisticated traders. In California, there was a simple failure to hedge.

Companies that operate in spot markets, especially those that sell at fixed prices, develop hedging strategies to control the risk arising from volatile spot prices. Electricity spot markets, with extremely volatile spot prices, are no exception. Generators will seek to limit their price risk by entering into hedges with buyers. Retailers, if unregulated, will also seek to limit price risk exposure.

Market participants will develop a risk management approach that determines the level and type of hedge arrangements they hold and is dependent on the other mechanisms in the market (see insert 1).

Price caps in the wholesale market or large and persistent amounts of excess capacity (with resulting low prices) will tend to reduce the appetite of buyers for hedge arrangements. Likewise, sellers will have a lower appetite for hedge agreements if there are large and persistent supply shortages in the market (perhaps due to some constraints on new entry) that result in expectations of high spot prices.

In the early stages of an electricity market, existing infrastructure and incumbent participant behavior influence spot prices. Later, after participants experience periods of low spot prices and high spot prices, they will develop appropriate risk management strategies. Vesting contracts can be useful to facilitate the early development of a contract market and to achieve other deregulation objectives.

V. Vesting Contracts

Risk Management

A contract for differences (CfD) is a financial agreement that is linked to the level of spot prices and used for risk management. The concept of risk management can be illustrated by explaining how a CfD works.

Assume that a buyer (e.g., a retailer) and the seller (e.g., a generator) make actual purchases and sales in the spot market, receiving revenues and incurring costs at the spot price. Both parties are exposed to risk due to volatile spot prices.

The parties, in order to manage risk, enter into a simple 2-way CfD. This contract calls for side payments between buyer and seller based on the level of spot prices compared to the CfD strike price.

When the spot price is above the strike price, the seller pays the buyer an amount equal to the difference between the spot price and the strike price. When the spot price is below the strike price, the buyer pays the seller an amount equal to the difference between the strike price and the spot price. Thus, both parties have hedged their exposure to the spot price.

Other types of CfD contracts are used in risk management, including cap contracts, floor contracts, and collar contracts (the 2-way CfD described above is a collar contract with the cap and floor at the same strike price).

Depending on the contract terms and conditions, a bilateral physical contract may be used to achieve similar outcomes as CfD contracts.

Other financial instruments including futures contracts, the ownership of physical production facilities (e.g., a retailer owning a peaking plant) and other things may be part of an overall risk management arrangement.

Some companies use complex analyses (e.g., real options) to develop a portfolio of assets, contractual agreements and financial instruments to maximize profits in the face of risk.
Vesting contracts (used mostly outside the US) are hedge contracts assigned to incumbent retailers and generators at the time of electricity industry disaggregation, prior to asset divestiture or privatization. Vesting contracts are usually a set of related hedge contracts between incumbent retailers and generators.

In the vertically integrated structure of regulated or government-owned utilities, risk management is primarily accomplished through ownership of generating and perhaps transmission assets and through long-term power purchase agreements (often the equivalent of owning a share of a power plant). The introduction of electricity markets is usually accompanied by the de-integration of these companies, separating generation assets and long-term power purchase agreements from retail sales companies. The implicit hedge of retail sale obligations may be gone.

Vesting contracts provide a mechanism to recreate all or part of the natural hedge in the vertically integrated utility in the form of contracts. This allows the de-integrated parts of the industry to function in the market without an abrupt change in risk position and allow gradual transition to a contract market.

Vesting contracts are different from commercially negotiated hedge contracts in several important ways:

- Vesting contracts are typically imposed upon the parties to the contracts before deregulation or privatization, rather than freely negotiated in the market;
- Vesting contracts may require approval from anti-trust regulators; and
- Vesting contracts may be used to meet a broader set of policy objectives as compared to bilateral negotiated contracts.

A. Imposed, not negotiated

Vesting contracts are typically put into place in the early stages of deregulation, during the disaggregation of a vertically integrated utility. Properly structured vesting contracts can provide retailers and generators with portions of the natural hedge inherent in vertical integration. The disaggregated entities, with manageable risk positions, can then be sold on a stand-alone basis. Vesting contracts must be done before the privatization of government-owned systems or before generator sales in investor-owned systems. After retailers and generators are sold, it is spot market prices and expectations of future spot market prices that will determine the price and terms of hedging contracts between these retailers and generators. Any non-standard terms or conditions in market contracts will come at a price.

Market-based contracts negotiated after retailers and generators are in private hands will be have prices that reflect the market, not necessarily the prices needed to hedge regulated customer rates. When spot prices are low, retailers are unlikely to offer above-market prices to generators without compensation. When spot prices are expected to be high, generators are unlikely to sign a contract at below-market prices without compensation.

As vesting contracts expire, the parties will negotiate market-based follow-on contracts. These market-based replacement contracts will have as counterparties, in addition to the incumbents, new retailers and new generators. The contract market will become more liquid as the vesting contracts expire. As vesting contracts expire over time, the parties begin with only vesting contracts, move to a mix of vesting and market-based contracts, and eventually to a portfolio consisting entirely of market-based contracts.

B. Regulatory Approvals

Vesting contracts are used, among other things, to control spot market prices and the power contract market. Because of this, these contracts may require approvals from antitrust or trade practices regulators.

The use of vesting contracts to control market
power may involve high levels of contracting for some generators, especially where there is a shortage of capacity in the market. Highly contracted generators may require a set of “insurance” contracts between generators, reducing financial risk of the highly-contracted generator and reflecting the natural portfolio in a vertically integrated utility. These insurance contracts, as agreements between competitors, may also need regulatory approvals.

The Australian Competition and Consumer Commission (ACCC) has reviewed and approved several applications for vesting contract arrangements. The reviews by the ACCC have weighed any anti-competitive effects of vesting contracts against the public benefits arising from the deregulation policy objectives provided by the vesting contracts.

C. Features of Vesting Contracts

In general, vesting arrangements provide a means to manage the transition to full deregulation. Typically, vesting contracts might:

- Provide participants with financial hedges;
- Aim to modify participant behavior;
- Minimize interference with the spot market, the contract market, and the retail market; and
- Achieve other deregulation objectives.

1. Financial Hedges. A primary function of vesting contracts is to provide participants with financial hedges that ensure the financial viability of the participants during the transition to full deregulation. This might include hedging the financial exposure of retailers to high spot prices or providing a hedge to back obligations of retailers to supply retail customers at stipulated or regulated prices (i.e., the rate freeze in California). This is the feature that would have largely prevented the California financial crisis. A feature that has not been discussed in the context of California is hedging the financial exposure of generators to low spot prices. In markets where there is an excess of capacity in the start of the market, this feature can ensure the financial viability of generators and prevent bankruptcies and shutdowns of power plants. Even in markets with more robust spot prices, such contracts can increase the certainty of generator revenue and facilitate financing, enhancing the value of assets to be sold.

A vesting contract package could replicate the portfolio of contracts that the participants might develop after many years of market experience. This will provide the basis for a mature bilateral hedging contract market, as market-based contracts replacing vesting contracts over the transition period.

2. Behavior Modification. Hedge contracts can provide most, if not all of the market control features now sought for the California market, including price caps and control of participant behavior. When a generator is highly contracted, the ability to profit from market power is largely removed and the generator’s bidding behavior may be modified. The incentive to drive market prices up is reduced because profits from higher spot prices are removed by the hedging contracts and because high prices in the spot market create risk for highly contracted generators.

Vesting contracts can also influence the behavior of retailers and provide much-needed demand response to high spot prices.

a. Retailers. The California situation has been exacerbated by lack of response by customers to high spot prices. This lack of response is not surprising, given the rate freeze. While some demand response would occur if spot prices were simply passed through in monthly bills today, this would imply a significant degree of rate shock. There are ways to maintain customer tariffs while stimulating effective demand-side activity in the market.

As discussed above, in the fully deregulated retail market, it is unlikely that each customer would
participate directly in the wholesale spot market, just as all consumers do not participate directly in the spot markets for oil, gold, coffee beans, or other commodities they consume. Rather, retailers or other middlemen will package wholesale power purchased in the spot and contract markets for resale to consumers. Retailers will prosper by reaching profitable arrangements that appeal to end-use customers. This could include such products as on-peak and off-peak power, controllable appliances, non-interruptible power, and curtailment agreements.

Because incumbent retailers are regulated under cost-of-service regulation, they will have minimal incentive to participate in such activities. Therefore, the first step is to deregulate the retailers, so that they keep profits and suffer losses. The development of risk management strategies, and the hedge contracts that implement those strategies, will be driven by the risk preferences of the owners and managers of the retailers. When deregulated incumbent retail companies are obligated to serve customers at regulated fixed prices during the transition period, they would be provided with a portfolio of vesting contracts to manage the risk of these fixed sale prices. Additional risk management activities, to fine-tune the inherited vesting portfolio, would be undertaken by the companies.

### Hedge Contract Incentives

Assume a two-way contract for differences (CFD) between a generator and a retailer with a simple all-hours strike price of $50 per MWh and a firm all-hours volume of 100 MW. This contract fixes the revenue of the generator and the cost of the retailer at $50 per MWh for the contract volume.

**Retailer Demand Reduction Incentives**

If the retailer had 110 MW of load, the additional 10 MW above the CFD level is purchased at unhedged spot prices, providing an incentive to pay customers to reduce load so long as customer payments are less than the potential losses from unhedged purchases at spot prices.

If the retailer had 90 MW of load and spot market prices were $500 per MWh, the difference between the strike price and the spot market price ($450 per MWh) is paid to the retailer (10 MW times $450 per MWh, or $4,500 per hour) and represents profits. The retailer can make arrangements to share these profits with large customers that have the ability to curtail load. Even if the large customer is on a fixed tariff (generally thought to be immune from price signals), the retailer can provide the signals for demand response to high prices.

These incentives only arise if the retailer is unregulated and allowed to suffer losses and keep profits.

**Generator Reliability and Bidding Incentives**

If spot market price is $500 per MWh and the generator is only producing 50 MW, the generator must purchase 50 MW of power at $500 per MWh and resell it to the retailer at $50 per MWh. This cash loss of $450 per MWh will provide a powerful incentive to the generator to keep the power plant operating and available. Further, the generator has a strong incentive to bid at or near the contract strike price to ensure plant dispatch and resulting spot price revenues when spot prices exceed the strike price.

Additionally, the generators have incentives to increase capacity above the CFD contract volume in order to maximize sales when spot prices are high.

Unregulated retailers have powerful incentives under this arrangement (i.e., fixed tariffs to customers backed by vesting contracts) to manage demand. The retailer can make significant profits by reducing actual load below the amount covered by vesting contracts, and can face losses if actual load rises above the amount covered by vesting contracts (see insert 2).

**b. Generators.** Properly-written vesting contracts can provide powerful incentives for generators to make their power plants available at times of high prices and high demand, to bid at reasonable prices, and to coordinate outages.

Availability of power plants is seen as a critical factor in California. If power plants in California had appropriate hedge contracts in place for a significant amount of their capacity, the incentives to keep that capacity online and in the market would have been significantly enhanced.

Similarly, such a contract can contain provisions for annual maintenance that are at times agreeable to the retailer (off-peak hours in off-peak seasons). The generator will accomplish maintenance outages in other times only after securing their own outage-specific hedge contract or backup source of generation.

High spot market prices alone will provide an incentive for generators to be available, but there is a difference in the behavior modification of a lost opportunity to make profits and a cash payment to a
counterparty. Lost opportunities to sell at spot prices can remove some profits from an otherwise profitable year, while the hedge payments can wipe out a year’s profits in a few days of high spot prices. (See insert 2)

3. **Avoid Price Caps and Distorted Markets.** Vesting contracts can be used to control the market as an alternative to other means such as price caps. Importantly, vesting contracts can be used to focus only on incumbent generators.

Imposing price caps on the spot market when supply is scarce provides the wrong incentives to new entry. Spot prices and the expectation of future spot prices drive the market for new entry. While it is too soon to determine the precise impact of price caps in California in reducing or delaying new entry, there is almost certainly some effect. Also, price caps have the effect of removing price spikes and corresponding incentives for the development of infrequently operated peaking units.

Some have sought to define a level of price caps that would be low enough to help out the utilities with unhedged spot market exposure and high enough to avoid deterring new entry. Better to use vesting contracts to hedge utility exposure and have no price caps. The long-term price cap in a competitive market is the new entry price. 19

Indeed, were California spot prices uncapped, developers might have had sufficient incentive to build peaking units based on portable aero-derivative gas turbines that would have been in operation before the summer of 2001. These units might have provided reasonable returns on investment in a short period while helping to avoid blackouts. With the current price caps and the expectation that even more onerous caps and refunds might apply, generators are likely to be shy about investing in California.

4. **Other Objectives.** Vesting contracts can be structures to help achieve other objectives in a deregulation plan. Phased expiration of the vesting contracts can facilitate a gradual shift to market-based contracts. Vesting contracts that are associated with customer demand and made portable (i.e., able to move to a new retailer, should the customer decide to leave the incumbent retailer) can facilitate customer choice and the new entry of retailers before the expiry of the vesting contracts.

Vesting contract packages can include contracts that cover the first few years of new entrants to facilitate fast start projects. Also, vesting contracts that are aimed at controlling market power can have expiration dates linked to events such as new entry online dates.

VI. **Vesting Contract Examples**

When an electricity market is initiated, spot prices will reflect the infrastructure already in place. The influence of existing infrastructure will decline as new entry, new contractual relationships, and new participant behaviors arise in the market. Vesting contracts can provide a useful transition to a more mature electricity market. Australia provides two examples of the transition to markets using vesting contracts:

- **Victoria.** The electricity markets in the Australian State of Victoria were deregulated in the mid-1990s. One of the drivers of deregulation was the high cost of installed over-capacity in electricity generation, as Government-owned utilities had invested heavily in large base-load coal stations. When markets opened, there was a potential for oversupply, exacerbated when new owners of the privatized power plants improved capacity factor and availability. The resulting spot market prices hovered at or just above the marginal fuel cost for much of 1996 and 1997. Vesting contracts acted to shield the newly privatized generators from severe financial losses.

- **South Australia.** In contrast to Victoria, the Australian State of South Australia entered the Australian National Electricity market in late 1998 with a potential shortage of generating capacity and a high reliance on imported power from...
other States, similar to California. Spot prices were very high.  

Vesting contracts in South Australia insulated end-use customers from price shock, meeting a Government promise that tariffs would increase at no more than inflation for the initial years. Vesting contracts also controlled the large potential market power held by the newly privatized generating stations.

The spot market was allowed to work without interference and significant new entry was committed early, only a month after the opening of the spot market. Opportunistic generating companies built small peaking stations in record time in order to profit from summer peak prices. Likewise, the incumbent retailer arranged demand-side deals (e.g., interruption) with customers in order to profit from high spot prices while helping control peak demand.

California seems to be between these two examples, but moving toward a shortage condition similar to that of South Australia, but without vesting contracts or market-based hedge arrangements. As in South Australia, vesting contracts could have helped ease the transition and ensured that California’s policy objectives (e.g., stable rates to consumers, stranded cost recovery, and security of supply) were met.

**VII. What Can be Done in California Now?**

Now, the most prudent course of action is to negotiate hedge contracts that will remove the utilities from the spot market. From reports in the press, this is being done, although the terms, conditions and prices in these negotiated contracts are not generally available. Further, the April 26 FERC Order requires utilities to have 95% of their load under bilateral contract or face penalties for non-compliance.

It is possible to obtain some of the beneficial effects of vesting contracts in negotiated contracts. However, it may not be possible to negotiate contracts at prices that are consistent with rate freeze levels.

High contract market prices and having to pay for contract features that might have been easy to obtain in vesting contracts are the detrimental result of waiting until high spot market prices occurred in California to arrange hedging for retailers.

California and other parties (such as the ISO) appear to be trying to “talk down” the prices of the negotiated contracts by raising issues that put future profits of incumbent generators in doubt. These issues include:

- Assertions that illegal acts by generators led to high spot prices;
- Threats of criminal actions against the owners of generators;
- Threat of significant new government-owned or government-facilitated generation in the state; and
- Price caps, both now and in the future.

These issues may have some impact on the prices negotiated with incumbent generators. However, the issues are likely to have a much larger negative impact on new entry. Power plant developers, investors and lenders will include these issues in their analysis of the profit and risk of a new power plant investment, reducing the attractiveness of projects in California. New generation plant investments in California already face significant environmental and siting hurdles. Adding additional uncertainties to future cash flow will further reduce the attractiveness of California as an investment opportunity.

Just as the threat of intervention will dampen new power plant investments, it will encourage customers to avoid participating in the contract market. Customer incentives to enter into hedging contracts have also been removed. Why would a customer negotiate a market-based contract to limit exposure to spot market prices when a combination of regulated retail rates and wholesale spot market price caps will do this for free?

When sufficient hedge contracts have been signed in California, the focus should turn to new entry. For California’s sake, the State should embrace an
unfettered spot market and “talk up” the prospects for much needed new entry soon after contract negotiations are complete.

VIII. Conclusions and Lessons learned

Valuable lessons can be learned from California, where there were no vesting contracts, and from other areas like Australia, where vesting contracts were used extensively. Vesting contracts are a powerful tool to allow the existing electricity industry to transition to open and functional markets.

Jurisdictions developing deregulation plans can, and should, use vesting contracts to prevent the financial crises seen in California. Vesting contracts can not only protect incumbent customers from spot market prices and retailers from bankruptcy, but can do so without the deleterious effects of price caps.

The California crisis should not be viewed as a sign that deregulation and electricity markets are unworkable. Instead it should:

• Remind us that spot market prices can be unpredictable and sometimes very high;
• Demonstrate that deregulation plans without appropriate hedging strategies are risky;
• Provide a demonstration that vesting contracts have a role in deregulation; and
• Show that being wrong on a bet-the-state electricity trade can be very expensive.

Endnotes:


2. South Australia entered the Australian National Electricity Market in late 1998 with very low reserve margins, much of which came from aging and inefficient power plants. The Government limited retail rate increases to the consumer price index (CPI) even though spot prices were much higher than those in California. Vesting contracts managed the risks of this arrangement, kept the retailer financially viable, and even made it possible to privatize the retail company.

3. It is not clear that vesting contracts could have totally eliminated the problems in California. Load and peak demand growth that exceeded expectations and adverse hydro conditions might have remained as problems on the margin.


8. U.S. Bankruptcy Court, Northern District of California, San Francisco Division, Case No. 01-30923 SFM, Chapter 11; in re Pacific Gas and Electric Company, a California Corporation.

9. MG (Metallgesellschaft AG) is a major German metal trading company. In 1991 MG, through a US subsidiary, entered the US heating oil and gasoline markets by offering 5 and 10 year fixed price contracts to retailers. MG hedged its exposure through the purchase of futures and OTC energy swaps and by buying an
interest in an oil exploration firm. By late 1993, MG was long in energy derivatives by about 160 million barrels and faced falling oil prices. MG liquidated its hedge positions in December 1993 for an amount reported to be more than $1.3 billion.

10. Barings Bank was a traditional British merchant bank that collapsed in early 1995. The Singapore office of Barings Bank accumulated a very large long position in Nikkei stock index futures and Japanese government bonds. When the Japanese equity markets collapsed in January and February of 1995, the resulting margin calls exhausted the Barings Bank reserves.

11. LTCM (Long Term Capital Management) is a hedge fund. In December 1997, LTCM managed about $7 billion of client money by a complex strategy of statistical arbitrage, with leverage bringing the gross position of the firm up to about $100 billion. LTCM’s statistical arbitrage strategy worked well from 1994 to 1996. However, in mid-1998, defaults of Russian bonds led to a cascade of events that forced LTCM to liquidate it positions in a declining market to meet margin calls. LTCM was reported to have lost about $4.5 billion.

12. The term “retailer” is used here to refer to the retail function of the incumbent vertically integrated utility, whether or not the retail function is in a separate entity. Most regulated distribution companies in the US market are also retailers because they retain some customers or have provider of last resort obligations. A very important lesson from California is that the retail function is risky, whether it is embedded in a larger company (i.e., a regulated utility that also has generation, transmission, and distribution businesses) or it is formed into a single-purpose retail company.

13. The term “generator” is used here to refer to the supply side of the market. This may include unregulated generators, regulated utilities with generation, holders of contracts with generators, or other parties that participate in the supply side of the wholesale market.

14. The natural hedge in a vertically integrated utility may consist of a mix of power plants, power purchase agreements, power sales agreements, and other things. All these can be a part of a vesting arrangement. While vesting contracts may be able to preserve portions of the natural electricity price hedge inherent in a vertically integrated company, transferring the obligations and rights of the parties into bilateral contracts will certainly add new risks and more sharply define other risks for both parties.

15. A base load generator with a 4-unit power plant might normally seek to fully contract only 3 units, leaving the fourth unit in reserve for self-insurance against performance risk. If the generator is subject to vesting contracts that cover all four units, other insurance contracts (e.g., with a peaking generator) may be included in the vesting package to reduce the financial risks held by the base load generator. See the Vesting Contract final determination for South Australian Treasury at www.ACCC.gov.au (under Electricity, Authorisations, Other Applications) for an example of a vesting contract package with high contracting levels and concomitant insurance contracts.

16. See www.ACCC.gov.au (under Electricity, Authorisations, Other Applications) for examples.

17. Memo on 2001 Market Stabilization Plan from ISO staff (including Ziad Alaywan, managing director, engineering and training; and Lorenzo Kristov, manager, market design), to the ISO Board of Governors, March 12, 2001; and Order establishing Prospective mitigation and monitoring plan for the California wholesale electric markets and establishing an investigation of public utility rates in the wholesale Western energy markets, 95 FERC ¶ 61,115, April 26, 2001.

Ironically, the situation in California may provide an exception to this. If spot market prices are capped and viewed as uncertain due to potential re-regulation or continued price caps, new entry may be delayed. This would lead to continued shortages, an increased reliance on price caps and other intrusive measures that further stifle incentives for new entry, and so on.

While price caps are in place in Australia, these caps are at high levels. The price cap is now at AUS$5,000 per MWh, with prices occasionally hitting the cap in South Australia. The price caps will be increased to AUS$20,000 per MWh over the next several years.

International Power’s Pelican Point combined-cycle power plant was developed on a very fast schedule, beginning with the purchase of a Government-owned site that had received preliminary permits and approvals and a short-term hedge contract that formed part of the incumbent retailer’s vesting contract package.

It was reported that Gov. Davis has a preference for “an active role by a public power authority to make sure that we build enough power plants...” “...until we have a clear surplus of power over demand – by that