

# Managed Competition in California's Renewable Energy Industry

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# California Renewables: Objectives and Status

California has aggressive and explicit targets for development in every aspect of the clean energy sector. For renewable generation the targets are:

- 20% of total generation by 2010
- 33% of total generation by 2020
- In 2004 California produced 10.2% of its electricity from eligible renewables:

Wind	1.5%
Geothermal	4.8%
Biomass	2.0%
Solar Thermal Electric	.3%
Small Hydropower	1.6%

- The state does not count large hydroelectric, which contributed 14.9%

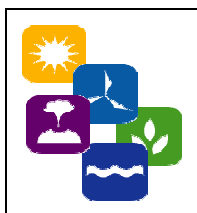


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# These Aggressive Goals are Achievable

Can California reach its renewable energy goals? Estimates suggest that we have more than enough technical potential.

**29,965  
GWh/yr**



**2003 – 12%**

**55,170  
GWh/yr**



**20% by 2010**

**262,150 GWh/yr**



**Technical Potential**

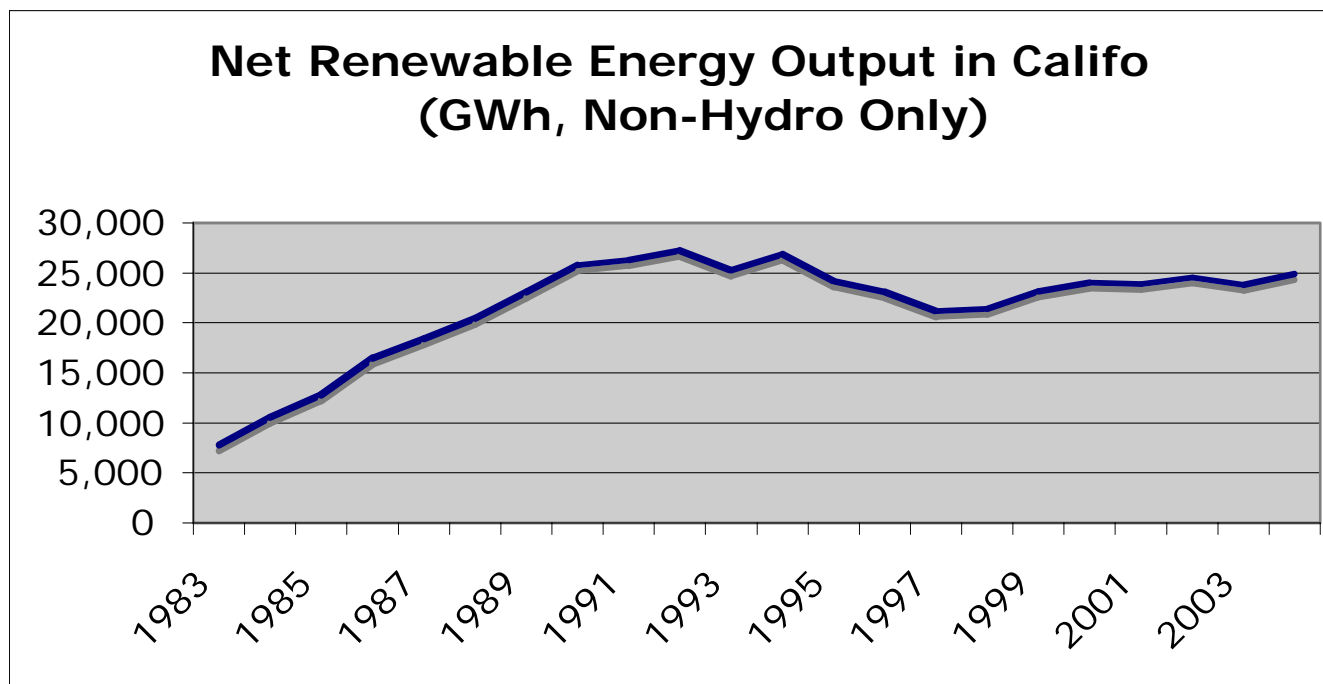
Source: California Energy Commission



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## Renewable Energy in California - Changing with Market Design Trends

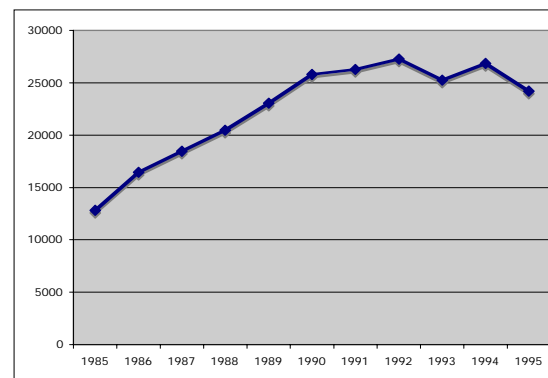
- For decades, California led the US and the world in renewable energy procurement via its public and investor-owned utilities.
- From its peak in the early 1990s, however, renewable generation declined amidst the uncertainty leading up to deregulation.



## Phase 1 (1978-1995): Mandatory Purchases, Increased Capacity, Stagnant Technology

- The early surge in renewables development, in the period between the OPEC crises and the restructuring experiment, was the result of mandatory purchase obligations.

- Electric utilities were compelled to sign long-term power contracts, at non-competitive prices, with any renewable generators using eligible technologies.



- While California managed to add substantial renewable resources, there was little incentive for generators to consistently improve their technologies or to provide power at lower prices.

- Lack of discipline, which competition can provide *if properly designed*, led to a lag in technological advancement in this period.

## Phase 2 (1996-2001): Renewables in the “Free” California Electricity Market

California’s move to competitive retail electricity forced the state to choose:

- Continue to rely on guaranteed contracts and no competition, or
- Design a system that would force renewables to compete for subsidies, but would not guarantee new generation.

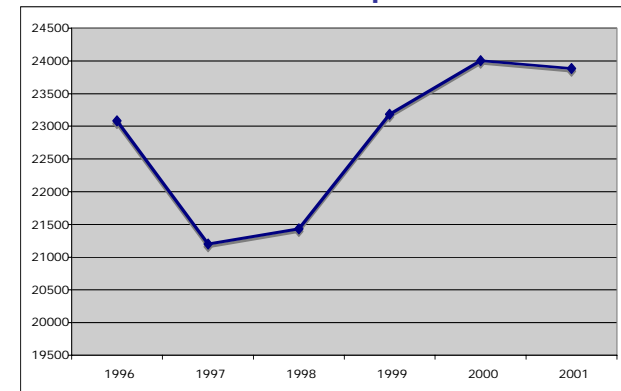
The state chose the latter approach, hoping to bring renewables into the mainstream and improve their ability to displace traditional fossil resources without financial support.



## Phase 2 (1996-2001) Supporting “Green Choice” in Competitive Markets

- As part of the restructuring process, California established a *reverse auction* for renewable energy subsidies:

- Renewable generators would compete against one another for public funds, with the lowest bidder winning.
- Generators would separately offer their renewable power to customer via the new, non-utility energy service providers (ESPs).



- This approach had great economic merit, but never had a chance to prove itself:
  - The collapse of the entire wholesale electricity market in 2000-2001 took the renewables auction down with it.
  - The auction worked - but the electricity market did not.
- **Uncertainty destroyed development incentives.**



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## Phase 3 - Rebuilding from the Crisis: The Middle Way, or Managed Wholesale Competition

- The systemic failure of the California marketplace allowed us to fundamentally reconsider how best to support renewable energy.
- The Renewables Portfolio Standard was designed to combine the best elements of competition - lower costs over time, technological improvements - with the stability and certainty of the regulated utility model.
- This is competition at the *wholesale* level, mediated by the utility and the regulatory body, while *retail* electric service remains stable and predictable.



# Inside the California RPS Bidding Process

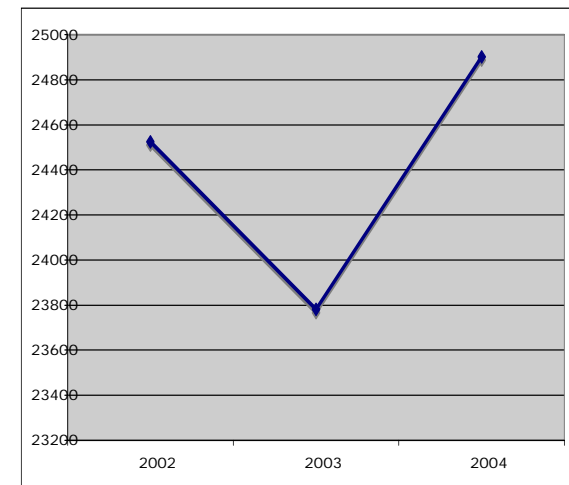
- The process begins with the submission of an RPS plan by the IOU, reflecting its needs for renewable power in the given year.
- The CPUC reviews the plans, amends and approves the plans.
- Utilities solicit power from renewable generators.
- The state calculates a “Market Price Referent” on the basis of the long-term avoided cost of natural gas generation - including hedging to achieve a fixed price
- Utilities pay costs up to the MPR; remaining costs must be paid from a public subsidy fund.
- Generators must compete for these subsidy funds.
- **The prize: long-term, fixed price contracts (10+ years)**
- Final contracts are approved and construction commences.



# Is “Managed Competition” Working in California?

- How well has the RPS balanced competition and steady development of clean energy infrastructure?
  - Between the first RPS solicitation by the utilities in 2004 and October 2005 , the state approved contracts for up to 3,000 MW of new renewables:

	<b>Total</b>
Wind	646-893
Wind Repowering	120-135
Geothermal	30-120
Biomass	106-131
Solar Thermal Electric	800-1750
Small Hydropower	0
<b>TOTAL</b>	<b>1707-3033</b>



- **Another 2,500 MW** have been approved since October 2005.



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# Is “Managed Competition” Working in California? - Concluding Cautions

- No public subsidies have been needed - yet
  - The increased cost of natural gas has made renewables look cheap
- The challenge now is to get these plants built efficiently, and develop enough transmission to deliver their power.
  - Transmission siting and cost are major obstacles for California.
- The economics of our system are dependent upon movements in fossil fuel prices - natural gas is the reference price.
- If gas prices drop, the price our utilities are obligated to pay will drop too - and renewables will appear less competitive.
- Renewable development reduces gas demand, and thus can reduce the price renewables receive.
- Competition is a two-edged sword.



# Comments or Questions?

Please feel free to contact me:

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