Implementing Electricity Customer Choice In Nevada

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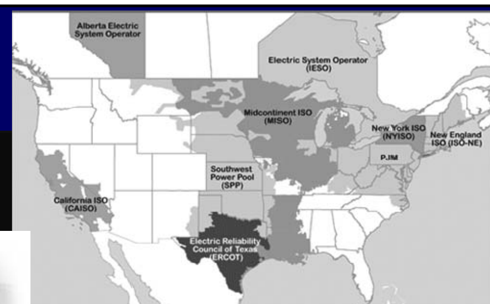
The Texas Experience

The Utility Business

Generation: subject to competition

Transmission & Distribution: Natural monopoly (for now)

Retail: Not a natural monopoly, although a legal one in some states



Today's Competitive Wholesale Markets

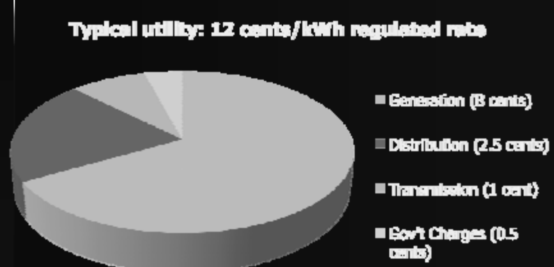
Precursors to Competitive Texas Market

- 1995: Wholesale competition bill
  - Non utilities allowed to generate/sell
- 1996: ERCOT was nation's first independent system operator
  - Open access across grid
- No more regulated generation
- Rates held up to pay down generation in advance of retail competition

Key Features of Texas SB 7 (1999)

- All IOU customer classes open to competitive choice: 1/1/2002 (30 mos)
- Competitive businesses/costs unbundled
- Stranded generation cost calculation
- Market based renewable portfolio std
- System benefit wires charge (low income, efficiency, customer education)
- Coops, munis not opened up, opt-in

Cost Unbundling



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Key Texas SB7 Aspects

- Customers start with affiliated retailer. Initial rates capped for 5 years (Price To Beat). No discounting permitted.
- Price Cap could rise if natgas costs did
- Headroom for competition: key goal
- Uniform terms/cond'ns wires co. tariffs
- ISO: switching/billing clearinghouse

Other Key SB7 Features

- Power To Choose website; Facts Label
- PUC led Education Campaign
- Property Tax and Union provisions
- Provider of Last Resort bid out
- Retailer certification

First Five Years

- PTB price changes due to higher gas cost created headroom
- Customer switching became very robust after 2005 Hurricane season
- Stranded costs calculated, securitized
- State budget cuts Low Inc/education $
- Retailer bankruptcies; customers moved to Provider of Last Resort

Second Five Years

- Full freedom for affiliated retailers
- Feb ‘08 power outage: forecasting
- Energy market price cap moved up
- June 2008 Natgas price shock
- Smart meters installed statewide
- First statewide transmission planning process begun under CREZ
- Huge influx of wind energy investment

Last Five Years

- CREZ $7b transmission built
- Energy Futures (TXU) bankruptcy
- Capacity Market debate
- Wind hits 18 GW; Solar market entry
- Abundant retailer offerings

Results: Retail Prices

TDU Area	Best Rate	REP	2001 Reg'd Rate	Change	2001 Rate adj for Inflatio n	2016 rate Decr Inflatio n adj
AEPC	5.6	Infuse Energy	9.6	-42%	12.77	-57%
AEPN	5.0	Frontier Utilities	10.0	-50%	13.20	-63%
CenterPoint	5.2	Summer Energy	10.4	-50%	13.7	-63%
Oncor	4.5	Summer Energy	9.7	-54%	12.8	-66%
TNMP	5.0	Frontier Utilities	10.6	-53%	14.0	-65%

As of 10/13/16 for 1000 kWh, 12 mo fixed residential rate product; courtesy PUCT Chmn. Donna Nelson

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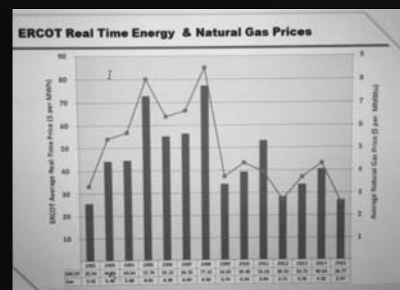
Results: Wholesale Prices



ERCOT IMM Report, 12/13/2016

Why Do This?

- Better Customer Price & Service
- Economic Development
- Technology Innovation

Why Do This Here?

- NV already has smart meters: enables clean energy deployment, empowers customers to embrace energy efficiency & load shifting
- Great location in Western Grid = Gen Hub
- Size doesn't matter
  - Successful retail choice in Rhode Island, Delaware, D.C.

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Basics for a Nevada Market

- Stakeholder involvement w decisionmakers' oversight
- Wholesale market foundation (or equivalent independent market facilitator)
- Transition period
- Separate regulated wires business from competitive businesses
- Unbundle rates, modernize wires tariffs
- Stranded cost recovery
- Default service (Texas model vs. other states)
- Customer education campaign

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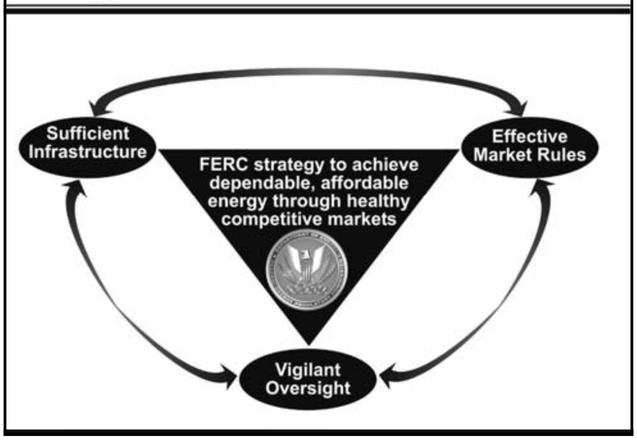
Who Would/Could Do What?

FUNCTION	WHO HANDLES or DECIDES?
Generation Siting	PUCN or purely local
Distributed Generation	Competitive providers, distr utility
Gen Dispatch/Financial Settlements	FERC via RTO/ISO/wholesale mkt
Wholesale Power Market Oversight	FERC
Transmission Siting	PUCN (also regional plan process)
Transmission Rates	FERC
Distribution Siting & Rates	PUCN
Retail Service Provider Certification	PUCN
Retail Rates/Service Offerings	Competitive Retailer
Retail Power Market Oversight	PUCN
Renewable, Efficiency, Low Income	PUCN (or other state agency)
Customer Education	PUCN, Competitive Retailers

What To Worry About

- Inadequate customer education
- Timing of generation investment
- Coordination with neighboring states
- Inadequate prep for disruptive technology
- Political interference

Making Markets Work



Robust Infrastructure

Reliability Regions
are separate entities